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Optimal scheduling of a Flexible Manufacturing System according to the restrictions of the market demand (Game Theory Model)

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Abstract

Purpose – Its purpose of the paper is to indicate the utility of the Mathematical Game Theory in programming the flexible manufacturing systems when the system works with restrictions of the market demand.
Methodology/approach – To achieve the goal, a program was created, using the Python syntax, and applying the Game Theory to the Flexible Manufacturing System. Results are presented analytically and graphically.
Findings – Game theory can be used successfully even when the system is operating with restrictions. The actual demand, on any market, is completely random, and this model handles this case.
Research limitations/implications – The program identifies the size of the production when it is working after the game theory, the conditions of the market are full field and, at the same time, the system is positioned on the optimal value of the costs.
Practical implications – In practical terms, the program was tested on a concrete example of an enterprise and can be applied to any manufacturer who works with a flexible manufacturing system.
Originality/value – A method for solving the scheduling of the flexible manufacturing systems that are restricted by the market demand and the design of the program are the original values of the paper.

Key words: *Flexible manufacturing system, programming, random demand*

Introduction

It is known that the game theory is a powerful tool for flexible manufacturing systems developers because it can create a balance between the two trends that appear in these systems:

- The market, which tends to require more diversified products to satisfy the costumers needs;
- The production system wants to make as few transitions as possible in order to decrease changeover costs;

The most significant costs in the flexible manufacturing system are the transition costs that measure the effort of the system to adjust its setting necessary for producing a current product, to produce a new product.

Game theory indicates the proportions in which the products must be manufactured in order to fit to the optimal costs. The optimal cost is represented by the value of the mathematical game, which represents the average loss and gain of the two players.

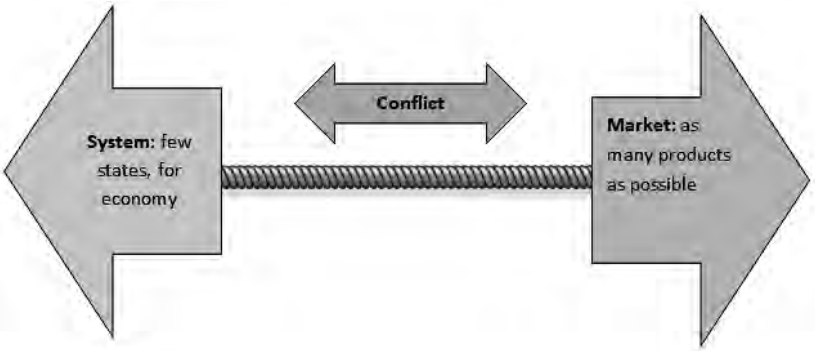


Figure 1 – The conflict between market and flexible manufacturing system

In the scheduling of the flexible manufacturing systems, there are two types of input methods. First, when the products enter the system after a predetermined order and second, when the products enter the system completely random, without a regular periodicity. The second situation will be discussed below. The program is based on another version that was already developed and presented in other research articles.

Planning the Research

The research will be made on a series of real products, from an industrial enterprise. The program indicates the strategies rankings provided by the game theory that can be produced and the proportions in which they must be produced in order to achieve the optimal value, calculated theoretically. The current program will be asked to produce a minimum yield of products in the form of restrictions. That means, that product may be produced after the frequencies provided, but there will be needed some minimum amount according to the market demand. This program shows the size of the production amounted in order to obtain optimal parameters while the market demand is satisfied.

If the system indicates that there can be produced only certain types of products, in order to reach the optimal situation, and market demand is higher, those products will not be produced because they get the system out of the optimum. However the decision to produce the requested amount is necessary because we live in an era of consumption, where selling is the most important activity. Thus, when the product is requested, we will have to meet the demand.

The program will apply the game theory on the transition costs matrix that indicates all the transition costs of the system at any stage, corresponding to a product to another stage. Transition cost matrix was constructed using the methodology used in the literature (Abrudan, 1992). In this matrix, the minimized player has its strategies on the column, and the maximized player, on the line. The strategies will be chosen sequential so that the interest of every player is achieved.

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15
P1	0	5	9	8	14	12	13	10	2	6	4	7	3	11	1
P2	2	0	10	9	13	12	14	11	4	7	6	5	3	8	1
P3	10	13	0	1	6	5	7	4	8	2	3	11	9	14	12
P4	9	13	1	0	8	4	10	2	5	6	3	11	7	14	12
P5	12	14	5	4	0	2	1	3	10	6	8	7	11	9	13
P6	12	14	5	4	2	0	3	1	10	8	6	7	11	9	13
P7	12	14	4	5	1	2	0	3	10	6	9	8	11	7	13
P8	12	14	5	4	2	1	3	0	9	10	7	6	11	8	13
P9	2	5	8	7	12	11	13	10	0	6	1	9	4	14	3
P10	5	7	2	4	11	10	12	9	3	0	1	8	4	13	6
P11	3	6	8	7	12	10	13	11	1	5	0	9	2	14	4
P12	4	2	8	6	12	11	13	9	7	10	5	0	1	3	3
P13	2	5	9	8	13	12	14	11	4	7	3	6	0	10	1
P14	9	2	13	10	7	5	8	4	12	14	11	1	3	0	6
P15	1	3	9	8	13	12	14	10	4	7	5	6	2	11	0

Figure 2 – Transition costs matrix

Flowchart of the program is shown in Figure 3. The program applies the mathematical game theory in order to identify the proportions in which the strategies (products) must appear to produce economically.

The game is running as follows: in the first game, the maximized player (line) identifies the highest value in the table and activates the strategy (line) that is appropriate to that value. The minimized player will try to balance the game and will enable the column that corresponds to the lowest values of the line of the maximized player. The maximized player will choose then the strategy (line) corresponding to the highest value of the column chosen by the minimized player. The game continues until it is being stopped (all the requested products have been manufactured).

The program centralizes how many times each strategy was chosen by the players, and indicates the loss and earnings of each player in each game. The total value of the game is the average of the loss/earnings in each game.

This program will start the game and will be stopped only when the required number of strategies (ie products) is achieved and, at the same time, the theoretical value of the game is reached. This value is calculated by theoretical mathematical algorithms and represents the most favorable value of the average transition cost.

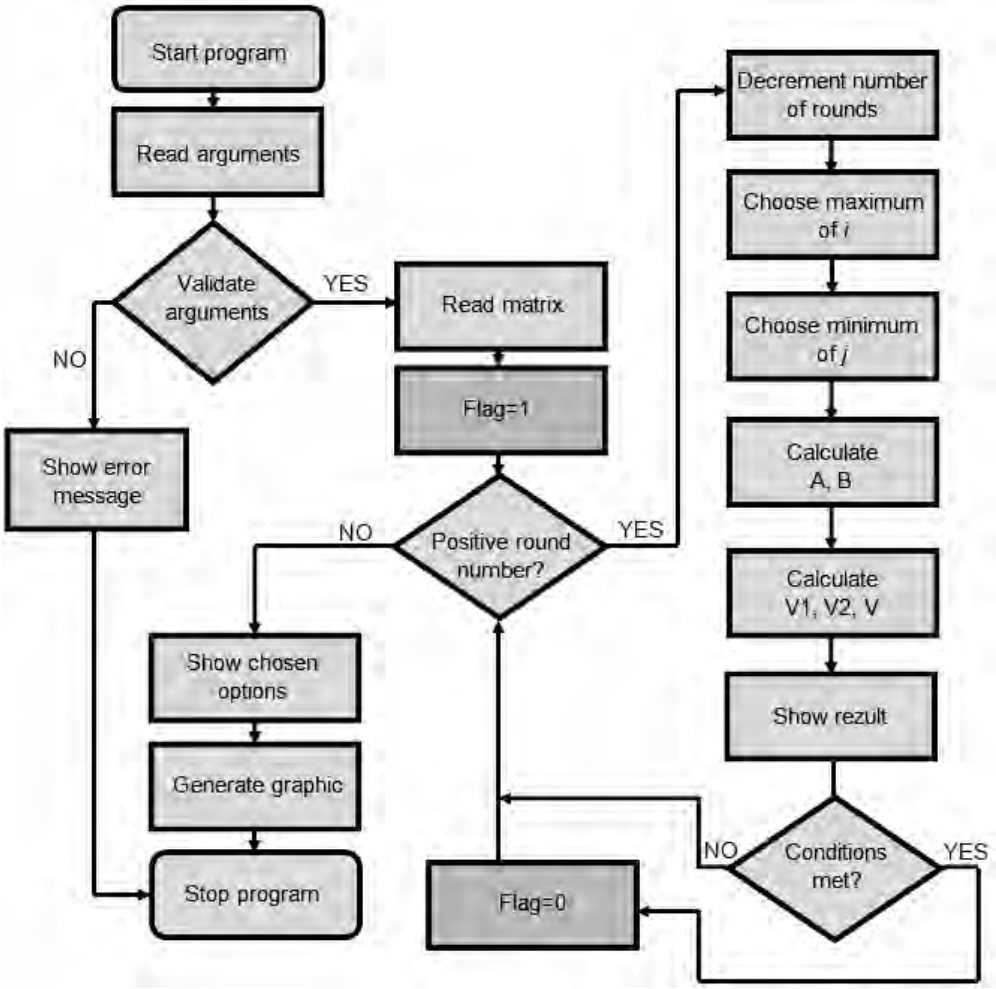


Figure 3 – Flowchart scheme of the program

The program reads the transition costs matrix from an Excel file "matrix.csv" and then runs the following command:

- **Sff1 v <player> #$_1$, #$_2$, #$_3$, #$_4$,…, #$_n$** , significance of the following:
  - **Sff1 -** executable program name;
  - **v –** theoretical value of the game;
  - **<player>** This command indicates the player that is taken into account. In our situation, the minimized player is - *j* and the maximized player is *I;*
  - **#$_1$, #$_2$, #$_3$, #$_4$,…, #$_n$** – are the numbers representing the minimum requirements of the strategies of the chosen player (ie the minimum demand). Numbers are integers, separated by commas, and are between 0 and n. All numbers should be noted corresponding to each strategy.

As a result, the program will indicate the number of the game in which the indicated conditions were reached, and also theoretical value of the game is reached. It will also show the game play, found in Figure 4, and will summarize the results, found in Figure 6. Besides these results, the program will indicate the trend graph of the two players.

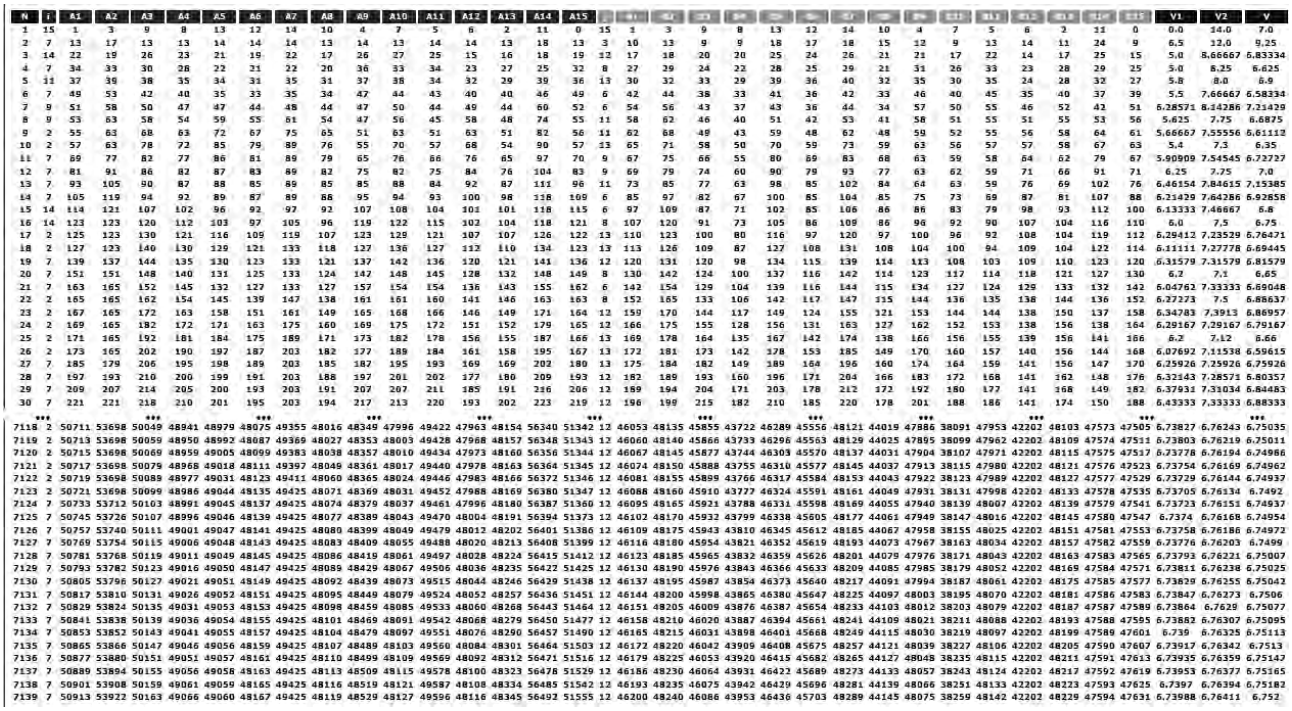
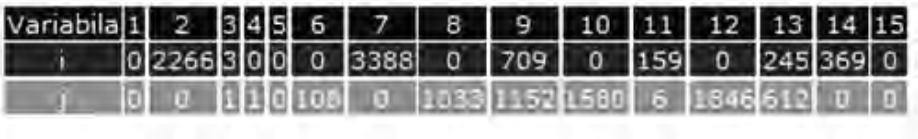


Figure 4 – Playing the game - the first and last games



Variabila	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
i	0	2266	3	0	0	0	3388	0	709	0	159	0	245	369	0
j	0	0	1	1	0	100	0	1033	1152	1580	6	1846	612	0	0

Figure 5 – The centralization of the strategies chosen by the program

Results and Conclusions

The results help to the scheduling of the flexible manufacturing systems. The number of the chosen strategies divided to the total number of parties indicates the relative frequency of occurrence of the products in the system, represented by the player's strategy, so that the transition costs are minimized. If these frequencies are met, the system will produce economically and there will be an optimal balance between the diversity of production and the states of the manufacturing system. An advantage of this program is that there may be impose conditions to the system, according to market demand. Of course all the conditions can cause imbalances manifested in excess production of some goods. This problem must be solved by mobilizing the marketing department to sell the excess products.

The utility of the program for the programmer of the flexible manufacturing system is to indicate the relative amount of products that need to be produce as to fit in minimum costs. Also, the programmer can enter the market conditions obtained for dimensioning the production, in economic parameters.

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Assessing and managing the water quality risk – a way to attend sustainability

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Abstract

The paper presents different aspects of interest found during hazards pre-assessments of priority dangerous substances discharged in sewage system by different economic agents and the way their discharges should be regulated. The used methodology is based on sustainable development approach principles such are: "polluter pays principle", "precautionary principle", and "intergenerational equity principle". It is designed as a site examination of activities, raw materials, products and services and analytical test reports of the sewage-discharged wastewaters. The obtained results are used to evaluate hazards. An expert value judgment multi-criteria approach substantiates the evaluating process. In those screenings, we found heavy metals in ranges of tens of μg/L. We compared the obtained values with the stated limits in different legal regulatory documents and critically discussed some challenges in applying the law for permit purposes in order to find a possible optimal course of action in managing the risk of water bodies of not having the required quality. The new methodology is of practical use being successfully tested at different economic agents discharging in a municipal sewage system.

***Key words**: risk, methodology, management*

Introduction

The way economic agents are treating pollution either as an undesirable or as a normal output result of their activities can influence the cost estimates and prices of pollution abatement at the point of discharge at the municipal sewage. This has an impact on the entire polluters' community discharging in a certain sewage area and finally on the water body. Since we live in a finite world, any economic development in long term should be environmentally and socially sustainable. In this respect polluters should adjust their profits by sharing their maintenance sewage and decontamination costs for preserving the good potential for water quality having essentially two options to decide which one is more appropriate. These options are: 1) they can treat pollution as an undesirable output which has as a result their profit abatement or 2) they can treat pollution as a normal input in the production process but this time they are forced to modify the price of products and their competitiveness on the market. The last approach is usually dictated by the type of market they are involved in and their position on this market. Priority dangerous substances are subject of international, European and national legislation being toxic, persistent and bio cumulative. They are classified in three categories as volatiles, semi volatiles and metals. They are regulated in different legal documents. (Governmental Decision nr. 352/2002; Governmental Decision nr. 458/2002; Governmental Decision nr. 351/2005; Governmental Order nr. 31/2006; Governmental Decision nr. 1038/2010). The limits for their discharge are set according to current growing evidences about their detrimental effects for aquatic environment and finally for human health.

Governmental Decisions nr. 351/2005 and nr. 1038/2010 are two legal documents including actions to be taken for the progressive reduction and elimination of priority dangerous substances from water body discharges in Romania. To be able to take appropriate risk control actions, a hazards pre-assessment of those substances when exceeding the law requirements limits, should be carried out. In the Governmental Order nr. 31/2006, the required hazards pre-assessment is called screening and it is view as an analysis based on good and reliable criteria for assessing the hazards and vulnerabilities. The legislation requires discharges of those substances to be regulated by permits. This way, the pollution of water body where the sewage used waters are discharged either through a municipal treatment plant or without one is supposed to be under control, each polluter being forced to pay the de-pollution costs in order to reach the required legal limits.

Theoretical Bases

Following up a number of economic agents' applications a number of screenings have been carried out at each polluter' sites during September 2010 and April 2011. Those screenings are required in order to obtain the discharge permits. For this purpose we designed a methodology based on sustainable development approach principles such are "polluter pays principle", "precautionary principle", and "inter-generational equity principle".

The methodology uses specific designed procedures in order to collect and evaluate evidences to be used in those pre-assessments. Through these procedures we collected analytical evidences about the quality of the discharged wastewaters in a point before entering the sewage system. In this respect a set of analytical tests have been performed on samples taken from this point. We collected also evidences about site activities, products and services. In this respect a comprehensive examination has been performed during a site audit. Finally we analysed if used waters discharges pose a risk through the presence of priority dangerous substances both on the sewage system and further on the water body and if their presence is a constant one.

If a dangerous substance is found present in the sewage used waters discharges and its concentration value - reported as a maximal admissible concentration - is greater than the environmental standard limit for the corresponding water resource use[1], then the sewage system can be considered to be put under a pollution stress. In this situation the hazard is real but we should check also if the yearly average concentration value exceeds the stated limits in Governmental Decision nr. 1038/2010. If the dangerous substance is not found present in the sewage used waters discharges or if its concentration value - reported as a maximal admissible concentration - doesn't exceed the environmental standard limit for the water resource use, then the sewage system cannot be considered to be put under a pollution stress. In this situation there is no real hazard.

The sewage eco-system is not exposed and the monthly monitoring requirements necessary for checking if yearly average concentration value exceeds the stated limits can be applied only in a special contextual sewage area - low flow rates, other economic agents discharging in the area large amounts of substances stated in Governmental Decision nr. 1038/2010 or other substances that can interact with those ones.

The Governmental Decision nr. 352/2005 in conjunction with Governmental Decisions nr. 351/2005 updated by 1038/2010 are prescribing environmental limits for the dangerous priority substances according to the use of water resources. In the case of the sewage used waters the limits are stated for two situations: when the used waters are directly discharged into the water flow and when they are discharged through a wastewater treatment plant. When they are discharged directly into the water body the different hazardous substances concentrations should be in ranges that don't expose the eco-system for maintaining the potential good quality of water for human consumption.

[1] in this paper, water resource use is sewage wastewater (see the limits stated in Governmental Decision nr. 352/2005)

Besides the performed analytical tests at the economic agent point of discharge, a site audit is carried out to investigate the existence of dangerous priority substances in used raw materials in connection with activities, products and services as well as the possibilities of those substances to reach the sewage system and further the water body in normal or emergency situations. A major source of information is represented by safety materials data-sheets. With the gathered evidences from site audit and analytical tests, a technical document is presented for the hazards pre-assessment.

In this technical type report the possibilities and probabilities of those substances to be a constant and consistent presence in concentration ranges exceeding the stated limits - causing this way significant pollution with consequences of different severities - are analysed and critically discussed. It is based on experts' value judgements using the following criteria types:

1. environmental technical criteria – exceeding or not the limits, technical decontamination possibilities etc;
2. economic criteria related to the de-pollution costs involved in reaching the required limits;
3. socio-acceptability criteria related to the way the local citizens groups are affected by the pollution taking into account the latest findings in relation to eco-toxicological effects of those substances and also
4. political acceptability criteria related to the way the decision makers find the proposed regulatory measures acceptable for their short and long term economic development.

Finally, the proposed regulatory measures represent money economic agents should pay either for enforcing their pollutants monitoring process for demonstrating they stay within the required limits or for the construction of de-pollution facilities in order to reach them. In each case the two alternatives available for the economic agents should be balanced according to the findings and local area pollution context.

The criteria can be ranked using a MCDA (English acronym for Multiple Criteria Decision Analysis) methods or algorithms. One of those methods/algorithms that we propose to be used in order to reach permitting decision following the screening conclusions is AHP (Analytical Hierarchy Method) which is based on pair wise comparison of criteria/alternatives.

The data from this report – the relevant priority/priority dangerous substances inventory - can be used further to assess the risk for water body quality.

Experimental Data

In the following discussions we present as a relevant example heavy metals. The Governmental Decision nr. 352/2005 regulates those metals in the order of hundreds and thousands of μg/L /litter. In order to detect those metals in sewage used waters discharges the used analytical techniques should have:

1) good detection limit – the LOD – (English acronym for Limit of Detection) - the used method detection limit should be lower than the permitted content in the sample by at least one order of magnitude;
2) high sensitivity in the range of interest and good robustness;
3) an adequate acceptable uncertainty. (Zhengzhi, Li 2002).

Listed metals in the Table 1 have been found with higher prevalence in sewage discharges from economic agents involved in a variety of industrial activities and service such as: metals processing, building and construction materials, paintings, coatings, chemicals production etc. In the performed screenings they have been detected in the range of tens of μg/L using ICP-OES – Inductively Coupled Plasma – Optical Emission Spectrometry.

Table 1 presents a comparison among concentrations limits for priority dangerous substances stated in three legal documents: Governmental Decisions nr. 351/2005 updated with nr. 1038/2010 and nr. 352/2005 the last one being specific for used waters discharged in the sewage

system. The updated limits from Governmental Decision nr. 1038/2010 shows a stricter approach. Why are the limits so strict? Which is the context when the decision of applying stricter limits should be taken? Those are questions that we are trying to respond.

Table 1 - Required limits for waters of different use

CAS Nr. (Chemical Abstract Service Nr)	Substance Name	Required limits for used waters discharged into a sewage system according to Governmental Decision nr. 352/2005	Required limits for used waters discharged directly into a water body coming or not from an upstream treatment plant according to Governmental Decision nr. 352/2005	Required limits for potable water according to Governmental Decision nr. 458/2002	Required limits for priority/priority dangerous substances according to Governmental Decision nr. 1038/2010	Prior required limits for priority/priority dangerous substances according to Governmental Decision nr. 351/2005
		<in μg/L> (momentarily value)	<in μg/L> (momentarily value)	<in μg/L> (momentarily value)	<in μg/L.> (annual average)	<in μg/L.> (annual average)
1	2	3	4	5	6	7
7440-50-8	Cu	200	100	100/2000 [1]	1.3	1300
7440-66-6	Zn	1000.00	500.00	5000	100.00	-
7440-02-0	Ni	1000.00	500.00	20	20.00	1300.00
7439-98-7	Mo	-	100.00	-	3.60	3600.00
7440-48-4	Co	-	1000.00	-	0.70	700.00
7440-47-3	Cr	1500.00	1000.00	50	2.50	2500.00
7440-39-3	As	-	100.00	-	7.20	7200.00
7439-92-1	Hg	-	50.00	1	8.05	1000.00
7439-92-1	Pb	500.00	200.00	-	7.20	400.00

[1] when elements of water distribution network system are made of copper

Results and discussions

The tightening of the discharged limits for the priority dangerous substances is supported by the growing evidences about their cell metabolic toxicity. With reference to heavy metals though, it should be noted that some of them in certain trace amounts are required as micro-functional elements for the cell health. Their toxicity starts only from certain concentration levels that are different among species.

Some species can be tolerant of larger amounts than others. With respect to the municipal wastewater treatment this is of great interest. The tolerance can be used to make municipal sludge biomass adapted to metals content inputs fluctuations when those used waters are discharged into the water body through a treatment plant.

However, it should be noted that biological treatment has some limitations when it comes to degrade different wastewater types with very high heavy metals content. (Ufuk Alkan et al., 2008) The metals become toxic and the growth of the microbial biomass is affected and thus the efficiency of the treatment. (Principi, Villa, 2006). Therefore, the abatement of metal content at source of discharge should be always the strategy of choice.

When used waters are discharged into the water body not through a treatment plant but directly, the things are getting complicated because the limits should be established in order to preserve

the entire water body eco-system from being damaged as we have already mentioned. In this case the limits are based on eco-toxicity studies.

In column 4 -Table 1 are presented some examples of metals limits as they are stated in Governmental Decision 352/2005 for the wastewaters discharged directly into a water flow. Comparing the limits from column 4 with those from column 3 of the same Table 1 we see a difference of one order of magnitude between them. The limits for used waters discharged into the sewage system are less strict because they usually go into a municipal wastewater treatment plant and thus is supposed that the stricter limits stated from column 4 can be reached.

However, there are situations when this is not happening because of a high metal content of the discharged sewage wastewaters. When stated limits in columns 3 and 4 are supposed to be insufficient to reach the safe limits for the water body, depending on local area context of wastewaters discharges, stricter limits can be enforced in order to prevent shock inputs that can stress the municipal biological treatment stage compromising its nominal decontamination capacity.

To prevent this situation, the first step is to regulate the sewage discharges at each polluter by periodically revising their discharge permit enforcing “polluter pays” and “precautionary” principles in order to be cost effective in the reduction and elimination of priority dangerous substances. That means each economic agent should take necessary measures including building local wastewater treatment plant to ease the load of the downstream municipal treatment plant when over one year, constantly, the stated limits have been exceeded.

When there is a suspicion that Water Directive objectives cannot be met, the regulatory body is allowed to enforce the law requirements. The restrictions can reach up to the stated limits in column 6 that are extremely low. The challenge here is that BAT (English acronym for Best Available Techniques) are not all the time capable to reach the required limits that are in the range of 1-10 μg/L.

In addition, when comparing legal present limits for potable water, column 5, with the new limits that might be applied when the regulatory body found insufficient the current standards, column 6, we reach the paradoxical situation when the regulator cannot require a state of the art technique in order to reach the recommended enforced permit limits because that technique will be, from the very beginning, cost prohibitive for any economic agent all over the world.

As the law is made to accommodate a large range of situations and to create the necessary frame to solve all possible conceivable cases, the established limits should be applied contextually and in a flexible manner when the receiving water flow is a potable one.

For other type of water flows only a well sustained documentation made by experts in the field can justify stricter limits than those corresponding to the water resource use.

Conclusions

The process of stating environmental limits is a complex one. As going by known definitions, in a society/economy, the public good is non-rivalry and non-excludable.

If in the past, goods such are air or water were free goods, now they become scarce goods. As anything in shortage, they can become a source of trade in a society and they can have a market value.

To have a sustainable development the environmental costs should be taking into consideration in order to avoid water management crisis.

The process of hazards’ assessment and the permitting issue process are challenging from both scientifically and economically perspectives.

Scientifically because a lot of uncertainty is involved in the evaluation process and economically because a sustainable development approach should be applied in order to reach a democratic and modern consensus in order to protect our water resources.

The efforts for improving the legal framework with realistically stated and applied limits should be made in order to meet Water Directive objectives and gain social and political acceptance for the costs of decontamination.

In this respect the designed methodology is an instrument to be applied for water assessing the risk of hazardous substances. This will facilitate the development of an inventory of those substances as is require by the national and European in order to evaluate the risk of water bodies where those substances are discharged.

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Requirements of the Ergonomic Projecting of the Man-Machine Logistic Systems within Military Field

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Abstract

The requisites for optimization of the military organization functioning bring to our attention, both at a practical and at a theoretical level, significantly, the investigation of the issue from the logistics systems point of view, an extremely complex one. This complexity derives from the considerable dimension and extent of the logistics organization, the diversity of products and services, the high degree of certainty regarding the possibility as well as emergency of supply in various circumstances, from the ongoing modernization of the integrated working technologies. Under these circumstances, a less investigated issue in Romanian specialty works is represented by the demands for ergonomic design of the military logistical system, so that the man-machine binomial value, at performance level, in a special working environment, be maximum. This article deals with the ergonomic specificities which must be taken into account when investigating (designing, researching, developing) military logistics systems with the purpose of adjusting them to the characteristics, limitations and necessities of their users in order to improve efficiency and safety.
Purpose - The aim of this article is to analyze the ergonomics particularities of logistics human-machine systems within the military environment, considering carefully both the physical aspect, and the cognitive and organizational appearances.
Methodology - Interactions between the human system, the machine system and the environment leads to a hard to analyze resultant that greatly influences the logistics operator work's quality and quantity. We try to focus on essential aspects related to military logistics activities.
Findings - The undertaken analysis will conduct to some ergonomics criteria useful for designing the human-machine logistics systems in the military, criteria that are important at the operational level, in order to correct some deficiencies, but especially in the phase of elaboration of several research-development solutions for special logistics applications.
Research limitations/implications - The lack of research in this field can in itself stand as a limitation, but this article deals with those aspects already present in works already published on the issue (which do not require access to specialized databases in the field of ergonomics).
Practical Implications - The purpose of the ergonomic investigation consists of supplying fundamental benchmarks on designing man-machine logistics systems that lead to obtaining high performance, under psycho-physical comfort and security conditions for the logistics operator.
Originality/Value - Research in the military field must be expanded, in terms of topics covered and complexity, as well as of domains which can appear to be less important than the fundamental field of military art.
Key Words: military logistics, ergonomics, design requirements, man-machine system

1. Conceptual Confinements

Within the evolution of society, and, inherently, of the ways to solve emergent needs while optimizing results, in a wide range of fields, the originality of research in the military field is unanimously acknowledged. This is the case of the two key concepts dealt with in this paper, ergonomics and logistics. Ergonomics emerged as subject of the military concurrently with World War II when interactions within extremely complex technical systems were found to induce

serious vulnerability a fact that imposed reconstructions and reassessment of system engineering and experimental psychology. Logistics is also associated, as it contains a range of activities (purchase, technical fighting systems, storing, supply, transport, maintenance, facilities etc), with the military field, as a complex vital factor in the success of any military operation.

In the pursuit of organizational performance, regardless the field of activity, the vast majority of researchers underline the necessity for inter and trans-disciplinary approaches, as the essential solution in identifying new improvement opportunities in terms of performance. This statement is affirmed by the topics covered during the 17th International Congress of the International Ergonomics Association (9-14th of August 2009, Beijing, China) which was held under the motto "Changes, Challenges and Opportunities". Fourteen interactive workshops were organized within this event covering topics (principles used within occupational hazards management, the role that engineering plays in the design of man focused systems, hazard agents and physical exposure etc) such as: work analysis and design, organizational management and design, man-computer interaction etc.

While trying to improve organizational performance, no area that might provide a minimum amount of resources for the process should be underestimated. Although the evolution of organizational theories has known spectacular approaches (correlated with the period they were stated in), the most attention was caught by the integrated ones (i.e. the socio-technical theory, Eric Trist) and more recently, the ones that highlight the best the possibilities for improvement and research on performance related to its most important resource: the human one. This is where, ergonomics, a quite recent science, comes into place and gives new meaning to the aforementioned desideratum, some of the definitions of this science supporting these conceptual statements:

- ergonomics is an applied science, a multidisciplinary one, which has as objective the adjustment of artificial systems, products and networks to the limitations and necessities of their users in order to optimize efficiency, safety, and comfort. (Maestre, G.D., 2007, p.39);
- ergonomics is a federated science which, based on its interdisciplinarity, integrates the infusion of several sciences, in order to orient the creation of contemporary techniques to the level of men's normal abilities to rationally use these possibilities under the most favorable environmental conditions, with the purpose of achieving workforce reproduction on a daily bases (Burloiu, P., 1997, p.642).

2. Characteristics of Man-Machine Logistics Systems in the Military Field

When approaching logistics, modern military specialists have as starting point the need to define the totality of material and support conditions necessary to the success of military actions. As part of the modern war, logistics has new facets as strategies have changed and so has the human resource quality, as well as the high technical level embodied by fighting means. Seen as both a science and an art, logistics develops nowadays the following forms within the international logistics community (Stanciu, L., Badea, D., Fodor, M., 2009, p.104):

a) *the logistics of production* (a.k.a. purchase logistics). This is the part of logistics which deals with research, design, development, production and material approval testing. Consequently, the logistics of production includes: standardization and interoperability, contracting, quality assurance, spare parts procurement, the analysis of exploitation safety and safety standards for equipment, production processes and specifications, trials and tests (including the necessary facilities), codification of equipment documents, configuration control and alterations.

b) *the consumer logistics* (a.k.a. operational logistics). This is the part of logistics which deals with demand, the reception of the initial product, storing, transportation, maintenance, operation and rif. Consequently, consumer logistics includes: stock control, facility assurance and building (including any material element and those facilities necessary to consume), conveyance monitoring, logistics reports, safety storing standards, transport and handling as well as preparation from the point of view of environmental protection for these activities.

c) *support logistics* is considered to be the component that links production to consumer logistics and deals with those functions associated to procurement (purchase), reception, storing, distribution and availability of the machines necessary for maintaining equipment operational and the forces supplied.

The weight that a high degree of technical-material endowment and the continuous supply of the forces with everything that is necessary for battle and survival have is ever more obvious for victory in operational theatres. Modern conflicts have fully highlighted the role that technological development plays (high technological level integrated weapon systems, the digitalization of the battlefield etc.), but also that of military logistics (quality of materials, the quantities, the speed in transportation, costs a.s.o.). Introducing the most recent development in science and technology, as well as the reassessment of the attitude of managers/leaders (both military and political ones) towards the individual have lead to a shift in military action consistency, but also a considerable increase in resource utilization. Despite the pragmatic character of logistics, there is no theory to support the integrated activities. This can be explained, on the one side, through the high diversity of activities for the support of the fighting forces, and on the other hand through the fact that logistics is defined less as a set of activities and more in terms of results (Petrişor, S.M., Bârsan, G., Badea, D., 2011).

Hereinafter, given the general purpose of the paper, I have detailed the characteristics of the basic components of the man-machine-environment system, identified by the well-known specialist Pitariu H.D. (2004), in the case of the military logistics system:

a. *the man subsystem* is described by means of the reception functions, the information processing and decision-making and the function of the action that affects the machine directly. It is essential for the military organization that the reception functions, the information processing and decision-making and the function of the action that affects the machine directly be performed in the shortest amount of time possible and with a high degree of quality in order to ensure performance on the entire flow, given the powerful inter-connectivity of logistics military activities. A relative point in this respect is considered to be the fact that for the admission in a military education institution, candidates, regardless their branch or specialty, must pass a psychological evaluation and that ensures the necessary threshold to be able to deal with the particularities of military activities. Standing operating procedures are, also, implemented at the level of each logistics activity and help increase the parameters of the aforementioned functions, in terms of time and quality, as well.

b. *the machine subsystem* consists, mainly, of the following elements: signaling and displaying devices, logistics equipment command devices, between the two the machine performing part of the operations. The range of equipments used in military logistics activities is extremely varied, from simple military technical systems reliability parameters measurement and control devices (as part of the maintenance activities) to complex equipments used in transport activities and supplying the various types of materials, equipment used to place materials in containers and pallets, equipments used to repair and diagnose fighting techniques. Constructive and functional particularities are also very varied and this requires from users a very good knowledge as the hazards associated to their faulty use are extremely high.

c. *the environment subsystem* influences the functioning of the system through its components, given by: noise, temperature, humidity, toxic noxae, lighting etc. Some of these components have high values and can influence the military logistics operator capacity, and implicitly, the performance of the military logistics systems. Noise is very high in the case of maintenance shops for fighting technique, especially in those for equipment that integrates more complex technologies (armored, aviation, navy). Toxic noxae appear in chemical and explosive materials storage and also the fighting technique trial benches.

From the description of these three subsystems' particularities we can see that there are many interactions, their resultant influencing the quality and quantity of work, as it is absolutely necessary for these interactions to be taken into consideration from the very design of the used technique in military logistics, in an integrating approach, focused on the human factor. An important trend that affects the military logistics field with consequences on the entire spectrum of

activities, inherently on its ergonomics, is given by the implementation of informatics and advanced technology from peak fields of knowledge. Recent research performed in the USA bring to our attention the Sense and Respond Logistic Capabilities concept that states that integrated logistics data bases for all military operations and logistics technology automation create the advantage of anticipation and achievement of logistics necessities. In terms of key concepts approached in this paper, we will witness a shift in the centre of gravity from logistics operations that use physical force to an increase in automated ones, with real implications on the necessity to design thoroughly ergonomics elements, as a whole, and especially those dealing with human reliability (increasing the exigencies from the sensorial, perceptual and cognitive spheres)

3. Requirements for Ergonomic Design of Man-Machine Logistics in the Military Field

Although the allocation of tasks to men and machines stands as a fundamental aspect in the ergonomic design of the man-machine system, many researchers in the field (Manolescu, A., Lefter, V., Deaconu, A., 2010, p.291) highlight the necessity to take into account the entire system, as well as to approach the allocation of tasks complementarily, bringing forward points of interest in the case of ergonomic design of the military man-machine logistics systems such as the cost-benefits analysis and solution consistency.

According to 6385 ISO standards on ergonomics in work systems design, the necessary steps for the approach of work systems design (Bridger, R.S., 2009, p.657), that need to be followed also in the case of military logistics systems are:

- stating system objectives;
- functions and activities analysis and allocation to fulfill objectives;
- the design concept needs to be as detailed as possible so as to describe the structure of the work system as well as the interactions of its components;
- detailed design, with a focus on work equipment design, on work posture and work spaces, work tasks;
- system materialization, implementation and validation;
- evaluation.

For the task to be performed effectively, logistics operators must receive information from the equipment, under a form that they be able to recognize and understand. In terms of information delivered, in the design of logistics equipment, designers may chose between various sensorial ways to fulfill that. Although most of these ways are determined by the nature of the situation, there are cases (such as the maintenance of military state-based equipments) where designers may choose from various signaling ways (visual, acoustic, tactile etc.). While making a design decision two factors must be taken into account: the relative advantage of a sensorial way over the other, depending on the purpose of the equipment (i.e. the time of reaction to various stimuli); the already existing requisites on sensorial canals.

In the case of less structure and unpredictable tasks, which are more likely to emerge in the future military logistics environment, men's intellectual capacities are used to a greater extent. In this case, besides input information accuracy, an important role is also played by human aptitudes and professional formation, as it is necessary to correlate the design of military logistics equipment with the requests of training the logistics operator.

Technical performance and using them in tactics and strategy can be obtained by surpassing psychological limits. The process is necessary also for the refinement of the human factor in battle actions, because, as it has been noticed, placing the human in a simple position of servicing a complex equipment, in the position of a piece of an automated incomplete puzzle, leads to his/her subordination to the equipment and the rapid atrophy of psychological characteristics. For instance, the first generation of radio transmitters needed a team to work with the machines in the deafening noise of force generators, performing recording, correlation and stabilization operations. After 2 or 3 hours of work in such circumstances the people were exhausted, especially psychologically, being forced to cease activity. The next generations, with

the automated devices, increased their precision and safety, rendering the personnel free from the stressful operations and generating the possibility to use the military in tasks that were appropriate to their formation.

In the field of designing special trucks for logistics (water and fuel supplying trucks, truck cranes etc.), ergonomics must deal with providing the optimum comfort for drivers and passengers (crew, logistics servicing team). In order to provide comfort conditions, the configuration of the pilotage post will be changed by adjusting the position of the chair and that of the wheel. The optimum position is achieved when geometrical parameters of the users' posture are the same with those recommended in works published on the issue.

We think that for the ergonomic organization of the military logistics system (with implications on design as well) the following are necessary:

- the rationalization of work objects (pallets, containers, devices etc.) by means of standing operating procedures drafted for each activity category;
- the optimum disposition of the work places (material storage, repair shops, points for ammunition dismantling, points of material transfer etc) so that a rational flow be established for every activity, without diminishing the effect useful for military actions as a whole;
- ergonomic organization of the work place, especially in the case of special materials storage, but also in the case of the storage places of materials with high flows (high volume receipts or distribution);
- ensuring a physical and psychological environment as non-hazardous as possible through technical measures of labor protection and respecting the principles of labor sociology and psychology;
- the rationalization of activities through work load allocation synchronized with the equipment available for the respective logistics activity;
- signaling the work place accurately especially indoors.

Organizing activities and work places specific to the military logistics system must be seen as a dynamic activity, that begins from the very design of an objective or product and continues during the process itself, as current organizations must be permanently synchronized with the conditions emerged, with the most recent research findings in military sciences which integrate the best existing practices globally by means of relating them to the ensemble of military organizations and to the experience of civilian technical-economical organizations. This observation is even better justified through (and includes, at the same time) the approach of the military logistics system as a system of systems, which involves, as far as the ergonomic design of the man-machine logistics system is concerned, the necessity for the use of methods and means specific to system engineering.

4. Conclusions

Ergonomics is a rather young science but it is connected to other scientific fields (psychology, sociology, physiology, occupational health, technical sciences, and economics), necessary for the design of military logistics equipments, especially due to the following factors:

- technical and technological progress in the military field;
- the ever increasing complexity of military equipments, as well as the ever increasing costs, have highlighted accident hazards and the enormous cost of error from the point of view of material damage (a small error can generate high costs in the ensemble of military logistics flow);
- the discrepancy between the technical level and the possibilities of the human body is ever more obvious.

Under the circumstances of contemporary technological evolution, it has been noticed (Darabont, Pece, Dăscălescu, 2001, p.139) that most of the incidents and accidents occurr because of human error. The analyses show that 50 to 80% of them result from the human's

lack of adaptation to work as well as from the lack of adjustment of the technical equipment to the human body physical and psycho-physiological limitations.

Research on the improvement of military logistics activities or on the design of equipment that support the military logistics system optimally must include the ergonomic component of the man-machine system. It is necessary for specialists in ergonomics to be integrated within interdisciplinary teams of command officers, engineers, economists, doctors, psychologists that could guarantee the robustness of the proposed solutions. Also, at an institutional level, within the Romanian military organization, it is necessary to reassess the ergonomic component, an international example of good practices being the USA. Last but not least, military education institutions should include in their curricula *Ergonomics*, both for the training of military engineers (as compulsory course) and for command officers for all components (as an optional course).

Integrating ergonomic demands in the design of military logistics systems create the prerequisites for safe, correct and prompt human actions (an extremely important characteristic for the military organization), the capacities of the logistics operator remaining at a high level.

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Regression linear model a useful tool for directing continuous quality improvement in higher education

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Abstract

Purpose *– The purpose of this study has been to examine what dimensions constitute quality in higher education assessment. Some positive and negative factors were defined using a regression linear model.*
Methodology/approach *- Population of interest taken into account is the population of fourth year students in Engineering and Management domain, Economic Engineering in Mechanical field specialization from the Faculty of Engineering "Hermann Oberth" of Sibiu. Based on in-depth interviews a questionnaire was constructed and responses were obtained from students.*
Practical implications *– In the field of quality assessment in higher education and management, regression linear model analysis has many applications.*
Originality/value *– This paper addresses the issue of quality evaluation within higher education sector and stresses the need to develop measures that are both psychometrically and practically sound. The paper argues that recent debate surrounding the development of such measures has been too strongly geared toward their psychometric performance, with little regard for their practical value. While the paper supports the need to develop valid, reliable and replicable measures of quality, it is suggested that teaching personnel must not lose sight of the original purpose for which these measures were design, i.e. practical value in informing continuous quality improvement efforts.*

Key words: *Quality, educational efficiency, assessment.*

Introduction

In quality management, it is vital to study the meaning of quality in the situation that is under study. In the area of higher education, the concept of what constitutes quality has not been thoroughly addressed, although some interesting studies exist (Harvey and Green, 1993, Dragulanescu, 2005, Oprean, 2008). Further we have the vast field of general research into quality management and assurance quality. The purpose of this study has been to examine what dimensions constitute quality in higher education assessment. A study of this purpose is important in order to provide a practical basis for quality management efforts in the higher education and to explore the limits of generalization of this research. Generally quality is aimed at satisfying the customers (Juran, 1988). There are many stakeholders for whom the quality of higher education is important: providers, students, staff and employers of graduates. In order to make this study manageable we have chosen some limitations. We decided to choose the student perspective. This does not mean that other perspectives are less important but "running after more rabbits" it is complicated and may dilute the results. The other limitation is that is restricted to economical engineering student and further generalization are not necessarily possible.

Quality in higher education

Quality in higher education may even be more difficult to define than in most other sectors. Frazer (1994) argues that first important step would be to agree internationally on terms such as levels,

standards, effectiveness and efficiency. An agreement on basic factors is an objective for the implementation of the Bologna process which was carried out in Europe. Conceptions of quality were categorized by Harvey and Green (1993), and were elaborated in the PHARE Manual of Quality Assurance: Procedures and Practices (1998). They include the following: Quality of excellence, Quality as "zero errors", Quality as "fitness for purpose", Quality as transformation, Quality as threshold, Quality as value for money, Quality as enhancement or improvement.

UNESCO recognizes this, and states that "Each approach has advantages and disadvantages, being more or less suitable for a specific period of time and/or national context. In terms of evolution, there are permanent movement and oscillations between relative versus absolute, internal versus externally oriented, and basic versus more advanced and sophisticated notions of quality. However, common to all of these quality approaches is the integration of the following elements: (i) the guaranteed realization of minimal standards and benchmarks; (ii) the capacity to set the objectives in a diversifying context and to achieve them with the given input and context variables; (iii) the ability to satisfy the demands and expectations of direct and indirect consumers and stakeholders; (iv) the drive towards excellence" (Vlăsceanu et al, 2004).

Methodology

A study on analysis the general competences, specific skills and competences with social awareness took place in March - April 2009 at the Engineering Faculty at the University "Lucian Blaga" of Sibiu, in consultation with a sample of Economical Engineering specialization' graduates. In this paper, we will present the multivariate analysis regression linear model on assessment of student's competences.

Population of interest taken into account is the population of fourth year students in Engineering and Management domain, Economic Engineering in Mechanical field specialization from the Faculty of Engineering "Hermann Oberth" of Sibiu.

The method of determining the structure of the sample is proportional random sampling, probabilistic method that involves dividing the community according to certain criteria investigated, followed, in order that the sample be selected at random, a number of components, to achieve a predetermined size sample.

Data evaluation

Regression analysis was used to estimate the relationship between the independent factors (X_i) and the performance factor (PF). The technique of least-squares was used to estimate the regression coefficients (b_i) in an equation of the form:

$PF= b_0 + b_1X_1 + b_2X_2+ \dots + b_nX_n + u$, where u denotes a random disturbance term. The regression coefficient (b) represents the expected change in the performance indicator associated with a one-unit change in the ith independent variable. Forward and backward stepwise regression was used to determine which of 17 independent variables to include in the final regression equation for the performance factor.

The aim in this application: determining which model best reflects the relationship between *independent variable*

- v1 - Level of competence "**The analysis and synthesis ability"** found in the syllabus
- v2 - Level of competence **„The ability to organize and plan different activities"** found in the syllabus
- v3 - Level of competence „**The capacity of achieving fundamental knowledge (within the specialization)"** found in the syllabus
- v4 - Level of competence **„The use of a foreign language (within the specialization)"** found in the syllabus
- v5 - Level of competence **„The use of computer and other IT devices"** found in the syllabus

- v6 - Level of competence ţa „The use of alternative information sources (lybrary, internet) during the studies" found in the syllabus
- v7 - Level of competence **„The ability to make decisions independently"** found in the syllabus
- v8 - Level of competence **„The ability to work in a team (within the specialization)"** found in the syllabus
- v9 - Level of competence **„The ability to work in interdisciplinary teams"** found in the syllabus
- v10 - Level of competence **„The ability to apply the theoretical knowledge achieved during seminaries and projects"** found in the syllabus
- v11 - Level of competence **„The ability to study and do the research work independently"** found in the syllabus
- v12 - Level of competence **„The capacity of facing new situations"** found in the syllabus
- v13 - Level of competence **„The ability to work independently using the knowledge achieved"** found in the syllabus
- v14 - Level of competence **„The ability of doing quality work (within the specialization)"** found in the syllabus
- v15 - Level of competence **„The ability to elaborate and manage projects"** found in the syllabus

and the *dependent variable* **"Global assessment of quality of higher education".**

Independent variables were measured by interval scale with five levels: "very high level ... Very low "and the dependent variable were measured with the help of an interval scale type with 5 levels" excellent quality ... very bad quality." Individual values for variables were obtained by manual measurements on a sample of 49 final year students, the specialization of Economic Engineering Faculty of Engineering "Hermann Oberth". Estimation of model parameters was performed in Excel using the least squares method.

Global assessment of quality of education is positively influenced by several factors such as:

- v8 - Level of competence **„The ability to work in a team (within the specialization)"** found in the syllabus
- v10 - Level of competence **„The ability to apply the theoretical knowledge achieved during seminaries and projects"** found in the syllabus
- v3 - Level of competence „**The capacity of achieving fundamental knowledge (within the specialization)"** found in the syllabus

and negative factors such as v9 Level of competence **„The ability to work in interdisciplinary teams"** found in the syllabus.

Multiple factors linear model is: $S_t = 3.24*V_8 + 2.21*V_{10} + 1.82*V_3 – 1.73*V_9$

Economic interpretation of estimated parameters is as follows:

- An increase of 1 point for the level of competence found in the syllabus at "ability to work in a team" the overall assessment of higher education increases by 3.24 points (on a scale from 1 to 5);
- An increase of 1 point for the level of competence found in the syllabus at 'ability to apply the theoretical knowledge achieved during seminaries and projects "the overall assessment of higher education increases by 2.21 points (on a scale 1 to 5);
- An increase of 1 point for the level of competence found in the syllabus at "the capacity of achieving fundamental knowledge (within the specialization), the overall assessment of higher education increased by 1.82 points (on a scale from 1 to 5);
- An increase of 1 point for the level of competence found in the syllabus at "ability to work in interdisciplinary teams", the overall assessment of higher education decreased by 1.73 points (on a scale of 1 to 5);

To accept this econometric model as an approximately real statistical model involves verifying the assumptions on which estimation is based.

Checking the hypothesis of independence of errors involving cov(et,et-1)=0, was made by Durbin-Watson test.

The variable DW = $\frac{\sum_{t=2}^{n}(e_t - e_{t-1})^2}{\sum_{t=1}^{n} e_t^{\,2}}$ where n=49 (observations number); DW = 1,729.

Durbin-Watson test interpretation supports the hypothesis of independence of errors.

Checking error hypothesis homoscedasticity, we used White test. To this end, we built a regression-based auxiliary assumption that there is a relationship of dependence between the square error value, the exogenous variables included in the original model (V_3, V_8, V_9, V_{10}), their squared values (V_3^2, V_8^2, V_9^2, V_{10}^2) and product of independent variables (V_3*V_8, V_3*V_9, V_3*V_{10}, V_8*V_9, V_8*V_{10}, V_9*V_{10}).

$e_t^2 = \alpha_0 + \alpha_1 * V_3 + \alpha_2 * V_8 + \alpha_3 * V_9 + \alpha_4 * V_{10} + \alpha_5 * V_3^2 + \alpha_5 * V_8^2 + \alpha_7 * V_9^2 + \alpha_8 * V_{10}^2 + \alpha_9 * V_3*V_8 + \alpha_{10} * V_3*V_9 + \alpha_{11} * V_3*V_{10} + \alpha_{12} * V_8*V_9 + \alpha_{13} * V_8*V_{10} + \alpha_{14} * V_9*V_{10}\, w_t$

To test the significance of newly built model parameters, we used the F test (Fischer Snedecor). The value calculated for $F_{calculated} = 1.42$,was compared with $F_{table,\ 0.05,\ 14.34} \approx 2.01$, the F distribution table for a significance level of 0.05 and k, n-k-1 degrees of freedom (where k = 14, the number of explanatory variables , n = 49, number of observations).

The conclusion $F_{calculated} < T_{able,\ 0.05,\ 14.34}$ results that the model is characterized by heteroscedasticity.

To check the hypothesis of error normality we used Jarque-Berra test.

We calculated statistics: JB = $\frac{n}{6}\left[S^2 + \frac{K^2}{4}\right]$ where:

n = number of observations (49)

S = coefficient of asymmetry (Skewness) = 1.669

K = coefficient of flattening (kurtosis) = -0.49

JB calculated = 1.47

JB statistic follows a distribution level chi square significance level α (0.05) and 2 degrees of freedom. According to the distribution of chi square we have χ0.05 2 = 5.99;

$JB_{calculated} < JB_{table}$, so the hypothesis of normal distribution of residues is observed.

This can be seen in the histogram constructed for residual variable (figure 1).

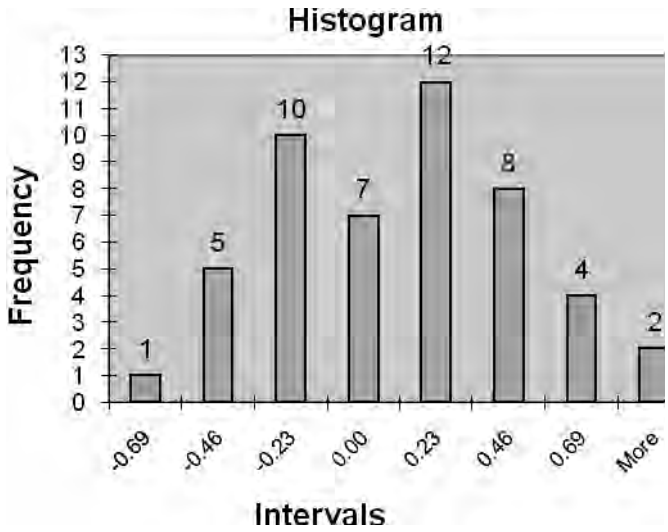

Figure 1. Residual variable histogram

To check the statistical significance of estimators (i.e. to reject the hypothesis that the estimators are not different from zero), we applied the t variable test where t is for each of the estimators calculated:

By comparison with $t_{table} \approx 1.68$ for 0.05level of significance and 33 = n-k-1 degree of freedom (where k=15, number of explanatory variables, n=49, number of observations). In conclusion $t_{calculated} > t_{table,}$ estimators are significantly different from zero for the variables V_3, $V_{8,}$ $V_{9,}$ $V_{10.}$

The regression real model is $S_t = 1.82*V_3 + 3.24*V_8 – 1.73*V_9 + 2.21*V_{10}$

Verisimilitude of the econometric model checking the significance of the correlation ratio is presented here.

The correlation report notes that (R = 0.76) is close to 1 indicating a linear relationship between independent variables and the dependent variable. Four independent variables explains 58% of the variation in the dependent variable St (R2 = 0.58). Checking the significance of the correlation ratio and the determinative coefficient test was performed by Fischer test. F table for a significance level of 0.05 and 15, 33 degrees of freedom is about 2.01. It is noted that $F_{calculated} = 3.14 >$ F table which means that results are significant for a significance level of 5%.

Conclusion

The St = 1.82 * 3.24 * V3 + V8 - V9 + 1.73 * 2.21 * V10, can be considered as representative of addiction description of satisfaction (overall quality assessment) to the specialization of university education in the field of Economic Engineering specialization and level of skills that can be found discussed in the curriculum of this specialization.

The educational process becomes more complex under the impact of new information technologies, shifting the emphasis from teacher to student. Evaluation of the content depends on the structure of education and its functional capacity. The general structure of the educational process, that structure that does not depend on the specific area of knowledge includes the following components: the development of explicit knowledge, tacit knowledge base development, the de-

velopment of the capacity for processing this knowledge, generate new knowledge, evaluate all such knowledge and skills. Developing and implementing quality management in a university involves creating a new organizational culture based on the concept of evaluation. In other words, we have to pass on from a culture of reporting to a culture of evaluation. In such an organizational culture, students are key players in university life and their view on the performance of teachers is a necessary component in evaluating and improving the quality of education.

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The selection procedure of the projects construction, based on fuzzy logic

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Abstract

Purpose – The question is raised of elaborating a procedure for selection of projects for execution, this procedure can consider several criteria that may be considered by construction companies.
Methodology/approach - The selection procedure of execution projects in civil and industrial construction field is based on mathematical device specific of fuzzy logic. It develops a generalized decision sistem, with several entrances (the criteria against which project selection is made) and output (important factor). Case study is customizing of the general sistem considering the two criteria (size of input): the deadline of the project, the expected benefits. Output size is the important factor.
Findings – He developed a procedure for determining important factors of a project when it comes to its selection.
Research limitations/implications – The method is suitable only in the construction industry project management.
Practical implications – The proposed method can contribute to more effective management of construction companies, providing a selection of project execution.
Originality/value – The decision-making system based on fuzzy logic is part of multi-criteria decision-making systems. It can be configured according to the criteria wich the user deems most important.

Key words: Select projects, fuzzy logic, fuzzy inferences, projects in civil construction.

Introduction

The engaging for projects execution in case of construction companies requires resources in order to complete work on time and to obtain positive financial results (benefits). Selection of projects should take into consideration the immediate and strategic objectives of the company.

The literature describing a grid for project selection (GSP) which is a tool for evaluating strategic importance of a construction project. According to this scale is made a selection according to the key factors of the project and strategic objectives of the company. The key factors may vary depending on: the characteristics of the project under evaluation, the managers desire to highlight certain specific situations.

The question is raised of elaborating a procedure for selection of execution projects, this procedure can consider several criteria that may be considered by construction companies

In literature there are few references about the problem for selection of the execution projects in construction. Makers (managers) felt the need to provide an effective tool to provide necessary information in making decisions quickly. Therefore it is proposed a multi-criteria evaluation procedure of important factor of a project execution. Were identified possible criteria that can be used to select a project:

1. Technical capability (human resources);
2. Technical capability (equipment with equipment and machinery)
3. Financial capability (there are situations when working with the company money until settlement - most situations);
4. The cost of the work - the viewpoint of profit;
5. The cost of the work - the viewpoint of its strict limitation - the condition, especially in budget papers
6. The delivery deadline;
7. The possibility of quality assurance system;
8. The complexity of the work;
9. Quality of the project / documentation behind the execution of the work (the existence of execution details ...)
10. The credibility of the client;
11. The quality of materials put into operation - required;
12. The diversity of existing technical solutions;
13. Internal analysis;
14. Scope of work;
15. Type of work / reference work;
16. Type of work / specific (for example the earthworks are the most profitable work structures are those that involve a great responsibility, are the most meticulous finishes)
17. Term guarantee of work.

Of these, for this work, two were chosen: the deadline of the project, the expected benefits.

Procedure for selection of projects in construction, based on fuzzy logic

Project selection procedure by a construction company requires the following steps:

1. Establishing the criteria against which will determine the output size IMPORTANT FACTOR (IF)

The criteria are against which the determination is made the IMPORTANT FACTOR (IF) form set of criteria against which evaluation is made:

$$C = \{C_1, C_2, ..., C_i, ..., C_n\} \tag{1}$$

The particularity determination procedure of IMPORTANT FACTOR size based on fuzzy logic is that can be taken into consideration, at a time, several evaluation criteria. These criteria will be defined as inputs into the decision.

Basically the category of these criteria can be part of such factors as: works cost, deadline, expected benefit, technique capability, complexity of works , customer credibility etc.

2. Defining the domain of values for each evaluation criterion

Each criterion is assigned a range of variation, in which you can find specific values of the criterion. These fields values will be:

$$\begin{aligned} &C_1 : D_1 = [L_{C_1}^{inf}, L_{C_1}^{sup}] \\ &\vdots \\ &C_i : D_i = [L_{C_i}^{inf}, L_{C_i}^{sup}] \\ &\vdots \\ &C_n : D_n = [L_{C_n}^{inf}, L_{C_n}^{sup}] \end{aligned} \tag{2}$$

where, $L_{C_i}^{inf}, L_{C_i}^{sup}$ are the lower limit respectively upper limit value of the field associated criterion $C_i, i = \overline{1,n}$.

Definition of linguistic variable associated with each evaluation criterion.

Each evaluation criterion is assigned a linguistic variable. Thus: the C_i criterion becomes $C_i, i = \overline{1,n}$ linguistic variable.

Establishing the linguistic grades associated for each linguistic variables of input.

For each linguistic variable are defined linguistic terms. These will serve to "vague" characterize of the information farms. The crowds linguistic terms associated with each variable crowds language will be of the next form:

$$\begin{aligned} &C_1: \quad TL_{C_1} = \left\{TL_{C_1}^1, TL_{C_1}^2, ..., TL_{C_1}^k\right\} \\ &\vdots \\ &C_i: \quad TL_{C_1} = \left\{TL_{C_i}^1, TL_{C_i}^2, ..., TL_{C_i}^k\right\} \\ &\vdots \\ &C_n \quad TL_{C_n} = \left\{TL_{C_n}^1, TL_{C_n}^2, ..., TL_{C_n}^k\right\} \end{aligned} \tag{3}$$

Establishment of membership functions associated with each linguistic term. Input quantities of each linguistic term, corresponding to a linguistic variable and membership function is associated:

$$\begin{aligned} &C_1: \quad TL_{C_1}: FA_{C_1} = \left\{fa_{C_1}^1, fa_{C_1}^2, ..., fa_{C_1}^k\right\} \\ &\vdots \\ &C_i: \quad TL_{C_i}: FA_{C_i} = \left\{fa_{C_i}^1, fa_{C_i}^2, ..., fa_{C_i}^k\right\} \\ &\vdots \\ &C_n: \quad TL_{C_n}: FA_n^C = \left\{fa_{C_n}^1, fa_{C_n}^2, ..., fa_{C_n}^k\right\} \end{aligned} \tag{4}$$

Define the output quantity of decision making

Size out of decision making is IMPORTANT FACTOR (IF)

Setting range for the output quantity

Size range of output values (IMPORTANT FACTOR associated of a project) is:

$$D_{FI} = [L_{FI}^{inf}, L_{FI}^{sup}] \tag{5}$$

Defining appropriate linguistic variable output quantity.

For IMPORTANT FACTOR output quantity, is associated a linguistic variable IMPORTANT FACTOR.

Establishing the linguistic terms associated for output linguistic variables

For lingvistic output variable are defined linguistic terms. They will serve to characterize the "vague" information farms. The crowd linguistic terms associated output linguistic variable is:

$$FI: \quad TL_{FI} = \left\{TL_{FI}^1, TL_{FI}^2, ..., TL_{FI}^k\right\} \tag{6}$$

Establishment of membership functions associated with each linguistic term. Output Size

Each linguistic level, corresponding to a linguistic term, is associated with membership function:

$$FI: \quad TL_{FI}: FA_{FI} = \left\{fa_{FI}^{1}, fa_{FI}^{2}, ..., fa_{FI}^{k}\right\} \tag{7}$$

Setting method of connecting various values of membership functions

Linguistic variables and terms crowd linguistic whom were associated membership functions, characterized "vague" strong values of the input quantities, namely the output size.

Inference machine consists of a set of rules like:

IF (premise) THEN (conclusion) (8)

Premise - a property resulting from the connection established by the theory of fuzzy logic specific procedures, the various terms associated linguistic variables corresponding linguistic input quantities. If the procedure for determining the time remaining functioning using the **AND** connector.

Conclusion – property is stated and will be expressed in terms of associated linguistic variable corresponding to the output size.

The base rules (inference machine) will be of the form:

$$\begin{aligned}
&RIN_1 : IF \ (C_1 = TL_{C_1}^{1} \ \text{ŞI} \ ... \ \text{ŞI} \ C_n = TL_{C_n}^{1}) \ THEN \ (FI = TL_{FI}^{1}) \\
&\quad ..... \\
&\quad RIN_i : IF \ (C_1 = TL_{C_1}^{l} \ \text{ŞI} \ ... \ \text{ŞI} \ C_n = TL_{Cn}^{l}) \ THEN \ (FI = TL_{FI}^{j}) \\
&\quad ..... \\
&RIN_r : IF \ (C_1 = TL_{C_1}^{k} \ \text{ŞI} \ ... \ \text{ŞI} \ C_n = TL_{C_n}^{k}) \ THEN \ (FI = TL_{FI}^{k})
\end{aligned} \tag{9}$$

Setting method defuzzificare

The result of fuzzy inference (vague) is a fuzzy information as function of belonging "result".

The defuzzification operation means to obtaining firm values ("crisp") of the output quantity, based on membership function "result" of the fuzzy inference.

Of the many available defuzzification methods, will use center of gravity method wich is the most applied in practice.

The value of the output quantity resulting from the defuzzyfication procedure will constitute the IMPORTANT FACTOR associated to the project evaluation.

The procedure of selecting a project of execution considering two selected criteria

Of the many factors that can influence the participation of construction companies to tender for the award of a project will consider:

1. Deadline (TERM);
2. Estimated profit (PROFIT).

The values of the fields associated with the measurements of the imput are:

$$TERM : D_{TERM} = [0.25;2] \quad [years]$$
$$PROFIT : D_{PROFIT} = [10000;100000] \quad [euro] \tag{10}$$

The variable terms are: TERM and PROFIT

The terms' level of the imput variable terms are: very small (vs); small (s); Medium (Md); Big (B); Very Big (VB).

Functions that belong with the level terms wich corespond with the imput measurements are: trapezodial funtion for very small and Very Big; triangular function for small, Medium and Big (Figure 1).

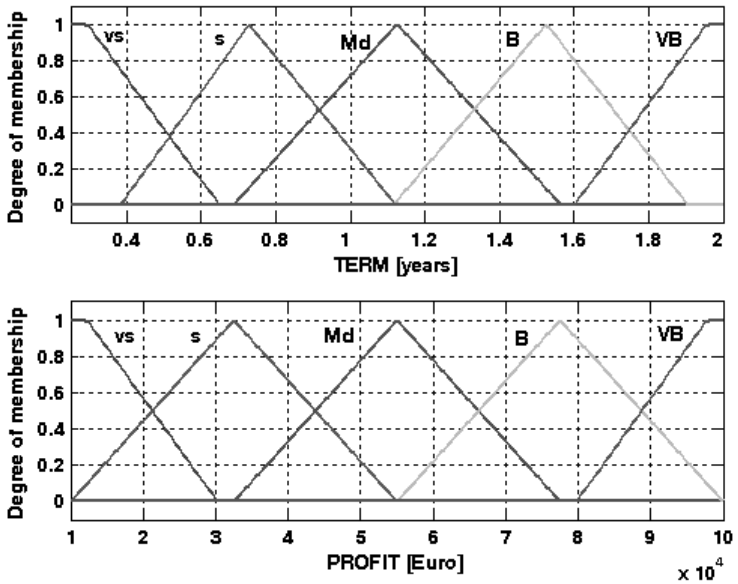

Figure 1. The input variables. Membership functions

The output of the measurement from the decision making system is IMPORTANT_FACTOR.

The domain values asociated with the measurements is:

$$IMPORTANT\_FACTOR : D_{IMPORTANT\_FACTOR} = [0;10] \tag{11}$$

The varible term asociated with the output measurement are IMPORTANT_FACTOR.

The terms' level of the output variable terms are: very small (vs); small (s); Medium (Md); Big (B); Very Big (VB).

Functions that belong with the level terms wich corespond with the output measurements are: trapezodial funtion for very small and Very Big; triangular function for small, Medium and Bib (Figure 2).

Twenty five important regulations were defined that establishes the dependance between the output and imput measuremtns. These are:

1. If (TERM is vs) and (PROFIT is vs) then (IMPORTANT-FACTOR is vs)
2. If (TERM is vs) and (PROFIT is s) then (IMPORTANT-FACTOR is vs)

……

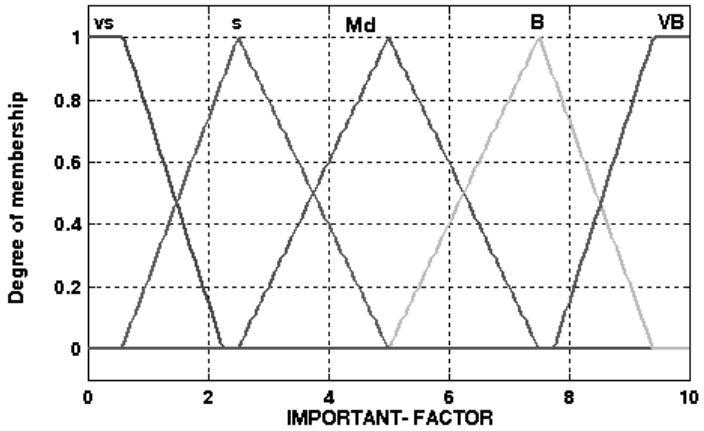

Figure 2. The output variable. Membership functions

12. If (TERM is Md) and (PROFIT is s) then (IMPORTANT-FACTOR is s)
13. If (TERM is Md) and (PROFIT is Md) then (IMPORTANT-FACTOR is Md)
……..
24. If (TERM is VB) and (PROFIT is B) then (IMPORTANT-FACTOR is VB)
25. If (TERM is VB) and (PROFIT is VB) then (IMPORTANT-FACTOR is VB)

The decision making system that was developed in Toolbox Fuzzy from MATHLAB® is presented in Figure 3. The dependence of the output value to the input can be shown through the representation of the measurements variance input relative with/to the two inputs (Figure 4).

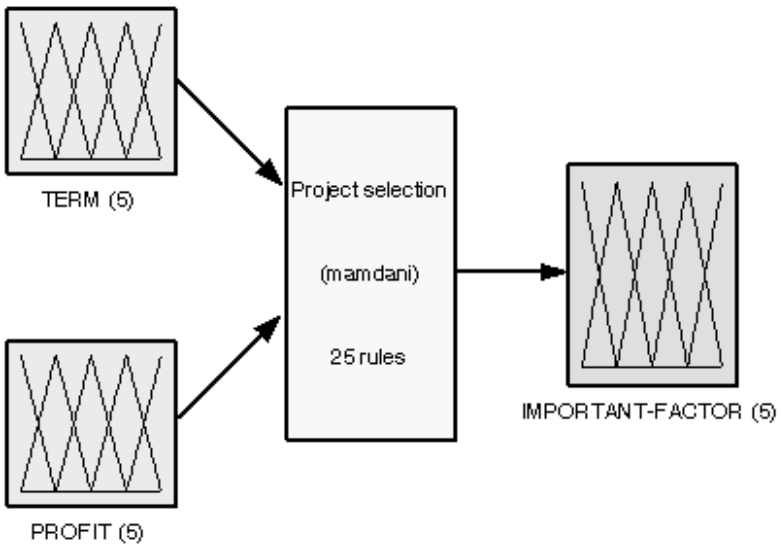

Figure 3. The decision system implemented in Fuzzy Logic Toolbox

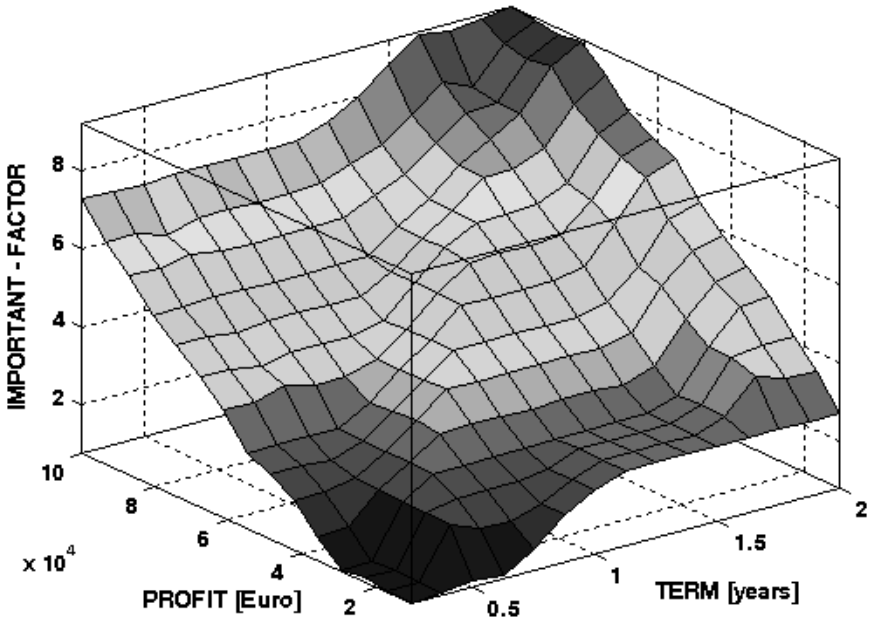

Figure 4. Surface variation

Case study

SC IMT CONSTRUCTII SRL construction company wased offered in regard to the realization two projects:

- project 1: Thermal reabiliation of seven inhabited buildings from Simleu Silvaniei, (Figure. 5).

- project 2: Media and bussines cross-boarder center from Beiuş- Berettyóújfalu, jud. Bihor (Figure 6).

Figure 5. The apartments to be rehabilitated

(a) current stage (b) Project

Figure 6. The following Media and Business Cross-Boarder Center Bihor

The values of the selected criteria wich coresponds with to the two projects are:

$TERM_{project\ 1}$= 0.5 years (6 months)

$PROFIT_{project\ 1}$= 29170 Euro

and

$TERM_{project\ 2}$= 1.5 years (18 months)

$PROFIT_{project\ 2}$= 91250 (Euro)

Implementing in the decision system the values associated with the two projects, resulting the output measurments values for each project:

$IMPORTANT\text{-}FACTOR_{project\ 1}$= 2.15

$IMPORTANT\text{-}FACTOR_{project\ 2}$= 7.44

In conclusion the resulting of using decision-making system, the company building will execute project 2.

Discussion and conclusions

Fuzzy logic offers effective solutions in the system development of multiatribut decision. The possibility of considering several criteria, some having conflicting influences, is the advantage of such a system. In the case of project selection concerning the realization for construction companies, the system developed is a very useful tool for project selection. Moreover, future versions may consider other combinations of the selected criteria.

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Method of Analysis and Audit Used to Implement 5s in Operational Management

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Abstract

This paper aims to present anadvanced operational management technique, which is achieved by implementing simplified the environment of workplace, reduce waste and pointless activities (ineffective), the chroming of quality, efficiency and safety work. This operational technique is implemented in the Lean Manufacturing production, identified as the 5S, which consists in selecting, arranging, cleansing, standardizing and sustaining of the workplace, so that specific activities to manufacture a product to achieve in optimal conditions. At the end of this paper will present an audit of 5S for production field.

Key words: 5S, muda, lean manufacturing, process.

Introduction

The operational management into the production is aimed the achieving of a high performance in terms of quality, time of realization product , is also a process of short-term targeting , interacting with the objectives and business strategies of long term, using human and material resources efficiently to achieve the goal.

Visual management plays an important role in this regard because it offers an overview of all components of the operating system, making it a real understanding of the activities within an enterprise, identifying value creating activities, also and losses [F. A. Abdulmalek, J. Rajgopal, 2007].

One of the most popular advanced operational management is Lean Manufacturing, which is based on a combination of advanced techniques of operational management based[R. J. Schonberger, 2007], [T. Ohno, 1988].

The fundamental principles underlying the whole lean philosophy is: customer satisfaction, eliminating waste (muda in Japanese), achieving a continuous flow in production and continuous improvement (kaizen) [J. A. Farris, E. M. V. Aken, T. L. Doolen, J. Worley, 2009].

Due to fierce competition, many companies around the world have implemented Lean Manufacturing techniques, achieving a remarkable success proved by the results obtained [A. Gurumurthy, R. Kodali, 2008], [G. Alexander T., J. H. Williams, 2005], [M.E. Bayou, A. Korvin, 2008].

The main objective of Lean Manufacturing is to eliminating the waste (muda), which results in better use of working time, in other words, an increase of the total value-creating activities workflow [T. Melton, 2005], [T. R. Browning, R. D. Heath, 2009].

Any activity that increases the value creating activities, improves working conditions, which is why Lean Manufacturing focuses on increasing labor productivity (value added activities), by

identifying their losses in order to eliminate [M. Houshmand, B. Jamshidnezhad, 2006], [R. J. Buesa, 2009].

Losses occurring during a technological process (activities that do not create value) are found in 95%, only 5% is tax (value-creating activity - an activity for which the customer pays - Figure 1) [I. S. Lasa, C. O. Laburu, R. C. Vila, 2008].

Figure 1. The percentage of the losses and profit within operational flow

These losses are found in seven forms in an operational flow, as motion, transport, overproduction, waiting, defects, inventory and over processing, shown in Figure 2.

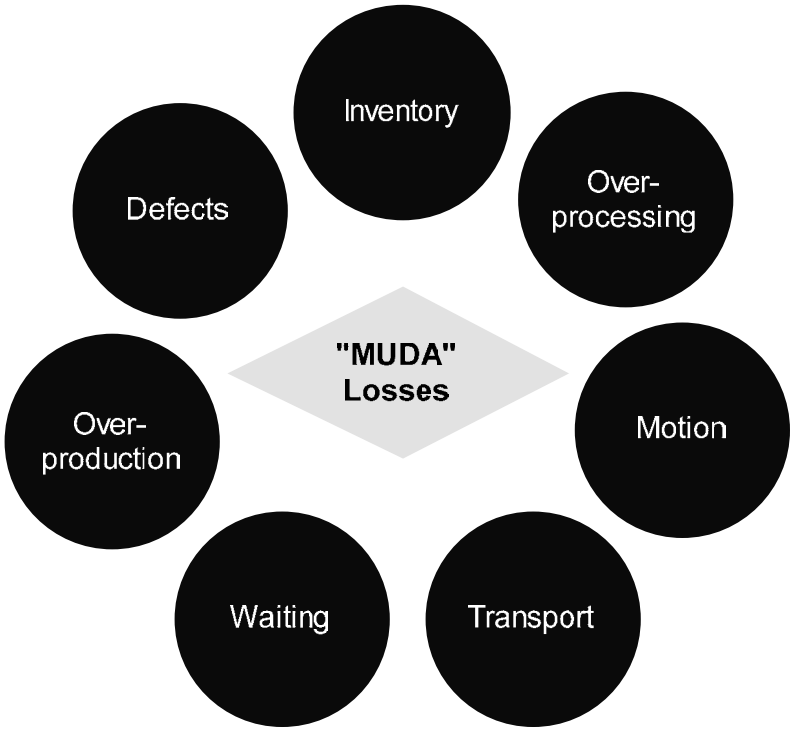

Figure 2. The seven losses (muda) identified in an operational flow

The identification of these losses is performed using a visual management techniques, used in the Lean Manufacturing system, known as Value Stream Mapping [B. Saghafian, 2009], [V. Ramesh, K.V. Sreenivasa Prasad, T.R. Srinivas, 2008].

One of the most popular visual management techniques implemented in Lean Manufacturing is the 5S [A. Vais, V. Miron, M. Pedersen, J. Folke, 2006], [C. Herron, P. M. Braiden, 2006].

The 5S method is a structured program for implementation the standardization and organization in the workplace, simplifies the environment of the workplace (Gemba), reduce losses and unnecessarily activities , improves quality, efficiency and safety, being developed by Taiichi Ohno after Second World War [Bungău, C., Lucaciu, I., Pancu R., Ganea M., 2009], [Bungău, C., Hegedus, J.A, Rosca, L., 2007], [M. Imai, 1997].

A proper view which is obtained by proper cleaning and organization, is the starting point for solving problems at work that can not be clearly seen if there is a disruption or no cleaning. 5S is a method that can be implemented successfully both in the production (manufacturing) and office areas.

Keeping the workplace clean, providing a good working environment and promotes increased productivity, reduce costs, ensure security and removes all types of losses. Losses referred in this case are essentially economic loss (financial) and loss of time, once they are removed can be invested (managed) in research and development.

In conclusion, the 5S is to keep those things necessary for the proper conduct of the workplace and the elimination of useless things.

The implementation benefits of the 5s

Preventing accidents at the workplace: a good view at the workplace (Gemba) helps to identify and prevent workplace accidents caused by tools, materials, or any other useless object specific for job activities.

Continuous quality improvement: the discipline and the implementation of standards contribute to reducing or even eliminating the scraps.

Achieving low stocks: are kept at work only materials, semi-manufactured and parts are used (processed), thus eliminating some of the stock, which represents a loss for a business.

Increase employee morale: creating an orderly and clean workplace, workers are motivated to operate efficiently at work.

The benefits of the implementation of the 5 "S" strategy are evident after a period of several weeks, and advantages of this method occur only when the all 5S are applies.

What is the 5S

5S is an advanced operational management technique, a component of Kaizen, which aims to create and maintain an organized space, clean and high performance workplace (Gemba).

The 5 S are:

- Seiri (sort);
- Seiton (set in order);
- Seiso (shine);
- Seiketsu (standardized);
- Shitsuke (sustain).

To achieve excellence in the workplace (Gemba) must pass the five steps of the 5S (Figure 3).

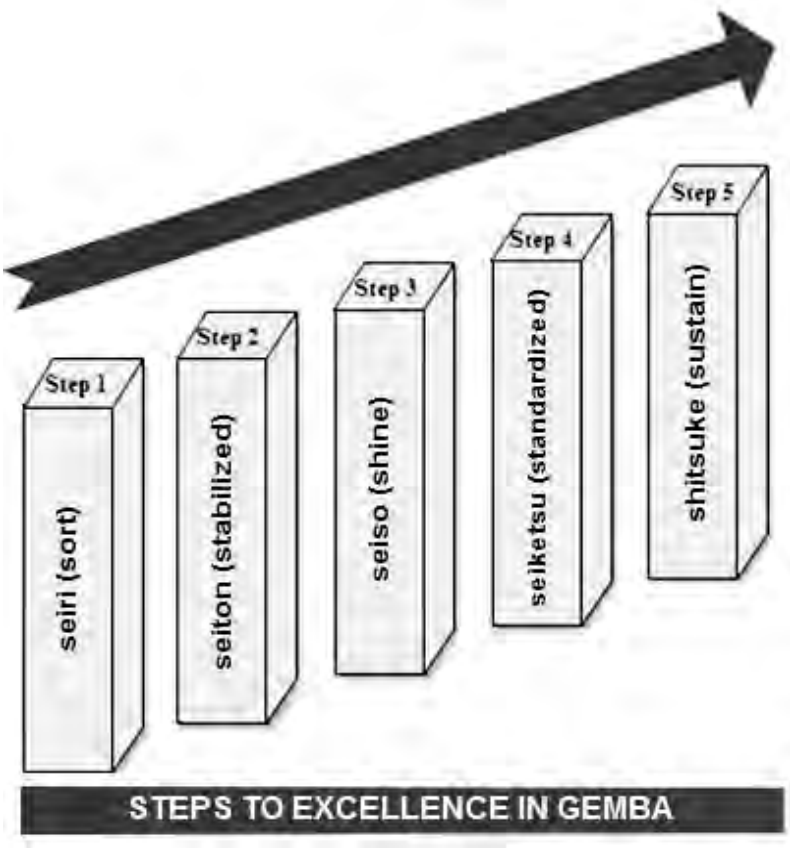

Figure 3. Steps of 5S implementation

Seiri - sort: It is the first 'S' of the 5S and involves focusing on eliminating things that are not required for certain activities and keeping only those things wich is necessary to achieve a particular purpose. An effective visual method to discover all these unusable items are marked with red (red tag).

Seiton – set in order: Represents the implementation of a system of organizing the resources (tools, materials, semi-products, etc.) so they are easily identifiable.

Seiso - shine: It is understanding how to prevent and maintain cleanliness in the workplace so that work activities to be conducted under optimal conditions.

Seiketsu - standardized: 4th 'S' is standard resulting from the completion and maintenance of the other three steps, so as to maintain a good work over a longer period.

Shitsuke - sustain: Implementation of the 5th "S" in this process is to maintain discipline and respect for the four "S" above.

Implementation of 5S

Implementation of 5S is closely linked to the principle of PDCA (Plan-Do-Check-Action – Figure 4). This principle was developed by William Edwards Deming. The first step is cleaning, which seeks to determine job status. This phase, specifically, can be exploited for planning activities, setting of objectives (Plan), together with the workers (employees). Actions are materialized (Do), after which the results are checked (Check). Finally, evaluate what has been

found between the effort and objectives (Action), then redefine the new shares (Plan) and is assigned to individuals.

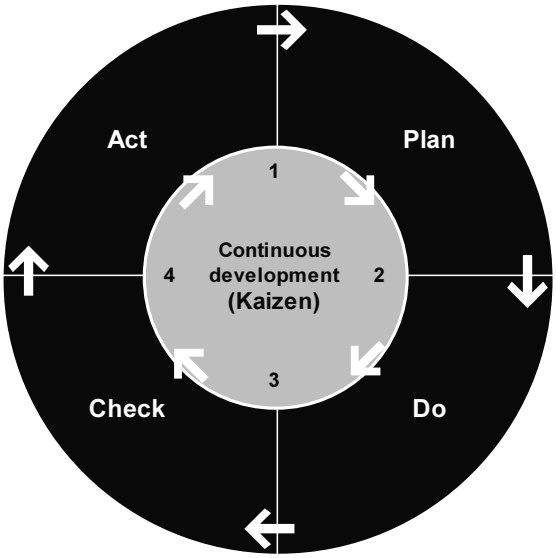

Figure 4. Deming Cycle Principle

The purpose of the implementation of 5S is to identify and remove dirt and disorder in the area of employment.

Implementation of this principle must take into account the respect of advice and logical sequences. Implementation of 5S should be done in the following order: Seiri, Seiton, Seiso, Seiketsu, Shitsuke.

Application in the implementation of the 5S principle

In this case the 5S is implemented to achieve the following results:

- Improve efficiency;
- Basis for improvement;
- Support the positive motivation of the operators;
- The build company image;
- Fewer quality problems.

5S Implementation involves the driving of the following steps:

1. Preparation
   - The company culture;
   - Core team;
   - The purpose and seriousness of the project;
   - Pilot project;
   - The implementation plan & resources;
   - Intern communication of the project.
2. Initial Audit
   - Witness the current situation;
   - Multidisciplinary Team.
3. Education
   - All persons involved;
   - Use the best of company;
   - Proposals received improvements;
   - Solving problems before starting;

- Presentation of implementation plan.

4. The five steps of 5S principle

Figure 5 shows the 5S Audit interface, using a computerized management system in Excel, which has driven the steps in the implementation of 5S, also explains each step of implementation, results and targets achieved.

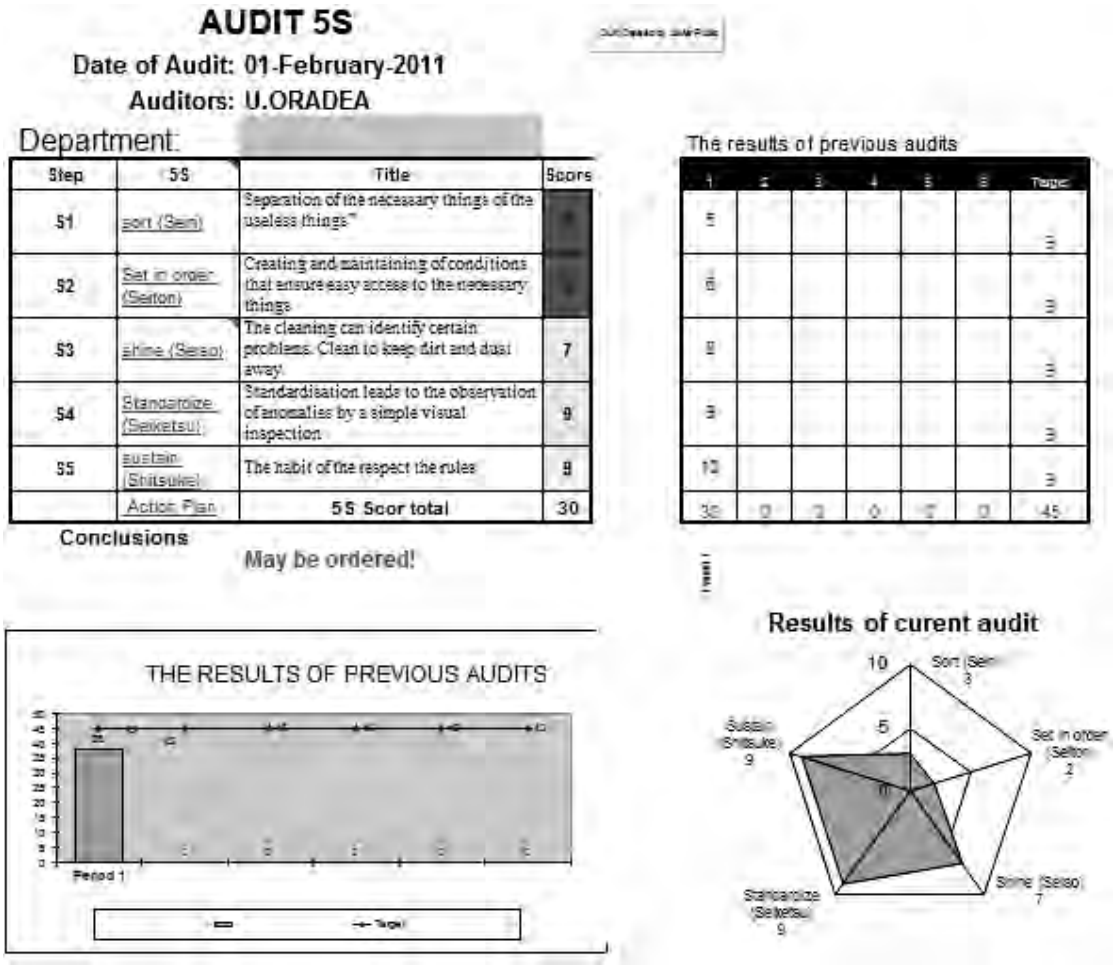

Figure 5. Initial state after first implementation of Audit

Steps to achieve better results:

Sorting

Remove everything pointless / which is not needed.
Defines the method (apply red tag)
Result: the search falls, increase safety, increase efficiency.
Examples of production: cabinets, components, documentation, test systems, packaging materials, shelving, work tables, scrap.

Set in order

Definition of fixed locations for materials, components, documentation, test systems, packaging materials, personal property.
Use shelves, areas dedicated / marked, cabinets, garbage cans.
Put everything in order:

- finding / placement of things easier;
- By frequency of use.

Use the markings on the floor to define the crossing walk.

The presentation explained.
The result is to create a visual flow that abnormal situations are detected by everyone.

Shine

Initial cleaning.
Now dirty points are visible to cleaning .
Provides enough material for cleaning.
Cleaning purpose: it tends on (floor, benches, cabinets, test systems, shelving) to prevent dust and stains should be removed.

Standardized

Tracking department work standardizing the method (mode test systems, organizing scrap).
Using a standard equipment on all bench (tools, boxes, etc.).
Creating a standard procedure.
Implementation of the standard procedure.

Sustain

Maintain all improvements implemented.
Implemented kaizen.
Involve all employees in the department.
Results should be visible to the audit results and actions.
Periodic review of implementation:

- Heads of Department: daily;
- Q.A.: Monthly.

The action plan resulting after audit contain the necessary actions as a result of nonconformities found during the audit, the responsible of action and the deadline for taking action.

Discussion and conclusions

Using computerized management system, using the computerized microprogram for implementing 5S, 5S audit was presented with the work associated with each "S" (step) basis.

According to the first table in Figure 5, can identify the baseline audit (a total score of 30), for each "S" in part, as follows:

- For "S1"the score is 3;
- For "S2" the score is 2;
- For "S3" the score is 7;
- For "S4" the score is 9;
- For "S5" the score is 9.

After first implementation of the 5S achieved a total score of 38 (Figure 5 - the results of previous auditors).

Proposed target was 45 (a target of 9 for each "S"), the diagram of the results of previous audits, so these targets were not achieved only by "S4", which remained the same (the original) and "S5" which increased from 9 to 10 (exceeded a proposed target with one).

Also have been improved the first three "S", but has not reached the proposed target for each "S", achieving the following scores:

- For "S1" the score is 5 (the initial audit <5 <target proposed);
- For "S2" the score is 6 (the initial audit <6 <target proposed);
- For "S3" the score is 8 (the initial audit <8 <target proposed).

Following this improvement "S4" remained constant, but the proposed target was surpassed "S5", with 1.

According to the spider diagram (Figure 6) can be identified increasing of each "S" obtained from improved, compared with the spider diagram from Figure 5.

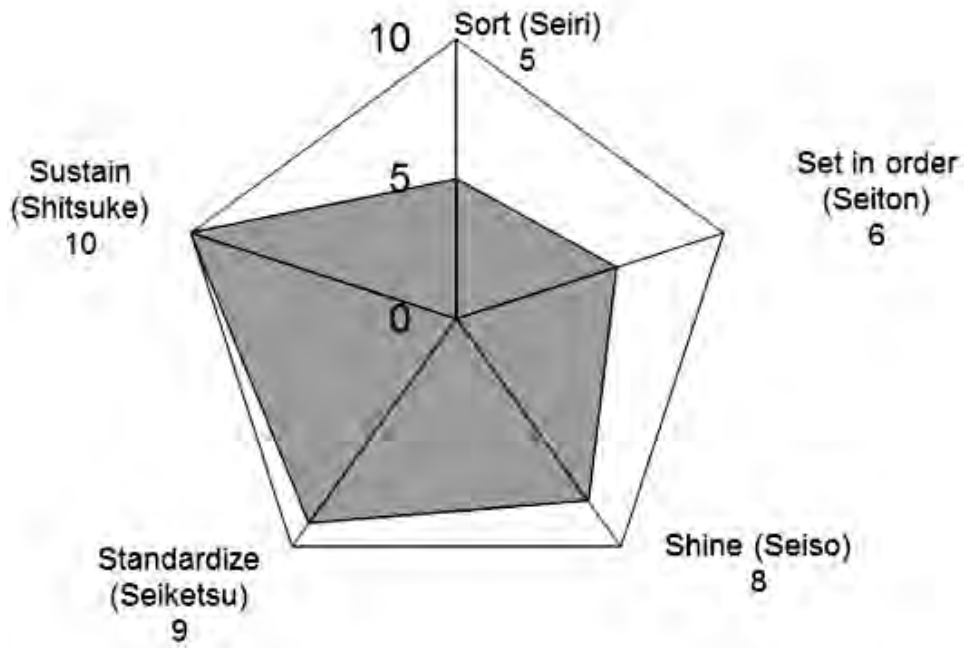

Figure 6. Spider diagram after first implementation of the 5S

So in the following period, in order to achieve the proposed targets will improve the next "S":

- "S1" (sorting);
- "S2" (set in order);
- "S3" (shine).

According to research first period of implementation of the 5S, has developed a new action plan, which was proposed to improve those "S" (the first three "S") who have not reached the intended target.

Following improvements implemented have achieved the following results (Figure 7 - period 2 for implementing the 5S):

- For "S1" the score is 8 (Period 1 <8 <target proposed);
- For "S2" the score is 7 (Period 1 <7 <target proposed);
- For "S3" the score is 9 (Period 1 <9 = target proposed);
- For "S4" the score is 9 (Period 1 <9 = target proposed);
- For "S5" the score is 10 (Period 1 <10> proposed target).

According to the spider diagram (Figure 8) may identify increased the each "S" obtained from improved compared with the spider diagram in Figure 6 (first period of implementation).

So during the second period, in order to achieve the proposed targets after the first period, has improved the following "S":

- "S1" (sorting);
- "S2" (set in order);
- "S3" (shine).

"S4" and "S5" remained constant over the first period of implementation.

Total score obtained during the implementation of the 5S is 43> first period, but less than the total proposed target.

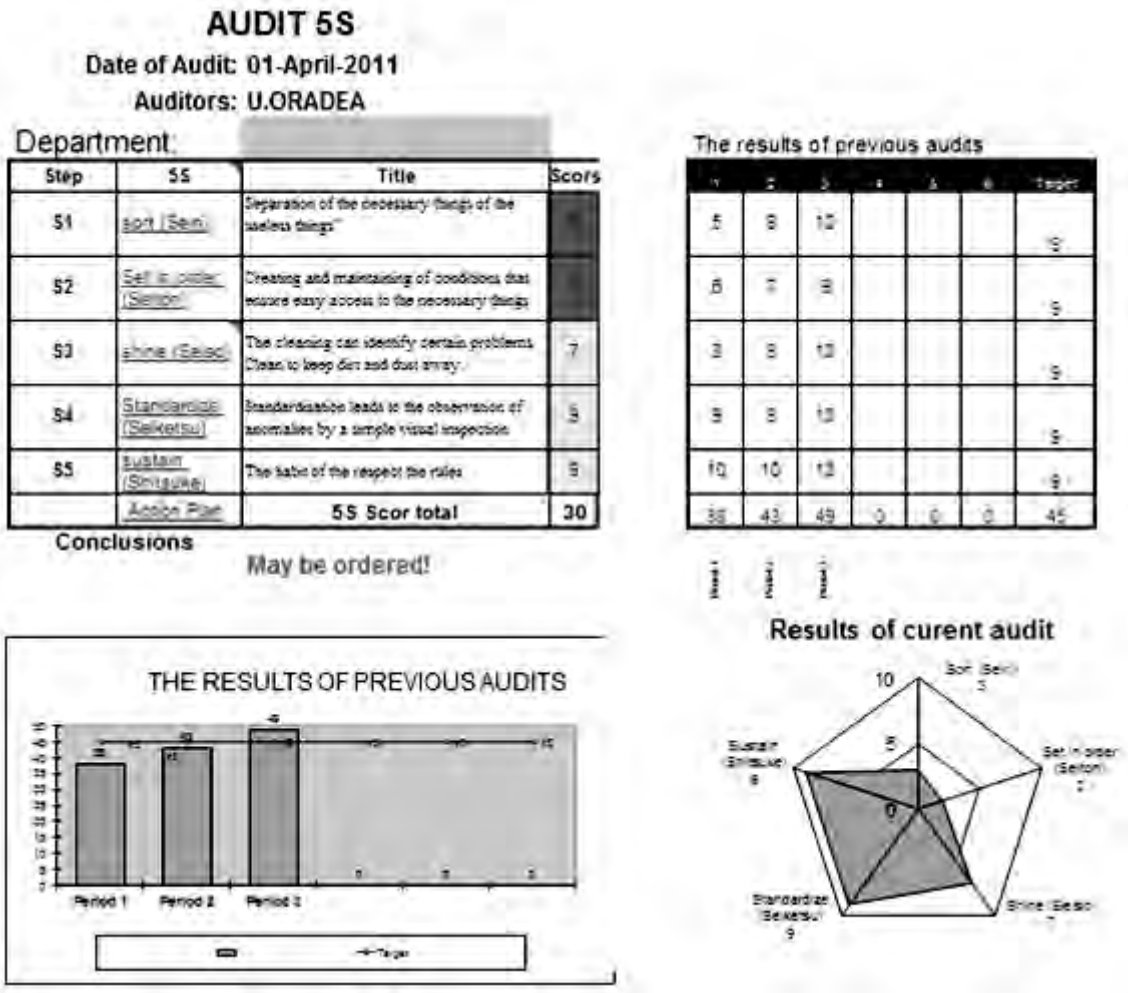

Figura 7. Initial state of audit after the second and third periods of the 5S implementation

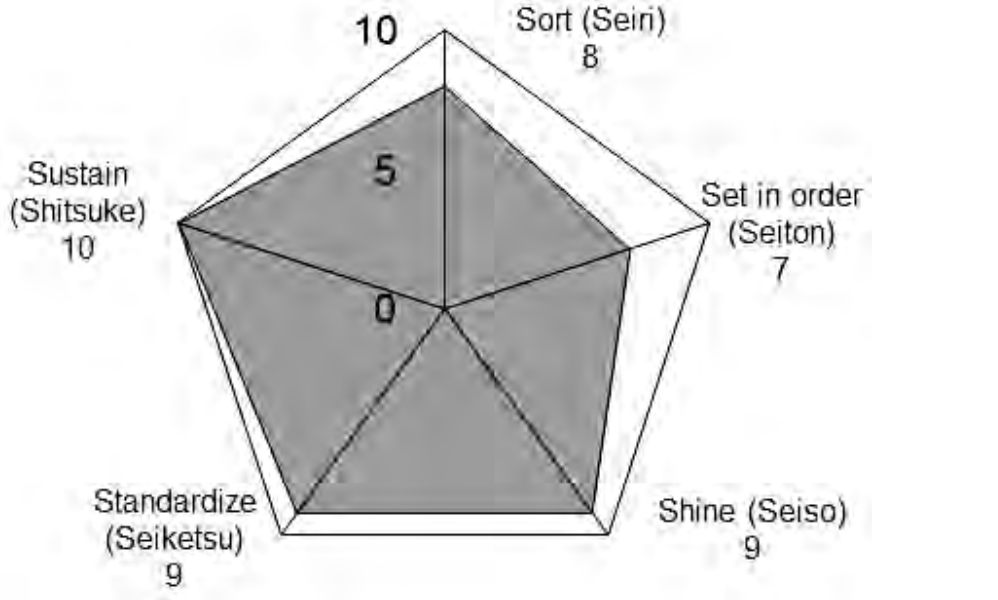

Figure 8. Spider diagram after second implementation of 5S

According to the research of the second period for implementing the 5S saw a new action plan, which was proposed to improve those "S" (first two "S") who have not reached the intended target.

Following improvements implemented have achieved the following results (Figure 7 - period 3 for implementing the 5S):

- For "S1" the score is 10 (Period 2<10>target proposed);
- For "S2" the score is 9 (Period 2<9=target proposed);
- For "S3" the score is 10 (Period 2<10> target proposed);
- For "S4" the score is 10 (Period 2<10> target proposed);
- For "S5" the score is 10 (Period 2 <10> proposed target).

According to the spider diagram (Figure 9) may identify increased the each "S" obtained from improved compared with the spider diagram in Figure 8 (second period of implementation).

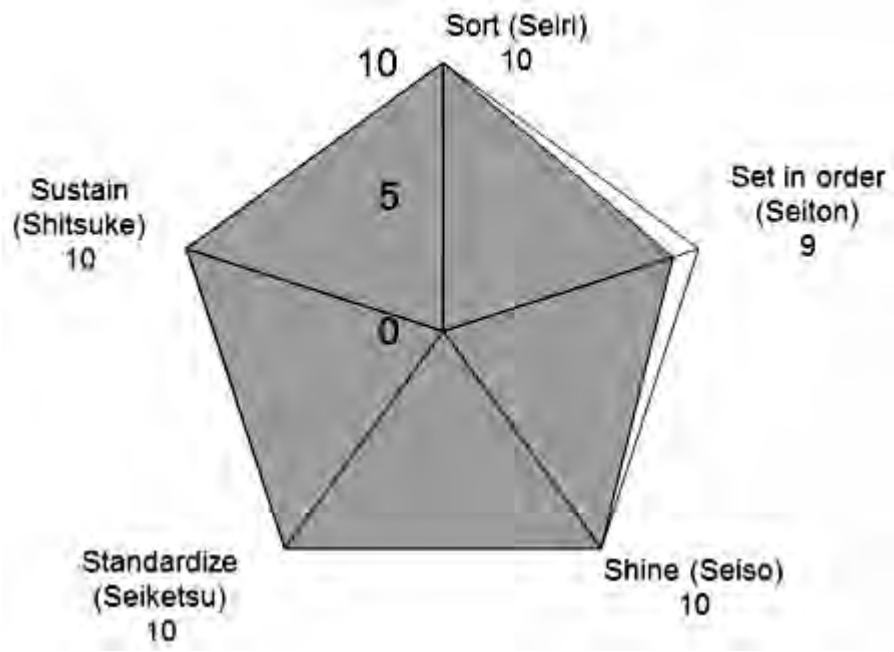

Figura 9. Spider diagram after third implementation of 5S

So in order to achieve the proposed targets after the second period of implementation of the 5S, in 3-rd period it was improved the next "S":

- "S1" (sorting);
- "S2" (set in order);
- "S3" (shine);
- "S4" (standardized);
- "S5" (sustain).

"S2" has reached the intended target, and "S1", "S3", "S4" and "S5" exceeded the proposed target ("S5" exceeded the proposed target ever since the first implementation of the 5S).

5S audit is conducted every two calendar months scheduled, also whenever required by auditors appointed unscheduled (quality engineers) in the quality department.

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A Fuzzy Weibull model with application in stocks optimization

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Abstract

Purpose: *This paper deals with the optimization of safety stock size, which in some cases may be zero.In the specialty literature there are many safety stock optimization methods. We try to bring in a contribution in this line.*
Methodology/approach: *First of all we approach the problem from the perspective of fuzzy theory. In this sense we are using fuzzy numbers logic, numbers created using a membership function generated by a Weibull model.*
Finally the membership function is the Weibull model's distribution function.
The second stage uses the hierarchy matrix and applies the eigenvalues and eigenvectors. Finally (FAHP) produces the weights sequence (w_i) , i=1÷n.
Findings: *At the end, using the weights sequence we can pass naturally to a fuzzy neural network in order to obtain the output data of the study regarding the safety stock optimization, necessary for the production process.*
Research limitations/implications: *Following the classic model of confidence intervals and coefficients' theory we realized a practical and efficient procedure in the study of stocks level.*
Practical implications: *The concrete application validated the usefulness of this mathematical model.*
Originality/value: *Using these theoretical results to continue the research can be made now a theoretical study with immediate applications of the corresponding products' reliability.*
Keywords: *probability density, distribution function, opportunity stocks.*

Introduction

In the last years, the Weibull type mathematical statistics model conqued new territories, about those of the strength of materials, products' reliability, etc., for what actually it was created. Among these is the stocks theory.

For stocks and especially for the opportunity stocks several study methods were proposed, so is difficult to find improvements and supplimentary optimizations.

The distribution function' shape can be used as membreship function, concave on suficently large intervals such that using it we can construct fuzzy numbers. Thus, consider that the fuzzy approach in stocks' theory represents an original contribution in an optimization problem, constructed with the empirical data itself, supplied by the concrete application. Therefore, every stock optimization problem conduct us to a proper mathematical model. For this reason, we considered that a brief introduction of the fuzzy numbers logical theory is appropriate to be presented in this paper. The numerical model which results from the fuzzy numbers' application supposes the global weight calculus, which in their turn is realized using FAHP algorithm. In this paper we gave a numerical model applied to the same example from the first part relative to the stocks' optimization from the confidence interval.

Estimated parameters of Weibull model using the method of least squares

We define the Weibull function in the general shape.

Suppose that the function u: $\mathbb{R}x\mathbb{R}^n$- is a partially derivable function, ie a continuous function on $\mathbb{R}$ and derivable except for a finite number of points which is not derived but admits later derivatives side. In addition we have the function [Campean, (2011)]

$$u=u(x;p),$$
$$u = u(x,p), x\epsilon\mathbb{R}, p\epsilon\mathbb{R}^n$$
$$p = (p_1, p_2,..., p_n)$$

In conclusion, u depends on n ≥ 2 parameters. Under these assumptions Weibull's function is defined by

$$f(x;p) = e^{-u(x;p)}\frac{du}{dx}(x;p)$$

(1)

In addition, f (x, p) becomes the probability density if

$$\int_{-\infty}^{\infty} f(x;p)dx = 1 \quad (2)$$

Sure that in (1), the derivative is calculated in points where u (x, p) is derivable, so (2) makes sense because the improper integral can not be defined on a finite number of points. The applications meet functions u (x, p) which depend on two or three parameters, so n = 2 or n = 3.In the found applications in most cases the Weibull generator has two or three parameters, i.e. $p\epsilon\mathbb{R}_+^2$ or $p\epsilon\mathbb{R}_+^3$. This paper will use the case $p = (\beta,\lambda)\epsilon\mathbb{R}_+^2$ and the generating function u (x, β, λ) Weibull, defined by:

$$u(x,\beta,\lambda) = \begin{cases} 0, x \le 0 \\ \lambda x^{\beta}, x > 0 \end{cases} \quad (3)$$

where β, λ>0 are parameters to be determined. Accordingly Weibull probability density, biparametric, has the form [Maniu, (1983)]

$$f(x,\beta,\lambda) = \begin{cases} \lambda\beta x^{\beta-1}e^{-\lambda x^{\beta}}, x > 0 \\ 0, x \ge 0 \end{cases} \quad (4)$$

In a first analysis, Weibull biparametric probability density, given by (4) is defined using the generator u (x, β, λ) which is continuous on $\mathbb{R}$, derivable almost everywhere on $\mathbb{R}$, $\forall\lambda > 0$ and $\forall\beta > 0$. If β ≥ 1, the Weibull generator is derivable even on $\mathbb{R}$. For $\beta \in (0,1)$ we have:

$$\lim_{x\searrow 0} u'(x) = \lim_{x\searrow 0}\frac{\beta\lambda}{x^{1-\beta}} = \infty \quad (5)$$

$$\lim_{x\nearrow 0} u'(x) = 0 \quad (6)$$

We observe that $u(x,\beta,\lambda)$ satisfies (i) and (ii) conditions from the definition of Weibull generator. In order that f (x, β, λ) from (4) to be the probability density it must be satisfied also condition (2). This shows without difficulty that:

$$\int_{-\infty}^{\infty} f(x,\beta,\lambda)dx = \begin{Bmatrix} 0, x \le 0 \\ \lim_{z\to\infty}(1-e^{-z} = 1) \end{Bmatrix} \tag{7}$$

So

$$\int_{-\infty}^{\infty} f(x,\beta,\lambda)dx = 1 \tag{8}$$

Calculus of the improper integral:

$$\int_{-\infty}^{\infty} f(x,\beta,\lambda)dx = \beta\lambda \int_{-\infty}^{\infty} x^{\beta-1} e^{-\lambda x^{\beta}} dx \tag{9}$$

We will use the change of variable $z = \lambda x^{\beta}$ so

$$dz = \lambda\beta x^{\beta-1} dx \tag{10}$$

This remark is important because we used to determine the distribution function F (x).

$$F(x) = \int_{-\infty}^{x} f(t,\beta,\lambda)dt \tag{11}$$

If we consider (3) and (4), then (11) becomes

$$F(x) = \begin{matrix} 0, x \le 0 \\ f(t,\beta,\lambda)dt, x > 0 \end{matrix} \tag{12}$$

Calculation of integral (12) is done now using (10) and this way we obtain:

$$\int_{0}^{x} \lambda\beta t^{\beta-1} e^{-\lambda t^{\beta}} dt = 1 - e^{-\lambda x^{\beta}} \tag{13}$$

Consequently the distribution function F (x) is

$$F(x) = \begin{matrix} 0, x \le 0 \\ 1 - e^{-\lambda x^{\beta}}, x > 0 \end{matrix} \tag{14}$$

Now we define the function R (x, β, λ) by:

$$R(x,\beta,\lambda) = 1 - F(x) \tag{15}$$

So

$$R(x,\beta,\lambda) = e^{-\lambda x^{\beta}} \tag{16}$$

From the perspective of probability theory, distribution function is defined by:

$$F(x) = P(X < x) \tag{17}$$

Means that the probability distribution function, namely the probability of occurrence of type continuous random variable X which has density (distribution) on the Weibull model given by (4). Therefore R (x, β, λ) is negated by F (x, β, λ). In the literature R (x, β, λ) is called the reliability

function [1]. It will be determined the parameters β and λ, positive, using the method of least squares. For this purpose we define the function

$$L(x,\beta,\lambda) = \ln[\ln R^{-1}(x,\beta,\lambda)] = \beta \ln x + \ln \lambda \tag{18}$$

We attached a function defined by (18) an uniform mesh of variable x>0. If we introduce the notation

$$a = \ln \lambda\,,\ t = \ln x\,,\ y = L(x,\beta,\lambda) \tag{19}$$

expression (18) becomes:

$$y = a + \beta t \tag{20}$$

In this way the method of least squares regression line turns into determination [2], which boils down to solving the system

$$\begin{aligned} &\sum_{i=1}^{n} (\widetilde{y}_1 - \beta t_i - a) t_i = 0 \\ &\sum_{i=1}^{n} (\widetilde{y}_1 - \beta t_i - a) = 0 \end{aligned} \tag{21}$$

The unknowns β and a, where y_i and t_i represents the values attached to the uniform discretization:

$$t_i = \ln x_i\,, \tag{22}$$

$$\widetilde{y}_1 = \ln(\ln \frac{1}{p_i})$$

where p_i is the empirical frequency of withdrawals. Linear system (21) admits a unique solution given by:

$$\beta = \frac{C(T_n, Y_n)}{D^2(T_n)}$$

$$a = M(Y_n) - \frac{M(T_n) C(T_n, Y_n)}{D^2(T_n)} \tag{23}$$

Where we used the notations:

$$\begin{aligned} T_n &= (t_1, t_2, ..., t_n)^T \\ Y_n &= (y_1, y_2, ..., y_n)^T \end{aligned} \tag{24}$$

$$M(Y_n) = \frac{1}{n} \sum_{k=1}^{n} y_k \tag{25}$$

$$M(Y_n T_n) = \frac{1}{n} \sum_{k=1}^{n} t_k y_k \tag{26}$$

$$C(T_n Y_n) = M(T_n Y_n) - M(T_n) M(Y_n) \tag{27}$$

$$D^2(T_n) = M(T_n^{\ 2}) - [M(T_n)]^2 \tag{28}$$

So

$$M(T_n^2) = \frac{1}{n}\sum_{k=1}^{n} t_k^2$$

In the theory of probability the expressions (25) - (28) have specific meanings. The variables that are intervening have the following meanings: The mesh of variable x> 0:

$$x_1 < x_2 < \ldots\ldots\ldots < x_n \tag{29}$$

corresponds to a mesh of out of stock frequencies:

$$p_1 < p_2 < \ldots\ldots\ldots < p_n \tag{30}$$

Therefore the variables t_i and $\tilde{y_i}$ are given by (22). With these remarks Weibull's function (4) is well defined. If you mention that β is given by (23) and λ, using (19) $\lambda = e^a$ (31) with a from (23).

Fuzzy numbers of Weibull type

From the previous paragraph we saw that the Weibull distribution function has the form

$$F(t) = 1 - e^{-\lambda t^{\beta}}, t \geq 0 \tag{31}$$

The variable $t\epsilon[o,T]$ represents the time. We can observe that F(t)>0, $\forall t \geq 0$, but F''(t) has the form:

$$F''(t) = \lambda\beta t^{\beta-2}(\beta - 1 - \lambda\beta t^{\beta})e^{-\lambda t^{\beta}} \tag{32}$$

If we study the sign of F''(t) we noticed that it is given by the table 1.

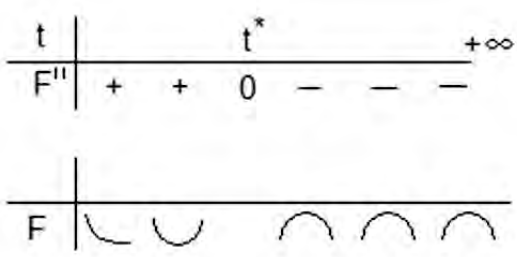

Table 1.Sign of F" and the character of F

Where t* is the inflection point of F, given by

$$t^* = (\frac{\beta-1}{\lambda\beta})^{\frac{1}{\beta}} \tag{33}$$

Of course (33) makes sense for the parameter $\beta > 1$. Therefore the graph of F is given as in figure 2.

If we take into account (33), then the value of F (t*) is:

$$F(t*) = 1 - e^{-(1-\frac{1}{\beta})} \tag{34}$$

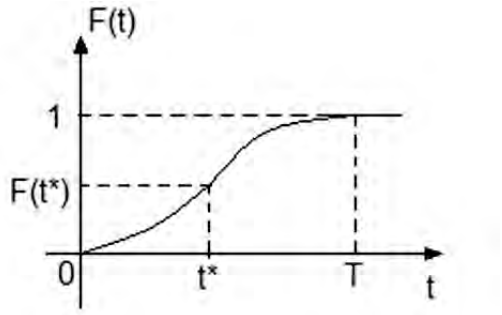

Fig.2. Graph of the distribution function F (t)

Thus we can define the Weibull member function $\mu_{(t)}$ through:

$$\mu(t) = \begin{matrix} 0, t < 0 \\ 1 - e^{-\lambda t^{\beta}}, t \geq 0 \end{matrix} \tag{35}$$

Fuzzy numbers of cut is now built for t ≥ t *. The construction of these numbers are made as follows: Let's take $h_0 = \mu(t*)$, meaning h_0 is given by:

$$h_0 = 1 - e^{-(1-\frac{1}{\beta})} \tag{36}$$

And the uniform network $(\mu_k)_{k\geq 0}$ given by

$$\mu_k = h_0 + kh < 1, h > 0 \tag{37}$$

The step h>0 is chosen according to network time of a stock issue date. By determining the number of cut μ_k we determine the Fuzzy number of Weibull type $I_{k,h}$ given by [Coyle, (2008)]

$$I_{k,h}=[t_k,t_{k+1}] \tag{38}$$

Where t_k is given by:

$$t_k = (\frac{1}{\lambda} ln \frac{1}{1-h_0-kh})^{\frac{1}{\beta}} \tag{39}$$

If you take into account (38) an embedding in $\mathbb{R}$ of the fuzzy numbers of Weibull type $I_{k,h}$, we obtained by convex combination and associated modes t_k and t_{k+1}, obtaining the fuzzy number

$$\widetilde{I_{k,h}}(\alpha) = (1-\alpha)t_k + \alpha t_{k+1}, \alpha \epsilon [0,1] \tag{40}$$

In this way we obtained a family of fuzzy numbers on parameter α, $\alpha \epsilon [0,1]$. This family of Fuzzy numbers is no longer defuzzificated, it will result in validation of the models obtained by numerical algorithms (FAHP) and Neuro-Fuzzy networks that are attached. Geometric picture of these Fuzzy numbers $I_{k,h}$ is given in fig.3.

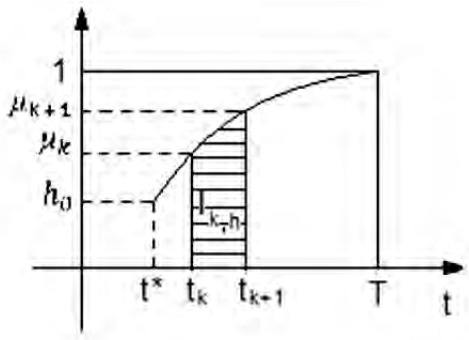

Fig.3. Geometric picture of Fuzzy numbers

Algorithm (FAHP) Weibull

If in the proposed work interval [t *,T] are generated the Fuzzy numbers $I_{k,h}$, and embedded numbers $\widetilde{I_{k,h}}(\alpha)$ and if we note the characteristics of safety stock by $C_{s,k}$ (which can be : costs, stock size, tend to increase or decrease, the point of recovery, etc..) then we have all the data needed for the description of the algorithm (FAHP). From the way they were created by Fuzzy numbers $I_{k,h}$ we can state that:

$$I_{k,h} < I_{k+1,h} \tag{41}$$

This arrangement is natural. Therefore we also have:

$$\widetilde{I_{k,h}}(\alpha) < \widetilde{I_{k+1,h}}(\alpha) \tag{42}$$

If stock characteristics, denoted as I proposed are rearranged according to their increasing importance, also through:

$$C_{s,k} < C_{s,k+1} \tag{43}$$

Then we can assume that every feature $C_{s,k}$ was associated a fuzzy number $I_{k,h}$. In this way we can write the matrix hierarchy C_s:

$$C_s = \begin{bmatrix} C_{s,1} & C_{s,2} & \dots & C_{s,n} \\ I_{11} & I_{12} & \dots & I_{1n} \\ \dots & \dots & & \\ I_{n1} & I_{n2} & \dots & I_{nn} \end{bmatrix} \begin{matrix} C_{s1} \\ C_{s2} \\ \vdots \\ C_{s,n} \end{matrix} \tag{44}$$

Fuzzy numbers associated to the characteristics $C_{s,k}$ are ordered by index “k”. Using the (AHP) process we build the matrix C_s can lead to embedding in $\mathbb{R}$ by the convex combination (40) and obtain:

$$\widetilde{C_s} = \begin{pmatrix} c_{11} & c_{12} & \cdots & c_{1n} \\ c_{21} & c_{22} & \cdots & c_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ c_{n1} & c_{n2} & \cdots & c_{nn} \end{pmatrix} \tag{45}$$

For a given value of h>0 and $\alpha\epsilon[0,1$ (45) becomes a matrix with known elements $c_{ij}\epsilon\mathbb{R}$. We can now apply the theory of eigenvalues and eigenvectors of (AHP) for the matrix $\widetilde{C_s}$. As is known the largest positive eigenvalue leads to the vector that contains the absolute values of the weights. These values are the components of its vector, leading to normalized weights vector noted w_s.

Neural – Fuzzy Weibull networks

We approached a model based on neural-fuzzy Weibull networks. This new denomination is due to the introduction of fuzzy numbers, generated by Weibull model, explained inthe paper.

We modeled the unit functional of supply, UF- Supply, through a neural-fuzzy network. The neural network scheme is shown in Fig.4. Neural network needs 4 neurons in input layer, corresponding to the four input quantities, namely: the average consumption C_{smed}, relative frequency, global weights and the volume of orders to be recived Cd.The middle layer is composed of 20 neurons, but this number may be changed so that the error obtained in the training stage to agree. The final layer nodes are the number 2 and they correspond respectively to the order size Q and the control point s.[Ciupan, (2011)]

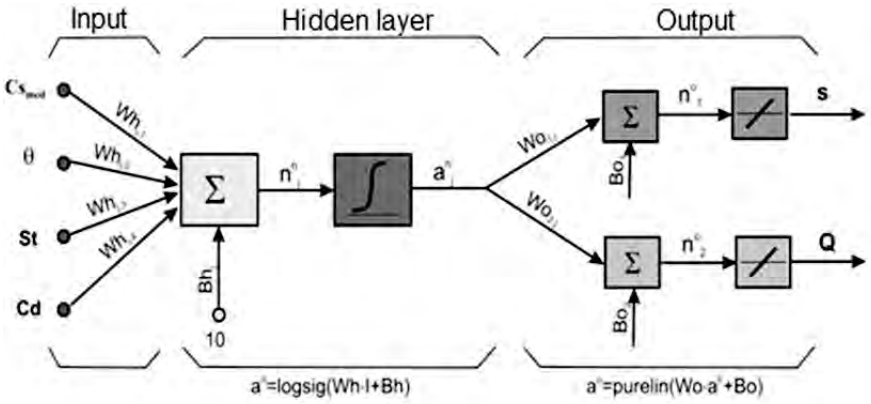

Fig.4. Neural network configuration

Case study

This numerical application refers to the stocks optimization of a S.A., using the stocks output during an year, with 12 intervals, corresponding to the 12 months of the year.Each input data for the neural network are given in Tables 2, 3 ,4 5, 6, including the corresponding weigths, calculated by FAHP method, in which, the fuzzy numbers are taken from the membership function, generated by the distribution function of Weibull type, that was created using the stock output. Thus, an intimate connection between weigths and fuzzy numbers was created.

Table 2. General input data of stock output

Time interval	Stock output	Absolute frequency	Relative frequency
S1: January	6698	8.386337457	0.083863375
S2: February	6114	7.655130966	0.07655131
S3:March	6769	8.475234136	0.084752341
S4: April	6724	8.41889117	0.084188912
S5:May	6805	8.520308509	0.085203085
S6:June	6744	8.443932489	0.084439325
S7:July	6651	8.327490359	0.083274904
S8:August	6858	8.586668002	0.08586668
S9:September	6757	8.460209345	0.084602093
S10:Octomber	6510	8.150949066	0.081509491
S11:November	6340	7.938097861	0.079380979
S12:December	6898	8.636750639	0.086367506
	79868		

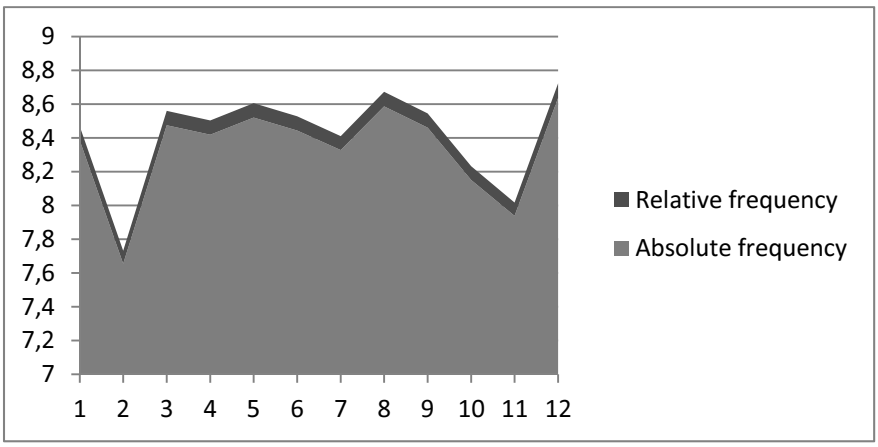

Fig.5..Relative frequency/absolute frequency

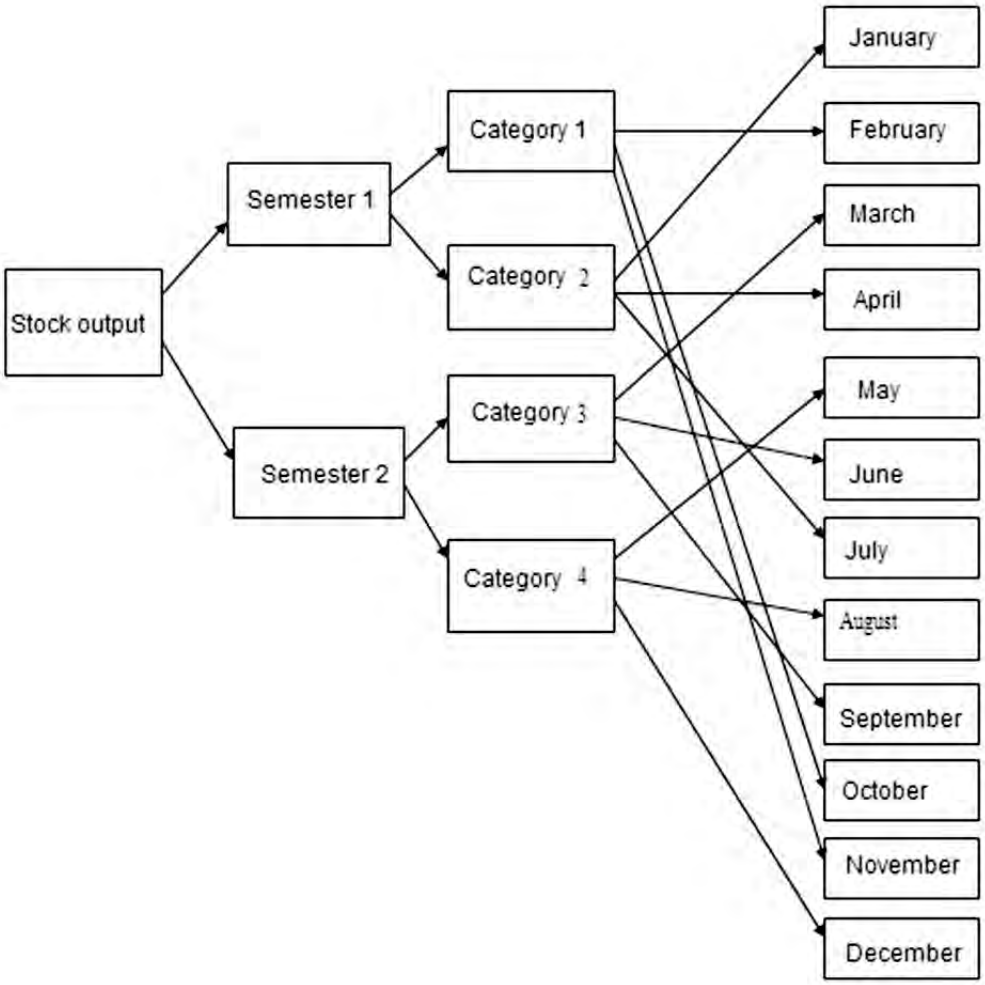

Fig.6. AHP Scheme with 4 levels

Tab.3. AHP Matrics

1	8.386337457	0.117990841	0.118780488	0.117366642	0.118428233	8.386337457	0.116459609	0.118200385	8.386337457	8.386337457	0.1157843
0.119241565	1	0.117990841	0.118780488	0.117366642	0.118428233	0.120084198	0.116459609	0.118200385	0.1226851	0.125974763	0.1157843
8.475234136	8.475234136	1	8.475234136	0.117366642	8.475234136	8.475234136	0.116459609	8.475234136	8.475234136	8.475234136	0.1157843
8.41889117	8.41889117	0.117990841	1	0.117366642	0.118428233	8.41889117	0.116459609	0.118200385	8.41889117	8.41889117	0.1157843
8.520308509	8.520308509	8.520308509	8.520308509	1	8.520308509	8.520308509	0.116459609	8.520308509	8.520308509	8.520308509	0.1157843
8.443932489	8.443932489	0.117990841	8.443932489	0.117366642	1	8.443932489	0.116459609	0.118200385	8.443932489	8.443932489	0.1157843
0.119241565	8.327490359	0.117990841	0.118780488	0.117366642	0.118428233	1	0.116459609	0.118200385	8.327490359	8.327490359	0.1157843
8.586668002	8.586668002	8.586668002	8.586668002	8.586668002	8.586668002	8.586668002	1	0.116459609	0.116459609	0.116459609	0.1157843
8.460209345	8.460209345	0.117990841	8.460209345	0.117366642	8.460209345	8.460209345	8.586668002	1	8.460209345	8.460209345	0.1157843
0.119241565	8.150949066	0.117990841	0.118780488	0.117366642	0.118428233	0.120084198	8.586668002	0.118200385	1	8.150949066	0.1157843
0.119241565	7.938097861	0.117990841	0.118780488	0.117366642	0.118428233	0.120084198	8.586668002	0.118200385	0.1226851	1	0.1157843
8.636750639	8.636750639	8.636750639	8.636750639	8.636750639	8.636750639	8.636750639	8.636750639	8.636750639	8.636750639	8.636750639	1

Tab.4.Eigenvalues

λ_1=

31.0825	0	0	0	0	0	0	0	0	0	0	0
0	-0.1629 +18.0748i	0	0	0	0	0	0	0	0	0	0
0	0	-0.1629 -18.0748i	0	0	0	0	0	0	0	0	0
0	0	0	(-)2.3507 + 9.8913i	0	0	0	0	0	0	0	0
0	0	0	0	(-)2.3507 – 9.8913i	0	0	0	0	0	0	0
0	0	0	0	0	(-)3.2384 + 3.5828i	0	0	0	0	0	0
0	0	0	0	0	0	(-) 3.2384 + 3.5828i	0	0	0	0	0
0	0	0	0	0	0	0	0.5701 + 1.5548i	0	0	0	0
0	0	0	0	0	0	0	0	0.5701 + 1.5548i	0	0	0
0	0	0	0	0	0	0	0	0	(-)2.8056 + 0.5803i	0	0
0	0	0	0	0	0	0	0	0	0	(-)2.8056 – 0.5803i	0
0	0	0	0	0	0	0	0	0	0	0	(-)3.1075

Tab.5.Eigenvectors

X_1=

(-0.1082)	0.1826 - 0.1684i	0.1826 + 0.1684i	(-0.2365 + 0.1288i)	(-0.2365 - 0.1288i)	-0.4126 - 0.1227i	(-0.4126 + 0.1227i)	0.0004 + 0.0024i	0.0004 - 0.0024i	0.1289 - 0.1588i	0.1289 + 0.1588i	-0.0023
(-0.0110)	(-0.0024 + 0.0048i)	(-0.0024 - 0.0048i)	(-0.0052 - 0.0016i)	(-0.0052 + 0.0016i)	0.0019 - 0.0004i	0.0019 + 0.0004i	(-0.0004 - 0.0693i)	-0.0004 + 0.0693i	-0.0102 - 0.0030i	-0.0102 + 0.0030i	0.0059
(-0.3168)	(-0.1573 - 0.2134i)	(-0.1573 + 0.2134i)	(0.2036 - 0.2630i)	(0.2036 + 0.2630i)	-0.1158 + 0.0277i	-0.1158 - 0.0277i	(-0.0240 - 0.0003i)	-0.0240 + 0.0003i	0.1926 - 0.2099i	0.1926 + 0.2099i	-0.5343
(-0.1383)	0.1014 - 0.2482i	0.1014 + 0.2482i	(-0.0812 + 0.2767i)	(-0.0812 - 0.2767i)	-0.0633 + 0.4292i	-0.0633 - 0.4292i	0.0122 - 0.0020i	0.0122 + 0.0020i	(-0.2086 + 0.1448i)	-0.2086 - 0.1448i	0.0025
(-0.4067)	-0.2528 - 0.1359i	-0.2528 + 0.1359i	(-0.0483 - 0.3547i)	-0.0483 + 0.3547i	0.0460 + 0.1126i	0.0460 - 0.1126i	-0.0007 + 0.1249i	(-0.0007 - 0.1249i)	(-0.3079 + 0.1883i)	-0.3079 - 0.1883i	0.588
(-0.1769)	(-0.0149 - 0.2890i)	(-0.0149 + 0.2890i)	0.1492 + 0.2705i	0.1492 - 0.2705i	0.4388	0.4388	(-0.0104 - 0.0627i)	-0.0104 + 0.0627i	0.3007 - 0.1015i	0.3007 + 0.1015i	-0.0027
(-0.0845)	0.2187 - 0.0700i	0.2187 + 0.0700i	(-0.2413 - 0.0703i)	-0.2413 + 0.0703i	0.1767 - 0.3910i	0.1767 + 0.3910i	(-0.0004 + 0.0001i)	(-0.0004 - 0.0001i)	-0.0644 + 0.1532i	-0.0644 - 0.1532i	0.0021
(-0.3593)	-0.5276	-0.5276	0.0501 + 0.2028i	0.0501 - 0.2028i	-0.0258 - 0.1379i	(-0.0258 + 0.1379i)	(-0.0123 + 0.0591i)	-0.0123 - 0.0591i	(-0.0750 - 0.0434i)	-0.0750 + 0.0434i	-0.1194
(-0.3268)	-0.1332 - 0.0286i	(-0.1332 + 0.0286i)	0.4627	0.4627	-0.1764 - 0.2521i	(-0.1764 + 0.2521i)	(-0.0007 + 0.0578i)	(-0.0007 - 0.0578i)	(-0.2450 + 0.1416i)	-0.2450 - 0.1416i	0.2565
(-0.1451)	0.1252 + 0.2396i	0.1252 - 0.2396i	0.0418 - 0.1685i	0.0418 + 0.1685i	0.1919 + 0.0868i	0.1919 - 0.0868i	(-0.0001 + 0.0648i)	(-0.0001 - 0.0648i)	(-0.1395 - 0.2014i)	-0.1395 + 0.2014i	-0.2523
(-0.1146)	0.0139 + 0.2522i	0.0139 - 0.2522i	0.1393 - 0.0874i	0.1393 + 0.0874i	-0.1110 + 0.1861i	(-0.1110 - 0.1861i)	(-0.0127 + 0.0019i)	(-0.0127 - 0.0019i)	0.1630 + 0.1305i	0.1630 - 0.1305i	0.2484
(-0.6283)	(-0.2989 + 0.2325i)	(-0.2989 - 0.2325i)	(-0.1675 - 0.3224i)	(-0.1675 + 0.3224i)	(-0.0030 + 0.1233i)	(-0.0030 - 0.1233i)	0.9816	0.9816	0.6022	0.6022	-0.4042

Tab.6.Partial weights

January	0.03841
February	0.0039
March	0.11248
April	0.0491
May	0.144399
June	0.0628
July	0.03
August	0.12756
September	0.116
October	0.05151
November	0.04083
December	0.22307

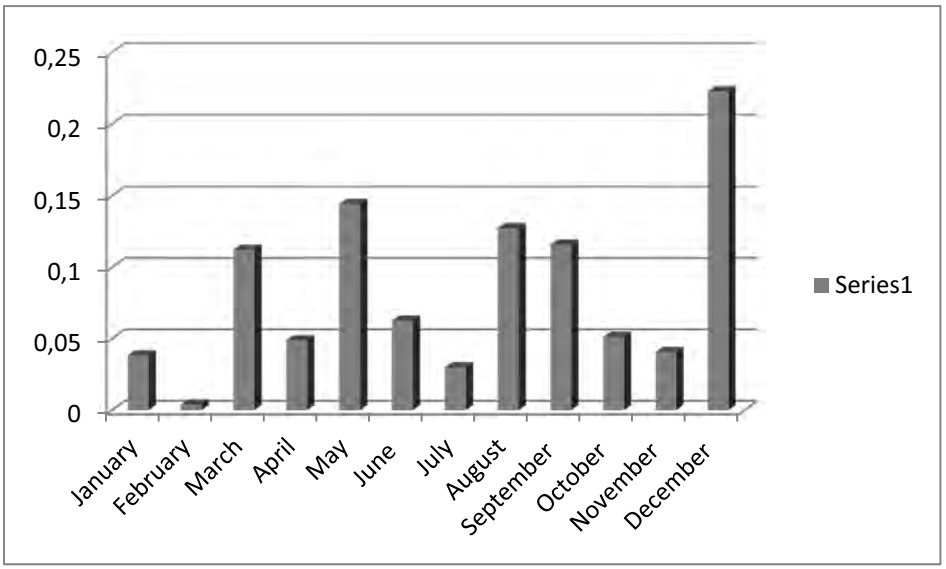

Fig.7. Partial weigths of stock output

Conclusion

The need for stock opportunity is a current problem. We solved this problem using mathematical model based on Weibull type neural fuzzy networks that models the functional unit of supply, UF-Supply, through a neural fuzzy network, for a large period of time that reflects the phenomenon.

It will be interesting a comparative study regarding h and α parameters which represents the discretization pass and respectively the defuzzification parameter by convex combination.

We call attention that the proposed mathematical model is strictly connected to the input data of every stock's problem, namely to the relative frequencies of the stock's outputs.

The Weibull's function was preferred because its special qualities allow the generation of fuzzy numbers.

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Software for modeling Flexible Manufacturing Systems operations using Game Theory

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Abstract

Purpose *–This paper presents the use of a software, created by the authors, that allows simulations of a Flexible Manufacturing System (FMS) using Game Theory (GT), tracing the importance coefficients influence on the typological nucleus structure and on the games value.*
Methodology/approach *– To determine the importance coefficients influence on the structure of a typological nucleus and on the games value, the simulation technique is used, using "Simulare.cpp" software, that embeds GT algorithms.*
Findings *– After running the program, the importance coefficients influence on the games value and on the structure of the typological nucleus will be determined. It must be mentioned that along with ABC Analysis and Electre Method, GT can be accepted as a typological nucleus determination method, having a strong focusing character upon the production load.*
Research limitations/implications *– The program "Simulare" is an integral part of "Nucleus" program, along with "Affinitas" subprogram, the latter allowing an automatic determination of the utility matrix, concordance matrix and affinity matrix.*
Practical implications *– This research offers an insight on how the importance coefficients, specific to the production load determination criteria, are determined, offering for the systems analyst an overview of the investigated issue.*
Originality/value *– The developed software application enables an extensive analysis, from the input data matrix, of how a random inputs FMS operates and of the importance coefficients, specific to the selection criteria, influence on the typological nucleus and on the games value.*

Key words: *Game Theory, Simulation, Importance coefficient.*

Introduction

We live in a world where the individual's need to customize all goods and products one consumes is more pronounced. To cope with this major change of the market, all manufacturers have tried to broaden their product range, but also to retain the benefits of mass production. Precisely for this, the "flexible system" concept appeared, concept that was created to meet the increasingly diversified and sophisticated needs of the consumers. The "flexible systems" are meant to meet these market needs and to help make a swift and economic adjustment. They provide a quick transition in production, with lowest costs, from a production load to another.

Besides the above mentioned, there is another significant argument supporting the trend of developing flexible manufacturing based on flexible automation, focusing on the need of an overview of the new manufacturing processes.

This paper presents how to use an original software, created by the authors, which allows the simulation of random inputs Flexible Manufacturing System operation, using Game Theory specific algorithms. Staring from the input data matrix, Affinitas[1] subprogram determines automatically the utility

matrix, concordance coefficients matrix and affinity coefficients matrix. The application developed by the authors using DEV C++ programming environment, “Simulare” application, using as input data the affinity coefficients matrix, allows the simulation of a FMS operation, using Game Theory algorithms. Both “Affinitas” and “Simulare” applications are integral parts of the “Nucleus” program, which allows tracking the implications of importance coefficients value modification, in the range from 0.01 to 0.99, on the games value and on the typological nucleus structure.

Game Theory is a relatively new branch of mathematics, developed in the past 60 years, which lead to completely new visions and also allowed researchers to explore the subject with mathematical rigor. The basics of Game Theory were introduced in John von Neuman and Oscar Morgensterns paper “The Theory of Games and Economic Behavior”, published in 1944. They defined the game as “any interaction between various agents, governed by a set of specific rules that determine the possible moves of each participant and the earnings of each combination of moves”.

From this definition we imagined that in a FMS is a continuous dispute between two players. On one hand there is the production load, which tends to maximize the number of products that can be processed in the system and on the hand there is the second player, the processing system, which tends to restrict as much as possible the typological diversity to be processed in the system. The two players are engaged in an ongoing dispute until the system finds an equilibrium point characterized by a stable configuration.

The software

To test the created software operation, a production load was defined and 20 products, from sintered products industry, were considered. All 20 products were randomly chosen, there was no rule or reasoning by which to choose the products. The production load was defined in terms of three main areas of restrictions origin: economic, environmental and technical. In the economic area the chosen selection criteria were: Economic Benefit, expressed in lei/piece and Annual Series, expressed in number of products planned to be completed within a year. The criteria Operations Number and Execution Time [minutes/piece] were chosen to represent technical area. The execution Time represents all processing times of the products, for each operation, but not including the transportation times between the workstation. The criteria Raw Material Quantity and Energy Consumption were chosen to represent the environmental area.

The following table contains data to be used as input to run “Simulare” application, to determine the typological nucleus structure and the games value. To determine the influence the importance coefficients have on the games value, the same input data will be used to run “Nucleus” application.

Table 1 Products characteristics

No.	Products name	Raw material quantity [gram/piece]	Number of operations	Economic benefits [lei/piece]	Annual series [piece/year]	Execution time [min/piece]	Energy consumtion [lei/piece]
1	P1	13	10	0,183	270000	0,249	0,01679
2	P2	42	10	0,279	30000	0,326	0,02082
3	P3	132	17	0,728	380000	1,02	0,04529
4	P4	471	13	2,268	10000	1,322	0,22788
5	P5	47	13	0,298	840000	0,372	0,04243
6	P6	50	16	0,599	350000	1,58	0,15251
7	P7	23	14	0,332	270000	0,973	0,04141
8	P8	237	15	1,113	60000	1,301	0,08139
9	P9	358	16	1,775	380000	1,731	0,08296

10	P10	90	13	1,012	380000	1,407	0,12521
11	P11	644	13	3,253	5000	2,71	0,16213
12	P12	139	14	1,421	120000	2,438	0,30819
13	P13	82	10	0,734	480000	0,66	0,15015
14	P14	89	10	0,695	480000	0,654	0,15018
15	P15	13	10	0,147	60000	0,39	0,01046
16	P16	25	11	0,218	120000	0,259	0,03295
17	P17	96	11	0,485	240000	0,431	0,07717
18	P18	193	10	1,204	650000	0,826	0,10415
19	P19	148	14	0,641	360000	0,961	0,0628
20	P20	31	15	0,649	12000	0,855	0,03174

In the application “Nucleus” were created more subprograms, each of these being responsible for making a step in the methodology of determining the typological nucleus for a Flexible Manufacturing System. The application includes several subprograms including:

- Affinitas – includes parts of the application responsible for reading data from the keyboard, utility matrix calculation, concordance coefficients matrix calculation, affinity coefficients matrix calculation.

- out_afinitate – it is a subprogram that provides on-screen display and save of all the matrices to be calculated in this application including: input data matrix, utility matrix, concordance coefficients matrix, affinity coefficients matrix, etc.

- Simulare – includes the source code responsible for the simulation of the Flexible Manufacturing System as a mathematical game using GT. After running this part of the application, the typological nucleus structure and the games value are determined.

The three subprograms were designed to run one after another, so that the output data provided by the current game, still running, to become input data for the next sequence of the application.

The logical scheme and the source code of the created application are presented in figure 1.

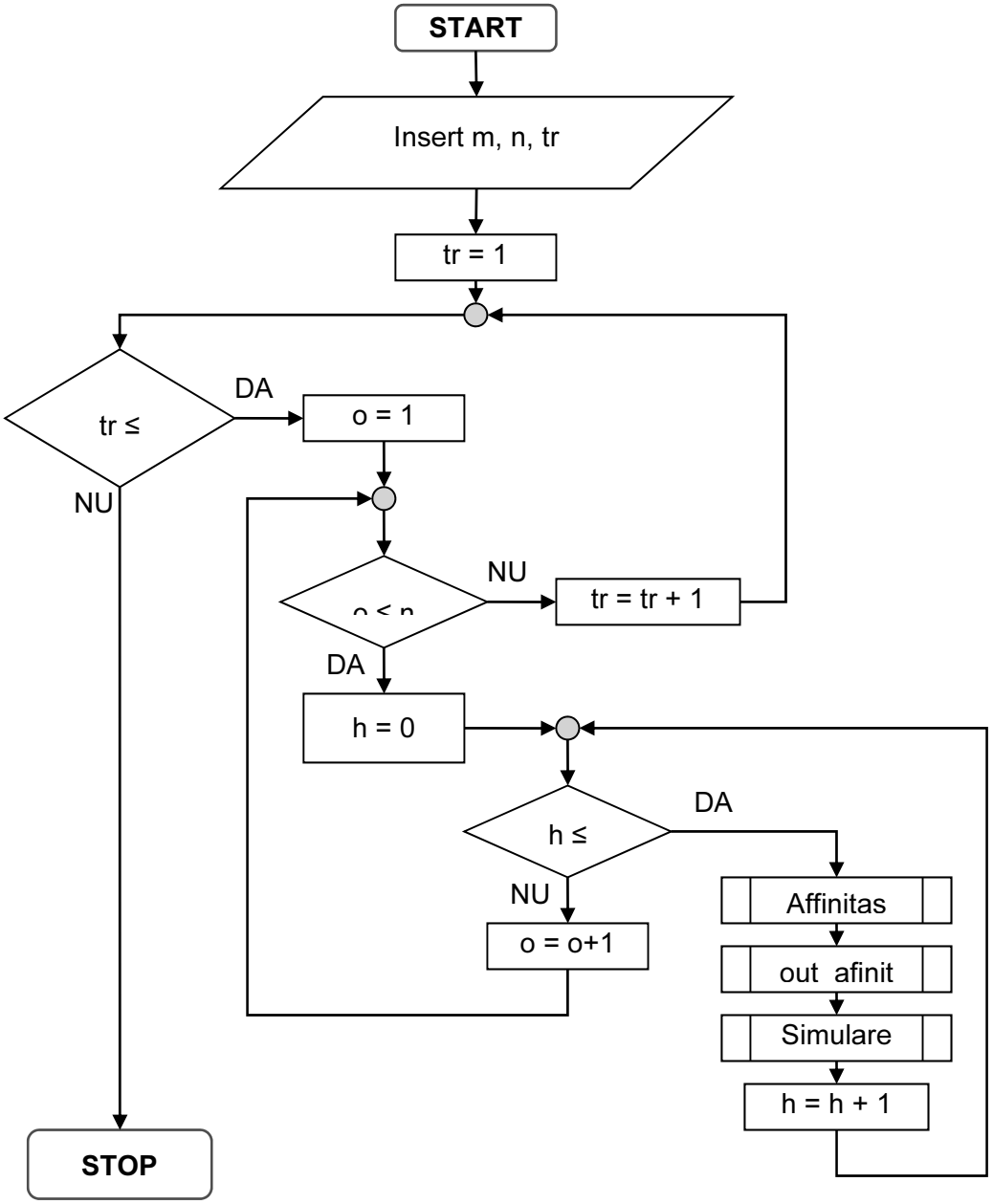

Fig. 1. Logical scheme ”*Nucleus*” program

The program uses several one-dimensional, as well as multidimensional strings. Next it is presented a list containing the meaning of each string/variable used in the application to calculate and save the data needed for the analysis:

- M – number of products to compose the initial load;
- N – number of criteria to characterize the product;
- A[50][50] – input data matrix;
- K[30] – string to store the type of the analyzed criteria (maximum/minimum);
- MAX/MIN – string to store the maximum/minimum values;
- I[30] – string to store the crietias' importance coefficients values;
- U[50][50] – utility matrix;
- C[50][50] – concordance coefficients matrix;
- AF[50][50] – affinity coefficients matrix.
- CMT – average transition cost;
- NT[50] – string for typological nucleus structure storage;

```
#include<iostream.h>
#include<conio.h>
#include<math.h>
#include<stdio.h>
#include<iomanip.h>
#include<fstream.h>
#include<stdlib.h>
#include"out_fisierafinitate.cpp"
#include"simulare.cpp"

int main(void)
{int i,m, n, q, tr, AF[50][50],NT[50]; double h=0, o=1, A[50][50], l[50], MAX[50],
MIN[50],
 U[50][50], C[50][50], K[50], CMT[10000];
    cout<< " Introduceti nr de tranzitii"<<endl;
    cin>>tr;
for(o=1;o<=q;o++)
  {
   for(h=0;h<=99;)
    {
     Affinitas(AF);
     out_fisierafinitate(m,AF);
     Simulare(AF,m,tr,CMT,NT);
     h=h+1;
    }
  }
return(0);
}
```

Next we turn our attention only to the subprogram “Simulare”, considered to be the most important part of the application “Nucleus”. “Affinitas” subprogram was presented in detail in the paper [6]. To simulate the operation of random inputs FMS using Game Theory, in “Simulare” program were embedded GT specific calculation algorithms. The software uses as input data the affinity coefficients matrix, matrix determined in the application “Affinitas”, as well as the transitions number the system must perform, the latter being determined and inserted by the user from the keyboard.

Based on the input data provided by the user, the program chooses the first product to be processed in the system and it positions itself on the products column. In the second stage the program goes through the column chosen from the affinity coefficients matrix, choosing the lowest value, corresponding to the lowest transition cost. Thus the second product is determined to be processed in the system, as well as the cost generated by the switch from the first products to the second one. The switch from one product to the other is called transition and this transition generates a transition cost. In the third stage the program positions itself on the column of the product which is being processed and the algorithm repeats until the number of performed transitions is reached. After going through all stages and reaching the number of transitions, an average transition cost is calculated and the games value is determined. If the column contains more products with the lowest cost, the program will randomly choose one of them, thus being set the lowest value decision rule in the “Simulare” program.

The logic as well as the algorithms behind the creation of the source code, presented below, are presented in the logical scheme in figure 2.

```
void simulare( int AF[][50], int m, int tr, double CMT[], int NT[])
{int s,i,j,c,d=0,e,g=0,cost=0,t=1, min, mincol, X[5]; double Ctemp1, Ctemp2;
```

```
    ofstream f("Grafic.xls",ios::app);
    CMT[tr]=0;j=1;
    for(s=1;s<=m;s++)
       {NT[s]=0;}
    for(i=1;i<=10;i++)
       {X[i]=0;}
    LAB:
 if(t<=tr)
   {min=50;
    for(i=1;i<=m;i++)
      {
       if(j!=i)
         {if(i!=X[1])
          {if(i!=X[m])
             {
              if(min >= AF[i][j])
                {
                 min=AF[i][j];
                 d=i;}}}}}
    cout<< j <<" rand "<< d <<" "<<endl; g=j;
    cost=cost+min;
    Ctemp1=double(cost)/double(t);
    cout<<endl; f<<endl;
    cout<<"CMT pt "<< t << " tranzitii este "<< Ctemp1 <<endl;
    f<<"\t Nr. tranzitii "<< t <<"\t CMT "<< Ctemp1 <<endl;
    f<<"\t"<< t <<"\t"<< Ctemp1 <<endl;
    t=t+1;
    if (t>2)
       {X[m]=X[m-1];
        ……..
        X[2]=X[1];
        X[1]=d;}
  if (t<=2)
       {X[2]=g; X[1]=d;}
   cout<< X[1]<< …… << X[m]<<endl<<endl;
    j=d;
    for(s=1;s<=m;s++)
      {if(d==s)
         NT[s]=NT[s]+1;}
    goto LAB;}
 CMT[tr]= double(cost)/double(tr);
 cout<<" Costul mediu de tranziţie pt. situaţia "<< tr<< " tranziţii este = "<< CMT[tr]<<endl;
 f<<" Costul mediu de tranziţie pt. situaţia "<< tr<< " tranziţii este = "<< CMT[tr]<<endl;
 f<<endl<<endl;
 f<<"  Nr. produs \t\t Nr. apariţii"<<endl<<endl;
 for(s=1;s<=m;s++)
   { f<< "\t" << s << "\t\t      "<< NT[s]<<endl; }
 f.close();
}
```

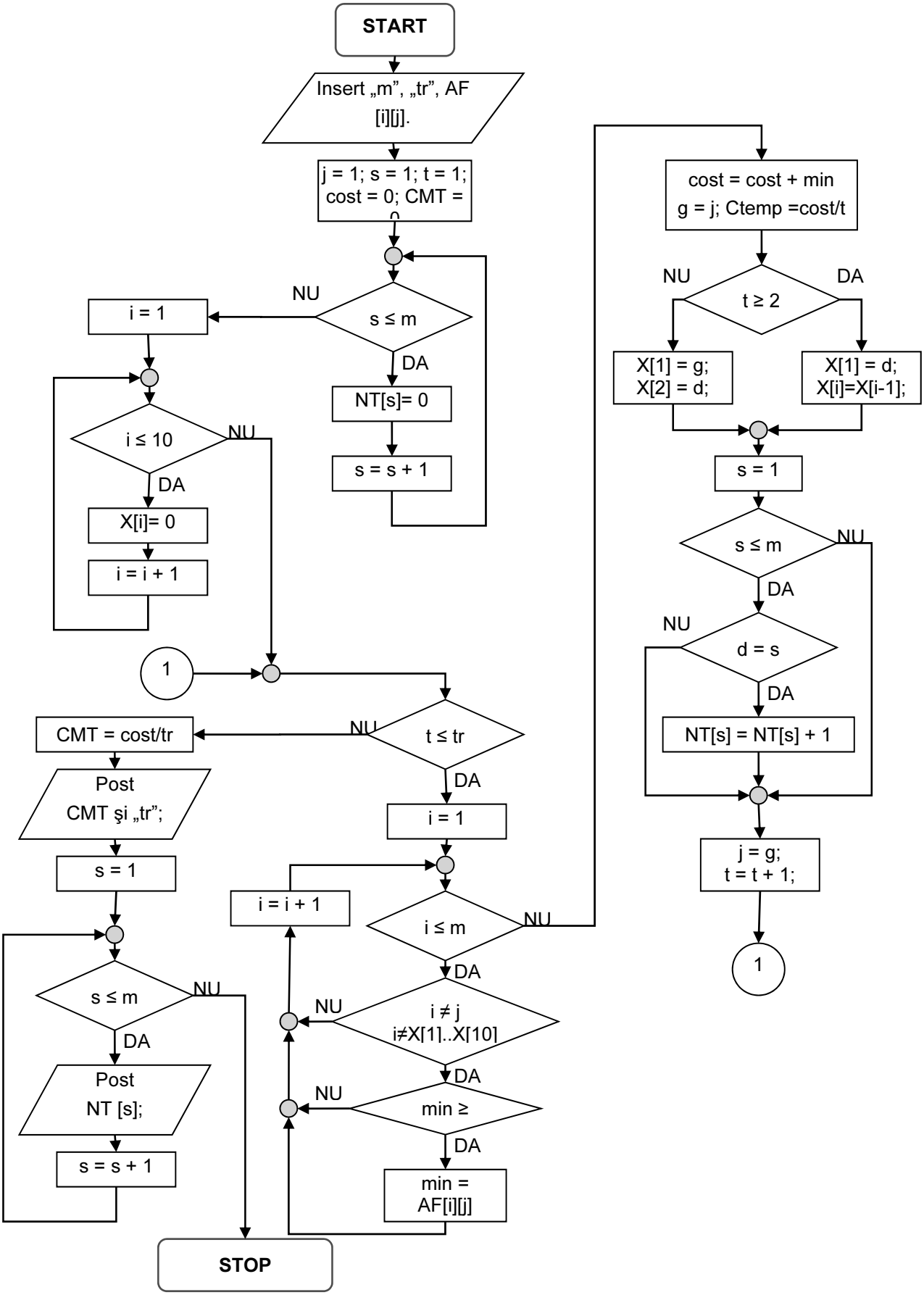

Fig. 2. Logical cheme for „*Simulare*” subprogram

Results and conclusion

After designing the logical schemes for all subprograms, implementing the algorithms in the source codes, compiling and testing “Nucleus” application, the application could switch to running the data presented in the above table, Table 1. After running “Nucleus” application, the games value and the typological nucleus structure was obtained for each of the 600 cases, specific to the 6 criteria set above. Processing the obtained data, for each of the 6 criteria were drawn graphics to reflect the influence of the importance coefficients variation on the games value. These graphics are shown below in Figure 3.

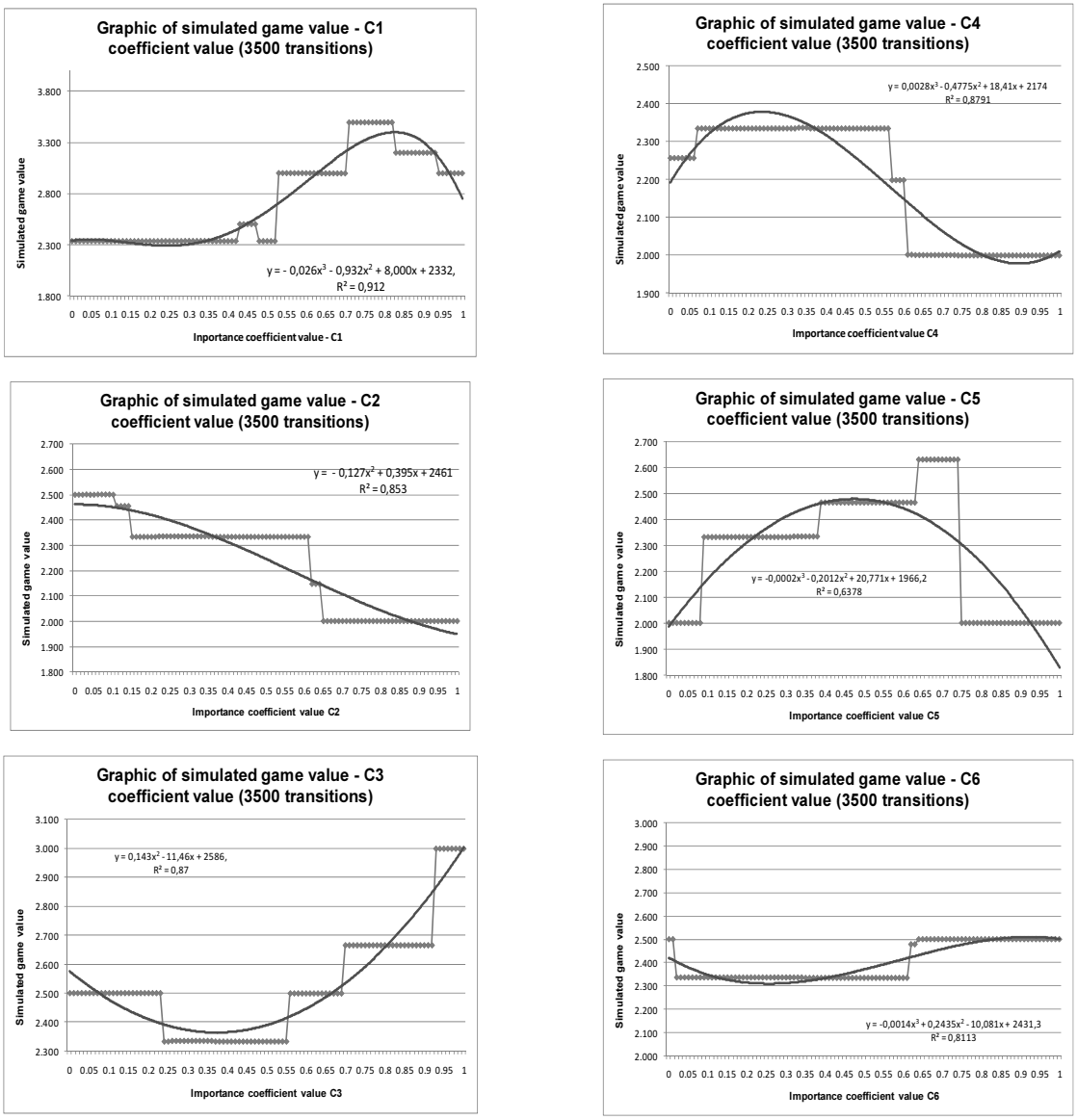

Fig. 3 Graphics on the importance coefficients influence on the games value

From the analysis of the results obtained from carrying out the simulation it can be seen that the minimum transition cost obtained is 2.000 and it was obtained in the case of the importance value variation of coefficient C4, from 0.75 to 1.00, respectively in the case of the importance coefficient value variation C2, from 0.65 to 1.00. For the coefficients C1, C3, C5 and C6 the obtained minimum transition cost values were 2.334 (for C1 importance coefficient value variation from 0.01 to

0.28), 2.334 (for C3 importance coefficient value variation from 0.37 to 0.55), 2.002 (for C5 importance coefficient value variation from 0.01 to 0.08) and 2.334 (for C6 importance coefficient value variation from 0.35 to 0.61). One can see that the minimum value was reached to the end of the variation range for the criteria C1, C2, C4 and C5, respectively in the center of the variation range for C3 and C6.

Given that the minimum values of average transition cost have been presented previously, next will be presented the synthesis of the results obtained from the simulation, in terms of maximum value of the average transition cost. The maximum value of the average transition cost has been obtained in the case of the importance coefficient variation of criterion C1 in the range from 0.71 to 0.82; for C2 was 2.502, from 0.06 to 0.09; for C3 was 2.999, from 0.93 to 1.00; for C4 was 2.336, from 0.33 to 0.35; for C5 was 2.633, from 0.67 to 0.74; for C6 was 2.501, from 0.67 to 1.00.

In terms of profit maximization arises the natural question “Which are the values that the importance coefficients have to take so that the transition cost value is minimal?” From of the investigated cases one can observe that for the coefficients variation C2 from 0.01 to 0.28 and for C4 from 0.75 to 1.00 the minimum transition cost is obtained. After analyzing the importance coefficients influence on the average transition cost, we obtained values for which the cost is minimal, but “How is this transition cost affected when the in typological nucleus structure is necessary to reach a number of products?”

To answer the above mentioned question an analysis was conducted on the influence of the number of products from the typological nucleus on the transition cost. In this analysis, the number of transitions required from the system was 3500 transitions. For the analyzed case, the importance coefficients value was taken as equal to 0.1666, meaning that all 6 criteria investigated were given the same importance coefficient. This analysis was performed through successive simulations on the input data and the obtained results are presented in the following figure.

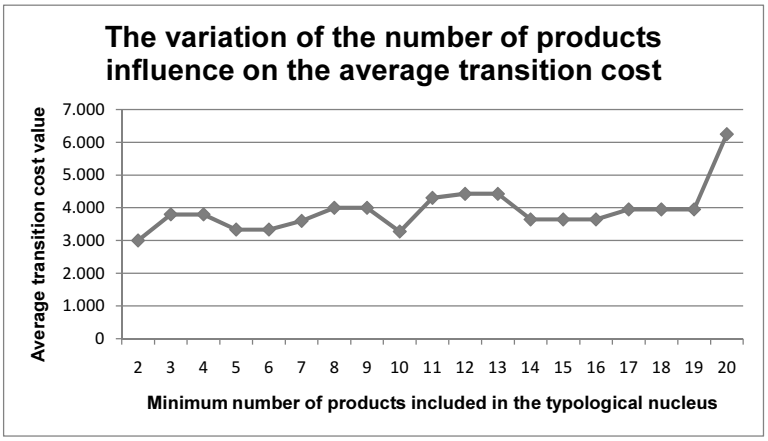

Fig 4 Graphic regarding the number of products influence on the games value

After a visual analysis of the above figure one can observe that the average transition cost value variation follows an irregular, slightly increased sinusoidal trend. The average transition cost minimum value, 2.999, is obtained when the typological nucleus includes only 2 products, and the average transition cost maximum value, 6.252, is obtained when the typological nucleus includes all investigated products, i.e. 20 products. One can see that other values close to the minimum value were obtained, when the typological nucleus included 5, 6 or 10 products. The average transition cost value for these cases is 3.334, for the first 2 mentioned cases, respectively 3.274 for the case of 10 products.

So a balance must be found between the number of products that the system must process and the average transition cost the system generates. The decision regarding the number of products to be processed by the system is left for the management. With this analysis we tried to generate all the information a manager needs to adopt the right decision in terms of the markets situation in which the company operates. The original software, created by the authors, can be considered an analysis support tool, useful for all researchers and those interested in the field of Flexible Manufacturing Systems. The application can analyze simultaneously maximum 50 products defined in terms of 10 selection criteria, but the program can easily be modified to increase these limits.

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Costs Reduction in Civil Engineering Through Optimization Methods

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Abstract

Purpose *- This paper presents costs optimization importance in the management of a civil engineering company.*
Methodology/approach *- The study case described in the paper starts from the calculation of the company' costs and focuses on the implementation of costs optimization methods.*
Findings *- The research consists in the creation of an original economical-mathematical cost model which is applied in a civil engineering company.*
Research limitations *- The study case is based on a research on the financial status of a civil engineering company. Based on the research data the costs to be optimized are chosen. Concrete results were obtained in the process of costs' optimization and these are applicable at the management level in the company.*
Practical implications *- The study is important from two points of view: from manager's perspective having as target the minimization of costs and from the leadership perspective in higher education to establish the data to take into account in order to select the best fit optimization method.*
Originality/value *- The optimization model chosen in the paper has been applied to a concrete case of a civil engineering company and has solved a real problem.*

Key words: *costs optimization, crisis, management.*

Introduction

In the current market economy, a profitable company is the main objective of managers. With the onset of the crisis in our country most construction companies experienced a major decline in the number of contracts and also a substantial reduction in activity.

It is known that a profitable company is able to pass more easily over a period of crisis. Analysis and costs tracking are the starting points in this study. Costs' reduction should be the goal of any manager in a crisis situation, but keeping the price and quality.

In the financial accounting department of a company, costs can be traced, but the general manager of the company is interested in general in the total production costs, without giving special attention to quality costs.

To know in detail the situation of a company, its information system plays an important role.

In order to take relevant decisions related to change management in order to reduce costs the following needs to be done:

- data related to company's budgets preparation and compliance should tracked and analyzed in detail;
- the coordination of financial-accounting activity should be analyzed;
- in-depth knowledge of the cost;
- financial and economical expertise should be provided;
- verification and allocation of revenues and expenses to cost and profit centers;
- data collection to achieve profitability analysis, etc.

Financial analysis of the company in the establishment of the optimization method

The organizational structure of the company is an essential factor in achieving costs calculation through the fact that companies are organized by departments, sectors that provide information necessary for the calculation process. Civil engineering companies include in their structure building sites, working points, subcontractors and other cost-generating sectors.

The construction sector is dominated by small companies. In the European Community, more than 42 percent of the employees work in companies with less than 10 employess, 15% in 10-19 employees companies and 16% in 20-49 employees companies (Anastasiu L., and Domsa J., 2010).

Organization and management expenses are known as the indirect costs are reflected in the sectors or centers of expenditures which in the case of construction companies are reflected in construction sites, departments for prefabricated components and also subcontractors. The cost can be defined as the ratio between total expenditure and quantity of goods, works or services.

The study and analysis of the financial situation has been realized for a construction company in Cluj-Napoca, Romania, with extensive experience in civil engineering, in industrial machinery, in industrial installations and assembly technology. For this activity the company has modern machinery and equipment, which ensures delivery of high-quality work. It has qualified personnel in all construction related fields. In the construction field one of the main requirements is increasing the level of professional training in order to facilitate the entry into a free competition in the European and world markets. (Domsa J. and Anastasiu L., 2010)

Ensures the appropriate quality requirements through its own quality management system and aims to increase customer satisfaction by continuously improving the effectiveness of quality management system construction and building market position both in the country and abroad**.**

The results of the study indicated that the operating profit in 2010 is 12.93 percent from the turnover with regards to 2.11 percent in the precedent year.

The year 2009, was more difficult due to:

- a small number of contracts;
- the amounts of indirect expenses in the structure of the cost price;
- numerous expenses done with repairings;
- high expenses with the mechanization of the big number of works finished.

Table 1: The status of the fixed assets (Net value in thousands of lei)

Description	**Sold at 01.01.2010**	**Sold at 31.12.2010**
I Intangible assets	-	-
II Tangible assets from which:	8236	8285
- lands and buildings	6521	6497
- technical plants and vehicles	1516	1621
- other instalations	100	167
- tangible assets in progress	96	0
III Financial assets from which:	1815	1190
- participation bonds	244	242
- other claimed credit titles	1571	948
TOTAL FIXED ASSETS	10051	9505

Starting from the presented data from the table above and other calculus from the study, the status of circulating and fixed assets can be represented graphically in the following figure:

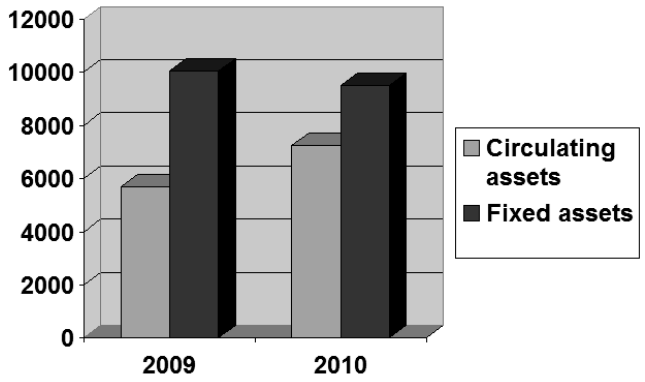

Figure 1: The graphic of circulating and fixed assets [in thousands of lei]

The operating results from the last 2 years were analyzed.

Table 2: Analysis of operational results (thousands of lei)

Indicator	Previous year 2009	Current year 2010
Net turnover	23,411	30,217
Operating income - Total	**31,537**	**42,879**
Of which: - production sold	22,362	292,596
- income from sale of goods	1,049	957
-industrial activity income	5,182	8,810
-capitalised production-income	168	420
-Other operating income	2,775	3,433
Operating Expenses-Total	**31,043**	**40,797**
Of which: - materials and energy costs	14,229	17,943
- expenditure on goods	1,089	936
- personnel expenses	6,992	8,507
- value adjustments to tangible assets, current assets, provisions, depreciations	252	2,460
Other operating expenses	8,482	10,952
Operating result	**494**	**2,083**

Net turnover at 31.12.2010 increased by 129.06 percent compared to 31.12.2009. Operating profit increased from 2.11 percent in 2009 to 6.89 percent in 2010, compared to turnover. Compared to total operating income, operating profit increased from 1.56 percent in 2009 to 4.85 percent in 2010, thanks of the reduction of indirect costs and reduction of expenses with fixes of the works performed.

Based on the analysis made for this company for these two years we have set the best optimization methods that can be used by it, starting from the activities that it carries out.

Optimization methods depend on the nature of the functions involved in the actual raised problem. Objective functions can be linear (linear optimization), which simplifies the optimal conditions, may be nonlinear (nonlinear optimization), or may be second-degree polynomial (quadratic programming). If in the objective function unknown exponents appear (which are real), is called geometric optimization and is frequently applied minimization of costs. Also, in most cases, the functions f are continuous and decision variables are chosen positive in well-defined domains

(admissible). Data collection and analysis, is an issue of extreme importance in addressing the optimization model.

Often, a particular firm to resolve optimization problems on certain industries, takes empirical, experimental, methods like progressive reduction of costs (most significant) and maximizing the benefit making use of economic criteria.

Since linear optimization was developed in constant contact with practical problems, some concepts have names that reveal just this side. Some problems that are fixed using such methods are:

- Production planning problems;
- Transport issues;
- Resource allocation;
- Cost management;
- Problems of negotiation theory and conflict relations.

A linear optimization problem as a mathematical model is presented as follows:

-Given an objective function (purpose) in relation to the linear decision variables $x_1, x_2, ..., x_n$

$$f(x_1, x_2, ..., x_n) = c_1x_1 + c_2x_2 + ... + c_nx_n \quad (2.1)$$

-A system of linear restrictions (2.2) in relation to the decision variables that appear either as equalites or inequalities form:

$$\begin{cases} a_{11}x_1 + a_{12}x_2 + ... + a_{1n}x_n \le b_1 \\ ..... \\ a_{l+1,1}x_1 + a_{l+1,2}x_2 + ... + a_{l+1,n}x_n = b_{l+1} \\ ..... \\ a_{n1}x_1 + a_{n2}x_2 + ... + a_{nn}x_n = b_n \end{cases}$$

We want to find the set of nonnegative decision variables, $x_1 \ge 0$, $x_2 \ge 0$, ..., $x_n \ge 0$, which makes the objective function $f(x_1, x_2, ..., x_n)$ maximum or minimum. If all restrictions are equal, the optimization problem is called *transport problem*.

In what follow we exemplify by two optimization applications, one of production planning and one of transport for the considered company.

a) A production planning problem. Within this construction company a number *n* of different products are built. For this purpose, are used *m* types of resources (labor, raw materials, machinery, etc.) which of course are in limited quantities.

We know that the profit from the production unit of a product *i* (*i* = 1,2 ,..., *n*) is c_i. If this product is produced in a quantity x_i, appropriate benefit will be $c_i \cdot x_i$. The benefit obtained from the *n* products will be of course

$$y = c_1x_1 + c_2x_2 + ... + c_nx_n \quad (2.3)$$

One knows that for one unit of product *i* it is used a quantity a_{ji} of means of production *j* (*j* = 1,2 ,..., *m*) and the maximum quantity of that resource *j* which can be used at production is b_j.

We must therefore meet the conditions (constraints):

$$\begin{cases} a_{11}x_1 + a_{12}x_2 + ... + a_{1n}x_n \le b_1 \\ ..... \\ a_{m1}x_1 + a_{m2}x_2 + ... + a_{mn}x_n \le b_m \end{cases} \quad (2.4)$$

plus the fact decision variables are positive: $x_i \ge 0$, *i* = 1,2, .., *n*.

The purpose of applying this method (by solving the constraints above) for the construction company in discussion is to determine the plan of production, i.e. variables x_i such that the benefits are maximized.

b) Transport problem: the construction company considered has ten trucks at the point of origin A, B, C and four built sites P, R, S, T requesting transportation of materials. Number of existing cars in the points A, B, C, the required number of cars in the points P, R, S, T and the cost of a car traveling from one point of origin to point of destination are known. We want to determine the number of cars in each point of origin to be assigned to each route so that the total cost of going to the points P, R, S, T to be minimal.

The total cost of moving vehicles at points of destination will be as follows:

$$y = \sum_{i=1}^{3}\sum_{k=1}^{4} c_{ik} \cdot x_{ik} \quad (2.5) \text{ where:}$$

c_{ik} = is the cost of moving a car from point *i* (*i* = A, B, C) at point *k* (*k* = P, R, S, T);
x_{ik} = is the number of vehicles sent from point *i* to point *k*;
Restrictions are of the form:

$$\sum_{k=1}^{4} x_{ik} = a_i, \quad i = 1,2,3 \,; \sum_{i=1}^{3} x_{ik} = b_k, \quad k = 1,2,3,4 \quad (2.6)$$

where:

a_i = number of trucks that are initially at point *i*;

b_k = number of trucks required in point k.

in addition $x_{ik} \geq 0$ and x_{ik} are integers.

With the solving of the restrictions formulated above the transportation problem is solved with best results.

Briefly some methods for solving linear programming problems:

a) simplex method is the best known and most common method; it is based on an algebraic method (elimination) for solving a system of equations;
b) modified simplex method;
c) dual simplex method, which is a method that turns up in a minimum or vice versa.

Conclusions

All management decisions and actions must have an end goal and this is ensuring the achievement of company objectives and a profitable enterprise. Companies from construction domain were facing too in this crisis period numerous problems related to their adaptation to the market economy requirements. The adaptation included change management. Furthermore crisis requires the existence of competent managers which use efficient management tools to reduce costs and increase profit transforming problems into opportunities.

Management goal is both to discover and solve the problems facing the company, and their precise formulation, setting goals, priorities, and systematic approach to seek pragmatic results.

Civil engineering companies have a lot of activities which can be optimized through these cost effectiveness methods. The available optimization methods are strictly dependent and related to the concrete case/scenario proposed for optimization. These methods have certain limits imposed by the generalization/simplifications done when constructing the proposed mathematical model.

This research study relates to several methods used in civil engineering and economic fields. Furthermore the study has been successfully finalized with concrete results related to costs reduction.

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Economic Solutions in Designing Retaining Walls

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Abstract

Purpose *– The authors wish to highlight the importance of using cheap and environmentally friendly solutions in the conditions of economic crisis and the increasing concern of greenhouse effect.*
It will present the cheapest and most nonpolluting solution of the three proposed for comparison.
Methodology/approach *– Using computer programs and the European standards will be designed in similar ground conditions three types of retaining walls, will assess the amount of materials and works to support projects and each retaining wall will be compared in terms of the economics of the three solutions.*
Findings *– Comparing the three solutions we evaluate and recommend the most economic retaining wall in terms of cost, energy consumption, emissions of carbon dioxide and period of execution.*
Research limitations/implications *– Calculations were performed for the same loads and weather conditions. Different constructive solutions and materials were studied. This hypothesis excludes the placement of retaining walls in the area of riverbeds.*
Practical implications *– Many road and bridge design engineers in their design activities tend to give solutions without thinking enough to cost and environmental impact resulting from the execution of these projects. It is well known that the greatest works executed during this period are in the field of transport infrastructure, an area that involves the execution of a large number of retaining walls. Therefore we must find and recommend solutions and economic materials with low environmental impact and reduced execution time.*
Originality/value *– Based on comparisons of cost and energy embedded in materials the article recommends the use of a economic type of retaining wall with a low energy consumption.*

Key words: *Retaining wall, Cost, Energy, Execution time, Carbon dioxide emissions.*

Introduction

Buildings and infrastructure in general generates 40-50% of total CO_2 emissions. To reduce their total emissions is necessary to use environmentally friendly raw materials, or if this is not possible, less polluting solutions.

Aim of this paper is to compare in terms of economy, energy consumption and duration of execution a concrete gravity retaining wall, masonry gravity retaining wall and cantilever retaining wall.

There were designed in the same conditions each type of a retaining wall mentioned above.

The calculations have been made for the same type of loads and weather conditions, in wich have been studyed different construction solutions and different materials. This approach excludes the placement of retaining walls in river beds area.

Designing of retaining walls:

The design of the retaining walls requires the following verifications which will be calculated in STR and GEO limit states:

- overall stability;
- sliding;
- bearing capacity;
- structural failure.

The design according to SR EN 1997 - 1: 2004 uses partial safety factors of actions, characteristic soil parameters and resistances. The charcateristic values of actions (loads) are multiplied or reduced with partial safety factor corresponding to each design approach, depending on their type: unfavorable or favorable.

The characteristics values of soil parameters are divided with the partial safety factor corresponding to each design approach of the verification performed.

Although SR EN 1997 - 1:2004 provides three design approaches for calculating, according to the National Annex, in Romania there has been adopted the design approach 1 with two combinations (DA 1-1, DA 1-2) and the design approach 3. The last one is used for slope stability calculation. According to these requirements the design of retaing walls is made for both combinations of the first design approach :

Combination 1 : A1+M1+R1;
Combination 2 : A2+M2+R1.

The design of the retaining walls was performed with GEO 5 geotechnical software wich uses the limit equilibrum method (LEM).

The partial safety factors for ultimate limit states STR and GEO are given in Table 1.

Tabel 1. Partial safety factors

Combination	Partial factors of the actions			Partial factors for the material properties of soil			
	$\gamma_{G,def}$	$\gamma_{G,fav}$	$\gamma_{Q,def}$	$\gamma_{\varphi'}$	$\gamma_{c'}$	γ_{cu}	γ_{γ}
1	1,35	1,0	1,5	1,0	1,0	1,0	1,0
2	1,0	1,0	1,3	1,25	1,25	1,4	1,0

Active earth pressure has been calculated with Coulomb theory. No surcharge, or seismic loads was taking into account into the designing. The profile of the retained soil was horizontal.

For the concrete structures it was used the standard EN 1992 1-1 (Eurocode 2).

The height of the retaining wall was 4 m. Face of the wall has been considered with a slope 10 to 1. The toe of the wall was at 20 cm bellow frozen depth considered to be 1 m.

The soil parameters in Mohr-Coulomb model re given below:
0 - 4.00 m - silty sand
unit weight: γ= 18 kN/m3;
internal friction angle: φ'= 25.00°;
coesion: c'=0.00kPa;
wall-ground friction angle: δ= 15.00°;
4.00 m - semifinit: dense gravel
unit weight: γ= 20 kN/m3;
unghiul frecării interne: φ'= 32.00°;
internal friction angle: c'= 0.00 kPa;
wall-ground friction angle: δ= 15.00°.

The geometrical characteristics of the retaining walls, after the verifications are shown in Figures 1, 2 and 3.

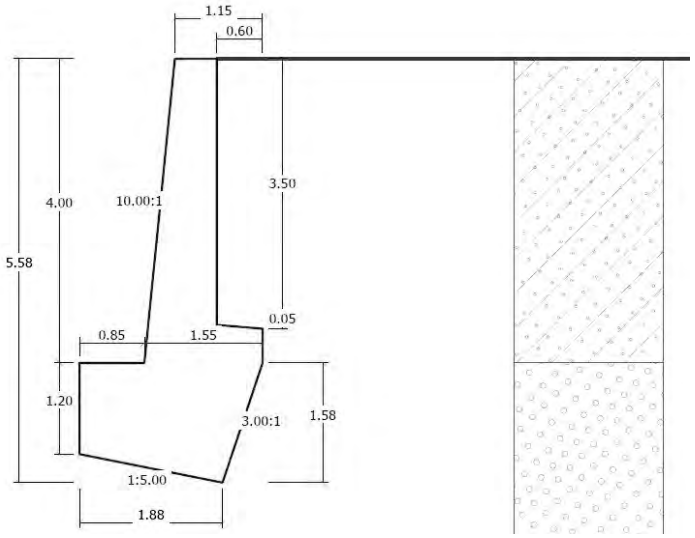

Fig.1. Geometrical characteristics of concrete gravity wall

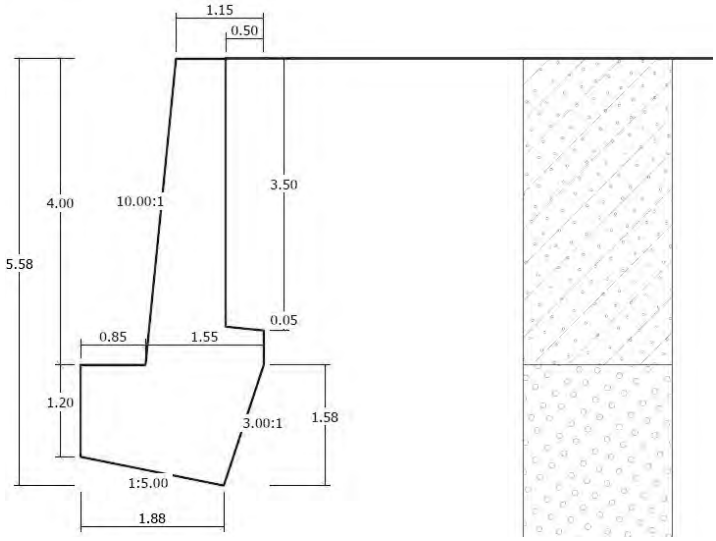

Fig.2. Geometrical characteristics of masonry gravity retaining wall

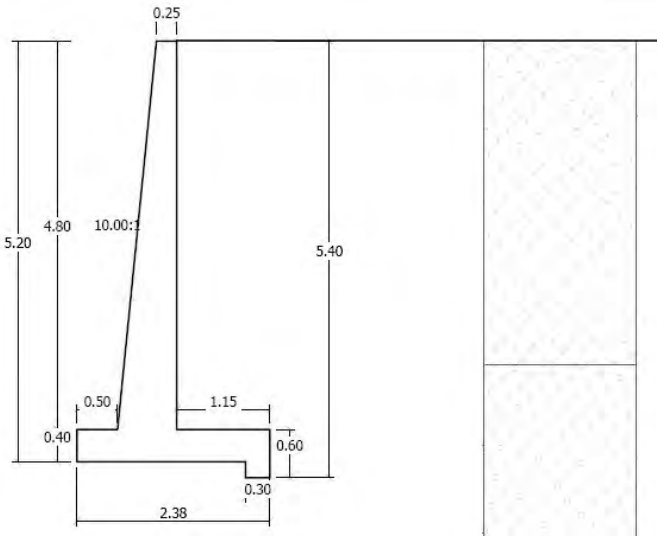

Fig.3. Geometrical characteristics of cantilever retaining wall

Material consumption and the costs for the year 2011 are presented in Table 2. The estimated duration of execution is presented bellow.

Tabel 2 . Quantities results. Evaluation

CONCRETE GRAVITY RETAINING WALL				
Material	U.M.	QUANTITY/ML. OF RETAINING WALL	UNIT PRICE	VALUE
Concrete C16/20	m3	6.30	303.00	1,908.90
Reinforcing	kg	9.00	2.70	24.30
Formwork	m2	9.22	19.00	175.18
Drainage dry masonry	m3	1.80	88.20	158.76
Cost/ml concrete gravity retaining wall (Ccg)				2,267.14
MASONRY GRAVITY RETAINING WALL				
Concrete C16/20	m3	2.68	303.00	812.04
Reinforcing	kg	9.00	2.70	24.30
Formwork	m2	1.20	19.00	22.80
Drainage dry masonry	m3	1.50	88.20	132.30
Masonry	m3	3.97	125.00	496.25
Cost/ml masonry gravity retaining wall (Cmg)				1,487.69
CANTILEVER RETAINING WALL				
Concrete C16/20	m3	3.36	303.00	1,018.08
Reinforcing	kg	124.00	2.70	334.80
Formwork	m2	10.63	19.00	201.97
Drainage dry masonry	m3	2.58	88.20	227.56
Cost/ml cantilever retaining wall (Ccr)				1,782.41

The calculated characteristics of all three types of retaining walls are : total energy E and carbon dioxid emision, total cost C, execution period T for 1 linear meter of retaining system.

For instance E_{cg} , C_{cg} and T_{cg} are the total energy, the cost and the execution duration estimated for the concrete gravity wall.

For the energy incorporated in materials, have been used the values from Table 3.

Tabel 3. Embedded energy in materials

No.	Materials	Embedded energy (MJ/kg)	
		RO	UK
1	Concrete agregates	0.18	0.10
2	Concrete C16/20	2.59	0.97
3	Reinforcing	43.92	35.28
4	Timber	1.46	8.50
5	Mortar	2.02	1.55

The prediction of the incorporated energies and the consumption of CO2 for each type of retaing wall hase been made as follows:
example: concrete retaining wall:
concrete – 6.30 m^3
2400 kg/m^3 x 6.30 m^3 = 15120 kg
E= 2.59x15120 =39160.80 MJ
reinforcing – 9.00 kg
E= 43.92x9=395.28 MJ
formworks - 9.22 m^2

9.22x0.025=0.2305 m^3
540 kg/m^3 x 0.24 m^3=124.47 kg
E=1.46x129.60=181.7262MJ
the drainage dry masonry – 1.80 m^3
1800 kg/m^3 x 1.80 m^3=3240 kg
E= 3240x0.18=583.20 MJ
1MJ = 0.07 $kgCO_2$

The results of the energy and CO_2 emissions are:
- concrete gravity wall:
E_{cg} = 40321.01 MJ = 2822.47 $kgCO_2$
- masonry gravity wall:
E_{mg} = 20916.24 MJ = 1464.14 $kgCO_2$
- cantilever retaining wall:
E_{cr} = 27377.28 MJ = 1916.41 $kgCO_2$

The cost/ml was evaluated in Table 2 with the values:
C_{cg} = 2267,14 lei
C_{mg} = 1487,69 lei
C_{cr} = 1782,41 lei

The execution period was predicted as follows:
T_{cg} = 32.30 h;
T_{mg} = 78.29 h;
T_{cr} = 32.53 h;

Conclusions

After analyses of three types of retaining systems, it can be adopted that the most convenience solution is cantilever retaining wall. Also a convenience solution according to the consumption energy which involve the CO_2 emissions and the cost is masonry gravity wall. This one involves a considerable labor consumption and it is applicable where resources of stone are available. The concrete gravity wall is disadvantageous retaining system in terms of the cost and energy consumption. From the perspective of execution period and the reduced labor work and cost it is recomanded to use cantilever retaining walls. In the conditions of global crisis, finding the cheapest solution is imperative. Also we need to save natural resources on the way to be spent. Crisis management can also be expressed in terms of resources utilization management.

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Establishment of reference (benchmarks) in quality assurance at "Petru Maior" University of Tg-Mures

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Abstract

An excellent and recommended way to promote continuous improvement in education is an innovative adaptation of best practices of this field. An organization can assimilate information from other organizations that are considered market leaders in this field based on the results obtained, thus seeking continuously improvement. To achieve this goal of continuous improvement can be used benchmarking as a source of accelerating the progress level of the organization. To choose what is best in the business, to adapt the best of company referential and continuously improve, this is the way of a successful strategy.
The basic idea of benchmarking can be easily summarized. Find someone better than you and then copy that he or she did. The most common criticism of benchmarking comes from the idea of copying others. How can an organization really be superior if you don't invent to get ahead of the competition? It's a good question, but can also ask the reverse: how can an organization survive if it loses contact with the external environment?

Key words: *benchmarking, higher education, university.*

Introduction

In an environment of growing interdependencies, organizations are faced with changes that require rapid and effective interventions. Continuous improvement and adaptation to environmental changes is essential for the development organization. Thus, benchmarking is used to compare practices and tools used in organizations with a performing management and determining the elements that lead to competitiveness. Implementation of benchmarking in an organization exceeds competitive analysis and provides an understanding of management processes that create superior performance. Like other tools, also benchmarking is growing constantly, permanently needing to be studied and adapted to identify best practices.

Benchmarking should be used for processes that are providing opportunities to improve. Regarding the use of benchmarking for higher education institutions, it should be noted that this is a relatively recent practice, especially common in Anglo-Saxon space. UK, Australia or the United States currently use multiple benchmarking systems, structured on different levels of analysis, covering various aspects of the activity of higher education, from the administration and to academic and research processes[*].

Benchmarking, as a process of self-evaluation, was adapted to higher education in North America in the early '90s (Alstete 1995, Farquahar 1998), swiftly followed by Australia (Vin Massaro 1998) and then the UK (Lund, 1998 QAA 1998, see also edited works by Jackson and Lund 2000) and continental Europe (Schreiterer 1998). The first cross-national comparative exercise was conducted in the mid-1990s (Wragg 1998; Fielden and Carr in the press, Mackie 2000).

[*] **ARACIS**, *Indicatori primari şi secundari pentru evaluarea calităţii*, Nr. 1 / septembrie 2009

Benchmarking in higher education in Britain began in the mid 1990s. The method was first applied in the management of services such as libraries, utilities, energy supply services and treasury (Lund 1998), but interest in technology has grown rapidly over the past two years to the point where it is likely to become an important tool for management and quality and standards improving in the most areas of higher education. There are several reasons for this. First, most government policies have attempted to create a more competitive environment. The transition from a small elite system to a multifunction mass system of higher education was achieved with a reduction of 30% of unit costs of students. The need to be efficient and profitable in order to optimize the available resources and to support learning has never been greater. Benchmarking is a way that higher education institutions can use to help them in achieving this objective and to demonstrate to Donors Councils that they are providing value for public investment.

Second, on the global market for higher education, there is clearly a competitive advantage in establishing and maintaining a reputation for providing a quality education, high academic standards and world-class research results. Universities from UK are under continuing pressure to demonstrate how they operate compared to other universities in the global community, with a rising concern for a benchmark consisting of international comparisons to learn from other education systems education (Wragg 1998; Lund and Jackson 2000; Mackie 2000; Fielden and Carr 2000).

Thirdly, massive expansion of student numbers in Britain, coupled with a rapid increase in diversity education offered by universities and colleges of higher education has led to public concern for academic standards. Report of the National Committee of Inquiry into Higher Education (NCIHE 1997, also known as the Dearing Report) recommended that higher education institutions to develop methodologies for benchmarking (benchmarks) as part of a new political framework for ensuring academic standards. Quality Assurance Agency for Higher Education is now involved in development work to ensure that policy objectives. The new quality assurance regime has become an important factor in the development and rapid deployment of new approaches to benchmarking.

Benchmarking in the UK should be seen as part of a continuum of performance evaluation activities, which began in the mid-1980s, with the Government's aspirations for a higher education system more efficient and responsible in terms of costs (Lund and Jackson 2000). Conditions for benchmarking were created in the last two decades, the parallel development of institutional capacity to review and evaluate it themselves at all levels and all departments (QAA 1998c), increasing external quality assessment processes, and providing information to encourage institutions to review the new measures according to certain expectations or performance. Recent examples include the publication of national codes of best practices for quality assurance and standards containing precepts that the practice of assessing institutional and national performance indicators for internationalization of participation, non-completion, learning outcomes and efficiency (THES December 1999).

Benchmarking brings as a novelty the formalize comparisons between institutions. The reasons that led to the recent development of process benchmarking among institutions of higher education could be summarized as: "development of internationally competitive spirit; develop interest in improving the quality and development of "movement" of quality; rapid development of information technology which simplifies the collection process and data management."

Benchmarking is a complementary process of quality assessment.

He relies primarily on the collection of statistics data on higher education, and then, to produce analysis of specific aspects of their work on collecting qualitative data. Benchmarking is not a classification technique, its main objective being to help an institution to identify and implement optimal processes used by similar institutions, to carry out its activities.

Benchmarking in Petru Maior University of Tg. Mures

Petru Maior University of Tg. Mures, has and apply a benchmarking procedure.

For this they resort to market research, using all available information sources:

- Results of the research published in the specialized literature;
- Materials presented at conferences;
- Publications of the institutions;
- Regular assessment of sites of national and foreign universities;
- Contacts with experts or specialized consultants;
- Exchanges of experience among its staff and other universities through the Erasmus program.

The collection of data regarding processes, products and services performances of other universities is on three levels:

- The performance level shows how the partner is compared with itself;
- The design level shows the direction in which it is organized the process to achieve the level of performance;
- The practitioner's level involves the conditions that enable practitioners to reach the level of performance. In this category can be: training, process organization, used equipment, communication, etc.

For this we use interviews, personal and professional contacts, establish partnerships with the organization of reference, direct observation of the conduct of process, questioning employees, consulting sub-suppliers and primary beneficiaries of the organization of reference. At this stage we use the "ways" to contact the partner, and "tools" used for each method.
Implementing methodology of benchmarking results in Petru Maior University:

- The communication of results at all levels of the university, so that they understood the need to initiate an improvement process of activities, to reduce the gap to the leader, in favour of increasing customer satisfaction and improve the institution's economic and financial results;
- Setting goals for improving processes, products / services, taking into account customer requirements and performance of the organization that made the comparison. In defining the objectives is important to ensure a future orientation, taking into account the probable performance of the leader;
- Establishment and implementation of action plans necessary to deliver the following steps of PDCA cycle (plan - do - check - act):
    - Expected changes must be experienced in a more restricted area;
    - Determine the results to establish whether these changes are viable;
    - Necessary adjustments are made, each time repeating the testing phase;
    - The changes are implemented, operating with the necessary changes in standards.

The final report of the study includes:

- A brief summary of the study (project description);
- A summary of the planning stage (chosen process, the structure of the team, the documentation level, the performance level, etc.);
- A summary of the search phase (benchmarking parameters, evaluation and selection);
- A summary of the observation phase (visits to partners, gathered information etc.);
- A summary of the analysis phase (results, identified opportunities for development);
- A summary of the stage of applying the results (specific development projects, project plans, etc.);
- Experience of the study and recommendations for future studies.

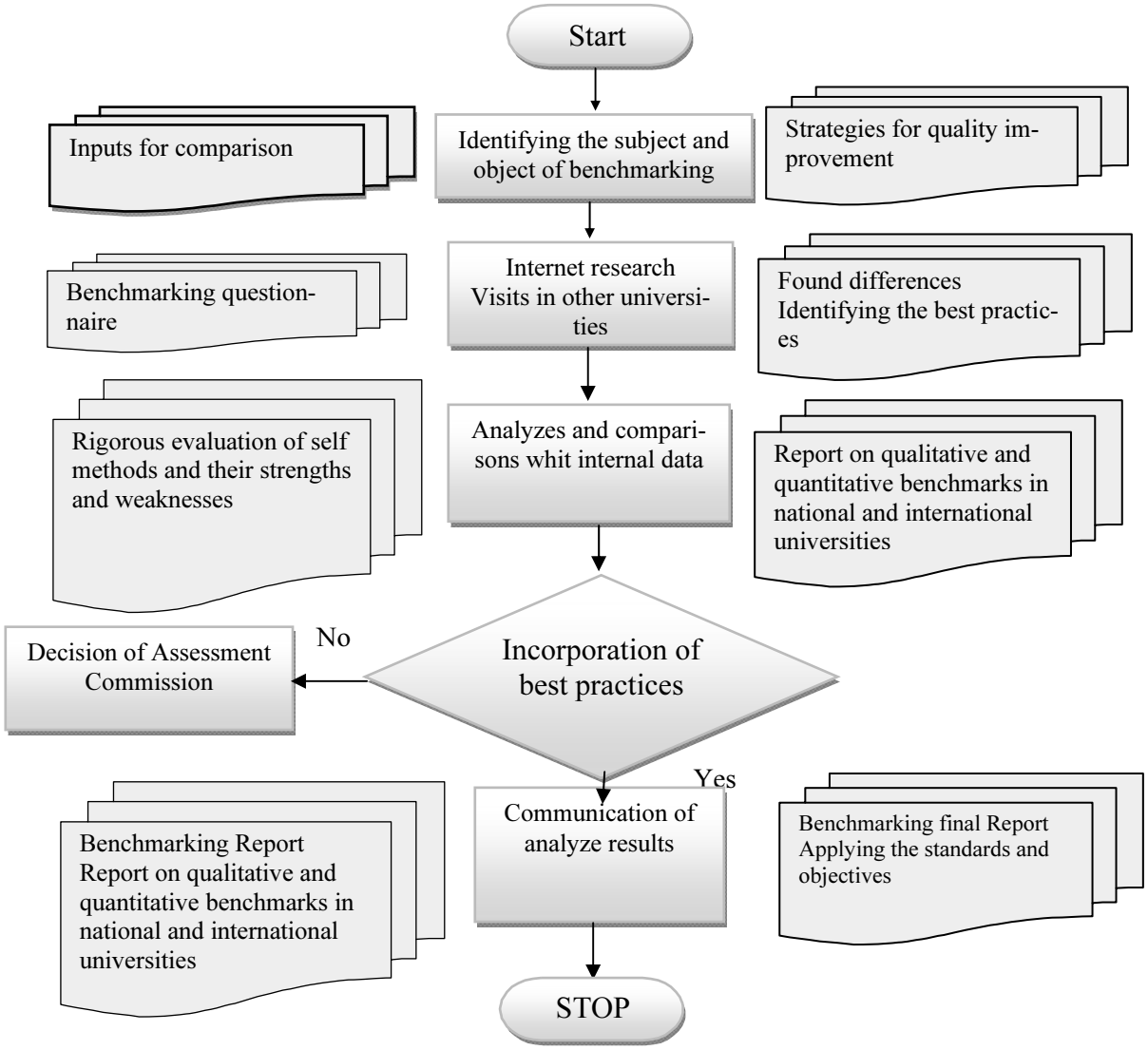

Fig. 1. FLOW CHART*

Establishment of reference (benchmarks) in quality assurance at the "Petru Maior" University of Tg-Mures

Benchmarking methodology used has in view to access the sites of 10 higher education institutions, the sections relating to insurance / quality management. The study aimed to identify best practices in quality assurance applied in other universities in Romania and their adoption in the "Petru Maior" University Tg-Mures. In the absence of an established official top at national level of higher education institutions, this were selected based on a ranking compiled by the magazine "Capital" in 2009, available at http://www.capital.ro/detalii-articole/stiri/exclusiv-topul-universitatilor-din-romania-125346.html

These higher education institutions are:

1. "Babes-Bolyai" of Cluj-Napoca;
2. University of Bucharest;
3. Transilvania University of Brasov
4. Stefan cel Mare University of Suceava
5. Lucian Blaga University in Sibiu

* "Petru Maior" University of Tg-Mures, *BENCHMARKING PROCEDURE, cod PP-8.2.03*

6. Petre Andrei University of Iasi
7. Academy of Economic Studies
8. Alexandru Ioan Cuza University in Iasi
9. Technical University of Cluj-Napoca
10. Petru Maior University of Targu-Mures

The criteria followed in the analysis are:

- The existence of a section exclusively dedicated to quality assurance component QA;
- Existence in the higher education institution within the organizational structure of a specific QA department;
- The existence of programs and strategies regarding QA;
- Policy and objectives of QA;
- Visibility of internal quality assessment reports;
- Existence of a quality manual and related procedures;
- The benchmarks and indicators for quality assurance;
- Database on quality management;
- Visibility on student satisfaction survey results;

Nr. crt.	Criteria	Higher education institutions									
		UBB	UB	UTBV	USV	ULBS	UPA	ASE	UAIC	UTC	UPM
1.	The existence of a section exclusively dedicated to quality assurance component QA	X	X	X	X	X	-	X	X	X	X
2.	Existence in the higher education institution within the organizational structure of a specific QA department;	X	X	X	X	X	-	X	X	X	X
3.	The existence of programs and strategies regarding QA;	X	-	X	-	X	-	-	-	-	-
4.	Policy and objectives of QA;	X	X	X	-	-	-	-	X	-	X
5.	Visibility of internal quality assessment reports;	X	X	X	X	X	-	X	X	-	X
6.	Existence of a quality manual and related procedures	X	X	X	X	-	-	X	-	X	X
7.	The benchmarks and indicators for quality assurance	X	-	-	-	-	-	-	-	-	-
8.	Database on quality management;	X	-	-	-	-	-	-	-	-	-
9.	Visibility on student satisfaction survey results;	X	-	-	-	-	-	-	-	-	-

X = accomplished criteria
- = Unaccomplished criteria

Conclusions of study

The first criterion is achieved in most higher education institutions analyzed, except for University "Petre Andrei" of Iasi and "Alexandru Ioan Cuza" Iasi. And the second criteria has the same result found from criterion one. These two criteria are met also in the Petru Maior University of Tg-Mures.

Criterion three - is a criterion met only by UBB, UTBv and LBUS. This is a referential that can be adopted and implemented in Petru Maior University of Tg-Mures.

Criterion four. One of the conditions in the field of quality standards is that if there is a quality management system then must be adopted a quality policy visible and accessible to all stakeholders. One way to make public a policy is by posting on its website. This criterion is met for the first three education institutions analyzed, and the Petru Maior University of Tg-Mures.

Criterion five is achieved by most institutions analyzed.

Criterion six - Quality requirements of the policy are applicable for other documents including Quality Manual with its annexes, quality management procedures. This criterion is not met by ULBS, UPA and UAIC.

Criterion seven – The benchmarks and indicators for quality assurance is achieved only by UBB. "Petru Maior" University of Tg-Mures has not displayed on his web site such a document.

Criterion eight - The existence of a database on management quality is only visible on the web-site of UBB.

This is only **a model** for future research, which can be applied in a higher education institution!

Conclusions

An excellent and recommended way to promote continuous improvement in education is an innovative adaptation of best practices of this field. An organization can assimilate information from other organizations that are considered market leaders in this field based on the results obtained, thus seeking continuously improvement. To achieve this goal of continuous improvement can be used benchmarking as a source of accelerating the progress level of the organization. To choose what is best in the business, to adapt the best of company referential and continuously improve, this is the way of a successful strategy.

Benchmarking can be applied in any system of quality management. It is important to monitor the quality management system of competitive organizations and then you adapt to what others are doing better than you.

Benchmarking may be considered a strategy, a business philosophy or a tool for accelerated development within a quality management system.

Benchmarking is a process of managerial change directed to continuous improvement, and to eliminating non-conformities of the processes products / services. Benchmarking in a quality management system is an ongoing search of best practices to increase effectiveness of quality management.

The essence of benchmarking is the continuous improvement as KAIZEN or REENGINERING.

Benchmarking requires an external orientation, which is not difficult in a world where Internet is accessible to anyone, anywhere. The role of benchmarking quality management system is directed towards understanding the issues leading to non-compliance of processes, products / services, undue consumption of resources, lack of performance and identifying and implementing work methods to eliminate these weaknesses.

The basic idea of benchmarking can be easily summarized. Find someone better than you and then copy that he or she did. The most common criticism of benchmarking comes from the idea of copying others. How can an organization really be superior if you don't invent to get ahead of the competition? It's a good question, but can also ask the reverse: how can an organization survive if it loses contact with the external environment?

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An Approach of Business Water Footprint

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Abstract

This paper aims to identify the current state of business water accounting and to design an accounting method for the business water footprint (BWF). It answers the following questions: (i) What are the main developments in sustainable business performance so far? (ii) What is the current state of business water accounting? (iii) How to design an accounting method for the business water footprint? And (iv) How to apply the method for existing situations? The term "business" is interpreted in this study in a broad sense, in order to include any form of enterprise, governmental or non-governmental organization or other form of business activity. Based on the methodology of the water footprint concept (WF), this paper designs an accounting method for the beverage water footprint (BWF).

Purpose *– Based on the methodology of the WF concept, this paper designs an accounting method for the beverage water footprint.*

Methodology/approach *- The calculation of the water footprint of a business is done in six subsequent steps.*

Step 1: definition of the business and business units
Step 2: the operational water footprint per business unit
Step 3: the supply-chain water footprint per business unit
Step 4: the total water footprint per business unit
Step 5: the water footprint of the output products per business unit
Step 6: the water footprint of the total business

Findings *– The scope of this paper is limited to the method of business water footprint accounting. It should be recognized that accounting is only one stage towards well-informed policy making. A next stage is to assess the social and environmental impacts of the business's water footprint. For that purpose it is very useful that the water footprint of a business can be localised.*

Research limitations/implications *– The water footprint is a geographically explicit indicator, not only showing volumes of water use and pollution, but also showing the various locations where the water is used (Hoekstra and Chapagain, 2008). In carrying out the accounting procedures described above, one should keep in mind that all variables have a spatial dimension that should be recorded.*

Practical implications *– Applied to a hypothetical company, the accounting method generates results at ifferent levels of detail dependent on the availability of data. When data are sufficient, it generates detailed information for benchmarking or for defining company goals to decrease its water footprint.*

Originality/value *– Adopting the method by business may make a contribution towards more sustainable freshwater use.*

Key words: *Business, water footprint, water footprint calculation, methodology of water footprint, the application of water footprint methodology.*

Introduction

In order to be able to assess the water footprint of a business, there is an important precondition: the business should be clearly delineated. It should be clear what are the boundaries of the business considered. It should be possible to schematize the business into a system that is clearly distinguished from its environment and where inputs and outputs are well known. The water footprint accounting method that will be introduced in this paper is designed in a generic way so that it can be applied to any sort of business.

For many companies, freshwater is a basic ingredient for their operations, while effluents might lead to pollution of the local hydrological ecosystem. Many companies have addressed these issues and formulated proactive management (Gerbens-Leenes et al., 2003). Failure to manage the freshwater issue raises four serious risks for a company: damage to the corporate image, the threat of increased regulatory control, financial risks caused bypollution, and insufficient freshwater availability for business operations (Rondinelli and Berry, 2000; WWF2007).

A tool that calculates freshwater consumption is the concept of the water footprint (WF). This tool has been introduced by Hoekstra and Hung (2002) and has been developed further by Hoekstra and Chapagain (2007, 2008). Those authors define the water footprint as the total annual volume of freshwater used to produce the goods and services consumed by any well-defined group of consumers, including a family, village, city, province, state, nation or business. The water footprint of a business (BWF) is defined as the total volume of freshwater that is used directly or indirectly to run and support a business. The water footprint of a business consists of two components: the operational water use (direct water use) and the water use in the supply chain (indirect water use). (Gerbens-Leenes, P.W., Hoekstra, A.Y. ,2008)

We would like to develop a water footprint accounting method that can be applied to various sorts of business. The method should be applicable to small and large private companies but also to public organizations. Besides, we want a method that can be applied to both business at a disaggregated level (units or divisions within a larger corporation or organization) and business at an aggregated level (e.g. a whole business sector or the entire national government). Before we introduce a method for business water footprint accounting, we will therefore first define what we understand by the term “business”.

In broad terms, a business is conceived here as a coherent entity producing goods and/or services that are supplied to consumers or other businesses. It can be a (division of a) private company or corporation, but also a (component of a) governmental or non-governmental organization. It can refer to various levels of scale, for instance a specific division of a company, an entire company or a whole business sector. In our broad definition

the term business can also refer to a consortium or joint-venture of companies or organizations aimed at the delivery of a certain good or service. In fact, the term business can also refer to any project (e.g. construction of a piece of infrastructure) or activity (e.g. the organization of a large sports event). In this way, the term business has been defined so broad that it can refer to all sorts of corporations, organizations, projects and activities. *A business is any coherent entity or activity that transforms a set of inputs into one or more outputs.*

The business water footprint

The water footprint of a business is defined as the total volume of freshwater that is used directly or indirectly to run and support the business. The volumes of freshwater use are measured at the place where the actual production and water use takes place (Hoekstra and Chapagain, 2007; 2008). We propose to calculate the business water footprint (BWF) per business unit, where a business unit preferably refers to a part of the total business that produces one homogeneous product at one particular spot. When a business runs at different locations, it is thus preferred to schematize the overall business into business units in such a way that individual business units operate at one location. Besides, operations of a business at one particular spot are preferably schematised in different business units each producing its own product. The water footprint of the business as a whole consists of the sum of the water footprints of the different business units.

Freshwater use consists of three different components: the green, blue and grey component (Hoekstra and Chapagain, 2008).

- The “green” component of the water footprint refers to the volume of rainwater that evaporated during the production process. This is mainly relevant for agricultural products (e.g. crops or trees), where it refers to the total rainwater evapotranspiration during crop growth (from fields and plants).
- The “blue” component of the water footprint refers to the volume of surface and groundwater evaporated as a result of the production of the product or service. For example, for crop production, the “blue” component is defined as the sum of the evaporation of irrigation water from the field and the evaporation of water from irrigation canals and artificial storage reservoirs. For industrial production or services, the “blue” component is defined as the amount of water withdrawn from ground- or surface water that does not return to the system from which it came.
- The “grey” component of the water footprint is the volume of polluted water that associates with the production of goods and services. It is quantified as the volume of water that is required to dilute pollutants to such an extent that the quality of the ambient water remains above agreed water quality standards.

Calculation method for the business water footprint

Step 1: definition of the business and business units

In this step the business is clearly defined by describing the business units that will be distinguished and specifying the annual inputs and outputs per business unit. Inputs and outputs are described in physical units. Preferably, business units are chosen small enough so that they can be localized at one spot, where the actual production of that unit takes place and one homogeneous product is manufactured. (Gerbens-Leenes, P.W., Hoekstra, A.Y. ,2008)

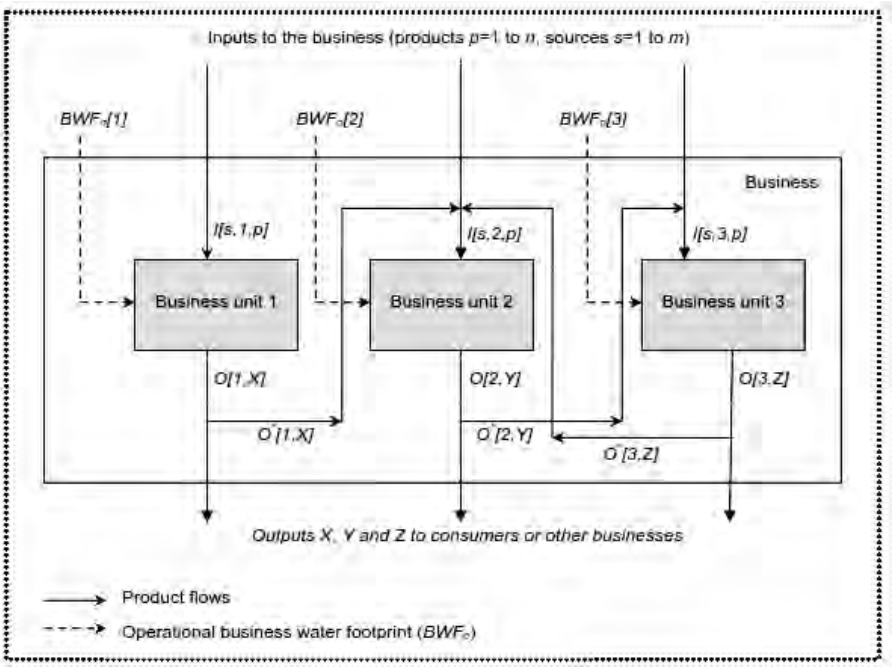

Figure 1. Business that consists of business units 1-3 producing products X-Z respectively. Product inflow I[s,u,p] refers to the annual volume of input product p from source s into business unit u. Product outflow O[u,p] refers to the annual volume of output product p from business unit u. Product flow O[u,p] refers to the part of O[u,p] that goes to another business unit within the same business.* (Gerbens-Leenes, P.W., Hoekstra, A.Y. ,2008)

As an example, Figure 1 shows a business producing output products X, Y and Z. The business consists of three business units. Every unit has an intake of a number of input products derived from companies in a preceding link of the production chain, and a related indirect freshwater input, as well a direct freshwater input. Business unit 1 produces product X that is sold partly to a business in the next link of the supply chain; the other part is delivered to business unit 2 of the same business. Unit 2 produces product Y, which is partly sold to another business and partly delivered to unit 3. Unit 3 produces product Z, both for delivery to unit 2 and for selling externally. When a business is large and heterogeneous (different locations, different products), it can be attractive to schematise the business into some major business units and each major unit into a number of minor units again.

Step 2: the operational water footprint per business unit

This step is to calculate the operational water footprint per business unit (per year). It distinguishes threecomponents: the green, blue and grey water footprint.

$$\mathrm{BWF_o[u] = BWF_{o,green}[u] + BWF_{o,blue}[u] + BWF_{o,grey}[u]} \quad (1)$$

in which:

$\mathrm{BWF_o[u]}$ = the operational water footprint of business unit *u* ($\mathrm{m^3}$/year).

$\mathrm{BWF_{o,green}[u]}$ = the green operational water footprint of business unit *u* ($\mathrm{m^3}$/year).

$\mathrm{BWF_{o,blue}[u]}$ = the blue operational water footprint of business unit *u* ($\mathrm{m^3}$/year).

$\mathrm{BWF_{o,grey}[u]}$ = the grey operational water footprint of business unit *u* ($\mathrm{m^3}$/year).

Data on green water are calculated using the methodology as described by Hoekstra and Chapagain (2008). Data on blue water use have to be derived from statistics collected by the business units concerned. Data on grey water production have to be calculated from measurements of concentrations of chemicals in the waste flows that are disposed into the natural system at the specific unit and local ambient water quality standards (again following the method as described in Hoekstra and Chapagain, 2008).

Step 3: the supply-chain water footprint per business unit

This step is to calculate the supply-chain water footprint per business unit (per year). It combines information on inputs that are available from data of the business itself with information on the specific water footprint per unit of input that has to be derived from suppliers. Supposed that there are *n* different input products *p* originating from *m* different sources, the supply-chain water footprint of a business unit is calculated as:

$$\mathrm{BWF_s[u]} = \sum_{p=1}^{n}\left(\sum_{s=1}^{m}\left(\mathrm{PWF[s,p]} \times \mathrm{I[s,u,p]}\right)\right) \quad (2)$$

in which:

BWFs[u] = the supply-chain water footprint of business unit u ($\mathrm{m^3}$/year).

PWF[s,p]= the total water footprint of input product p from source s ($\mathrm{m^3}$/unit of product)

I[s,u,p] = the annual volume of input product p from source s into business unit u (product units/year).

The value of the product water footprint PWF[s,p] depends on the source of the product. When the product comes from another business unit within the same business, the value of de product water footprint is known from the own accounting system (from step 5).

Step 4: the total water footprint per business unit

In this step the total water footprint of a business unit (BWF[u], m^3/year) is calculated by adding the operational water footprint of a business unit and its supply-chain water footprint:

$$BWF[u] = BWF_o[u] + BWF_s[u] \quad (3)$$

Step 5: the water footprint of the output products per business unit

In this step the water footprint for each specific output product is estimated by dividing the business-unit water footprint by the output volume. Allocation of water use over end products can be done in several ways, for example, according to mass, energy content or economic value. In Life Cycle Analysis (LCA) it is common to allocate according to economic value (Weidema, 1999; Weidema and Meeuwsen, 2000). Following earlier studies on water footprints (Hoekstra and Chapagain, 2008), we adopted the allocation methodology from LCA and allocated the total direct and indirect freshwater use over the end products according to their economic value.

$$PWF[u,p] = \frac{\frac{E[u,p]}{E_t[u]} \times BWF[u]}{O[u,p]} \quad (4)$$

in which:
PWF[u,p] = the water footprint of output product p from business unit u (m^3/unit of product).
O[u,p]= the annual volume of output product p from business unit u (units/year).
E[u,p]= the economic value of output product p of business unit u (euro/year).
Et[u] = the economic value of the total output of business unit u (euro/year).

If business unit u delivers only one product, the equation is reduced to:

$$PWF[u,p] = \frac{BWF[u]}{O[u,p]} \quad (5)$$

Preferably, a business unit has been defined (in step 1) such that it produces one product only, so that equation (5) can be applied. In this way we avoid the allocation issue. If, however, it is impossible or unfeasible to schematise the business into units that each produces one product only, for example in the case of a chemical process that yields two or more valuable output products, then there is no other choice than allocating the water footprint over the various output products applying equation (4).

(Gerbens-Leenes, P.W., Hoekstra, A.Y. ,2008)

Step 6: the water footprint of the total business

In this final step, the water footprint of the business as a whole (*BWF*) is calculated by aggregating the water footprints of its *x* business units. In order to avoid double counting, one has to subtract the virtual water flows between the various business units within the business:

$$BWF = \sum_{u=1}^{x} (BWF[u]) - \sum_{u=1}^{x} \left(PWF[u,p] \times O^{*}[u,p] \right) \quad (6)$$

in which $O^{*}[u,p]$ stands for the annual volume of output product *p* from business unit *u* to another business unit within the same business (units/year).

Discussion and conclusions

We would like to draw attention to three particular issues that are important when calculating the water footprint of a business and that have not yet been raised. First, in contrast to energy, the price of freshwater is very low or negligible and does not indicate the scarcity of the resource. This implies that ingredients with a relatively large product water footprint do not show higher prices than similar ingredients with a relatively small product water footprint. When allocation occurs according to equation (4), the product water footprint of products with a large water use is probably underestimated. Second, companies often derive ingredients from the world market where the origin of the ingredients is unknown. This makes it difficult to assess the product water footprint. Solutions are to apply world average numbers for the assessment, use the weighted average of commodities on the world market, or to try to find the missing information. Third, attention should be paid to energy use. Especially energy derived from hydropower and biomass has a relatively large water footprint (Gerbens-Leenes et al., 2007). When companies use these energy carriers, the water footprint of energy should also be taken into account. (Gerbens-Leenes, P.W., Hoekstra, A.Y. ,2008)

This paper provides a theoretical framework for business water footprint accounting. Further development of the framework will depend on the willingness of businesses to apply the framework in practice, thus exploring its real potential and providing the necessary inputs to improve and refine the methodology. In the current stage the framework cannot be interpreted as a cookbook with simple guidelines to be followed. Undoubtedly new methodological and practical issues will be raised when applying the framework in practice.

Acknowledgement

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Analysis of Effective Management Methods of Preliminary Project Planning

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Abstract

Purpose *– an ample study on identification and analysis of effective management methods of preliminary project planning, in the most optimal conditions and with qualified personnel, in order to obtain products to a higher level of quality.*
Methodology/approach *– the applicable project management office informs the project manager regarding the decision that was reached. The project is defined and planned by the project manager and other experts until a justifiable basis for making a decision can be presented to the project requisitioned.*
Findings *– the agreed-upon project goals are measurable, all of the necessary tasks are thoroughly planned, a sustainable agreement with regard to the planned values are reached with the resource managers.*
Research limitations/implications *– initializing the project, project definition, including preliminary planning, the project is fully understood, well thought-out, comprehensively described, clearly structured, thoroughly analyzed, fully documented, and accurately captured in the system.*
Practical implications *– planning the project's phase in detail, ensuring resource availability, delegating tasks according to the plan and making sure that they are being carried out.*
Originality/value *– drafting the project management process, planning the project phase in detail, structuring the project, assessing risks and planning appropriate action plans, examining interdependencies, creating a project charter and planning documents.*

Key words: *project, organization, planning.*

Introduction

In case of deviations between projections and actual (content, quality, deadlines, costs), appropriate measures are to be planned and initiated, and their implementation is to be tracked. Through regular reports on the project's status and a deliberate effort to publish milestones/gateways, management is always kept up to date on the progress of the project and can take an active role in its direction (managing the degree of maturity).

An orderly approach to start projects ensures that every project is fully understood, well thought-out, comprehensively described, clearly structured, thoroughly analyzed, fully documented, resolutely decided upon, and accurately captured in the system. This is a two-step process:
- initializing the project: the idea for the project is coherently articulated in a statement of objectives in the project request, and approved;
- project definition, including preliminary planning: after the above statement of objectives has been approved, it is comprehensively structured, planned, and agreed upon by all pertinent parties. The project charter is then used to establish and clearly document how the entire project will be further developed.

Taking a two-step approach ensures that:
- there is a common understanding between the project requisitioned and the project manager in regard to the project and its goals;

- the expenditures that will be required in order to successfully implement the project have been adequately planned for and agreed upon with the departments that will be responsible for its execution. This approach also ensures that potential risks will have been identified and adequately taken into account;
- decisions can be made on the basis of clearly structured guidelines;
- there can be a high degree of transparency throughout all ongoing projects;
- only those resources that have actually been approved by the project requisites will be released to the particular projects;
- there will still be sufficient time to decide on priorities, in the event of conflicting goals between projects that are already underway and those that have not yet been approved.

General project coordinator

The general project coordinator coordinates the activities of the project managers and the team members with each other. He coordinates the documents which are relevant to the project (e.g. project plan, checklists) and the sub-projects or work packages with regard to arranging deadlines. He actively and continually monitors the timing targets and reports on their status to the steering committee by means of intermediate reports/status reports. The general project coordinator supports the project team with reporting and documentation. He reports to and receives his instructions from the steering committee. He is the contact person for the steering committee, the supporting central departments and for the project managers. The general project coordinator can call on the support team to assist with monitoring deadlines and costs and documenting the project.

The project manager with main responsibility prepares a project plan with support from the general project coordinator and the project manager at the receiving plant. This project plan contains the most important milestones and transfer steps, the summarized sub-projects, the degree of completion, the persons responsible and the start and end dates. The sub-project managers of the delivering and receiving plant create sub-project plans/activity plans by request of the general project coordinator.

Changes and deviations of the planned activities must be included in the project plan in a timely manner in order so that an overview of the large number of individual stages and details can be obtained at any time. It is advisable to enter an appropriate note in the project plan when changes occur.

Responsibility for updating the project plan lies with the project manager at the delivering plant with main responsibility, whereas responsibility for updating the sub-projects lies with the sub-project managers. The general project coordinator must be informed of any serious status changes (e.g. delays).

Checklists are specifically allocated to the sub-projects that are also assigned in timing terms to the gates. If the project is divided into several transfer stages, the checklist must be processed several times as necessary indicating the associated stage in the headline. The checklist points are obligatory and prove that a project phase has been completed. Responsibility in the specific sub-project for processing of checklists is indicated in the general checklist under the checklist overview. The status must be recorded for each checklist point. If a checklist item is not valid for the transfer project, this must be recorded in the field "comments". Furthermore, reference must be made to documents and paperwork in the “comments" field.

If a checklist item cannot be processed by the submission date, the person with responsibility must define an appropriate activity and obtain a deviation approval. The activities for the project plan/activity plan are derived from the checklists. They represent a minimum requirement for a transfer project and contain the most important transfer items. Deviations from the checklists are documented in the gateway release with activities and dates. If a sub-project is not opened, the general project coordinator must check the checklists for these sub-projects and derive any activities, appoint the persons responsible and document these as necessary. The general project coordinator is responsible for monitoring the gateway date deviations.

Sub-processes

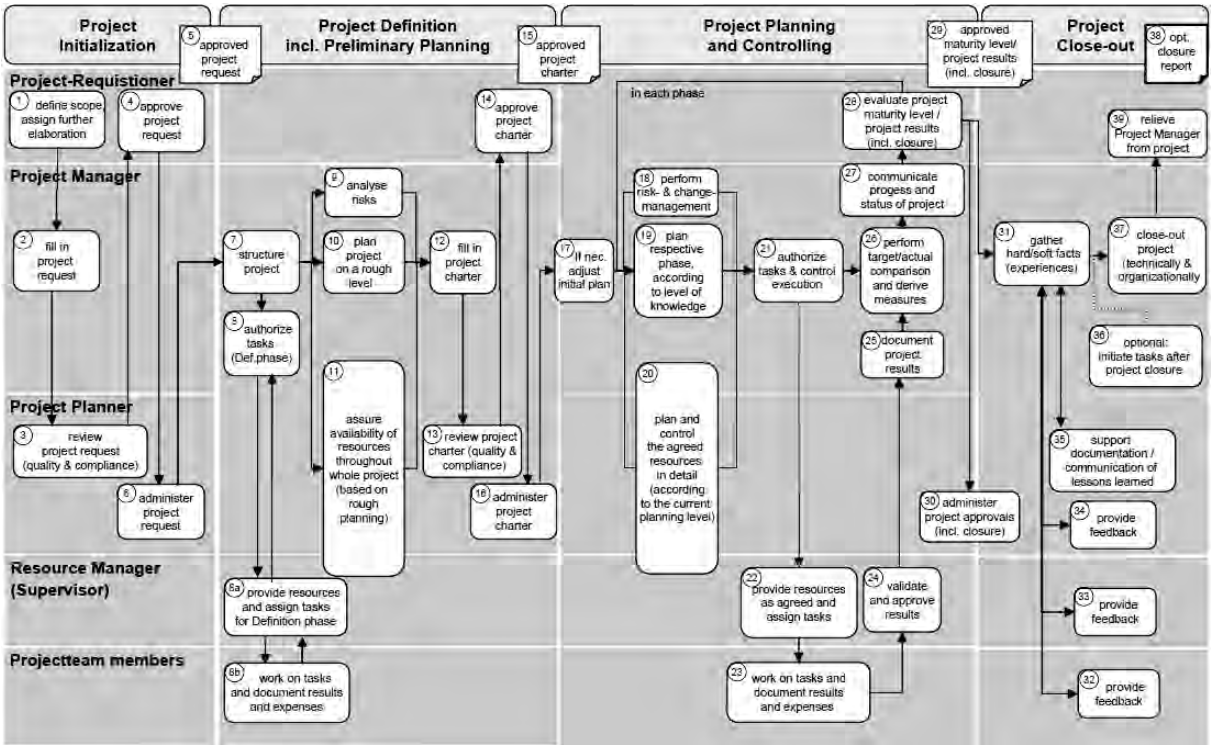

Figure 1. Project planning and management

The sub-process project planning and management includes a number of tasks that must all be completed:
- updating the planning, if required (in the event that the initial planning is no longer current);
- planning the project's phase in detail (while adhering to the scope of the project);
- ensuring resource availability;
- delegating tasks according to the plan and making sure that they are being carried out;
- comparing planned values with actual;
- managing risks;
- providing regular reports on the project's status;
- reporting to the project requisitioned/steering committee with regard to the project's maturity levels;
- documenting the project.

Input:
- an approved project charter, including preliminary planning along with a work-breakdown structure/schedule/project-budget;
- documented approval of the various milestones/gateways;
- change requests that may be needed during a project phase;
- feedback in response to the progress and results of the tasks that have been completed (content and expenses).

Documentation to be provided:
- project charter form (short or long version);
- specifications, work-breakdown structure (WBS);
- timetable, schedule of costs (including investments);
- resource agreements, guidelines for milestones/gateways;
- change requests, actual posted costs (confirmation of hours worked) or expenditures (orders) with assigned project numbers;
- status reports/completion confirmation in IT systems, meeting minutes.

Output:
- reviewed and approved project contents;
- internal and (if required) external approvals/reviews;
- management procedures;
- risk/stakeholder analyses;
- follow-up planning;
- project-status reports provided to the project requisitioned/steering committee/resource coordinators/ project team members;
- actual and project documentation.

Documentation to be provided:
- presentations and release documents/minutes (internal and, if required, external) for each of the milestones/gateways;
- planning values, actual values and comparison of plan vs. actual in the specified IT systems;
- regular project-status reports in the specified IT systems;
- project schedule with details regarding the project's progress;
- communications documentation;
- risk/stakeholder analysis including measures to be taken.

The sub-process project definition, including preliminary planning includes a number of tasks that must all be completed:
- establishing the requirements for the project charter;
- structuring the project;
- assessing risks and planning appropriate action plans;
- finalizing and/or creating the project's general conditions and infrastructure ;
- taking the stakeholders into account / protecting the project's contractual foundations;
- preliminary planning (contents, quality, time, costs);
- examining interdependencies;
- creating a project charter and planning documents, and presenting these to the project requisitioned;
- getting the project charter approved.

Input: approved project request (application to continue to develop the project, up to the final decision as to whether the project should actually be carried out) or similar information.

Documentation to be provided: short/long version of the project request or an easy to follow and documented decision by the project requisitioned.

Output: approved project charter with the accompanying preliminary-planning information.

Documentation to be provided: short/long versions of the project-charter form.

The four-eye principle must be applied and properly documented whenever a project charter is approved. This requirement can be met with an actual signature from both the project requisitioned and project manager, or by electronically entering the names and providing proof that the four-eye principle has been employed (e.g., by linking to the meeting minutes or email).

At a minimum, the following items must be documented in the project charter:
- project title/name;
- initial situation, definition of tasks/issues;
- project goals, including measurement criteria and benefits;
- scope of project;
- project requisitioned and project manager (project contractors);
- project team (functional assignments, no names);
- schedule/deadlines (start/end of project, milestones);
- project budget (planning value for primary and secondary costs for the entire duration of the project, up to its conclusion);
- additional information (e.g., cost center, type of project, etc.) for entering the project into IT systems (project number).

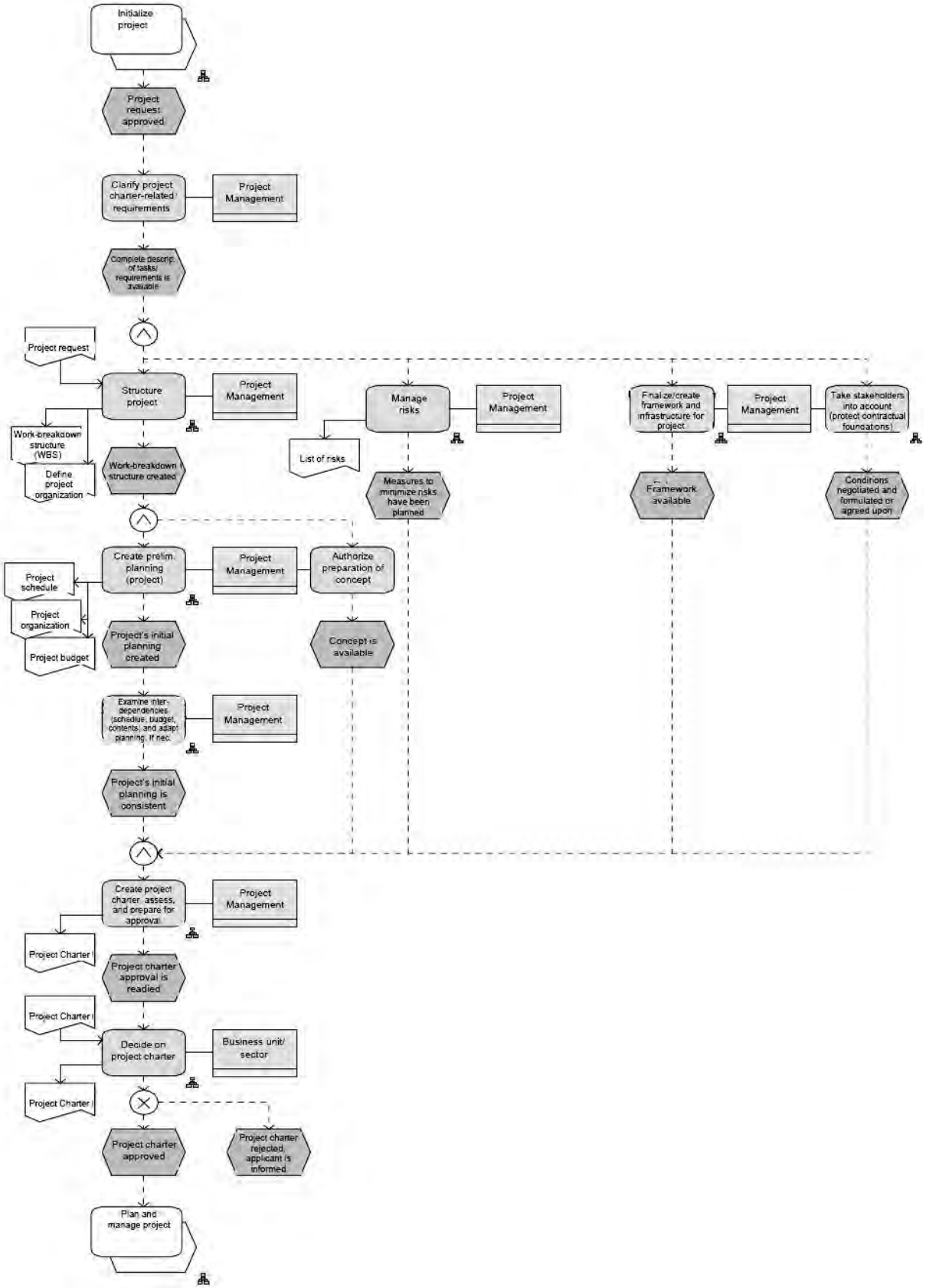

Figure 2. Project definition, including preliminary planning

Work flow

The applicable project management office or the project requisitioned informs the project manager regarding the decision that was reached (approved project charter or minutes from the new project meeting).

The project is defined and planned by the project manager and other experts until a justifiable basis for making a decision can be presented to the project requisitioned. With the approval of the project charter, the project requisitioned is making a clear and deliberate decision to employ the planned resources in order to accomplish the desired goals for the project (in terms of quality, costs, and time) and, therefore, to also secure the expected benefits.

The project charter's written documentation and its accompanying preliminary planning provide the basis for further developing the project. The preliminary planning for the project is to be appropriately documented in the specified IT systems.

Documentation to be provided:
- work-breakdown structure (WBS) - to include information on sub-projects, work packages and tasks, as well as the attendant departments and generic resources;
- schedule - to include information on milestones, primary work packages, and project dependencies;
- project budget - to include information on planned project costs including required investments, also required for financial controller: information on primary/secondary costs (derived from resource planning in the WBS);
- quality policy - to include information from a requirements specification (description of solution that is to be developed), planned review-deadlines for evaluating the project's maturity stage as well a listing of the required supporting documents;
- risk assessment - to include information on primary risks, their effects and likelihood of occurring, as well as action plans.

Once the project charter has been approved, the project manager is authorized to implement the project in accordance with the preliminary planning:
1. In the event that, at the start of the project planning and management sub-process (project implementation), the data from the preliminary planning stage is outdated or insufficient, the project manager - along with the appropriate technical experts/team members/project planners - is required to update the plan and save it to the applicable IT systems (planning version).
2. Any risks and/or pressure from stakeholders that may affect the team must be identified and analyzed with respect to its likelihood and effect on the project; appropriate measures are to be planned, implemented, and tracked.
3. Depending on the project phase and scope of the project, the tasks that up to this point have only been roughly planned are to be planned in detail with the resource coordinators (e.g., precisely specifying - including dates - when a task is to be started and when it is to be completed). The project planners must ensure that the project requirements are communicated to and coordinated with the resource managers in a timely manner.
4. Regular meetings with the appropriate project planners/project management offices (PMO) are to be held in order to ensure that all of the project requirements within a project's portfolio match the available resources from the various departments that were agreed upon, while also allowing for ongoing changes to individual projects. All parties are required to work together to resolve any bottlenecks or conflicts, if necessary, the management will decide.
5. All pending tasks are to be promptly assigned by the work-package coordinators as agreed, and then appropriately documented and tracked in the specified IT systems.
6. All members of the project team are to record the efforts incurred in carrying out the project tasks and book them in the specified IT systems.
7. Costs that have been booked are to be checked by the project manager at regular intervals. Erroneous entries will be forwarded to the financial controller and rejected.
8. Regular assessments of project targets vs. actual results are to be conducted; these will be used to apprise work-package coordinators, sub-project managers, and the project manager about any deviations in regard to the project's content, quality, deadlines, and costs, as well as whether corrective action will be necessary.

9. The project manager will establish regular project-status updates (to take place every four weeks, unless specified differently by the project requisitioned) so that management and project requisitioned not only have a clear overview of all projects and their status, but also so that they have adequate time to provide assistance, if required. The “traffic light” approach is an effective and easily understood method for identifying the status of the target criteria (content, quality, deadlines, and costs):
- green = everything in order, within planned/accepted limits, corrective measures have been carried out, proof/verification is available;
- yellow = there is a deviation from the planned/accepted limits, corrective measures have been initiated, proof/verification is not yet available, management’s assistance is not required;
- red = significant deviation from the planned/accepted limits, no corrective measures have been initiated so far, or proof/verification is not yet available, management’s assistance is required.
Nevertheless, the project requisitioned can also mandate a specific type of project-status report and establish the limit values depending on the type of project.
10. The project requisitioned/steering committee will review and decide on the project’s overall maturity stage (content, quality, deadlines, and costs) on the basis of milestones and/or gateways. This evaluation, in turn, will determine whether the project will be permitted to continue.
11. Throughout the course of the project, procedures as well as proof of the project’s results are to be sufficiently documented in order to protect against any legal (e.g., product liability) or tax-related challenges.
12. Before they are approved and implemented, any changes that are required during the course of the project must always be examined and documented in regard to their impact.
13. The project requisitioned will make a determination as to whether the project is completed on the basis of the agreed-upon project goals (see project charter) and the results/gateways that have been attained.

The primary risk can be:
- insufficient resources for developing the project charter;
- insufficient transparency with respect to available resources/budgets/interdependencies/ repercussions when deciding on a new project;
- erroneous assessment of feasibility;
- unreasonably high expectations/goals (content, deadlines, project budget);
- vague measurement criteria;
- insufficient planning (or lack thereof) in regard to project contents;
- insufficient coordination with the departments that will be carrying out the project;
- insufficiently qualified/suitable project managers and team members;
- insufficient or incomplete preliminary planning;
- the required resources that have been reserved are inadequate and unsustainable;
- too many changes during the project;
- insufficient project-management skills and resources;
- lack of discipline and urgency in implementing the strategy;
- other projects exerting undue influence;
- insufficiently qualified and/or unsuitable project managers/sub-project managers/work-package coordinators/team members.

Conclusions

Project management techniques and project planning tools are useful for any tasks in which different outcomes are possible, where risks of problems and failures exist, and so require planning and assessing options, and organizing activities and resources to deliver a successful result. The largest projects can require several weeks to produce and agree project terms of reference. Most normal business projects however require a few days thinking and consulting to produce a suitable project specification.

The project charter is a mandatory document for every project. The head of the central project management department is responsible for the operational support process (OSP), the project management. The operational departments, especially the project requisitioned and project manager, are responsible for enforcing the project management guidelines.

So, for truly manage a project are met the following requirements:
- the agreed-upon project goals are measurable;
- all of the necessary tasks are thoroughly planned;
- a sustainable agreement with regard to the planned values are reached with the resource managers;
- the actual values that are reported are known;
- all other determining factors (risks, stakeholders, changes, deviations, etc.) are known and adequately taken into account.

Acknowledgement

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Configuration of the Sap System Integration for a Production Unit

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Abstract

Purpose – The paper demonstrates that the challenge of any new processes of manufacturing can be defined in SAP.
Methodology/approach - Through the case study, the paper explains the configuration of the SAP system integration for a production unit with the MRP (material requirement planning) running and the automatic computation provided by the system according to customer requirements.
Findings – The implementation model of production module by means of SAP within a steering-wheel producing company, more concretely in the production unit "Leather Center", experiencing continued growth in demand, with new product launches.
Research limitations/implications – One must fully understand the roles of each operation in the manufacture process to be able to create the manufacturing master data, and then to integrate the planning of the customer orders with enterprise strategies.
Practical implications – The configuration of the SAP system integration for a production unit to establish the operational flow within the production process, to generate the MRP running, to create materials stocks, and to automatically display all the materials movements all along the product manufacturing cycle.
Originality/value – The modeling of the implementation of production module by means of SAP was realized to underline the advantages the planning data in real time.

Key words: MRP, Part number, Routing

Introduction

SAP program is a complex program, being of great help in Business Services, Technological Solutions. The SAP system represents a software infrastructure that offers management support and coordination of different structures and processes from the company, in order to realize the plan objectives. The paper provides evidence that the SAP Production module may be an effective method. The underlined advantage is the access of all necessary information in real time, which enables the obtaining of a powerful cost control, and the transaction management functionality.

Leather Center (LC) in head of the production firm of steering wheels represents the excellence center of this plant, where the main activity of the LC is dressing of a wheel in leather. Generally, the dressing process of a wheel in leather is the same, with little differences from one project to the other. The phases for dressing of a wheel in leather are: verifying materials; positioning; sewing; finishing; the auto-control of the steering wheels. The leather that is used in dressing the steering wheels is cut with the help of special knives, then reaches in the section where it will combine and stitch (sewing) and will be transferred in the leather storage. From here it is transferred in the section of the dressing in leather of steering wheels (leather wrapping) where it is used for the dressing process of the steering wheels in leather. The rohlings that contain wood in their composition, will be transferred from the main location to the foaming section for the process

of applying wood, after which they will return to the main location in the storage of raw materials to follow the same flow as the simple ones (the ones injected).

Under the LC are produced steering wheels of small series, they are launched in production new projects and manage unforeseen and urgent commands. In most cases, the unforeseen commands modify the agenda of the projects in course of realization. An unforeseen command, which usually has certain unique demands for the product, triggers a destabilization of the current information system of supply (this one being realized in Excel sheets), respectively generates a huge period of delivering the command. For resolving this situating was proposed a integration study of the LC in the SAP system.

Integrating the LC in the SAP system

The first step of integrating the LC in SAP assumes codifying each material utilized in fabrication process. To this end, the Part-Number (PN) is the code associated to each material, the role being the one to simplify managing the activities that are related to that material. Justifying the implementation of the SAP information system under the LC of the company (SAP being already implanted in the other production centers), it is given by the huge number of PN's that it utilizes Leather Center (3600 PN's), that way once integrated in the information system these PN simplify the command that is coming ad hoc from the client. Taking into consideration the fact that the rohlings and un-sewn leather used for all types of steering wheels for the same client are already created in the SAP, for the versions of large series steering wheels, these don't have to be created.

In the next step the transactions necessary for the integration of the LC under the SAP is being configurated (figure 1): Creating necessary part-numbers; bill of material; Work Center and Routing, Production version. The browsing of these transactions triggers the automated running of the MRP (Material Requirements Planning).

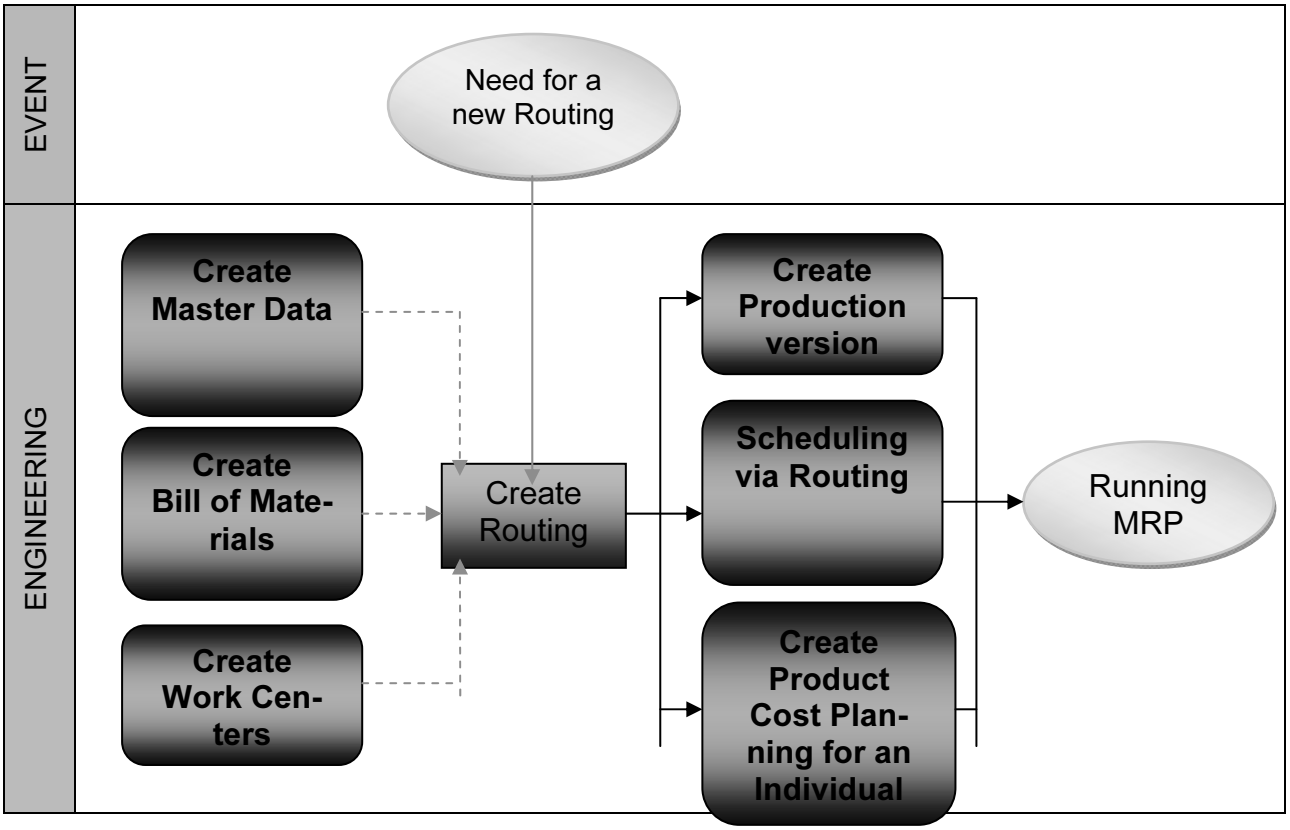

Figure 1 The transactions necessary for the configuration of the system

Bill of material (BOM) (figure 2) represents the chart of a finished product or half-finished that contains all the details about the raw material, the components and sub-components, the necessary quantity in the fabrication process of a product. (Weidner S., 2006) For each part-number created a BOM will be realized, that contains clear information about the used combination, and depending of the quantity introduced in the BOM, in automatic mode the stock for the part-number utilized will reduce, and the stock for the product that must be created will increase with the utilized quantity. BOM is structured on levels, on level 1 are included the materials entering directly into the component of the finished product INJECTED STEERINGWHEEL, one piece, and respectively SEWN LEATHER, one piece. At level 2 are visualized the components of the half-finished product UNSEWN LEATHER, one piece, and respectively BLACK THREAD in a quantity of 4 rolls.

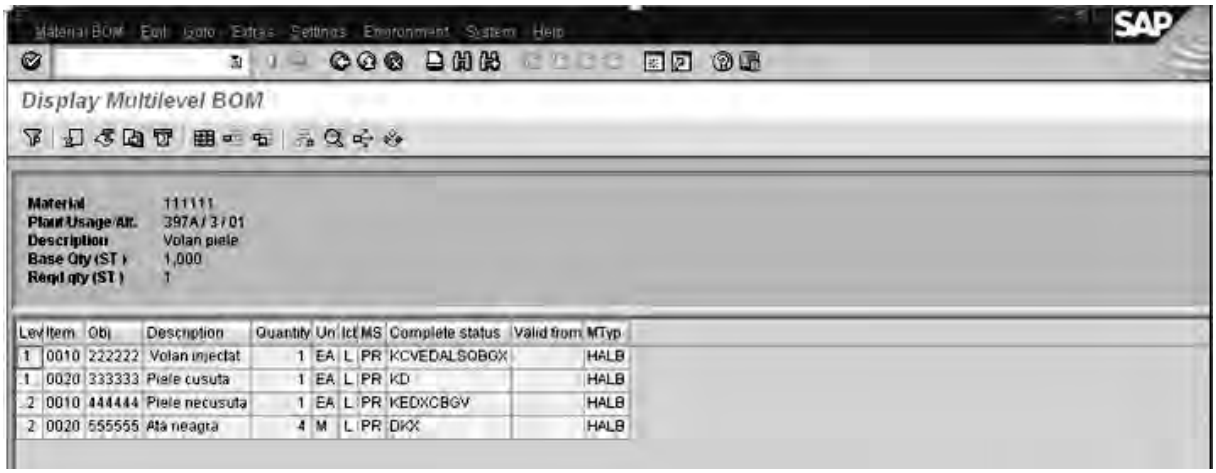

Figure 2 BOM view

The moment there is declared a certain quantity produced for a certain finite product, the SAP stock for this material will be increased with the declared quantity, while the stock for all the materials or semifinite products that are needed for its componence will be decreased with the used quantities, according to the consumption recorded in the BOM.

Work Center (WC) is the place where an operation or more are performed by a person, group of persons, car, group of cars, production line or assembly line and defines the order of the operations in charge of a production process. The activities performed in Work Center are evaluated hourly rate, which are determined by the cost centers and the types of activities. A WC can be built from equipment, people or production lines. The data from the WC are used for programming operational periods. The formulas are introduced in the WC so that the costs of an operation can be calculated. A Cost Center is assigned to each WC.

Routing sets the production operations sequence for a certain product – and the order by which they must be made for fabricating a product, as well as details about the work centers (Work Centers) where the operations are realized, the types of activities and the necessary periods for executing them (standard values) (figure 3).

Production version - production version of a material makes the link between the BOM, routing and the Work Center of the respective material. A version of the production comprises the following data: alternative BOM utilized; the validity of the domain (life duration) of the production version; the lot (quantity) of the material produced with this production version; the production line on which the production is based on; stocking locations.

BOM, Work Center and Routings represent transactions, belonging to the SAP Planning Production module (PP), generating automated rolling of the MRP.

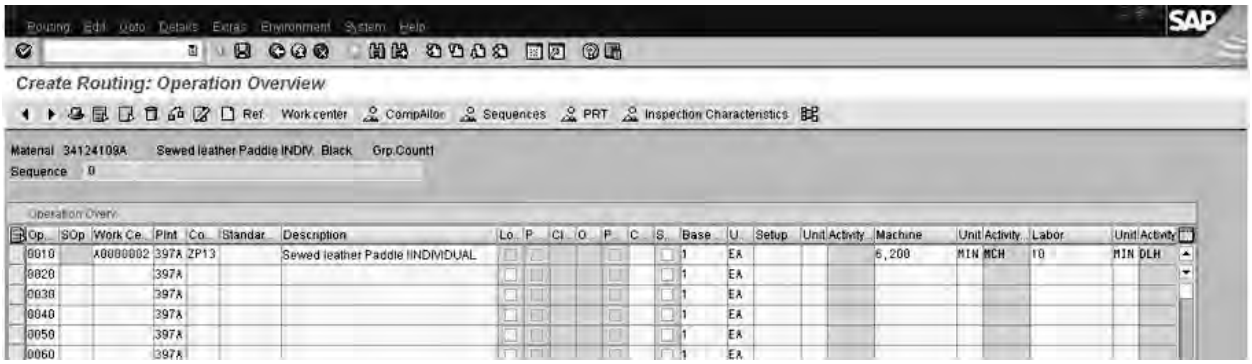

Figure 3 Sequencing production in operations in Routing

MRP realizes a complex calculus in charge of the SAP, starting from the client requests introduced in the system by means of the commands for certain projects taking in consideration the defined parameters in the production process (for finished products, the half-finished products, for components).

The MRP computation takes into account all the existing stocks (finite, semifinite products, raw materials), the computation strategy being a multi-level one, there being computed the requirements for each component from every level from the finite product BOM. (Abhijeet Guha, 2009) If in charge of the system it will be solicited a necessary net for a finished product (ex: an unforeseen command within LC) the system will create a planned order for that product (the leather-dressed steering wheel) and a dependent requirement for parts/raw materials of which it is composed (leather, rohling, thread, etc.). If this planned order if ultimately transformed in a production order, the dependent requirements are transformed in turn into reservations, to insure their presence in stock at the time in which they will be needed.Following the computation, there will be generated the purchase requisitions, and based on them there will be generated the schedule lines. Also, following the computation, old data will be deleted and there will be recreated the new planning data.

To highlight the results of the MRP computation for one material, there will be displayed all the details necessary for the given material planning in the stock/requirements window, according to fig.4. The window from fig.4 displays a multitude of pieces of information which are useful for the planning of a PN.

The important elements (according to fig.3) are presented below:

(1) -Dates – the date to which the MRP element refers to is influenced by the parameters defined in the master data (safety time, in-house production time, etc.);

(2) – the MRP element – the type of element (stock, "-" ord res, dep req, " +" pl ord, prod ord, sch line, purch req);

(3) – the MRP element data – the PN to which the MRP element refers to;

(4) - Exception – the exception generated following the last MRP;

(5) - Rec/reqd qty - the actual quantity for a type of MRP element;

(6) – the available qty – the available stock;

(7) – for details referring to the current stock, press the indicator from the first column;

(8) - Storage location - the production location to which the MRP element refers to;

(9) - Vendor, Customer - the supplier or the customer for a Sch Lne or Sch Agr;

(10) – press <<Vendor>> or <<Customer>> to display them.

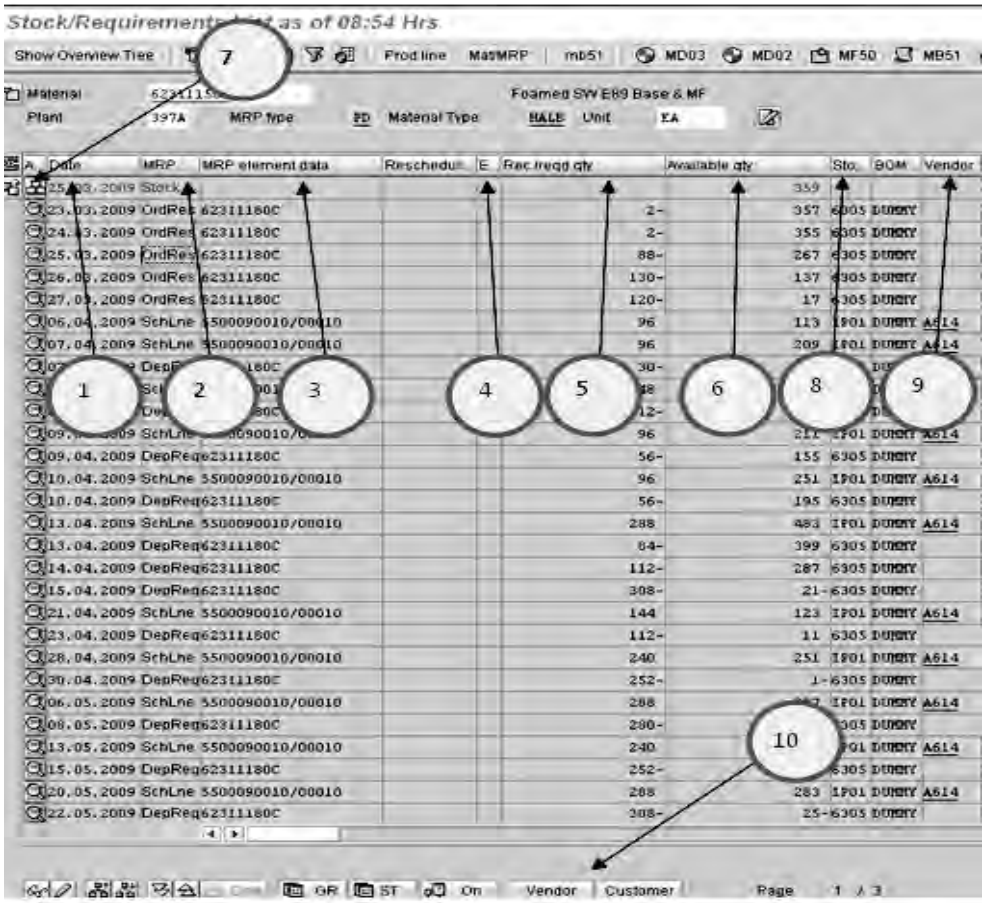

Figure 4 The MRP running

Conclusions

The paper provides evidence that the system integration SAP for a production unit may be an effective method. The underlined advantage is the access to the company planning data, in real time, which enables the obtaining of a powerful management control, and the transaction management functionality. Also, the paper illustrates the adapting of SAP modules within a company which has to maintain the relations with its partners who still maintain the proliferation of the system, spreadsheets and databases to meet the complex information needs of their cost control.

Some of the advantages of integrating the SAP solution for LC are:

- The accuracy of the stock, the system stock will reflect the real situation about the available materials in the plant
- Realizing a better plan, calculating material requirements based on weekly production plan
- the possibility of realization and analysis of the weekly inventory's or on request PN
- the possibility of following materials in and out of the system versus physical and eventually realizing the necessary corrections
- minimizing the risk to have false stocks in other locations

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A Study of the Romanian Toy Industry Situation Including Customers' Opinions

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Abstract

Purpose – *The purpose of this study was to investigate the Romanian toy industry situation in time of crisis, and to find out what the customers think about the toys manufactured by the local companies and those merchandised on the Romanian market, and how well the customers are aware of the existence of local companies.*
Methodology/approach *– We analyzed the official figures of the Ministry of Economy and Finance, we performed a survey method on 104 participants, and interviewed the managers of two local companies.*
Findings *–We provide a clear view about the local industry situation and concluded that the local industry is facing many problems. The local companies are producing more for export but the result that we acquired from the statistical analysis can make the local companies to focus on the Romanian customers too.*
Originality/value *– We consider that this study is original and of value because there are no studies regarding toy design or toy manufacture made on the Romanian market, and due to the fact that in Romania the researches do not address these products and with the production of toys only a few small companies deal.*

Key words: *toy industry, customers, local companies.*

Introduction

The effects of the international financial crisis had an impact on almost every industrial sector around the world, but what about the toy industry? The toy industry plays a very important role, from the point of view of child development; because toys are tools that help to enhance the imagination, creativity and sociability of the child.

The purpose of this article is to report an investigation made towards the situation of the Romanian toy industry between the years 2009-2010, and to associate it with the customers' opinion regarding the local companies and the toys manufactured by them, as well as regarding the toys found on the Romanian market. The reason of choosing this area is because the toy market is very dynamic and had long been characterized by rapidly changing fashion and taste, so we considered it to be an interesting subject to investigate its situation in this period of crisis.

Knowledge of market needs is essential to develop new and innovative products. This knowledge is what leads to the development of successful business strategies and any product development strategy which is not based on market needs will lead to failure. We took in consideration this aspect also and we studied the customer requirements in deep, and detailed results will be presented in the doctoral thesis of first author, as the present paper presents a segment of a series of studies made in order to accomplish the first authors PhD thesis (Harangozo, Blebea, Socaciu, 2011). In this article we try to present a clear overall view about the local industry and the customers' general opinion about the toys merchandised and manufactured in Romania, without go-

ing into further details such as: safety requirements, customers' requirements regarding color, design, price. In the beginning there are some aspects discussed regarding to the toy industry. This theoretical discussion is followed by the description of the methodologies used in the study followed by the result acquired.

Toy industry

The toy industry is one of the world's oldest creative industries and one of the most dynamic sectors in terms of new product development. His own history shows that it is a progressive, innovative, and dynamic industry. For centuries, toys have been helping children to have fun, to transform in creator, master, educator, emulator, nurturer, friend, collector, story lover, and experience seekers (Vecchio, 2003).

The success of companies operating in the field of toys depends of several factors: economic, demographic changes, seasonal, and the successful introduction of products on a regular basis, the most important being the last one.The toy market had long been characterized by rapidly changing fashion and taste. When a product suddenly became very fashionable, its manufacturers could earn huge considerable revenues (Hongyi, Wong Chung, 2005).

However, creative business such as toys is extremely volatile (Vecchio, 2003) and seasonal in nature, which is relatively different from other industries. Volatility in the industry is caused by variable and unpredictable demands, very short and specific selling-windows and short product-life-cycles. Therefore, investors and practitioners know very well that the toy industry is far from tranquil (Johnson, 2001). The toy industry has incurred relatively higher costs on obsolete inventory, lost sales and markdown as compared to other industries. These are typical consequences of volatility in the toy supply chains, akin to the fashion clothing industry (Christopher, Lownson, Peck, 2004).

Methodology

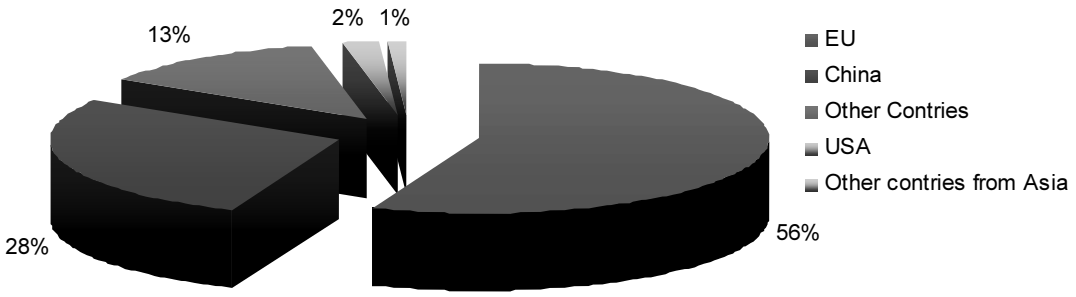
After performing different research methods, in order to identify the local companies we concluded that the Romanian toy industry is represented only by few companies. Throughout the documentation we were able to identify the following companies: Amik, Arădeanca, Burak toys, Cav, Monita, Juno and Satelectric. Among the listed firms, two of them accepted to collaborate in order to accomplish this study and we have visited them with the purpose to investigate deeper the local companies' situation. These two companies are Monita and Burak toys. Also, in order to find out the local companies' situation we analyzed the official figures of the Ministry of Economy and Finance.

In order to find out the customers opinions we performed a survey method. This method offered the possibility of collecting responses on some facts that we could not know directly and personally, given the spread in space and time of the phenomena that we wanted to analyze. The method consisted in organizing a questionnaire and distributing it to several people, being invited to fill it out. The questionnaire was filled out by 104 participants. The data collected was analyzed with SPSS (Statistical Package for the Social Sciences).

Results

The toy industry of Romania failed to reach a positive performance in the last decade (Harangozo, Blebea, Socaciu, 2011). According to official figures of the Ministry of Economy and Finance, taken from the customs statistics, trade balance in the toys sector is heavily unbalanced (National Institute of Statistic 2009-2010). Romania imports over a quarter of toys from China, the world market leader, produces one fifth of the necessary and complete its requirements with European or American products. Statistics show that the Romanian market absorbs more than a quarter (28%) of its toys from China. According to the Ministry of Economy and Finance, Romania meet its needs of toys up to 80% of imports, and the countries from which it completes its toy market are shown in Figure 1.

Figure 1. Main countries from which Romania imports



In Table 1 we can see the situation of export and import in the period 01.01.2006 and 30.09.2010, in toys, games, and also entertainment and sports articles. Data were collected from bulletins of international trade statistics that appear monthly on the website of the National Institute of Statistics, and were processed to be presented only those data which are related to the products studied.

Tabel 1. Romania's export and import situation

	FOB export (mil.€)	Difference from previous year FOB(%)	CIF import (mil.€)	Difference from previous year CIF(%)	FOB-CIF trade balance (mil. €)	The diference of balance from the previous year (%)
01.I.2006-30.XII.2006	79,59	-	125,47	-	45,88	-
01.I.2007-30.XII.2007	109,2	129,66 %	191,1	152,30 %	81,9	178,5 %
01.I.2008-30.XII.2008	113,6	104,2 %	262,5	137,36 %	149,5	182,53 %
01.I.2009-30.XII.2009	98,1	86,35 %	200,6	76,41 %	102,5	68,56 %
01.I.2010-30.IX.2010	75,3	76,75 %*	123,7	85,3 %*	-	-

* The difference is calculated towards the same period a year earlier 01.I.2009-30.IX.2009

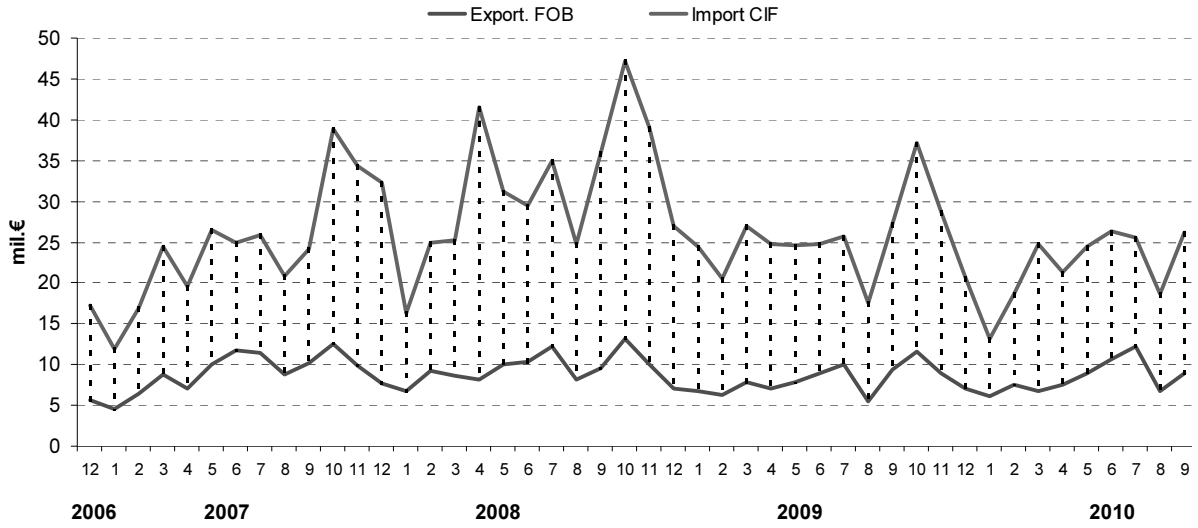
Data values are expressed in FOB (Free on Board) prices for exports and CIF (Cost, Insurance, and Freight) prices for imports. In Figure 2 are the FOB exports and CIF imports monthly in period 01.12.2006 - 30.09.2010 and the area marked with dotted lines represent the trade deficit results. Romania's main export zones are the European Union and the United States.

In 2009, on the domestic market 98 companies operated having the main activity the production or import of toys. These include companies with double nature as producing and importing, and companies that are only assemble toys for the European market. Companies producing in Iohn assembled components of toys on behalf of several leading manufacturers in the EU, exporting these directly to them .

Another companii included in the study is Burak toys, is a company with private capital operating in the field of production of plastic toys since 1998, located in Buftea, near Bucharest. The company specializes in producing plastic toys and games for children over 3 years. One of the main reasons why Burak Toys products are becoming more popular is that they use raw materials of highest quality. Also the toy success is highlighted by the use of a modern production process, based on the concept of total product. They are constantly interested in developing new and attractive range of toys. Company's general manager affirms that the toys manufactured by them are simple, cheap and bulky, and reveals that he is unhappy with the lack of toy designers in Romania. In 2009 had a slight decrease in production compared to last year but they are deter-

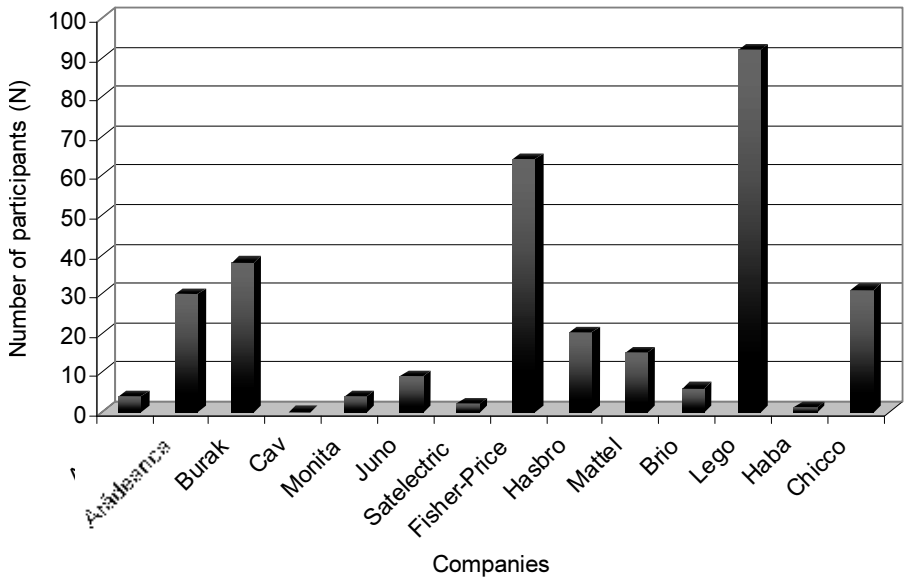
mined to remain competitive in the market and develop new toys. This certifies the benefits of a good management.

Figure 2. FOB exports and CIF imports represented monthly in the period between 01.I.2009-30.IX.2009



In the survey method we presented 14 companies to the participants, of which seven companies were local and seven foreign companies. Local companies were those mentioned above, and the foreigners were: Fisher-Price, Hasbro, Mattel, Brio, Lego, Haba, Chicco. From the 14 companies presented the best known was the Lego company (N=92; 88.5%), followed by Fisher-Price (N=64; 61.5%), on the other side is the company Cav, which has not been recognized by none of the subjects, (N=0, 0%). Among domestic companies the best known have resulted being Burak Toys (38 subjects; 36.5%) and the most unknown local company is Cav. The extent to which each company is known can be seen in Figure 3.

Figure 3. The extent to which companies are known

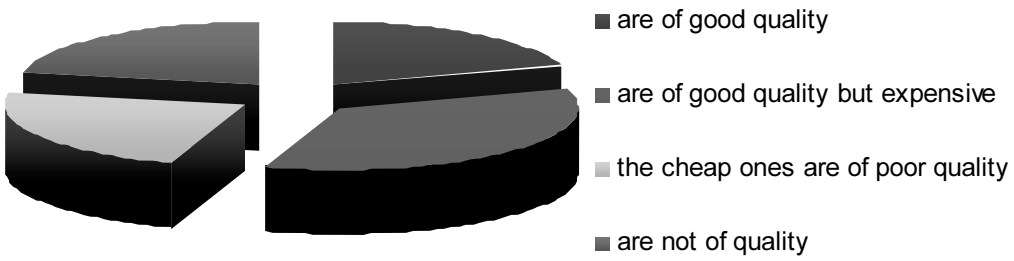


Analyzing these data we can affirm that Romanian consumers know better foreign manufacturers then domestic companies. To measure the level of satisfaction offered by companies, the research participants were asked to provide ratings to each company known according to the level of satisfaction they provide. Ratings were restrictive, so a company with which the customer was

satisfied was noted with 5 while another company from which the customer does not buy with pleasure was noted with 1. The most popular companies are Fisher-Price with an average of 4.30. (SD=1.10), Chicco (M= 4.12, SD=1.24) and Lego (M=3.92, SD=1.29). The Burak Toys Company received a rating of 3.5 (SD=1.13) which is indeed a smaller mark than the one received by the Monita company (M=3.66, SD=1.52) but we have to take in consideration the fact that the Burak company was significantly more known (N=38) in comparison to the Monita company (N=4).

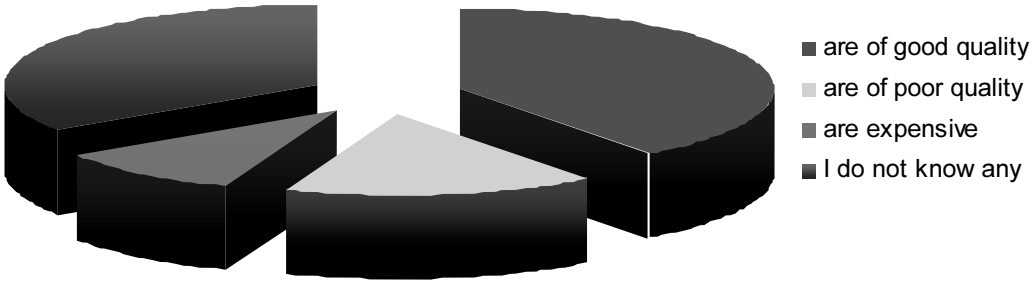
Participants' answers regarding the toys merchandised on the Romanian market were grouped in categories "are of good quality", "are of good quality but expensive" "the cheap ones are of poor quality", "are not of quality". Most subjects, 33.7% (N=35) believe that toys found on the domestic market are of quality but expensive, this opinion is followed by the view that the cheap ones are of poor quality 22.1% (N=23) and only 19 2% (N=20) believe that the toys available on the market are of quality.

Figure 4. Participants opinion regarding the toys merchandise on the Romanian market



Participants' answers regarding toys manufactured in Romania were grouped into categories "are of good quality", "are of poor quality," "are expensive", "I do not know any." Participants' opinions about toys made in Romania are relatively good, most survey participants believe that toys manufactured by local companies are of quality, 35% (N = 37) but on the other side 30.8% (N = 32) of the participants claim not having knowledge of any toy made in Romania, 14.4% (N = 15) say that they are of poor quality and 8.7% (N = 9) say they are expensive.

Figure 5.Participants' answers regarding toys manufactured in Romania



From discussions with participants in the study we found that many people are interested in specific Romanian toys such as wooden blocks, colored wooden puzzle, wooden wheelbarrows, stools, trolleys dolls, but they don't find them on the market. More and more consumers are dissatisfied with imported toys, which are or not suitable for the purpose manufactured, or too expensive or they get damaged after a short time. Without going into details we mention that the research conducted has revealed that the most important feature for study participants on a toy is safety, followed by the educational value and quality, while the less important feature is brand. 60.6% of parents prefer modern toys, 48.1% of the 104 participants prefer traditional toys and

8.7% prefer both types. Preference for one type of toy, traditional or modern rules out in most cases the preference for the other type of toy.

Conclusions

The toys sector in Romania as almost every industrial sector, has been affected by the global financial crisis, and beside this, the local industry is facing many problems. Imports of toys have increased significantly, especially from Asian countries, which led to the disintegration of the Romanian toy industry, which until now could not recover. The local producers complain about the price of the imported toys, which are hard to compete, but the real reason is that in Romania there do not exist researches addressing these products nor deal with their manufacture. This sector would have to go through a process of restructuration through mergers and alliances between companies, to enhance competitiveness. Given the increasing need for innovation among toys and games, the Romanian industry should invest in creating and developing new products. By presenting two cases of handling the financial problems, namely the two companies studied in this paper and the customers opinions and desires, it is obvious that a good management and investment in innovation can bring a company in a short time on the top taking in consideration the fact that the toy market had been long characterized by rapidly changing fashion and taste. When a product suddenly became very fashionable, its manufacturers could earn huge considerable revenues.

Romania is affected both by a lack of toy designers, but also by the fact that the necessary knowledge to be a competent toy designer are not included in specific curriculum for designers. They should consider including in school curricula, materials that would supply knowledge and skills necessary to gain the abilities needed design toys and products for children.

The customers think that the majority of the toys on the Romanian market have a poor quality, and also those with good quality are very expensive. Surprisingly they consider that the local companies' products have higher quality, but are very hard to find. This explains the fact that the companies analyzed in the study (seven in number), those presented above have been recognized in a smaller extend.

We provide a clear view about the local industry situation and present the benefits of a good management by comparing a company, which use it in opposition with another company which does not use it. The fact that local consumers appreciate toys manufactured in the country and they are almost seeking for them as well as the results from the statistical analysis can make the local companies to focus on the Romanian customers too, and to make more advertisements in order to be known by the customers. Another reason why they should do more advertising is to make a fashion through their toys because by a product becoming suddenly very fashionable, its manufacturers could earn huge considerable revenues. Taking this facts in consideration and that the market for toys is huge, it also remains promising and the demand for toys will increase every year, the local companies should invest in a good management and in innovation that can bring a company in a short time on the top.

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Competence and competitiveness with Exsys Corvid Expert System 5.2.1

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Abstract

The business environment in which organizations operate today is ever changing, and it is becoming more and more complex. Artificial intelligence will play a fundamental role in utilizing inherent knowledge to the strategic advantage of institutions, financial institutions in our case. Organizations are breaking out of their traditional geographical and market boundaries. Also, organizations feel increasing pressures that force them to respond quickly to changing conditions and to be more innovative in the way they operate. There is no time for financial mistakes. The only solution for this key business requirement is provided by a new interactive information technology, named knowledge-based system, which is suitable to provide quick, accurate and consistent advice to certain problems. The main objective of this paper is to survey how characteristics, benefits, and also special requirements of expert systems, meet the needs of financial environment. We used Exsys Corvid as an expert system generator to implement a prototype of an expert system which estimates the market value of a hotel in order to be put up for auction.
Purpose – The main objective of this paper is to survey how characteristics, benefits, and also special requirements of expert systems, meet the needs of financial environment.
Methodology/approach - We used Exsys Corvid as an expert system generator to implement a prototype of an expert system which estimates the market value of several hotels in order to be put up for auction.
Findings –The most important result is the following: distributing relevant expertise to branch offices via expert systems will improve competence and competitiveness in areas such as: real estate financing, corporate lending or consumer loans.
Research limitations/implications – The case-study presents the advantages provided by a new interactive information technology, named knowledge-based system, often named expert system, which is suitable to provide quick, accurate and consistent advice to certain problems. Also, the paper surveys how characteristics, benefits, and also special requirements of expert systems, meet the needs of financial environment.
Practical implications – Organizations feel increasing pressures that force them to respond quickly to changing conditions and to be more innovative in the way they operate. There is no time for financial mistakes.
Originality/value – In developing the application we used Exysy Corvid Expert System 5.2.1.

Key words: *knowledge-based systems, expert systems, decision making*

Introduction

We begin our paper by sharing a thought which emerged at an International Symposium on Artificial Intelligence in Berlin, May 18-22 1987:

“Knowledge is becoming one of the most important resources in the future and we should be encouraged to share this intellectual resource since we can even increase it by sharing it, which is quite the opposite as with natural resources!”. Artificial intelligence will play a fundamental role in utilizing inherent knowledge to the strategic advantage of organizations, financial institutions in our case. There is a movement towards a knowledge based society and a renewed recognition of people as knowledge workers.

In our days banks and insurance companies certainly possess o lot of expertise (Ellinger, 1987). But there are some problem: a) the expert information is only stored in the heads of a rather small group of human experts; b) the companies are always facing the risk of losing expertise when people leave the company, retire, get promoted or simply forget because of lack of practice; c) management has very little control over how this expertise is applied in daily business.

One of the dominant trends of modern society have been “specialization”. Another and the other is that financial products, business problems, decision making and especially risk assessment are becoming increasingly complex. For both reason everybody needs and wants to have more access to expert knowledge. But really good experts are in short supply almost everywhere and one can hardly make sure that the few experts are available right then, when they needed. The necessary permanent re-education of customer service staff is also rather difficult and expensive and therefore mostly not done.

The only solution for this key business requirement is provided by a new interactive information technology, named knowledge-based system (KBS), which is suitable to provide quick, accurate and consistent advice to certain problems.

Broadly defined, KBS’s use extensive domain specific knowledge to solve problems and support decision processes (Dutta, 1997). Such information systems attempt to move the focus of computing a generation ahead by focusing on knowledge as opposed to information and enhancing the level of intelligence embedded in the IT systems.

Being a product of fifth generation computer technology, KBS possess characteristics like (Turban, et al., 2006):

- providing a high intelligence level;
- assisting people to discover and develop unknown fields;
- offering vast knowledge base;
- aiding management activities;
- solving social problems in better way;
- acquiring new perceptions by simulating unknown situations;
- offering significant software productivity improvement; and
- reducing cost and time to develop computerized systems.

According to the classification by Tuthhill and Levy (1991), there are main 5 types of the KBS exist:

i. Expert Systems,
ii. Hypertext Manipulation Systems,
iii. CASE Based Systems,
iv. Database in conjunction with an Intelligent User Interface and
v. Intelligent Tutoring Systems.

The four main components of KBS are usually distinguished as: a knowledge base, an inference engine, a knowledge engineering tool, and a specific user interface (Dhaliwal and Benbasat, 1996). On the other hand, the term KBS includes all the organizational information technology applications that may prove helpful to manage the knowledge assets of an organization, such as ESs, rulebased systems, groupware, and database management systems (DBMS) (Laudon and Laudon, 2002).

Because of their emphasis on knowledge, the terms ‘expert system’ and ‘knowledge-based systems’ are often used interchangeably (Rowe and Roberts, 1998) If any difference does exist, it is in how their input knowledge is acquired. In expert systems input knowledge is acquired, in the main, from human experts, whereas in knowledge-based systems it is usual for input knowledge to be acquired through non-human interaction, such as through information systems and databases.

Theory Fundaments

The term 'expert systems' (ES) has been defined by well-known authors along the following lines:

- computer programs which use knowledge and inference procedures to solve problems which, if addressed by a human, would be regarded as difficult enough to require significant expertise (Barr and Feigenbaum, 1981).
- software built by assembling and codifying the knowledge used by one or more experts, and designed to perform a task usually requiring specialist training (Quinlan, 1986).
- programs that reason with symbolic information and use heuristic (non-algorithmic) inference procedures, perform at the level of an expert, are flexible both at design and run time, and are able to explain their line of reasoning (Buchanan, 1986).

According to Guzman and Sigua (2009) an expert system, like a human expert, is expected to:

• be specialist : know facts and procedural rules;
• use heuristics: interpolate from known facts;
• justify its conclusions: to establish credibility and confidence. The user can ask: how do you know a particular fact? why do you ask a particular question?
• be able to learn: be able to absorb new knowledge and apply it;
• estimate the reliability of its answer.

In its simplest form, the expert system has three major components: an interface, monitor and keyboard allowing two-way communication between the user and the system; a knowledge base in which all the knowledge pertaining to the domain is stored; and an inference engine in which the knowledge is extracted and manipulated to solve the relevant problem. Inferencing strategies may be either forward chaining, which involves the system reasoning from data and information obtained by consultation with the user to form a hypothesis, or backward chaining, which involves the system starting with a hypothesis and then attempting to find data and information to prove or disprove the hypothesis. Both strategies are included in most expert systems (like Exsys Corvid).

Knowledge in any domain takes the form of facts and heuristics; the former being valid, true and justifiable by rigorous argument, the latter (often referred to as ‘rules of thumb’) being the expert’s best judgement in any particular circumstance and hence justifiable only by example.

Associated with these are the terms ‘data’ and ‘information’, the former referring to facts and figures, the latter being data transferred by processing such that it is meaningful to the recipient. Knowledge can therefore be regarded as information combined with heuristics and rules. There are many levels and categories of knowledge and it is the objective of the knowledge engineer to acquire or elicit this knowledge and organize it into a computer-readable format.

Knowledge acquisition is probably one of the most difficult stages in the development of an expert system. It is both time consuming and tedious as well as being expensive and often difficult to manage. However, it is a necessary element in the building of an expert system and, if done well, will undoubtedly lead to systems of potential use. The basic model of knowledge acquisition is one of a team process whereby the knowledge engineer mediates between the expert(s), the users and the knowledge bases. The knowledge engineer must acquire or elicit knowledge from not only the expert(s) but also all the other potential sources; these include written documents (research reports, reference manuals, operating procedures policy statements) and consultants, users and managers. In the case of experts, in the main knowledge is acquired through face-to-face interviews.

Once acquired, there are many ways of representing the knowledge in the knowledge base (production rules, frames, semantic networks, decision table, decision tree, objects). It is probable that the most common methodology is the production rule; this expresses the relationship between several pieces of information by way of conditioned statements which specify sections under certain sets of conditions (If, Then). Each rule implements an autonomous piece of knowledge and is easy to understand. Unfortunately, complex knowledge can require large numbers of rules, causing the system to become difficult to manage. The decision over which method of knowledge representation should be adopted is dependent primarily on the complexity of the domain.

ES have been applied commercially in a number of areas, including finance, data processing, marketing, human resources, manufacturing, homeland security, health care management, business process automation, and so on. Administration of financial institutions is an area where ES can support either repetitive or complex routine tasks which normally require human expert support for completion. Financing is a very complex area requiring many and various kinds of expertise. Distributing relevant expertise to branch offices via ES will improve competence and competitiveness in areas such as: consumer loans, real estate financing or corporate lending.

Methodology and Case Study

Corvid is an expert system generator developed by EXSYS Inc., the first company that brought practical expert system development to the PC in 1983. Corvid offers interactive tools for top-level knowledge access and dissemination. Expert knowledge of how to solve a problem is often scarce and valuable - it can be a company's greatest asset and key competitive differentiator. Expert systems capture this knowledge and allow its dissemination to others. Most other approaches to knowledge distribution just provide people with information, and rely on them to read, understand, and convert it to usable knowledge on their own - in effect, self-teaching themselves to be an expert.

We used Exsys Corvid 5.2.1 for implementing our application presented in this paragraph. The user interface puts some questions along with some options. The users should select the option and from the interaction, the system will draw conclusions and try to recommend the most adequate evaluation.

The bank auction off some hotels and use an expert system in order to obtain the best evaluation. The bank's expert system estimates the market value of a hotel, every hotel from the list getting an confidence factor, depend by its features. The application contains metablocks, which provide a way to build systems that put generic decision-making information in Logic Blocks that interact with spreadsheet files that contain all of the detailed hotel data. This approach makes it easy to update and maintain a system by adding, changing or deleting data in the spreadsheet.

We tried to design a very friendly interface, by asking the user many questions concerning the features of hotels. So there are several screens similar to this one:

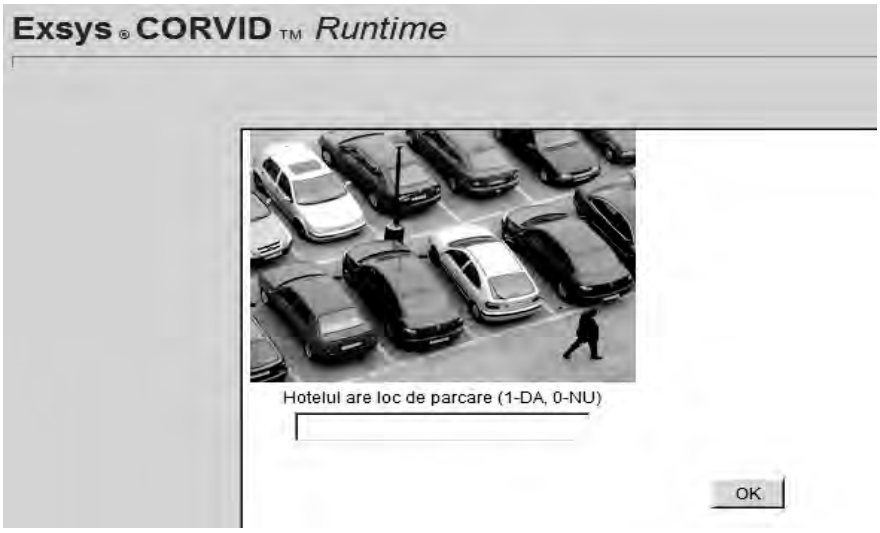

Figure 1: User interface for asking the hotels features

Finally we get a recommendation (Figure 2) presented as follows:

Figure 2: The system recommendation

Discussion and conclusions

Expert systems are computer programs designed to simulate the problem-solving ability of human experts in specialized fields. They incorporate a knowledge base that contains the scientific knowledge and experience for solving specific types of problems, a data base for the facts pertinent to particular problems, and a control program that constructs lines of reasoning to solve the problems. They have been successfully applied in many fields.

The technology of expert system is based on the premise that what makes a person an expert is years of experience that enables him to recognize certain patterns in a problem as being similar to patterns he has seen previously. Expert system facilitates organization of knowledge in such a manner, which fills up the gap of the absence of an expert in any field. The essence of an expert system is to mimic expertise and distribute expert knowledge into non-experts' hands.

We conclude that the expert system's technology is mature and has proved its ability to generate real business benefit. It should now be considered routinely as one of the methods for increasing competitiveness. Also, it is unlikely that expert systems will ever replace formulators but as a decision-support tool they are invaluable and deliver many benefits.

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An Approach to Identify Risks in Sustainable Enterprises

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Abstract

Purpose - The paper is a systemic approach of risks evaluations in enterprises, being an optimum support for the decision making process. The research is done by integrating cooperative sciences: engineering, management, informatics, psychology, etc.In the final part of the paper some conclusions and perspectives of the scientific research will be presented.
Methodology/approach - The complexity of this paper is argued by the adopted procedure and by the multidisciplinary way of solving the theme and the estimated results (using modern means of information and communication technology, management and psychology).
Findings – *The results supply collaborative creation opportunities and an additional value for the enterprises*.
Research limitations/implications - The proposed computer system applies to any enterprise levels.
Practical implications - The approach aims to develop a computer system, easy to use, for risk assessment and allows resumption at any time from any point, on the desired responsibility: social, economic, environmental and technological. With this tool, managers at different levels of the enterprises can better define their strategies, policies and tactics.
Originality/value -This paper presents a model of risk assessment in sustainable enterprises. Preliminary results were focused on identifying assessors' attitudes towards risk and preliminary analysis.

Key words: risk management, sustainability, sustainable enterprises.

Introduction

Risk management represents the coordination of the activities in order to direct and control an organization in terms of risks [Visoiu, Rusu, 2010]. Risk management in enterprises is a cyclic and continuous process which represents the coordination of the activities to direct, control and deal with the risks including monitoring, communication and consultancy, satisfying the needs of the present generations without compromising the abilities of the next generations to satisfy their own need.

In risk management the following elements are to be taken into consideration: the responsibilities of the sustainability (economic, social, environment, technology); the available budget for the management process; the team members' availability, the used tools, the teams professionalism; the time assigned for evaluation; the time of identification in the life cycle; the necessary expenditures for dealing with the risk (avoiding, passing, accepting), the psychological factor (temper), etc.

Risk evaluation in sustainable enterprises

The European Commission launched on April 2000 the tool of "triple basis line" on the request of measuring their value, having as subordinated issues:

- the environment: the impact of the campaign activities on the environment broadly – natural resources usage, rejecting the entire nature, territory occupation.

- economic: in collecting financial performances, the sustainable development means taking into consideration the long term perspectives of the companies, their impact on the economic growth in their field of activity and obeying the ethical principles in business.

- social: the social consequences of the company as a whole its representatives: employees, solicitors, clients, local community [Comisia Europeana, 2011].

In another theory, a forth base line appears, now very important, and that is the technologic responsibility, an important element in the development of any organization [Izvercianu, 2011]. This responsibility, technologic, together with the social, economic and environment ones, lead to a sustainable development and thus sustainable enterprises management becomes integrated management of the quadruple [Izvercianu, Lobontiu, Draghici, 2007].

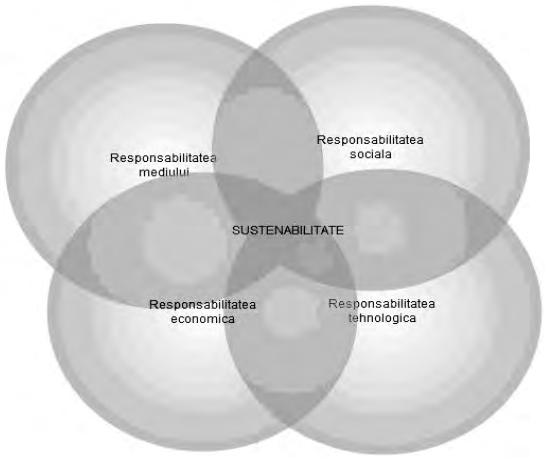


Fig.1 [Izvercianu, 2011] The responsibilities of the sustainability

The risk is an element present in any enterprise. Its sustainability needs risk identification within all four responsibilities of the sustainability: economic, social, environment and technologic. The essence of this development model is to establish the relationship between the human activities and the natural environment, which cannot diminish the perspectives of the next generation to enjoy the life quality of own advantage.

The sustainable equilibrium of the system is influenced by risk occurrence. Risk evaluation within the four responsibilities leads to correctly dealing with them, to the system stability, without compromising the abilities of the next generations to satisfy their own needs.

Research scenario

Based on these reasons, the present paper presents the risk evaluation study in sustainable enterprises.

The research scenario includes: risk knowledge capitalization and formalization, from a sustainable enterprise perspective; establishing the evaluator psychology which influences the decisions within the process; the contribution of the technology for the development of the risk evaluation platform.

Attitude towards risk

The empirical phenomenology highlights the infinite variety of human individuals, but also common features, entitling typing or rather typical varieties. The first attempt to identify and explain the temperamental types we owe it to the ancient physicians, Hippocrates and Galenus based on the four "body fluids" (blood, lymph, black bile, and yellow bile) leading to the four temperaments: choleric, sanguine, phlegmatic and melancholic) [Dumitrescu, 2011]. Using also Pavlov's typology, explaining temperamental differences is connected, in Russian philosopher Ivan Petrovich Pavlov concept, to the central nervous system characteristics: strength or energy, mobility and balance of the nervous system.

So there can be identified, based on these theories, four types of attitudes towards risk [Hillson, Murray Webster, 2007]:

- risk-aversion: indicates a conservative attitude;

- risk-neutral: unbiased attitude towards risk;

- risk-seeking: sees risk as a challenge, followers of speculative results;

- risk-tolerance: indifference to the risk.

By combining the above classifications, the authors conducted a chart highlighting the influence of temperament and nervous system on risk assessment in sustainable enterprises. For the graphic representations I used the "*gliffy"* software [Software Gliffy, 2007].

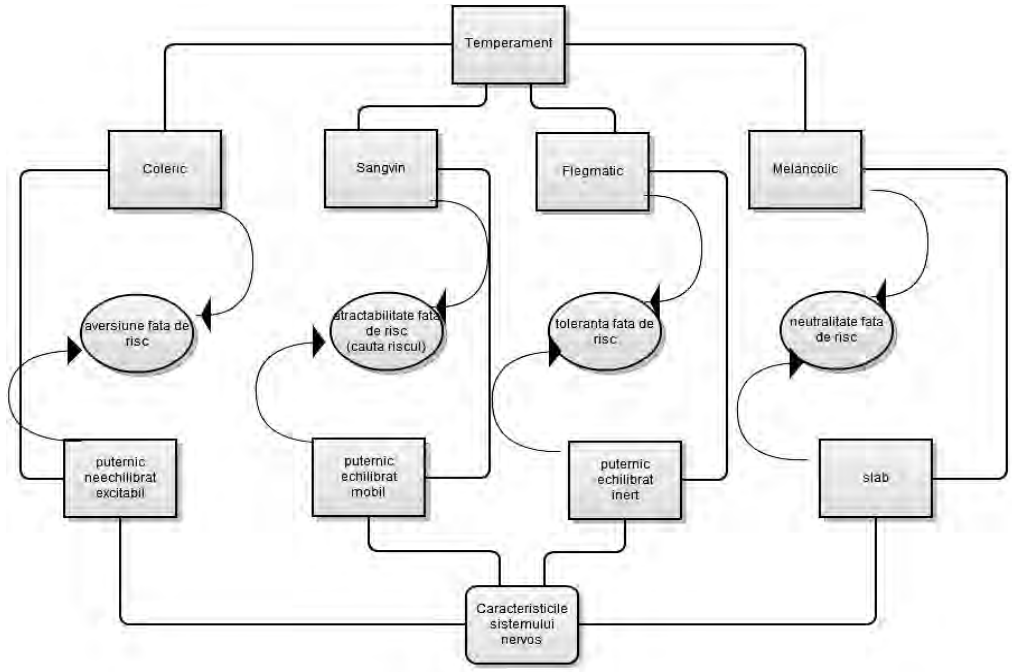


Fig. 2 Integration of temperament, nervous system characteristics and the risk

Thus, identifying the temperament is an essential element in assessment. This approach aims at a proper identification of the evaluator, of the risks at the workplace by covering all practical cases that may occur in different work systems. Associated risk aversion, indicates the opportunity of resuming or revaluating the system, indicating the unfavorable element found in the management process, primarily associated with the evaluator.

The logic diagram of the proposed risk assessment

The approach aims to develop a computer system, easy to use, for risk assessment and allows resumption at any time from any point, on the desired responsibility: social, economic, environmental or technological. With this tool, managers (managers at different levels) of the enterprises can better define their strategies, policies and tactics.

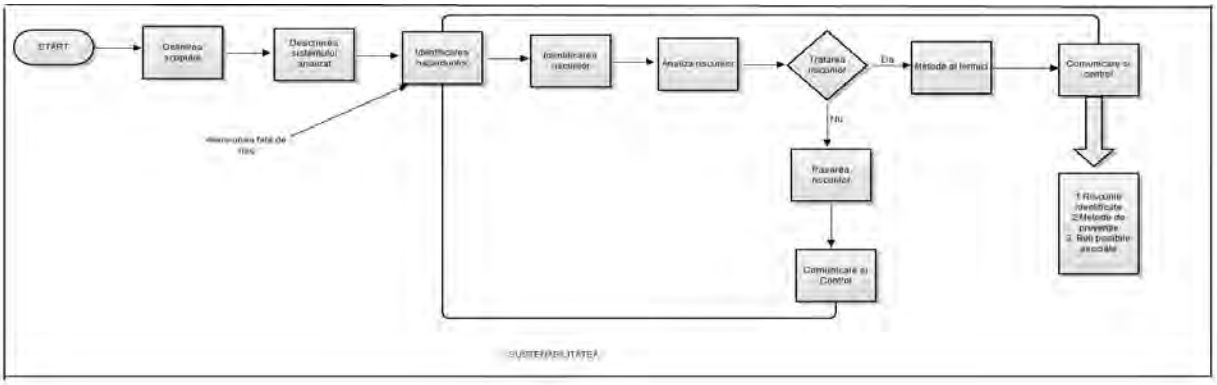


Fig. 3 The risk management process in sustainable enterprises

The logic diagram, proposed by the authors to assess the risk in enterprises is shown in figure 3. The stages, to be associated with pages / scripts in the developed platform are:

- defining scope;
- description of the analyzed system;
- identifying hazards in the four responsibilities;
- identifying risks;
- risk analysis;
- risk treatment;
- communication and control.

Communication and control are essential in the management process. Corporate communication for business sustainability, component of corporate communication that integrates communication activities with the relevant stakeholders to the organization, has as the central theme the prospects growth for the organization's sustainability in the context of sustainable development [Candea, Candea, 2009].

The computer system for occupational risk assessment in organizations has the role / main benefit to identify risks of the organization and then, based on identified risks, the computer system will provide to the user (the risk responsible) a series of measures to counter, treat or pass about the risks identified.

The developed computer system

The computer system consists of pages created in HTML and PHP scripts. For their running the program WampServer was used, which is basically the mini-server that provides to users the web pages.WampServer is a complex tool that runs on Windows operating systems. WAMP is an acronym name from the operating system and the main tools to used.

WampServer is composed of the following components: Apache (server), MySQL (management system for database), PHP (programming language), PhpMyAdmin (software for creating / editing / modifying database) SQLBuddy. The designed system consists of a web platform in which organizations / responsibles can assess the existing risk.

The database contains the following tables, fig.4: “consecinte”, “intrebari_hazard”, “intrebari_personalitate”, “tip_consecinte”, “users”, “organizations”. In them, there is stored information relating to: the consequences, hazards, evaluator’s personality, analyzed and authorized / authenticated evaluators in the system.

Fig. 4 Database

The web page will be formed from a first registration or login page, if the company has been already registered. On the second page we can fill in more detailed data about the organization and the manager of the organization. To start / resumption of risk assessment, access the home page, the login page with username and password to saved, fig. 5.

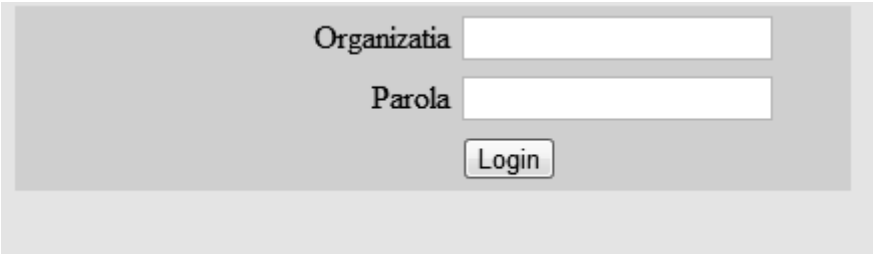


Fig. 5 Login window

Mandatory for the manager is to respond to a psychological test to determine the temperament. The manager’s temperament plays an important role in how he identifies hazards within the company. Some hazards can be prevented or treated according to the temperament. For the same company, a manager can identify some risks while another manager may identify other risks. Thus, identification of risks depends on at least the following factors: organization, temperament, nervous system, owned budget.

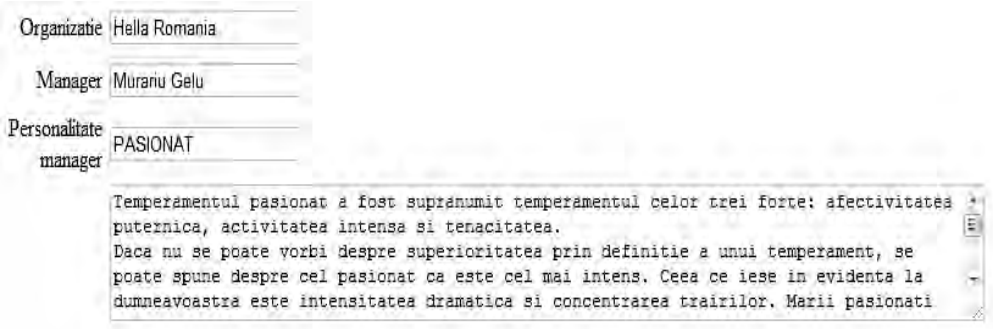
Although hazard identification is interrupted by the manager, the data obtained until that moment are stored in the application. The whole identification of hazards is made using checklists implemented as a script. Thus, identification is accomplished by checking those existing hazards in the company. The hazards are grouped into the four responsibilities of sustainability: economic, social, environmental and technological. Thus, identification can be made on the responsibility chosen from the application. Figure 6 shows the partial identification of hazards in social responsibility.

Fig. 6 The list for identifying hazards

After identifying hazards, risks and their analysis, the assessor will get a final report, fig. 7, which will contain: the organization data, the manager temperament and its influence on accuracy assessment, the identified risk factors, factors' level: severity and probability, recommended measures for each risk factor.

The implementation of the risk management promotes an early and continuous identification of risks involved so as not to affect the output of the system objectives. Engineering of risk management decisions determines the future decision making, identification of the new alternatives or opportunities within the organization.

The objective of risk management is to add maximum sustainable value (sustainable) in all organization's activities. Understanding the disadvantages of all the factors is very important. This increases the probability of success and reduces the losses in the organization.



Nr. Crt.	Factor risc	Nivel Risc		Masuri propuse
		Severitate	Probabilitate	
1.	Deces	7	3	Asigurare
2.	Costuri ridicate	4	2	Evitare
3.	Poluare ridicata	5	1	Evitare

Fig. 7 Enterprise evaluation report

Conclusions

This paper presents a model of risk assessment in sustainable enterprises. Preliminary results were focused on identifying assessors' attitudes towards risk and preliminary analysis of risks.

The logic scheme will underpin the developed computer system that can be applied at any level of the work system. Since its conception it has been tested in a company being able to continue modify and test it.

In the system will be stored all reports of risk management process, which will be reviewed and used by the next managers. We can conclude, that this software tool to help is a pillar for enterprise sustainability.

Acknowledgement

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Possibilities of Intervention in the Cost's Management

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Abstract

Purpose *–The purpose of these researches is to investigate now the analytical work technique, in order to aid the future development of practical tools for designers of the construction projects. The hypothesis is that the project management can be managed by using a particular set of rules.*
Methodology/approach *- Needed activities are linked together using rules to establish an interconnect sequence. We investigate analytical work technique, for aiding future development of management practical tools for construction projects designers. We obtained a consistent set of data, by keeping project as a constant factor, while method of analysis was variable factor. If the hypothesis holds true, there should be little variation in the method of analysis. The relationship between the preceding activity and the activity, extremely complex, represents the remaining work volume needed for finalizing project, once previous activity is complete.*
Findings *– Whilst most used rules are those of trade, material and plant, the priority of analysis' management, is the division of building into the layers of vertical and horizontal growth. Therefore analysis' technique seeks knowing what levels of activity are to take place, where significant activity is to take place in each level and what are the demands in terms of trade, material and plant*

Key words: *Cost's management, reducing costs, analytical work technique.*

Introduction

This paper presents different aspects concerning management's difficulty of analysis and interchange professional skills, between design team and contractor, during early stages project design. Practically and contractually it is very difficult to achieve an interchange of professional skills, basic main necessities and global vision between the design team, beneficiary and the contractor **(**Moga, Anastasiu, and Moga 2010, Anastasiu and Anastasiu 2009, Anastasiu and Moga 2010, Anastasiu and Domsa 2010a, 2010b), during the early stages of design, especially in case of buildings having intended medical propose (Moga, Muresanu, and Moga 2010, Moga 2009a, 2009b, 2009c, 2009d). This kind of medical buildings, no matter if we speak out about general medicine or dentistry, involve certain rules, specifications and standards that must be fulfill from the early stages. In each design team and contractor's organization, must be at least one person having basic knowledge about medical standards. It is imperative that these persons/experts consult the beneficiary of the medical building to obtaining further information and particular modifications better to be put in the project from the early stages, for avoiding additional cost both in time, work and in money. There are also few people within the contractor's organizations who have the skills necessary to establish, for any kind of design, the significant units of activity and their relationship (Moga and Oltean 1989, Clocksin and Mellish 1981).

This stage is necessary as a basis for analysis and calculation of implications of the particular combination of activities. To achieve the required efficiency this analysis must be an integral part of the design. In practice this means the analytical technique and data must be available to the design team members.

When analyzing a design, a contractor is finding out which systems and components are to be used and how they are to be joined together to give him the activities to be constructed.

The rules which define construction activity must, therefore, enable analysis of design.

Any activity means work undertaken by a resource, either men labor or machine. Variations in activities occur when different trade skills are needed to fix it. Differing materials may also require a different machine or piece of heavy plant to fix them. The design dictates where the materials are present and therefore the design states, where the trade skills to fix the materials are required and material unit size dictates, where machine assistance is needed. Thus separately identifiable activities can occur where there is a variation in the use of each of the three resources of: trade skills, materials and plant.

Research problem

The purpose of these researches is to investigate now the analytical work technique, in order to aid the future development of practical tools for designers of the construction projects.

The hypothesis is that the project management can be managed by using a particular set of rules. The rules which define construction activity must, therefore, enable analysis of design.

When analyzing a design, a contractor is finding out which systems and components are to be used and how they are to be joined together to give him the activities to be constructed.

The use of resource as the only selection rule, does not allow for differentiation between various items which require resources in an unchanging combination. They do not identify how the building grows. Thus reinforced in situ concrete uses the same resources for constructing slabs and columns. It is important to identify these operationally significant functions and which activities contribute to each function, in order to describe how the building develops. These operationally functions are: vertical and horizontal functions.

Methodology

Needed activities are linked together using rules to establish an interconnect sequence. We investigate analytical work technique, for aiding future development of management practical tools for construction projects designers.

Planners wish to identify the variation in resource utilization or relative building growth. Different styles of building will normally be subdivided into two programs at the point of interface. It is important to identify operationally significant locations since divisions based on the size of building are also made for both better management and controls. Therefore rules dividing the building areas are required, either to identify groups of different sequences or because it's too big for sensible analysis. These operationally significant locations are: groups of differing sequences and sizes.

The hypothesis essentially deals with methods of activity selection, a function which is normally carried out by construction planners within the constructors' head office or on site. It's the methods of activity selection and their rationalization, which must be discovered with sufficient replications to form a data base for testing the hypothesis. Another major problem with analysis of building project is to collect sufficient data to produce a reliable scale of statistical analysis. It's predicted that six separate construction programs would produce the required number of activities. Each program would have to be the one which a contractor would use to construct the work on site, normally termed to resolve the program. This type of program requires that all information necessary to resolve the construction details are available, hence the reason for using a completed building for the analysis.

For collecting analysis data are necessaries two ways, formal and informal. Wherever possible data can be formally recorded in relation to a particular activity and structured to determine the underlying reasoning for the particular choices made. The informal data collection can be made by a participant observer using the technique: first to ensure that the formal data collection was meticulously observed and second to pick up through questioning and discussion any supporting evidence for the formally recorded reasoning. In practice the informal data collection can be made by recording the discussion on tape or digital recording devices, all these for assisting the subsequent analysis of formal data.

The level of details in the contractor's planner's programs is a reflection of procedures and requirements of each company when transferring information from tender planning to operational planning. However each program is drawn to show the significant aspects of construction relevant to the setting of management objectives control. In all cases the programs provide sufficient detail for calculating the input data for the financial appraisal of the project and are judged to provide the right sensitivity for the correct assessment of the time or cost relationships. There for it is concluded that the programs within the experimental set are sufficiently consistent to be from the same population and provide a suitable, common, basis on which to test the hypothesis.

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The analysis of the data supports the original hypothesis that there are three significant sets of rules to select construction activities. Although the planners used 14 separate rules altogether, the initial three sets of rules in the hypothesis enabled the majority of activities to be selected. Of the other rules used that of standard activity should be added to the three sets. All the planners used a start activity either set up site, setting out or mobilization, to allow some time for the site to become established. Equally they all required a terminating activity such as clean up, commission or hand over, to signify the collection together of the final activities and the closing down of the site (Figure 1).

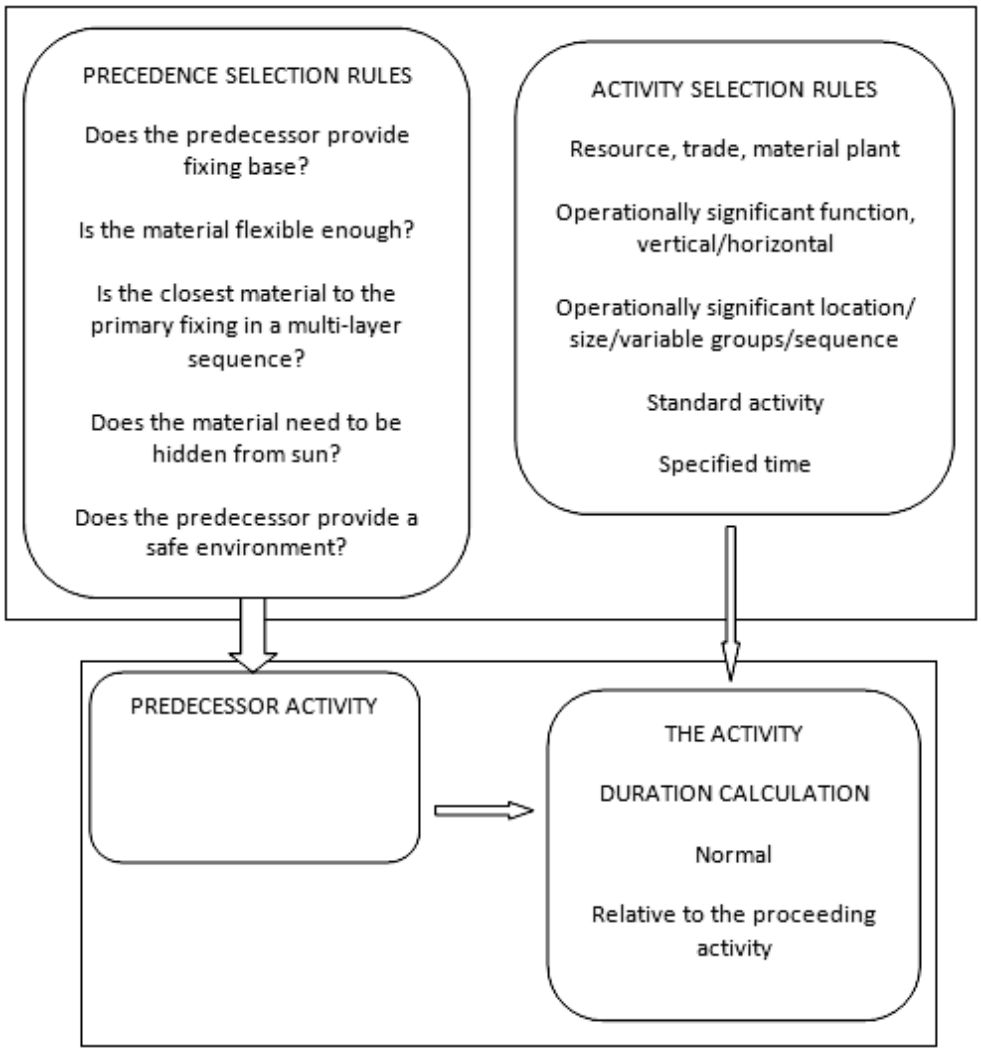

Figure1. Diagram for identifying rules for the activity selection

It's also apparent that whilst the set of selection rules most used are trade material and plant in terms of frequency, the priority is the division of the building into layers of vertical and horizontal growth.

In each of the subdivision of activity the split of the building into operationally significant functions which are then subdivided, became the most important rule set.

Therefore the planners are seeking to know: what are the horizontal layers upon which activity is to take place; what are the operationally significant locations within the layers that activity is to take place; what are the trade activities that are to take place on each of levels; what are the materials associated with each activity; what are the plant resources requirements which identified a need for an alternative or a variation in the plant.

Because of the size of building the rule set of operationally significant location could not be tested although it is determined that this building is within the plan size for one section. However, is quite possible to demonstrate that the hypothesis is broadly sound and that there are a set of rules which can be applied to identify the significant activities in a design, but individual activities did not work in isolation. They are joined together to form sets linked by relationship, and the relationship are governed by rules.

The relationship to establish sequence and order of activities is the one needed to be used to establish precedence. The rules are as follows: if the activity does this obviously, it must be in position before the next activity can be fixed to it; in multi material concentration in one area, e.g. pipes in ceiling voids, the fixing order is the least flexible followed by the more flexible; the rule is used to establish the order, typically in the finishes and services installation. It applies either where the pipes are suspended from the ceiling or where fixing brackets are used to support several layers of pipes; obviously where a material is to be hidden its fixing must precede the covering; water supply system must be complete before the services system can be filled, flushed, washed and tested; installation of the cladding to make the building watertight at each floor level controlled the start of the finishing trades at that floor level.

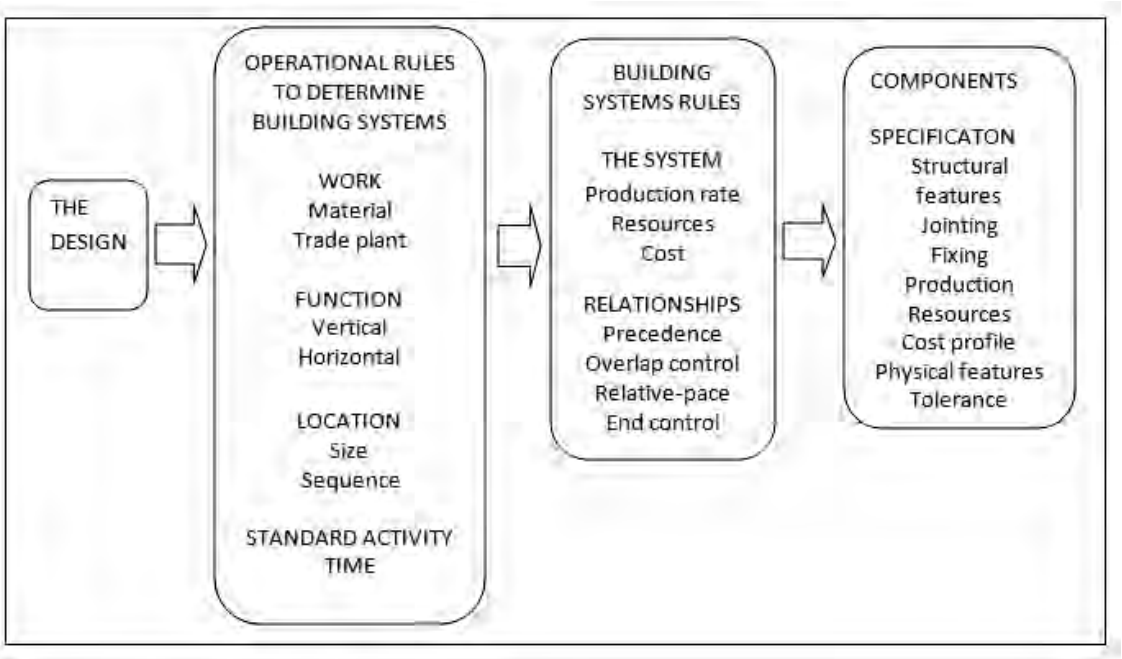

Figure 2. The interrelation between components in case of a knowledge based system

Each activity in a sequence is linked to the preceding activity by one of, or combination of, three possible links (Figure 2). The preceding activity must be complete before the succeeding activity can commence. The star can be immediate or delayed by a fixed time, e.g. the curing time of concrete. The succeeding activity can commence once a portion of the preceding activity has

been made available, be it either sufficient work area, or the completion of sufficient volume of work. A comparative check is made of the relative rates of working between the activity and the preceding activity to ensure that once the activity starts the rate of work area or volume of work released to it enables the activity to continue unhindered and uninterrupted (Figure 3).

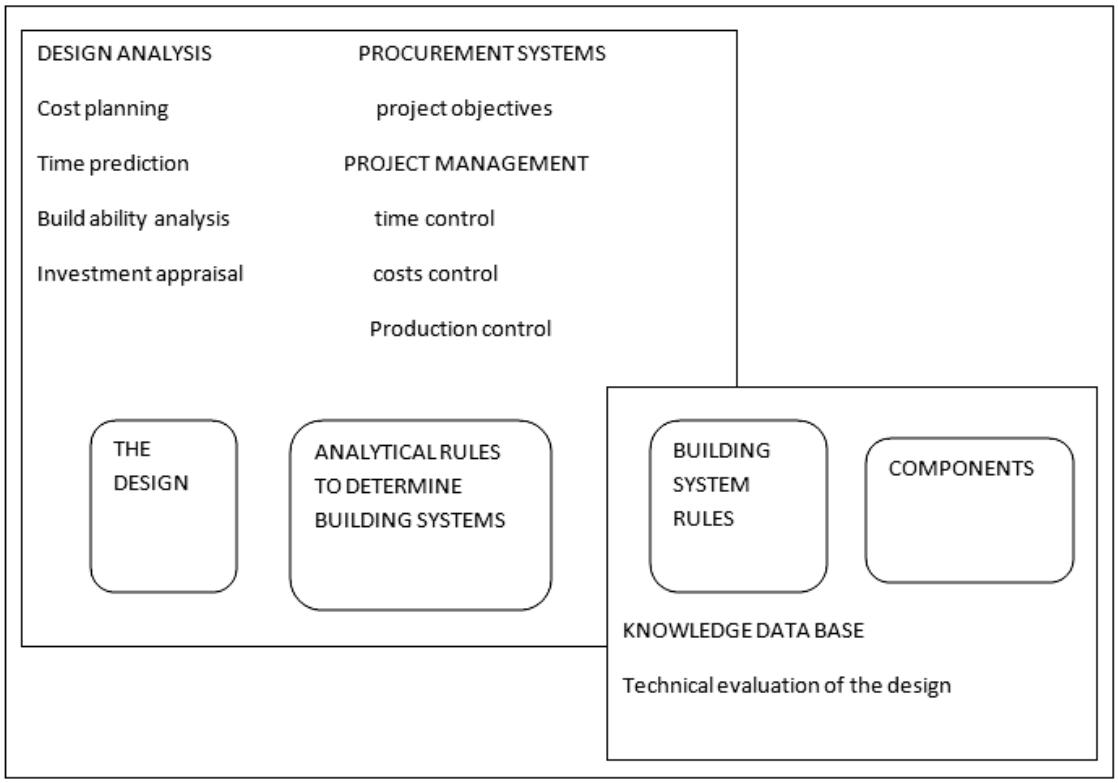

Figure 3. Method of evaluation in case of a knowledge based system

The completion of an activity is generally controlled by the relationship between the preceding activity and the activity. The relationship is more complex in this case; it's the volume of work remaining for the activity to complete once the prior activity is complete which controls the end overlap. This can be set as a fixed period, say curing time, or relative to the respective rates if work.

With the exception of set up site all construction activity is identified from the design. The design states the material and how they are joined together. It also states the configuration which determines the volume of work for each material in any stage. The jointing and configuration together impose an incontrovertible logic to the assembly of the material.

Findings

We obtained a consistent set of data, by keeping project as a constant factor, while method of analysis was variable factor. If the hypothesis holds true, there should be little variation in the method of analysis. The relationship between the preceding activity and the activity, extremely complex, represents the remaining work volume needed for finalizing project, once previous activity is complete. Whilst most used rules are those of trade, material and plant, the priority of analysis' management, is the division of building into the layers of vertical and horizontal growth. Therefore analysis' technique seeks knowing what levels of activity are to take place, where significant activity is to take place in each level and what are the demands in terms of trade, material and plant.

The initial division is done very quickly to gain the relative magnitude in scale and size of each level, which is then analyzed as one unit or subdivided into smaller areas. Each section is then analyzed as if it were a separate building using the activity selection rules. If there are common

activities at the same level between sections, they may be combined when executing the time calculation.

The two components of an activity's duration are work volume and resource level. The work volume is set by the design; therefore, the resource level is the variable. Generally resources are set in fairly coarse groups, either gang or piece of plant at the minimum level consistent with normal practice. Where higher rates of performance are required the resource level is adjusted in multiples of the coarse group.

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Innovative Tools and Services for Vocational Education and Training In Quality Assurance

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Abstract

Purpose *– The paper presents results of the project entitled "Disseminating Open and Innovative Tools and Services for Vocational Education and Training in Quality Assurance" (acronym Do-IT) financed by European Commission.*
Methodology/approach *- Quality Assurance (QA) processes are one of the critical skills and key constraints to economic growth and development in Romania. The approach is to improve in-company training of QA personnel.*
Findings *– The main findings is the Student Response Systems or SRS technology employment that includes a receiver, a collection of keypads transmitters or "clickers" and dedicated software. Through a wireless connection the clickers enable students to answer a number of questions, or quizzes, during a lecture.*
Research limitations/implications *– The dedicated ICT and video infrastructure, services and training solutions improve the learning environment by enabling teaching of quality management through i) activation of prior experiences, ii) demonstration of skills, iii) application of skills, and iv) inclusion of skills into real-world descriptions.*
Practical implications *– The dedicated ICT and video infrastructure provides the management of vocational training in industry with Quality Assurance tools.*
Originality/value *– The paper contributes to solve the challenging problem of human resources development of quality professionals by disseminating and deploying successful state of the art large-scale skills upgrading solutions.*

Key Words: *in-company training, student response systems, iPod touch.*

Introduction

Higher education institutions are the power sources on which new development in global economy relies. They are changing into marked dependent service universities where new type of students requires new ways of organizing learning, mentioned Stav (2010b).

In-company training is one of the critical skills and key constraints to economic growth and development in Romania, said Moldovan (2010a). The project *Disseminating Open and Innovative Tools and Services for Vocational Education and Training in Quality Assurance* (Do-IT) tries to solve this challenging problem by disseminating and deploying successful state of the art large-scale skills upgrading solutions from Norway to Romania. The project is promoted by Sør-Trøndelag University College in Trondheim Norway (HiST) in partnership with "Petru Maior" University of Tîrgu-Mureş Romania (UPM) [Project Do-IT].

Do-IT disseminates and exploits activities targeting quality professionals, like quality managers and quality auditors from enterprises that are providing quality assurance (QA) training according to standards like ISO 9000, 9001, 9004, 19011 and application in industry.

Do-IT aims to disseminate a new competence transfer model, a new measurable quality assurance system, and a new pedagogical principle for organizing, delivering, and deploying effective production technology transfer within and between companies, as well as towards VET schools. The Do-IT learning approach for QA training is completely new in Romania and represents the implementation of the modern learning tool in QA processes. It is necessary to train trainers in order to be familiar with new learning methodology called Student Response System (SRS), which brings a new classroom environment for the students.

Student response systems for iPod Touch and iPhone

Good teachers provide more than just lecturing. They structure the components of the curriculum into a system, thus establishing a suitable learning environment where assessment tasks are integrated in order to encourage certain study paths. The learning results are obtained through stimulating, enjoyable and engaging good lectures, which utilize interactive learning methods that enhance learning, reported Stav, Engh, Bergh (2007). One way of obtaining such an approach is by providing assessment methods that are an integrated component of a course. The impact on student's engagement from assessment methods has been observed in previous research, e.g. Brates, Howie, Murphy (2006), Boyle, Nicol (2003).

Learning in modern educational institutions is a process-taking place within a community of others where many of the relations are mediated through media technology, appreciated Stav (2008).

Departing from the traditional mobile phone, the number of devices that can be used wirelessly is also the subject of considerable innovations: Personal Digital Assistants, smart phones, tablet computers, wireless game terminals, plus many "fixed" devices. However there are still many uncertainties about who the users might be, how and where these services may be used, what infrastructure and technologies will be built to provide them and who will make profits, observed Stewart (2005).

Student Response Systems or SRS technology generally include a receiver, a collection of keypads (transmitters or "clickers") and dedicated software. Through a wireless connection the clickers enable students to answer a number of questions, or quizzes, during a lecture. Because the students use their keypads instead of raising hands to submit answers, individual responses stay confidential from the rest of the students while result overviews are available on the classroom screen, described Stav, Tsalapatas, Engh (2006).

Research done by Dangel, Wang (2008) shows that teachers and students perceive SRS to be beneficial. SRS have been used for many years, typically in large classes to increase the level of student's engagement and learning. In literature SRS may have many different names, such as clickers, personal response systems, audience response systems, and classroom response systems. SRS are technology products designed to support communication and interactivity in classes, as described by Boyle, Nicol (2003). The technology allows an instructor to present a question or problem to the class, and receive answers from the students through a response device. A summary of all answers is presented to the teacher and the students to see. In other words, SRS is a communication system that allows the teacher to collect and analyze large amount of data and on behalf of these investigate whether learning has taken place, mentioned Crouch, Mazur (2001). Research shows that's such systems have the potential to facilitate several classroom processes such as: participation described by Horovitz (1998), collaboration, physical activity described by Masikunas, Panayiotidis, Bruke (2007), cognitive involvement, self-assessment described by Draper, Brown (2004), Stuart, Brown Draper (2004).

The iPhone/iPod Touch solution for SRS (Fig. 1) is more flexible than existing on-site technological solutions, since it uses the wireless network to provide responses from students, reported Pein, et al, (2010).

Figure 1. The page of the SRS system, and the interface for voting sessions on an iPod Touch.

The teacher gives the students a task, for instance a question or a problem. The students solve the task and responds anonymously by using the SRS (Fig.1) either on their laptop or through their mobile handheld device, whereby the teacher gets a "knowledge map" of the class (Fig. 2). The results show if the class struggle with the current part of the curriculum, and he/she must decide the amount of time needed for that part, based on the result. Thus, the SRS provides pedagogical methods that enhance interactive teaching models by using instructional feedback loops. Finally, the teacher must decide how will provide the feedback to the class.

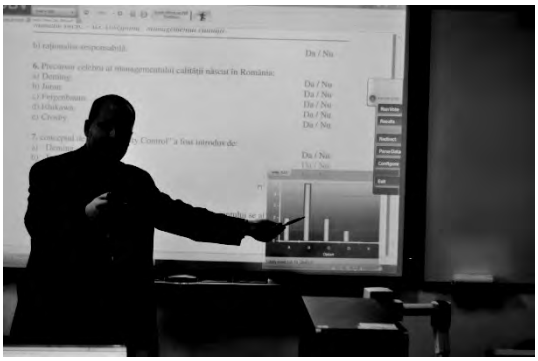

Figure 2. The response of a SRS vote is shown at the Smart board

The first test of SRS for iPod and iPhone was done in a physics course for civil engineers in the fall of 2009 in Trondheim by Stav, Engh (2009). In Romania, the SRS technology is used in combination with state of the art video adapted e-learning solutions, as described by Moldovan (2010a). The research results of HiST done by Stav (2008) is used in the Do-IT project to propose and disseminate a new method for organizing and delivering engineering courses, as well as in-company training solutions, as reported by Moldovan, Stav (2010b).

Experiences obtained when using SRS in teaching

A typical SRS mobile device session has been described by Stav, et. al. (2010a). A SRS developed for internet connection may be used also for distance teaching purposes.
A schematic outline of the SRS IP based communication infrastructure during an instruction training course is presented in figure 3. The teacher is running the SRS application on a digital blackboard and the participants can see the display on their monitors.

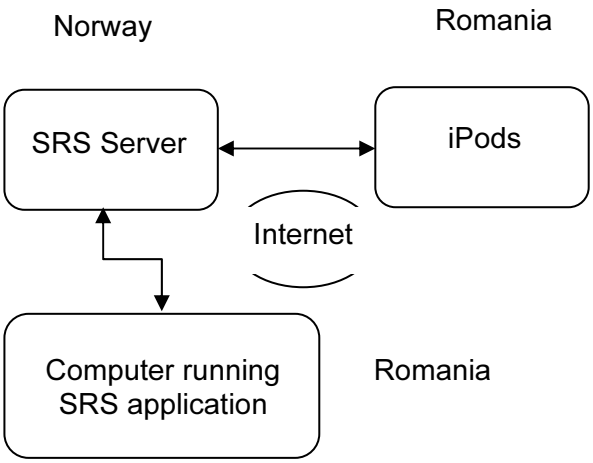

Figure 3. Schematic outline of the SRS IP based communication infrastructure

The student's iPods are interconnected to a server (Fig. 4), which is located in Trondheim, Norway. The computer running the SRS application is connected to the same server, and the computer screen is displayed on the Smartboard (Fig. 5).

Fig. 4. Student's iPods interconnected to a server

The system solution shown here is easy to use and fast to install if mobile video devices are used. The experiences show that this system solution yields the student very good quality of the audio as well as the video pictures.

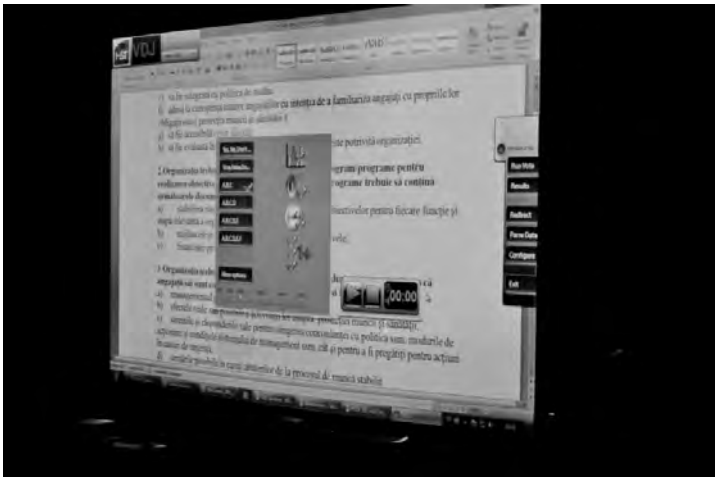

Figure 5. Computer screen displayed on the Smartboard

The SRS evaluation system of courses achievements is currently used at UPM. In the first phase the system has been tested on a few VET courses delivered for QA professionals.

A lesson consists of 2 lectures, each lasting about 50 minutes. During each 50 minutes period the students were usually presented for 4-6 conceptual questions. In order to start a polling session, a “ticking clock” is used to shift the students attention away from discussion and over to the voting session in progress. The testing of SRS for mobile devices was done over a period of 6 weeks.

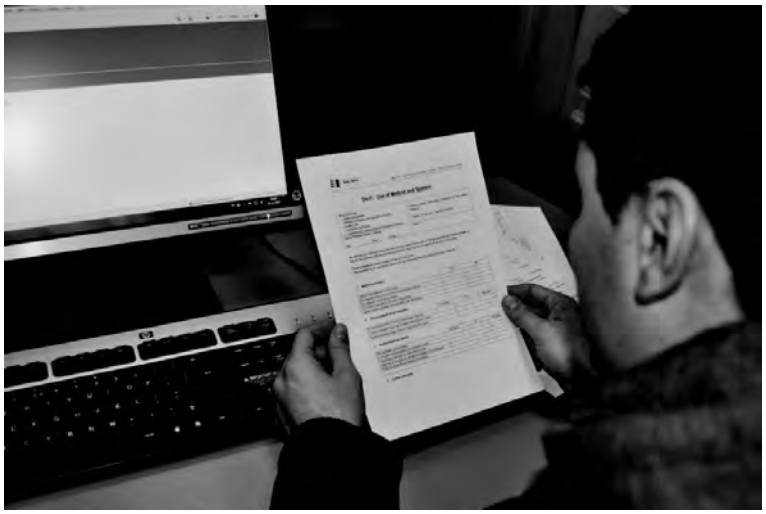

Figure 6. Students’ feedbacks on SRS

Students’ feedbacks (Fig.6) on the system were collected from a survey given at the end of the test period. A selection of the results obtained from 92 students is displayed in table 1.

Table 1. Responses obtained in a survey from the QA courses that used the SRS. The numbers represent number of students selecting that alternative.

1. Method of evaluation

	YES	NO
I agree to be evaluated in each course	89	3
The evaluation has to be done from the presented material	91	1
The evaluation has to be anonymous	92	
The current evaluation to be used in final grade	78	14
I agree current evaluation using answers with alternatives	92	0

2. Personal benefit of the evaluation

	Very good		OK		Very poor
My personal benefit of the current evaluation has been	87	1	4		
Current evaluation helps me to better understand the course	85	3	4		
Current evaluation helps me to fix ideas from the course	83	2	7		

3. Student Response System

	Very good		OK		Very poor
SRS facilitates quick answers	85	3	3	1	
Is a modern tool increasing my interest for course	91		1		
I would like to be used in many other courses	82	6	4		
Helps me to compare my answer with those of my colleagues	90	1			1
Prefer to use iPod touch instead of computer	86	4	2		

4. Previous experience in quality assurance

	YES	YES - to some extent	NO
Have you theoretical instruction in quality assurance at licence or continuous education degree?	84	8	
Have you practiced quality assurance?	25	13	54

5. Personal benefit of the course

	Very good		OK		Very poor
My personal benefit of the course has been	84	3	4	1	
How easy was the course to understand?	82	8	2		
How suitable was the content for your requirements?	79	11	1	1	
Overall rating of this course?	81	6	4	1	

6. Courseware

	Very good		OK		Very poor
Clarity of the handouts (how easy were they to understand)?	82	8	2		
How well did the course material follow the course?	87	4	1		
Overall rating of the course material?	85	6	1		

7. Instructor

	Very good		OK		Very poor
The pedagogical efforts of the teacher have been	84	7	1		
Ability to respond appropriately to questions	88	4			
How well prepared was the instructor?	90	2			
Knowledge of the subject matter	90	2			
Presentation abilities	89	1	2		

8. Relevance of the course for quality assurance career

	Totally agree	Agree	Neu-tral	Disa-gree	Totally disagree
The course has been very relevant for my own future activity in quality assurance (i.e. I'm more likely to use presented models in the future after completing this course)	88	4			
The course has made me curious about practical applications of theoretical models in quality assurance have been presented	86	5	1		
I will apply theoretical models in quality assurance have been presented in current activity	88	4			

These results together with interviews with students show a clear positive picture on using the SRS during class. Students agree that the SRS encourage them to be active during the lecture, and they feel that using SRS helps them to learn the curriculum of the course.
After this pilot test of the SRS system UPM has decided to use system on a large scale, as described in the Operational Plan 2011 [UPM webpage]: introduction of new educational technologies - implementation of synchronous assessment technology of courses by the student response system.

Discussion and conclusions

Sør-Trøndelag University College of Trondheim in Norway is coordinator of the project "Disseminating Open and Innovative Tools and Services for Vocational Education and Training in Quality Assurance" (acronym Do-IT), financed by European Commission, having partner "Petru Maior" University of Tîrgu-Mureş [Project Do-IT]. During the project we have employed the Student Response System in a few VET courses delivered for QA professionals.

The SRS provides user interfaces that are intuitive to use. This includes session control, a flexible framework for generating questionnaires, easy to use interfaces for controlling the voting session by the teachers, and easy to use interfaces for voting on mobile devices by the students. The WI-FI based SRS has been designed such that it helps the instructor or teacher to:

- Break the monotony of a lecture and allow the students to actively take part in the lecture,
- Increase teacher-student interaction,
- Give both teacher and students "real-time" feedback on learning effect,
- Use modern, cheap and widely available devices,
- Use devices that start fast within 2-3 seconds, in order to merge it into the course assessment.

The pilot testing has used an instructor lead educational process that contained the following elements:

- Short sequential lessons, followed up by tasks where students give feedback by using SRS,
- The SRS questionnaires exploit ICT enhanced learning assets,
- Structured, critical thinking creative problem based learning activities that collect individual responses anonymously,
- A flexible in class discussion sequence that in some cases may end up with a new SRS decision process,
- Summary and explanation, reflecting the profile of the response from class,
- The system solution is web based and generic, whereby it may be utilized in all kind of process and product oriented instruction and training activities.

The students provide positive feedback with respect to increased engagement and motivation. Many students feel it become fun to attend the lectures. They also point out that the SRS has become an integrated part of the teaching practices, since it is intuitive, easy and fast to operate by the teachers and by the students them self. The services are constructed for easy integration and use on digital blackboards, as well as smoothly integration into the story telling provided by the teacher. The students may use widely available mobile, wireless multi touch pressure sensitive hand held devices, or a PC/laptop, to interact anonymously with the teacher through online questionnaires and voting sessions. Pedagogical challenges related to the new roles of the teacher and the students in the educational process have been demonstrated.
The results for participants' evaluation, for SRS method, course and instructor evaluation are also presented in this article. Most of the participants did not use SRS before. The personal benefit after participating at the courses was very good, also the courseware and the instructor were very good and they totally agree the relevance of the SRS method in the future.

Acknowledgement

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Practical Research on the Role of Diagnosis in Increasing Performance

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Abstract

Purpose – the purpose of this work is to identify the manner in which managers use the diagnostic tools and how these tools help them in increasing performance.
Methodology/approach – a research tool was used in order to collect the data, and this tool which is frequently used was the interview. The information was centralized and then processed using Excel.
Findings – the results show the way in which managers use the diagnostic tools both to solve some problems and to increase performance.
Research limitations/implications – the research is limited by the managers' availability and by the number of managers included in the research sample. 30 managers were selected and they come from representative organizations which have different areas of activity.
Practical implications – the work presents the way in which the managers who come from four counties from Transylvania use the diagnostic instruments in their daily management activity. Some of them have requested feedback about the results of the research. This is yet another proof of the implications that this research has on practical activity.
Originality/value – the originality of this research lies in the way in which the diagnostic problem has been addressed, and also in the actual research.

Key words: diagnostic analysis, performance

Introduction

Regardless of the field of activity a company falls into, its performance depends on how it manages its resources and on how it achieves its objectives based on the established restrictions. But, in addition to those restrictions, the activity is disrupted by other factors, too, which originate both internally and externally. In order to be able to cope with such unpredictability, a manager has to be ready at all times. Diagnosis is a specific management method which helps a manager to overcome various situations caused by unpredictable factors and to increase his/her performance.

Starting from these premises, I wanted to identify certain aspects such as: the way in which managers perceive the concept of diagnosis, how they adapt to the particularity of the activity, how often they use it, if they use specific tools, and other aspects which will be presented in this work.

Planning the Research

The sample size was of 30 subjects. The sample was not chosen at random because certain managers were included in its structure, managers that I considered relevant information could be obtained from. The conclusions can not be extrapolated, they will refer only to this sample.

The interviewees are people who hold managerial positions: chief executive officer (CEO), department manager, and other managerial positions in renown companies from the counties of Alba, Bistriţa - Năsăud, Cluj and Satu – Mare.

I used the semi-structured interview for which I designed an «interview guide» with the issues I was interested in. The questions will be common to all interviewees because they try to bring clarifications in the same area of research.

The «interview guide» comprises 18 questions which refer to various important aspects related to the importance that a manager gives to the diagnostic activity, to the way he uses it in his/her daily activity and how it helps him to increase performance. In formulating the questions I departed from P. Drucker's statement that „an effective manager has to devote 50% of his/her time to the diagnostic activity".

Results of the Research

The data gathered during the interviews was processed after having first been reviewed.

I will extract only a few more important questions from the interview guide.

Before proceeding to the presentation of the answers, I would like to make one more clarification on the term diagnosis.

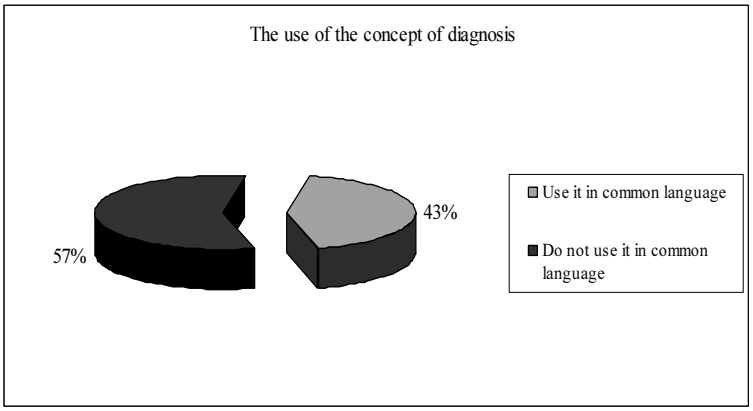

Figure 1. The percentage of those who use the term diagnosis in common language

Figure 1 shows that only 43% of the 30 managers interviewed use the concept of diagnosis in their common language. The results have these values because in our country the term diagnosis is known as analysis or diagnostic analysis, even if the activities that these concepts refer to are in fact a diagnosis. This is also true for the remaining 57% of the managers who do not use this concept in their language, but who use another term to refer to the same activity. I have ascertained that all these managers do the activity, whether they call it analysis or diagnosis.

The first topic to be presented refers to what the diagnostic activity represents to the managers interviewed. I have centralized the answers to this question taking into account the objectives pursued by the diagnosis work.

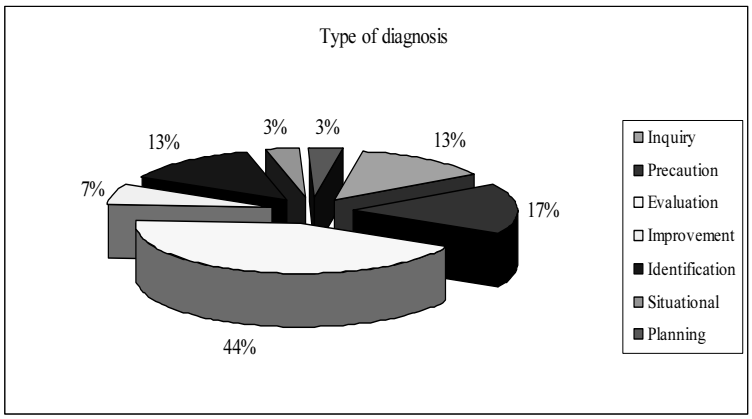

Figure 2. The purpose of the diagnostic activity

Figure 2 shows that most managers, that is 44%, consider, at first sight, that diagnosis means evaluation. As they were asked the other questions, all managers extended the attributions of diagnosis, but in this chart I have presented their «first reaction».

The second question refers to the time that the managers interviewed allot to diagnosis, having as reference the 50% that Peter Drucker considers that an effective manager has to devote to this activity.

I have categorized the answers to this questions in four categories, as shown in table 1.

Table 1. The time allotted to diagnosis according to position

Percentage of the time allotted to diagnosis	Total number of managers	Delimitation of the number of managers according to their position
10% - 29%	8	4 – CEO
		3 – Department manager
		1 – Other managerial positions
30% - 59%	13	10 – CEO
		3 – Department manager
		0 – Other managerial positions
>60%	4	4 - CEO
		0 – Department manager
		0 – Other managerial positions
It cannot be specified	5	3 – CEO
		0 – Department manager
		2 – Other managerial positions

Table 1 shows that the time percentage allotted to diagnosis is influenced both by the position that the manager has in the company and by the area of activity of the company analyzed.

The third important question refers to the diagnostic tools used by the people included in the sampling.

Table 2 shows that the performance indicators are on the first place: financial indicators, human resources indicators, operational indicators, etc, while the questionnaires are on the second place.

Table 2. The diagnostic tools used in the companies analyzed

Classification	Name of the tool	Number of managers who use it
1.	Performance indicators	23
2.	Questionnaire	19
3.	Comparison	6
4.	SWOT Analysis	5
5.	Specialized software	4
6.	Operative meetings	3
7.	Benchmarking	2
	ISHIKAWA Diagram	
	5M	
8.	Surveys	1
	FEMA	
	8D	
	Focus Group	

The next question tries to identify if there are periods of time when the diagnostic activity increases. The answers received can be seen in table 3.

Table 3. Intensification of the diagnostic activity

A. Diagnostic activity	A1. It does not increase	-	2 managers
	A2. It increases	A21. It depends strictly on calendar periods	17 managers
		A22. It does not depend on calendar periods	11 managers

Table 3 shows that two basic categories were defined based on the results obtained: the first category comprises those managers who do not link the intensification of the diagnostic activity to a calendar period, while the second category comprises the managers who think that the diagnosis increases in certain periods of the year. The second group was split in two categories.

Another question refers to the way in which the crisis influenced the company's activity.

Although it is said that a major crisis, such as the economic crisis that we have experienced lately, affects everybody, during my research I met managers who claim that this period of crisis has had a positive influence on them. For the first part of the question I will have two categories of results, just like in table 4.

Table 4. The influence of the crisis on the company's activity

Question	Answer	Number of answers
How has the crisis influenced your company's activity?	A. The crisis has influenced our activity positively	5
	B. The crisis has influenced our activity negatively	25

Next, we will focus our attention on those companies which were influenced negatively by the crisis. A ranking will be developed for them and the effect felt by most companies will be the first, as shown in table 5.

Table 5. Classification of the effects of the economic crisis

Classification	Type of effect	Number of managers
1.	Lower sales	19
2.	Lower number of clients	7
3.	Financial losses	1
	Lower salary and funds for maintenance	
	Increase of the period of receipts	

In what concerns the measures used during the crisis, I have here a ranking of the most frequently used measures and of the least used measures. This ranking is shown in table 6.

Table 6. Ranking of the measures used during the crisis

Ranking	Name of measure	Number of companies
1.	Reduction of costs	7
2.	Attracting new clients	6
3.	Development of new products	5
	Increase of the marketing activities	
4.	Renegotiation with suppliers and customers	4
	A more careful management of resources and costs	
5.	Creation of reserves	3
6.	Job rotation	2
7.	Debt recovery	1
	Expenditure ceilings	
	Increase of income	
	Close monitoring of certain indicators	
	Tracking the market	
	Risk control	
	More frequent analyses and reporting periods	

Table 6 shows 15 measures that companies have turned to.

Another question tries to identify if doing a diagnosis is a solution when a company has to deal with abnormal functioning.

Two categories were created based on the answers to this question. The first category includes the managers who consider that doing some diagnoses when the first abnormal functioning appears is a solution, while the second category includes the managers who think the opposite.

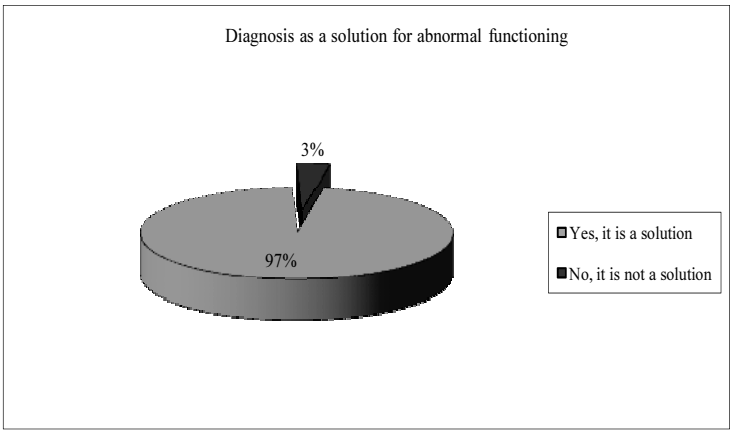

Figure 3. Diagnosis as a solution for abnormal functioning

Figure 3 shows that most of the managers, that is 97%, think that doing a diagnosis when an abnormal functioning has appeared is a solution, while only 3% think the opposite. Next I will present some statements from the first category, but also the statement of the manager from the second category.

Another question refers to specifying the way in which the diagnoses help to increase performance.

Regardless of the initial objective of a diagnosis, the final purpose is to achieve performance. It is obvious that the answers to this question are somewhat different in what the wording is concerned but, based on the content, several basic ideas can be expressed and they will be presented in table 7.

Table 7. The connection between diagnosis and performance

Question	Answer	Number of answers
How can diagnosis help you to increase performance?	Information on what measures must be taken in the future	9
	A clear picture of the progress made in achieving the objectives	4
	Intervention at the right time	4
	Removal of the causes that have led to abnormal functioning	4
	Market-related information in order to identify clients' requirements and to adapt	3
	Establishing measurable indicators	3
	Minimizing the risk of losses	1
	Setting priorities	1
	Being in control	1

The answers presented in the table above show that the way in which diagnosis helps to increase performance is seen differently by the managers analyzed, but obtaining the information which helps them set the direction for future action is on the first place.

The last question presented in this work refers to the difference between a diagnosis done in normal times and one done in a period of crisis.

In what concerns this topic, two major categories could be formulated out of the total responses received, according to the managers' opinions. The first category includes those people who think that there are differences between a diagnosis done in normal times and one done in a period of crisis, while the second category includes those people who think the opposite, as shown in table 8.

Table 8. The difference between the diagnosis done in normal times and that done in the period of crisis.

Question	There are / There are no differences	Differences	Number of managers
What is the difference between a diagnosis done in normal times and one done in a period of crisis?	There are no differences	-	6
	There are differences	More frequent, more pragmatic, more rigorous	16
		They are carried out under the pressure of time and the measures are immediate	3
		They are targeted at sales	2
		More difficult	1
		Depends on the purpose of the diagnosis	1
		Greater emphasis on the problem identified	1

It is difficult to formulate a clear definition of the diagnosis during the period of crisis, but the details above show that there are differences and more features can be grasped.

Some details regarding the research sample

Next I will make a brief presentation on the research sample.

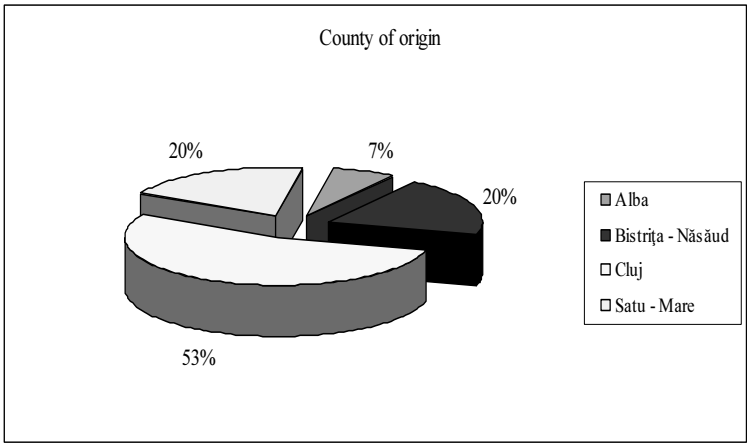

Figure 4. County of origin of the interviewees

Figure 4 shows that approximately 53% of the interviewees are from Cluj county.

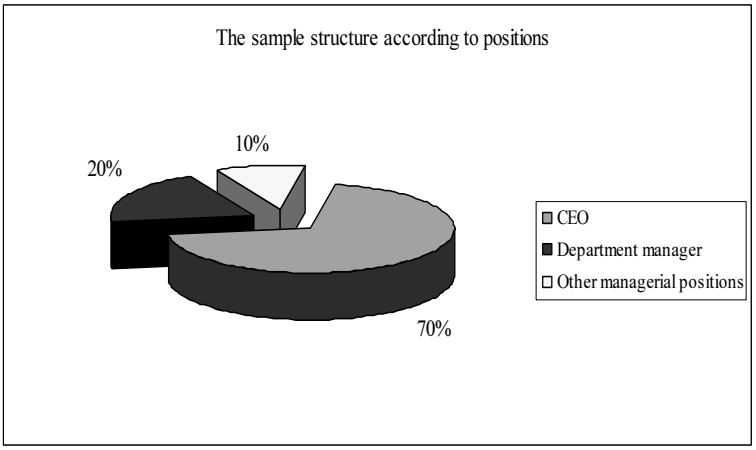

Figure 5. The interviewee's position

Figure 5 emphasizes the fact that 70% of the interviewees are CEOs.

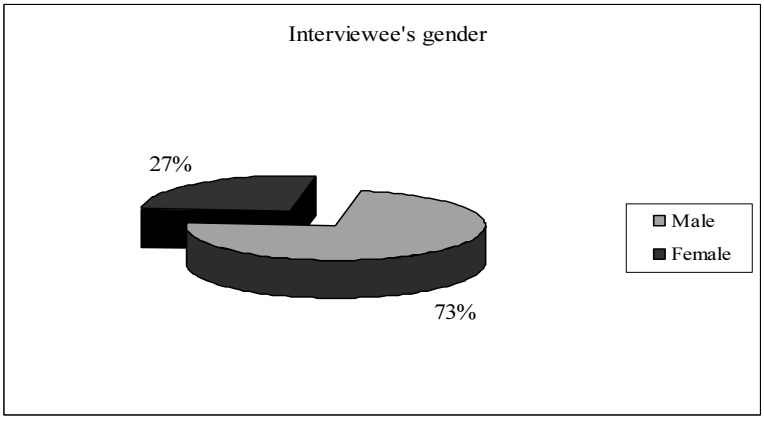

Figure 6. Interviewees' gender

Figure 6 shows that according to the interviewee's gender, 73% of the managers were men, while only 27% were women.

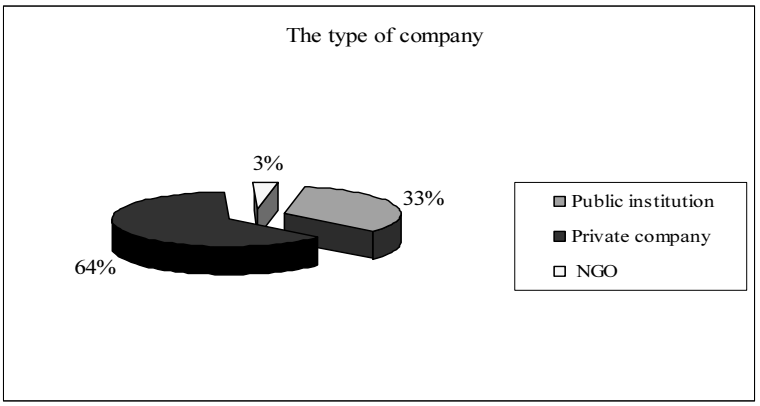

Figure 7. Type of company the managers come from

Figure 7 shows the managers' origin according to the type of enterprise. 64% of the interviewees come from private companies, while the rest come from public institutions and one NGO. The reason I chose such a sample was to emphasize the fact that diagnosis can be applied in public institutions and NGO's, too. In most cases, the diagnostic concept makes us think of private, productive companies, but the answers received helped me show that it can be applied to other types of companies, too.

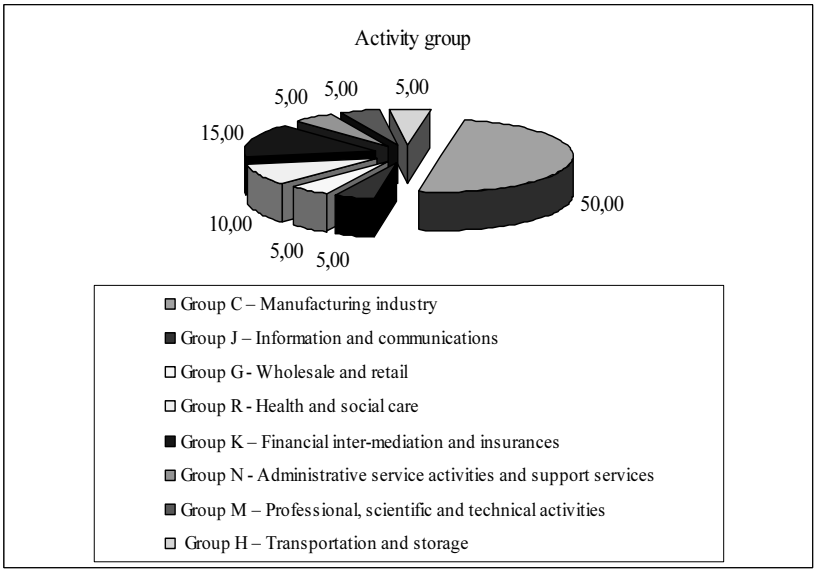

Figure 8. Structure according to activity groups

Figure 8 shows that the managers included in the sample come from 8 groups of activity according to the CAEN codes in Romania.

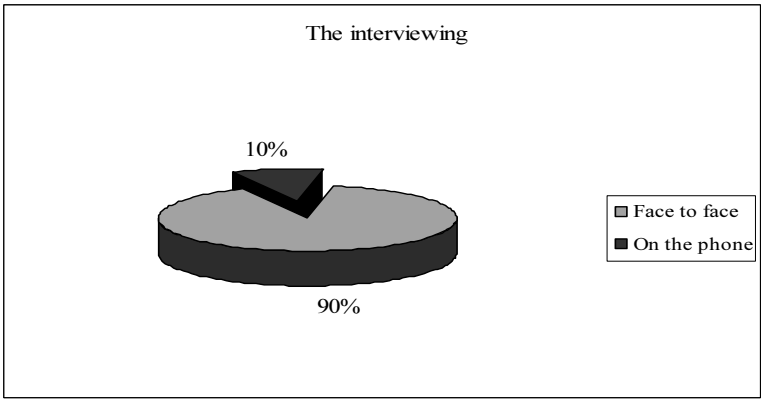

Figure 9. The way the interview was conducted

Figure 9 shows that 90% of the managers were interviewed face to face, while 10% were interviewed on the phone.

The other results of the research will be presented in other articles or works.

Conclusions

The business environment is extremely dynamic and the companies ability to adapt depends on the way in which the management combines the various practical tools with the methods described in literature; one particular method of management is diagnosis.

From the results above we can see that the managers analyzed use the diagnostic tools in order to increase their performance. The diagnostic tools used in practice differ from one company to another, but there are also common tools: performance indicators, comparison, questionnaires, the SWOT analysis, specialized software, etc.; the instruments which are more rarely used are the ISHIKAWA diagram, 5M, 8D, etc.

The elements which make the distinction between a diagnosis done in a period of crisis and one done in normal times are the following: they are more rigorous during crisis, we pay more attention to detail, the responsibility is greater because a misdiagnosis can be fatal in this period.

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Engineering & Management in Studies Regarding the Manufacturing Economic and Social Aspects of the Adapted Physical Activities

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Abstract

The present paper aims to promote the IT, engineering and managerial activities to be adapted to The APA – Adapted Physical Activities from the technological, social, organisational, and economic point of view. The present and future efforts are directed at analysing the development environment and the best possible practice within the present legislative frame and also to design future process planning strategies for Adapted Physical Activities, technological – organizational networking.

Key words: APA, Disabilities, Data Base

Index to terms and abbreviations

APA	– Adapted Physical Activities
DB	– Data Base
DMS	– Database Management System
FMA	– Functional Mobility Approach
MSD	– Motor Skills Disorder
IT	– Information Technology
NGO	– Nongovernmental Organizations
PD	– Persons with disabilities
PLM	– Product Life Management
TP	– Traditional Programs

Introduction

It is considered that we live in a world which is continuously developing, our actions being determined by their relevance to our society as a whole. With certainty we may conclude that the number of population is increasing, the average life expectation is increasing, the injuries chance by traffic, conflicts and industrial applications is increasing, the medical surviving facilities extend the incapacity or disabilities administrated periods and as long as „Man is a social animal“ - Aristotle we have to consider a larger interaction between „standard“ ordinary people and the people with disabilities.

In favour of our consideration is the large number of organizations all over the world that are trying to handle the matter, to find the best practice and the most convenient way for covering the costs that are greater and greater every day. The PD problem is not a simple one and seems that once with new achievements and solutions the number of tasks that must be managed is larger and the necessary resources are higher. One of the most known organizations is the AAPAR – American Association for Physical Activity and Recreation, which is trying to assist parents, educators, administrators, professionals, students, and other interested parties in finding resources related to adapted physical education. The reason why we consider first the American society is because there

is crossing the largest amount of funds available for the research and implementation in the field and in the same time being a nation with a lot of brave people that are practicing extreme sports and extreme activities (including one of the largest army) the number of casualties is also large. The Disabled Sports USA start in 1967 as a national nonprofit organization, established by disabled Vietnam veterans to serve the war injured and now offers nationwide sports rehabilitation programs to anyone with a permanent disability that include winter skiing, water sports, summer and winter competitions, fitness and special sports events.

This is a challenge and therefore the aim of this paper is to reveal the doctoral studies regarding the technological-organizational approach that may create the adequate development frame, crystallize the adequate group of specialist, investors and researchers that could make from the PD target group the information source the operators, the developers and the users of the created system and base on the adequate IT to create the awareness the information and the sustainability of the process.

For us there are two elements that trigger this concept. The Move is first element that gives dignity and independence to any child; and The Number gives the power so that social networks bases function understanding as a tool to be developed to measure the effectiveness in order to marketing the field.

Motion: importance, metrics and technological aproach

The research starts from the importance to improve functional mobility skills. The research activity cannot be designed as a standalone activity. An adequate program uses the family/person-centred planning approach, the clinical mobility programs based on current theory and research in education, psychology, biomechanics, and motor science, the social trends that influence the political decision and the legislative regulations.

The development of pedagogical methods must consider that motor skills disorder (MSD) may appear also at pupils on the autistic spectrum and therefore the development of a large range of different therapies and assisted solutions together with a multi-professional approaches and co-operation is needed.

A secondary problem, but as important as the motion at itself is that the children with motor skills disorder suffer also of low self-esteem resulting from poor ability at sports and teasing by other children and are an easy target for the ordinary children. Rehabilitation professionals and lately even governmental representatives recognize the importance of sports and recreation in the successful rehabilitation of individuals with disabilities. When first faced with the reality of a disability, many experience a loss of confidence, depression, and believe their lives have ended. They are often alienated from family and friends because there are no shared positive experiences. Sports and recreation offers the opportunity to achieve success in a very short time period; to use this success to build self-confidence and focus on possibilities instead of dwelling on what can no longer be done. The ability to participate in a sport, such as cycling; skiing; and sailing provides the opportunity to reunite with family and friends in a shared activity.

Administrations through adequate data base technology

The administration study starts from the nongovernmental organizations NGO’s and the considered approach in different academic studies. For example is considered which type of research the students may carry on and how to define and select the target group as long as in many cases, due to the early start or labile environment reactions, the PD’s my suffer multiple disabilities (inherited or induced). Therefore the Functional mobility approach (FMA) may be in many cases considered versus the Traditional Programs (TP).

The requirement of an incorporated Data Base (DB) is from the important connection between the biological development, nutrition and the required adapted physical activity. A correlation between the three and the evolution monitoring is almost impossible without an integrated DB that incorporates the parametric biological data with the health, nutrition and physical education for hardware, software, curriculum, legislation development. From this point view we like to consider that the start up and the updating of the integrating data base will be a useful tool not only for the treatment and education of the PD's but also to certified the Health status, the evolution and also the support elements for the lessons on bullying, self esteem rising, anger and stress management and passing to the APA devices concept, design, manufacturing and use with the tendency on APA-PLM for a lifelong sustainability of the implied person.

The jump from the actual spreadsheet administration to the data base management is necessary due to the large number of data (in different format or on different media divided in to many files); complex tracking methods, intercomputers connections; documents connections preservations; data validation; data accuracy control, data integrity control; data sharing procedures.

For the DB administration it is to be stated from three elements: data structures, database concept and the architecture of the data base. The data structure represents data collections between a series of relationships have been established having a common mechanism of selection and identification of the components.

The Database concept is represented by the way of the global description of data files that will also ensure the data independence. The user access to the database is done through this files that not only contains the collections of data but also the links between them.

The Database Architecture consists in the data collection (the body of the data base) and the database management system (DMS) - a set of programs that carry out complex data management and data processing, providing the interface between the database and the users.

Based on the configuration of the three elements data models can be defined as: Relational Models, Tree Models (hierarchical), Network Models, Object-oriented models.

The Relational model is a simple model that provides independent data used in many of today's DBMS. A relational database based on relational model, is composed of three main parts:

- Data structure: defined by the range of values and relationships. Cannot contain attributes or primary keys. In fact this part refers to data tables and the connections between tables.
- Integrity rules: impose restrictions in order to allow only the correct values within the relationships.
- Operators: used to manage the database for data processing.

The Tree Model was the first database used in the operation and it involves grouping and ranking entities in a tree structure. This means that each node is the root node has only one higher and one or more descendants. The data is organized like a tree. Users see the data as a tree made of interconnected types of records.

The network-model is a general pattern of organization of data with no restriction that a node tree had to have one parent (as in the model tree). The network is the closest form of representation of database diagrams entity - relationship. The database can be represented graphically by a graph-oriented network. In a network (as a graph) nodes correspond to entities and relationships are actually arcs graph, simple arcs from father to son or double arcs, if the relationship is of the form 1-n. Record resembles the notion of the relational entity is actually a logical file has the attributes of entity fields. In addition, there are now fields, a huge contrast to the relational model. Set of all records of the same type are based on a type named article. The link is an association between two items, so a link is actually a binary relationship.

Object-oriented model is the newest type of modelling, trying to integrate the principles of object-oriented programming (Actor, Smalltalk, C + +, etc.) to the databases. Relational databases offer a little support for unconventional types of data. The need for management of complex objects (text, graphs, maps, images, sounds) and dynamic management objects (programs, simulations) that

cannot be made with relational systems has led to the concept of object management systems database.

As general conclusion of the integrated database management for Adapted Physical Activities technological – organizational networking, leads to the idea that in the three models linked database, the relational model imposes itself through simplicity which allows its use by the unprofessionals with a good efficiency. We must emphasize the advantages of the relational model in comparison with the other models: simple data structures, operators, simple logical and physical data independence, ease of application development, data defining dynamic, distributed database development opportunity. The only relational structure used at the base array is the table type, the structure well known in our daily life as opposed to the threaded type or network type (graph). We must note that all distributed database systems are built on the principle of the relational model. Therefore it seems wise to use it in the next research activities and applications.

Technologycal social and economic implications

1. Technological implications

The analyze of a such long list of components that must be integrated, stored, managed and updated in a data base leads also the technological components that are already developed for a while but opens also a way for new devices and systems. We would like only to give a brief list of successful components that easy the life of thousands of people and create also a technological environment for new developments:

- Adapted pedometer with personalized calibration facilities;
- iPhone integrated tracking systems, exercise trainer, status monitoring and communication interface;
- living facilitating devices;
- therapy devices;
- assistance robots;
- assisted prosthesis and telethesis;
- etc.

This devices extend the idea that special devices are developed for rehabilitation, training and everyday living also special devices can be developed also to support the PD to work. Here IT , CNC and Robotics plays a great deal in assisting the persons in different type of applications from the apparently easy one to the high skilled one depends on the type and amplitude of the damaged functions that must be compensated.

2. Social implications

The social implication is very high. First is the considered person which every day life will be closer to the normal one, the self supporting facilities will easy the family charge so less problems, tenses and efforts will appear and the evolution of the other members will less influenced. The society acceptance will be greater due to the deeper integration and the lowering of the sustainability efforts. The entire image could be change from a burden to a friendly helping hand.

a. Economical implications

In present times all things are measured in money. Therefore the capacity to survive, to be self standing and to be successful means not only a gain for the person, for his family, for the medical system and for the social institutions but also for the society as a whole having in a same time producer and a consumer that offers new jobs and new opportunities, exactly that the society is looking for.

This will create a climate where the PD’s are encouraged to continue to explore those activities in which they have a primary interest by effectively managing their community resources.

Apa social networking

As long as a social network ‘is a social structure made up of individuals called ‘nodes’, which are tied (connected) by one or more specific types of interdependency, in our case the need to consider the knowledge and the facilities transfer and sharing for the persons with disabilities. In this way the PD is not just a point in space is a “node” in larger network on which the PD can relay, be active and feel good together with a lot of other PD that share the same state of life, similar problem and face together different challenges.

Once started the interpersonal communication is uninterrupted. The need to survive and be better positioned will be the engine and explain why a scarring tool (to be exposed) will become a main stimuli the PD and the PD family and friends. Different organizations will have an easier access to the target group but also the mentioned persons will reach easier the organizations that will fit better with their complete status

The social networks can solve in many cases also some financing problems by offering the benefit of the on line and long distance consultancy at a diminished price with little effort, grants and financing aids could be accessed and joining groups the costs handling will be easier.

Research methodology

The research methodology start from the one established by Sir Ludwig Guttmann, an English neurosurgeon that during the second world war beside the medical assistance put the injured soldiers to compete in different sport activities. That was the way in which not only the body but also the spirit was strength. We feel that it is at least necessary to create a rigorous methodology as far as this technique is concerned in a corresponding manner of the ancient Greeks say. And as a continuity of the idea the Paralympics games starts in 1948 in the same day when the Olympic Games starts in London.

The usage of social media network is meant not only like an inner tool but also to change the general image and the cooperation acceptance. Instead of “god forbidden” and compassion to offer admiration, cooperation and real support followed by competition and amusement. The big step can start directly with the sponsors that must see the competition and the challenge in the field combined with an increasing number of supporters. Nowadays the athletes are admired firstly for their real athletic abilities and secondly for the fact that they are acting in the disability conditions.

It is meant to promote examples like Oscar Pistorius from South Africa. It is a person that at just 1 year old both legs were amputated due an congenital malformation that made no bone in the leg. Now his in possession of the world record for people with disabilities at 100, 200 and 400 m. Himself is mentioning that he is not a person with handicap but a person without legs having as main goal to run 1:1 with people without disabilities and in this direction is to find more comparable competitions and eliminate the wave of depression that act as a Tsunami over the person spirit.

Conclusion

The Engineering and Management approach in order to create a sustainable way for the people and organizations in the Adapted Physical Activities seems an adequate solution to continue the research that demonstrate the technological gap and the technological facilities that must be considered, to indentify the most adequate organisational and legislative way to benefit from an APA technological-organizational networking in order to create new products to integrate in the active and competition life the persons with disabilities and to create a technological jump a larger visibility and acceptance through the facilitation of the social media.

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Ontology engineering in product development

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Abstract

Purpose *– The paper discusses the motivation for the ontology in order to increase efficiency in product design and PLM integration. It shows the ontology concepts related to the manufacture of products in conjunction with PLM, and also concerning the design ontology for the material resources upon which one acts.*
Methodology/Approach *- The research method used was case-study with direct observation. Observation due to involvement in the process was the foundation for knowledge creation. The authors have participated in practical applications during product design activity and this constitutes the basis of this paper.*
Findings *– Ontology engineering in product development approaches some specific issues of the technological product design, technology design and material resources design which are necessary for the manufacturing. Ontology building models for the three categories are specific to products and technological equipment and create prerequisites for the design standards.*
Research limitations/Implications *– The implications of the current study are linked to the development of ontologies as a management method in the activity of constructive and technological design and the design of the required resources for the manufacturing of technological products and equipments.*
Practical implications *– The approach is a prerequisite for the substantiation of a specific discipline from the technical education system and for those working in research and development teams for technological products based on CAD and PLM systems.*
Originality/Value *– The usage of ontologies in any domain is a critical task, including avoidance of crisis management that can occur in a product development activity.*

Key words*: ontology engineering, product development; management of technology*

Introduction

For the purpose of gaining competitive advantages, most of the industrial companies keep in their minds that product development should be made so that it may be managed throughout its entire life-cycle: from its design to its manufacturing, use and destruction. Achieving this goal requires close cooperation among those involved in product development. These actors' affiliation to a wide range of areas involves the use of extensive software tools series whose results cannot always provide consistent tracking of the entire data flow, particularly because of these tools' reduced interoperability. So far, there have been developed and presented several techniques to deal with these types of heterogeneity in different frameworks: those referring to the system, and the syntactic, structural and semantic ones. The absence of a unified description for product data semantics and also of data on product development stages makes the whole process be broached incompletely or difficult to manage. To reduce these shortcomings, many researchers have focused themselves on issues regarding product data structure specific to certain activities in its life cycle (Patil, Dutta, Sriram, 2005) (Kesavadas, Paygude, Bandi, 2005). The use of product lifecycle management (PLM) in solving data management issues throughout the lifespan of a product requires a holistic approach, a synergistic merger between application systems, data, processes, techniques and skills. Product life cycle management through a PLM solution allows

the inclusion not only of all elements needed to ensure all of its traceability, such as concept, design, document management, numerical analysis, financing the know-how, etc., but also of all information system components that ensure the product monitoring from manufacture to marketing and then to its disappearance or recycling (Zina et al., 2006). Slowly, we may turn to a standard approach for the types of products, equipment families etc. However, knowledge embedded in a product is gaining more attention as a means to increase productivity and performance in new product development, which must meet certain requirements imposed by customers. Our solution to this problem involves defining an ontological framework of the configuration of the product development process project. This solution is based on the idea of the existence of some general and commonly accepted knowledge and experiences regarding product development and their implementation in an ontological model of a product development project (PDP). The paper presents, in stages, the project product development through:

Ontology engineering

The study of ontological approaches to problem solving is a research activity that has received particular interest especially in the field of product development and manufacturing technologies. Chronologically, these approaches have undergone many changes and adaptations as this concept has become the basic tool in creating new systems for structured information representation.

To a great extent, the history of ontology used to be a series of fundamental, often long and implacable disputes on what can be represented, accompanied by reflections on its own methods, fundamental concepts and discipline status. In the 1980s the community of the artificial intelligence researchers proposed the term ontology both to refer to a theory of the designed world and as a component of the knowledge systems (McCarthy, 1980). In the early 1990s, based on efforts to create interoperability standards, there was a wide range of technologies that would recognize the value of ontologies as standard in knowledge-based systems (Netches et al., 1991).

Gruber (1993), who defines ontology as "an explicit specification of a conceptualization", is characteristic to the industry. Gruber (1993) develops the idea of conceptualization as an abstract notion, a simplified view of the world we want to represent, for a particular purpose. Irrespective of the type of community that will change and share knowledge through an ontology, either human actors or agents (as part of the artificial intelligence), these ontologies settle a common terminology, and therefore conceptualization requires an appropriate formalization (standardization). Irrespective of the framework, an ontology consists of several elements, of which the most important are: concepts, relations, attributes, instances and axioms. All these gain an increasing attention in various disciplines, especially in fields where knowledge is structured, which facilitates the extraction of concepts, relationships, attributes and relevant axioms used in ontologies. Further on, ontology goes through several stages of refinement so that it may be turned to good account as a tool. Information interaction and exchange through a precise and well organized vocabulary, indexing complex information and controlling combinations explosions are among the most representative attributes of ontologies (Mostefai, Bouras, Batouche, 2006)

Ontological engineering is the complete set of tasks related to the development of an ontology in a given framework. We might define ontology engineering for product development as the set of tasks related to product ontology development from the idea to explicit specifications for project development, manufacture, delivery, installation, operation, maintenance, etc., with an integrated vision on its whole life-cycle. Research on methodologies for building ontologies is representative in this direction (Uschold and Gruninger, 1996) (Gomez and Perez, 1995) (Gruninger and Fox, 1995) and is looked upon as an excellent overview of strategies for building an ontology that may be explained and customized for the project development of a product.

In fact, in connection with an ontology development there are the following different approaches:

- The currently most dominant pragmatic approach, which focuses on defining the ontological constructions of problem-solving models;
- The theoretical approach, which aims to highlight the conceptualizations of the existing theories;

- The empirical approach, particularly used to test the ontology theory incorporated into the human knowledge and for the development of performant information systems;
- The mixed approach, a complementary approach proposed by Geerts and McCarthy (2000), which involves the combination of at least two of the other approaches,

Ontological framework of a product development project

The suggested model brings forward aspects related to structuring stages and information needed for drawing up a product project. The process is based on going through successive stages each with its own degree of knowledge abstraction (insert Figure 1).

A. The first stage of this ontological model of structuring the project is the analysis of the product specifications that are the result of the client's requirements regarding that product. These requirements stand for the primary information source named generating source of information regarding the "genesis" of the product. An accurate analysis of these requirements will directly affect any subsequent function, element or structure of the product.

B. Based on product specifications, the next stage refers to settling the functions package of the product. This functions package does not represent a direct transposition of the specifications identified in the previous analysis phase. Roughly speaking, each specification points out what the product needs to solve the product, and by no means does it give details regarding the product functions. The purpose of this stage is to develop detailed product features, which subsequently met, they would lead to a comprehensive settlement of the specified requirements.

C. Once the product functions identified, the first macrostructures of the product composition can be created. These macrostructures are the components that must satisfy each identified function. Most of the times, designers are constrained to choose a macrostructure that satisfies one or more functions due to a multitude of technical solutions identified for each function. Almost every time, a product function can be satisfied by more macrostructures, the freedom of choice belonging to the designer according to various criteria: technical, economic, collaborative, related to productivity and to supply or, in some cases, a decision based on a multi-criteria analysis. If things stopped at this point, our product would only be a set of clearly defined functions meeting the specifications required by the technical specifications. Most often, the solutions meeting individual functions do not solve the global problem that is to satisfy the specified requirements.

D. The identification of the macro-structural components of the product that must meet the product needs to be integrated in the working technology of the product in its whole. This working technology clearly results from the identified macro-structural solutions, on the basis both of internal operating technologies of each structure and of operating technologies related to upstream and downstream structures of the product. Settling the product's operating technology may often lead to the return of the entire product development process to one of its earlier stages due to some resulted operating technologies that may not be met by the previously determined structure.

E. The next stage of this model is to determine the manufacturing technology for the designed product. This manufacturing technology is primarily related to the company's internal manufacturing capacity, and secondly to the technological capacity of its subsuppliers. This stage requires also a structural analysis of the product due to manufacturing technology solutions that cannot be met in or out of the company, within a predetermined efficiency at reasonable costs. The manufacturing technology specification is preferably to be made concurrently with the product design phase, in order either to avoid reaching some unavailable manufacturing technological limits, or to meet the structural and operational functions related to the manufacturing technology or the compliance with economic constraints. This approach can be made for any of the following: technology for a new factory, technology for an existing factory, or technology for the development and modernization of an existing plant.

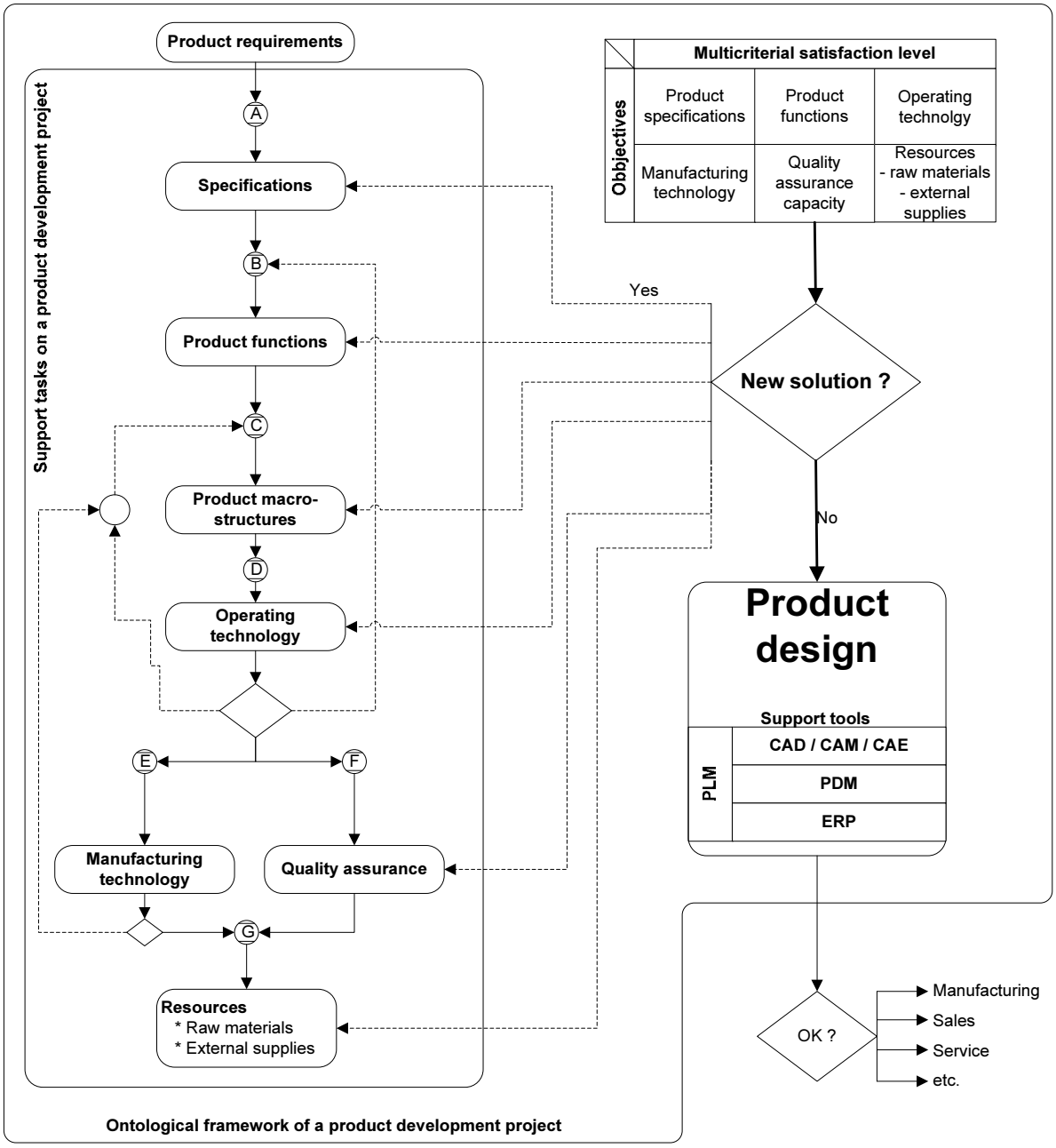

Figure 1 Ontological framework of a product development project

F. Simultaneously with the establishment of the manufacturing technology, there must be an assessment of the capacity needed to ensure the quality of materials and components necessary for product manufacturing, in order to meet operating technologies. This capacity must be evaluated taking into account both the operating conditions of the product and the company's internal capacity to meet the quality requirements.

G. The last stage is represented by the problem of material resources for manufacturing the product, be it raw materials for product processing, or materials as sub-supplies. Obviously, determination and choice of material resources can produce modifications in manufacturing technology and in quality assurance, as a consequence of these ones' momentary availability. It is preferable that this analysis regarding the determination of material resources involved can be flexible so as to meet immediate manufacturing needs and certain resources' availability on the market as well, be it raw materials, or parts from sub-suppliers.

Once the design cycle run through, the process is not considered complete at all. At each stage, there is a continuous necessity for a comprehensive assessment based on the following criteria: what the initial requirements have been and what is accepted as a solution to meet the product functions. Only at this point, after applying this ontological approach, we can approve the making of the product project and go further for accomplishing its virtual model and then the manufacturing documents. The final stage of this cycle is the result refinement and, if necessary, the return to any previous process stage, by providing feed-back at each level, by giving new recommendations to meet functions, operating technologies, manufacturing technologies, quality assurance capabilities and material resources involved in the product manufacturing.

The whole process has been based on a complex and highly structured set of knowledge, with combined operations of abstraction, generalization, customization, classification, etc. Starting from this observation, the solution for such issues is an essential and explicit representation of the domain knowledge. This is justified by the fact that, in order to perform the specific processing operations, knowledge must be represented as properly as possible.

Conclusions and discussions

1. The ontological approach of the design process of a product, with direct implications in its life cycle, has an important contribution in solving the management crisis as part of the manufacturing process of any newly assimilated product and especially in shortening the manufacturing cycle.

2. Using ontologies to define the product structure either to meet imposed specific functions or to satisfy various technological, design and manufacturing constraints specific to a company represents the springboard for future development of products by using CAD/CAM/CAE systems and their integration into PLM system structures.

3. Solving the problem has supposed the use of a conceptual method through an extensive process of designing a structure based on knowledge and experience, accumulated through participation in the development of the product design which the new knowledge is placed in as it is acquired.

4. This conceptualization must be further improved, possibly standardized and integrated into all pre-competitive and competitive research systems that use CAD/CAM/CAE in the development process of an effective management and in product development.

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Statistical techniques for directing continuous quality improvement in higher education

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Abstract

Purpose – The provision of higher education (HE) has typically gone from being a centrally planned service to one in which resources are allocated by market forces. As this market matures, education’s quality has become a means of differentiating one HE institution from others.
Methodology/approach - A study on analysis the general competences, specific skills and competences with social awareness took place in March - April 2009 at the Engineering Faculty from University "Lucian Blaga" of Sibiu, in consultation with a sample of Economical Engineering specialization’ teachers. In March – April 2008 a similar questionnaire was distributed to Economical Engineering specialization’ graduates. In this paper, we will present the frequencies analysis and the statistical analysis on categories of competences from students and teachers point of view and models and reports on a study of students’ acquired competences using importance-performance analysis (IPA).
Practical implications – A point of view on the quality of teaching and the dynamics character of Economic Engineering specialization is presented.
Originality/value – The statistic results concerning the achievement of interpersonal skills; the statistic analysis concerning the achievement of instrumental skills; the bivariate analysis of the satisfaction level and the importance of the skills achieved.

Key words: Evaluation, educational efficiency, Quality management.

Introduction

The subject of quality in higher education (HE) has received increasing attention, following the pattern set by service industries in general. Debate has ranged over various issues including quality management frameworks (Campbell and Rozsnyai, 2002) quality dimensions (Panzaru, 2005; Oprean, 2008), quality implementation problems (Negulescu, Kifor, Oprean, 2008; Pah et al., 2008; Rotaru, Savescu and Dumitrascu, 2010; Rotaru and Kifor, 2008). One theme more than any other, however, has come to dominate the current debate and this relates to the development of valid, reliable and measures of educational service quality.

The University “Lucian Blaga” from Sibiu, Romania has carried out a study to evaluate an array of capabilities that students have acquired during faculty. This research is part of a national program PN II contract no. 91-047/18.09.2007. “Benchmarking techniques of academic qualification in Romania”. The second part of this project was carried out in spring 2008 and the third part was carried out in spring 2009.

In our study we followed three categories of competences:

- The instrumental competences that include:- Cognitive skills, ability to understand and manipulate ideas and concepts; capacity for the organization of time, learning, making decisions, solving practical problems; use the skills of computing and information; skills for the use of foreign languages.

- Interpersonal Competences:- The ability to express an opinion, a critical and self-analysis; skills of teamwork (interdisciplinary teams); working with the international teams (knowledge multicultural issues).
- Systemic competences:- Competencies related to systems analysis (understanding own specialization as part of a system, etc.), the capacity of project management; the ability to innovate and adapt to new situations;ability to work independently.

So our strategy for assessing quality was to measure the outcomes of a college education: evaluate students as they graduate (or shortly after) on the skills and capabilities they have acquired or the recognition they gain in further competition [Savescu, Rotaru, 2005].

Measuring service quality in the HE

Today's educational management faces a lot of choice when it comes to measuring student perceptions of educational quality, with a full range of measurement techniques on offer. The difficulty is that many of these techniques are too costly, too complicated or inappropriate for what is being measured. The most critical challenge facing educators, therefore, is to identify and implement the most appropriate methods for measuring the quality of the service experience.

The population of which was calculated the sample, was represented by students in the final years, IV and V of Economical Engineering specialization within the Mechanic Field present to the seminaries of Operational Research and Project management. This fact did not lead to an equal distribution of the people who were questioned taking into account the grades of admission to the university and the general grades up to the final year. The frequency distribution is illustrated in the figures 1 and 2.

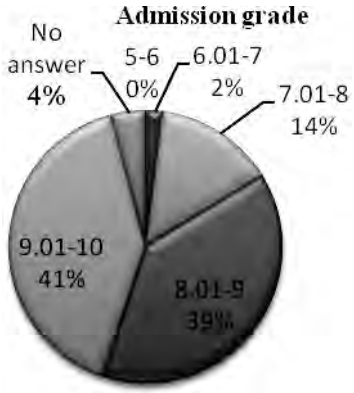

Figure 1. Students' distribution taking into account the admission grades

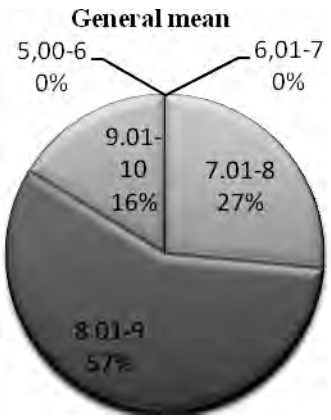

Figure 2. The students' distribution taking into account the grades up to the final year

Students' point of view on the quality of teaching

In the questionnaire at item 18 the students were asked to select a global appreciation on the quality of teaching different disciplines on years of study. The scale of appreciation is made of 5 quality steps, namely: 1. very bad, 2. bad, 3. mediocre, 4. good, and 5. excellent.

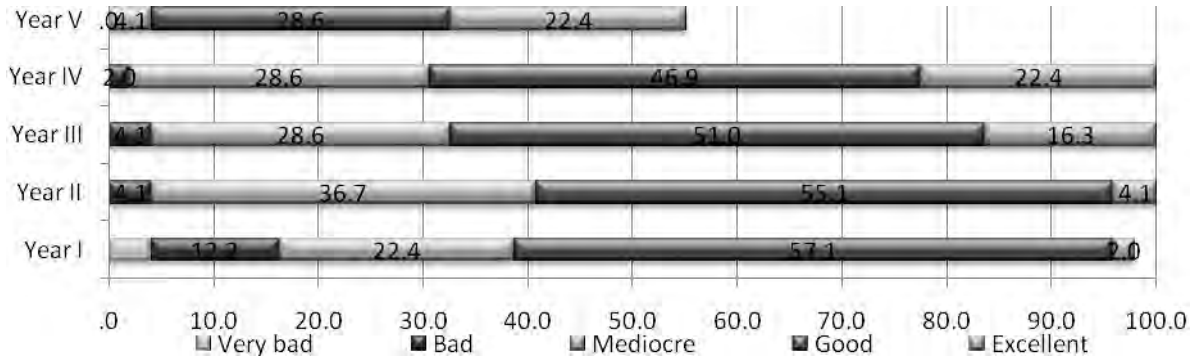

Figure 3. The global appreciation on the quality of teaching on years of study

In figure 3 we have the perceptual distribution of the absolute frequencies. As the questionnaires have been distributed to the fourth and fifth year students, 44,9% without any answer represent the IV year students who could not evaluate the way of teaching in the fifth year of study. In general, we can notice a positive evaluation of the quality of teaching. More than 50 % of the students have qualified the quality of teaching as "good" and "excellent".

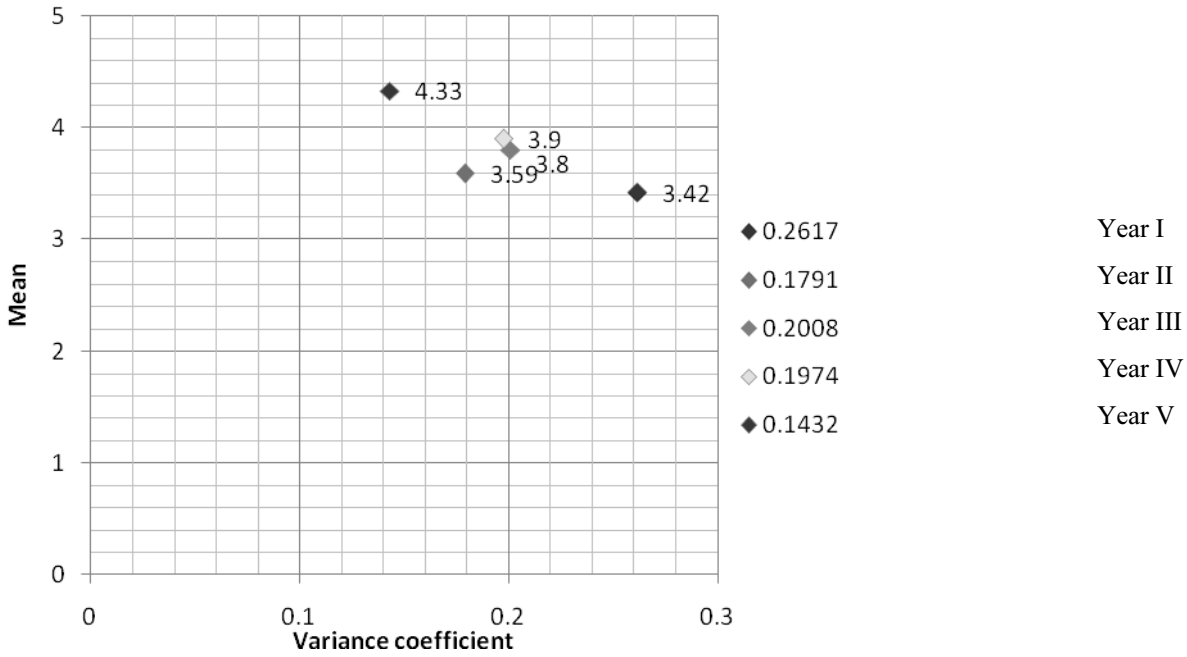

Figure 4. The illustration of the quality of teaching (mean - variace coefficient)

In figure 4 we can notice that the evaluation of the quality of teaching is in the upper part of the chart. We take the average as representative, as the variance coefficient is lower than 0, 35. One can also notice an appreciation of the quality of teaching towards the end of the study years.

The bivariate analysis of the satisfaction level and the importance of the skills achieved (IPA)

We will note the importance of competence EI (extremely important) and I (important) and the level at which is found in the syllabus with VH (very high) and H (high).

Table 3. Synthesis of statistical data

Variable's no.	Item (competence)	The importance of competence EI and I (%)	Level of competence VH and H in syllabus (%)
3	The analysis and synthesis ability	91,8	40,8
4	The ability to organize and plan different activities	79,6	47,0
5	The capacity of achieving fundamental knowledge (within the specialization)	89,6	81,6
6	The use of a foreign language (within the specialization)	81,6	28,5
7	The use of computer and other IT devices	97,9	55,1
8	The use of alternative information sources (library, internet) during the studies	83,7	57,1
9	The ability to make decisions independently	92,9	53,0
10	The ability to work in a team (within the specialization)	93,8	77,5
11	The ability to work in interdisciplinary teams	75,5	39,6
12	The ability to apply the theoretical knowledge achieved during seminaries and projects	79,6	61,2
13	The ability to study and do the research work independently	78,6	44,9
14	The capacity of facing new situations	96,0	37,4
15	The ability to work independently using the knowledge achieved	91,6	51,1
16	The ability of doing quality work (within the specialization)	97,6	42,8
17	The ability to elaborate and manage projects	95,9	44,9

Significant differences between the level of importance and level of competence that is reflected in the syllabus show to items: 3 - Capacity analysis and synthesis; 4 - The ability to organize and plan different activities; 6 - The use of a foreign language (within the specialization) 9 - The ability to make decisions independently, 11 - The ability to work in interdisciplinary teams; 14 - The capacity of facing new situations; 17 - The ability to elaborate and manage projects. It also noted that respondents consider the field and Engineering Management, specialization in Economic Field Engineering Mechanical as dynamic and highly dynamic in a share of 89.7% (item 19) and that specialization is attractive (item 21 and 22).

We have tried in this paragraph to follow the correlations between the importance level of the ability analyzed and the satisfaction level regarding its presence in the syllabus. To begin with, we tested the correlations between the two categories. We obtained a statistic dependency through the chi square test for the variables 7, 8, 10, 11, and 12, the rest of them being independent. Even if only one third of variable test was validated the graphic representation was realized to notice the position of the dependent variables in comparison with the independent ones. The variation coefficient of all the variable average was validated for all the abilities analyzed [Hair, 1995].

In figure 5 we can notice the intercorrelations between the ability importance level and the level of student's satisfaction. As, according to the variance coefficients the mean calculated for items 3 to 17 are representatives and they are situated below the limit of 0,35, we can conclude that the averages represent the analyzed students' opinion.

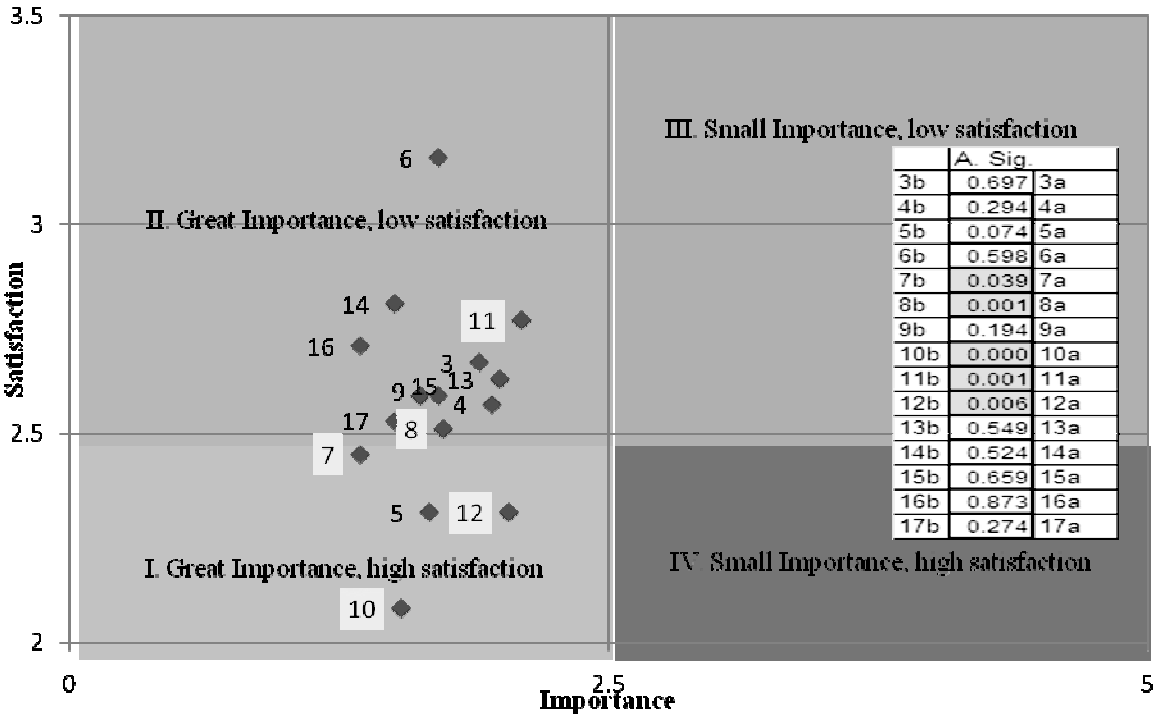

Figure 5. The satisfaction/importance matrix

We can notice that we do not have resources that are used in a wrong way, as none of the analyzed abilities is on the III rd or IVth chart. The abilities 5,7,10 and 12 are situated in section I, therefore the specialization should maintain the same effort to cover the disciplines which develop these skills.

The abilities 5,7,10 and 12 are situated in section I, therefore the specialization should maintain the same effort to cover the disciplines which develop these skills.

Discussion

This paper has provided further evidence of the HE sector generally and highlights the practical value of IPA as a means of both assessing and directing continuous quality improvement efforts within this sector. While debate continues as to the one best way to evaluate the service quality construct, the study demonstrates the relative case with which IPA can identify how educational service are performing, pin-point specific problems areas and help target corresponding improvements efforts. Indeed, it is this practicality that makes the tool so appealing to those interested in evaluating students' perceptions of quality. This technique has a number of advantages over other competences quality measurement techniques. It gathers information about factors relevant to the student's perceptual processing and satisfaction level and communicates the results in a format – pictorially and graphically – that can then be used to target specific service improvements.

It is suggested that HE managers should be more concerned with the ability of quality measurement techniques to track past, present and potential student perceptions of actual performance. In short, this will allow for possible corrective actions, which can then be taken to improve actual perceptual problem areas.

It should be noted that this is an exploratory study and further data collection and analysis will seek to establish whether a consistent pattern of importance-satisfaction ratings occurs across different categories of users in the educational setting. It should also be noted that the quantita-

tive analysis used here does not explain why the observed ratings occurred – for this, supplementary qualitative research would be useful. It is also open to question whether students' importance ratings for specific skills change over time. What might be considered a very important issue because after graduation they become a potential referrer of students and a possible employer.

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Constructivists Model for Identifying First Year Students

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Abstract

Purpose *– Understanding the needs of the clients (whoever they are: students, future applicants, employers, staff etc.) is the first step to improve the educational programs offered by any faculty or college.*
Methodology/approach *- The Department of Economic Engineering from the Faculty of Engineering "Hermann Oberth" from Sibiu conducted a marketing research among students admitted in the first year of studies in Engineering and Management specialization. Our goal was to obtain information on student profile, their expectations at the beginning of college and also information about competing faculties. The results of this study are useful for Engineering and Management Department to develop a strategy to attract the best candidates and the expectations of new students from the "student life".*
Practical implications *– A long term survival in a competitive market means offering products that bring benefits, value and satisfaction to the clients.*
Originality/value *– The research was intended to obtain information on: general profile of students admitted to the specialization of Economic Engineering from the Faculty of Engineering "Hermann Oberth" of Sibiu; candidates' reasons for choosing the Faculty of Engineering; first year students' option for the areas offered by this faculty, and backgrounds of the candidates who choose the "first option" for an specialization other than Economic Engineering; Major competitors of specialization Economic Engineering from the Faculty of Engineering on licensing programs offered; profile and preferences to candidates who have applied for registration and other departments; expectations of students at the beginning of "student life" at the Faculty of Engineering.*

Key words: *Profile of first year students, education, management decisions.*

Introduction

"Lucian Blaga" University of Sibiu, - „Hermann Oberth" Faculty of Engineering, through the Department of Economic Engineering conducted a marketing research among the candidates at the admission for undergraduate studies 2009, in order to gather information regarding both the candidates' profile and the competing faculties. The results of this study were used by the faculty's management for the development of a proper strategy to attract candidates.

The detailed results of the study conducted in 2008 were presented in two papers "Who are they and what do our candidates want? – Part I" and "Who are they and what do our candidates want? – Part II" published in Conference Proceedings, Volume II of Balkan Region Conference of Engineering and Business Education & International Conference on Engineering and Business Education, Sibiu, Romania, 15-17 October 2009.

The above study provides useful information about the candidates but does not give us any insights into the profile of the first year students that have been enrolled to one specific field of study. It should be mentioned here that the Admission process at "Hermann Oberth" Faculty of Engineering consists of: the candidates are first admitted according to their high-school grades and then, the ones that have been selected have the right to choose between any faculties and specializations that they have applied for and have been admitted to. Those admitted candidates that confirm their intention to attend the Faculty of Engineering, are then enrolled in the first year of study.

In the university year 2009/2010, there were 83 candidates applying with "first option" for the Economic Engineering specialization from "Hermann Oberth" Faculty of Engineering. Out of these, 71 were enrolled in the first year.

Research Objectives

In October 2009, the department of Economic Engineering from "Herman Oberth" Faculty of Engineering of Sibiu conducted a marketing research study among its first year students.

The research was intended to obtain information on:

- General profile of students admitted at specialization of Economic and Management from the Faculty of Engineering "Hermann Oberth" of Sibiu;
- Expectations of students at the beginning of "student life" at the Faculty of Engineering;
- First year students' option for the areas offered by this faculty, profile of the candidates who choose the "first option" for an specialization other than Economic Engineering;
- Profile of the first year who had been admitted at other faculty than "Hermann Oberth" Engineering Faculty, too;
- Major competitors of the specialization Economic Engineering from the Faculty of Engineering in terms of other licensing programs offered by the Faculty.
-

A number of 54 students have been interviewed based on a self-completed questionnaire. In this paper we will present the results of the research regarding the last three objectives. The areas of study from the Faculty of Engineering are: Industrial Engineering1; Industrial Engineering2; Mechanical Engineering; Mines, Oil and Gas; Engineering and Management; Computer Science and Information Technology; Electric Engineering; Electronic Engineering and Telecommunication; Applied Engineering Science; Environmental Engineering; Transport Engineering. It should be mentioned that, by the time the study was conducted, one candidate at the "Hermann Oberth" Faculty of Engineering of Sibiu could apply to more than one area of study, being admitted to one of these, according to his/her first option chosen, based on the admission grade, calculated as a weighted average between the baccalaureate grade – 50% and the grades obtained at the baccalaureate exam at one of the disciplines Mathematics / Computer Science / Economics – 50%.

Research Methodology

The conducted study started by consulting the secondary sources of information on which the research's objectives have been established and a self-completed type of questionnaire has been elaborated.

Then, the primary research was made by applying the questionnaires on a representative sample of first year students from the specialization Economic Engineering from "Hermann Oberth" Faculty of Engineering. The questionnaire was administrated in the second day of the university year (October 2009).

Altogether, there have been collected and validated 54 questionnaires out of a total number of 71 students, which represents a 76,1% collection rate from the total number of analyzed population (±2,645% error for a 95% results' guarantee probability).

For a better investigation of the studied phenomenon, the questionnaire included both closed questions and open questions, therefore offering the respondent the possibility to answer according to his own beliefs. We present the questionnaire that was administrated at the first year student in October 2009 as annex at the end of this paper.

The profile of the students enrolled at the economic engineering specialization

A 48.1 percent of the respondents are female, a thing which is considered normal, given the specialization's both technical and economical field. If we have a look at the candidates profile we can see that a higher (62.7%) percentage of them were male (Figure 1).

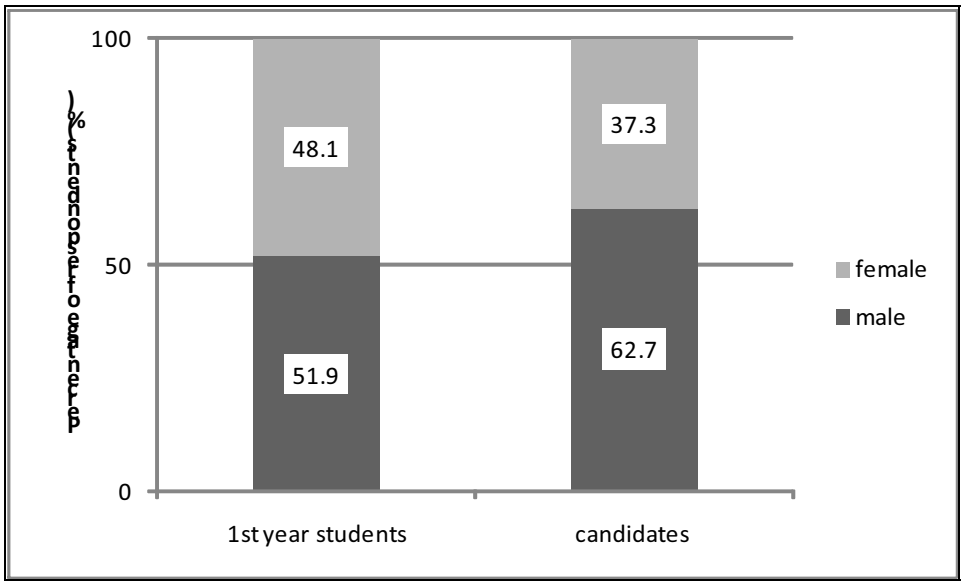

Figure 1: The respondents' distribution according to gender

The conclusion is that the male candidates are more interested than female candidates in either other faculties or other specializations of the same faculty. The female candidates can be considered more "reliable".

A 63.8 percent of the first year students come from Sibiu city, 13,0% come from other localities of Sibiu county (most of them from Medias) and 22.2% come from other counties (most of the localities from the bordering counties of Sibiu, especially from Vâlcea county.

There are no significant statistical differences between the percentage of candidates from Sibiu city and the percentage of first year students from Sibiu city (Figure 2).

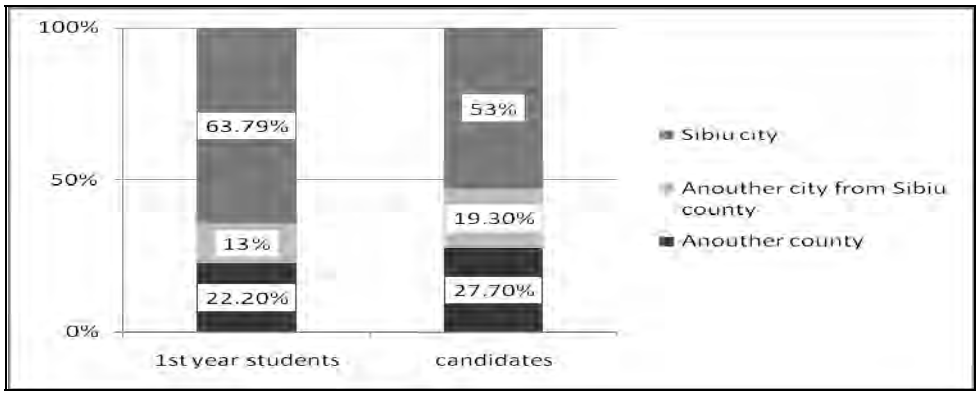

Figure 2: The respondents' profile on area of provenance

The average monthly net income per family member in the first year students' families stands at a low level, but a little bit more higher than in the candidates' families (especially for the students who come from other cities than Sibiu). This low income influences the candidates' decision who filled in an application form to various faculties (high probability for them to choose in the end a faculty where they have been accepted on the no fee places), but also the decisions of the future students concerning employment during school (Figure 3).

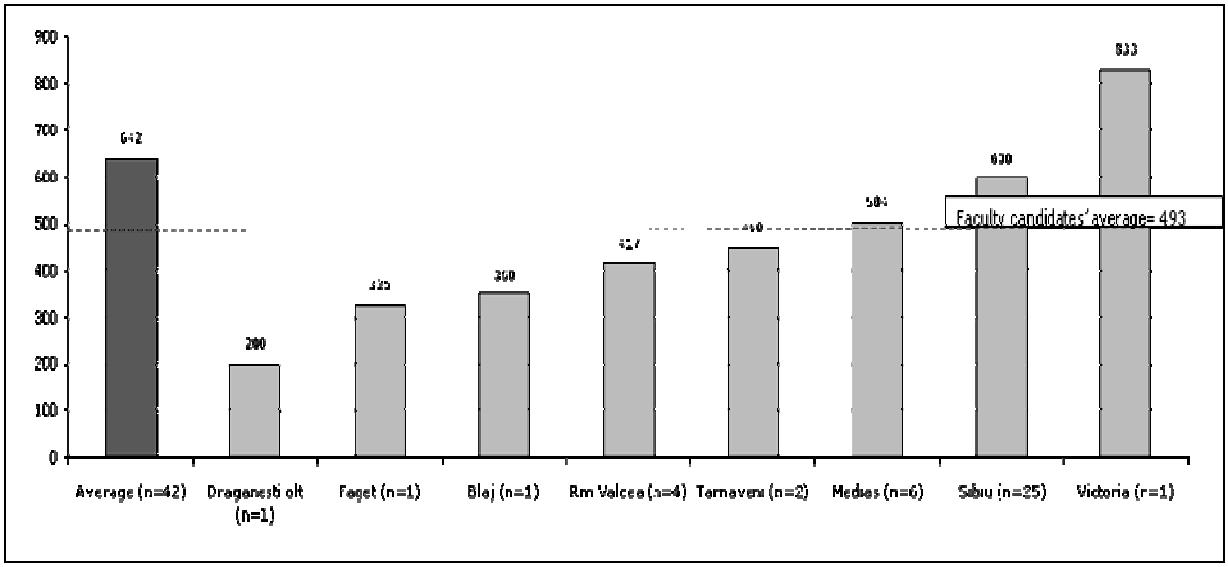

Figure 3: The respondents' profile on monthly net income / family member, according to the locality/county of provenance

The first year students have a medium to good level of education (the average value of the admission grades is 8.86), higher than the average admission grade at the faculty level (8.70). The admission grade is calculated as a weighted average between the high-school final examination grade - bacalaureat (50%) and the average of the high-school grades in mathematics (50%). Significantly higher values of the admission grades are held by students who come from Octavian Goga National College in Sibiu (9.14), Gheorghe Lazar National College in Sibiu (9.09), S.Brukenthal National College in Sibiu (9.03).

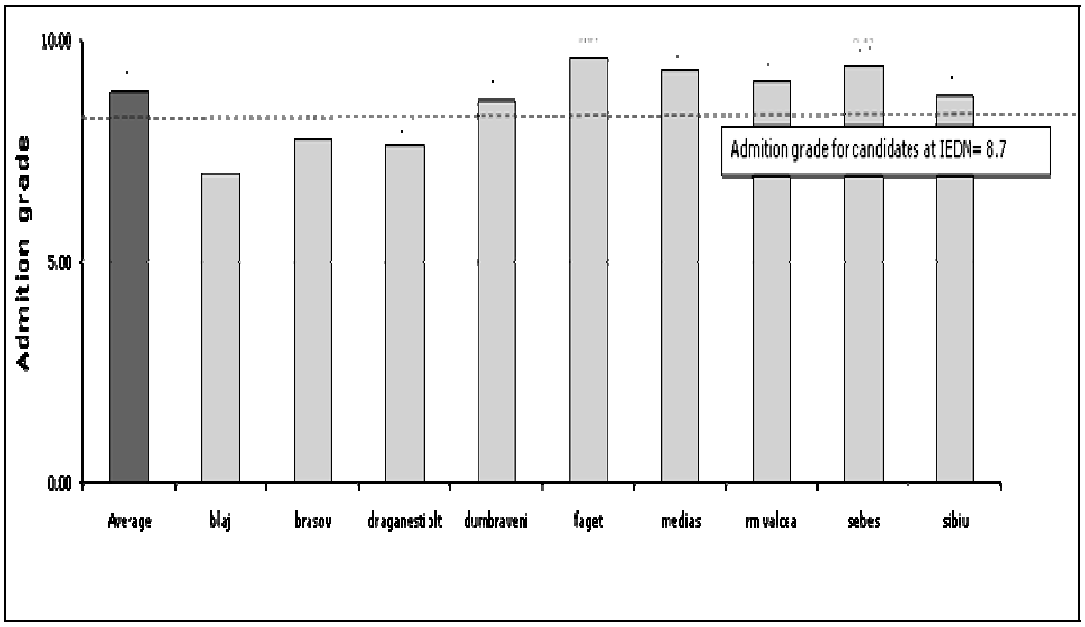

Figure 4: Respondents' profile according to the admission grades

First year students' expectations concerning their future "student life"

We found out information about the first year students' expectations concerning their future "student life" by an open question. Only 43 out of total 54 students answered this question. Their affirmations were classified in 6 answer categories.

The main expectations are:

- Good relations with the faculty professors based on communication, respect and professional attitude 42.6%;
- Accumulation of knowledge to become a good engineer and to find a job in this field 40.8%;
- New friends and a smooth process of integration 14.8%;
- Other reasons1.8%.

As we can see, at the beginning of the students' life, the main expectations of the first year students, in their first two days of student life, are related to the relationships with academic staff, the quality of knowledge gained and the integration process inside the new groups of students.

These expectations could be met by informal meetings between students and professors, in the first weeks of study.

Conclusions

After this research, we have reached the following conclusions:

First year students' profile

- The first year students from the Economic Engineering specialization "Hermann Oberth" Faculty of Engineering from Sibiu come from the country's central area – Sibiu County and the bordering counties: 77.8% of the students come from Sibiu County, 22.2% of the candidates come from other counties manly from Vâlcea;

- The number of first year students who come from cities from Sibiu County, others than the city of Sibiu and Medias is very small;
- Four high schools in Sibiu (Gheorghe Lazăr College, Independenţa Technical College, Octavian Goga College, Energetic High school) provide approximately 11% of the total number of first year students and three high schools in Medias (Gas high school, St. L. Roth High school and A. Sever High school) provide approximately 10% of the total number of candidates;
- The main high schools in Sibiu where first year students come from are (% from the total respondents: Economic College – 16.7%, Ghe. Lazăr College – 11.1%, O. Goga College – 9.3%, Energetic High school – 9.3%, Agricol College – 5.6% ; "Constantin Noica" College – 5.6%. The candidates from the rest of the high schools in Sibiu hold a percentage of under 2% of the total respondents;
- The main high school in Medias where candidates come from is (% from the total respondents): Gas College from Medias – 7.4%. The candidates from the rest of the high schools in Medias hold a percentage of under 2% of the total respondents;
- The economical field of the specialization attracts approximately the same percentage of male students (51.9%) as female students (48.1%);
- The net monthly income / family member is situated at the level of the Faculty at the value of 528 lei. At the level of the specialization this value is 642 lei and it is lower for the candidates coming from the other cities than Sibiu. This low income will influence the candidates' decision who filled in an application form to various faculties (with a high possibility for them to choose a faculty where they have been accepted on the no-fee places), but also the future students' decisions regarding employment during school;
- The specialization attracts candidates of a medium to good level of education (calculated according to the faculty admission grades' average). The average value of the admission grades is 8.86. There are no major differences between the candidates' provenance geographical areas. Significantly higher values of the grades' average on high school years are held by candidates who come from O. Goga National College in Sibiu (9.36), Economic College in Sibiu (9.20), S. Brukenthal National College in Sibiu (9.71).

First year student' expectations regarding "student life"

Main expectations of students at the beginning of "student life" are:

- Communication and understanding from teachers, respect (27.8% of total respondents);
- Adaptation / accommodation to student life and new colleagues in the faculty (14.8% of total respondents);
- A professional attitude of teachers (14.8% of total respondents);
- Career in the field (14.8% of total respondents);
- Accumulation of knowledge to become an engineer and to find a job at the graduation (13.0% of total respondents);
- Good grades (13.0% of total respondents).

A 20.4 percent of total respondents have not answered to this question. One possible explanation is indecision and uncertainty faced by young people regarding their professional future.

Recommendations

To increase the influx of applicants to university will present the following recommendations to management staff:

- The promotion campaign should focus on the faculty and specialization links' with companies willing to hire our graduates, to highlight the percentage of students' employed in less than 3 month after graduation (safety of a job at graduation);

- Possibility of training through scholarships to other colleges of further education abroad and the specialized master;
- Professionalism and skills teachers;
- Make a New Beginning program for freshmen at the beginning of the first semester in which to carry out informal meetings with students of final year and teachers so that they develop the desire of belonging to a group of our specialization. This program can be developed as collaboration with Solidus student association.
- Information and students' enrollment from other smaller cities of Sibiu county, cities that have the potential to provide future students.

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Annex 1 - The questionnaire

Dear student,

Welcome at the “Hermann Oberth” Engineering Faculty of Sibiu!

The department of Economic Engineering from “Herman Oberth” Faculty of Engineering of Sibiu is conducting a research to improve curricula. In this regard, please answer to the following questions. Your answers are confidential and will not affect in any way the educational process. If you have any questions, please contact the college staff.

1. Besides "Hermann Oberth" Engineering Faculty of Sibiu, have you been admitted to other faculties, too?
   □ No, the only college I was admitted to, was "Hermann Oberth" Engineering Faculty of Sibiu (> go to question no. 3)
   □ Yes, I was admitted to the following faculty, too:
   Faculty (name) _____ from University _____
   of (city) _____
   (> continue with question no. 2)

2. What was the main reason in your decision to pursue university courses at the Faculty of Engineering "Hermann Oberth" of Sibiu and not to the other faculty who have admitted you?

   _____

3. What were your order entry options at the Faculty of Engineering "Hermann Oberth" of Sibiu? (Assign numbers 1, 2, 3, 4 ... etc. in accordance with the application form, where 1 is the first option, 2 the second option ... etc.):

_	Industrial engineering 1	__	Electrical Engineering
_	Industrial engineering 2	__	Environmental Engineering
_	Mechanical engineering	__	Transport Engineering
_	Mines, Oil and Gas	__	Applied engineering science
_	Engineering and Management	__	Engineering systems
_	Computer Science and Information Technology	__	Electronic Engineering and Telecommunication

4. High school graduated: _____ (the name of your high school); _____(high school’ city)
5. Year of high school graduation: _____
6. Admission grade at „Hermann Oberth” Engineering Faculty of Sibiu was: _____
7. Total net income in your family is: _____ lei
8. The number of members of your family: _____
9. Gender: ☐Female ☐Male

10. What are your expectations now, at the beginning of "student life" at the Faculty of Engineering "Hermann Oberth" of Sibiu?

_____

_____

Thank you and we wish you success!

Evaluation of customer requirements using optimal control

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Abstract

Purpose – The main purpose of the paper is the FAHP`s improvement by fuzzy numbers that result from optimal control problem' solution.
Methodology/approach - Our research is based on an optimal control procedure with mobile extremity corresponding to a problem of requirements engineering.
Findings –Taking into account the requirements engineering theory, the dynamic system Nerlove-Arrow is associated with initial conditions at t=0 and final conditions at t=t*.
Research limitations/implications –*T*he application of neural fuzzy network, without taking into account of a correlation study between the product costs and time minimization is not a most performing approach.
Practical implications – Therefore, the study regarding the correlation between the product costs and customer requirements supposes the introduction of a maximum time interval [0,T] and in this interval realizes the product development, a function x(t), which characterizes the best approach of product realization, a function y(t), representing the cost at the moment t, a function u(t) called control function.
Originality/value – The mathematical model of a requirements engineering problem in which the mathematic phenomenon is an optimal control problem that include a fuzzy approximation model by neural fuzzy network constitutes an original procedure.

Key words: customer requirements, optimal control, requirements engineering

Introduction

The application of this research for solving a problem of requirements engineering in absence of a numerical procedure, for example, of a neural fuzzy network, it has no purpose. However, reverse, the application of neural fuzzy network without taking into account of a correlation study between the product costs and the satisfaction with maximum accurate of customer requirements, process realized without taking into account time minimization is not a most performing approach. This because the fuzzy theory has a random character and the approximation rank, the fuzzy number determination rank and of the membership function are realized taking into account only the researcher experience. We starting this study with the dynamic system proposed by Nerlove and Arrow (1962) and the future generalizations of this system, proposed by Buratto and Viscolani (2002) regarding some dynamic process in general theory of marketing that includes the requirements engineering too. In this system we introduced a maximum time interval [0,T] and in this interval realize the product development, a function *x(t);* $t \in [0,T]$, which characterizes the best approach of product realization to the proposed customer requirements, called the approximation function of the requirements, measured in percents, a function *y(t);* $t \in [0,T]$, representing the cost at the moment *t*, a function *u(t);* $t \in [0,T]$, called control function, representing the investment rate, supplying *y(t)* at the moment *t*.

The optimal control problem in this context is to determine the control function *u(t)* and the optimal trajectory Γ^*, generated by the pair $(x^*(t), y^*(t))$, thus that the product developments time to be minimum, denoted by $t^*, t^* \le T$. Taking into account the requirements engineering theory [Socaciu and Blebea (2009),Young (2004)], the dynamic system Nerlove and Arrow (N-A) is associated with initial conditions at $t = 0$ and the final conditions, at $t = t^*$. At the initial moment $t = 0$ we suppose $x(0) = 0$ and $y(0) = 0$. At the final moment $t = t^*$ we propose in the first approximation that the final costs are known and we denote by y^*, so the costs function is $y(t^*) = y^*$. For the requirements approximation function $x(t)$, we proposed that at the moment t^* to belong of an interval $[x_1, x_2]$, so $x(t^*) \in [x_1, x_2]$. These assumptions are suitable for a product development process subjected to a customer requirements system, a requirements system regarding the product design and other characteristics. Observe that $z = x(t^*), z \in [x_1, x_2]$ is a maximum value of requirements approximation. If record $f(z) = x^*(x^{-1}(z))$, then to determine the best value of $x(t^*)$ we are lead to $\max_{x_1 \le z \le x_2} f(z)$ that is we have to solve a maxi(max) problem. Finally, using the curve Γ^* we can appreciate that it is giving us a good mathematical evaluation of requirements engineering phenomenon if $x^*(t)$ and $y^*(t)$ are in good correlation. This good correlation is realized if the slope of the tangent in each point of the curve Γ^* is not too different from unity, that is $m \in (1-\varepsilon, 1+\varepsilon)$, where $\varepsilon > 0$ is small enough, and $m = tg\alpha$, α is the angle of the tangent to Γ^*.

The construction of optimal control problem

The dynamic system, that the triplet of functions $(x(t), y(t), u(t))$ must verify, presented in the introduction was proposed by Nerlove and Arrow in 1962 and generalized later [Potra et al. (2005)]. In this paper we'll use this generalization and because of this reason we'll denote by (N-A). The vectorial form of this system is given by: $\begin{pmatrix} x^{\cdot} \\ y^{\cdot} \end{pmatrix} = \begin{pmatrix} f_1 \\ f_2 \end{pmatrix}$ where: $\begin{cases} f_1(t,x,y,u) = \lambda u^{\alpha}(t) - \mu x(t) \\ f_2(t,x,y,u) = u(t)e^{-\upsilon t} \end{cases}$, $\alpha, \lambda, \mu, \upsilon$ being real parameters and their signification will present further. In order to formulate the optimal control problem, a specification of necessary restrictions about the elements from $\begin{pmatrix} x^{\cdot} \\ y^{\cdot} \end{pmatrix} = \begin{pmatrix} f_1 \\ f_2 \end{pmatrix}$ is compulsory. For this reason suppose given the followings:

- a maximum time interval in that a product can be realized, satisfying in a given proportion by $x^*(t)$ of the requirements, let that be $[0, T]$, that is $T > 0$.
- an interval $[0, u_0]$, including the control function $u(t)$, $t \in [0, T]$, so $u(t) \in [0, u_0]$, $\forall t \in [0, T]$.
- an interval $[x_1, x_2] \subset \Re_+$, so $0 \le x_1 \le x_2$, interval proposed in that at the final moment $t = t^*$, $x^*(t^*) \in [x_1, x_2]$. This interval defines the mobile extremities of the optimal trajectory.
- a maximum value of the expenses, denote by $\bar{y} > 0$, that is at the final moment t^*, $y^*(t^*) = \bar{y}$.

With this given elements, the optimal control problem is: to determine the optimal control function $u^*(t)$, $t \in [0, T]$, $0 \le u(t) \le u_0$, $\forall t \in [0, T]$ at left side half-continuous and the optimal trajectory: $\Gamma^* = \{(x = x^*(t), y = y^*(t)), t \in [0, t^*]\}$ such that $t^* \le T$ to be the maximum time within that the whole system of product development proposed by the customer requirements proceeds. Moreover, the functions $x^*(t), y^*(t)$ satisfy the conditions $x^*(0) = y^*(0) = 0$ and the triplet (x^*, y^*, u^*) verifies $\begin{pmatrix} x^{\cdot} \\ y^{\cdot} \end{pmatrix} = \begin{pmatrix} f_1 \\ f_2 \end{pmatrix}$. Consequently, the optimal trajectory Γ^* is a smooth curve, starting with the point $0(0,0)$ and draws up to the mobile point $M(z, \bar{y}) z = x^*(t^*), z \in [x_1, x_2]$. The graph of this optimal trajectory Γ^* for this optimal control problem is given in figure 1. Over the constants $\alpha, \lambda, \mu, \upsilon$ we impose the conditions: $\alpha \in (0,1)$; $\lambda, \mu, \upsilon > 0$. The constants λ, μ, υ have the following significations:

- λ represents the coefficient, that shows the increasing or decreasing influence of the control function $u(t)$, determined by the increasing or decreasing of the approximate function $x(t)$ of the requirements.
- μ is the coefficient indicating the degradation of $x(t)$.
- υ is the exponential coefficient, making the balance of development costs by the function $y(t)$,

the balance expressed by the control function $u(t)$, such that there is a correlation mentioned in the introduction of this paper.

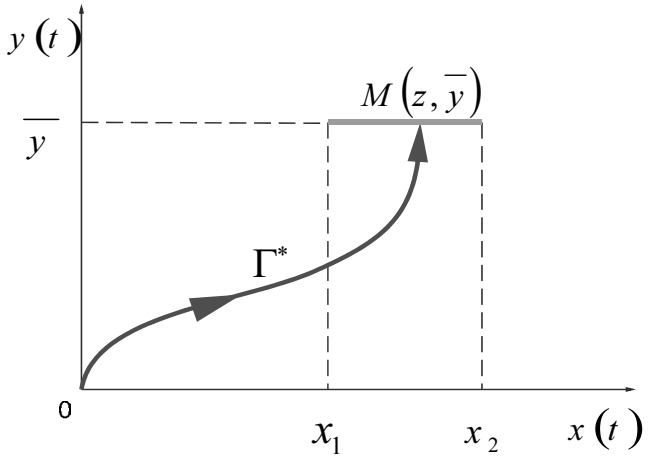


Fig. 1: The optimal trajectory Γ^*

Having available these four parameters $\alpha,\lambda,\mu,\upsilon$ with their significations, they will be used such that the final mathematical model satisfies as good is possible the customer requirements and the product development to be realized in the possible minimum time. We'll use the "Pontryagine`s maximum principle" to solve this optimal control problem.

The construction of Hamiltonian and transversality conditions

Define the Hamilton's function, denoted by H, as following: $H(\psi_1,\psi_2,x,y,u)=\psi_1 f_1+\psi_2 f_2$ where ψ_1 and ψ_2 functions composing the solution of Hamilton system: $\begin{cases}\frac{d\psi_1}{dt}+\psi_1\frac{\partial f_1}{\partial x}+\psi_2\frac{\partial f_2}{\partial x}=0\\ \frac{d\psi_2}{dt}+\psi_1\frac{\partial f_1}{\partial y}+\psi_2\frac{\partial f_2}{\partial y}=0\end{cases}$. In our case becomes: $\begin{cases}\frac{d\psi_1}{dt}-\mu\psi_1=0\\ \frac{d\psi_2}{dt}=0\end{cases}$ and the general solution is: $\begin{cases}\psi_1=k_1e^{\mu t}\\ \psi_2=k_2\end{cases}, t\in[0,T]$. With these results the Hamiltonian becomes: $H(t,x,y,u)=k_1e^{\mu t}\left(\lambda u^{\alpha}(t)-\mu x(t)\right)+k_2u(t)e^{-\upsilon t}$ there $k_1,k_2\in\Re$ are the integration constants. The transversality condition we formulate as follows: if $\Omega\subset\Re^2$ is a bounded domain with smooth border, $\partial\Omega$ containing the mobile extremity of the optimal trajectory Γ^*, if $T_{\partial\Omega}$ is the tangent to the frontier at a certain point of this, then the transversality condition in this case is: $<\vec{\psi}(t^*),\vec{w}-(x(t^*),y(t^*))>=0,\forall\vec{w}\in T_{\partial\Omega}$ where $\vec{\psi}=\psi_1\vec{i}+\psi_2\vec{j}$, $\vec{w}=w_1\vec{i}+w_2\vec{j}$, $(x(t^*),y(t^*))=x(t^*)\vec{i}+y(t^*)\vec{j}$. Note that in this case: $\Omega=\partial\Omega=\left\{(x,y)\in\Re^2\middle|x\in[x_1,x_2],y=\overline{y}\right\}$ that is, the segment determined by the points $A_1\left(x_1,\overline{y}\right)$ and $A_2\left(x_2,\overline{y}\right)$. Consequently, $T_{\partial\Omega}$ is the line containing A_1 and A_2. Because $\vec{w}\subset A_1A_2$ it follows that $\vec{w}=z\vec{i}+\overline{y}\vec{j}, z\in\Re$. The scalar product becomes: $<\vec{\psi}(t^*),\vec{w}-(x(t^*),y(t^*))>=\psi_1(z-x(t^*))+\psi_2\left(\overline{y}-y(t^*)\right)$. But, if we take into account that $y(t^*)=\overline{y}$ it becomes: $(z-x(t^*))\psi_1=0,\forall z\in\Re$ and this implies $\psi_1=0$, equivalent with $k_1=0$. This result leads to: $H(\psi_1,\psi_2,x,y,u)=\psi_2f_2=k_2u(t)e^{-\upsilon t}$. Maximizing the Hamiltonian, considered in variable $u=u(t)$ and using the Pontryagine's maximum principle we can conclude that $u(t)=u_0$ if we take $k_2>0$. In conclusion, we have a single control function and coincide with the maximum constant value of the control function, so: $u(t)=u_0,t\in[0,T]$

The minimum time t^* and the optimal trajectory Γ^*

If we take into account $u(t)=u_0,t\in[0,T]$, then the system $\begin{pmatrix}x'\\ y'\end{pmatrix}=\begin{pmatrix}f_1\\ f_2\end{pmatrix}$ becomes: $\begin{cases}x'+\mu x=\lambda u_0^{\alpha}\\ y'=u_0e^{-\upsilon t}\end{cases}$. This system contains two linear equations, integrating this system we obtain its general solution:

$\begin{cases} x(t) = C_1 e^{\mu t} + \frac{\lambda u_0^{\alpha}}{\mu} \\ y(t) = C_2 - \frac{u_0}{\upsilon} e^{-\upsilon t} \end{cases}, t \in [0,T]$ the initial conditions at $t = 0$, $x(0) = 0$ and $y(0) = 0$, gives:

$\Gamma: \begin{cases} x(t) = \frac{\lambda u_0^{\alpha}}{\mu}(1 - e^{-\mu t}) \\ y(t) = \frac{u_0}{\upsilon}(1 - e^{-\upsilon t}) \end{cases}, t \in [0,T]$. From the final condition, $t = t^*$, $y(t^*) = \overline{y}$ results: $t^* = \frac{1}{\upsilon} \ln \frac{u_0}{u_0 - \overline{y}\upsilon}$ under the assumption: $\upsilon \in \left(0, \frac{u_0}{\overline{y}}\right)$.The condition $x(t^*) \in [x_1, x_2]$ leads to: $x^*(t^*) = \frac{\lambda u_0^{\alpha}}{\mu}\left[1 - \left(\frac{u_0 - \overline{y}\upsilon}{u_0}\right)^{\frac{\mu}{\upsilon}}\right] \in [x_1, x_2]$

and $\Gamma^*: \begin{cases} x(t) = \frac{\lambda u_0^{\alpha}}{\mu}(1 - e^{-\mu t}) \\ y(t) = \frac{u_0}{\upsilon}(1 - e^{-\upsilon t}) \end{cases}, t \in [0,t^*]$ where $\begin{cases} u^*(t) = u_0, t \in [0,t^*] \\ t^* = \min\{t\}, t \le T, t^* = \frac{1}{\upsilon} \ln \frac{u_0}{u_0 - \overline{y}\upsilon} \end{cases}$. The assumption $t^* \le T$ is equivalent with: $\frac{u_0}{u_0 - \overline{y}\upsilon} \le e^{\upsilon T}$. If we denote $\lambda = z$, that implies: $x^*(t^*) = mz$, where $m > 0$ is given by: $m = \frac{u_0^{\alpha}}{\mu}\left[1 - \left(\frac{u_0 - \overline{y}\upsilon}{u_0}\right)^{\frac{\mu}{\upsilon}}\right]$. Observe that $x^*(t^*)$ is a strictly increasing function of variable $z \in \Re_+$ reaches its maximum for: $mz = x_2, z = \frac{x_2}{m}$. This shows that the parameter λ from the government law (N-A) in this case has a precise value: $\lambda = \frac{\mu x_2}{u_0^{\alpha}}\left[1 - \left(\frac{u_0 \overline{y}\upsilon}{u_0}\right)^{\frac{\mu}{\upsilon}}\right]^{-1}$. In this way we solved the maxi (max) problem and the mobile extremity was fixed.

Fuzzy approach of the problem

In the assumption of a vector that contains a set of customer requirements, noted with: $C = (C_1, C_2, ..., C_N)$ and the fact that these requirements can be regrouped into two classes of requirements, to reflect the best approach to product development, and other reflects production costs of the specified products; we can realize a fuzzy AHP scheme for requirements (figure 2) [Socaciu and Blebea (2009,2011)]. Fuzzy AHP approach assumes the existence of two classes of fuzzy numbers that are assigned to the requirements of the two classes. For this purpose we use the function x(t), $t \in [0,t^*]$for the first class, and y(t), $t \in [0,t^*]$ for the class of costs. Construction of two classes of fuzzy numbers is possible because the function x(t), respectively y(t) together form the solution of optimal control that optimizes the development process of these products. Both functions are strictly concave, so it can construct fuzzy membership functions.

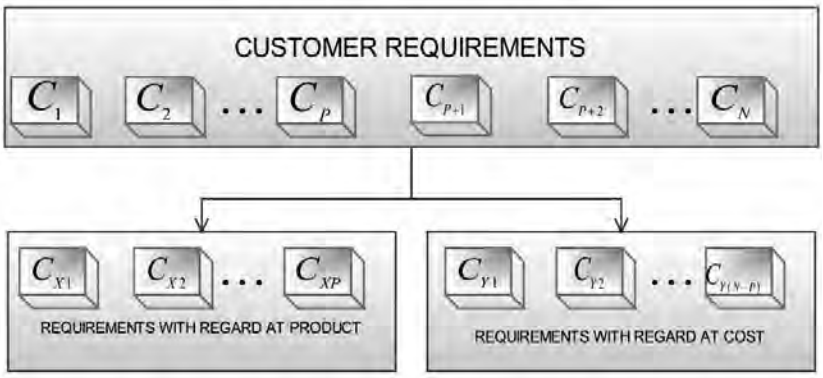


Fig.2: Fuzzy AHP scheme for requirements

We denote by $\mu(t)$ the membership function, what coincides with x(t) or y(t) as appropriate. Note that $\mu(t)$ is concave, so the fuzzy numbers of cut can be constructed for t>0. Let be (μ_k) a uniform network of [0,1]: $\mu_k = h \cdot k$. The step h>0 is taken thus that it respects the values of $\mu(t) \le 1$. Using this network we obtain the fuzzy numbers $I_{k,h}$, given by: $I_{k,h} = [t_k, t_{k+1}]$ where t_k has the form:

$t_k = -\frac{1}{\mu}\ln\left(1-\frac{\mu\cdot k\cdot h}{\lambda\cdot u_0^{\alpha}}\right)$ if $\mu(t)=x(t)$, and $t_k = -\frac{1}{\gamma}\ln\left(1-\frac{k\cdot\gamma\cdot h}{u_0}\right)$ if $\mu(t)=y(t)$. Notice that the sensitivity of fuzzy process proceeds from the fact that the fuzzy numbers are generated by the solution of control problem. Thus we obtain the optimization of the three conditions from the general theory, namely: quality; costs and time of the products design and development`s process. Figure 3 shows the geometric image of fuzzy number of cut, $I_{k,h}$. Using an embedding of $I_{k,h}$ fuzzy numbers into $\Re$, by convex combination $\tilde{I}_{k,h}$, where: $\tilde{I}_{k,h}=(1-\alpha)\cdot t_k+\alpha\cdot t_{k+1}, \alpha\in(0,1)$ we obtain the defuzzification.

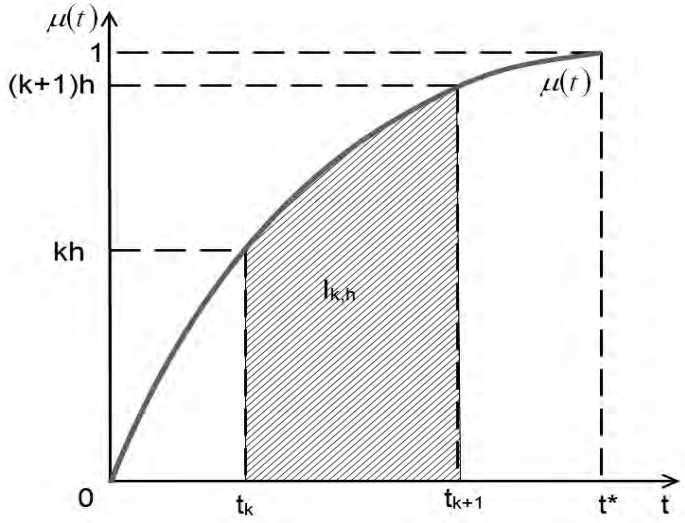


Fig. 3: Geometric image of fuzzy number $I_{k,h}$

Numerical example

The fuzzy numbers construction based on the solution of optimal control, with transversality conditions is realized as follows: from the $t_k = -\frac{1}{\mu}\ln\left(1-\frac{\mu\cdot k\cdot h}{\lambda\cdot u_0^{\alpha}}\right)$ we obtain the extremities of the interval, respectively from $\tilde{I}_{k,h}=(1-\alpha)\cdot t_k+\alpha\cdot t_{k+1}, \alpha\in(0,1)$ we obtain the convex combination and using these combinations we determine the five embeddings of the fuzzy numbers $I_{k,h}$ into $\Re$. In this case the embedding into $\Re$ we`ll realize in the middle of the $I_{k,h}$ interval, that corresponds of hypothesis that $\alpha = 1/2$, so $\tilde{I}_{k,h}$ becomes: $\tilde{I}_{k,h}=\frac{1}{2}(t_k+t_{k+1})$. The five standard fuzzy numbers we`ll use in the applications, are: $I_{1,h}, I_{2,h}, I_{3,h}, I_{4,h}, I_{5,h}$. The embedding of these five fuzzy numbers into $\Re$ are: $e_1=\frac{1}{2}(t_1+t_2)$, $e_2=\frac{1}{2}(t_2+t_3)$, $e_3=\frac{1}{2}(t_3+t_4)$, $e_4=\frac{1}{2}(t_4+t_5)$, $e_5=\frac{1}{2}(t_5+t_6)$ .Taking into account $t_k = -\frac{1}{\mu}\ln\left(1-\frac{\mu\cdot k\cdot h}{\lambda\cdot u_0^{\alpha}}\right)$, the five embedded fuzzy numbers are: $\tilde{I}_{1,h}=-\frac{1}{2\mu}\ln\left(1-\frac{\mu h}{\lambda u_0^{\alpha}}\right)\left(1-\frac{2\mu h}{\lambda u_0^{\alpha}}\right)$, $\tilde{I}_{2,h}=-\frac{1}{2\mu}\ln\left(1-\frac{2\mu h}{\lambda u_0^{\alpha}}\right)\left(1-\frac{3\mu h}{\lambda u_0^{\alpha}}\right)$, $\tilde{I}_{3,h}=-\frac{1}{2\mu}\ln\left(1-\frac{3\mu h}{\lambda u_0^{\alpha}}\right)\left(1-\frac{4\mu h}{\lambda u_0^{\alpha}}\right)$, $\tilde{I}_{4,h}=-\frac{1}{2\mu}\ln\left(1-\frac{4\mu h}{\lambda u_0^{\alpha}}\right)\left(1-\frac{5\mu h}{\lambda u_0^{\alpha}}\right)$, $\tilde{I}_{5,h}=-\frac{1}{2\mu}\ln\left(1-\frac{5\mu h}{\lambda u_0^{\alpha}}\right)\left(1-\frac{6\mu h}{\lambda u_0^{\alpha}}\right)$. Using the general cases given by $t_k = -\frac{1}{\mu}\ln\left(1-\frac{\mu\cdot k\cdot h}{\lambda\cdot u_0^{\alpha}}\right)$ we can study particular cases, that helps us to validate the more performant results obtained by Fuzzy Analytic Hierarchy Process (FAHP), regarding both of the pessimistic and optimistic phase`s evolution. These two situations are obtained corresponding to $\alpha\in(0,1/2)$, respectively $\alpha\in(1/2,1)$. We choose from this case study the middle of the interval, $\alpha = 1/2$, that is the smallest pessimistic, respectively the smallest optimistic case. The same reasoning as concerns the possibilities of researching the FAHP phenomenon`s evolution can be realized if we particularize the constants μ,λ and u_0 of the optimal control problem. In this case we obtain standard evidences we work with, for μ,λ

and u_0 given in table 1. If the membership function $\mu_A(t)$ refers to abscissa x(t), that is: $\mu_A(t)=x(t)$ then, $t_k=-\frac{1}{\mu}\ln\left(1-\frac{\mu\cdot k\cdot h}{\lambda\cdot u_0^{\alpha}}\right)$, $\alpha\in(0,1),\lambda>0,h>0$, h is the network `step, $\mu>0$ is the initial control.

Table 1
The numerical data of the constants

$h=1/2^n$	$\alpha=1/2$
$u_0=1$	$t^*=12\ln 3$
$\lambda=2$	$\bar{x}=2^n$
$\mu=1/20$	$\bar{y}=2^n$
$\upsilon=1/20$	$n=2$

This choice of the constants supposes that these constants verify the conditions of the theory. Therefore we have: $t_k=-20\ln\left(1-\frac{k}{40}\right), k=1,2,3,4,5$. Notice that $t_k>0$ and $t_k<t^*$. We are acting the same way if the membership function $\mu_A(t)$ refers to the ordinate y(t), that is: $\mu_A(t)=y(t)$. In this case: $t_k=-\frac{1}{\upsilon}\ln\left(1-\frac{k\upsilon h}{u_0}\right)$ .For this case we keep the data from table 1 specifying that $\upsilon=\mu=1/20$. Therefore, we have: $t_k=-20\ln\left(1-\frac{k}{80}\right), k=1,2,3,4,5$ and we also have $0<t_k<t^*$. With these numerical results we obtain the canonical embedded fuzzy numbers: $\tilde{t}_k(x)=20\ln\left(\frac{1600}{(40-k)(39-k)}\right)$, $k=1\div 5$ for the function x(t), respectively: $\tilde{t}_k(y)=20\ln\left(\frac{6400}{(80-k)(79-k)}\right)$ in the case of the function y(t). The first case is for the best approach of the product development. Using formula $\tilde{t}_k(x)=20\ln\left(\frac{1600}{(40-k)(39-k)}\right)$ and $e_1=\frac{1}{2}(t_1+t_2)$, $e_2=\frac{1}{2}(t_2+t_3)$, $e_3=\frac{1}{2}(t_3+t_4)$, $e_4=\frac{1}{2}(t_4+t_5)$, $e_5=\frac{1}{2}(t_5+t_6)$ we obtained the data presented in table 2.

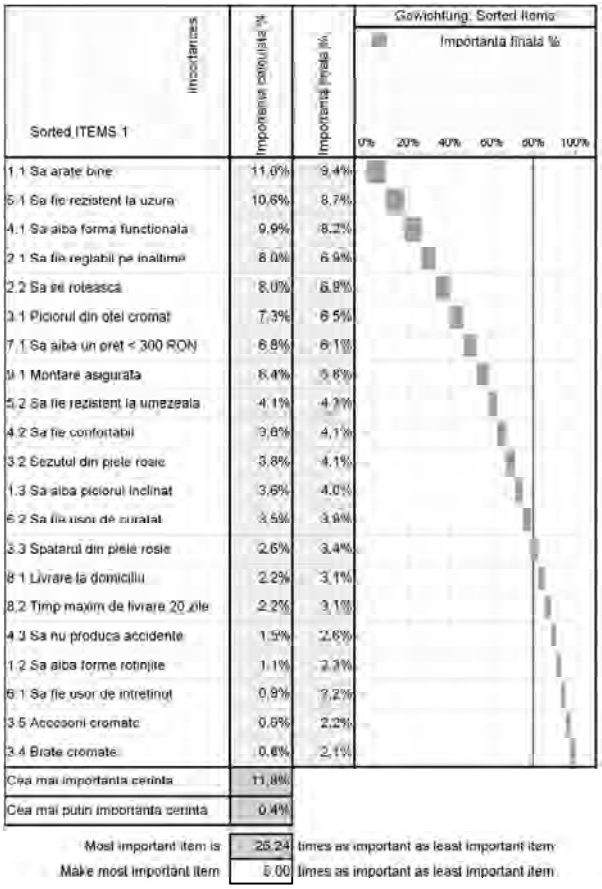
For determining the global weights for requirements, we apply a FAHP algorithm; the results are presented in figure 4. The second case is for production costs of the specified products in the requirements. Using formula $\tilde{t}_k(y)=20\ln\left(\frac{6400}{(80-k)(79-k)}\right)$ and $e_1=\frac{1}{2}(t_1+t_2)$, $e_2=\frac{1}{2}(t_2+t_3)$, $e_3=\frac{1}{2}(t_3+t_4)$, $e_4=\frac{1}{2}(t_4+t_5)$, $e_5=\frac{1}{2}(t_5+t_6)$ we obtained the data from table 3. The global weights obtained with FAHP are presented in figure 5.

Table 2
The value for $e_n(x)$ and $e_n^{-1}(x)$

$e_0=e_0^{-1}=1$	
$e_1=1{,}5322$	$e_1^{-1}=0{,}6526$
$e_2=2{,}5850$	$e_2^{-1}=0{,}3868$
$e_3=3{,}6664$	$e_3^{-1}=0{,}2727$
$e_4=4{,}7783$	$e_4^{-1}=0{,}2092$

Table 3
The value for $e_n(y)$ and $e_n^{-1}(y)$

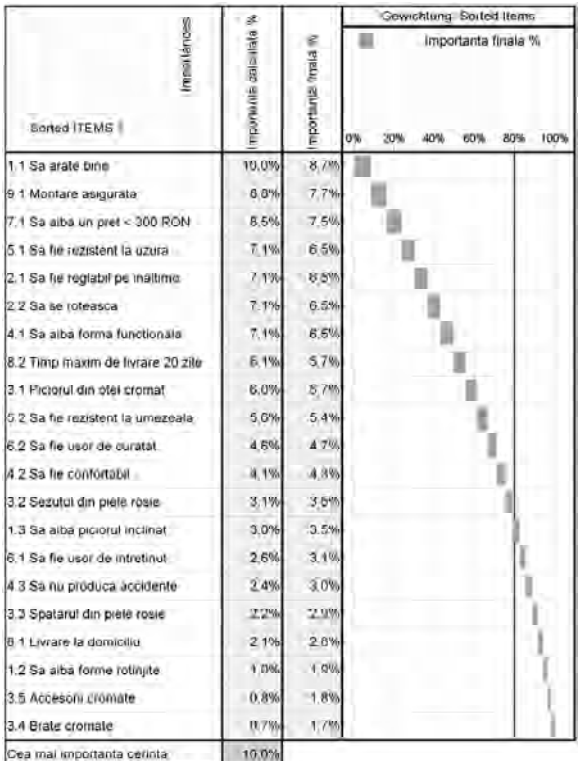
$e_0=e_0^{-1}=1$	
$e_1=0{,}7579$	$e_1^{-1}=1{,}3194$
$e_2=1{,}2707$	$e_2^{-1}=0{,}7869$
$e_3=1{,}7902$	$e_3^{-1}=0{,}5585$
$e_4=2{,}8500$	$e_4^{-1}=0{,}3508$



Sorted ITEMS 1	Importanta calculata %	Importanta finala %
1.1 Sa arate bine	11.0%	9.4%
5.1 Sa fie rezistent la uzura	10.6%	8.7%
4.1 Sa aiba forma functionala	9.9%	8.2%
2.1 Sa fie reglabil pe inaltime	8.0%	6.9%
2.2 Sa se roteasca	8.0%	6.9%
3.1 Piciorul din otel cromat	7.3%	6.5%
7.1 Sa aiba un pret < 300 RON	6.8%	6.1%
9.1 Montare asigurata	6.4%	5.6%
5.2 Sa fie rezistent la umezeala	4.1%	4.7%
4.2 Sa fie confortabil	3.6%	4.1%
3.2 Sezutul din piele roaie	3.8%	4.1%
1.3 Sa aiba piciorul inclinat	3.6%	4.0%
6.2 Sa fie usor de curatat	3.5%	3.9%
3.3 Spatarul din piele rosie	2.6%	3.4%
9.1 Livrare la domiciliu	2.2%	3.1%
8.2 Timp maxim de livrare 20 zile	2.2%	3.1%
4.3 Sa nu produca accidente	1.5%	2.6%
1.2 Sa aiba forme rotunjite	1.1%	2.3%
6.1 Sa fie usor de intretinut	0.9%	2.2%
3.5 Accesorii cromate	0.8%	2.2%
3.4 Brate cromate	0.6%	2.1%
Cea mai importanta cerinta	11.0%	
Cea mai putin importanta cerinta	0.4%	

Most important item is	25.24	times as important as least important item
Make most important item	5.00	times as important as least important item

Fig. 4: The global weights for the case of the best approach to product development



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1.1 Sa arate bine	10.0%	8.7%
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7.1 Sa aiba un pret < 300 RON	8.5%	7.5%
5.1 Sa fie rezistent la uzura	7.1%	6.5%
2.1 Sa fie reglabil pe inaltime	7.1%	6.5%
2.2 Sa se roteasca	7.1%	6.5%
4.1 Sa aiba forma functionala	7.1%	6.5%
8.2 Timp maxim de livrare 20 zile	6.1%	5.7%
3.1 Piciorul din otel cromat	6.0%	5.7%
5.2 Sa fie rezistent la umezeala	5.0%	5.4%
6.2 Sa fie usor de curatat	4.6%	4.7%
4.2 Sa fie confortabil	4.1%	4.8%
3.2 Sezutul din piele rosie	3.1%	3.5%
1.3 Sa aiba piciorul inclinat	3.0%	3.5%
6.1 Sa fie usor de intretinut	2.6%	3.1%
4.3 Sa nu produca accidente	2.4%	3.0%
3.3 Spatarul din piele rosie	2.2%	2.9%
9.1 Livrare la domiciliu	2.1%	2.6%
1.2 Sa aiba forme rotunjite	1.0%	1.6%
3.5 Accesorii cromate	0.8%	1.8%
3.4 Brate cromate	0.7%	1.7%
Cea mai importanta cerinta	10.0%	
Cea mai putin importanta cerinta	0.7%	

Most important item is	15.09	times as important as least important item
Make most important item	5.00	times as important as least important item

Fig. 5: The global weights for the case of production costs of the specified products

Conclusion

The (N-A) dynamic system contains the free parameters $\alpha, \lambda, \mu, \upsilon$, but we can observe that applying the Pontryagine's maximum principle some of these parameters must satisfy certain conditions. The rest of free parameters can be used to be choosen thus that the mathematic model corresponds to the product type (category of products) for what a set of requirements are proposed and what will be developed.

The numerical model doesn't necessary refers to a given product; it has the mission to shows how this procedure is applied. From the graph, given in figure 1 we can see that the tangent at Γ^* in any point has its slope value close to unity. This property proves that such a model produces a good correlation between the product development costs and an accurate customer requirements approximation that is the increasing requirements approximation is directly proportional with the cost increase. The maxi(max) problem appeared in the moment when the local maximum of the approximation function at the final moment $t = t^*$ is not unique. Consequently, to find the biggest maximum was a natural requirement.

Finally, we mention that the existence and uniqueness of the control problem solution, results from the deduction of the solution itself. Using the solution of the control problem we constructed fuzzy numbers that directly include the qualities of customer requirements. The chosen model for fuzzy numbers it`s not unique, but we consider that it`s the more possibly natural. Applying FAHP observe that the obtained weights are considerably close to that obtained by classical AHP.

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Capitalizing on the Potential of the University-Alumni Relationship[1] in Romania

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Abstract

Purpose *– By building on the existing practices in the university - alumni relationship management the paper proposes an integration of this experience into a number of tools for its instutionalization, aiming for a better capitalization on the high potential of this relationship.*
Methodology/approach *– The study combines a survey of the literature and of the websites of a large number of universities worldwide, with research on the current practices of managing the university - alumni relationship in the Romanian academia views.*
Findings *– It appears that universities that value their alumni and maintain active links with them benefit from a diversity of resources that stem from such a relationship, which can help them prevent or overcome crises, and strengthen their potential.*
Research limitations/implications *– Being a theoretical, conceptualizing approach, even if based on existing practices, the proposal may still be subject to further developments.*
Practical implications *– If the university - alumni connection is well established and effectively managed, a university can better mitigate risks and put opportunities to work in order to improve its sustainability, avoiding or able to overcoming crises.*
Originality/value *– Looking at ways to instutionalize the management of the alumni potential at the university level is a fresh approach, and rather new to Romania.*

Key words: *alumni management institutionalization*

Introduction

Alumni represent a strategic resource [Stefanescu, Candea and Candea, 2009] for a university's competitive advantage [Stefanescu, Candea and Candea, 2010a]. Institutionalizing the university – alumni relationship management [Stefanescu, Candea and Candea, 2011] can give universities tools for an improved capitalization of their alumni potential and enhance their sustainability [Stefanescu, Candea and Candea, 2010b].

Investigating in the alumni potential for the university, it results that alumni roles may include:

- ***Customers***: to the extent that a) – they would continue with graduate studies, further education, master's or doctoral degrees at the same university; b) – as professionals, they contract various expert assistance services, that the alma mater can provide to persons or institutions; c) – they may commission research projects to the university;
- ***Consumers***: especially as parents of the children attending the same university, or as beneficiaries of activities on the campus, or of the facilities provided by the mother university to its graduates and their associates;
- ***Suppliers***: of information from the labor market; of feed-back for the improvement of the university curricula; of topics and venues for student work experience and study projects for their final dissertation, master or doctoral degree; research activities;

[1] My special thanks to Mr. and Mrs. Professors Candea Dan and Rodica, from the Technical University of Cluj-Napoca for guiding my scientific research, the constant support provided and the reviewing of this paper.

- ***Human resource***: in the sense of providing mentoring – to the students; contributions to innovation and creativity, even various forms of cooperation on mother university projects;
- ***Donors***: of financial contributions; of goods; of volunteer work;
- ***Marketers***: both in the sense of market research and in promoting and attracting new "customers" and suggesting new directions for university services and its development;
- ***Supporters***: of university actions, values and image in society;
- ***Interface***: in university relations with other sectors and powers in society and in creating partnerships, including for international expansion;
- ***Investors***: direct investors, if they become shareholders, but also moral-emotional investors, bound by their belonging to the institution that trained them and helped define their personality, profession and character;
- ***Community***: with the growing number of university graduates, they become numerous members, some prominent figures, other even spokespeople, or leaders in society.

At this level, the alumni in general, as higher education graduates, may also include, for the academic environment, the categories of: *employees* – to the extent that they stay to teach at the university; even potential *competitors* – if they start their own universities; while, as simple members of society, of course, become *civil society*, and get involved in NGOs and, on the other hand, they may become *leaders* – both political and business leaders, or leaders of public services, etc.

It then follows that alumni are, in fact, **strategic stakeholders** [1] **of the university**.

Along these lines, the university – alumni relationship has, apart from the competitive advantage that alumni resources can provide to the university indefinitely, i.e. a pathway to sustainability, a social-strategic responsibility dimension for the university. Depending on the number of higher education candidates the university manages to attract, and on how well it trains them for the needs of society, the alumni community may come to represent a key factor in helping it embark on the path of sustainable development.

It is very important, therefore, that, beyond maintaining certain quality standards in education, the university should capitalize on its alumni resources strategically. In this sense, instutionalizaton of the university – alumni relationship can provide landmarks, a mechanism and tools to improve the process.

Current Practice in Managing the University – Alumni Relationship

The study of alumni management practices in the world Top 500 universities[2] indicates that the university – alumni relationship is achieved, as a rule, by an interface system: a person, or an organizational structure. Thus, effective managerial links between the alma mater and its alumni community is provided by:

- the presence of one or more representatives of the university (designated by its Senate), on the management board of the Alumni Association;
- the presence of one or more representatives of the Alumni Association managers (designated by its General Assembly), on the University Senate, and/ or Executive Management;
- designation of a person, by the University management, or creation of a department, as a communication interface, in charge of supporting alumni initiatives, and of monitoring such activities, in order to ensure observance of the defining values of the university and adequately promote them;
- the existence of a self-standing Alumni Association, with its own management and placed in a certain relationship with the university, such as partner cooperation/ collaboration;
- designation/ organization of coordination of the alumni community by a dedicated department, on the organizational structure of the University;
- inclusion of the alumni relationship as a task for the University management, as part of its current, global, activities.

In practice, the spectrum of forms and the existence of a university - alumni relationships covers, as shown by experience around the world, all the possible options, ranging from the extremes of: independent organizational existence (of the parties), to absolute managerial integration. It is worth mentioning, however, that the latter, integrated management option is the least frequent, as

well as the latest solution, based on the academic management's growing awareness of the value of the alumni community for the sustainability of the university. In our opinion, this latter option has the greatest chance in correlating the efforts of both parties, with major synergetic effects for both parties, as it provides a consistent strategic approach and maximum efficiency in capitalizing resources.

Institutionalization of the University – Alumni Relationship Management

The establishment, formalization, in the sense of institutionalizing a community/ inter-institutional or inter-community links, is putting together a social order and cooperation structure or mechanism that should regulate the behavior of a group of individuals [Stanford Encyclopedia of Philosophy, 2011]. Once created, such structures (the institution and its operating rules) become formalized by legal norms (registration under the law, operating mandates, occupational standards, etc), but also retain features of particular individuality (deriving from the social context and the human specifics of the constituents of that organization (culture, traditions, customs, personality features, knowledge, abilities, etc) [Berger and Luckmann, 1966].

Insititutionalization (of a community or partnership relation), is the process that transposes the code of conduct of an organization, its mission, policies, vision, and strategic plans into guidelines for action applicable to the current activity of the management and its employees, in view of integrating the values and fundamental objectives into the culture and the structure of the organization[3]. Its legitimacy is probably the most important concept for the institutionalization [Meyer and Rowan, 1977; Zucker, 1977; DiMaggio and Powell, 1983; Scott and Meyer, 1983] of a community or partnership relation. Legitimacy is "the perception or general assumption that the actions of an entity are desirable, suitable or acceptable in a system of norms, values, beliefs or definitions of a constructed social system" [Suchman, 1995].

In our attempt to investigate this side of alumni management around the world we found that:

1. In relation to the university - alumni relationship, or the management of the alumni community, only ***two positions*** have been recorded in the *international occupational codes*: *SECRETARY* (for) the alumni and *DIRECTOR* (for) Alumni Relationships [Dictionary of Occupational Titles with O*Net Definitions, 1991].

The respective job descriptions, however, suggest that these positions have to do with maintaining the links with the alumni where alumni associations operate independently. These positions within the university do not define an involvement of the latter into the life of the alumni association, only the concern to maintain a degree of supervision and control, with some extension of help in maintaining good information and concern for the alumni – who are, however, free to do what they like or do nothing. There is no definition or illustration of a management concern or incentives for the alumni community, to the benefit of the university, or for the capitalization of alumni potential.

2. On the Human Resource website of the University of Clafin (USA), there is a *ranking of the categories of university careers*[4], which describes a number of functions of alumni-related activities, the "Administrative Services" Occupational Family, under the "Administrative and Office Support" Group, "Institutional Development" Category lists a number of positions ranging from Alumni Relationships Director to Fundraiser, Events Organizer, Promoter, Network Developer, Communicator, etc.

We think that the level of separation of responsibilities and the narrowness of the involvement sector are noteworthy – indicating, at the same time, the range of attention and care for that area, as well as the thoroughness and professionalism dedicated to this activity, and the amount of work it involves.
Indirectly, just by looking at this occupational list of alumni community management, one can see a range of alumni-related concerns and activities, as well as the range of ways in which they can become a major source of important resources for the university.

3. We found much richer source of (indirect) information on managerial functions regarding alumni community management and/or its relations with the university on the *job offer ads* on recruiter websites.

A specialized website for alumni management job ads[5] lists a wealth of very diverse titles and positions, including: director/ officer/ expert/ coordinator/ consultant/ assistant/ deputy/

administrator/ responsible or manager of volunteers, parents and friends relationships, retired alumni, database operation, significant donor management, marketing, programs, subsidiary relationships, etc. Moreover, it shows the differences between these degrees of responsibility, steps of action and job requirements, including task descriptions and necessary qualifications

Just by studying this source of information, the following issues can be remarked:
- the scope of activity in managing the alumni communities includes a number of concerns
- and a very broad range of responsibilities;
- management hierarchy may include a number of very different steps;
- the recruitment candidates must be almost "over skilled" and rather "super heroes".

The most important skills required, however, irrespective of the position, include communication, persuasion/ motivation and collaboration. This is because, in any area and at any level, what the respective manager/ responsible must achieve is to attract (members, volunteers, supporters, funds, interest, relationships, involvement, enthusiasm, creativity, good will, etc). Or, above all, those persons should be able to provide information and motivational arguments in a credible way. This is why positions that have to do with alumni relationships and the management of this community of resources is appreciated, in many cases, at its true worth, which is highly important and often crucial, even, for the existence and performance of a university. Thus, there is investment in alumni management at very high levels, any of the positions with responsibilities in the field being appreciated as requiring outstanding talent, training, experience and abilities. The management and capitalization of the alumni is often considered a business. The attention and skill in managing it may determine the success of that university, and, thus, contributing to its chance of becoming a brand with strong sustainable prospects.

Our desk research of alumni management institutionalization has revealed that, in universities where alumni capitalization is very well developed, there are also hand-books, guidelines, manuals, instructions, guides, for the various areas of alumni-related activity: how to establish an alumni association, how to organize the attraction of and working with volunteers, how to facilitate and intensify fundraising, what should be the role and responsibilities of the alumni management structure, etc.

However, ***the area of this type of alumni-management related occupations is not itself institutionalized – by function codes and occupational standards***.

For example "Occupational Outlook Handbook"[6], has nothing on alumni-related jobs. Neither does the "International Standard Classification of Occupations - ISCO"[7] contain anything related to alumni.

Considering the expertise and skill requirements for some alumni management-related jobs, the next step in our investigation aimed to identify to what extent dedicated training is provided for the alumni community managers for the various – and so particular - qualifications – and whether they are also accredited – in the sense of providing officially recognized certification. We have found that there are no such training programs.

What does exist is training, similar to that provided to NGOs management, in general, i.e. training sessions of the type of topical workshops, introducing certain theoretical principles, developing certain working skills, providing some knowledge-based experience, debating characteristic issues of a certain activity; they do not take place "in school" – in the sense of training curricula, in an institutionalized framework, and do not result in the issuance of diplomas or certification of knowledge and skills acquired. Thus, in Europe, there are:
- a "Training course for European alumni relations"[8], in fact a two-day session provided by a recruitment consulting company primarily for the academic environment (in France);
- a "Training course portfolio or the alumni" (Fundraising and Development of Alumni Relations; Digital Alumni Relations; etc) provided on-line, by a consulting company, in the area of Online Marketing Training And Consultancy[9] (in UK);
- ("Summer") courses dedicated to alumni (A-Z Alumni Relations) by the EAIE – European Association for International Education forum[10] (in The Netherlands); or
- the offers of CASE – Council for Advancement and Support of Education (a world association of educational institutions) [11] , also promoting the alumni-related areas

(workshop: best practice in alumni relationships[12]; training course: international alumni relations management[13], etc).

Apart from such events, other training resources for self improvement in alumni management include a number of publications, either by universities, or from dedicated websites (CASE, Alumni Futures[14]). Furthermore there are some books, such as: "Alumni Relations: A Newcomers Guide to Success" [Feudo, 1999], or "Alumni: Essential for Development" [Collins, 2000], "Alumni Online Engagement" [Philabaumn, 2008].

Nevertheless, in our point of view, it is because alumni potential capitalization is so important for the sustainability of the university, and so complex and special in nature, we believe that a lot more can be done, in a more programmatic an specialized manner, namely, ***the development of a special alumni management training discipline and related portfolio, with organized and certified courses provision, in an accredited system.***

Particulars of Romania

Investigating the opinion of the members of the Romanian Alumni Associations, of the members of Romanian Students and Graduates Associations at universities abroad, and of the academic leadership in Romania (Presidents, Rectors and/ or Deputy Rectors in the 121 universities in Romania), through field research, on the solutions for success in an efficient capitalization on the alumni potential, we have found that the essential elements include:

- involvement of the university management – preferably by integrating alumni to the university management;
- investment in alumni – in all forms and by all the means possible, in order to provide interest and motivation in supporting the University;
- institutionalization of this concern, by defining a managerial strategy for alumni relations, a strategic development plan for the capitalization of alumni potential and strategic action plan for alumni communication, in order to attract, maintain and develop alumni potential capitalization, in a positive sense – preferably in managerial consistency with the strategy for university sustainability.

Along these lines, we believe that a strengthened and improved institutionalized management of capitalization of alumni community potential and of the university - alumni relations can only be done if these activities become legitimized.
In Romania, as well as abroad, this would mean:

- defining and creating alumni management specific titles in the occupational codes;
- developing and formalizing occupational standards for their certification and evaluation;
- establishing accredited training portfolio at educational institutions for these professions (with everything such education involves: manuals, trainers, formal recognition).

In our opinion, this approach will not only provide better social weight to the recognition of alumni potential and its capitalization, but also support academic management, in organizing this activity in a clearer and more systematic manner. Moreover, such legitimacy and formalization will also emphasize this concern in the sense of strengthening the institutional image of probity, including in strengthening the brand, and increasing its social capital.

Conclusion

Resuming on the above, in our opinion, the best managerial approach in capitalizing on the potential of the alumni community and improving the university – alumni relation is to integrate the alumni community management and its relation with the university with that of the (respective) higher education institution. In other words, ***the management of university – alumni relations must be assumed by the academic leaders!***

We wish to emphasize this statement by reiterating the considerations that:

- the university is the major beneficiary of alumni capitalization, and therefore it would be preferable that it should manage this resource directly, to make it as encompassing, concerted, synergetic and controlled as possible;

- the university is the partner that can access the necessary assets for the initial investment without difficulties, specially in an efficient management of the necessary resources involved;
- as it is the beneficiary of alumni relations, it would be preferable that the university keep records thereof and assess the course of such improvement, in order to be able to take steps; moreover, it is easier to plan both the necessary investment and the direction of the resources thus created in this way by alumni contributions;
- as the university management is directly responsible for defining its institutional responsibility and organizational culture, it would be unconceivable for it to do it without including the issues of its major potential contributors, the alumni community.

It is only thus that the alumni resource may be managed in the most extensive and informed way in supporting the university vision and mission, its crucial role in the society, and for its sustainable development. It is only this way that the university can really count on and have immediate access to the use of its most valuable source of important resources, which can support it, indefinitely, especially at, and through, any difficult times, contributing to and insuring with essential valences the university prospects to sustainability.

Then, legitimization of this relation, in an institutional sense, and of the management of this strategic resource for the university will only strengthen the concern and emphasize it for society, as social responsibility – visibly/ transparently and openly/ accountably assumed.

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Organization in crisis

Pathways to Peace in Jammu & Kashmir: Emerging Paradigms in Conflict Interventions

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Purpose *– To present the fresh insights into the conflict resolution initiatives, regarding the prevailing crisis in Jammu & Kashmir state.*
Methodology/approach *– To make a critical assessment of state and non state agencies involved with conflict resolution within the state as well as between India and Pakistan.*
Findings *– It is possible to seek a peaceful resolution to Kashmir problem by quantifying dividends of peace against the cost of conflict which results in intercine wars, cross border terrorism, ideological regimentation, civilian killings, abduction and rapes.*
Research limitations/implications *– The study is based on secondary sources. Access to the Pakistan Occupied Kashmir was not possible to collect the required information on the issue of conflict resolution.*
Practical implications *–The present paper is expected to flag vital issues for all the mediating agencies to evolve a conceptual framework for conflict resolution ensuring mutual benefits to all the stake holders.*
Originality/value *– The paper attempts to offer a pragmatic approach to conflict resolution processes notwithstanding the ideological, political and fundamentalist posturing taken by different stake holders.*

Keywords: *Conflict Resolution, Threat Analysis, Engagement*

Introduction

Crisis management in the contemporary geo-political environment is the competence of individuals and organizations to formulate such alternate options which meet the often conflicting and competing interest of the different stakeholders. This is expected to mitigate the catastrophic consequences of conflict and violence perpetuated by political, ideological or fundamentalist sweep, being witnessed in India, Pakistan and Afghanistan. Recent events of turmoil and violence being witnessed in these three countries have resulted in civilian killings, abductions, rapes, forced migration, child and women trafficking, ethnic cleansing, armed insurgency, terrorism. In fact human suffering, especially for women and children has been cataclysmic. Consistent with the overall philosophy of managing a crisis with pragmatism is therefore need of the hour. The situation is still alarming and sparks flames in South Asia geo-political heartland majorly because of reminiscent historical incidents.

The recent decades have proved challenging for nations due to emergence and escalation of a wide variety of violent conflicts around the globe. Regardless of the motives, violent conflicts prove disastrous in all aspects- political, socio-cultural and economic. Studies from conflict-affected areas show that the economic reconstruction contributes positively to long-term political harmony. Development process should continue even during the conflict situation and the pace of development can be increased with peace attempts bringing fruits. Necessity of this is basically

due to four reasons: minimize the cost of the conflict; to provide means of survival to the people; to gradually defuse violent situations as, among many other things, poverty and under-development fuel violence in conflict situations; and to avoid the probability of a development vacuum in the post conflict situation to minimize the chances of conflict revival. Increasing globalization, trans-border exchanges and popular acceptance of democratic means for conflict resolution are added fruitfully to this discourse. And Kashmir is no exception to this. This emerging scenario appropriately fits into the discourse on Kashmir conflict that is quite complex. This conflict is pronounced as one of the most complicated situation wherein on the one side two nuclear powers are involved and on the other side the people of the Kashmir valley in the Indian state of Jammu and Kashmir (J&K) developed alienation against the Indian federal rule. The current scenario in Kashmir, taking into account its recently gained peace capital, can be utilized to stimulate development in the region with the help of private investors, voluntary organizations and international donors. The ongoing peace process has created a space in which both peace moves and development activities can go simultaneously. The development of the region can act as a deterrent against violence since violence has not only affected development of the state but also has brought innumerable losses for both India and Pakistan and the people of Kashmir. In the era of globalization when political issues are guided by the economic imperatives, it is necessary to bring the same realization into Kashmir. This would likely steer the ongoing peace process further and help realize a peaceful solution of the Kashmir issue (Seema Shekhawat, 2009)

Threats to the Conflict Resolution Process in Jammu & Kashmir

Internal Threats

Indigenous Armed Groups: Acts of terrorism have been defined as a systematic and persistent strategy practiced by a state or political group against another state or group through a campaign of acts of violence to achieve political, social or religious ends (Pizam & Smith, 2000). A virulent anti-India campaign was launched in the seventies followed by an indoctrination process of Kashmiri youth to create pro– Pakistan cadres. By the end of 1987, the independence agenda of the JKLF was sidelined and a pro-Pakistan movement emerged in the Valley mainly supported by Jamaat-e-Islami (Kashmir) [JEI-K] and militant cadres of Hizb-ul-Mujahideen. The armed groups operating in J&K depended mainly on the Inter-Services Intelligence (ISI) for training, weapon systems, communications, safe havens and financial support**.**

Youth Alienation: The major challenge that the state is facing today is an alarming and inflated unemployment rate in youth. The disengagement and alienation of youth remains an easy target for extremist recruitment.

Fundamentalist Regimentation: One of the major causes of the Kashmir conflict is the unequal distribution of economic prosperity within the state. A significant number of youths were driven to radicalization and terrorism due to poverty and lack of opportunities. This situation has been exploited by Pakistan and the extremist organization to their strategic advantages.

Marginalization of Rural Areas: Rural poverty and widespread relative deprivation among rural population remains another imminent threat. Rural life remains untouched by the benefits of enlightenment and globalization and can become a fertile breeding ground for violent behaviors because of educational deficits.

Human Rights Violations: Claims of human rights abuses have been made against the armed forces and the armed insurgents operating in Jammu and Kashmir. A 2005 study conducted by Médecins Sans Frontières found that Kashmiri women are among the worst sufferers of sexual violence in the world.

External Threats

International Terror Nexus: The terrorist network and infrastructure has intermestically proliferated and the links between the vested interest groups and their sponsors across the

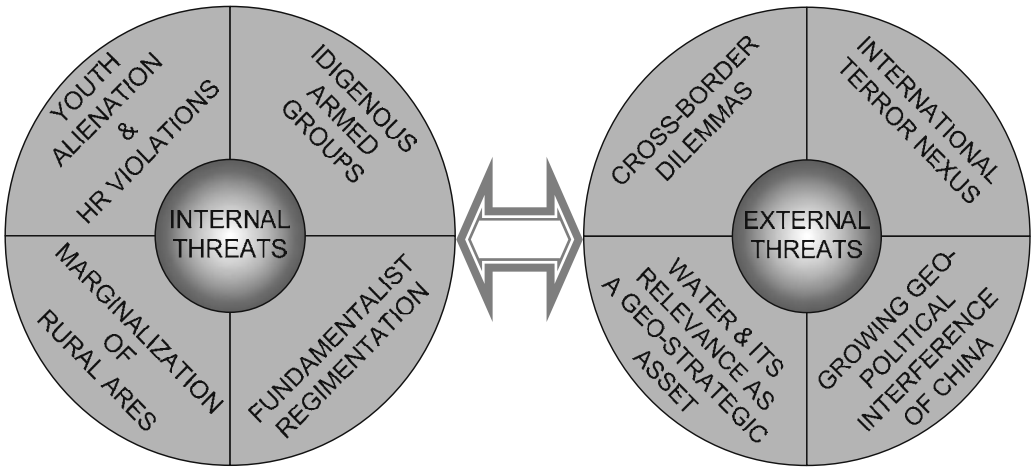
border are firmly established. The vicious network has now emerged as a full scale industry on the lines of illegitimate arms trade. The present crisis is perpetuated and intensified by vested interest groups as it generates mutual benefits for each one of them, irrespective of their posturing in favor or against the present turmoil.

Cross-border dilemmas:

Siachen and Sir Creek: The border and the Line of Control, separating Indian and Pakistani Kashmir, passes through some exceptionally difficult terrain. The world's highest battleground, the Siachen Glacier, is a part of this difficult-to-man boundary. The next flash point remains the Sir Creek.

Water Dispute: Another reason for the dispute over Kashmir is water. Kashmir is the origin point for many rivers and tributaries of the Indus River basin. They include the Jhelum and Chenab rivers, which primarily flow into Pakistan while other branches—the Ravi, Beas, and the Sutlej—irrigate northern India. Therefore, this geo-strategic positioning of the state makes it a complex cross-border dilemma

Figure 1: Threat Calculus Model



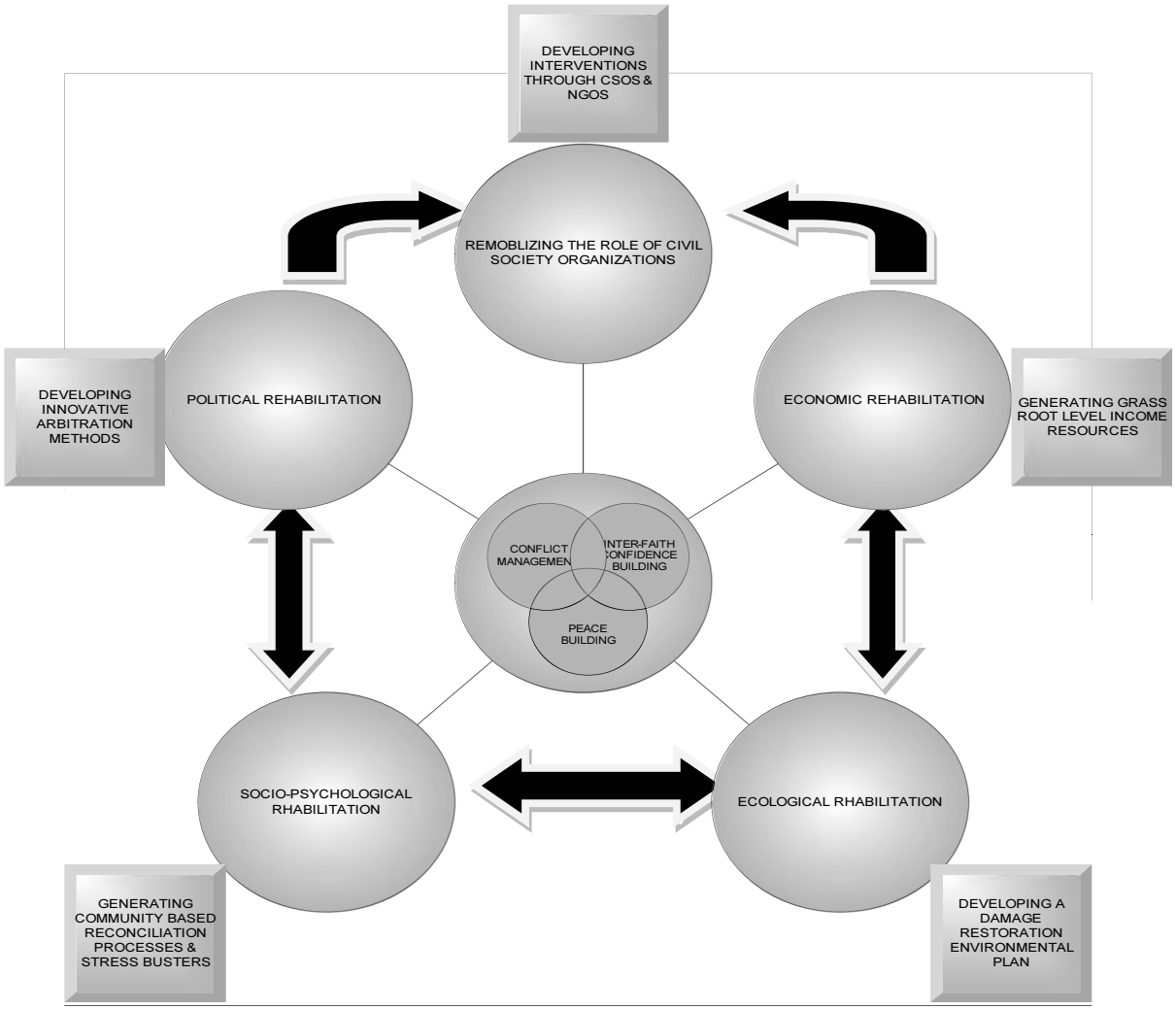
Growing Geo-political interference of China: Bordering Afghanistan, Tajikistan, China, and Pakistan, and as part of the larger conflict prone state of Jammu & Kashmir, Gilgit-Baltistan is one of the most politically sensitive and geo-strategically situated regions in the world. As a resource-rich region abundant in minerals and energy-sources, a lynchpin to access Afghanistan, the Middle East, the Indian Ocean region, and Africa, and as a location ideal for monitoring military activity in the region, China has over the past decade become increasingly involved in Gilgit-Baltistan both strategically and via economic investment. With Chinese involvement in the region comes a wide array of political, security, and economic sensitivities, but also a slew of environmental concerns as Chinese-funded infrastructure projects develop rapidly (Insert figure 1 about here, depicting the threat calculus model).

Analysis and the Way forward

The present mode of diplomacy apparently has not been able to make substantive breakthrough in instilling peace and confidence building measures among the people of the state. It is apparent that unless an institutional network involving common people of the state is not evolved, efforts for resolution cannot guarantee the expected outcomes. Civil society organizations (CSOS) have an important advantage when it comes in conflict prevention, because they are independent, flexible and close to the people, they are in an ideal position to strengthen social networks, build confidence between different population groups and sound alarm when the first signs of violence appear.

The successful rehabilitation and the management of conflict in Jammu & Kashmir are proposed on the basis of the following model: (Insert figure 2 about here, depicting the rehabilitation model)

Figure 2: Rehabilitation Model towards Conflict Resolution Process



- Remobilizing the role of civil society organization: Developing interventions through CSOS and NGOS
- Economic Rehabilitation: Generation of grass root level sustainable income resources.
- Political Rehabilitation: Developing innovative arbitration methods and devolution of power to local bodies including granting of internal autonomy.
- Socio-psychological Rehabilitation: Developing community based reconciliation processes and stress busters.
- Ecological Rehabilitation: Developing awareness about ecological correlation and damage restoration.

The recommendations have been proposed to evolve a multi-track rehabilitation strategy for the state. Recommendations, therefore, have been organized into various topical clusters. Many could be carried out unilaterally and these include economic development initiatives, employment programs, much of the needed infrastructure creation, cross-Loc educational programmes, cultural, emotional and political integration initiatives and environmental cleanup and can be further expanded within the context of internal engagement programs and external engagement programs:

Internal Engagement:

- Improvement of education in terms of course content and employment opportunities. Reforming education system, keeping in mind the damage caused to the minds of children due to years of unending violence. Engaging more and more people in tourism related education programmes and tourism related employment so that they have a self-motivated interest in promoting peace and stability.
- Skill development training of youth for employment and self-employment.
- Encouraging religious, social, civic and youth leaders to promote communal harmony.
- Encourage visits by prominent political leaders.
- Encouraging contact between Kashmiri people and those from other parts of India as a confidence building measure.
- Rehabilitation of the Kashmiri pandits, other migrant groups and their reintegration with their homeland.
- Fast tract action against human rights violations.
- Rehabilitation of orphans and widows on priority and without discrimination.
- Reintegrating former insurgents in the society.
- Promotion of peace tourism by dispelling the perception of an insecure environment;
- Promotion of horticulture, food processing, agro-processing industries and creating cold-storage facilities by encouraging public and private investment;
- Harnessing the hydro-electric potential of the state;
- An environmental action plan-centered on encouraging timber-aforestation, social forestry and urban water management going beyond just the cleaning of the Dal Lake.

External Engagement:

- Integrating relief and reconstruction packages for natural calamities across the line of control and developing integrated plans for future disasters.
- Opening the roads between the two sides of Kashmir to trade and traffic, which both Indians and Pakistanis are in principle willing to do. The initiation of bus service has whetted people's appetite for more.
- Keeping in view the large number of educational land health institutions in Indian part of J&K State, special provision could be made for the people of Pakistan held Kashmir.
- Joint initiatives for water management and the environment, under which local authorities in POK and Jammu & Kashmir meet periodically, exchange data on water quality and water flows, and consult with one another on environmental problems they share. Pakistan's and POK'S rivers all flow through J&K first, and water quality as well as water supply is an increasingly urgent issue in the region.
- A joint Kashmir Tourism Development Board composed primarily of representatives of the tourist related industries in POK, the Northern Area, and J&K, but also including representatives of the POK and J&K governments and observers from New Delhi and Islamabad. Liberalize the travel regime and expand the travel eligibility criteria. It would facilitate the development of infrastructure in both the regions and promote cultural exchanges.
- Free pilgrimage visit to religious and revered shrines on either sides of the J&K State could promote people to people contact; thereby reduce the animosity, mistrust and hostility brewing over past 60 years.
- Linking the electricity grids on both sides of Kashmir. Hydroelectric power is one of the most important resources in POK, and an important potential resource in J&K. the two sides need complementary, and a grid connection can sidestep the restrictions on power development in J&K under the Indus Water Treat.
- Communication links need to be immediately restored so that people living in both sides of state could maintain contact on day to day basis thereby eliminating scope for engineered propaganda by those who would not want restoration of peace and normalcy in this conflict zone.
- An Ecological peace park near the Siachen and Baltoro Galiciers. A proposal for such a park has been under development for some time, and studies by scientist affirm its peace

and scientific value. It would serve as powerful symbol of a new India-Pakistan relationship.

- Building a special economic zone in all of Kashmir, with duty free access to India and Pakistan and including an institutional frame work for joint investment. This would build on the trade liberalization agreements reached within the South Asian Association for Regional Cooperation (SAARC).
- Diplomatic and multilevel engagement with China to secure collective geo-political interests.

Conclusion

After years of failure to reconcile the differences on the issue of Jammu & Kashmir, Pakistan and India need to allow 'out of the box' thinking on Jammu & Kashmir. Increasingly, the debate on Jammu & Kashmir is beginning to focus on bringing normalcy in the lives of citizens and economic development within the state before hunting for a permanent solution. In this paper, an attempt has been made to develop a rehabilitation model based on people oriented paradigms as a potent approach. Looking beyond the current euphoria surrounding the question of economic integration, our analysis suggests little potential for trade in goods across the LOC under the current structures of production would be around USD 310 million with a potential to multiple manifold. There is a need to explore the possibility of an inter-Kashmir preferential trade arrangement to allow duty free exchange of primary and value added goods. Communication links would also have to be enhanced.

While these measures will ensure optimization of the existing potential, increase in trade in goods over the long run is only possible if production capacity is expanded and efficiency of production, especially in the agriculture and crafts industries and IT sector.

Realistically however, the entire set of suggestions forwarded here could end up being mere 'wish lists' unless there is a determined political will in the state s well as between India and Pakistan to transform this region holistically. This would eventually change in mindsets and generate impetus for multi-track collaborations and joint ventures. The role of the civil society to conduct an advocacy and social mobilization campaign involving all relevant stakeholders is essential in order to buffer against any insecurities that may thwart the initiatives being attempted for successful conflict management processes.

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Managing Crisis Via Social Media

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Abstract

Purpose *– The paper aims to understand the way that social media functions. This is the main reason why our efforts are directed at analyzing the environment in which it develops. The consumer behavior has changed as the economic crisis has emerged, therefore managers have to meet the consumers' needs in a different manner. Mainly, this study's purpose is to identify their needs in a crisis economy.*
***Methodology/*approach** *- The study was undertaken from a consumer's perspective. Therefore, a questionnaire was applied on 208 young adults ranging 18 -35 years old.*
Findings *– We found out WHO the consumers are, WHERE they are and WHAT they are interested in as far as brands are concerned. The paper takes the research further by determining HOW the information should be placed in order to reach the consumer efficiently on social media platforms.*
Research limitations/implications *– This approach is limited to online behavior and can be further extended to the design of various spreading schemes for online marketing techniques.*
Practical implications *– The results open several interesting avenues for future research that Social Media Marketing can explore because it is a fairly new phenomenon.*
Originality/value *– The study represents a step forward regarding the better use of technology in the marketing area. Furthermore, it approaches a different angle on which social media marketing has been tackled so far.*

Key words: *Social Marketing Crisis*

Introduction

Adapting is critical in a constantly changing world and managers must comply so to be successful in a competitive market. The past few years have set the favorable premises for change, therefore organizations have to accustom accordingly.

Social media websites such as Facebook or YouTube have been proven to be genuine marketing platforms. Here, marketers can reach consumers in a more structured way, changing the management of resources for the better. Redirecting the human and financial resources to the internet represents the change that any company needs in order to function efficiently. The purpose of this paper is to create a tool for the management of resource crisis, intending to overcome the barriers that the current economy has created on marketing budgets.

This particular paper's primary objective is to create a complex research by identifying what the consumers' needs are regarding the brands' presence on social media platforms.

Theoretical background and Hypothesis

The globalization destroyed the borders on product or services selling. The Internet provides information world-wide. What is new today may be old tomorrow and if yesterday we could only dream to be connected to the modern technologies, today it's a fact [Anastasiu, 2009]. Because Social Media (SM) is a new concept that experts still debate and try to define, a universally ac-

cepted definition is still difficult to conceive [Silius et al, 2010]. However, one of the explanations that can grant meaning to the Social Media phenomenon is that it mainly represents 'websites that emerge on Web 2.0 technologies, which are intended to provide a space for social interaction in depth, so to form and communicate and to address cooperating projects' [Bruns, Bahnisch, 2009]. Thus, Social Media basically means Web 2.0 platforms such as Facebook, Twitter, MySpace, YouTube, LinkedIn, etc., platforms that facilitate continuous user feedback.

As technology developed, Social Media was expected to play a crucial role in both personal and commercial online interactions and in both locating and analyzing information [Kasavana, 2009]; and it did: in 2011 Facebook has doubled its users since 2009. Furthermore, in 2010, Forrester Research stated that Web 2.0 campaigns will reach up to 4.6 billion U.S. dollars by 2013. This phenomenon is explained by the fact that people trust social media: they use it to interact, and this is the main reason why marketers noticed its enormous potential, trying to focus their strategies on gaining their trust.

In addition, Social Media Marketing can reduce customer service costs: feedback is continuous and instant. Therefore, this paper's *hypothesis* is that Social Media Marketing helps brands to better manage their resources in a crisis environment. Thus, this type of marketing is far more effective than the traditional one.

Methodology

For the aim of this paper: understanding consumer behavior on social media so to better trace their needs, websites such as Facebook, Twitter, YouTube, Netlog, Hi5 and FlickR were selected to be analyzed. The research methodology focused on convenience (opportunity) sampling, where the subjects' selection was made in terms of relevance to the study. The goal that the survey pursued was to research the preferences of young adults (ranging 18 – 35 years old) as far as brands are concerned. The study also aimed that the percentage of mail respondents to be approximately equal to that of female ones. The age choice is justified by the fact that the age range is relevant to the psychographic characteristics relevant to social media users: they are open to current and new technologies, have expanded social networks and are more likely to respond to surveys than any other age group.

An empirical study was conducted on a sample of 208 subjects from Cluj-Napoca, and the data collection tool was a questionnaire[1] containing 21 questions (both open and closed). The questionnaire was distributed online via Google Spreadsheets platform: it facilitates the questionnaires' the distribution and data centralization.

The subjects selected for research were both influencers (bloggers and journalists, opinion leaders) and non-influencers (regular users of SM), and the investigation was conducted on social media platforms as follows: blogs, social networks and online websites for instant messaging, in order to investigate the influence that the online brand presence has on SM consumers.

Findings

The questionnaire was applied for 35 days as of February 12th 2011, the process was monitored, thus concluding the following findings:

F.1 Firstly, we aimed at comprehending WHERE the consumers are. In this respect, The top three social media websites which are accessed everyday or a few times a week are: *Facebook,* which is the main social media platform as far as time consumption is concerned (93%), followed by *YouTube* (92%) and *Instant Messenger* (91%). In contrast, 64% of all respondents don't use *Twitter* (micro-blogging website) at all or use it less than once a week. Furthermore, 28% of all actual Twitter consumers have less than 60 contacts here (followers).

F.2 We were also interested in understanding WHY they use social media and aimed at grasping the idea of their behavior. We based the question (Q8 What are your reasons for using social

[1] http://bit.ly/nLRAWj

media?) on three parameters, ordering them by the consumers' preference: Efficiency, Recognition and Freedom of Speech. We found out that the main reason why they use social media is because it is more *efficient* (offers continuous learning, time saving because of the possibility of multitasking and instant access to latest information). The second important aspect for consumers is *the freedom of speech* and they are the least interested in *recognition* (they are not interested in becoming famous or highlighting their expertise).

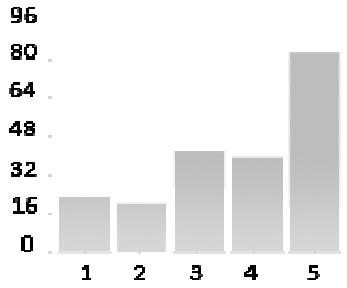
F.3 Next, we found out the degree to which they feel social media influences them. Here are some of the top social media websites that make the consumers be aware or even consider buying the brand's products: social networking websites such as *Facebook* (58%); the *brand's website* (57%) and video sharing websites such as *YouTube* (57%); thirdly, *blogs* and *wiki-type* websites (55%).

F.4 When asked what kind of information they were looking for the most when following a brand on social media, the most important aspect came out to be the *new information about brands' products or services* and secondly, information about *sales promotion updates* and the least about *costumer service policy*. Thus, we found WHAT particular type of information they were interested in the most.

F.5 When asked how important the brads' social media presence was for them, a majority of 58% answered it to be either important or extremely important.

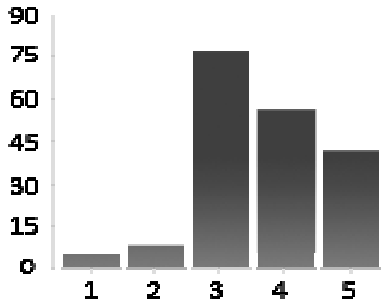
Figure 1

Q11. How important do you find the presence of brands on social media*?*
1 – Extremely unimportant; 5 –Extremely important



F.6 Furthermore, we were interested in finding out to what extent the brand's presence on social media platforms change the consumers' opinion on it. Most of them (37% - the rest of the responses weren't cohesive) answered that it didn't change anything as far as their perception was concerned.

Figure 2
Q14. *To what extent did the brand's presence on social media change your opinion on it?*
1 – Much less appealing; 5 – much more appealing



F.7 We were also interested in determining what would motivate them to share positive or negative comments about brands. Consequently, we discovered HOW brands should place the information so to generate as much positive content as possible and to minimize the negative comments:

a. The main reason that would generate positive content is *high brand satisfaction.*

b. The main reason that would determine consumers to generate negative content would be *the poor service*.

F.8 Lastly, we understood the nature of the comments on social media platforms. The results state that most of the accessed websites contain positive ones by far, the only social media websites where negative comments are higher, being *blogs* and *forums*.

Conclusions

There are quite a few ideas that can summarize the present study. Mainly, it represents an example of efficient management of the continuously changing information. The following conclusions regard the importance of social media in the consumers' opinion and the opportunities that rise for marketers.

C1. The research states that Facebook is the most used website for human interaction, where consumers can be reached most efficiently; here, we can draw the conclusion that it has become the best possible social media alternative for marketers with the least waste of time and effort as far as Romania is concerned. In addition, we found interesting the fact that Twitter has extremely low credibility. In conclusion, marketing efforts aimed at this platform are irrelevant, the marketing impact being close to zero.

C2. Furthermore, we discovered that consumers are more interested in new information about the product rather than its price.

C3. The aspect that we found particularly interesting is that consumers aren't interested in the brands' costumer service policy, but when it comes to generating negative content, "poor service" is their most important focus. One of the strategies that is foreseen in this matter is strategically placing information that they are less interested in. Thus, this strategy serves a higher purpose: keeps them informed and minimizes negative comments. Now we know what kind of information to avoid.

C4. The study also shows the main reasons why consumers use social media: they choose it for the freedom of speech, not for recognition.

C5. The most important conclusion that can be drawn from the present paper concerns the importance of social media marketing. 99.9 per cent of advertising is discarded immediately to our mental recycle bin [Degraffenreid, 2006]. We do so because we do not like to be influenced, we resent those who try to control our decisions, thus, we are programmed to reject anything that resembles others' attempt to persuade us. This makes the marketer's job even harder. Interestingly, this study shows that most of the consumers do *not* feel influenced by brands on social media platforms(Fig. 2); still, they think that the presence of brands on social media is extremely important (Fig. 1). Moreover, they become aware of the product or even consider buying it. In conclusion, social media represents a means for marketers to operate unseen.

Discussion

This study's main concern was the influence that the online presence of the brands have on Romanian social media consumers because the present business environment most certainly represents crisis. Moreover, managers have rebooted the way they are thinking as far as resources go, whether they are human, time-concerning of financial ones. After the emergence of Web 2.0, the online environment has created an excellent platform for redistributing any company's resources. This paper tackles the efficient ways to manage them when trying to reach consumers via social

media in an ever changing economy. The present study represents a step further for managing crisis and a better use of technology in the marketing area.

Finally, the new technologies represent the tools, and the purpose we use them for is up to us to acknowledge and decide. This study shows how to manage information so to create right messages for the right audience. We should keep in mind that technologies are constantly changing in this day and age and we have to be open to enormous amounts of information in order to keep up. If we pay attention to and embrace the new strategies that social media is able to sustain, we will know where, how and for what reasons to place the marketing message so to have an impact on consumers and to better manage the informational flow. For example, the costs for targeting the brand audience can be directed elsewhere, thus the resources being put to better use.

Implications and Originality

Our approach states that technological changes can come to any company's advantage if used properly. This paper stands for the consumers' expectations on the information that brands have to strategically place so to attract and motivate them to generate positive content. This approach is shown to be universal and can be further extended to the design of various spreading schemes for online marketing techniques. These results also open up several interesting avenues for future research, which could be defined by describing the new areas that Social Media Marketing can explore because it is a fairly new phenomenon.

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Modern Curricula of Master Program – A Response to Change in Crisis

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Abstract

Purpose –This paper aims to demonstrate how a master program can become number one on the applicants' preferences.
Methodology/approach - The master curriculum was adapted to the labor market needs. The author of this paper attended meetings with the companies and, by mutual agreement, has introduced disciplines with practical utility.
The teachers were chosen based on relevant theoretical, but most of all practical experience in the construction field.
Findings – As a result, the curriculum has become modern and it includes up-to-date subjects: project management, property assessment, auditing and more. Research work is based entirely on practical experience.
Research limitations/implications – Upon graduation, the students will have two more specializations: project manager and real estate appraiser. The courses are interactive, based on case studies and best practices.
Practical implications – The master program is an original one, for it provides additional competences for the graduates: project manager and evaluator. Therefore, they can apply for other areas than construction.
Originality/value – 2009 was the year that launched the master program. 45 persons were enrolled in 30 seats. In 2010, 10 seats were supplemented. The competition was 3.3 per seat. These facts indicate that the master program is suitable for both companies and students.

Key words: *master curricula, crisis.*

Introduction

Education is one of the most important pillars which sustain a knowledge-based society. This process is a continuous one, beginning in the childhood, then high school and completing in universities. Nowadays, the university graduating diploma is the main element in hiring the personnel. Modern trends are focused in hiring higher education graduates in different jobs that until recently didn't require such demands. Let's just think of jobs like assistant manager, salesman, insurance agent and others.

The higher education system must adapt to the economical conditions, and the crisis is the most important issue. As we all know, the construction sector is the most affected. The globalization increases the effects of the crisis, as the Romanian workers who performed abroad have to come back and seek for jobs in this period with high unemployment rate.

The master programs are practically a specialization of the graduates in a certain domain. The competences they acquire in this type of studies will make the difference in the competitive work market.

Master "Project Management and Property assessment" Presentation

The Bologna System imposed the organization of post-graduate courses with specific topics for each faculty. The Faculty of Constructions from Cluj-Napoca has now 7 master programs. In 2009, the "Management and Technology" Department belonging to this faculty initiated a master program called "Project Management and Property Assessment".

This paper aims to demonstrate how a master program can become number one on the applicants' preferences.

The Faculty of Construction from the Technical University of Cluj-Napoca has about 600 students annually. According to the Bologna System, they must continue their studies through a master. If possible, this stage shouldn't be merely formal, but to provide new skills, suitable for an easily employment [Moga R, 2010].

The surveys show that Romania took the second place in 2010 within the European States, with almost the largest decreases in the construction works. In order to be competitive, the construction companies have to find modern solutions [Popa A., Mathe A. (2010) said: "In recent years, the civil engineers are faced to a challenging situation: constructions became more and more ambitious"].

The Department is also responsible with the site practice for the 3rd year of study students. By analyzing the results of this activity, we noticed that the employers ask not only for theoretical knowledge, but as well for managerial abilities, team working, communication skills, commitment and implication. Therefore, the members of the "Management and Technology" Department have considered that the master studies have not only the role of providing a diploma, but also to come with a professional offer, aimed to combine the companies` demands with the curricula.

We started in parallel in two axes:

-The business environment: meetings with the construction companies` management, where we asked them what competences and skills must the graduates have for an easy integration. The main aspect they highlighted was a major crack between theory and practice.

-Students: they are eager to find about the real work, not only general presentations of different domains that concern the construction area. After all, they graduate a technical university so they have a logical thinking, focused on practical situation.

By analyzing the positions of the two entities, we thought on conceiving a master program to combine them. The universities have to be the interface between the employers and the employees. The teachers must be connected both to modern methods of teaching (interactive, using media and best practices examples) and practical background.

We organized the curricula in 3 phases:
- Phase 1: choosing the competences the master program graduates might have for a faster employment in the business environment.
We analyzed the results of the meetings with the companies` management from our region and we ranked the demands that appeared most often.
As a response to changes in the work market, the faculties must modernize their curricula according to the employers` needs.
On the other hand, opening the borders and the adjuration of Romania to the United Europe require a more flexible education system, adaptable to modern management.
The results were: solid theoretical aspects, managerial skills, commitment to the company, communication skills, strategically thinking, team works.

- Phase 2: choosing the disciplines according to the regulations referring to the principles of organizing the master programs.
The Education Law imposes a number of 60 credits/year for disciplines focused exclusively on the master's theme.

The credits were given according to the importance of the discipline. The course outline was structured according to the companies` demands.
The courses are held during four semesters (2 years of study), and at the end of each semester the students have a design-research activity, under the guidance of a tutor. The master courses end with a dissertation paper, which must include all these domains.

- Phase 3: choosing the teachers to support the courses, according to their competences.
The teachers from the "Management and Technology" Department are specialized in different areas: management, marketing, finance, property and company assessment.
We ranked the disciplines, and then we analyzed every teacher's competences regarding these disciplines.
The PhD was a decisive element in this phase. Another important item was the trainer diploma, which 75% of the full professors hold.

The objective of this master program is to deepen the knowledge in the field along with the development of the scientific research capacities. The skills and competences offered by this program are:
- the ability to provide services by integrating certain principles, like social, economical, technical and scientific, along with maintaining the quality of the environment, specially in crises [Ciplea S. (2010): "The continuous modernization process of Cluj and the intention of the local authorities to merge the surrounding regions of the city in a metropolitan area affected and changed its entire infrastructure"]
- Skills and abilities for: company and property assessment, evaluation of tangible and intangible assets, quality management, project management, repair and rehabilitation, communication, planning and coordination
- Formative competences structured in three components: cognitive skills, applied and practical skills, communication and relationship skills.
Following these competences, the master graduates will have two more, completing those offered by the civil engineering specialization: project manager and real estate assessor. These competences must be recognized by the responsible entities: the Ministry of Labor (Accredited program) and the National Association of Real Estate Appraisals (ANEVAR) (Agreed program).
As this program is new and is based most of all on managerial skills, the most important part is the publicity. Therefore, we promoted the program among the students from the fourth year of study. We presented the advantages they may have after graduating the master program: a better response to the changes within the labor market, better opportunities for employing in other domains, related or not to the construction industry [Mathe A., Popa A. (2010): "Large economic losses and less of function for buildings and facilities of vital importance determined civil engineers to approach this aspect from a new perspective"].
The master program "Project Management and Property Assessment" was launched in 2009. 45 persons were enrolled in 30 seats. They had a theoretical test and an interview. After the exam, the last mark was 7.25.
We had candidates not only from the Technical University of Cluj-Napoca, but also from Babes Bolyai University, University of Oradea, and University of Timisoara.
It was a challenge both for teachers and students. The courses were interactive, case studies and best practices were presented. The students participated to simulation situations too. They also visited the construction companies, where they performed research activities.

The year 2010 had to prove the interest of the students in our master program. Due to its attractiveness, 10 seats were supplemented. The total number was 40. The competition was higher than in 2009. 142 students enrolled. The last mark was 8.00.

These statistics prove the evolution this master program had in the years 2009-2010 among the students.
At the end of the first year of study, we applied questionnaires to the students, with questions regarding the strengths and weaknesses, what they want to learn in order to be competitive in the labor market. Another important question was referring to the way this master program makes them more adaptable and flexible to the changes from the business environment.

All these results were analyzed by the teachers and improvements have been made on the quality of the curricula. A suggestion made by most of the respondents was a stronger connection with the companies.

Conclusions

In a competitive market, the university is an important stakeholder. It must be seen as an opened system: takes the inputs (high-school graduates) from the environment and through a transformation process it gives them to the environment. The university's outputs (products) are the graduates.

This "product" must have all the features to make it a successful one: theoretical notions, practical skills and competences, managerial abilities, capacity to adapt to new jobs. The feedback shows if the results are those expected.

The word that governs the educational process is "change". It refers both to students, future owners of companies of employees, who must be open-minded, adaptable, flexible, and to faculties, which must see the educational system as a business: a continuous and strong connection with the economic environment.

The master program "Project Management and Property Assessment" is an original one, for it provides additional competences for the graduates. Besides the specialty notions, they are prepared for business and have two extra qualifications: project manager and evaluator. Therefore, their sphere of activity expands and they can apply for other areas than construction. The present paper is a case study on how, in 2 years, the master program "Project Management and Property Assessment" has come to attract the largest number of students.

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Analysis of Sustainable Development Strategies Using SWOT

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Abstract

***Purpose**: The research aims to establish a SWOT analysis quantitative model for sustainable development of companies, with focus on textile companies.*
***Methodology/approach:** Based on literature review and in the field of sustainable development, based on a questionnaire developed and administered to a representative sample of companies in the textile sector, and based on a focus group, we identified strengths, weaknesses, opportunities and threats.*
***Findings:** Based on responses to questions and discussions with experts group from a textile company, we achieved a ranking of the factors in the SWOT analysis. The questionnaire contains the level of achievement factors. By multiplying the two quantities and by adding these factors to obtain the aggregate value of each component: S, W, O, T.*
***Research limitations/implications**: Importance coefficients of factors are established by aggregating the experts consulted point of views, and using AHP method.*
***Practical implications:** This paper presents a comparative analysis for two extreme situations, deliberately chose, without being part of the companies investigated.*
***Originality/value:** SWOT analysis is a synthesis of research done in the field, with original character by bringing component-oriented sustainable development. Using AHP contribute to scientific substantiation of quantitative SWOT analysis.*

***Key Words: Sustainable** development, SWOT analysis, AHP method*

Introduction

This paper aims to establish a model of strategic analysis of companies, covering sustainable development issues. For this we used the statistical investigation based on a questionnaire administered mainly on textile companies. We have identified strengths, weaknesses, opportunities and threats that company may face, we performed a ranking of factors in the SWOT analysis, by assigning importance coefficients for each factor. We determined the aggregate value of each component: S, W, 0, T. Comparative analysis of these values is performed to identify the type of strategy that need to adopt a company, in relation to the concrete situation in which it is.

1. Methodology

The research aims to establish a SWOT analysis quantitative model for sustainable development of companies, with focus on textile companies.

For this we have consulted many works relating to the SWOT analysis with an insistence on sustainable development and the textile companies and textile finishing [Popa, 2002], [David, 1997], [Balaure, 2000], [Barry, Stephen, 2002], [Terrados, Almonacid and Hontoria**,** 2005], [Markovskai, Taseska and Pop-Jordanov**,** 2008], [Enache, 2010], [Almeida, 2005] and others. In this study we built a model that contains 46 strengths, 46 weaknesses, 6 opportunities and 12 threats.

Based on responses to questions in the questionnaire [Berariu , Condurache , Butnaru , 2011], and discussions with experts group from a textile company and our colegs, we achieved a rank-

ing of the factors in the SWOT analysis, by assigning importance coefficients for each factor. At this stage we aimed only to obtain an ordering of factors, from most important to least important, ordering used for the next step. We mention that to get the ranking that we used a Likert scale with 5 values. Following this analysis we eliminated the factors of type - S and W on the last, considering them insignificant. We kept only one further analysis 15 factors (Tables 1 and 2). For A and T were kept all the original factors (Tables 3 and 4). The penultimate column of these tables is the result of the investigation as a classification of those factors.

Table 1 - STRENGTHS

NO. CRT	strengths	rank	KJ
1	There is sustainable development strategy in your company	5	0,068
2	There is sufficient resources for sustainable development in your company	5	0,068
3	The company has good competitor quality	7	0,031
4	The company has empowered for innovation of products	9	0,016
5	Flexibility is high	10	0,012
6	There is a shift towards a participative management	10	0,012
7	The company has experience in programming and implementation of environmental measures	6	0,045
8	The company apply the customer management and the needs of him	6	0,045
9	There is guidelines / methodologies for implementation of environmental legislation	8	0,021
10	There is a periodically evaluation regarding the pollution of the soil, air and water.	9	0,016
11	The company recycle the materials in accordance with the requirements of normative documents.	3	0,131
12	The company aims to reduce quantities of waste within the waste minimization programs.	8	0,021
13	They are managed properly packages for the chemicals.	2	0,176
14	The company separates waste, in the dominant type of pollutant, the non-hazardous waste, and solid recycled waste by non-recycled solid waste	1	0,24
15	The company has implemented programs and projects to reduce the generation or disposal of air emissions in to the atmosphere.	4	0,097

Table 2 - WEAKNESSES

NO. CRT	weaknesses	rank	KJ
1	Qualification of the labor force is low	8	0,038
2	The level of innovation is low	9	0,028
3	Flexibility is low	10	0,025
4	Staff mentality is not supportive of sustainable development	6	0,05
5	New environmental rules are not favorable for the company	7	0,045
6	Energy efficiency of production processes is low	6	0,052
7	There isn't systems to monitor energy consumption per users.	8	0,038
8	The company does not separates waste, in the dominant type of pollutant, the non-hazardous waste, and solid recycled waste by non-recycled solid waste	1	0,181
9	The company does not have dispersal chimney.	2	0,126
10	The company hasn't equipments for reducing air pollution.	9	0,028
11	There are smells released	5	0,065
12	On the company's territory are different types of waste burned to obtain energy	4	0,082
13	There are not scheduled long term investment for sustainable development	3	0,095
14	There was incidents and environment accidents within the company	5	0,065
15	There have applied penalties/sanctions for environmental pollution	4	0,082

Table 3 - OPPORTUNITIES

NO. CRT	OPPORTUNITIES	rank	KJ
1	European integration and access to new markets that could increase exports.	1	0,273
2	Increased access to European funds allowing modernization of production facilities by investing in energy efficiency and renewable energy resources and using the " BAT "	1	0,273
3	Public-private partnerships in sustainable development	4	0,057
4	Increasing public awareness in environmental protection and increasing demand for green products	3	0,089
5	Implementation of management and audit systems for company in accordance with the continuous increase of demands on sustainable development	2	0,154
6	Adoption of the acquis communautaire in the field of environmental protection, the "National Strategy for Sustainable Development: 2013-2020-2030" and "PNCDI"	2	0,154

Table 4 - THREATS

NO. CRT	THREATS	rank	KJ
1	Degradation and reducing non-renewable natural resources because of high consumption	2	0,122
2	Unfavorable government policies and lack of concrete financial measures to support national projects and programs to increase energy efficiency and renewable energy use	2	0,122
3	Changes in sales market and its changing needs and flavors	3	0,091
4	Difficulties in implementing existing instruments of restraint and existent of cheaters - players that do not respect the rules;	7	0,039
5	Increase of energy and fuel prices that conduct to rise on commodity prices and the appearance of substitute products.	2	0,122
6	Developments in technology may change this market beyond our ability to adapt and consequently to a resistance to change in the management decentralization.	3	0,091
7	Entry into U.E. represents a tightening of rules and appearance of new powerful players	6	0,043
8	Unfavorable legislation for production costs and adopting dysfunctional financing schemes/tax for waste disposal	9	0,026
9	The greenhouse effect, ozone layer modification, the crisis of water, desert expansion, floods, hurricanes, landslides, nuclear risks	5	0,063
10	Difficulties of sustainability investment costs in the EU co-financing or under-funding them	4	0,065
11	Dependence on loans for development and vulnerability to recession and economic cycles succession	8	0,034
12	Competitive pressure	1	0,182

2. Determining the relative importance of factors

To establish the relative importance of factors of analysis we used the method Hierarchy Analytic Process - AHP [Thomas , 2000], [Thomas , 2002], [Thomas , Forman , 1992].

The method, developed by Thomas Saaty with Ernest Forman, proved to be one of the most used forms of multi-criteria decision, being used in many foresight exercises in the U.S. and various European countries.

Under this method, providing the scores obtained by a foresight exercise as a result of comparing pairs of objectives, criteria and issues are carried out according to the following reasons:

- If Xi and Xj are equally important, then $r_{ij} = 1$ şi $r_{ji} = 1$;
- If Xi is less important than Xj, then $r_{ij} = 3$ and $r_{ji} = 1/3$;
- If Xi is significantly more important than Xj, then $r_{ij} = 5$ şi $r_{ji} = 1/5$;
- If Xi is more important than Xj, then $r_{ij} = 7$ şi $r_{ji} = 1/7$;
- If Xi is overwhelmingly more important than Xj, then $r_{ij} = 9$ şi $r_{ji} = 1/9$.

Similarly, can be used values in the range [1, 9] and 2, 4, 6, 8 are for intermediate situations when we can decide the importance.

To estimate the relative accuracy comparisons foresight exercises, the AHP method to calculate the consistency of reasoning. If the degree of consistency is acceptable (CR ≤ 0.10), decision-making process can continue. Otherwise, the results of the comparison between pairs reasoning features should be resumed.

Table 5 – Matrix calculation of relative comparing (r_{ij})

r_{ij}	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	**1,00**	**1,00**	**4,00**	**5,00**	**5,00**	**5,00**	**3,00**	**3,00**	**5,00**	**5,00**	**0,25**	**5,00**	**0,20**	**0,17**	**0,33**
2	**1,00**	**1,00**	**4,00**	**5,00**	**5,00**	**5,00**	**3,00**	**3,00**	**5,00**	**5,00**	**0,25**	**5,00**	**0,20**	**0,17**	**0,33**
3	**0,25**	**0,25**	**1,00**	**3,00**	**3,00**	**3,00**	**0,33**	**0,33**	**3,00**	**3,00**	**0,17**	**3,00**	**0,14**	**0,13**	**0,20**
4	**0,20**	**0,20**	**0,33**	**1,00**	**2,00**	**2,00**	**0,25**	**0,25**	**0,50**	**1,00**	**0,14**	**0,50**	**0,13**	**0,11**	**0,17**
5	**0,20**	**0,20**	**0,33**	**0,50**	**1,00**	**1,00**	**0,25**	**0,25**	**0,33**	**0,50**	**0,14**	**0,33**	**0,13**	**0,11**	**0,17**
6	**0,20**	**0,20**	**0,33**	**0,50**	**1,00**	**1,00**	**0,25**	**0,25**	**0,33**	**0,50**	**0,14**	**0,33**	**0,13**	**0,11**	**0,17**
7	**0,33**	**0,33**	**3,00**	**4,00**	**4,00**	**4,00**	**1,00**	**1,00**	**4,00**	**4,00**	**0,20**	**4,00**	**0,17**	**0,14**	**0,25**
8	**0,33**	**0,33**	**3,00**	**4,00**	**4,00**	**4,00**	**1,00**	**1,00**	**4,00**	**4,00**	**0,20**	**4,00**	**0,17**	**0,14**	**0,25**
9	**0,20**	**0,20**	**0,33**	**2,00**	**3,00**	**3,00**	**0,25**	**0,25**	**1,00**	**2,00**	**0,14**	**1,00**	**0,13**	**0,11**	**0,17**
10	**0,20**	**0,20**	**0,33**	**1,00**	**2,00**	**2,00**	**0,25**	**0,25**	**0,50**	**1,00**	**0,14**	**0,50**	**0,13**	**0,11**	**0,17**
11	**4,00**	**4,00**	**6,00**	**7,00**	**7,00**	**7,00**	**5,00**	**5,00**	**7,00**	**7,00**	**1,00**	**7,00**	**0,33**	**0,25**	**3,00**
12	**0,20**	**0,20**	**0,33**	**2,00**	**3,00**	**3,00**	**0,25**	**0,25**	**1,00**	**2,00**	**0,14**	**1,00**	**0,13**	**0,11**	**0,17**
13	**5,00**	**5,00**	**7,00**	**8,00**	**8,00**	**8,00**	**6,00**	**6,00**	**8,00**	**8,00**	**3,00**	**8,00**	**1,00**	**0,33**	**4,00**
14	**6,00**	**6,00**	**8,00**	**9,00**	**9,00**	**9,00**	**7,00**	**7,00**	**9,00**	**9,00**	**4,00**	**9,00**	**3,00**	**1,00**	**5,00**
15	**3,00**	**3,00**	**5,00**	**6,00**	**6,00**	**6,00**	**4,00**	**4,00**	**6,00**	**6,00**	**0,33**	**6,00**	**0,25**	**0,20**	**1,00**
gj	**22,12**	**22,12**	**43,00**	**58,00**	**63,00**	**63,00**	**31,83**	**31,83**	**54,67**	**58,00**	**10,26**	**54,67**	**6,21**	**3,19**	**15,37**
ki	**0,068**	**0,068**	**0,031**	**0,016**	**0,012**	**0,012**	**0,045**	**0,045**	**0,021**	**0,016**	**0,131**	**0,021**	**0,176**	**0,24**	**0,097**
wi	**1,17**	**1,17**	**0,49**	**0,25**	**0,20**	**0,20**	**0,74**	**0,74**	**0,32**	**0,25**	**2,42**	**0,32**	**3,27**	**4,36**	**1,75**
αi	**17,22**	**17,22**	**15,69**	**15,5**	**16,29**	**16,29**	**16,27**	**16,27**	**15,04**	**15,5**	**18,49**	**15,04**	**18,62**	**18,15**	**18,04**

2.1. Applying Analytic Hierarchy Process method for the SWOT factors

Illustrate the strengths and present the summary overall results.
Table 7 presents the comparison of pairs of factors for strengths (rij).

Vector normalization (Table 7) is $g_j = \sum_{i=1}^{n} r_{ij}$

Relative priority matrix is $r_{ij}^{'} = r_{ij} / g_j$

Vector of priority or importance coefficients of criteria (Table 7) $k_i = \frac{\sum_j r'_{ij}}{n}$,

To check the consistency of reasoning is determined:
Weighted relative priority matrix : $w_{ij} = r_{ij} \cdot k_i$

Total weighted relative priority vector (Table 7): $W_i = \sum_{j=1}^{n} w_{ij}$,

Vector relative priority compared to the total weighted relative priority vector: $\alpha_i = \frac{W_i}{k_i}$

Mean reports α: $\overline{\alpha} = \frac{\sum_i \alpha_i}{n}$

Average value of the ratio of the weight vector and the average relative priority is relative $\overline{\alpha}$ = 16,65

Consistency index is: $CI = \frac{\overline{\alpha} - n}{n-1}$ In our case: CI = 0,11
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Standard consistency index based on the number of criteria, for n = 15: Ri = 1.6
Consistency rate is CR = CI / RI = 0, 068.
If the consistency ratio CR <0.1, that assessments are acceptable.
In conclusion, kJ lines in Table 7 are values important coefficients of the 15 factors - strengths. The algorithm was repeated for the other three factors analysis. The results are presented in the last column of the tables 1,2,3,4.

3. Case study – Comparison of two companies of textiles using SWOT

To transform the analysis model proposed a theoretical model in a specific analysis tool, we intend to apply this model to compare with each other textile firms in our attention as a research target group.
This paper presents a first comparison between two companies analyzed. This is a company that resulted from privatization of state companies and a private company with foreign capital. Table 6 presents a comparative analysis.
We said that to assess the level of achievement of the factors we used a rating scale with five values: 1 for very poor, 5 very well.
Conclusion of the analysis (character of exercise) is as follows: In all four chapters, company B is better than company A.

Table 6 – Comparative SWOT analyze between two sample company

	Factor/criteria	**KJ**	**Company A**		**Company B**	
			Level	**Value**	Level	**Value**
NO.	**STRENGTHS**					
1	There is sustainable development strategy in your company	0,068	3	0,204	4	0,272
2	There is sufficient resources for sustainable development in your company	0,068	2	0,136	5	0,34
3	The company has good competitor quality	0,031	4	0,124	4	0,124
4	The company has empowered for innovation of products	0,016	3	0,048	4	0,064
5	Flexibility is high	0,012	2	0,024	4	0,048
6	There is a shift towards a participative management	0,012	3	0,036	2	0,024
7	The company has experience in programming and implementation of environmental measures	0,045	4	0,18	2	0,09
8	The company apply the customer management and the needs of him	0,045	3	0,135	4	0,18
9	There is guidelines / methodologies for implementation of environmental legislation	0,021	5	0,105	3	0,063
10	There ist a periodically evaluation regarding the pollution of the soil, air and water.	0,016	5	0,08	4	0,064
11	The company recycle the materials in accordance with the requirements of normative documents.	0,131	4	0,524	4	0,524

	Factor/criteria	KJ	Company A		Company B	
			Level	**Value**	Level	**Value**
12	The company aims to reduce quantities of waste within the waste minimization programs.	0,021	4	0,084	3	0,063
13	They are managed properly packages for the chemicals.	0,176	4	0,704	3	0,528
14	The company separates waste, in the dominant type of pollutant, the non-hazardous waste, and solid recycled waste by non-recycled solid waste	0,24	3	0,72	4	0,96
15	The company has implemented programs and projects to reduce the generation or disposal of air emissions in to the atmosphere.	0,097	4	0,388	2	0,194
	TOTAL VALUE	**1**		**3,492**		**3,538**
NO.	**WEAKNESSES**					
1	Qualification of the labor force is low	0,038	3	0,114	4	0,152
2	The level of innovation is low	0,028	3	0,084	2	0,056
3	Flexibility is low	0,025	4	0,1	2	0,05
4	Staff mentality is not supportive of sustainable development	0,05	4	0,2	3	0,15
5	New environmental rules are not favorable for the company	0,045	3	0,135	3	0,135
6	Energy efficiency of production processes is low	0,052	5	0,26	3	0,156
7	There isn't systems to monitor energy consumption per users.	0,038	3	0,114	4	0,152
8	The company does not separates waste, in the dominant type of pollutant, the non-hazardous waste, and solid recycled waste by non-recycled solid waste	0,181	3	0,543	4	0,724
9	The company does not have dispersal chimney.	0,126	1	0,126	4	0,504
10	The company hasn’t equipments for reducing air pollution.	0,028	2	0,056	4	0,112
11	There are smells released	0,065	4	0,26	3	0,195
12	On the company's territory are different types of waste burned to obtain energy	0,082	5	0,41	1	0,082
13	There are not scheduled long term investment for sustainable development	0,095	3	0,285	2	0,19
14	There was incidents and environment accidents within the company	0,065	4	0,26	2	0,13
15	There have applied penalties/sanctions for environmental pollution	0,082	3	0,246	4	0,328
	TOTAL VALUE	**1**		**3,193**		**3,116**
NO.	**OPPORTUNITIES**					
1	European integration and access to new markets that could increase exports.	0,273	3	0,819	5	1,365
2	Increased access to European funds allowing modernization of production facilities by investing in energy efficiency and renewable energy resources and using the “ BAT “	0,273	4	1,092	4	1,092
3	Public-private partnerships in sustainable development	0,057	4	0,228	3	0,171
4	Increasing public awareness in environmental protection and increasing demand for green products	0,089	3	0,267	3	0,267
5	Implementation of management and audit systems for company in accordance with the continuous increase of demands on sustainable development	0,154	4	0,616	3	0,462
6	Adoption of the acquis communautaire in the field of environmental protection, the "National Strategy for Sustainable Development: 2013-2020-2030" and PNCDI	0,154	4	0,616	4	0,616
	TOTAL VALUE	**1**		**3,638**		**3,973**
NO.	**THREATS**					
1	Degradation and reducing non-renewable natural resources because of high consumption	0,122	4	0,488	3	0,366
2	Unfavorable government policies and lack of concrete financial measures to support national projects and programs to increase energy efficiency and renewable energy use	0,122	3	0,366	4	0,488

	Factor/criteria	KJ	Company A		Company B	
			Level	**Value**	Level	**Value**
3	Changes in sales market and its changing needs and flavors	0,091	3	0,273	4	0,364
4	Difficulties in implementing existing instruments of restraint and existent of cheaters - players that do not respect the rules;	0,039	4	0,156	3	0,117
5	Increase of energy and fuel prices that conduct to rise on commodity prices and the appearance of substitute products.	0,122	3	0,366	2	0,244
6	Developments in technology may change this market beyond our ability to adapt and consequently to a resistance to change in the management decentralization.	0,091	4	0,364	3	0,273
7	Entry into U.E. represents a tightening of rules and appearance of new powerful players	0,043	4	0,172	2	0,086
8	Unfavorable legislation for production costs and adopting dysfunctional financing schemes/tax for waste disposal	0,026	4	0,104	2	0,052
9	The greenhouse effect, ozone layer modification, the crisis of water, desert expansion, floods, hurricanes, landslides, nuclear risks	0,063	3	0,189	3	0,189
10	Difficulties of sustainability investment costs in the EU co-financing or under-funding them	0,065	3	0,195	3	0,195
11	Dependence on loans for development and vulnerability to recession and economic cycles succession	0,034	4	0,136	2	0,068
12	Competitive pressure	0,182	4	0,728	2	0,364
	TOTAL VALUE	**1**		**3,537**		**2,806**

Discussion and conclusions

Sustainable development is a challenge for the world and therefore efforts are needed, including research, to give future generations a habitable planet. Our paper is in line with these efforts, the discovery of tools to evaluate companies in the textile, on the level to which lies in the work of environmental protection. We proposed a quantitative model SWOT analysis, aimed at sustainable development applicable to textile companies. We intend to use SWOT analysis model proposed to assess the extent to which textile companies that form the target group of our research falls within legislative regulations concerning the environment.
Future analysis will allow development on strategies to be implemented company, according to the results of these tests.

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Strategic Framework of Training for Crisis Management

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Purpose *– To analyze the relationship between different human factors involved in crisis management process.*
Methodology/approach *– The paper develops a linkage between behavioral factors and decision making ability and tries to suggest measures to bridge the gap between the table top exercises and real world simulation exercises.*
Findings *– A collaborative learning environment is essential for developing an interaction between the trainees and trainers involved in crisis management of an organization.*
Research limitations/implications *– The study is based on secondary sources .Access to collect primary data from the organizations under crisis was not possible because of the confidentiality.*
Practical implications *– The study provides the framework for development of crisis managers by facilitating an integrated environment for the development of a realistic emotional status which would facilitate the decision making process.*
Originality/value *– To develop a crisis management value based on the correlation between human factors and decision making process.*

Introduction

An organizational crisis is a low-probability, high-impact event that threatens the viability of the organization and is characterized by ambiguity of cause, effect, and means of resolution, as well as by a belief that decisions must be made swiftly. The potential severity of crises creates a strategic imperative for a firm that needs to be explicitly recognized and managed. As asserted by Gephart (1984), some researchers advocate a perspective that crises can be recurrent and non-preventable, whereas others focus on identifying ways to manage or avert organizational crises (Meyers, 1986; Pauchant & Mitroff, 1992; Pearson & Mitroff, 1993; Roberts, 1989). Given the depth and breadth of losses that typically accompany organizational crises, it is unrealistic to define as effective only those efforts that pull an organization unscathed through such events. Conversely, simply surviving a crisis may not be a sufficiently stringent criterion for success. Crisis Management efforts are effective when operations are sustained or resumed, organizational and external stakeholder losses are minimized, and learning occurs so that lessons are transferred to future incidents. The effective management of crisis also requires proper training which enables workforce in an organization to mitigate it. Three elements are common to most definitions of crisis: (a) a threat to the organization, (b) the element of surprise, and (c) a short decision time. Venette argues that "crisis is a process of transformation where the old system can no longer be maintained." Therefore the fourth defining quality is the need for change. If change is not needed, the event could more accurately be described as a failure or incident.

Contingency planning prepares an organization in recognition of the fact that things may go wrong at times. This involves preparing for predictable and quantifiable crisis. This also includes preparing an organization for unexpected and unwelcome events. The main aim is to minimize the impact of a foreseeable event and to plan for how the organization will resume normal operations after crisis. The role of a crisis manager becomes inevitable for crisis assessment, event tracking and managing human considerations. Training plays an important function in the

preparation of the crisis manager. Research shows that there are two main modalities for such training: table-top and real-world simulation exercises. Table-top exercises are low cost and can be easily and frequently organized. However, they cannot create a believable atmosphere of, for example, stress and confusion that is prevailing in real-life situations and is crucial to the training of timely and effective decision making. On the other hand, crisis managers trained through simulation exercises in the field can be very effective, but these are considerably more expensive, require specialist equipment and are difficult to organize on site. This shows that there is a need to develop a framework which can bridge the gap between table-top exercises and real-world simulation exercises, providing a near-real training environment at affordable cost.

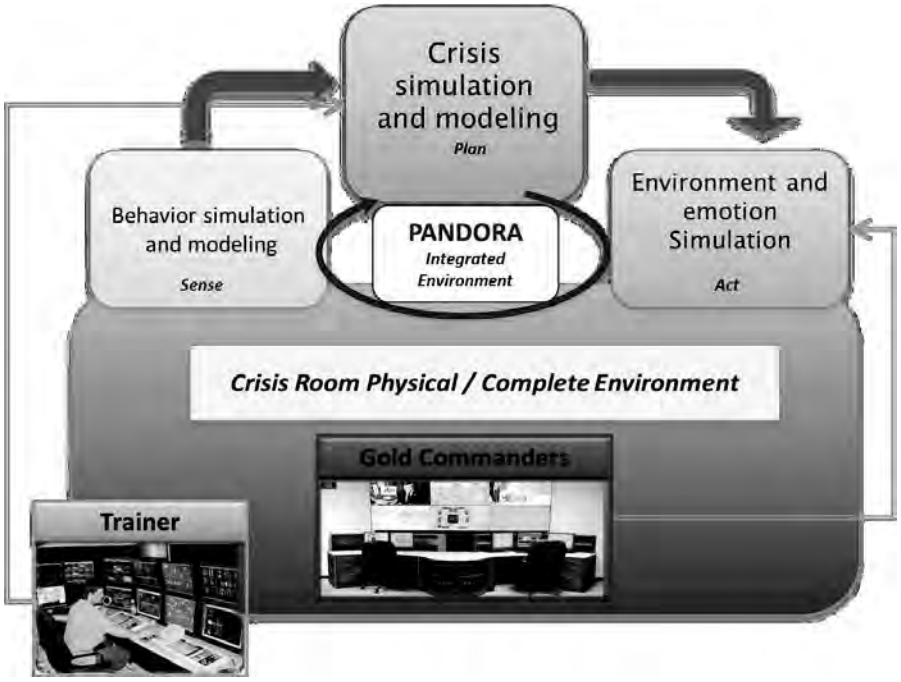


Figure 1. Pandora System Overview

Human Factors in Crisis Management

The knowledge of human behaviour, in all phases of emergency management, is crucial to the development of effective emergency policies, plans and training programs. For many years, business continuity planners worked under a simple assumption that when a disaster strikes, people will follow plans and procedures. Psychologists and other behavioral scientists have found that this idea fails to consider the often surprising behaviour of individuals during emergencies (Lehto 2006, Pauchant 1993). Traditional business continuity plans do not adequately take into account the forces of human behaviour, especially when scenarios include extreme fear, harmful behaviour and require survival responses. Strategy planners often wrongly assumed that an organization's emergency plans will be automatically accepted, understood and acted upon by all. The principles of human psychology suggest that the behaviour of individuals and groups is shaped more by numerous intangible factors than by official or executive demand (Buck 2003).

What are Human Factors?

The term human factors can be defined in several ways but a widely accepted definition is that of the Health and Safety Executive (HSE: UK industrial safety regulator). 'Human factors refer to environmental, organisational and job factors, and human and individual characteristics which influence behaviour at work in a way which can affect health and safety. A simple way to view human factors is to think about three aspects: the job, the individual and the organisation and how they impact on people's health and safety-related

behaviour.' (HSE,1999 p2). Human factors is usually linked closely to ergonomics which is the application of scientific information concerning humans to the design of objects, systems and environment for human use. In a work context, human factors research examines the environmental, organisational and job factors of humans interacting with systems, as well as the physiological and psychological characteristics which influence behaviour at work.

Environment and Emotion Simulation

The Environment and emotion simulation functionality aims to render the sequence of events that comes from Crisis Planning and Modeling. Rendering these events is undertaken with the objective of engaging and involving trainees in the simulated scenario, for example, it is important to simulate situations of information overload and related stress, together with the pressure in making decisions. Therefore, the Pandora system aims to play out events in a way such that certain emotions will be transferred to the trainees. Accordingly, the functionality of this component includes the following:

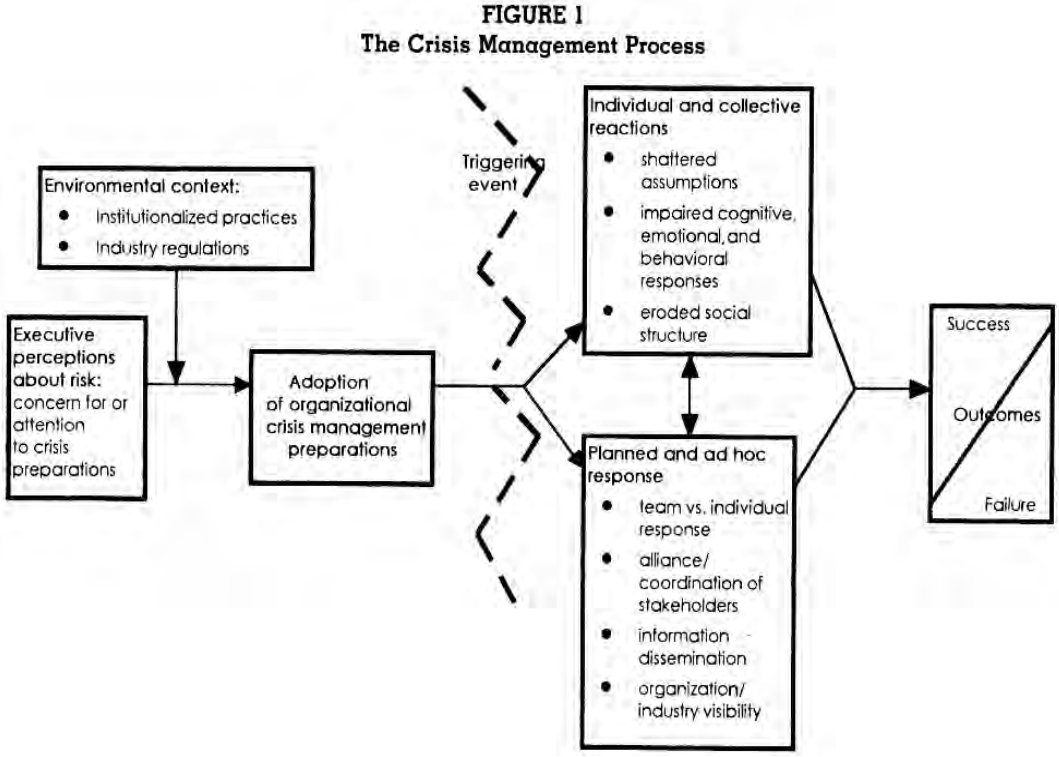
Emotion simulation

This has two objectives: the first is to provide a tool that can select and customize environment content in the form of video, image or text that must be provided to the trainees to represent a range of emotional states; and the other is to provide information regarding NPCs that need to be simulated inside the system and customize behaviour according to trainer input and the evolving scenario.

Environment simulation

This aims to create a realistic and emotional engaging environment for the trainee. The following elements are used to realize this environment: graphical rendering of scenarios and of NPCs, as well as the appropriate devices necessary to display information in the form of video, maps, images, emails, phone calls, radio play out and so on, to the trainee.

Multidimensional perspective of Crisis Management Process



Source: Reframing Crisis Management. Academy of Management Review, 1998, Vol. 23, No. 1, 59-76.

Review of Literature

There is increasing recognition for the need to train managers in non technical skills such as control and decision making for crisis management needed in national emergencies, in high reliability industries as well as in industrial workplaces (Caird, 2007; Lehto, 2006; Sneizek, 2002; Stern, 2002). Crisis management is a major issue in preventing emergency situations from turning into disasters. In recent years, mismanagement of emergencies has often created critical situations. Often when a catastrophic event occurs, it is human behaviour and often human behaviour alone that determines the speed and efficacy of the crisis management interventions. Frequently, untimely and ineffective responses are not due to a lack of knowledge of procedures, but to the inability to operate in contexts where frequent, potentially catastrophic events are occurring (Buck 2003, Pauchant 1993). The proponents of the NDM paradigm have been quick to propose decision making training strategies to accelerate the proficiency of decision makers in the military, emergency services and safety critical industries. However, Means et al (1993) and Orasanu (1993) point out that there is no evidence to indicate that it is possible to provide generic decision making training; rather, specific skills need to be developed. Orasanu (1993) has identified a number of trainable decision making skills which specifically underpin different types of decisions, but in addition has identified a number of trainable skills which cut across decision types. These include situation assessment; risk assessment; planning; resource management; and communication. According to Fallesen and Pounds (2001) experts seem better able to discriminate relevant cues from irrelevant cues, and they can recognize cues more quickly, can detect important features of cues, and can recognize patterns of cues better than novices (Canon- Bowers and Bell, 1997). This does suggest that a focus for decision making training for novice decision makers should be on developing cue recognition and developing an understanding of cue significance. Orasanu (1993) and Canon-Bowers and Bell (1997) suggest that situation assessment can be trained through extensive pattern recognition practice and learning to assess the significance of cues.

Decision making is at the centre of all military operations and as such the requirement for training military decision making cannot be underestimated. However, decision making is hard to train since there is no evidence to indicate that it is possible to provide generic decision making training (Orasanu, 1993; Means, Salas, Crandall and Jacobs, 1993). However, there are a number of trainable decision making skills which underpin different decision types, and it has been found that training to make more specific types of decision in specific contexts can be successful (Li and Harris, 2006). It is widely acknowledged that decision making training needs to be taught in an environment in which the decision maker can learn through experience.

Discussion and Conclusion

Human Factors are crucial ingredients in shaping managerial decision making process. Decision making is an important management function which embeds different leadership styles with variate responsibilities and accountabilities. As suggested by the model human factors have been identified as significant inputs for evolving decisions during crisis scenarios. Human sensitive factors like environment, organizational aspects, job related dimensions, human characteristics and individual peculiarities are vital instruments in developing managerial personalities and their decision making capabilities in crisis situations as depicted by the model.

The paper has described a technical framework for the development of near real life training environments for collaborative learning activities. The key components and architecture of the system detailed here will help create an environment useful in the training of crisis management by facilitating a realistic and complete simulation that is time coherent to that of expected near real time in real-life situations; that reproduces the realistic emotional status;

and that supports and facilitates the collaboration of crisis managers from different agencies in training scenarios.

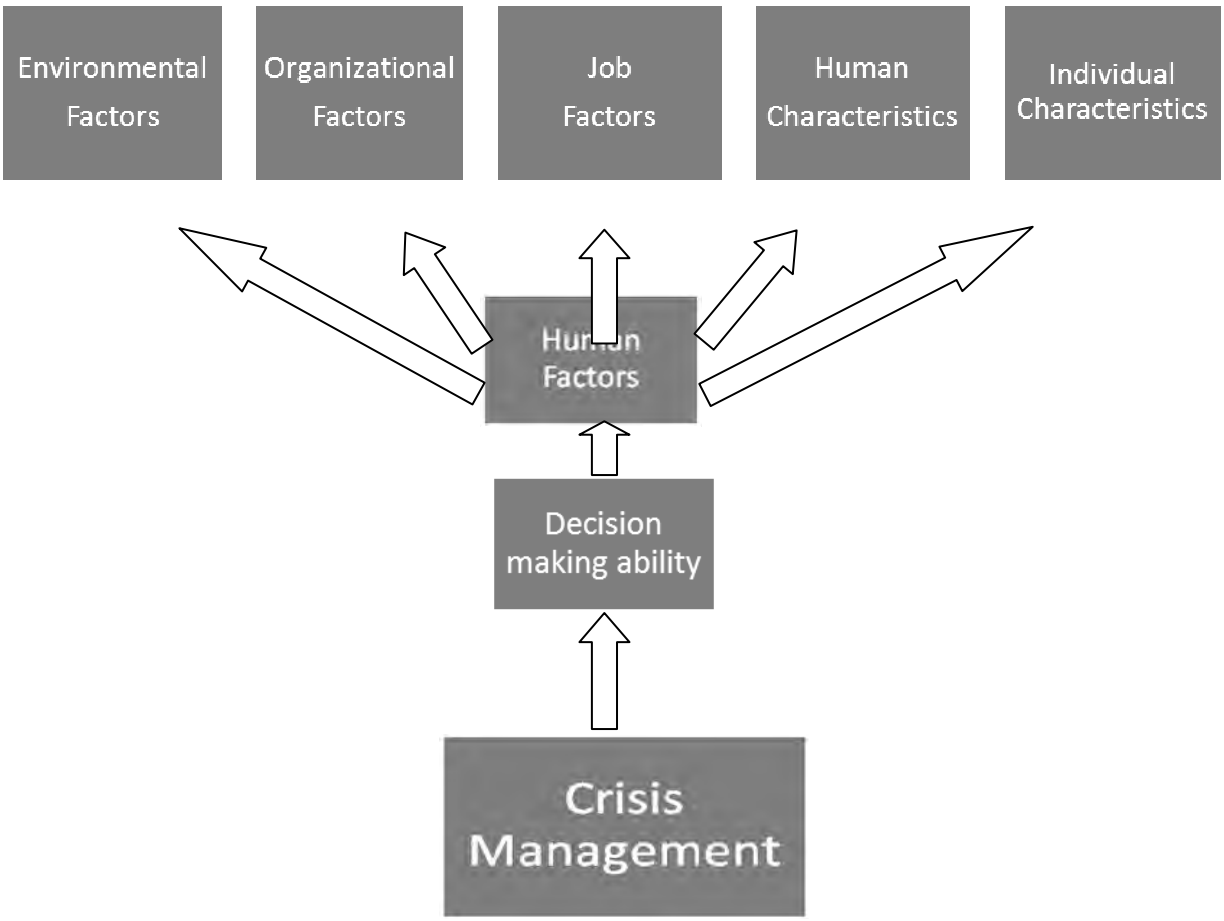


Fig. Human factors and Decision Making in Crisis Management (Authors Own Design)

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Virtual Teams and Virtual Organizations – Challenges in a Competitive World

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Abstract

Purpose – The paper reviews the literature addressing virtual organizations and virtual teams at several levels, sharing skills and information within a network of independent entities which present themselves as a unified actor, virtual organizations as a business processes unifier.
Methodology/approach – The literature review was used for the effective evaluation of a selected group of documents on virtual teams and virtual organizations.
Findings – The paper is analyzing the vast available literature on virtual teams and virtual organizations in order to find ontological concepts, the relationships between concepts, present research fields of interest, enablers and inhibitors, future trends.
Research limitations/implications – Research report is limited by the number of resources/reports studied and inherent limited validity of those findings in a fast changing research domain.
Practical implications – The Virtual Organization research area is recognized as a scientific discipline. According to L.M. Camarinha-Matos, H. Afsarmanesh (2002): "...in 2015 most enterprises will be part of some sustainable collaborative networks that will act as breeding environments for the formation of dynamic virtual organizations in response to fast changing market conditions."
Originality/value – The paper represents a good starting point for developing a further research plan for explaining the structure, the processes and contents of any co-operation model based on virtual teams and virtual organization.

Key words: virtual team, virtual organization.

Introduction

World economies and companies are searching for new ways to respond to the changing needs of the environment. Some new concepts of understanding the organization, accompanied by current technological developments, may offer some opportunities and solutions to the various strategies. Two of the great challenges in a competitive economy are the virtual teams and virtual organizations. These concepts have created a rich new field of research.

In light of the increasing de-centralization and globalization of work processes, many organizations have responded to their dynamic environments by introducing virtual teams, in which members are geographically dispersed and communicate and coordinate their work predominantly with electronic information and communication technologies (e-mail, telephone, video-conference etc.). Additionally, the rapid development of new communication technologies such as the Internet has accelerated this trend so that today, most of the larger business organizations employ virtual teams to some degree (Gibson, Cohen, 2003).

The growing prevalence of virtual teams is being attributed to a confluence of technological and organizational developments along with a range of business benefits associated with using these types of teams (Solomon, 2001). Virtual teams can be composed of the best individuals for the

task regardless of their physical or organizational location, thus enhancing the quality of decisions (Townsend et al., 1998).

The discussion regarding virtual organizations has traditionally been characterized by ambiguity about the characteristics and implications of virtual organizations. In literature are often used other expressions like: “virtual organization” which is the most commonly used term (Alexander, 1997), “virtual corporation” (Byrne et al. 1993) and “virtual enterprise” (Hardwick et al. 1996) are often used. Other terms such as “virtual factory” or “virtual company” can also be encountered.

Virtual teams (VT)

VT in the literature

An examination of the literature on VT indicates a proliferation of definitions, most of them with some small variation in the specifics. The earliest definitions present the VT as a type of team that contrasts with a “traditional” or “conventional” face-to-face team (Guzzo, Dickson, 1996). The Henry and Hartzler’s (1998) definition made no reference to the team’s temporary nature or reliance on technology.

Therefore one aspect of VT that had not been addressed in traditional definitions was the degree of technology-mediation, as opposed to face-to-face interaction, that is necessary for a team to be considered virtual (Martins et al., 2004).

With the rapid development of electronic information and communication media in the last years, distributed work across different locations has become much easier, faster and more efficient. The attribute “virtual” designates distributed work that is predominantly based on electronic information and communication tools.

Generally, it can differentiate various forms of “virtual” work depending on the number of persons involved and the degree of interaction between them:

- The first is telework (telecommuting) which is done partially or completely outside of the main company workplace with the aid of information and telecommunication services (Bailey, Kurland, 2002).
- Virtual groups exist when several teleworkers are combined and each member reports to the same manager.
- A VT, in contrast with a virtual group, exists when the members of a virtual group interact with each other in order to accomplish common goals (Lipnack, Stamps, 1997).
- Finally, virtual communities are larger entities of distributed work in which members participate via the Internet, guided by common purposes, roles and norms (Wellman, 1997). In contrast to VT, virtual communities are not implemented within an organizational structure but are usually initiated by some of their members. Examples of virtual communities are Open Source software projects (Moon, Sproull, 2002).

The majority of definitions note that VT are functioning teams that rely on telecommunication and information technologies for communication while crossing several different boundaries (Bell, Kozlowski, 2002). The most commonly noted boundaries are: geography, time and organization. Contrasted against face-to-face teams, members of VT are not constrained to one physical location and can be located throughout the world (Montoya-Weiss et al., 2001) and they can made the “global VT” (Maznevski, Chudoba, 2000).

The distribution of VT members across temporal boundaries can occur due to members’ locations in different time zones (Kayworth, Leidner, 2000), and due to the use of asynchronous communication media (such as e-mail) that limit the ability of team members to interact in “real-time” (Bell, Kozlowski, 2002). Finally, members of VT are often from different organizations via outsourcing or through joint ventures among service providers who work across organizational boundaries (Maznevski, Chudoba, 2000).

Recent definitions have focused on the relative “virtuality” as a potential characteristic of a team (Sawyer, Neale, 2003) and its consequences for management (Axtell et al., 2004). Virtuality of a team is one aspect among other team characteristics (diversity, autonomy, time-restriction) that might broaden the understanding of teamwork in general. Potential indicators or measures of virtuality are the relation of face-to-face to non face-to-face communication, the average distance between the members, or the number of working sites represented in the team together with the number of members at each site (Kirkman et al., 2004).

Thus, recent definitions incorporate the traditional dimensions of VT, but also highlight the fact that VT are teams first, with virtualness being treated as a team characteristic. Integrating the traditional and newer definitions, it can be define VT as teams whose members use technology to varying degrees in working across locational, temporal, and relational boundaries to accomplish an interdependent task (Martins et al., 2004).

Attributes of VT

Teams can choose from a broad array of technologies to supplement or replace face-to-face interaction. The technologies differ in their extent of media richness as communication channels and in the extent to which they enable synchronous collaboration (Riopelle et al., 2003). Thus, whereas desktop videoconferencing is relatively high in media richness and in synchronicity, e-mail is lower on both dimensions. Other technologies commonly used to support the functioning of VT include telephones, web sites, instant messaging, file- and application-sharing, electronic bulletin boards, group decision support systems, and real-time calendar/scheduling systems (Martins et al., 2004). The extent to which a team uses these technologies affects its extent of virtualness (Bell, Kozlowski, 2002).

The locational boundary refers to any physical dispersion of team members, such as different geographic locations or different workplaces at the same geographic location. The temporal boundary encompasses lifecycle and synchronicity. The relational boundary refers to the differences in relational networks of VT members, that is, their affiliations with other teams, departments, organizations and cultural sub-groups. In general, individuals are more likely to look within their relational networks rather than across networks for team members. However, VT can overlap multiple relational networks, enabling teams to be composed of members based on “what they know” rather than “who they know.” In such teams, members have to work across differences in assumptions, motivations, knowledge bases and working styles that characterize each of the relational networks that is spanned by the team (Shapiro et al., 2002).

Managing VT

In the specialized literature, the researchers have noted the tendency of VT to possess a shorter lifecycle as compared to face-to-face teams.

An integrative lifecycle model of VT was presented by Hertel, Geister and Konradt, 2005, model which was consider by researchers as most appropriate to organize the different topics relevant for VT management. The model covers Human Resources Management issues such as selection, performance management, rewards and personnel development, but also contains new issues such as the question of a constructive disbanding of VT.

Hertel, Geister and Konradt’s (2005) lifecycle model distinguishes five general phases with specific management tasks that have to be addressed during virtual teamwork:

1. The first phase, “Preparations” contains tasks and decisions that are relevant when an organization is planning to implement VT (mission statement, personnel selection, task design, rewards systems, technology, organization integration). The initial task during the implementation of a team is the definition of the general purpose of the team together with the determination of the level of virtuality that might be appropriate to achieve these goals. These decisions are determined by strategic factors such as mergers, increase of the market span, cost reductions, flexibility and reactivity to the market etc.

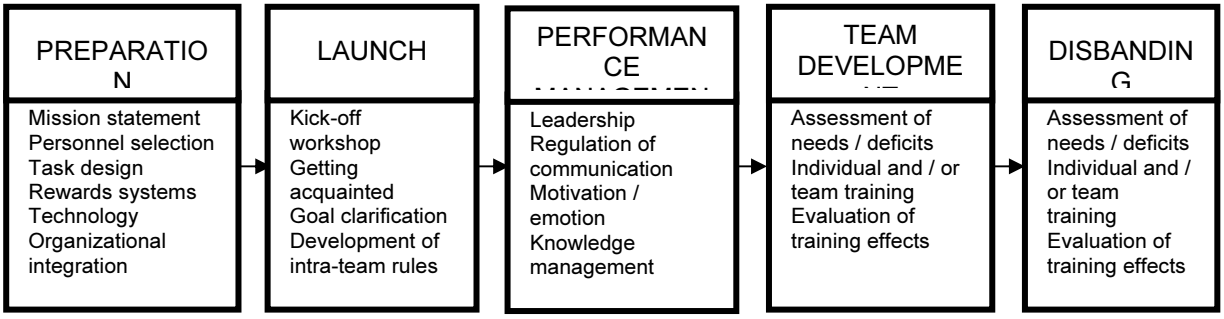

Figure 1: The lifecycle of virtual team management

2. The second phase, “Launch” describes the activities that are relevant at the beginning of the teamwork, such as: conducting a kick-off workshop, getting acquainted, goal clarification, development of intra-team rules. Almost all authors of conceptual work on VT management recommend that, in the beginning of virtual teamwork, all members should meet each other face-to-face (Powell et al., 2004), when during a kick-off workshop, they can clarifying the team goals, the roles and functions of the team members, information and training how communication technologies can be used efficiently and developing general rules for the teamwork (Montoya-Weiss et al., 2001).
3. The third phase, “Performance management” includes issues of leadership and the maintenance of motivation and communication within VT. Work effectiveness and a constructive team climate have to be maintained using performance management strategies (Bell, Kozlowski, 2002).
4. The fourth phase, “Team development” entails evaluation activities of team processes together with team training and assimilation of new members. The development should be based on an empirical assessment of the needs and/or deficits of the team and its members, and the effectiveness should be evaluated empirically. Both the third and fourth phases can be considered as major leadership functions that are critical in all teams (Kozlowski, Bell, 2003).
5. The fifth phase, “Disbanding” includes tasks such as the proper recognition of team achievements and the reintegration of team members that are often neglected in team management models.

Virtual organization (VO)

The concept of the VO

In global business environment, where it is essential to respond rapidly to changes in the market to remain competitive, many firms are choosing to partner with multiple firms, creating a series of independent alliances which have been called VO (Johnson, Isenhour, 2003). VO are composed of a number of individuals, departments or organizations each of which has a range of capabilities and resources at their disposal (Norman et al., 2004).

Information technology can help organizations to transform themselves away from their traditional physical boundaries and represent the essential foundation for the formation and management of VO (Panteli, Dibben, 2001).

The concept of VO was first introduced by Mowshowitz (1986) and subsequently popularized by Davidow and Malone (1993) and means an organization that is oriented to the market and can give immediate answers to the demands of its customers (Gil-Estallo et al., 2000).

The true nature of VO is best understood by differentiating them from traditional organizations. VO, by contrast, are either entirely intangible or nearly so. They exist within the information space and are organized to achieve their goals primarily through the process of managing information or extracting information from data. They depend not on human agents, but on Intellectual Agents to

do their work. Unlike traditional organizations, the VO itself has no need for a physical representation. Its output, might influence the physical world directly (such as the direct buying or selling of stocks) or indirectly (such as providing decision support for a human agent in a traditional organization).

The forms of VO

A search of the literature reveals another two approaches to defining the term VO, as intra-organizational and inter-organizational forms.

In the intra-organizational form, the VO is a collaboration of business units within an existing organization, charged with completing a common task and forming a team or perhaps an integrated profit center (Scholz, 1996).

The second approach is the inter-organizational form, in contrast to the intra-organizational view, business units of different organizations collaborate to form a cooperative form – a VO (Greenberger, Wang, 2002).

In the following the paper will detailed this form for which Kasper-Fuehrer and Ashkanasy (2001) presented the following definition: An inter-organizational VO is a temporary network organization, consisting of independent enterprises (organizations, companies, institutions or specialized individuals) that come together swiftly to exploit an apparent market opportunity. The enterprises utilize their core competencies in an attempt to create a best-of-everything organization in a Value-Adding Partnership, facilitated by Information and Communication Technology. As such, VO act in all appearances as a single organizational unit.

Comparison of the VO with other cooperative forms

From description of the characteristic features of VO it can be made a comparison between VO and other cooperative forms of organizations. There are similarities between the different forms of cooperation and VO. Some characteristics of cooperatives are reflected in the concept of the VO and vice versa, but not all of the features of VO are characteristics of other cooperative forms.

VO is the first organizational form which combines innovative aspects of organization, such as core competencies, value-adding partnerships, and the inclusion of customers, suppliers and competitors in the network for strategic purposes. Further, VO are a development of information and communication technology and are dependent on it. Development of new technology and concepts has transformed the business environment and created the conditions for a new organizational entity.

The main differences between traditional cooperative and inter-organizational VO forms are the informal formation of the partnership, the temporary character of the VO and the resulting flexibility and responsiveness to market changes.

Conclusions

The main objective of this review was to examine the vast available literature on VT and VO in order to find:

- Ontological concepts on which there is a large agreement
- The relationships between these concepts
- Present research fields of interest
- VO enables and inhibitors
- Future trends

With regard to the ontological aspects we can state that we are far from a complete ontology which is the base of any consistent formal model. The relationships between these concepts are clarified only for specific domains and are not yet formalized.

Present research interests encompass all architectural levels of VO: business level, business services level, supporting ICT services and supporting technologies. Management in all phases of the Virtual Organization life cycle is not yet based on well argued and verified models and methodologies.

VT and VO represent a popular form of co-operation, worthy of a specific research field in its own right.

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Research on practices used by Romanian companies for measuring marketing performance

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Abstract

Purpose *– The present research aims to identify the current status of the practices used by companies from Romania for measuring their marketing performance.*
Methodology/approach *– The method used for this research was a survey, with non-random sampling, based on judgment and accessibility. The research instrument used in the research was a questionnaire. A final number of 100 Romanian companies accepted to take part to this research and returned the completed questionnaire.*
Findings *– Although almost all of the investigated companies (97%) consider that marketing performance is important in the context of business performance, only 10 percent of them admit that they are very satisfied with their ability of measuring the results of their marketing activities. The investigated companies focus more on using marketing productivity metrics rather than brand or customer equity metrics.*
Research limitations/implications *– The results are representative only at the level of the investigated sample, due to the non-random sampling used.*
Practical implications *– The set of marketing metrics included in the research can offer companies guidance regarding on what metrics to use for assessing their marketing performance.*
Originality/value *– Based on the research, the authors were able to draw a hierarchy of the most used marketing metrics among the investigated Romanian firms.*

Key words: *marketing performance measurement.*

Introduction

Measuring marketing performance and marketing metrics have led to increased interest during the last decade to both marketing academics and practitioners, research in this area being supported since the beginning of 2000s by a series of very prestigious institutions from the marketing field, like Marketing Science Institute, Chief Marketing Officer Council or Association of National Advertisers.

Marketing managers have at their disposal a great variety of marketing metrics that can be used for assessing marketing performance. For example, following a research project conducted at London Business School, Ambler et al. (2001) proposed a set of 19 marketing metrics considered to be primary and which can help organizations in measuring their marketing performance. They group these metrics into six different categories: financial metrics, market competitiveness metrics, consumer behavior metrics, intermediate consumer metrics, direct customer metrics and innovation metrics.

For the same purpose of assessing marketing performance, Farley and Barwise (2005) recommend companies to use a balanced scorecard that combines traditional financial metrics with six marketing metrics – market share, product's perceived quality, customer retention, client / segment profitability, relative price and customer lifetime value – and with other indicators specific for the company's field of activity, but to maintain at the same time a reasonable number of indicators, for example no more than 20 metrics.

Other authors (Jeffery, 2010) argue that there are 15 metrics that should be known by everybody in the marketing field; the proposed metrics are: brand awareness, test-drive, churn, customer satisfaction, take rate, profit, net present value, internal rate of return, payback, customer lifetime value, cost per click, transaction conversion rate, return on ad dollars spent, bounce rate and word of mouth.

Farris et al. (2010) studied over 100 metrics and proposed their classification into nine distinct dimensions of marketing performance: metrics for marketing's financial performance, metrics for margins and profits, customer profitability metrics, metrics for company's product portfolio, pricing strategy metrics, supply chain management metrics, sales force metrics, sales promotion metrics and metrics for advertising in different media channels.

As it can be noted, despite the plethora of available marketing metrics, specialists from this field have not yet come to a consensus on what marketing metrics and how many of them should be used in organizations.

Research coordinates

One notable effort on the direction of identifying the practices used by companies for measuring their marketing performance was undertaken in UK by a team of specialists from London Business School (Ambler et al., 2001) under a project that dealt with different aspects of marketing performance. Analysis of marketing literature allowed the identification of a significant number of researches based on the methodology proposed by Ambler et al. (2001) that aimed to investigate the practices used for marketing performance measurement by companies from different countries like China (Ambler and Xiucun, 2003), Spain (Eusebio, Llonch Andreu and Lopez Belbeze, 2006), Ireland (O'Sullivan, 2007) or Finland (Frosen et al., 2008).

The present research aims to identify the current status of the practices used by companies from Romania for measuring their marketing performance and to some degree is inspired by the work of Ambler et al. (2001).

Research objectives

Among the objectives that stood at the basis of this research are the following:

- Identify the investigated firms' perception regarding the importance of marketing performance measurement in the context of organizational performance, as well as their satisfaction level with respect to their abilities of measuring the results obtained from the marketing activities they conduct;
- Identify the extent to which the Romanian investigated companies use a specific term for the firms' intangible marketing assets and whether they perform an assessment of this type of marketing assets;
- Determine the level of utilization, as well as the importance attached by the investigated companies to marketing metrics used for measuring the following three areas of marketing performance: marketing productivity, brand equity[1] and customer equity[2];
- Obtain information about the frequency with which top management of the investigated companies evaluates the metrics from the three categories (marketing productivity, brand equity and customer equity) and about the benchmarks against which the marketing metrics are compared to.

Research methodology

The method used for this research was a survey, with non-random sampling, based on judgment and accessibility. The instrument used in the research was a questionnaire. During the initial phase of the research, we tried to obtain answers from companies in Cluj county, Romania, that were included in the 2010 edition of Top Companies, an annual hierarchy developed by the Chamber of Commerce and Industry from Cluj. It was considered that companies included in this top show high levels of business performance and could provide us with useful information about the practices they use for measuring their marketing performance. However, because an adequate number of answers were not obtained, in the next phase of the research non-random sam-

pling was used, based on accessibility, and extended the area of the research to companies from other Romanian counties, not just Cluj. In the end, a final number of 100 questionnaires were returned.

The questionnaire used in this research asked the investigated companies to indicate if they use 21 marketing metrics, and in case they use them, to indicate how important they consider to be each indicator in the context of marketing performance measurement, using a scale of importance in 5 points, varying from *not at all important* to *very important*. The 21 marketing metrics belong to three distinct dimensions of marketing performance: marketing productivity (11 metrics), brand equity (4 metrics) and customer equity (6 metrics). The metrics included in each category were adapted after Ambler (2001), Franchi (2007) and Farris et al. (2010). Statistical package SPSS 17.0 was used for data analysis.

Structure of the investigated sample

Most of the investigated firms (80%) have their headquarters in Cluj county. According to the number of employees, the sample's structure is the following: 42 percent of the firms have between 10-49 employees (small enterprises), 32 percent of the firms have a medium number of employees between 50-249 (medium enterprises), 14 percent of the companies are large enterprises, having over 250 employees, and 12 percent of the firms are microenterprises, having maximum 9 employees. The structure of the investigated sample, according to companies' main field of activity, is the following: industry (31%), commerce, export, tourism (27%), services (24%), constructions (11%), research, development and high tech (5%), other (2%).

Results of the research

An overwhelming majority of the investigated companies (97 percent) consider that marketing performance measurement is important in the context of business performance.

Table 1. Do you consider that marketing performance measurement is important in the context of business performance?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	97	97.0	97.0	97.0
	No	1	1.0	1.0	98.0
	Do not know	2	2.0	2.0	100.0
	Total	100	100.0	100.0	

However, only 10 percent of the enterprises said that they are very satisfied with their ability of measuring the results of their marketing activities and 42 percent are satisfied with respect to this ability.

Table 2. What is your company's degree of satisfaction regarding its ability of measuring the results of marketing activities?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very satisfied	10	10.0	10.2	10.2
	Satisfied	42	42.0	42.9	53.1
	Average satisfaction	29	29.0	29.6	82.7
	Less satisfied	14	14.0	14.3	96.9
	Not at all satisfied	3	3.0	3.1	100.0
	Total	98	98.0	100.0	
Missing	No answer	2	2.0		
	Total	100	100.0		

In what concerns the usage of a specific term for referring to the main intangible marketing assets of the company, approximately one third (35 percent) of the investigated firms declared they use such a specific term, and only 29 percent of the companies admitted they perform some kind of assessment of this asset. The specific term most used by the investigated firms was reputation (mentioned by 11 out of the 100 companies), followed by brand equity (mentioned by 9 companies).

Table 3. Does your organization use a specific term for its main intangible marketing assets?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	35	35.0	35.7	35.7
	No	63	63.0	64.3	100.0
	Total	98	98.0	100.0	
Missing	No answer	2	2.0		
	Total	100	100.0		

Table 4. Does your organization perform an assessment of its intangible marketing assets?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	29	29.0	30.9	30.9
	No	56	56.0	59.6	90.4
	Do not know	9	9.0	9.6	100.0
	Total	94	94.0	100.0	
Missing	No answer	6	6.0		
	Total	100	100.0		

The research allowed the authors to draw a hierarchy of marketing performance indicators under discussion according to their degree of utilization by the investigated companies. These results are presented in table 5. It can be easily noticed that the first part of the hierarchy is dominated by metrics that measure marketing productivity and each one of the eleven metrics belonging to this category of marketing metrics is used by at least 88 percent of the investigated firms. The top three most used marketing metrics are customer loyalty, perceived quality of the product and customer satisfaction. On the other hand, brand equity metrics and customer equity metrics are less used by the investigated companies. For example, only 38 percent and respectively 37 percent of the respondents use brand awareness and intention of buying the brand for evaluating their marketing performance, while 37 percent of the firms use the following customer equity metrics: customer lifetime value, frequency of purchase, revenue per customer and average cost of retaining the customer.

Table 5. Hierarchy of the marketing metrics from the three assessment categories: marketing productivity, brand equity and customer equity

Rank	**Marketing metric**	**Category of the marketing metric**	**Percent of firms that report using the metric**	**Percent of firms that consider the metric as very important for the assessment of marketing performance**
1	Customer loyalty	MPM	100%	69%
2	Perceived quality	MPM	99%	80%
3	Customer satisfaction	MPM	98%	80%
4	Number of clients	MPM	97%	51%
5	Sales (volume or value)	MPM	96%	64%
6	Profit	MPM	96%	57%
7	Marketing spend	MPM	93%	21%

Rank	Marketing metric	Category of the marketing metric	Percent of firms that report using the metric	Percent of firms that consider the metric as very important for the assessment of marketing performance
8	Gross margin	MPM	92%	42%
9	Return on marketing investment	MPM	91%	32%
10	Absolute market share	MPM	89%	24%
11	Number of new products launched in the last three years	MPM	88%	21%
12	Brand awareness	BEM	38%	29%
13	Attitude towards the brand	BEM	37%	26%
14	Customer lifetime value	CEM	37%	23%
15	Frequency of customer purchases	CEM	37%	21%
16	Intention of buying the brand	BEM	37%	17%
17	Revenue per customer	CEM	37%	15%
18	Average cost of retaining the customer	CEM	37%	15%
19	Profit per client	CEM	36%	16%
20	Average cost of attracting a new customer	CEM	36%	15%
21	Brand value	BEM	35%	11%

* MPM = marketing productivity metrics ; BEM = brand equity metrics ; CEM = customer equity metrics

Tables 6, 7 and 8 present the frequencies of assessing the marketing metrics from the three categories: marketing productivity metrics, brand equity metrics and customer equity metrics respectively.

Regarding the frequency of assessing marketing productivity metrics, it can be seen from table 6 that 48 percent of the investigated companies assess these metrics on a regular basis, either quarterly, half-yearly or yearly, while another almost third of the respondents, 31 percent, evaluate these metric monthly or even more often than that.

In contrast, the metrics belonging to the brand equity category are assessed regularly by 25 percent of the respondents, monthly or more by 5 percent of the companies, and are never assesses by 20 percent of the investigated firms. Moreover, 39 percent of the companies did not provide an answer to this question as they previously declared that they do not perform any assessment of their intangible marketing assets.

Lastly, the metrics used for customer equity evaluation are assessed by only 34 percent of the respondent firms. Most of these companies, 26 percent, evaluate these metric on a regular basis, 7 percent perform their assessment monthly or more, while 1 percent evaluate these metrics less than yearly.

Table 6. Frequency of marketing productivity metrics assessment by company's top management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Monthly or more	31	31.0	32.0	32.0
	Regularly (Quarterly / Half-yearly / Yearly)	48	48.0	49.5	81.4
	Rarely	11	11.0	11.3	92.8
	Never	3	3.0	3.1	95.9
	Do not know	4	4.0	4.1	100.0
	Total	97	97.0	100.0	
Missing	No answer	3	3.0		
	Total	100	100.0		

Table 7. Frequency of brand equity metrics assessment by company's top management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Monthly	5	5.0	8.2	8.2
	Regularly (Quarterly / Half-yearly / Yearly)	25	25.0	41.0	49.2
	Rarely	2	2.0	3.3	52.5
	Never	20	20.0	32.8	85.2
	Do not know	9	9.0	14.8	100.0
	Total	61	61.0	100.0	
Missing	No answer	39	39.0		
	Total	100	100.0		

Table 8. Frequency of customer equity metrics assessment by company's top management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Monthly or more	7	7.0	12.5	12.5
	Regularly (Quarterly / Half-yearly / Yearly)	26	26.0	46.4	58.9
	Rarely	1	1.0	1.8	60.7
	Never	13	13.0	23.2	83.9
	Do not know	9	9.0	16.1	100.0
	Total	56	56.0	100.0	
Missing	No answer	44	44.0		
	Total	100	100.0		

In what concerns the benchmarks used by the investigated companies for their marketing metrics, table 9 shows that the most used benchmark consists in values established in the marketing plan or business plan, as this benchmark is used by 50 percent of the firms. The second most used benchmark is represented by the values obtained for the marketing metrics in the previous year, according to the opinion of 46.9 percent of the investigated companies. Another 17.7 percent of the firms compare the values of the marketing metrics they use against certain competitors, while 16.7 percent of the firms rely on data available at product category level.

Table 9. Performance benchmarks used for assessing marketing metrics

Case Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Benchmarks_for_marketing_metrics[a]	96	96.0%	4	4.0%	100	100.0%

a. Dichotomy group tabulated at value 1.

Bencmarks_for_marketing_metrics Frequencies

		Responses		
		N	Percent	Percent of Cases
Benchmarks_for_marketing_metrics[a]	Previous year	45	33.1%	46.9%
	Business plan / Marketing plan	48	35.3%	50.0%
	Existent data at product category level	16	11.8%	16.7%
	Specific competitors	17	12.5%	17.7%
	Do not know	10	7.4%	10.4%
[a]	Total	136	100.0%	141.7%

a. Dichotomy group tabulated at value 1.

Discussion and conclusions

Measuring marketing performance is very important, especially in recent economic times, when each function of the organization has to prove its contribution to the organizational performance.

The research showed that almost all of the investigated companies (97%) consider that measuring marketing performance is important in the context of business performance, but only little over half of them are very satisfied (10%) or satisfied (42%) with their ability of measuring this kind of performance.

35% of the respondents use a specific term for referring to their marketing assets, the most frequently mentioned terms being reputation and brand equity, but only 29% of the companies perform an assessment of this asset.

Customer loyalty, perceived quality and customer satisfaction are the top three most used marketing metrics by the investigated companies, as they are being used by 100%, 99% and respectively 99% of the respondents. At the same time, these three metrics are also considered the most important marketing metrics for assessing marketing performance.

The results also showed that the frequency of evaluating marketing productivity metrics is higher than the frequency of evaluating brand equity metrics and customer equity metrics.

Regarding the benchmarks used by the investigated companies for assessing the marketing metrics, it seems that the benchmark most frequently used for performing this assessment relies in the targets set for the marketing metric in the business plan / marketing plan.

The research highlighted relatively low levels of both use and importance attached to brand and customer equity metrics. Of course, given the recent turbulent economic times, most companies were forced to fight for survival, and therefore their focus on marketing productivity metrics, which reflect the company's achievement of objectives on the short term is understandable. However, companies should pay more attention to their marketing intangible assets, brands and customers, as these two can significantly help organizations in surpassing an economic crisis and can increase the value of the organization on the long term.

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Notes

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[1] Srivastava and Shocker (quoted in Ambler et al., 2001, p.10) define brand equity as *"a set of associations and behaviors on the part of a brand's customers, channel members and parent corporation that permits the brand to earn greater volume or greater margins than it could without the brand name and that gives a strong, sustainable and differential advantage"* .
[2] Customer equity is defined as *"the sum of the lifetime values of all the firm's current and future customers, where the lifetime value is the discounted profit stream obtained from the customer"* (Rust et al., 2004, p.78).

Information management in emergency situations

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Abstract

Purpose: *The main objective is to analyze the possibility of improving the performance of existing information networks into the territory using the latest equipment in collecting and processing information for emergency management.*
Methodology/approach: *To achieve the desired result, we used the method of comparison of the information system in emergency situations in our country and similar operates systems in the Netherlands, Britain and Germany, and the possibilities of implementation, taking into account information from the reference strategy.*
Findings: *Any situation requiring a decision hierarchy should offer possible alternatives (alternatives), from the most ingenious and profitable to the least preferred, but feasible.*
Research limitations/implications :
Nature of the problems facing the Romanian society, namely, those related to emergency management situations, due to lack of information in their possession or late arrival of it has generated the need to initiate projects to modernize the information system field, projects that unfortunately are only zonal coverage.
Practical implications *The magnitude and importance of providing information in emergency management information system for gradually becomes a reference system whose design and architecture are standardized internationally, giving it outstanding technical and functional features, which favors decisive decision-making processes and emergency management .*
Originality/value *This paper addresses the central and local government responsibilities in emergency management, and an empirical approach is recommended as a quality research.*

Key words: *information management, information system, system optimization*

Introduction

The present paper, aims to achieve an overview of issues pointing out and detailing the significant issues, in the current context, also indicating some general items that have to be taken into account, on short and medium term, related to information management in emergency situations.

The information needed for emergency management

For the benefiting of all available forces, according to existing plans, updated according to actual situation, there are necesarry many varied data and information, some of them known in advance and included in plans, others generated from the actual situation and from the environment in which acting.

The integration of data and informations in the command and control system of the emergency management structures, as a Dutch - German model, are presented in figure 1.

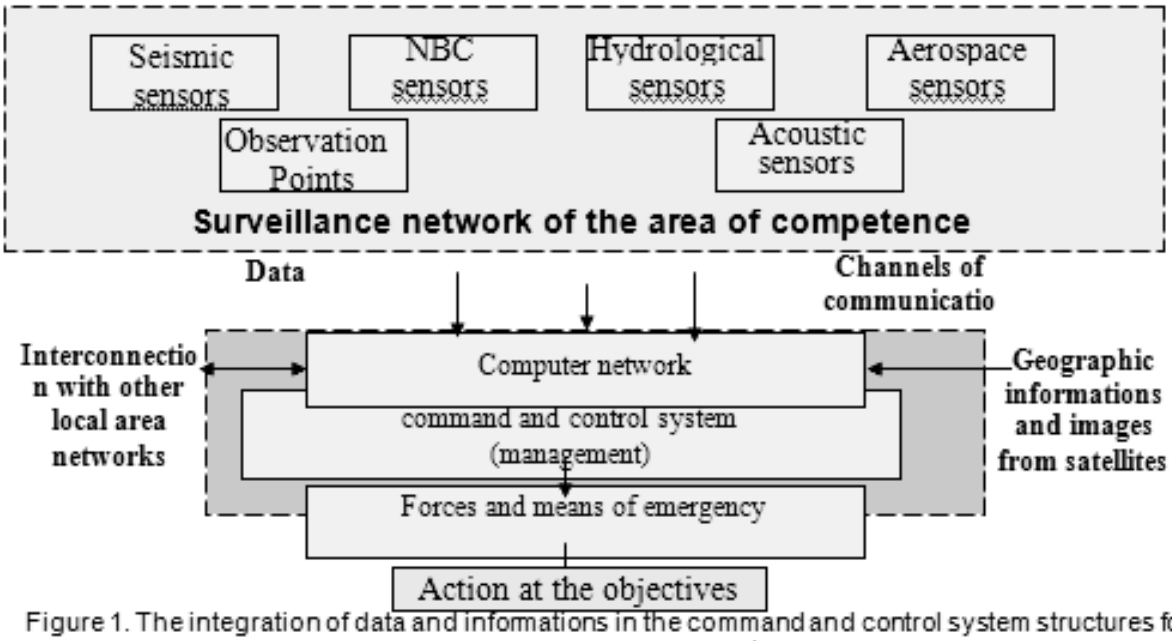

Figure 1. The integration of data and informations in the command and control system structures for emergency management

It results that the information should be obtained continuously, analyzed, selected and grouped in appropriate database, that will be available to decision-making structures, for using them in developing action plans and decisions in the event of disasters.

Most of them should be kept to all decision-making structures and parties involved in emergency action. They must be the informational support for interoperability and periodic trainings[1].

Schematic diagram of information activities in the structures responsible for emergency management is presented in the figure 2.

Studies have shown that the main categories of information for emergency situations are:

- orders and dispositions regarding emergency actions of the top echelons;
- notification messages on the occurrence of emergency situations ;
- geographical information regarding national territory, continually updated based on data transmitted from satellite and digital aerial photographs, incorporated into the geographical information system (GIS) [http://erg.ugsg.guv/isb/pubs/gis/poster/indexIntml] networks, which allows obtaining of any kind of automatic graphic data about the terrain, relief, rivers, villages, road networks, as well as the disposal sites of the intervention formations and objectives that are potential generators of emergency situations, with mark of their aftermath and displaying them on the scale required;
- categories of emergencies that may occur on the national territory, their hierarchy by the level of danger and their characterization in terms of effects;
- participating forces with technical equipment and the specific procedure for each category of emergency, steps for their best coordination and scales of their work;
- information transmitted via sensors network regarding the alert;
- effects of the emergency, in time and space in the geographical area of action;
- contingency plan for every emergency predicted, indicating the planned forces, technical equipments that are used and the personal categories, and their travel arrangements on optimal routes chosen by GPS;
- networks of water available for fire fighting actions for each objective, their functional characteristics and work scheme;
- reports about actions and measures meant to prevent the occurrence of an emergency;
- reports about natural disasters and the damage caused by them;
- the situation and the condition of roads and railways networks in national territory, in electronic format and its permanent updating;

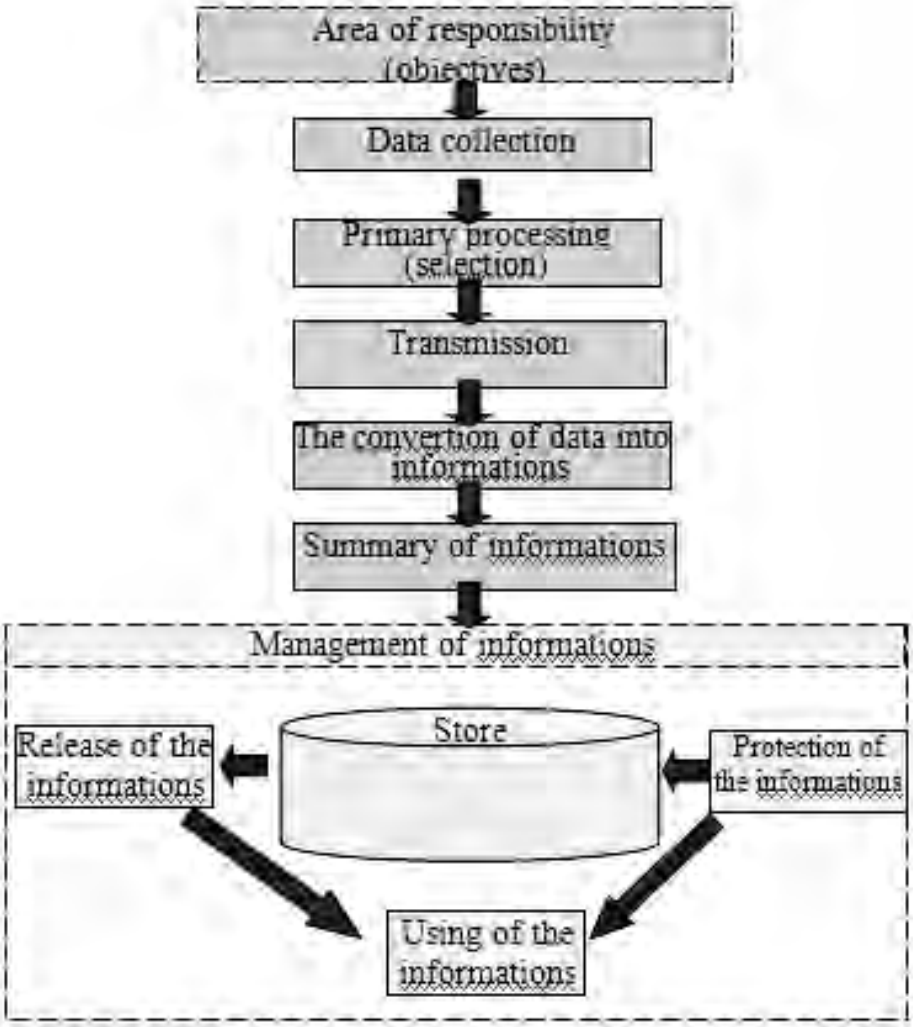

Figure 2. Informational activities of the emergency management structures

- data about GPS (global positioning system) to identify places for disposal of the intervention forces, their optimum movement and their action at the objective;

- the content of the order forces actions to ensure the movement and the execution of missions by emergency structures

- hierarchy of entry into the action device of the organic forces and reinforcement forces, for emergency situations, to achieve maximum efficiency;

- categories of alerts that have to be sent for every emergency situation and what notification message should be sent to the decision-making structures at central level, regional level and local level and to the professional structures of neighboring states;

- the content of methods and techniques for analysis and evaluation of consequences of emergency situations;

- necessary of materials, vehicles and action for intervention, the sequence of their employment, and the establishment of reserves;

- weather forecast and hydrological situation during the emergency action, their influence on the organization and execution of missions;

- the geographical areas prone to earthquakes, the characterization of their aftermath parameters and the forecasting of the optimal way of action to limit casualties and damage to property;

- the geographical areas affected by nuclear or chemical accident, the size, the density, the velocity and the direction of movement for the radioactive cloud (toxic), the level of contamination of land and water per areas, measures to evacuate the population and for disabling etc.

- the geographical areas in the territory prone to flooding, their characteristics and the optimal action to save the population and the houses;
- data about situation of buildings in cities with high risk of damage at earthquake, differentiated on classes of earthquakes;
- the casualty records on situations, sex and age (wounded on categories, deceased, missing peoples) and material damage resulting from the emergency situations that occurred;
- losses of forces and equipment that have participated at the intervention, the situation and place for treatment of wounded;
- capacity of hospitals in each city, their level of occupancy and specialties available;
- capacity and technical equipment of the ambulance services in the locality where the emergency occurred and in the neighboring towns;
- possibilities of forces from neighboring villages to act in emergency situations and their arrival time in the intervention district;
- periodic reports about the evolution of the disaster's liquidation actions and about other emergencies;
- information transmitted to higher echelons regarding the measures taken and the consequences of emergency situations;
- information that are subject for public relations used for public information and their supply sequencing;

It follows that the emergency management is based on a large and diverse streams of information , collected in real time from large areas, which requires that their management and protection to be executed all the time and to be based on the most modern technologies.

The optimization of the information system

The optimization of the information system for information management in emergency situations is the key requirement for the modern management. This refers to the entire infrastructure, organization (streams, channels), personnel and all components that collect, transmit, store, process and disseminate information and also refers to the methods, the processes, the procedures and the techniques used.

The objectives of information system's optimization for information management in emergency situations

The information system's optimization for information management in emergency situations is an activity of great responsibility, able to capitalize and build on the latest scientific achievements in the domain of information technology and communications [V.Rimniceanu, (2007)].

This should take into account the criteria of maximum efficiency of the information system that is going to be organized, equipped and operated so as it will ensure the full availability and authenticity of information about emergency situations, and also the achievement of the objectives in concrete terms that must be resolved.

It aims that the information system's response time to be minimized, usually, it should be characterized by high efficiency, tend to operate in real time, which requires early and continuously updated information, about any potential or actual emergency situation and the conditions necessary to be able to provided the information within two minutes, so that most time is devoted to the intervention forces.

The efficiency parameters of the informational system are presented in figure 3.

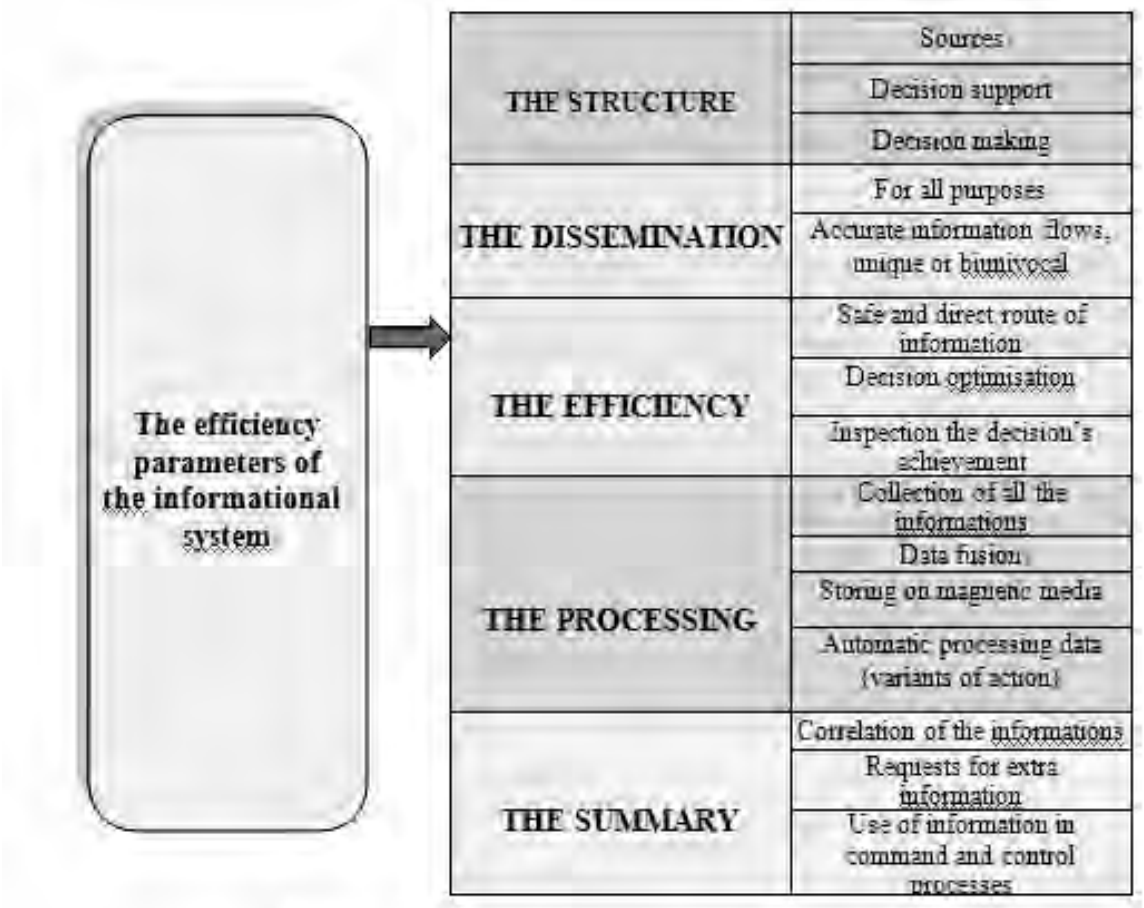

Figure 3. The efficiency parameters of the informational system

The efficiency parameters of the informational system must ensure the obtaining of an rapid movement, on the safest and direct route, of the information for emergency management, allowing both the analysis, the development of different variants of action and choosing the optimal one, and also allowing the embrance of decision with maximum efficiency[V.Dumitru,(2000)].

The ensure of the efficiency is based on the optimizing of the information system based on its systemic approach in relation with the existing one, respecting the principle of objective's rule.

The symbiosis between information and decision in emergency management makes, by optimizing, the system to become an information-decision system [Ciobanu, (2006)], which is a fundamental element for command and control the processes, whose content is represented in figure 5.

All networks and data flows of the information system are oriented to the decision-making structures, which are consisted by stationary command points[Nicolescu,(2001)] and mobile of the emergency structures.

The main novelty in the information system optimized is the existence of mobile command points, capable of providing the approach of the leadership to the intervention action at the targets.

All information regarding the emergency management must be included, into a databases [Habracken,(2002)],as soon as possible, they must be continually updated and they have to be able to be used immediately, depending on the case that has to be solve.

Information ensuring of each compartment involved in resolving emergency situations, is the primary condition for the successful of the intervention actions [Purcarea, (2006)].

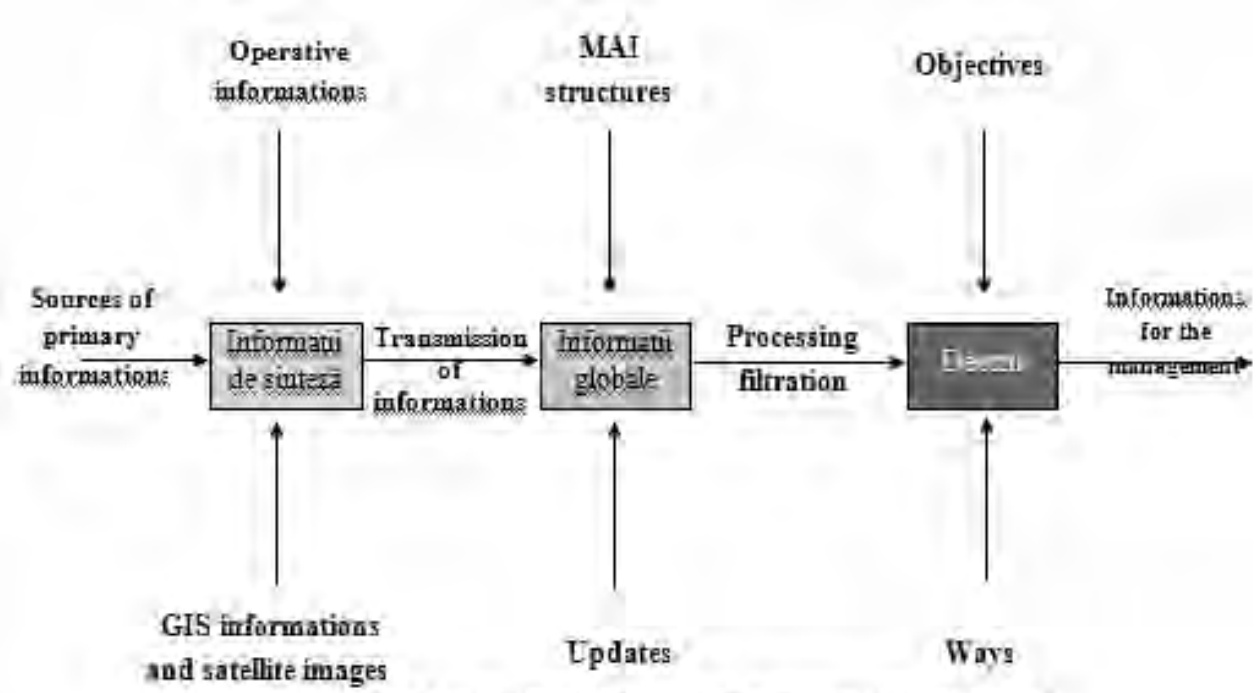

Figura 5. the sages of the information-decision process for the command and control

Emergency information flow is shown in figure 6.

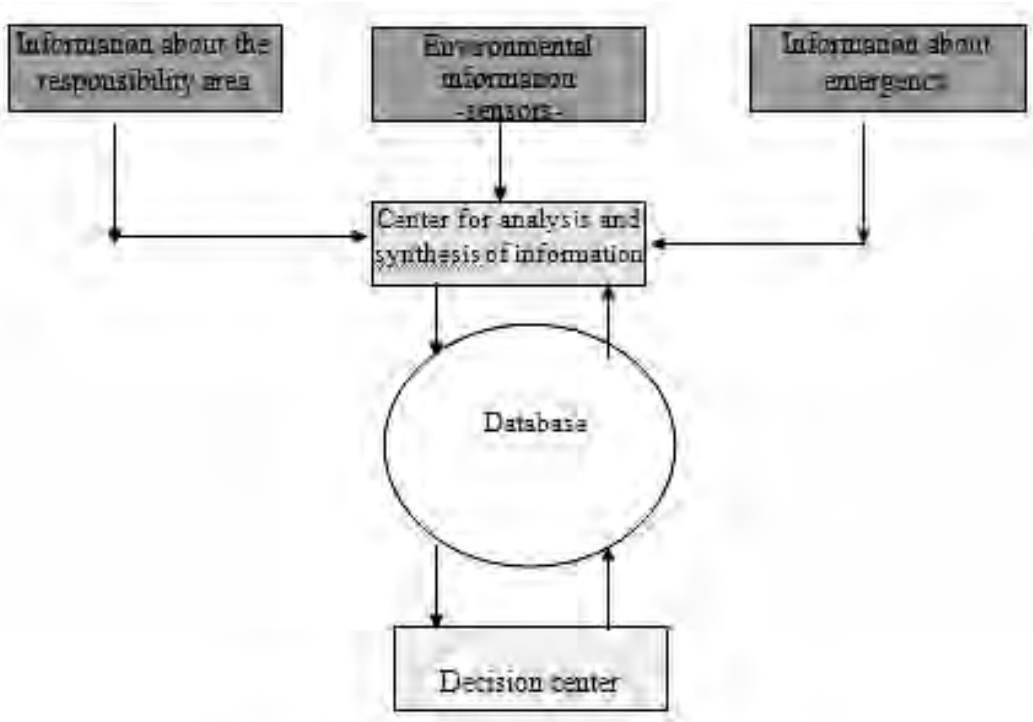

Figura 6. Emergency information flow is shown

It follows that the machinery used for collecting, transmitting, storing, processing and dissemination the data and information must be very efficient, and they must be able to contribute to the minimize of the information cycle and to retrieve in short time, in the system of all the information necessary for decision and implementation of emergency activities.

Conclusion

From the study that has been made it can be concluded that, in terms of information, the main attention should be directed to *modern ways* of data collection, transmission, processing and displaying information.
The main systemic features that are highlight in an information system, at global level and which are defining for its properly functioning, are: - compatibility of data which provides the capacity for two or more components to function together, without generating mutual disturbances – interoperability to accept data to and from users, making it possible to exploit the best capabilities of the system.

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Best Practice Guide for Using Advanced Management Methods in Romanian Organizations

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Abstract

Purpose *–The aim of the paper is to design a best practice guide for the advanced management methods in the Romanian organizations. The study focuses on the Romanian organizations which implemented a SIVECO ERP and BI software but we have also investigated the whole Romanian SMB's, ERP and BI market.*
Methodology/approach *- The methodology used is both quantitative and qualitative. The research results were obtained with the use of the three questionnaires, and our purpose was to design a best practice guide.*
Findings *– The practical value of this study was to design a best practice guide for the advanced management methods in Romanian organizations.*
Research limitations/implications *– The practical study is oriented towards Romanian companies and deals with the dependence between the level of business software implementation in every business function or department and the implementation of seven main advanced decision management methods.*
Practical implications *– The practical value of this study was to design a best practice guide for the advanced management methods in Romanian organizations.*
Originality/value *– The research has revealed the global IT and specific ERP and BI implementing level, as advanced management methods, in the 2010 Romanian organizations, and has a high level of originality, such a study has been never conducted before for computer based advanced management methods implementation.*

Key words: *Advanced Management Methods, Enterprise Resource Planning, Business Intelligence.*

Introduction

The paper proposes to investigate the current situation on the use of modern methods of management in Romanian organizations, but at the same time to identify opportunities on the management improvement in Romanian organizations. It proposes to address informatics systems, seen as advanced methods of management, from a managerial approach. We also tried through our endeavor to mark out the manner in which the use of computer instruments can change a traditional managerial working.

The present interest of the approach consists in the powerful impact IT&C technologies have upon the development of nowadays organizations as well as upon the daily life of each individual; nevertheless, one should not ignore the special condition Romanian economy and especially Romanian society as a whole is confronted with during the current period.

The motivation of the approach is supported by the fact that IT&C industry has had an explosive development during the last years in Romania. Accordingly, this industry represents 10% of

Romania's gross domestic product, a quite high percent in case one notices that not long ago it represented only 3%. At the same time, global financial crisis is being deeply felt in Romania due to the structural crisis Romanian society has been led towards. When employing the phrase "led towards" we refer to the defective management of the last 20 years during which the numberless wrong decisions that were taken were responsible for nowadays crisis.

We have started the paper relying upon our own experience of about 20 years in the field of planning and implementing informational systems and mainly upon the experience of training the users of such systems. According to our vision, the importance of informational systems primarily consists in effectively and responsibly understanding the need of adapting to a global informational society by all managers or persons of an organization; the reason of taking the course of such an action is determined by the fact that today informational systems increasingly develop into an indispensible and vital component of the business success of an organization or of an entrepreneur.

Advanced Management Methods

While noticing a short overview of the evolution of the main management methods during the last 50 years we have tried to draw out the chapter dealing with the advanced methods used by the management of Romanian organizations. Management methods have witnessed an evolution lately, namely during the period 1990 -2010, strictly connected with the information and communication technologies. Accordingly, while the decade '70 – '80 belonged to the management methods characterized by strategy, leadership or excellence, beginning with the '90s, the personalities of management history have proposed, conceptualized, and studied management methods in close connection with information technology. The years '90s and 2000 were strongly influenced, in the field of management methods and techniques, by a series of professors, researchers and scientists belonging to American universities and having an engineering, management, and IT interdisciplinary training. The methods meant for organization's strategy, such as score-card, or for complex management decisions, such as business analyses, represent in our vision the sole solution a business and an organization may adopt in order to enter the decade to come. We consider that the category of the advanced management methods should include: Enterprise Resource Planning (ERP), Business Intelligence (BI), Balanced Scorecard (BSC), Business Process Reengineering (BPR), Business Process Management (BPM), and Enterprise Content Management (ECM).

Integrated information systems worldwide known as Enterprise Resource Planning represent a tool which integrate the economic processes of an organization and optimize its resources. Enterprise Resource Planning represent a system based on the architecture client/server developed to process transactions and facilitate the integration of all processes starting with the planning and development stage and reaching to the relations with the suppliers, customers and other partners. Business intelligence is a concept which refers to the way in which decision can be made faster and easier. In the current society the companies collect huge quantities of data daily: information about orders, inventories, and transactions from work sites and of course information about customers. The BSC represents the total number of current information displayed in a synoptic, preset form referring to the main results of the activities and the main factors which condition their efficient development. The BSC regroups and presents under a selective form the significant indicators also called key points or signals, which enhance the responsible of the assembly or of some part of the organization to control his own field of responsibility.

Analysis of the Romanian market of integrated management information systems and decision support systems

We have made a systematic and comparative approach of the existing or potential conditions in the field of the informational systems implemented by Romanian organizations. Accordingly, we have drawn out a presentation of the international and national markets of ERP (Enterprise Resource Planning – integrated informational systems planned with a view to efficiently model and administrate the resources of an organization) informational applications as well as BI

(Business Intelligence – the economic business of an organization owing to decisional support informational systems) applications. We have identified the common elements as well as the different ones of the circumstances analyzed within the organizations that employ informational systems as management methods, a fact that determined the drawing out of research hypotheses. This envisaged the global presentation of the market of ERP and BI applications; accordingly, ten companies active on ERP's Romanian market (SAP, Oracle, Microsoft, SIVECO through SA 2011, EBS through Clarvison, Total Soft through Charisma, Wizrom, SeniorSoftware through SeniorERP, WinMentor and Alfa Software through ASiS) have been displayed, and five companies active on BI's Romanian market (Microsoft, Oracle, SIVECO, Total Soft and Panorama).

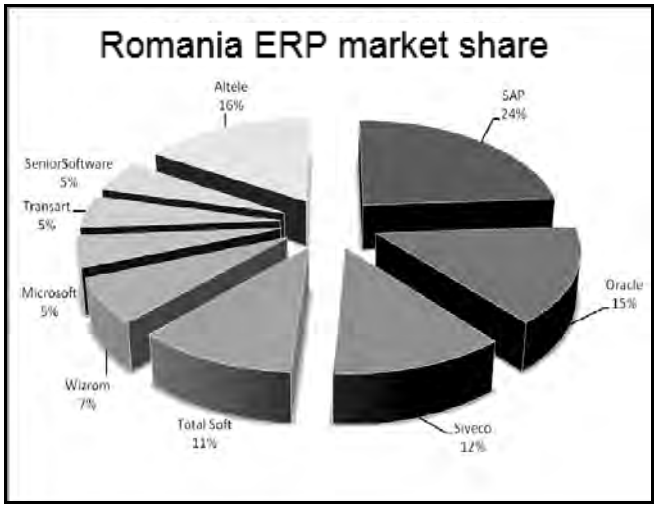

Figure 1. Romania ERP market share
(Source: http://www.marketwatch.ro/articol/5362/Isi_revine_piata_ERP_locala_in_2010/)

Taking into consideration the market shares, the research focused on three companies, namely, SAP, Oracle and SIVECO, because they own more than 50% of the Romanian market of enterprise integrated applications. We assessed another 7 Romanian companies that design business software affordable for small and medium size enterprises(SME's), worthing respectively thousands or ten thousands Euros compared to hundreds of thousands or even million Euros in the case of SAP, Oracle and SIVECO, namely EBS, Total Soft, Wizrom, Senior Software, Alfa Software and WinMentor. We evaluated as well the worldwide leader of software Microsoft, that on the ERP and BI market has an average success, because the policy oriented towards masses (a large number of end-users), applied in the field of monopost or office operating systems, does not work just within small and medium size enterprises, to which Microsoft addresses differently anyway.

Implementing the advanced management methods within Romanian organizations owing to informational systems

The study set sights on Romanian organizations which implemented a Siveco ERP and BI software, and were collected in 2010 year. The instruments used for collecting data were a quantitative questionnaire, a qualitative one and an interview. The research is based on the technique of quantitative questionnaire. Even data were collected only from 13 organizations, these are representative for the 2010 Romanian economy, because in this economical moment Romania has only 5,000 companies that need an ERP and a BI software instrument as a advanced management method. So we have only 2,000 big companies having more than 250 employees which can afford to implement a SAP, Oracle or Siveco ERP software.

The 5000 companies likely to implement an ERP are according to our detained data, distributed as follows: 1200 in SAP portfolio, Oracle SIVECO and Total portfolio and about 4000 in other 5 software company's portfolio, investigated by us, let alone the Win Mentor Company with its 7000 clients from micro-companies class.

So, are likely to be investigated public organizations and private Romanian capital organizations. These two categories have a hundred percent Romanian management, and had to optimize it. The data were collected during January and June 2010.

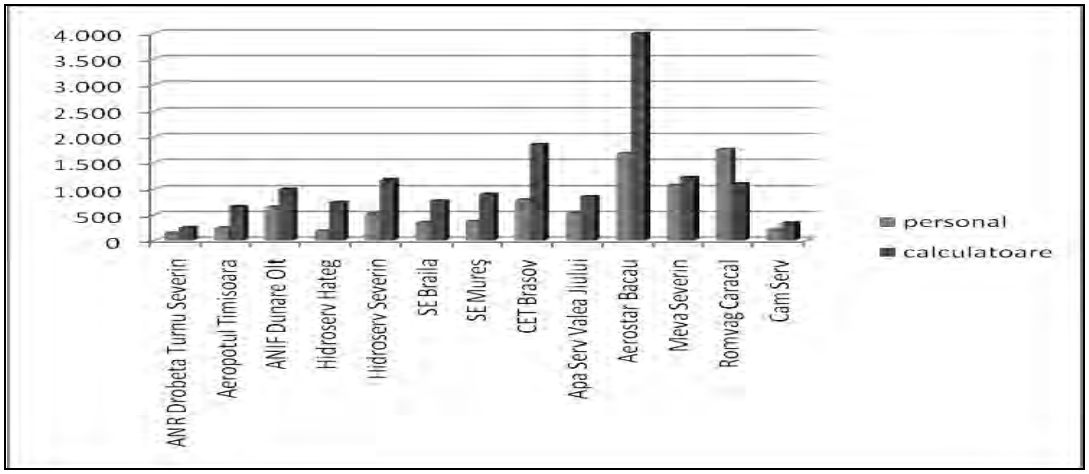

Figure 2. Parallel graphic analysis between organization size and the hardware the organization

One could notice that a correlation exists most of the time regarding the personnel number and the number of computers with which the location is equipped. Only Aerostar Bacau and Romvag Caracal seem to respect this correlation. It should be noted that on the axis of ordinates we have a value that identifies not only the number of staff but also the number of computers multiplied by 10 (for homogeneity of values).

We have analyzed the level of implementing of ERP applications in the functions of the enterprise through SIVECO Applications (SA), and that the implementation of analytical and managerial decision tools through SIVECO Business Analyzer (SBA). Because the answer given by respondents was not always gradual (we have not received the degree of importance given to the level of IT&C implementation for each function).We were forced to agree the 1 value for implementation and 0 value for non implementation.

Organizatia	MP	MFC	MCG	MAD	MRU	MS	MIX_ERP
ANR Drobeta Turnu Severin	0	1	0	1	1	1	0,67
Aeropotul Timisoara	0	1	0	0	1	1	0,50
ANIF Dunare Olt	0	1	0	0	1	1	0,50
Hidroserv Hateg	0	1	1	1	1	1	0,83
Hidroserv Severin	0	1	1	1	1	1	0,83
SE Braila	0	1	1	1	0	1	0,67
SE Mureş	0	1	1	1	1	1	0,83
CET Brasov	0	1	0	1	0	0	0,33
Apa Serv Valea Jiului	0	1	1	1	1	1	0,83
Aerostar Bacau	1	1	1	1	1	1	1,00
Meva Severin	1	1	1	1	1	1	1,00
Romvag Caracal	1	1	1	1	1	1	1,00
Cam Serv	0	1	0	1	0	1	0,50

Figure 3. ERP implementation on the functions of the enterprise through SIVECO Applications (SA)

The six investigated functions: production, accounting, management accounting, purchasing and sales, human resources and payroll are actually only four, and we thoroughly investigate the financial accounting function. From figure 3 we can observe a maximum implementation in most private firms (less Cam Serv which is a small organization), and an improved implementation for public company with some exceptions (CET Brasov). Please note that the field of activity may influence this interpretation.

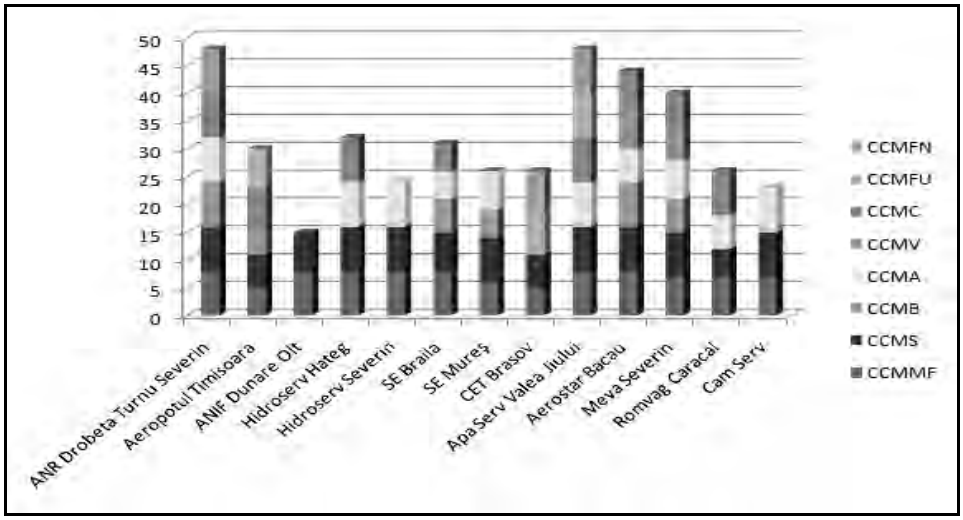

Figure 4. ERP implementation in the accounting and commercial business modules

The main modules of business investigated were accounting MFC MCG and purchasing and sales MAD through SIVECO Applications 2011 implemented in the 13 organizations. Their modules were CCMMF Fixed Assets Management, CCMS Inventory Management, CCMB Budget Management, CCMA Procurement Management, CCMV Sales Management, CCMC Contract Managemen0t, CCMFU CCMFN Billing Management and Cash Flow Management.

organizatia	BI_SBA	BI_SBSC	BI_Querry	BI_Rapoarte	BI_OLAP	BI_Excel	BI_Etc
ANR Drobeta Turnu Severin	7	0	7	7	7	0	0
Aeropotul Timisoara	6	0	5	7	0	4	3
ANIF Dunare Olt	0	0	0	7	0	0	0
Hidroserv Hateg	5	4	3	7	2	6	1
Hidroserv Severin	7	0	5	6	0	4	0
SE Braila	7	0	6	5	0	4	0
CET Brasov	0	0	7	6	0	0	5
Apa Serv Valea Jiului	2	0	6	7	3	5	5
Aerostar Bacau	5	0	0	7	0	4	0
Meva Severin	7	0	0	7	0	0	0
Romvag Caracal	7	0	7	7	0	7	0

Figure 5. Seven main advanced decision management methods

Another analysis was performed on seven main advanced decision management methods and we found that reports and queries that are not really traditional managerial decision tools are considered by our respondents decision tools, and the real advanced management methods such as dashboards, key performance indicators against targets related (BSC - Balanced Scored Card) and OLAP technology have a less usage. Reports and queries are still mainly perceived as the basic methods in the decision, but surprisingly Excel does not have green lights (is not used very efficient). If we separately address to SIVECO Business Analyzer (SBA) Business Intelligence software considered as an advanced management method, and in this attempt we identify how to use specific tools such as scenarios, forecast analysis, “what if” type analysis or tracking aggregation and break down structures and levels, we point out some conclusions. We mark with a red traffic light the problems and there are not dominant, the forecast and the scenarios are well used, and “what if” type tests are unfortunately used rarely.

In the table above we have highlighted those areas that have been awarded a maximum score after the use (8-blue), but also those who received a minimum score according to the same degree of use (0 - red flag).

organizatia	SBA_Scenarii	SBA_Previziune	SBA_What_If	SBA_Drill_Up
ANR Drobeta Turnu Severi	0	3	0	0
Aeropotul Timisoara	0	4	0	0
ANIF Dunare Olt	4	4	4	0
Hidroserv Hateg	3	4	2	1
Hidroserv Severin	4	3	0	3
SE Braila	4	3	1	2
CET Brasov	0	0	0	0
Apa Serv Valea Jiului	4	0	0	0
Aerostar Bacau	0	3	0	4
Meva Severin	4	4	0	4
Romvag Caracal	4	4	0	4

Figure 6. Implementation of analytical and managerial decision tools through SIVECO Business Analyzer (SBA)

If we separately address to SIVECO Business Analyzer (SBA)a Business Intelligence software considered as an advanced management method, and in this attempt we identify how to use specific tools such as scenarios, forecast analysis, “what if” type analysis or tracking aggregation and break down structure sand levels, we point out some conclusions. We mark with a red traffic lights the problems and there are not dominant, the forecast and the scenarios are well used, and “what if” type tests are unfortunately seldom used.

Designing the Best Practice Guide

Based of a 20 years experience achieved in the field of analysis, design and implementation of informational systems we tried to elaborate a best practice guide dedicated to Romanian organizations.

We elaborated this guide as a response to the following question: *“Does the culture of business application implementation exist? Do Romanian managers understand the utility of such a solution?”* For elaborating this guide we identified the three possible options for implementing these integrated systems in organizations and according to these options, the advantages and the risks of the implementation.

The best practice guide elaborated was based both on the benefits and the several risks previously highlighted, in the idea of avoiding the last mentioned, and considering that it should be focused on 6 main strategies.

Strategy number 1. Design a new approach of the informational and functional infrastructure (a virtual structure) within an organization, starting with its approach as a business, by defining the primary data and placing the accent on obtaining the output reports acting on the business requests.

Strategy number 2. Ensure a complete approach (end to end) of the processes of a business, through a strong integration on horizontal of the processes and by definitely influencing the results of its appliance.

Strategy number 3. Ensure the informational support necessary for taking the decision at operational management level by performing a background restructuring of the business, in the business process reengineering type.

Strategy number 4. Ground the activity by combining the business, statistic and engineering methodologies, falling back upon the interdisciplinarity within any field of activity.

Strategy number 5. Choosing the most appropriate informational integrated system by consulting the offer (see the ample market analysis we performed), on the advices of the consultants but as well on the experience own personnel within the IT department.

Strategy number 6. The integrated business tools must respond to the necessities and expectations of the managerial teams and allow the use of advanced management methods for achieving the business objectives.

We have taken the decision of elaborating this small guide of good practice with a view of choosing the most suitable advanced management methods for an organization; this is due to the fact that procedures, methods, etc. have been settled in case of the vital issues Romanian society has to face while good practice guides based upon a positive experience have most of the time been forgotten or omitted.

In this context the basic concepts of informatics system ensure technical and behavioral elements that help in underlying of the ERP application, of the decisional process and of building of a strategic advantage of the company over the competitors. The informatics system technology is reflected by the structure and by hardware and software endowment. Using informatics systems by means of their software applications in operational and management also provides the building of a competitive advantage of the organization at local and internal level and to all forms of electronic commerce and information exchange using the Internet. The development of informatics systems actually represents the way the end users use informatics systems to solve problems within the organization or to increase productivity. On the other hand the management of informatics systems is about the way the informatics resources are administrated and about the strategies regarding the involvement and the use of information at different levels: end user, organization and global.

Discussion and conclusions

The research performed within this paper aimed at investigating the Romanian society from the large size organizations and small and medium size enterprises point of view. We identified the fact that the management methods used differ, but converge towards a single objective, namely increasing productivity. In this context the approach of large organizations was performed on the base of implementing informational systems “made in Romania”, of the SIVECO company (a 100% Romanian software company), and SME and micro-enterprises were analyzed by means of a mixed approach of the local solution implementations and international solutions. Comparatively analyzing the management methods, we observed which are the foreground methods used by Romanian organizations.

We have chosen this research topic due to the fact that under the present social and economic circumstances the conceptualization and use of certain advanced management methods represent one of the main coordinates owing to which management asserts itself as a fundamental element of organizational culture. The period we face places organizations in an unpredictable and instable environment; the solution of coping with such circumstances can only be provided by a performing management. Meanwhile, informational and communication technology definitely influences the existing organizations, and, as the first chapter shows, management methods become decisive for the organization’s evolution. Consequently, we consider as necessary a radiography of Romanian society regarding the implementation of the advanced management methods based upon information technology capable of offering both an overall view of the implementation level of these methods within Romanian organizations and a prefigure of what it is going to be done in Romanian society at the level of modernizing the organizations’ management.

A solution that we foresee for our getting out of crisis could consist in changing the attitude the Romanians have towards work, toward performance and the efficiency of the work they do, and as regard the management and the government we all hope they will support the investment that represents the only solution for the economic recovery. Of course that changing only the attitude towards work and the re launch of the investment is not the magical solution for getting out the crisis, but this kind of solution could be represented by using of IT&C instruments by the Romanian managers, perceived as advanced methods of management. Romania cannot become competitive on a market on which the globalization has already said a word only if it can create added value in terms of efficiency. These assumptions could be met by using advanced management methods.

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Global Financial Crisis: a Danger or an Opportunity for Emerging Markets

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Abstract

It is evident that developing countries have been hit hard by a global financial crisis caused by developed countries. The economic crisis has a direct and indirect link through different channels with development processes in developing countries. The slower growth in industrialized countries has huge impacts on the export perspectives of developing countries. Not only has this, the growth of the emerging economies has been hampered through various other channels too. The global financial crisis has put pressure on the main sources of external revenues for developing countries: exports, remittances, foreign direct investment and equity flows. This has hampered the growth and efforts of these developing countries. The financial crisis proved to be extremely detrimental to the developing world. The review of literature supports that the Crisis does not always mean stagnation and developed countries are not solely responsible for the future of the world economy. The benefits of the crisis are greater in developing countries like India, China, Brazil, and Africa. As the crisis offers an opportunity to these emerging countries to use their increased economic weight and take the lead in international trade policy, putting the industrialized countries' own reforms and global initiatives under pressure. The emerging economies can grab this opportunity by realizing its exact nature and restoring confidence in future growth.

Keywords: *opportunities, danger, financial crisis, emerging markets.*

Introduction

The globalization of the world economies has improved the world trade. The globalization has brightened the future of the developed as well as developing economies. But there is the darker side of the coin too – If globalization brings profit, it can bring losses too. The finest example of destructive nature of globalization is US subprime mortgage crisis 2006. The US subprime mortgage crisis has gripped the whole world due to the openness of the word's economy. Economic crisis that has started in 2008 has resulted in 12.5% fall in global trade in 2009 .The dramatic collapse in world trade in 2009 is, mainly due to: the drop in demand for highly traded products; the drying up of trade finance; and the vertically integrated nature of global supply chains (OECD 2010).

The ultimate point of origin of the US financial crisis is the highly indebted US economy and high appetite for risk by investors and the collapse of real estate market is the closing point of origin of the crisis (Fratianni and Marchionne, 2009).

The recession in the US is the result of lower interest rate environment which attracts large number of home buyers to take home loans. The banks in the US started reckless lending of the housing loans even to the customers who have lower ability to repay these loans. The new Business models were developed by the financial industry in order to expand the funds to increase the mortgage lending. Then the mortgage lenders sell these house loans made to the borrowers to the investment banks. Investment banks in turn sell these mortgage based house

loans to the investors as mortgage backed securities. All the parties including banks started buying and holding these securities in order to earn higher returns. But as the interest rate starts increasing, the borrowers failed to repay the loans and ultimately the value of these securities starts falling. The more and more borrowers started to default and the investors started to demand their money back. This has pushed the banks to sell these securities at lower sale prices (Myers and Sendanyoye, 2009). As a result of this the different economies suffered huge losses, bankruptcy, were forced to merge with other institutions in order to survive, and ultimately crisis began towards disaster.

Housing slump in the US and the overuse of credit cards has led the different US citizens to bankruptcy. As a result of this, the consumer spending in the US has slowed down. This has lowered the capacity of US to import goods from different countries and thus lowered the industrial production. Not only has this, the US investors started liquidating their investments from the financial markets. Due to this, the stock market around the world has slowed down. The year 2008 had marked the end of a growth cycle in international investment that started in 2004 and saw worldwide FDI down by more than 20% in 2008 (UNCTAD, 2009).The Americans lost their jobs and their incomes had shrunk. All this has a direct as well as indirect affect on the global economies. The current recession has driven the unemployment rate to levels not seen since1993. World income per head has fallen and in Africa, incomes have stagnated.

It is evident that developing countries have been hit hard by a global financial crisis caused by developed countries. The economic crisis has a direct and indirect link through different channels with development processes in developing countries. The slower growth in industrialized countries has huge impacts on the export perspectives of developing countries. Not only has this, the growth of the emerging economies has been hampered through various other channels too.

The global financial crisis has put pressure on the main sources of external revenues for developing countries: exports, remittances, foreign direct investment and equity flows. The financial crisis proved to be extremely detrimental to the developing world. The deepening global financial crisis has gripped the emerging economies so intensively that it has resulted in a high risk for emerging economies. The magnitude of risk was so significant that developing countries could be in great jeopardy. Many firms in the developing economies went bankrupt as a result of these crises. All this has resulted in tighter regulations by the policymakers of different countries. However, another unfortunate effect of the economic crisis is the decline in state revenues and the resulting growth in state budget deficits across the country. The recent recession had given a hard blow to the consumer confidence in the world. This has hampered the growth and efforts of developing countries.

The current account balance of these countries had widened. The key reason for the widening deficit was slackening non-merchandise trade, primarily due to a decline in investment income and private transfer receipts, and increase in services payments to foreigners, the survey said.

The review of literature supports that the Crisis does not always mean stagnation and developed countries are not solely responsible for the future of the world economy. The benefits of the crisis are greater in developing countries like India, China, Brazil, and Africa. As the crisis offers an opportunity to these emerging countries to use their increased economic weight and take the lead in international trade policy, putting the industrialized countries' own reforms and global initiatives under pressure. The emerging economies can grab this opportunity by realizing its exact nature and restoring confidence in future growth.

Emerging economies had put its efforts to fight recession and to offset the effects of this crisis. Due to the financial crisis; the prices of the commodities begin to rise. According to a survey, the surge in prices of commodities such as oil and food grains strained the balance of payments of emerging economies. It gives rise to inflation in different countries including emerging economies.

The emerging countries had taken additional measures to fight inflation. Russian government had abandoned import duties to allow free access of food into Russia and had sold the grain from the state fund. In 2010, prices of the commodities rose by 8.8% and by 2.4% in January alone. The skyrocketed food prices in Russia is not due to the recession but due to the severe drought which

destroyed most of the harvest and food import prices shot up as well. Brazil had current account deficit of 5.7% in March 2011 which was 5 billion deficits in March 2010. Foreign direct investment in Brazil remained strong which has jumped to 6.791 billion in March 2011, compared with 2.1 billion in March 2010. Brazil's FDI's helps in offsetting the current account deficit. In China, domestic inflation was 4.9% in the 12 months of 2010 to January 2011, up from the 1.6% recorded in January 2010, raising concerns that pressures were spreading beyond food prices to other consumer goods. In a way to rein inflation, the Chinese government had put its efforts to tame the rising prices. The Central bank of China had raised the reserve requirement ratio for depository financial institutions many times since October 2010 to a record 19.5%, in an aggressive effort to tighten credit growth and fight inflation.

According to a survey pointed that there is a rise in India's foreign exchange reserves, its growing share in world exports to 1.4%, and diversification in trading partners. India's foreign exchange reserves stood at $297.3 billion, the fourth largest reserves in the world. The export growth of India is a longer-term trend. The World Bank's revised forecast for China's economic growth rate to 7.2 percent this year from their previous 6.5 percent is Growth slowed in China but a global indication for China's recovery. After the World Bank positive signs have emerged revision, the Chinese stock hit a 10 month high in mid-June fuelled by increasing consumer confidence and optimism. China's GDP rose by 9.5% in the second quarter of 2011 from the year 2010.

While developing countries have larger reserves than they had ten years ago, few can afford the kind of fiscal stimulus needed to address a crisis originating in the developed world. The objective is to study the impact of global financial crisis on the emerging markets of the world and to assess the opportunities and risk represented by the financial crisis. The study also finds out that whether the emerging economies are able to overcome this economic crisis and seek benefits that have emerged out of the crisis.

The paper is divided into eight sections. The next section reviews the relevant existing literature on the financial crisis and its impact on the world economies. Section III mention hypothesis. Section IV discusses the research design and methodology and Section V presents the analysis of data. Section VI gives the discussion of findings and Section VII provides the limitations, Section VIII provides practical implications and IX gives conclusion and recommendations.

Review of literature

A number of studies have been conducted to study the background, causes and impact of financial crisis. Whalen (2008), Myers and Sendanyoye (2009) reviewed the background and causes of the financial crisis and effect of the financial crisis. Labonte (2008) found that the falling of housing prices, rise in commodity prices and increase in prices of crude oil have a cumulative effect to give rise to the recession. The crisis hit the financial performance of US citizens, financial performance of banks and also, the financial sector jobs. The FDI world wide has slowed down due to the financial subprime crisis. The two major factors for the slowing down of the FDI's i.e., the capability of firms to invest and the propensity to invest, has been affected negatively by economic prospects, especially in developed countries that are hit by severe recession. The FDI flows hit the industries like financial services, automotive industries, building materials, intermediate goods and some consumption goods (UNCTAD, 2009).

The financial crisis affected the whole world due to the inter dependence of the economies. There is fall in global trade in 2009 because of the collapse in demand, drying up of trade finance, fall in demand for highly traded goods(such as machinery and transport equipment) relative to less traded goods and services and the vertically integrated nature of global supply chains (OECD 2010). As a response to the current financial crisis the WTO has introduced some multilateral trade rules. These rules suggest that they are not adequate for the emerging economies. Also, it provides an ambiguous legal framework. With these changes the countries are leaning towards bilateral free trade agreements. As the business activities are continued to be globalized the emerging countries have become keen to create a business environment with respect to investment, services and the protection of intellectual property rights, through FTAs with some of

their strategic partner countries. This trend has negative implications on developing countries UNCTAD (2010). Eghbal(2008) argued that as the developed economies faces recession but the emerging economies are resilient from the impact of global crises because of their strong foreign reserves and growing domestic demand withstand the crisis

Adamu examined the influence of the global financial crisis on Nigerian economy. The paper have discussed the effects of recession on the Nigerian economy for the following factors: Foreign direct investment (FDI) and equity investment; Downward trend in oil price; Remittances and Aid; Commercial lending; Countries with liberalized capital accounts; Countries' foreign reserves usually invested abroad Slow down of economic growth, foreign currency income slump, unemployment increase, reduced Oversea Development Aid (ODA), depreciation of local currency, etc.

Baskaran and Muchie analysed the impact of FDI on the emerging economies. The paper analysed the following determinants for studying the impact. The determinants include: (i) market size: Gross Domestic Product GDP, GDP growth, per capita income growth; (ii) policy variables: degree of openness, corporate tax rates, import duties, quality of infrastructure; (iii) institutional characteristics: corruption indices, government stability, indices on rule of law; (iv) labor market conditions: illiteracy rates, wage rates; and (v) global supply of FDI.

Beck and Demirguc-Kunt (2009) analyzed the trends in structure and development of financial institutions and markets across countries. The paper used the indicators such as cross border lending, debt issues, net interest margins, profitability, stability to study the banking structure and financial globalization. The paper found the deepening of both financial markets and institutions, a trend concentrated in high income countries and more pronounced for markets than for banks.

Chauvet (2000) constructed an indicator of Brazilian GDP at the monthly prices. The paper uses a Markov switching dynamic factor model for combining macroeconomic variables to display simultaneous comovements with aggregate economic activity.

The existing literature revealed that the housing slump in 2007 results in the US Sub Prime crisis. And the crisis gripped the whole world due to the trade relation of all the countries with the biggest economy i.e. United States of America. All the developed as well as developing economies get impacted due to the slowing down of the US economy. Emerging economies due to their large reserves and conservative approach are proved to be a promising bet and BRICS does not get affected much due to the global slowdown. So, by reviewing all these literature, the study focused on the following objectives.

The objective is to study the impact of global financial crisis on the emerging markets of the world and to assess whether the recession represents the opportunities or risk to these emerging markets. The study also finds out that whether the emerging economies are able to overcome this economic crisis and seek benefits that have emerged out of the crisis.

Hypothesis

H1: There is no significant impact of recession on the BRICS countries with respect to their economic indicators.

H2: There is no significant difference among the BRICs with respect to their economic indicators

Research Design and Methodology

The impact of recession can be seen by monitoring the economic activities of the emerging countries. The economic activity can be observed through the analysis of cyclical fluctuations of these economic indicators. The present study analyses the economic indicators and will examine that whether these economic indicators are affected due to the recession. the economic

indicators taken in this study are Gross domestic product, General government net lending/borrowing, Export volume of goods and services, Import volume of goods and services, Inflation, Investment, Industrial Production, Current account balance and Unemployment rate. The fluctuations in these economic indicators are seen for the reference period of 2001 to 2010.the study has taken five emerging countries as its sample size. The paper has taken BRICS for the analysis.

The present study makes use of secondary sources of data collected from the publications of World Bank, and IMF, UNCTAD, other books, Journals and Periodicals. Relevant statistical techniques, especially two- way ANOVA have been used in the study.

To evaluate the impact of recession on these emerging economies and to analyse that whether the BRIC economies differ, the two way ANOVA test is carried out. For this purpose, 5* 10 matrix is constructed. The columns list the emerging economies (BRICS) and the rows list the reference period for which impact of recession is to be studied. With the help of SPSS 16.00, two way Anova is applied and the analysis is made by comparing the calculated values and the table values.

Analysis of Data

Table 1: Gross domestic product, current prices (U.S. dollars. In Billions)

Sample Period/ Sample Countries	Brazil	Russia	India	China	South Africa
2001	552.836	306.583	491.436	1,324.81	118.563
2002	500.266	345.125	514.253	1,453.83	111.357
2003	555.543	430.289	595.437	1,640.96	168.22
2004	665.553	591.177	690.321	1,931.65	219.426
2005	890.05	763.704	809.723	2,256.92	246.956
2006	1,093.49	989.932	908.036	2,712.92	261.175
2007	1,378.19	1,299.70	1,151.62	3,494.24	285.803
2008	1,655.09	1,660.37	1,258.96	4,519.95	275.596
2009	1,600.84	1,222.33	1,268.88	4,990.53	283.977
2010	2,090.31	1,465.08	1,537.97	5,878.26	357.259
Two-Way Anova					
Source of variation	SS	*d.f*	MS	F-ratio	*5% F-limit*
Between BRICS	44155713	9	4906190	13.67384	2.171
Between years	16915266	4	4228816	11.78596	2.642
Residual	12916839	36	358801.1		
Total	73987818	49			

Data compiled from the International financial database and WEO database.

Table 2: General government net lending/borrowing (percent of GDP)

Sample Period/ Sample Countries	Brazil	Russia	India	China	South Africa
2001	-2.604	3.205	-9.484	-2.802	-1.128
2002	-4.415	0.721	-9.275	-2.953	-1.083
2003	-5.2	1.447	-8.666	-2.448	-1.816
2004	-2.872	4.902	-7.225	-1.489	-1.19
2005	-3.528	8.156	-6.43	-1.39	0.001
2006	-3.549	8.329	-5.263	-0.676	0.771
2007	-2.693	6.752	-4.015	0.901	1.463
2008	-1.39	4.876	-7.817	-0.388	-0.462
2009	-3.127	-6.311	-9.372	-3.091	-5.14
2010	-2.891	-3.563	-8.981	-2.576	-5.715
Two-Way Anova					
Source of variation	SS	*d.f*	MS	F-ratio	5% F-limit
Between BRICS	571.5166	9	63.50185	16.04328	2.171
Between years	177.5374	4	44.38436	11.21339	2.642
Residual	142.4937	36	3.958158		
Total	891.5477	49			

Data compiled from the International financial database and WEO database.

Table 3: Export volume of goods and services(percent change)

Sample Period/ Sample Countries	Brazil	Russia	India	China	South Africa
2001	9.569	3.068	4.855	8.782	2.393
2002	8.633	9.413	14.371	21.349	0.989
2003	15.663	12.828	15.713	26.09	0.109
2004	19.2	11.957	23.651	28.415	2.833
2005	9.3	6.337	18.881	23.672	8.568
2006	3.324	7.914	13.828	20.773	7.463
2007	5.406	7.222	17.131	18.136	6.552
2008	-1.885	-5.578	10.628	8.512	1.754
2009	-10.75	-8.799	0.669	-10.322	-18.702
2010	9.137	9.491	10.229	34.573	5.036
Two-Way Anova					
Source of variation	SS	*d.f*	MS	F-ratio	*5% F-limit*
Between BRICS	1683.059	9	187.0065	8.007895	2.171
Between years	2700.512	4	675.128	28.90998	2.642
Residual	840.6997	36	23.35277		
Total	5224.271	49			

Data compiled from the International financial database and WEO database.

Table 4: Import volume of goods and services(percent change)

Sample Period/ Sample Countries	Brazil	Russia	India	China	South Africa
2001	2.967	23.375	-0.318	11.781	0.25
2002	-12.156	14.448	9.229	20.279	5.341
2003	-3.735	21.177	7.638	28.704	8.085
2004	18.141	20.867	27.109	22.493	15.508
2005	5.393	17.153	17.994	11.757	10.879
2006	15.977	21.239	9.438	11.849	18.261
2007	23.921	26.034	16.3	7.994	8.986
2008	17.632	14.412	10.839	3.786	1.513
2009	-17.375	-28.699	8.315	3.734	-17.355
2010	39.045	24.709	11.506	17.747	4.584
Two-Way Anova					
Source of variation	SS	*d.f*	MS	F-ratio	*5% F-limit*
Between BRICS	627.4396	9	69.71551	0.728609	2.171
Between years	3514.619	4	878.6548	9.182969	2.642
Residual	3444.591	36	95.68308		
Total	7586.65	49			

Data compiled from the International financial database and WEO database.

Table 5: Inflation, (Average consumer prices)(percent change)

Sample Period/ Sample Countries	Brazil	Russia	India	China	South Africa
2001	6.835	21.461	3.779	21.461	5.7
2002	8.425	15.783	4.297	15.783	9.177
2003	14.784	13.666	3.806	13.666	5.806
2004	6.597	10.887	3.767	10.887	1.392
2005	6.884	12.683	4.246	12.683	3.393
2006	4.196	9.679	6.177	9.679	4.688
2007	3.638	9.007	6.372	9.007	7.09
2008	5.672	14.108	8.349	14.108	11.536
2009	4.899	11.654	10.882	11.654	7.125
2010	5.037	6.854	13.187	6.854	4.274
Two-Way Anova					
Source of variation	SS	*d.f*	MS	F-ratio	
Between BRICS	472.9224	9	52.54693	4.886437	2.171
Between years	783.9049	4	195.9762	18.22419	2.642
Residual	387.1307	36	10.75363		
Total	1643.958	49			

Data compiled from the International financial database and WEO database.

Table 6: Investment (percent of GDP)

Sample Period/ Sample Countries	Brazil	Russia	India	China	South Africa
2001	18.028	21.503	22.644	36.268	15.045
2002	16.196	20.035	24.101	37.866	15.872
2003	15.771	20.044	26.221	41.203	16.652
2004	17.117	20.337	30.947	43.263	18.075
2005	16.206	19.494	33.9	42.099	17.958
2006	16.756	21.12	35.122	42.972	19.689
2007	18.328	25.36	37.359	41.738	21.24
2008	20.686	24.084	34.886	44.046	22.546
2009	16.508	16.889	36.996	48.243	19.612
2010	19.25	19.815	37.874	48.774	21.698
Two-Way Anova					
Source of variation	SS	*d.f*	MS	F-ratio	*5% F-limit*
Between BRICS	4626.422	9	514.0469	67.8712	2.171
Between years	291.739	4	72.93475	9.629801	2.642
Residual	272.6589	36	7.573858		
Total	5190.82	49			

Data compiled from the International financial database and WEO database.

Table 7: Industrial Production(percent change)

Sample Period/ Sample Countries	Brazil	Russia	India	China	South Africa
2001	6.9	8.8	7.5	10	2.4
2002	1	3.7	4.7	13.5	7
2003	2.3	3.7	6	12.6	3
2004	0.4	7	6.5	30.4	5
2005	6	6.4	7.4	17.1	5.5
2006	3.4	4	7.9	29.5	3.6
2007	3.2	4.8	7.5	22.9	7.1
2008	4.9	7.4	8.5	13.4	4.4
2009	4.3	3.5	4.8	9.3	1
2010	-5.5	13.1	9.3	9.9	-7.2
Two-Way Anova					
Source of variation	SS	*d.f*	MS	F-ratio	*5% F-limit*
Between BRICS	1307.737	9	145.3041	7.074215	2.171
Between years	203.4232	4	50.8558	2.475944	2.642
Residual	739.4388	36	20.53997		
Total	2250.599	49			

Data compiled from the CIA World Factbook.

Table 8: Current account balance (U.S. dollars. In Billions)

Sample Period/ Sample Countries	Brazil	Russia	India	China	South Africa
2001	-23.215	33.935	1.41	17.405	0.333
2002	-7.637	29.116	7.061	35.422	0.92
2003	4.177	35.41	8.773	45.875	-1.665
2004	11.679	59.514	0.781	68.659	-6.659
2005	13.985	84.443	-10.285	160.818	-8.566
2006	13.643	94.34	-9.299	253.268	-13.861
2007	1.551	77.012	-8.077	371.833	-19.924
2008	-28.192	103.722	-24.87	436.107	-19.617
2009	-24.302	49.518	-35.766	297.142	-11.504
2010	-47.518	71.479	-48.977	306.2	-10.117
Two-Way Anova					
Source of variation	SS	*d.f*	MS	F-ratio	*5% F-limit*
Between BRICS	331755	9	36861.67	7.169403	2.171
Between years	40813.2	4	10203.3	1.984489	2.642
Residual	185094.9	36	5141.525		
Total	557663.1	49			

Data compiled from the International financial database and WEO database.

Table 9: Unemployment rate(percent of total labor Force)

Sample Period/ Sample Countries	Brazil	Russia	India	China	South Africa
2001	11.265	8.939	8.8	3.6	29.395
2002	11.668	8	8.8	4	30.409
2003	12.3	8.6	8.8	4.3	27.961
2004	11.466	8.2	9.5	4.2	26.207
2005	9.824	7.6	9.2	4.2	26.727
2006	9.968	7.2	8.9	4.1	25.542
2007	9.289	6.1	7.8	4	22.689
2008	7.9	6.4	7.2	4.2	21.86
2009	8.1	8.4	6.8	4.3	24.301
2010	6.7	7.5	10.7	4.1	24.8
Two-Way Anova					
Source of variation	SS	*d.f*	MS	F-ratio	*5% F-limit*
Between BRICS	2897.348	9	321.9276	175.4905	2.171
Between years	52.727	4	13.18175	7.18569	2.642
Residual	66.04	36	1.834444		
Total	3016.115	49			

Data compiled from the International financial database, CIA World fact book and WEO database.

Findings

The analysis in the table 1 shows that there is a significant difference between the GDP of BRICS and the GDP of these countries are affected by the recession of 2007.Table 2 shows that the General government net lending/borrowing of BRIC countries differs significantly and the government net lending /borrowing of these countries are affected by the recession. Table 3 shows that the exports of BRIC countries are affected due to recession and there is a high difference in exported volume of goods and services among the BRIC countries. Inflation in these emerging markets is the one of the key reason that its overall exports had slowed in 2008 and 2009. The buoyancy in exports has been a positive feature for these emerging markets which helps to cushion some of the pressures on the current account owing to rising oil prices.

Table 4 shows that the imported volume of goods and services of the sample countries are affected due to the recession. The reduced flow of FDI, inflation in these emerging markets, high interest rates and lower spending by the consumers are the key reasons for the lower imported goods and services during the recession period. The BRICS does not differ much in terms of imported volume of goods and services. Table 5 shows that the inflation in the BRICS is affected due to the recession and there is a significant difference in the inflation figures of the BRIC countries. Table 6 shows that the recession had affected the investments of the BRIC countries majorly due to the reduced inflows of FDI. There is no significant difference among the BRICS in terms of investments. Table 7 illustrates that the recession has not affected the industrial production of the BRIC countries as the calculated value is less than the table value. There is huge difference among the industrial production of the BRIC countries. The industrial production has been much faster in Asia than in any other part of the world. China and India topped in terms of the industrial production because the cost of labor is low in these two countries. Table 8 shows that the difference between the years is insignificant as the calculated value of 1.98 is less than the table value of 2.642. This is due to the continuous surge in prices of commodities such as oil and food grains which is straining the balance of payments of emerging economies. Therefore the current account balance of the developing countries is not due to the recession but due to the reason that emerging economies are highly dependent on developed economies for oil. The difference among the countries in terms of current account balance is significant. Brazil's current account deficit ballooned when compared to other countries as the foreign companies in Brazil sent more profits to their home countries and Brazilians spent more on travel and goods overseas. Table 9 shows that the recession has resulted into high unemployment among these countries. The unemployment rate among these countries differs very significantly. The unemployment rate in china is high because of the different education style. According to Dexter Roberts in Business Week, 25% of the Chinese Graduates had failed to find a job in 2010. It is because students in China typically focus on a single discipline like accounting for their entire four years of college which leaves them unable to adjust to a global business environment that demands flexible thinking.

Limitations

The indicators used in the study may not be enough to predict generalized trend. Few more indicators/variables could also have been included to make the study more comprehensive. Another limitation is that the study could be extended to other emerging countries also.

Practical implications

The findings of the study have important managerial implications for the policy makers of the emerging markets as well as developed nations. The study have relevance for the financial institutions, banks, various industries etc. because the growth of the emerging markets directly and indirectly is in the hands of the policy makers and regulators. It is the responsibility of these bodies to formulate and implement policies such that the emerging markets can be the future global leaders. Last but not the least, the study will be useful to the common man of the emerging markets as it is their duty to restore confidence in their countries and start investing in the useful projects.

Conclusion and Recommendations

No doubt, that the growth of the emerging markets has adversely affected due to recession, but also has created a genuine opportunity for the emerging economies and have given these economies an open space to replace themselves with a more progressive and democratic nations. Also, the findings will show that how these emerging economies are successful to overcome the danger represented by the economic crisis and have these economies take advantage of the opportunities that have emerged for them out of the crisis. While the effects will vary from country to country, the economic impacts could include: Weaker export revenues; further pressures on current accounts and balance of payment; Lower investment and growth rates; and lost employment. BRICS have large trade surpluses and foreign exchange reserves which makes them resilient to the crisis.

It was recommended that the government of these economies should come up with intervention policies that will minimize the effect of recession and jumpstart the economy and that business operator should learn to do things using resources at their disposal to develop and expand at manageable level to stem the tide of the crisis. These economies should further guard against inflation and should buildup financial imbalances. Recommendation for the Chinese economy is to change the education system so as to fit the candidates in the number of disciplines instead of only one. It will prevent the social instability and will ensure a steady transition from a low cost manufacturing to a more service oriented economy.

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Baseline for customers' requirements identification in a product lifecycle approach

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Abstract

Purpose *– The objective of the present paper is to propose a method of increasing customers' satisfaction by identifying their needs in each stage of the product life cycle. Besides the physical product it is important to consider the requirements regarding the intrinsic elements that are vital for an organization in the challenges faced trying to maintain its market position.*
Methodology/approach *- Organizations must consider the satisfaction of all stakeholders, but regarding business success the key issue is focusing on customer satisfaction. To identify customer needs, the authors performed a literature survey in the requirements management field, for clearly defining requirements, types of requirements and methods for identifying them.*
Findings *– Authors have grouped the specific customers' requirements found in specialised literature and distributed them afferent for each stage of product's lifecycle. Thus, it was created a customer requirements baseline.*
Research limitations/implications *– This paper contains a literature survey on clients requirements, distributed for each stage of product's lifecycle. The applicability of this approach is not yet tested in the economical environment. The literature survey on this approach represents a baseline for the future studies on identifying all stakeholders' requirements in each stage of product's lifecycle.*
Practical implications *– The customers' general requirements defined in each stage of product lifecycle offer a solid basis for any organization to conduct customer satisfaction analysis and customer satisfaction improvement.*
Originality/value *– The originality of the paper derives from the approach of identifying client's general requirement in every stage of product life cycle.*

Key words: *customer satisfaction, customer requirements, product life cycle.*

Introduction

In today's market context more clients are having requirements regarding product quality, product reliability and maintenance, being also important the supplier-customer relationship, the possibility of recycling and the minimization of the negative effects it produces on the environment. Satisfying these requirements, an organization can increase its performance and competiveness. Regarding the concept of quality as integrated in everything that is related to a organization, for increaseing customer satisfaction, authors have started from the following definitions of quality: "Quality is compliance with the requirements" (Crosby P.B., 1979) and, quality represents the "minimal loss to the society by launching the product on the market " (Taguchi G.,1989).

The present paper proposes a structured approach for identifying requirements through the entire product lifecycle, as they are expressed by the stakeholders. For similar products at similar prices, the customer's choice is influenced by the services that organization offers attached to the physical product. Thus, it is important to consider the requirements regarding the intrinsic ele-

ments that are vital for an organization in the challenges faced trying to maintain its market position (Hedesiu D., et. al, 2010).

Requirements identification for a better stakeholders satisfaction, represents a concern topic for other fields, also such project management, project requirements and project lifecycle (Petrus, A, et. al, 2010). The same authors consider that stakeholders are expressing requirements related to projects in a lifecycle approach. Customers requirements identification it is a must have for products success, but it is also necessary for projects accomplishment.

The context

Requirements represents the basis behind everything that follows the development of a product, so it is important to correctly determine them before begining the actual process of conception and design. Organization must review each requirement for it to be complete, relevant, testable, coherent and traceable before becoming part of specifications(Robertson S, Robertson J., 2006). The same authors consider important for each requirement to have attached a criteria, which represents a measure for the requirement to be properly understood and traceable.

In order for a product to achieve high quality, it is appropriate that it satisfies all stakeholders' needs and requirements, with minimum loss, in each phase of product lifecycle. In the specific literature (Freeman R.E., 1994) (Nilsson P., Fagerstratom B., 2006) stakeholders are defined as any group or individual who affects or can be affected by product during its lifecycle. Stakeholders are from the organization's internal environment (investors, management, departments, employees, etc) and the external environment (users, distributors, suppliers, society, State and governing bodies. According to (O. Suciu, C. Oprean 2007), organizations must consider the satisfaction of all stakeholders, but for business success the key issue is customer satisfaction.

Authors like (Dudek-Burlikowska M., Szewieczek D. 2007) consider that organizations should control quality in each stage of product life cycle. These stages can vary, depending of company profile, as in the following (Figure 1):

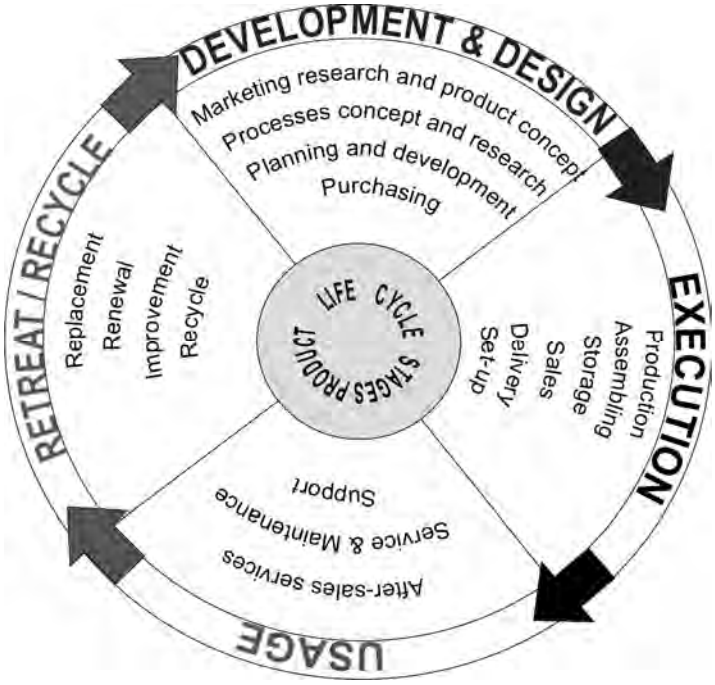

Fig.1. Product life cycle stages adapted after (Dudek-Burlikowska M. , Szewieczek D., 2007)

In this paper authors took into account the most relevant stages product lifecycle and structured them in to four main classes, according to classical models used in literature (Abrudan I., s.a. 2007), (Dudek-Burlikowska M., Szewieczek D., 2007) (Courage C., Baxter K., 2005), (Sandborn K.A., 2008) meaning: **Development and design** stage, **Execution** stage, **Usage** stage, **Disposal and Recycle** stage.

Literature survey on requirements identification

According to (Robertson S., 2001), a requirement represents "any ability that somebody wants or needs". The same authors considers this as a general definition, since there are several types of requirements like objectives and constraints, which must be taken into account and treated as special type of requirements. The main goal for product success is to identify all relevant requirements as early as possible. The same authors propose the following classification of types of requirements.

1. Main types of requirements

Conscious requirements

According to (Robertson S., 2001) this type of requirements are mostly communicated by stakeholders. Stakeholders are conscious and understand their requirements and they express them.

Unconscious requirements

This type of requirements are the ones that stakeholders don't mention, being unaware of them. Most times they are not expressed because stakeholder are used with this type of requirements to be satisfied, thus they do not regard them as requirements. These requirements are set as default for products, being common and usual, so stakeholders consider they were already taken into account.

Unexpected requirements

If stakeholders have a fixed idea regarding product's possibilities and limits, then, they will not express requirements considered impossible to be satisfied. Requirements like this are not mentioned because stakeholders can not think of them as achievable.

Functional requirements

These refer to a set of functions that a system, service or product must accomplish. A definition of functional requirements belongs to (Jacobson I, et.al., 1999), "these are requirements specifying an action that a system must fulfill, without taking into account physical constraints, being requirements that specify the input/output of a system's behavior."

Nonfunctional requirements

Nonfunctional requirements are found in literature (Jacobson I., et.al., 1999), (Gross D., Yu E., 2001), (Robertson S, 2001) as attributes or qualities. They represent qualities that a system must own. Examples of nonfunctional requirements are performance, security, utility, maintenance etc.

Project objectives

According to (Robertson S, 2001) objectives are the reason for implementing a project. Authors consider this kind of requirements as high level and the rest of requirements contribute on fulfilling these objectives.

Constraints

Constraints represent influences that affect, in a lesser or higher degree, how requirement are accomplished. In literature (Anton A.I, 1996) constraints are considered to be requirements, but some authors (Robertson S, 2001) find more productive to quantify constraints and than relay them to requirements.

2. The Kano Model

A method of evaluating customer satisfaction was proposed and developed by Noriaki Kano in the 1980's. The method offers an overview on the product's attributes that are important to customers.

According to (E Sauerwein, 1999), Kano's model distinguishes between three types of product requirements (must-be requirements, one-dimensional requirements and attractive requirements), which are influencing in different ways, if met, customer satisfaction, as seen in the Figure 2. Beside classical models, Kano's model includes the term of attractive requirements.

These requirements are the product criteria which can have a major influence on customer satisfaction, but they are neither expressed nor expected. Fulfilling these requirements leads to more than proportional satisfaction. If they are not met, customers can not feel dissatisfaction.

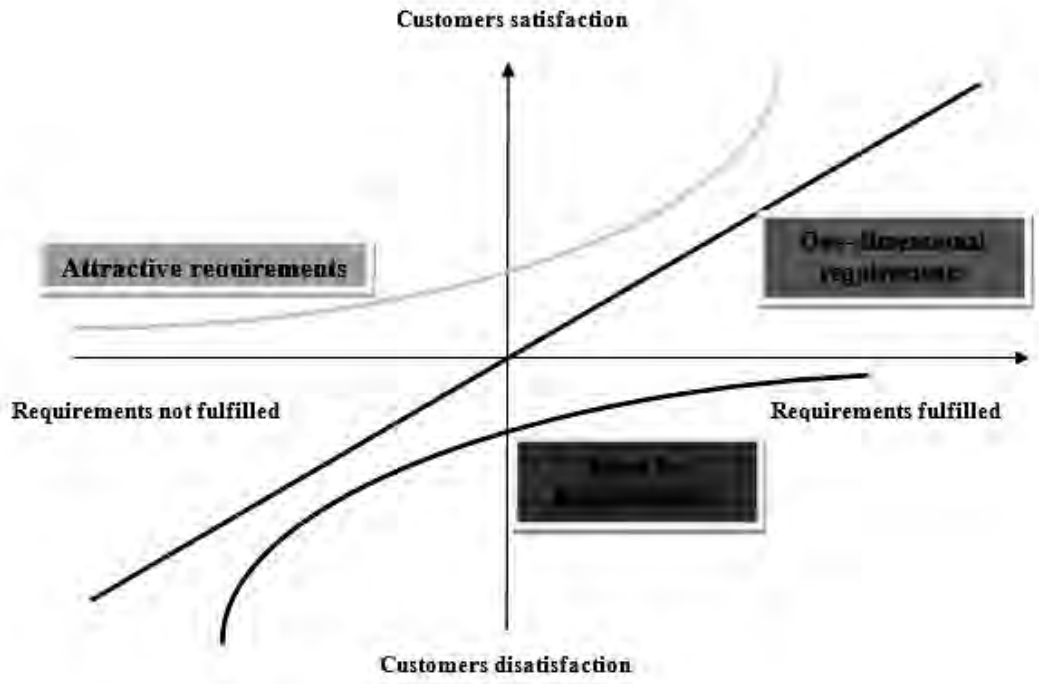

Fig.2. Kano Model (Berger C., et al 1993)

3. Techniques for discovering requirements

For a more accurate identification of needs, in the specific literature, authors have indentified different structured methods. Authors like (Maiden N., Rugg G, 1996), (Maiden N, et.al. 2003**)** reviewed methods from which we considered the following the most accessible:

Table 1. General techniques for discovering requirements

Generalization	Brainstorming	Interview	Focus-Group	Scenario
Its objective is represented by understanding the rules applied in certain fields, or even discovering new rules, The idea is to move from specific examples to generalization for all objects in the class	Its purpose is to solve problems by using the group for generate new ideas. The technique is focused on generating as many ideas as possible without critique or evaluate them, even if they are wrong, impractical, exceeded or exaggerated. The reason for this approach is that in requirements assessment, brainstorming triggers unexpected requirements identification.	Is the traditional technique in requirements identification, meaning the intention is clear to ask the stakeholders what are their requirements and expectation. In literature it is considered that the proper use of this technique involves a discussion with an expert in the field of investigation	Focus Groups are a form of group interview that capitalizes on communication between research participants in order to generate data. The technique is often use simply as a quick and convenient way to collect data from several people simultaneously. (Kitzinger J., 1995)	A scenario is a story adapted and structured for engineering use. The purpose of a scenario is to communicate a situation, usually as it involves through time, in a series of steps. (Alexandera I., Ljerka B.D., 2009)

Clients' requirememnts in each stages of product lifecycle.

The approach of the present paper it is specific on customer requirements in each stage of product lifecycle, but it is not new. Authors (Nilsson P., Fagerstrom B., 2006) consider that stakeholders act according to their interest and their needs will affect the product through the entire product lifecycle. Other authors (Janz D., et.al. 2004) in their approach on the "Customer-Orientated Life Cycle Costing" consider that by evaluating the most economic way of satisfying customer needs and requirements will reduce costs, which occur during the whole product lifecycle.

Also, empirical approache on product's requirements in lifecycle overview can be faound. „Valtech designs and implements processes, methods and techniques for the integrated management of requirements in the entire product lifecycle. Product Lifecycle Requirements Management (PLRM) reduces errors and misunderstandings, ensures consistent maturity level protection, and supports the continuous optimization of development and production processes." (Valtech, 2011).

1. Customers' requirements in Development and design stage

Literature, (Courage C., Baxter K., 2005*)* consider suited the user-centered design approach (UCD), which contains the next key elements: early focus on costumer, usage of empirical measurement, iterative design. According to the same authorst UCD contains

- The concept stage, which should be done a: competitive analysis, costumers' requirements identification, specifications functionality analysis and staffing needs.
- The design stage, which should be reviewed data, graphics, design specifications and flow of tasks, methods of interactive design, prototype, and costumers' requirements evaluation.
- The development stage, in which are performed official tests of utility and design analysis according to standards. In the production launch stage it should be done regulation tests.

2. Customers' requirements in Execution stage

According to (Courage C., Baxter K., 2005) this stage includes activities like production, assembly, packaging and storage, sales, delivery, distribution. Costumers main interests and requirements are related to manufacturing according to design specifications, qaulity of production, quality of packaging, sales and delivery services. Delivery services reffer to promptness. User requirements regading sales services are accuracy and efficiency in product information and price offerings.

Authors such as (Parasuraman A., Zeithaml V.A., Berry L.L., 1988) consider that the quality of the product, the quality of the services and price equally influence on clients satisfaction. Quality is perceived as a form of attitude, related but not equivalent to satisfaction and results from comparing expectations with perception of performance. The satisfaction of the clients refers to post-purchase evaluation, which they do when they buy a product or service.

3. Customers' requirements in Usage stage

In this stage, costumers' requirements are connected with product reliability concept.

According to (Kleyner A., Sandborn P., 2008), reliability requirements cover a wide range of environmental tests including temperature, humidity, vibrations, mechanical shocks, dust, electrical overloads and more. Other relevant specifications include warranty terms and other contractual obligations regarding product service and repair.

According to (Titu M., 2008), the qualitative concept of reliability means: "the ability of a system, element, product, etc., to properly fulfill the functions specified, for a period of time". The quantitative concept of reliability means "the probability that a system will properly fulfill the specified functions (at established performances) during a given period of time, in specified operating conditions".

Thus, in this stage, clients' requirements are related to product's reliability, to warranties, to well honored warranties and after-sales services.

4. Customers' requirements in Disposal and/or Recycling stage

Costumer requirements during removal or recycling phase are a result of requirements belonging to society, State and regulatory bodies. Generally customers do not want to pay a higher price for recycling or make further efforts towards product's recycling. Empirical studies (Kennametal's Recycling Program 2007), (Benoit V. and Pierre-Etienne R., 2008), talk about a costumer's gain from recycling or efforts companies make to provide means to facilitate direct recycling. Thereby Kennametal Company developed a logistic recycling model for used tools at company's recycling points, in exchange for money, discounts on bills, credit or new tools. Yet the benefits costumers gain from recycling should bring added value also for the company which is concerned about recycling. Such benefits can be of fiscal or image nature.

Based on the literature survey, authors of this paper worked to identify a basic template of customer's requirements reflected in the four main stages of product's lifecycle. The methodology for the future studies will use the techniques described in this paper, mainly the interviews technique for identifying requirements. In order to validate this requirements template, shown in the next figure, authors will use the Delphi method.

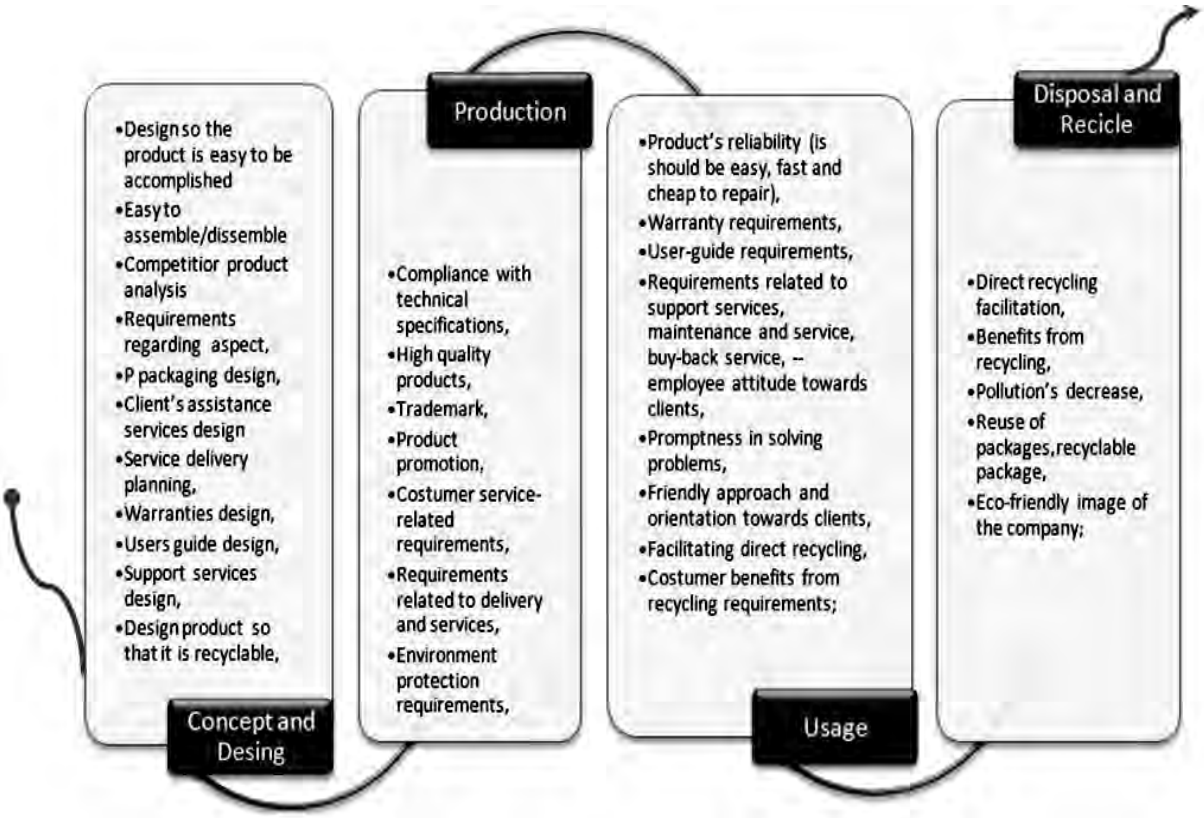

Fig.4. General Customers' Requirements distributed on the Product's Lifecycle Stages

Conclusions and future direction of research

Authors like (Alexander I.F., Stevens R., 2002) consider that investment in the requirements process save time, money, and effort, while the lack of interest in this field means costs derived from system failure in meeting customers' needs and cost of wasted time in planning product that nobody wants. Competitiveness and stakeholders' satisfaction are the main goals that must be achieved, but also it is important to anticipate and control the forces of a new global economic market, which nowadays is found in economic crisis (Dragomir M., 2009).

In this context it is obvious that the customers requirements topic should be one of great interest Meeting all stakeholders' requirements in each stage of product's lifecycle will raise organizations' position on the market, will reduce quality related costs, and finally will raise the profits.

The present paper represents a base for the future studies in this direction, meaning the objective it is to identity all stakeholders' general requirements in each lifecycle phases.

For achieving this objective authors will follow the following methodology:

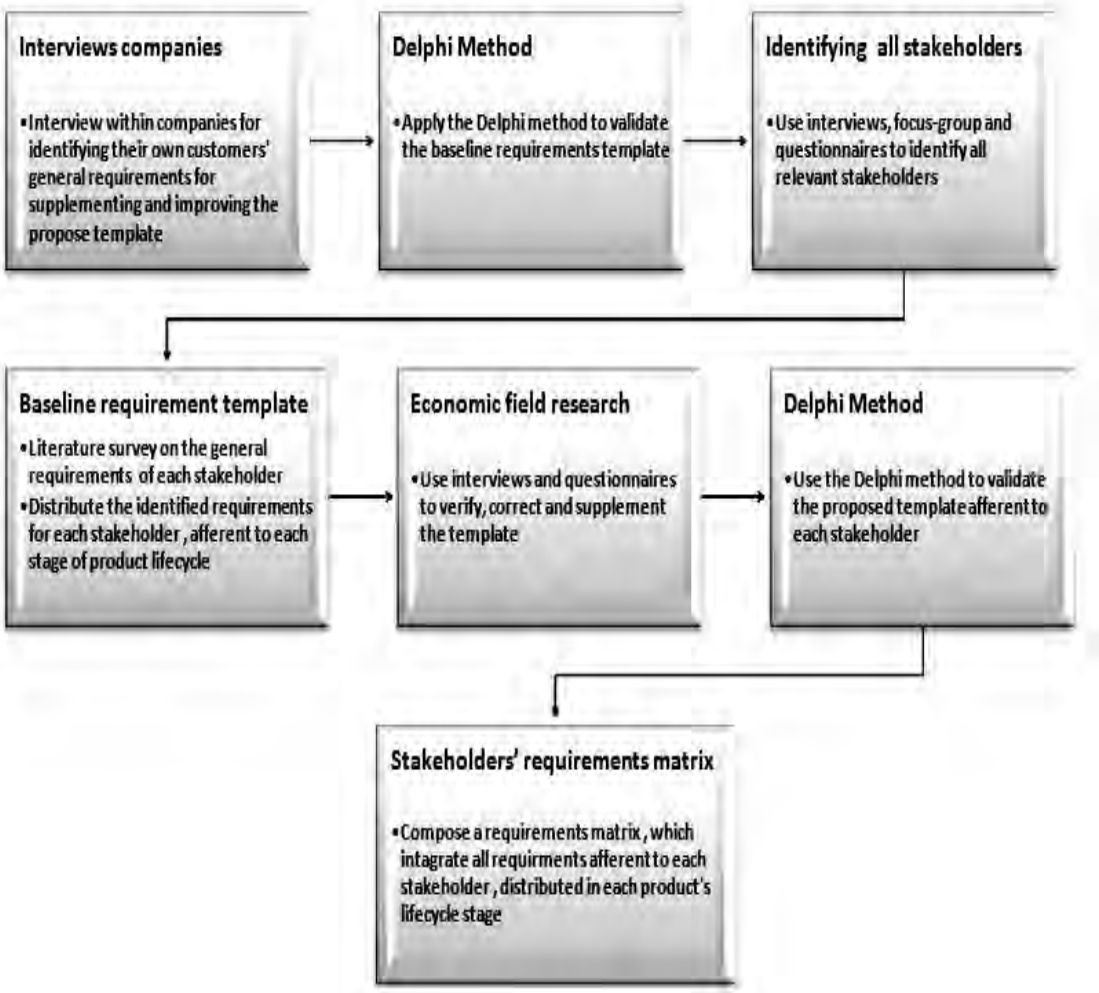

Fig. 5. The metodology for future directions of research

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Labour productivity in services – an essential factor in regional development

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Abstract

Purpose *- The objective of the paper is to identify the role that labour productivity, especially labour productivity in the services sector, plays in the process of Romanian regional economic development.*
Methodology/approach *- In order to highlight the empirical relationships between labour productivity and economic development, at regional and county level, we applied the correlation coefficients and regression analysis.*
Findings *– The results of our study show that the disparities in the level of development at regional and county level in Romania can be explained by the disparities in labour productivity.*
Research limitations/implications *– The analysis of the relationship between labour productivity and economic development in the Romanian economy, has been carried out only for 2009, because more recent statistical data are not available.*
Practical implications *– Through our study we aim to emphasise the necessity of taking some measures to increase labour productivity in order to reduce the existent gaps between the development regions within Romania.*
Originality/value *– The originality of our paper consists in the economic-statistical analysis of the relationship between labour productivity and economic development, at the level of the eight development regions in Romania, as well as at county level.*

Key words: development, productivity, services

Introduction

The contribution of labour productivity to the economic development is a universally accepted fact in the economic literature. Currently there is an opinion which states that people's living standards depend on labour productivity, and workers are more productive if they work with better equipments and are more efficient if they benefit from education and training (W. J. Baumol et al., 2009). We appreciate that the role and place of productivity in economy is very well explained by P. Krugman (1990) when he states that productivity is not everything, but in the long run it is almost everything. One's nation capacity of improving, in time, its living standars depends almost entiely on its capacity of increasing production per worker.

The economic theory and practice prove that those economies in which services contribute significantly to gross domestic product (GDP) and employment, are characterized by a high economic efficiency, accompanied by an equally high level of development.

The relationship between labour productivity and regional development in the Romanian economy

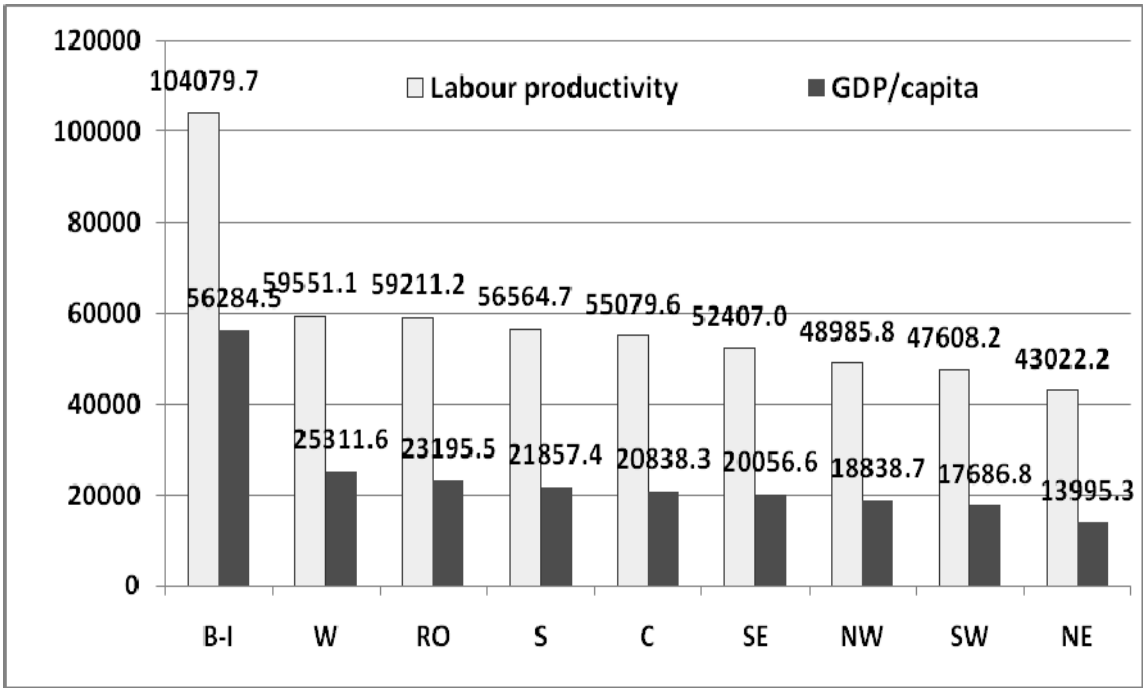
In order to achieve the objectives of the policy for regional development, in Romania, according to Law 151/1998 eight development regions were created: Centre (C), West (W), South-East (SE), North-West (NW), North-East (NE), South-West Oltenia (SW), South-Muntenia (S) and Bucharest-Ilfov (B-I).

As in other European countries the most developed region is the one that includes the capital, and the less developed are the border areas. In Romania the underdeveloped areas are concentrated in the north-east, at the border with Moldova and in south, across the Danube. Except for the Bucharest-Ilfov region, whose situation in the economic landscape is completely special, economic growth followed a west-east direction (having a significant geographic component), the west markets' proximity acting as a growth spreading factor (GR, 2005).Romania, as any other country, has disparities between the levels of economic and social development of the different areas of the country. In 2009, according to data in figure 1, which presents the ranking of the eight regions of Romania in terms of GDP per capita (expressed in lei/capita), on the first place we have the Bucharest-Ilfov region, and on the last one the North-East region. The North-East region is marked by its dependence on agriculture and a high level of ruralisation as well as by the proximity to the border with Moldova and Ucraine. The same thing is valid, to a certain extent, for the South-Muntenia region, which also depends on agriculture and where the Danube acts as a barrier in the cross-border trade. Benefiting from their closer position to the western markets and their more reduced dependence on the primary sector, West, North-West şi Centre regions have attracted more foreign investors, fact which has significantly contributed to their development (Herman, 2011).

As far as the regional structure of GDP is concerned, in 2009, Bucharest-Ilfov region was on the first place, contributing to the creation of GDP by 25.5 percent, a lot more than the contribution of the other regions, contribution which varies from eight percent (South - West Oltenia) to 13.2 percent (South - Muntenia). If we analyse the regional structure of GDP compared to the regional structure of civil employed population, we notice that in some regions the contribution to GDP is higher compared to the contribution to civil employment and vice versa. The regions in the first category (Bucharest-Ilfov, West), where the relationship between the contribution to GDP and the contribution to employment is higher than one, are characterized by a higher labour productivity compared to the other regions where the relationship is below one, according to figure 1 and 2. For exemple, the North-East region occupies the second position as far as the contribution to employment is concerned (14.4 percent), but only the forth one related to the contribution to the creation of GDP (10.4 percent), thus assuring the conditions for the existence of a lower productivity, in fact the lowest in all regions.

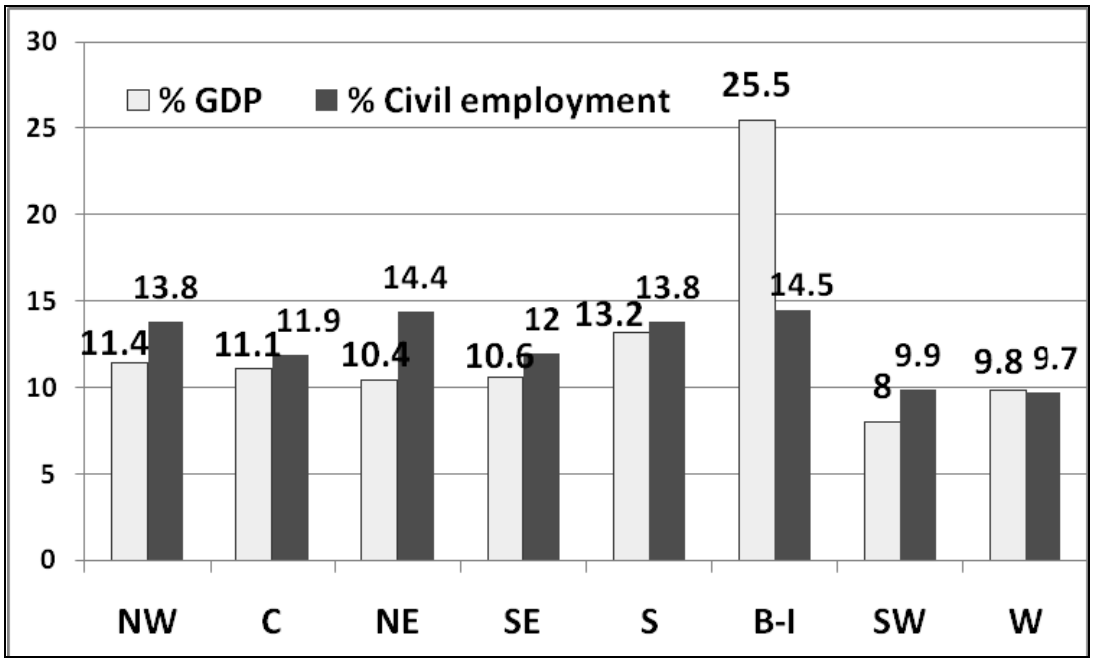
In the economic literature there is the opinion according to which the degree of economic development depends on the efficiency of using the labour resource, the labour productivity respectively (Stiglitz and Walsh, 2005), being emphasised that between economic development and labour productivity there is a direct and interdependent relationship. This relationship is verified also in Romania, at regional level, for 2009 (the value of the Pearson correlation coefficient de +0.995, calculated based on the data presented in figure 1, indicates a very strong positive relationship), fact which highlights the necessity to increase labour productivity in order to reduce the gaps between the eight development regions in the country, as well as the gap between Romania and the other EU countries.

Figure. 1 Economic development (GDP per capita) and labour productivity, in 2009 (lei/capita), at regional level



Source: Own calculations based on data provided by (NIS, 2011) and (NCP, 2011)

Figure 2 - The regional structure of GDP and the regional structure of civil employment, in 2009, at regional level

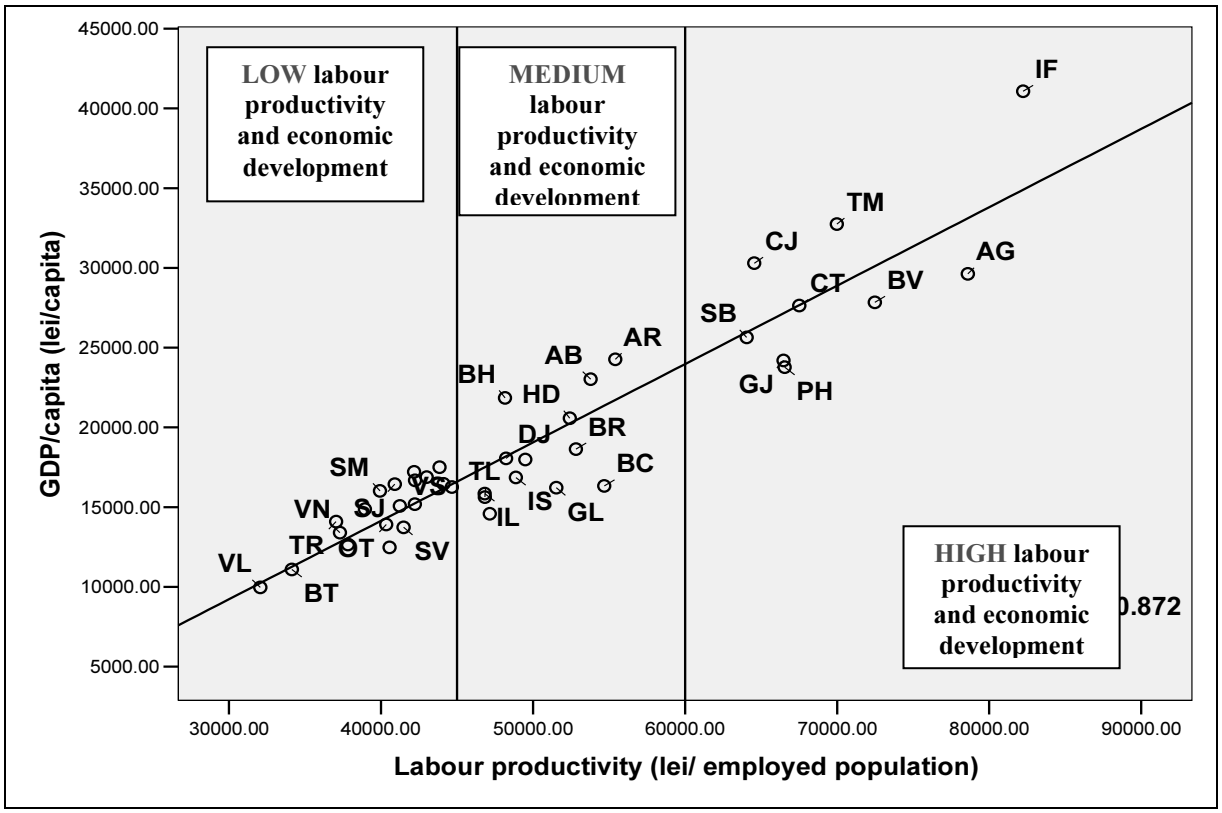


Source: Own calculations based on data provided by (NIS, 2011) and (NCP, 2011)

The results of the statistical analysis based on the Pearson correlation coefficient, carried out in order to establish the intensity of the relationship between the labour productivity and GDP/capita, highlights that at the level of the 41 counties, in 2009, there is a strong direct correlation (Pearson correlation=+0.934) between labour productivity and the level of economic development: the counties with a low labour productivity are characterized by a low level of

development (Valcea, Botosani, Teleorman, Giurgiu, Olt, Vrancea, etc), and in the ones where labour productivity is high also the level of development is high (Ilfov, Timisoara, Constanta, Cluj, Brasov, Sibiu, Arges, Gorj, Prahova and Bucharest). According to data in figure 3, the counties in the category- low labour productivity and low economic development, are part of different development regions, but the ones in the east and south of Romania are predominant.

Figure 3 Direct correlation between economic development
and labour productivity at county level, 2009



Source: Own calculations based on data provided by (NIS, 2011) and (NCP, 2011)

The statistical data presented clearly show that disparities in the development level are determined by disparities in labour productivity. Next, we aim to highlight the role of the services sector, in Romania, in increasing labour productivity and implicitely in increasing the level of regional economic development.

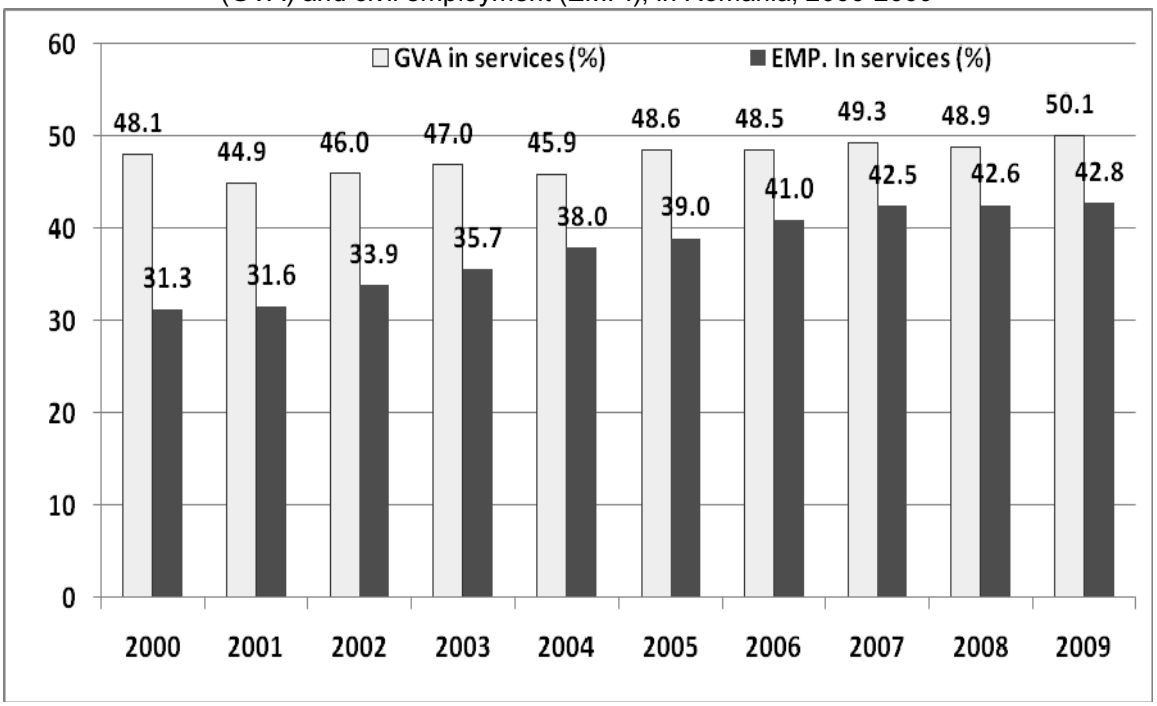
The role of the services sector in increasing productivity and in regional economic development in Romania

The economic literature and practice show that an efficient services sector, with a high quality level, is a decisive factor of the sustainable economic development and competitiveness of modern economies (Eichengreen and Gupta, 2009). The level of economic development, both at national and regional level, is influenced by the structure of economy. The growing share of services in global output, employment and international transactions has brought to the forefront the issue of the role played by services in economy.

By analyzing the data presented in figure 4 we notice that, at the level of our country, between 2000 and 2009, there was an increase in the contribution of the services sector to the creation of GDP as well as employment. It is worth noticing that in the last decade the increase in employment by 11.5 percentage points (p.p.) determined an increase in the services sector's contribution by only

2 pp, evolution which corroborated with the dynamics of the other sectors created the conditions for a lower productivity at the level of the national economy. Thus, in 2009, according to data provided by Eurostat, Romania holds the next to last place in the EU (in terms of labour productivity per person employed (accounting for 47.9 percent of EU-27=100 percent), as well as labour productivity per hour worked (accounting for only 37 percent of EU-15=100 percent).

Figure 4. The evolution of the contribution of the services sector to the creation of gross value added (GVA) and civil employment (EMP.), in Romania, 2000-2009



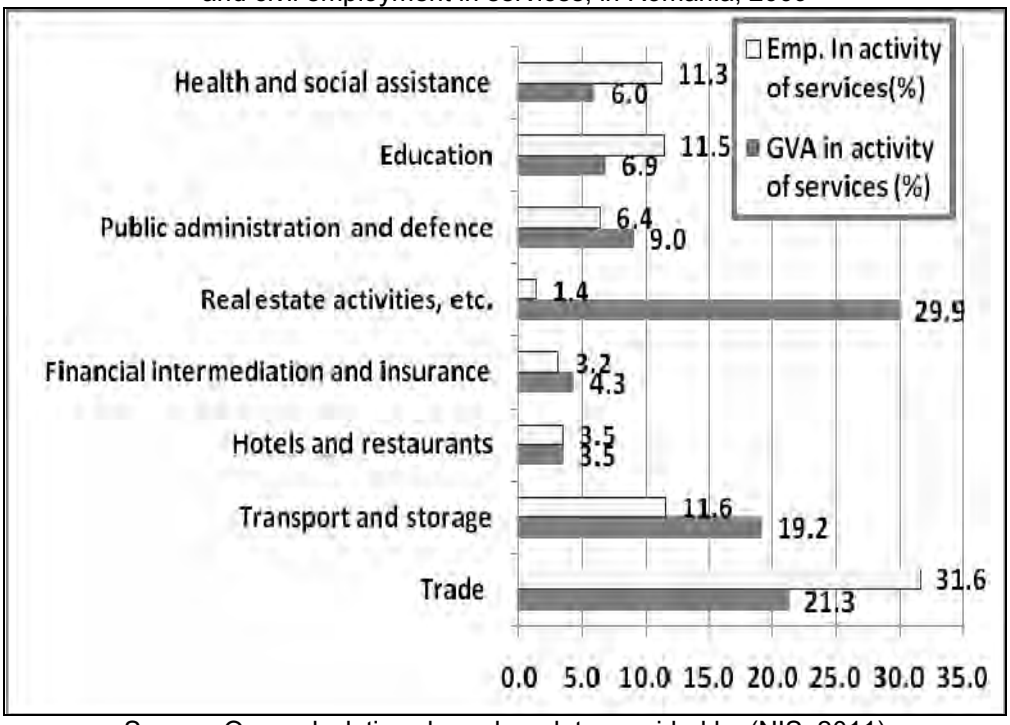
Source: Own calculations based on data provided by (NIS, 2011)

Because in Romania, the services sector has a higher contribution to the economic growth compared to the other sectors we consider that this sector should be acknowledged the economic and social role, giving higher importance to the tertiary sector, under the quantitative, qualitative and structural aspect, a special attention within the sustainable development strategies of the Romanian economy

Within the services sector, the highest contribution to the creation of gross value added (GVA), in 2009, was of the *real estate transactions, renting and service activities mainly rendered to enterprises,* respectively of 29.9 percent, followed by *trade* (21.3 percent) and *transport, storage and communications* (19.2 percent). Correlating these data with the statistical data that reflect the extent to which the activities in the services sector managed to create jobs, in this sector we notice that, both at national and regional level, trade is the main provider of jobs, followed by education and health and social assitance (according to figure 5 and 6). Also in these activities of the services sector, the contribution to GVA is lower compared to the contribution to employment, fact which determines getting a more reduced labour productivity compared to the other activities in this sector.

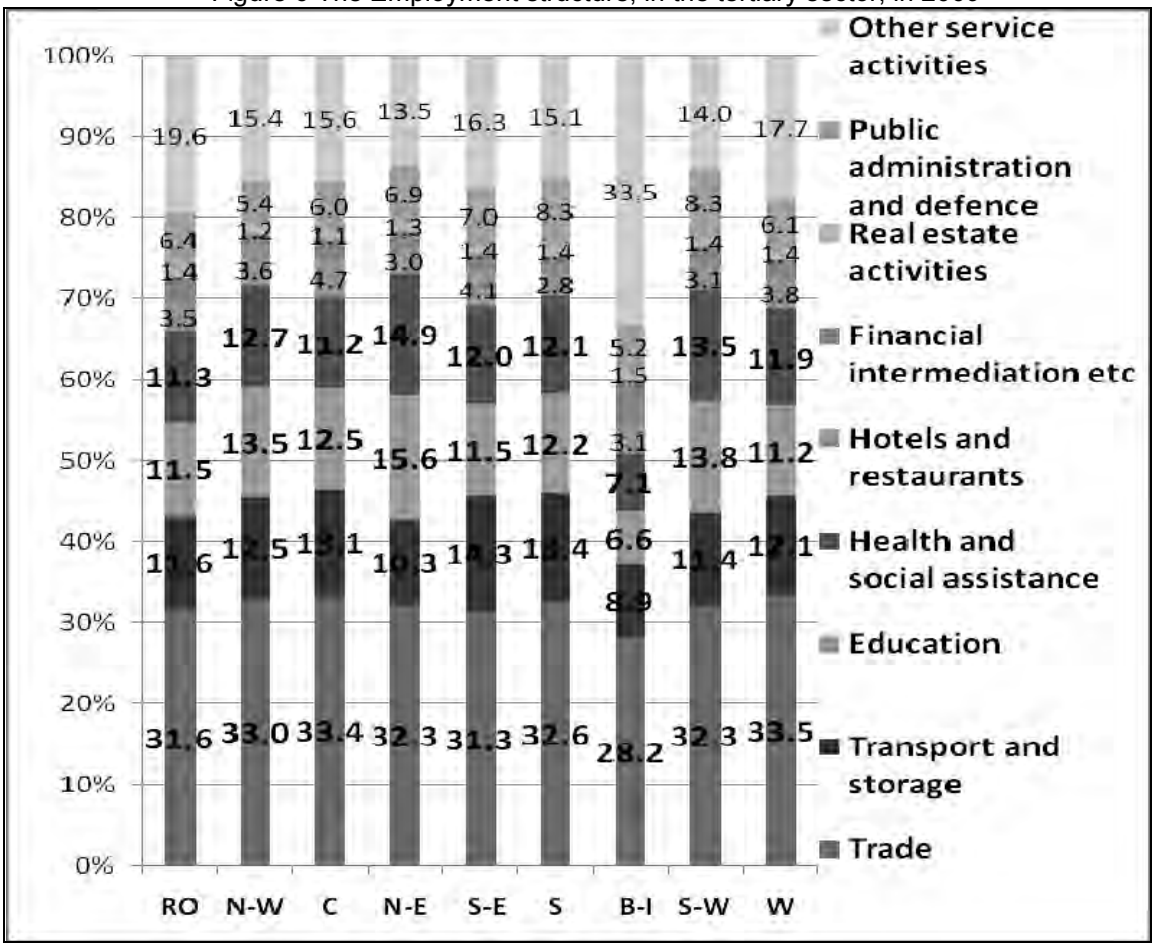
By analyzing the data from NIS (2011) and NCP (2011) and those in figures 5 and 6, it results that, at national and regional level, in most of the activities in the services sector, the level of productivity is above the average level recorded in economy. Exceptions to this are the activities of trade, education, health and social assistance, meaning precisely those activities in the services sector in which over 50% of the population employed in services work and which contributes with less than 35% to the Gross Value Added in the services sector, fact which requires the change in the structure of the services sector, i.e. increasing the importance of those activities that have a higher productivity.

Figure 5 The contribution of the main activities in services to the creation of GVA and civil employment in services, in Romania, 2009



Source: Own calculations based on data provided by (NIS, 2011)

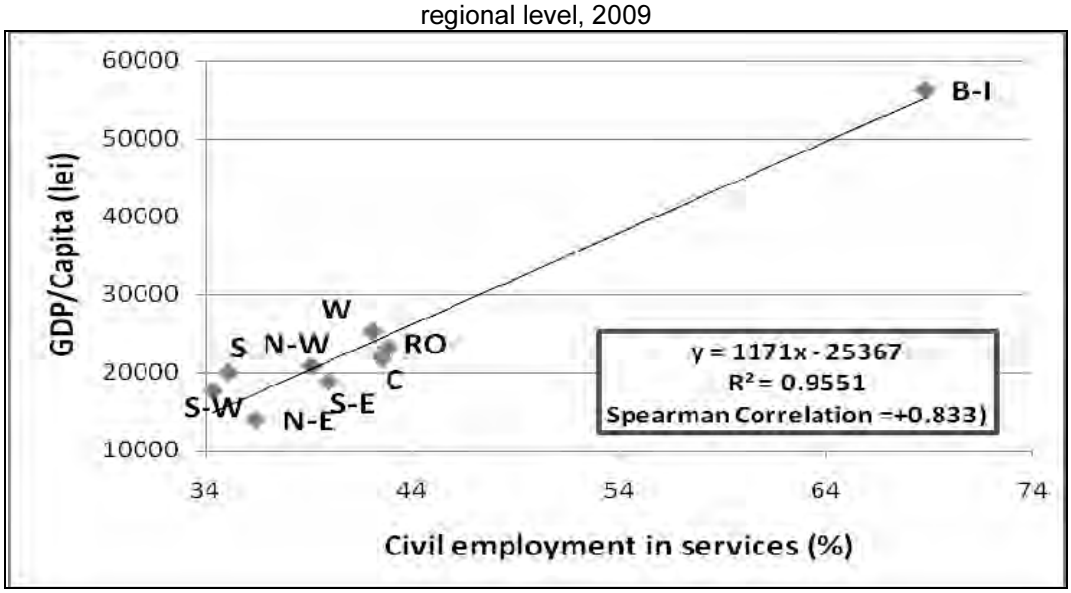
Figure 6 The Employment structure, in the tertiary sector, in 2009



Source: Own calculations based on data provided by (NIS, 2011)

From the statistical-economic analysis carried out based on the data on the level of employment in services (the share of the employed population in total employment) and the development level (GDP/capita), at the level of the eight development regions, we can identify a direct relationship between the two variables (Spearman correlation =+0.833, figure 7), in 2009, fact which confirms the economic theory according to which employment in services assures the conditions of a higher development level and vice versa. Thus, in the development regions North-East, South–East Oltenia and South Muntenia, characterized by a reduced employment in services (but a high one in the primary sector), we have the lowest level of economic development. The direct, significant relationship between employment in services and economic development is identified at county level. For example, in 2009, the lowest GDP/capita was recorded in the following counties: Valcea (South-West Oltenia region), Botosani (North-East development region), and Teleorman (South-Muntenia region), where employment in services had values between 27.9 percent and 32 percent, a lot below the value recorded at national level, 42.8 percent. Moreover we notice that Valcea and Botosani counties had the lowest GDP/capita.

Figure 7 Direct correlation between civil employment in services and economic development, at regional level, 2009

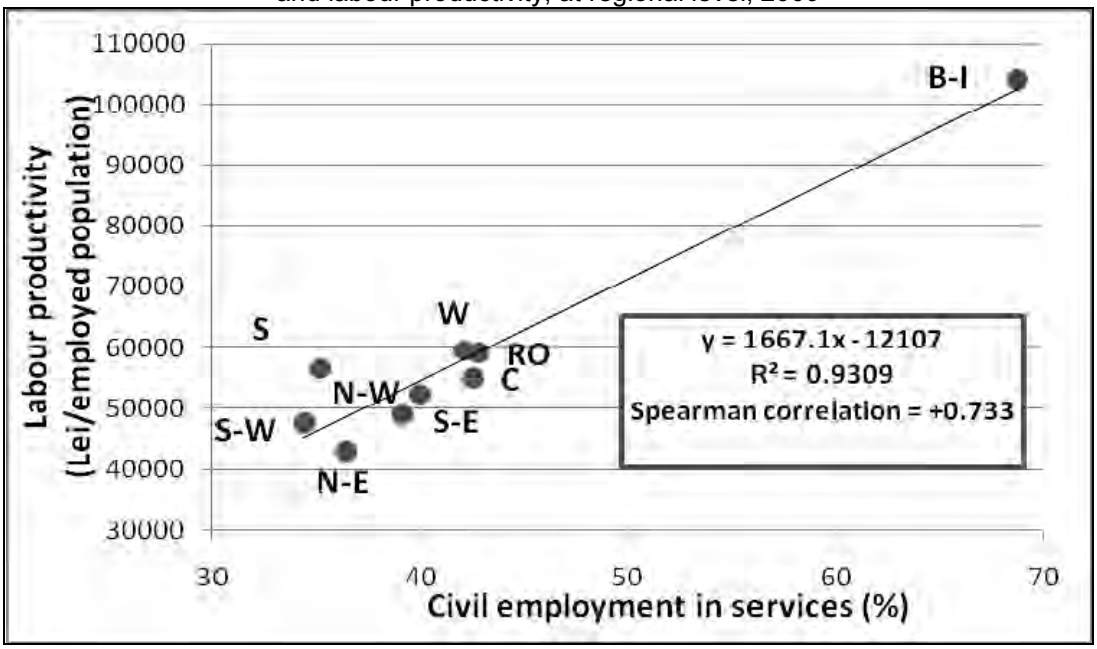


Source: Own calculations based on data provided by (NIS, 2011) and (NCP, 2011)

On the other hand, data in figure 8 show that the development regions where the labour productivity is higher (Bucharest-Ilfov, West, Centre) coincide with those where employment in services, as well as the development level are high (a direct relationship between the two variables, according to data presented in figure 8), fact which confirms the theory according to which labour productivity represents an essential factor in economic development.

Generally, the firms providing services are part of the small and medium-sized enterprises. Small and medium enterprises (SMEs) represent the backbone of the national economy and the EU's experience clearly attests that the SMEs sector can have a substantial contribution to the growth of the internal offer, create new jobs and stimulate the growth of exports. In Romania, in 2009, 99.7percent of the total enterprises were SMEs, and 77.3 percent of the SMEs activated in the services sector (according to data in table 1). The Centre region recorded the lowest share of SMEs in the services sector, and the Bucharest –Ilfov region the highest one (81.8 percent). Small and medium enterprises have the ability to respond in a flexible way to the demands of the strongly competitive markets and to quickly adapt at the cyclic and structural changes of the national and global economy. On the other hand, we have to take into account that because SMEs are small firms, they are sometimes in impossibility of assimilating and developing the modern technology, of applying a modern management. This fact requires the orientation of the macroeconomic management towards the implementation of some measures that should support these enterprises so that the services sector will be able to back up the regional economic development.

Figure 8 Direct correlation between civil employment in services and labour productivity, at regional level, 2009



Source: Own calculations based on data provided by (NIS, 2011) and (NCP, 2011)

Table 1. The structure of enterprises active in services, on size classes (%)

	Total *active enterprises*[1]	Total SMEs	SMEs/total enterprises (%)	SMEs from services	**Share of the SMEs servicii in total SMEs** (%)
Romania	532873	531152	99.7	410556	77.3
N-W	74871	73520	98.2	54534	74.2
C	65021	64802	99.7	47806	73.8
N-E	58170	58009	99.7	44115	76.0
S-E	62332	62155	99.7	48986	78.8
S	56805	56598	99.6	42877	75.8
B-I	127357	126930	99.7	103890	81.8
S-W	38269	38117	99.6	30090	78.9
W	50048	49857	99.6	38258	76.7

[1]*active enterprises in industry, construction, trade and other services*
Source: Own calculations based on data contained in (NIS, 2011)

Conclusions

The performance of the national economy and its capacity to deal with international competition are directly influenced by the level and dynamic of labour productivity. The results of our study show that the disparities in the level of development at regional and county level, can be explained by the disparities in the labour productivity.

In order to increase labour productivity, at national as well as regional level, we consider that it is necessary to increase the quality of the labour resource, to reallocate resources from low productivity sectors towards those with a high productivity (the services sector), to increase the degree of implementation of technical progress and innovations, etc.

Under the circumstances in which, in the services sector, over 70 percent of the enterprises are SMEs, these must be regarded as primal promoters for innovation and employment, fulfilling an important and irreplaceable function in a market economy, the dynamics of their development being one of the requisite conditions for a sustainable economic development.

If we aim to reach the EU objective set by the Europe Strategy 2020, to become a smart, sustainable and inclusive economy, which involves first of all the increase in productivity, we consider that we need a change, both in the macroeconomic management and in the one at regional level, being aware of the fact that some regional problems need to be answered with regional solutions.

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Measuring Performance during the Economical Crisis in the field of Human Resources Management

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Abstract

Purpose – develop a performance indicators system in the field of human resources management that managers can use in the evaluation of their employees.
Methodology/approach - There has been made a descriptive research that evaluates the actual situation of Romania regarding the level of performance of the human resource in general and of the human resource from the marketing department. The research method used is the investigation and the tool is the questionnaire.
Findings – The organizations of the „100 Capital Top" consider that the most relevant performance indicators for the evaluation of an employee are: efficiency, effectiveness and workload, the reclamations regarding the way of promotion in the career, work satisfaction, client satisfaction, etc. The small and medium enterprises from „Financial newspaper Top" consider that the most important performance indicators for the marketing department are: new clients brought by the employee, the number of visits at a work point/time, the return, sales value, clients satisfaction, market share, notoriety and image.
Research limitations/implications – The selection method was not random, the results can't be extrapolated to the whole country.
Originality/value – The achievement of two systems of evaluation of the employees of an organization.

Key words: *Performance, Human resources management, Performance indicators system.*

Introduction

Performance management refers to performance, to the management of a performance organization. Performance means achieving the work and obtaining good results, the best results possible (Armstrong, M. 2000). One of the essentials resources for obtaining the desired performance is the human resource; all the operations of an organization are done through people. Human resource management means making sure that the organization is able to obtain performance through people (Bratton, J. 2000).

Text

Human resources management means ensuring that the organization is capable to achieve performance through people. This means activities like the development of the employee's capability, the use of good work systems and the creation of a productive a harmonious environment, the capitalization and rewarding people, maintaining and improving physical and mental condition of the employees (Armstrong, M., 2004). Following this perspective, this paper tries to develop a performance indicators system in the field of human resources management that managers can use in the evaluation of their employees. The study refers to the performance of the human resource in general, but especially to the human resource from the marketing department of the Romanian companies. Another perspective that this paper wants to present is the link between the marketing human resources and performance. Marketing resources can influence general

performance in two ways: it creates superior performance for the client – it creates satisfied and loyal clients that the organization can serve effectively; the second way is to create value on superior markets – increasing sales volume and market share by fulfilling customer needs efficiently (Hooley, G., et al., 2003).

There has been made a descriptive research that evaluates the actual situation of Romania regarding the level of performance of the human resource in general and of the human resource from the marketing department. The research method used is the investigation and the tool is the questionnaire. Considering the human resource in general and the human resource from the marketing department there were made two questionnaires (Berman, E.M., s.a. 1999). There were selected also two samples as follows: the questionnaire regarding human resources in general was applied to the companies selected by Capital magazine in the top of the year 2008 „100 Capital Top – the best 100 firms you want to work for", and the questionnaire regarding human resources from the marketing department was applied to the companies from „Financial newspaper Top – the biggest players in the economy" in the year 2010. The selection method was not random. The questionnaires were sent by email and then the firms were contacted by phone to support the research and obtain a higher response rate. (Bacali, L., 2008). The obtained data were processed with SPSS (Statistical Package for Statistical Sciences) that is one of the most used programs for the analysis of data (Jaba, E., Grama, A. 2004).

The organizations of the „100 Capital Top" consider that the most relevant performance indicators for the evaluation of an employee are: efficiency, effectiveness and workload. The economical efficiency of the employee is the indicator that obtained the highest score, meaning that it is the indicator that matters the most for the organization (Cândea, 2009). Very close, it is situated the effectiveness of the employee, that completes very well efficiency. The indicators that obtained high scores for the organization's evaluation are: reclamations regarding the way of promotion in the career, work satisfaction of the employees, client satisfaction, service and product quality, continuous education of the employees, performance incentives, benefits offered by the company. The investigated companies consider that reclamations regarding career promotion are the most significant indicator of their performance, so if the employee is satisfied and his need for recognition is satisfied his performance will be higher. The clients have to be as satisfied as the employees; the clients are satisfied if they are served by motivated employees (Cândea, 2008).

Next, we want to present some of the scores obtained by the indicators presented above. 60 percent of the companies received between one and three reclamations regarding the way of promotion in the career from their employees. One of the advantages of the employees that work in a company that seeks performance is the benefits: kinder garden, gym and swimming facilities, free medical and dental care. So 80 percent of the companies responded that their employees have these benefits in a large measure. Continuous education of the employees is an indicator of the importance that the organization gives its employees, because it is not enough that an employee follow only one training program, these programs have to be repeated continuously depending on the changes that occur in the organization. 60 percent of the companies follow between 4 and 7 training programs in an average year. Regarding workload, 40 percent of the companies use this indicator in a very large measure, and 40 percent of them use it in a large measure. Effectiveness is use by 80 percent of the companies in a very large measure and efficiency is used by 60 percent of the companies in a very large measure.

The small and medium enterprises from „Financial newspaper Top – the biggest players in the economy" consider that the most important performance indicators for the evaluation of the human resources from the marketing department are: new clients brought by the employee, the number of visits at a work point/time, the return brought by the employee, sales value, clients satisfaction towards the marketing personnel. A marketing man has to bring new clients firstly, activity that can be realized by visiting a work point many times. This is the only way to increase sales, activity that the marketing/sales personnel are directly responsible for. The emphasis is also on the degree of satisfaction of the clients that come in direct contact with the marketing personnel. This satisfaction contributes automatically to the increase of the sales and of the return. The performance indicators for the evaluation of the organization from the perspective of marketing activities are: new clients, market share, notoriety and image (Bacali, L., et al., 2002).

Next, we want to present some of the scores obtained by the indicators presented above. The investigated organizations, 28 percent, consider that the way in which marketing human resource can bring performance in the company is by generating new clients. 15 percent of them consider increasing sales to be very important and 15 percent of them consider that the most important activity for the marketing employee is to retain and make clients loyal.

Table nr 1 – The performance indicators system regarding human resources in general

Category	**Indicators**	**Obtained Percentage**
Personal	Employees efficacy	1,83%
	Employees effectiveness	1,68%
	Workload	1,53%
Organizational	Reclamations regarding the way of promotion in the career	6,49%
	Work satisfaction of the employees	3,9%
	Client satisfaction	2,14%
	Service and product quality	1,99%
	Continuous education of the employees	1,22%
	Performance incentives	1,07%
	Benefits offered by the company	0,92%
	Promotion of available jobs and recruitment efforts	0,61%

The system of evaluation of the employees resulting is the following (table 1):

-efficacy;
-effectiveness;
-workload;
-reclamations regarding the way of promotion in the career;
-work satisfaction;
-client satisfaction;
-service and product quality;
-continuous education;
-performance incentives;
-benefits offered by the company.

Table nr 2 – The performance indicators system regarding human resources in marketing

Category	**Indicators**	**Obtained Percentage**
Personal	New clients brought by the employee	3,18%
	The number of visits at a work point/time	2,89%
	The return brought by the employee	2,6%
	Sales value	2,31%
	Clients satisfaction	1,45%
	Services and product quality	1,12%
Organizational	New clients	2,75%
	Market share	2,14%
	Notoriety of the company	1,83%
	Companies Image	1,53%
	Profit evolution	1,22%

The system of evaluation of the marketing employees resulting is the following (table 2):

-new clients brought by the employee;
-the number of visits at a work point/time;
-the return brought by the employee;
-sales value;
-clients satisfaction;
-market share;
-notoriety;
-image.

Discussion and conclusions

Having a strong performance indicators system is very important for any respectable organization, it doesn't matter if the times are hard (economical crisis) or if the times are good (economical growth). A good performance indicators system can be a competitive advantage during the economical crisis period.

Notes

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Analysis of innovation model in the European context: Finland and Spain compared to define the model for Romania

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Abstract

Purpose *– This paper proposes a framework for analyzing innovation models in European economies. The framework combines two dynamic trajectories that affect innovation models in Europe– model from Finland and the model from Spain – and builds a new model of innovation for Romania, Centrum Region.*
Methodology/approach *- The research method chosen was a deductive one, based on the development of one theory, assumptions and outline of research to testing the theory.*
Findings *– The results of our analysis relate that the Finnish innovation system, considered the best in the world, is based on networking between government, academia and the private sector. Similar relationship we find in the innovation system from Spain. Taking in consideration the results of the analyzing we create the new model for Romania.*
Research limitations/implications *– There is a consistent number of institution involved in the innovation system. Unfortunately this study is not enough to prove that the new model for Romania is better than it was before.*
Practical implications *– Analyze the model for innovation system and start to build the new model for Romania.*
Originality/value *– The analyses and the evaluations represent the author's contributions.*

Key words: *Innovation; models; region.*

Introduction

In an international context characterized by rapid advancement of knowledge and developing new products and technologies, innovation has become a necessity. In order to increase innovation capacity and to complete this process properly, we need to create a National Innovation System to coordinate all existing structures in order to generate, adapt and transfer new knowledge to the production sector.

These innovative systems are designed to build communication networks between the various factors involved in the innovation process. According to the "European Innovation Scoreboard, the Central Region of Romania is positioned well below the European average, while in Spain, Bask Country Region is located near the European average, in general terms of innovation, and on the leaders in Europe we find Finland. Given these positions, the paper has defined the objective of determining a model of technological innovation for Romania, which is based on the analysis of different regional innovation systems in Finland and Spain.

This paper analyzes the early industrial discourses held in the name of a system approach to research, or "scientific whole". To industry, a system approach would put industrial research on the

national research map, contributing to public recognition of the phenomenon. This would help make the case for universities contributing to industries' needs, and industries benefiting from the government's research efforts.

History of the National Innovation System

It is common today to look at science and technology as a research or innovation system. This system is said to be composed of four main elements or sectors – universities, governments, industry and non-profit – and their interrelationships. The concepts of the Triple Helix and National Innovation System have become popular frameworks in the literature for discussing such a system approach.

Where did the frameworks come from? C. Freeman and B.-A. Lundvall, as prolific writers on National Innovation System, have suggested that F. List (Das Nationale System des Politischen Okonomie, 1841) was a pioneer of the approach. However, one would have difficulty documenting a tradition of theoretical research on the system approach arising out of List's work. It is one thing to resuscitate a forgotten author who held "similar" ideas over 150 years ago, and another to document the rise of a research tradition from that author. Positioning List as a spiritual forefather is rather like looking for a symbolic figure as a father figure after the fact. List is really an isolated case. The development of the National Innovation System concept owes to something else (Benoît G., 2009).

In a recent paper, Godin has documented what the system approach in science studies owes to national policy and the discussions conducted on this matter in industrialized countries beginning in the early 1960s, above all at the OECD. Over the same period, the system approach found its way into official statistics, which helped solidify the concept (Godin, 2009a). However, we can go further back in time. And here national science policy is really at the heart of the matter again. The experience of World War I led to mobilization of the totality of scientific resources on a nationwide basis, what the American historian A. H. Dupree called the "great estates" of science in the country (Dupree, 1957), and to the demand to link universities (science) with industry (applications).

In Great Britain, this started with efforts by the Board of Education (1915) to strengthen and redirect educational resources toward industry's needs. The belief in shortages of research scientists, particularly scientists with expertise in both pure and applied science, and specifically industrial scientists, gave rise to the Department of Scientific and Industrial Research (Macleod and Andrews, 1970; Varcoe, 1979; Hull, 1999).

While the British Department became an active supporter of industrial cooperative organizations, the United States explicitly developed a different approach. In 1916, the US National Academy of Science offered to bring into cooperation government, education, industry and other organizations for the war effort. A National Research Council was to serve as vehicle to this end. It would rely primarily on private sources, among them the great foundations (Kevles, 1971).

Empirical research

The research method chosen was a deductive based on developing a theory, a hypothesis-shaping their research to testing and validates the theory. This method is based on scientific principles and rigorous structured approach. The method involves the need to explain the causal links between variables requiring large data sets quantitative control of and attention in selecting the sample to generalize the results.

The main objective of the paper is summarized as follows:

Analyze the innovation model from Spain, Finland and Romania.

To reach this objective, we established a series of specific research objectives that help achieve the research project, being in full agreement with the main objective. The specific research objectives are:

1. Identifying the most important variables for the technological innovation;
2. Technological innovation analysis models from Romania, Finland and Spain Depending on the most significant variables on technological innovation;
3. Identification of critical variables that should be the base of the development for the new model of innovation in Romania, Central region, considering the results of the analysis performed on models in Finland and Spain;
4. Based on variables identified in Objective 3 will define the model of technological innovation for the Central Region of Romania;

The set of indicators has varied over the time. You can compare the above set of indicators with the indicator used in 2005. Sources of data for performance evaluation of different region are different: Euro stat, World Bank, IMF, Thomson-Reuters. From all the factors were selected only 11 who met the two conditions simultaneously and were found in two large scale studies in Europe: the European Innovation Score-board (EIS) and Regional Innovation Scoreboard and were evaluated for three regions: Etelä / Finland, Bask Country / Spain and Centru/Romania.

The Hypothesis are presented in the following paragraphs:

Hypothesis 1: The key factors on technological innovation are higher if the innovation system was defined long ago.

Establishing the most important variables for the technological innovation is the first step done in order to achieve the major objective of this research project. Variables are chased considering the indicators that are part of the evaluation of regions and countries in Europe by the European Statistics Research Institute in Brussels. From a total of 29 indicators we chose the most relevant concern the technological innovation. This analysis will be made for several European countries, chosen according to the classification made by the European Score Board.

Hypothesis 2: Investment in R & D influences the results of the indicators of a region. Starting from the second secondary objective has been defined two assumptions that help us analyze and compare three models of technological innovation in Finland, Romania and Spain. We have chosen three countries as a part of the middle class of technological innovators in Europe, another part of Europe's most innovative class, while the third is located in the tail of European league. To demonstrate the research hypothesis 2 is correlative to see the influence they have expenses for R & D organizations with character making the results on technological innovation.

Hhypothesis 3: Firms with a high-tech investment have a significant influence on the level of innovation in Romania, Finland and Spain.

The third hypothesis examined in this paper concerns the connection between technology companies that have medium and high degree of technological innovation achieved by Romania, Finland and Spain. This analysis will be made after analysis of the three models of technological innovation in Romania, Finland and Spain.

Findings

In order to demonstrate the first hypothesis we determinate a link between indicators obtained by the tree regions analyzed and the year in which technological innovation model was define in the respectively region. As can be seen in the figure below, it is a close link between the level of technological innovation and the number of years since was defined the model of innovation in all regions. These confirm the hypothesis that there are connection between the number of the years since the model of innovation was defined and the innovation results.

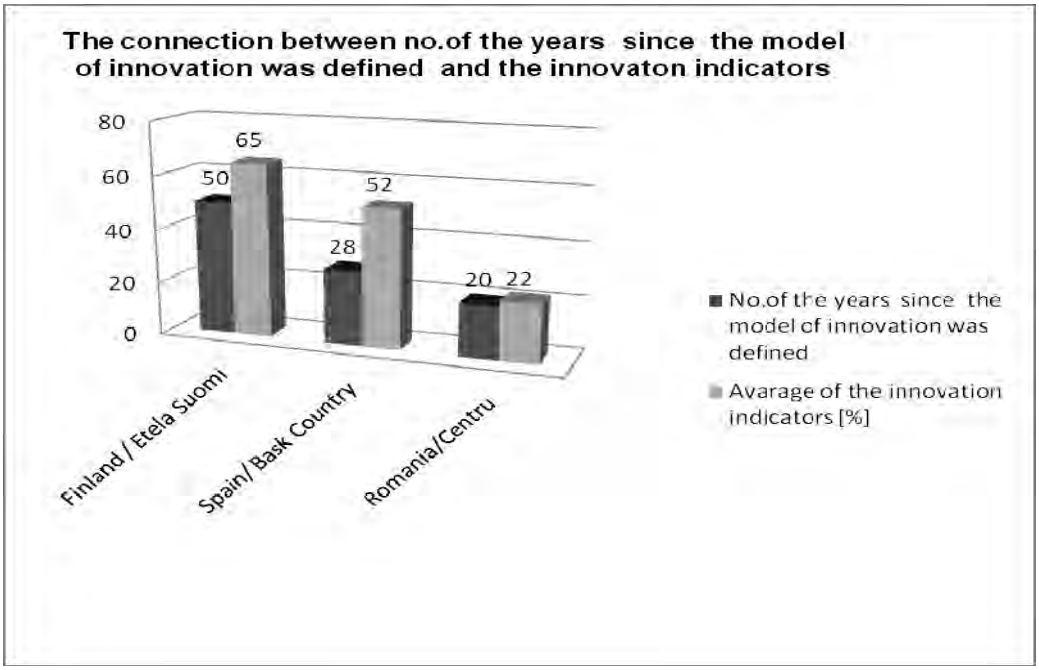

Figure 1: The connection between no. of the years since the model of innovation was defined and the innovation indicators

To demonstrate the second hypothesis was examined the influence of expenditure with R&D activities (percent of GDP) on technological innovation in the three regions analyzed. The results are directly proportional in the three regions analyzed and this leads to the conclusion that there is a close link between investments in research and development and general results of the indicators of technological innovation.

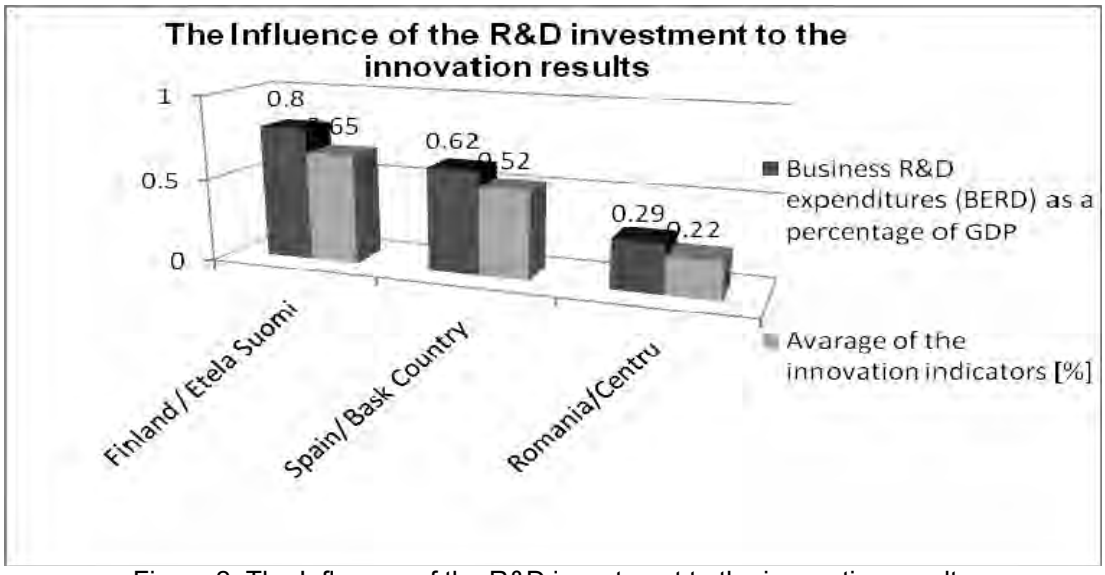

Figure 2: The Influence of the R&D investment to the innovation results

The share of employees in medium and high technology firms (percent of total workforce) could reveal the influence of companies with medium and high technology on the degree of innovation from the studied regions. As can be seen in the next figure, we don't see a direct influence on the degree of the level of technology innovation, leading to the conclusion that the hypothesis that firms with high and medium technology innovation have influence in the innovation level is a null hypothesis which denies or contradicts the truth.

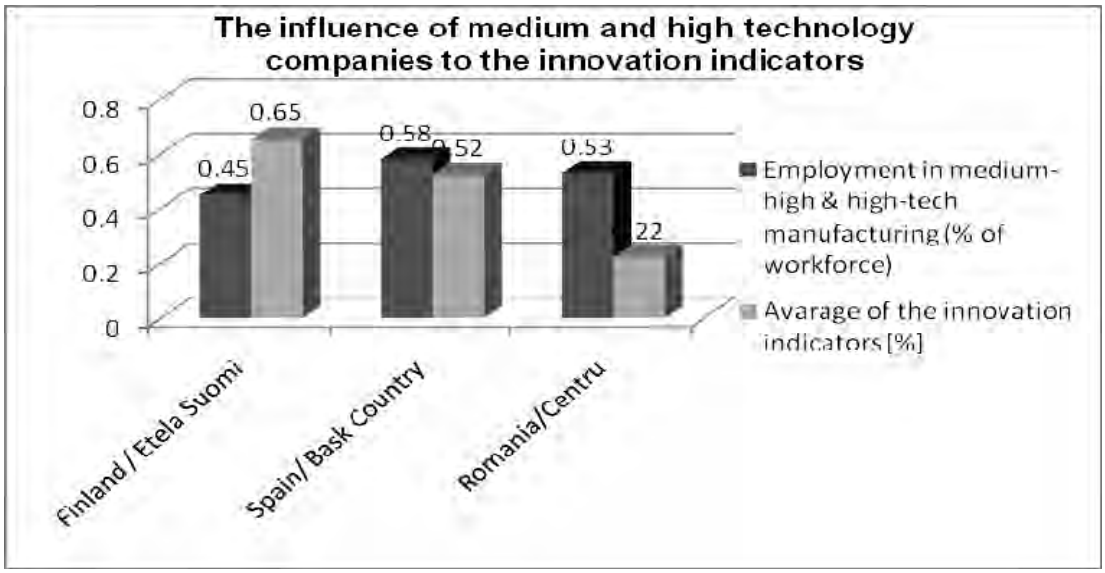

Figure 3: The influence of medium and high technology companies to the innovation indicators

Discussion and conclusions

In this paper we have presented the evaluation of three innovative regions. The results highlighting the close links that exist between the number of years since was define the model of innovation and the influence in technology innovation investment with the results of technological innovation in the regions analyzed. Also demonstrate that there is not a connection between high and medium technology firms and the innovation level of a region, this led to the conclusion that the third hypothesis is invalid.

The results of our analysis relate that the Finnish innovation system, considered the best in the world, is based on networking between government, academia and the private sector. Similar relationship we find in the innovation system from Spain. Taking in consideration the results of the analyzing we create the new model for Romania.

The system approach has deep roots in history. The National Innovation System tradition developed among academics, adding new dimensions to the analysis. A system approach to understanding the organization of research evolved gradually. At the very beginning, there was only one component in the system, or in fact there was no system at all. University research was the basis of all progress, and pure research was contrasted with applied research, which is derived from pure research. The interest of academics here was to preserve a division of labor. This understanding is what we have called above the spontaneous philosophy of scientists. It was shared also among nonscientists very early on.

As it was mentioned earlier in this article, being open to research or even receiving large amounts of funds this way does not guarantee strong economic development. The way these resources are used and industries that are consuming them are far more important. In order to achieve economic convergence transition economies need not only to liberalize their financial and trade systems but also make sure these processes are followed by knowledge transfer. One of the basic indicators of this process is the R&D system convergence. Unfortunately in the case of Romania, data for the period 2001-2006 reveal that low-tech sectors with limited spillover effects are still more important drivers of economic growth than dynamic medium- and high-tech manufacturing and services.

It is no surprise than that Aralica (2009) found almost 60% of businesses had no investment in R&D activities and were using only external knowledge.

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Mining Industry Restructuring And Its Consequences In The Local Economy Worldwide Economic Crisis

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Abstract

Purpose *–The goal is to work as an objective overview of how coal mining activity in the Jiu Valley mining basin was conducted and its effectiveness through the results have an impact on local economy*
Methodology/approach *– The methodology used consists of procedures used in this work priviind conversion and reorganization of this sector under the Mine Closure Manual, approved by Government Decision.*
Findings *–Apreciation is given to the closure of inefficient mines with low productivity units, while activity performed according to consistent criteria and avoid social shock given the layoffs that devolution of service and divisions within this sector*
Research limitations/implications *– Implications are given to reduce production capacity of the acute lack of investment over a long period, low productivity, massive layoffs of staff, local budget encumbrance that additional costs for support persons.*
Practical implications *– Practical implications are to use mine closure criteria and selection criteria that use underground infrastructure recovery on economic indicators.*
Originality/value *– Originality and value of this research is given to structure and prioritize the shutdown process by avoiding major social impact of restructuring actions.*

Key words*: Restructuring, mining activity, mine closures, unemployed.*

Introduction

In this paper presents the impact of restructuring the mining in the Jiu Valley mining basin, affecting Uricani City, in the light of demand for coal in international market economy, social and economic effects of restructuring direct the local economy, the population, that measures can be implement for the City Uricani to revitalize the local economy amid the global economic crisis.

Mining restructuring in the Jiu Valley mining basin is constituted as a necessity in view of the results obtained by the economic and environmental effects of its respective that numerous accidents resulting in loss of human life.

The emergence of global economic crisis has accentuated this process by resizing and adjustment units ecomomice need to avoid wastage of materials and activities to correlate the efficiency of existing demand and supply coal to the global mining industry in the Jiu Valley mining basin.

Economic effects on the city Uricani observed by the existence of many buildings that remained unfilled at the legal situation is unclear, the population's continued degradation with poor qualifications and poor opportunities for career guidance, the decline in trade comercial activities.

Research priviind mining sector restructuring and its impact on socioeconomic development, the land area of the Jiu Valley

Mining industry is known as a great resource intensive married give money that the mining of coal causes high costs and the sale does not fully cover its operating costs is necessary cos-subsidized imports from the state budget to maintain mining. As given issues that this activity requires continuous efforts in cost investment high and high costs involved in comparison with the prices obtained on international markets it was decided to restructure this sector since 1997, representing be as beneficial as having negative effects recorded to treat this economic sector, namely environmental protection.

Reduction of production capacity was gradually due mainly to lack of investment and low productivity, massive layoffs of personnel, poor training, heavy integration work due to lack of market and investor disinterest for this area, social problems faced by the local authority encumbrance local budget with additional costs for support people made redundant.

Another response is the lack of liquidity of state-owned companies and private conducts business in this area, an effect due to reduction in the levels of public money in response to measures to reduce mining sec-tor activity, with the fact that most of its active population-health activities in this section and that led to the accumulation of debts by this double perspective and the lack of them.

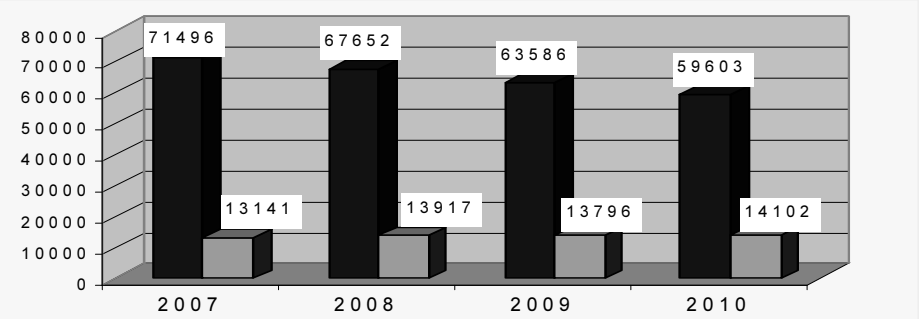

Fig.1 The evolution of industrial reserves and open in the period 2007-2010[1]

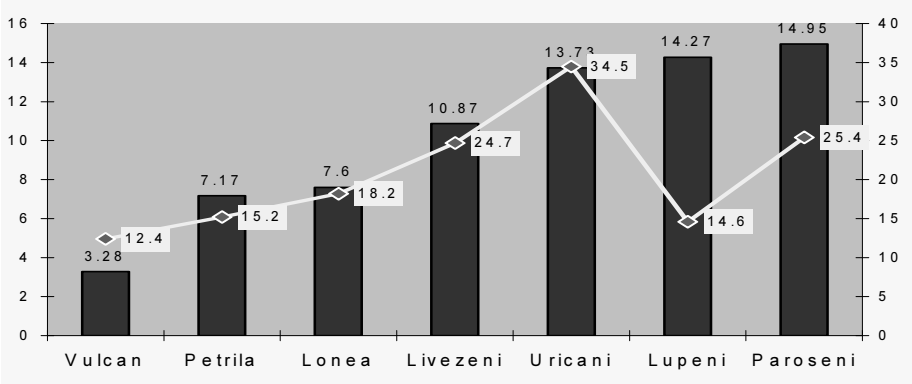

Fig.2 Providing industrial coal reserves in the Jiu Valley in the 2010[1]

Ways of restructuring the mining sector in the Jiu Valley mining basin

The methodology used in the restructuring of mines is used in accordance with the Mine Closure Manual, this is accomplished in stages, a process that is currently in progress and both the closing stages and ecology.

For they were designed as the criteria for closing the economic criteria, criterion interested grace, and the recovery criterion points underground infrastructure will be a recovery program used machinery / equipment based on a score that will create a file, through a hierarchy the main equipment will be recovered in this process. This process will be abandoned mining sites definitive teaching of existing local authority.

For the socio-economic surveys will be used that technique survey samples, interviews with people involved in this process of mine closures that will evidence of the population of active and inactive to monitor their movements and mobility within labor market condition by that due process of the population is constantly fluctuation. So will be database their obvious and track these jobs that they can access, organize various activities that they can access a job or help finding its. Se considering investment opportunities that local authority will use to attract these investors' existing employment for periods in excess and specific activities of the area.

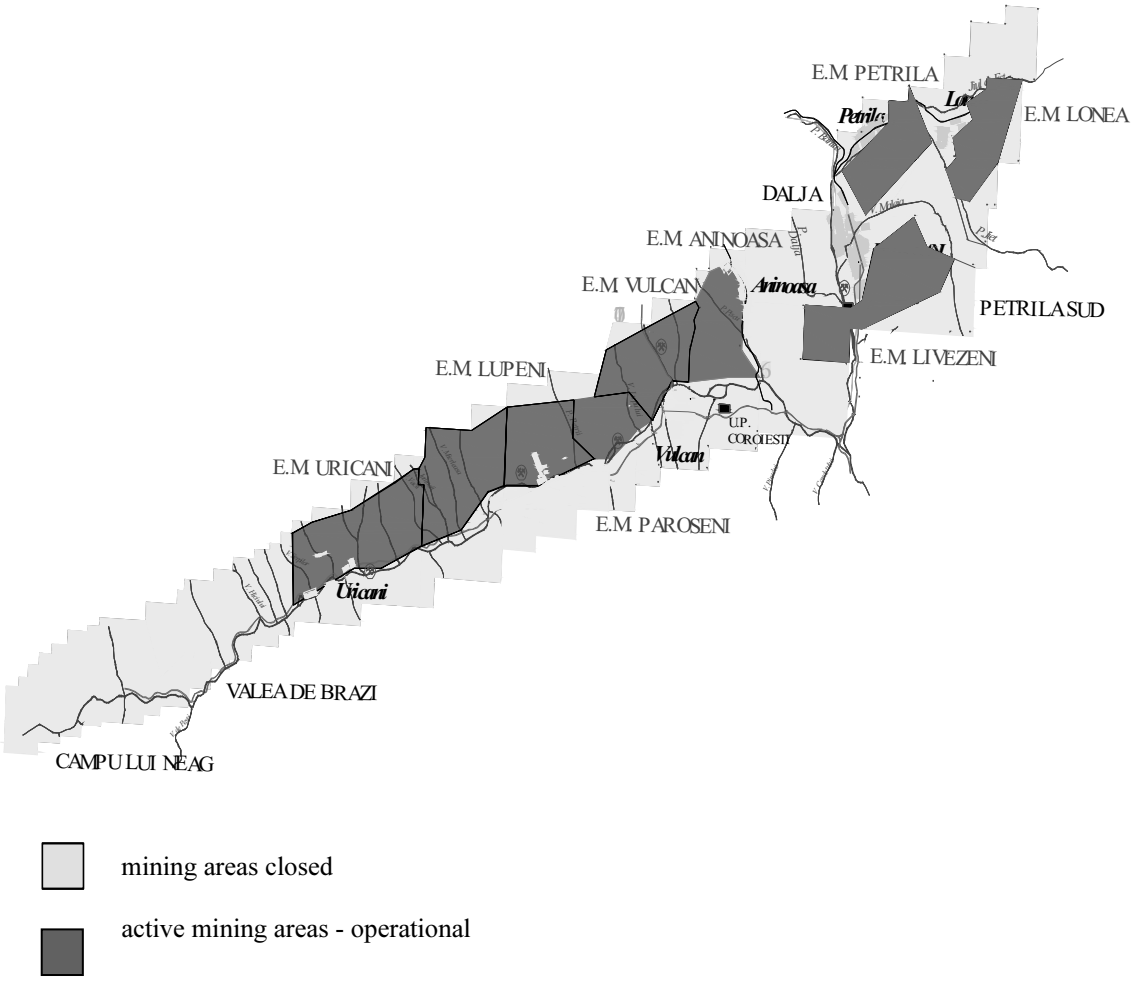

Fig.3 Position and location of the main mining areas in the Jiu Valley mining basin[1]

Table 1 The scoring according to the indicators realized[1]

No. CRT.	indicator	The scoring	
1	Production - tons / day	- over1800 t/day -1000 - 1800 t/day - under 1000 t/day	15 points 10 points 5 points
2	Number of staff - people	- over 1800 pers. -1000 - 1800 pers. - under 1000 pers.	2 points 4 points 6 points
3	Physical productivity of labor - Tons / person / year	- over 3001/ pers./year - 250 - 300 t/pers./year - under 2501/ pers./year	15 points 10 points 5 points
4	Rezerva deschisă - mii tone	- over 2000 -1000 -2000 - under 1000	10 points 6 points 3 points
5	Ready reserve - kt	- over 900 - 400 -900 - under 400	10 points 6 points 3 points
6	Exploitable reserves - million tons	- under 60 - 40 - 60 - over 40	9 points 6 points 3 points
7	The degree of mechanization	- mechanized - no mechanized	5 points 3 points
8	Unit cost - USD / Gcal	- over 12 -12-14 - under14	15 points 10 points 15 points
9	Total expenditure to 1000 lei production Freight - lei 1000 lei	- over 2000 -2000-2500 - under 2500	15 points 10 points 5 points

Restructuring the mining issues in the Jiu Valley mining basin

Energy future of mankind remains dependent for decades to come again before resources of coal in the world, evident decline of coal mining activity is not a problem more circumstantial and time.

On terms of primary energy consumption structure in the world, evolution and reference forecast made by the International Energy Agency show that about a quarter of primary energy needs, globally, will be covered further coal. Along with increased energy consumption, estimated at 60% mat for the next 20 years, increase intake based on coal resources. Romania will have to build an efficient and competitive in their own coal reserves, not to become independent of energy imports, namely achieving energy security in sustainable development.

Over the years, mining has experienced periods of prosperity and decline, the evolution was, in fact, characteristic of any process. Political situation, economic and social especially Romania in

the last half of last century made the most of the studies and research in mining focus on developing or improving specific processes in this field, neglecting certain aspects, at least as important as expansion or growth periods, ie periods of decline or end.

Technologies applied in the Jiu Valley mining reached a level of autosaturation and decreased their ability to be innovative, efficient, requiring an effort of creative and practical solutions based on extensive research, interdisciplinary because they are brownfields' and modernized.

Given the changes in international coal market, given the requirement of market economy in Romania the idea emerged to address the issue of the decision to stop mining activity in some units and so implicitly in the Jiu Valley mining basin.

By applying the methodology in the closure of mining units listed above criteria it will apply that in the former mining Uricani exploitation only existing mine in the city Uricani and operating a large part of active labor on the range city.

This involves a phased closure of the two East and West, respectively redeployment of staff. Availability will be made gradually in the first phase by these natural exit through retirement and then transfer to another unit in the mining basin Jiului. Acest Valley mining approach is made gradually to avoid the type shocks generated social redundancy but also protection Social those that work cease trade relations with the lack of availability of funds transposed the population on a long time.

Contribution priviind mining sector restructuring in the Jiu Valley mining basin

It consists of the research process embodied in the structure under review relate to security and prioritization phased restructuring process, avoiding major impact achieved by these actions, sizing and control costs, possibly proceduring roll take place smoothly and on schedule coherent strategy Mining Industry 2004-2010. Closure of mining facilities will take into account the possibility that staffing stabilized be used in the work of their closure or conversion to be performed in various activities, collateral mining sector, work will be conducted in his area.

You will notice that there is a change of mentality in terms of staff on responsibilities and mining activities in the context efiecientizări of European policies on energy.

Changes, political, social and cultural that took place in the Romanian economy, maturities in the last two decades have led to changes in its status, mandate a transformation from a centralized economy to a free market economy, functional, conditional to ensure competitivenes on a European and worldwide.

A modern solution in terms of anticipating and managing change necessary in many cases, once the restructuring. Restructuring process is not a new concept, it is part of a regular, objective, shown worldwide in response to profound structural and economic orientations recorded in the global economy, restructuring represents a "normal process of adapting the economy the new requirements, the amended conditions to ensure resources".

The continuous growth of energy demand, high cost and limited reserves and other efficiency fossil fuels (oil and gas), delayed confirmation of alternative renewable resources and the opposition met by nuclear power, leading to reconsider the position of coal in the energy balance . Analyzing existing data with regard to trends in the coal and energy policies of various countries shows that the renunciation of coal as primary energy resource is not possible nor reasonable. According to International Energy Agency projections show that about a quarter of us voile primary energy resources worldwide will be covered by coal, this element is the basis for shifting energy policies of all countries to depend, a share lower or higher energy import.

Romania has a wide range of primary energy resources, but small quantity, so that indigenous coal has a role in the national energetic balance.

In Romania, the restructuring of the mining industry started in 1990 and stood out so far by the closure of 194 mines and quarries, over 210,000 people out of the system and over a billion dollars spent by the government.

Romania's coal industry has enjoyed political support in the form of grant programs and social transfers, so that in the period 1990-2005 amounted to about 6519.7 state effort million dollars. This practices can only be accepted on a limited, observing that these financial flows to maintain a long-term restructuring efforts will affect favoring accumulation of debt and interest payments by the beneficiary units of such subsidies.

After 2007, subsidies were targeted mainly for coal sector. For the country's energy security, coal mining is necessary to continue even if the coal mining industry is uncompetitive compared to global performance, there are prospects for continued operation of its economic efficiency by continuing and supporting reform by maintain-ing and sustainable capacity through retrofitting and upgrading, closure of non-prospects, sector efficiency by eliminating subsidies and creating a competitive system.

Restructuring C.N.H.-S.A. Petrosani, Romania sole trader operating from coal at present, an issue closely related to the time factor in 2010 and aims to promote the overall objective to "a viable mining company in coal mining." Effects drop in industrial restructuring in the Jiu Valley coal is negative if we refer to measures which were taken over time: mine closures and layoffs of staff, with reflection on the industry itself but also on trade and businesses in surrounding areas . Following the start of the restructuring process, after which they were made redundant more than 27,309 people, only in 1997-2007 17% of population's Jiu Valley was directly affected by the restructuring process, it reached a value of 19% in 2010 and after this period is estimated to reach 25%.

Given the situation in the Romanian mining, notably in the Jiu Valley, the paper aims to answer some questions about the recovery of existing productive technical infrastructure that will clear the mines or are proposed for closure under safety, the deposit and, last but not least, the environment.

Mine closure process is a tortuous process and often with several large financial implications. Closing activity of mining objectives of the CNH -SA Petrosani started on 01.10.1998 by ceasing production in mining activity Petrila South Campu lui Neag, followed by other mining.

Since the Jiu Valley mining should continue to conditions of economic efficiency and technical productive recovery infrastructure is a key objective for the mining company not to strike the additional equipment costs by equipment mining and reuse them to be in maximum security conditions.

Conclusions

The theme of the conference is subject to a presentation of the effect is manifested in the crisis management of state-owned company, that local authorities and led to negative results for them, but a rigorous approach to crisis management in terms of these issues rigorous economic analysis will be the state-owned units and private and local authority that the indirect effect on them due to restructuring, resizing that production capacity to cope with the competitive and economic standards imposed by EU.

Following the restructuring of the financial crisis and therefore a lot of workers who worked in these units went to areas of origin thereby increasing the number of unemployed and a decrease in labor supply effect of lowering the number of contributors to the local budget of local government, while taxes paid by exploitation or reduced and a relatively short period decreased the budgets of these cities leading to lower financial resources within these budgets.

Mining is known as a great financial resource intensive with low productivity representing a negative part of these industries not only bad management applied after 1990, culminating with the staff restructuring program in 1997 made in haste without alternative with strongly negative socio-economic impact.

Trying to reduce costs to the state budget without making a long-term cost analysis resulted in a deficit budget with major repercussions manifested in social protection to persons dismissed from mining and poor skills or lack of employment opportunities generated some costs will be borne by the state budget operating costs while maintaining the same level as the previous time layoffs. This are some causes of the restructuring process and is transpuns as a process of dismissal and not replacement of a worn-productive technical structures that do not correspond to economic requirements representing a disinvestment process, a process that continued to the present process that ended unfortunate for areas which are located these objectives which are known mono zones providing sources of income for most populaţiei.efectul materialize directly by decreasing the number of contributors to local budgets and local budgets in the end ruin exemplifying the case in the frame of which city Uricani of the three existing mines before 1989 there is now a operating one operating about 400 people and closing the mines will have a major impact on the local budget by lowering the local budget revenue company National Coal Mining is the main contributor in the area Uricani on the territory of the city Uricani.

As a result of crisis management is due to economic and social imbalances manifested on the population as a result of lack of jobs and retraining programs for social existence with little impact without insurance and jobs to the new specializations, funds invested in these programs have a return scăzut.Un Another effect is the decrease in consumer purchasing power that a stagnation of business.

This crisis was due to lack of management depth research or application in an unprofessional manner the application of these measures were aimed directly and indirectly affecting economic activity in the area on short, medium and long term.

Applying the algorithm political leadership and legislative context mining incoherent amid crisis deepened management decide that manifested by the maintenance area in a dormant development.

In light of the crisis management required the appointment of professional managers and technocrats politically uninvolved experienced management that can make the right decision and coherent long-term can be applied without being influenced by political changes at local or central.

Another aspect is the collaboration with local authorities where the involvement of civil servants required for transposition of great importance to the community decision having regard to the restructuring of this sector is of national importance amid the global financial crisis.

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Notes

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SMEs Management in the Economic Crisis – Selected Findings from Romania (2008-2011)

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Abstract

Purpose *– Our research highlights main SMEs managerial responses to economic crisis, focusing on the local Romanian picture (2008-2011).*
Methodology/approach *– We used secondary research to highlight current challenges faced by SMEs during economic turmoil. Quantitative research was conducted to assess Romanian organizational realities; the data were gathered through four online annual surveys, throughout the period 2008-2011.*
Findings *– To reduce the impact of the world crisis, managers turned to cost reductions, tapped new markets, or developed new products, though overall, reactions from local SMEs seem rather slow. Our conclusions also showed an increased level of self confidence coming from SMEs managers in the country. Furthermore, managers indicated systematically that their main staff-related concern is the lack of efficiency.*
Research limitations/implications *– Are given by the subjectivity in managers' assessments of their organisations and the business environment. Also, the first two editions of the study focused on the Transylvanian region (in Romania) alone; however, we have extrapolated the results of all studies and drew conclusions at national level.*
Practical implications *– Our paper presents a radiographic image of management practice during economic turmoil – focused on Romanian SMEs.*
Originality/value *– The key contribution is the practical approach and the consistency of the methodology. We have shed light on the local management reactions to the economic crisis in Romania and sought to define the trends in managerial behaviour.*

Key words: SMEs management, economic crisis, Romanian research.

Introduction

The nowadays economic turmoil has attracted the interest of numerous researchers and scientists, a special attention being given to the financial aspects of the current crisis. In this context, we chose a more specific issue of the actual economic crisis – the management practices, with a special interest on small and medium enterprises (SMEs) in Romania. Based on the data gathered with the help of quantitative research, and related to SMEs in Romania, we have proposed a collection of managerial reactions at the level of Romanian SMEs' managers to the economic crisis, from cost reductions, to tapping new markets, or developing new products.

Research methodology

The purpose of our research is to highlight the main SMEs management responses to nowadays economic crisis, and more specifically – the case of the Romanian SMEs (2008-2011), as perceived by their managers.

The practical part of our study seeks to present the evolution of organisational realities and managerial approaches in Romanian SMEs, from before the economic crisis, until 2011. Therefore, we have focused on three main objectives related to Romanian SMEs, namely:

a) the impact of the general economic climate on organisations;
b) the measures taken by managers in times of crisis; and
c) their influence on organisational aspects such as work atmosphere or organizational climate.

We used both primary and secondary research, as follows:

- Secondary research resulted in a general view on SMEs challenges through the economic turmoil, according to the existing literature, and outlining the local situation.
- Primary research was conducted to illustrate the evolution of organisational realities and managerial approach in Romanian SMEs. We conducted quantitative research during 4 years – a survey carried out on a sample of companies in Romanian SMEs, through an online questionnaire launched repeatedly in 2008, 2009, 2010 and 2011. In the first two years, it dealt with management level in companies from 15 counties in Transylvanian region, Romania. Overall, there were valid answers coming from 105 SMEs managers in 2008, 217 in 2009, 189 in 2010, and finally - 119 executives responded in 2011 (in the last two years, at national level).

As all inputs sourced from the questionnaire were provided by the managers themselves, there is a certain degree of subjectivity in the evaluations provided. Answers to the survey carried out in 2009 showed the most prominent negative perceptions, likely due to the fact that the economy was facing the peak of the crisis period.

Smes challenges through the economic turmoil

The specialized literature provides us valid arguments for the importance of SMEs in the economy. At international level, the Organisation for Economic Co-operation and Development (OECD), with its Working Party on Small and Medium-sized Enterprises & Entrepreneurship (WPSMEE), has brought a tremendous contribution to promoting entrepreneurship and enhancing the performance of small businesses.

More specific arguments for the economic importance of SMEs are as follows:

- Create more jobs than large firms do;
- Can be radically innovative;
- Develop experiences that can be replicated by larger firms;
- And show increased flexibility.

As SMEs are also mostly oriented towards domestic markets, managerial approached must be anchored in local realities and depend greatly on the perceived influences of the business environment. Furthermore, authors insist that SMEs' focus should be on building managerial expertise and sustain job creation, as possible catalysts for surpassing the crisis effects.

According to estimates from the European Commission (2010), SMEs in the EU-27 grew strongly between 2002 and 2008 and accounted for most jobs in the European economy. However, the financial and economic crisis caused negative developments, starting from the access to financing, profitability pressures, and increased vulnerability to change. According to the same source, SMEs are expected to face up the decline of market demand and therefore decrease the number of jobs or even close down their activities. Nevertheless, economic recovery in Romania largely depends on SMEs activity, and – as underlined by Hodorogel (2011) – on highly trained

and experienced managers, to tackle problems caused by liquidity and credit, declining demand, exchange rate variations and inflation.

Smes management in the economic crisis – selected findings from Romania (2008-2011)

Respondents' profile

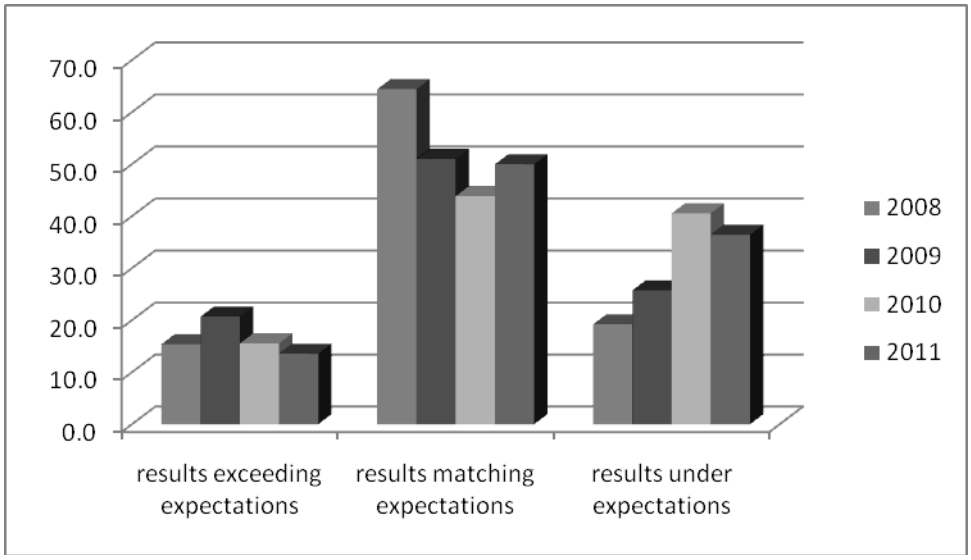
The profile of the respondents remained roughly the same throughout the four years concerned. Industries, services and commercial activities continued to have the greatest representation in respondents' pool. Furthermore, many interviewees from all four editions had undertaken management courses outside universities, and the number of MBA graduates increased, showing a growing interest in specialisation and in adopting a more rigorous management attitude.

Impact of the general economic climate on organisations

The first theme we approached was the way SMEs have been influenced by the overall economic climate, with its political, social, and macro-economic uncertainties.

The first question linked to the topic addressed the perceived performance of the company in the preceding year (See Chart 1). Most respondents from all four years believed that their companies performed just as expected. However, the respective degree of conviction decreased over the period, while performance became increasingly considered to be "below expectations".

Chart 1: Organisation's results
from the previous year



Strategic changes, related to markets, products, or activities, turned out to be the most frequent ones in all four years examined – over 25 percent on average, followed by reorganisation and changes of structure or functions, and changes in systems and procedures. On the other hand, changes in production systems showed a less linear evolution. Similarly, personnel layoffs and restructuration nearly halved, while changes centred on staff capabilities and attitudes evolved in frequency.

In what concerns the greatest challenges presented by the economic climate, answers to the first three studies were fairly consistent, pointing towards labour force quality as main difficulty (See Chart 2). Competition increase went down as importance over the years, while the development of new offerings and new employees' attraction were increasingly indicated as challenging, followed by cost reductions and cash flow pressures.

Chart 2a: Greatest challenges for organizations 2008-2010

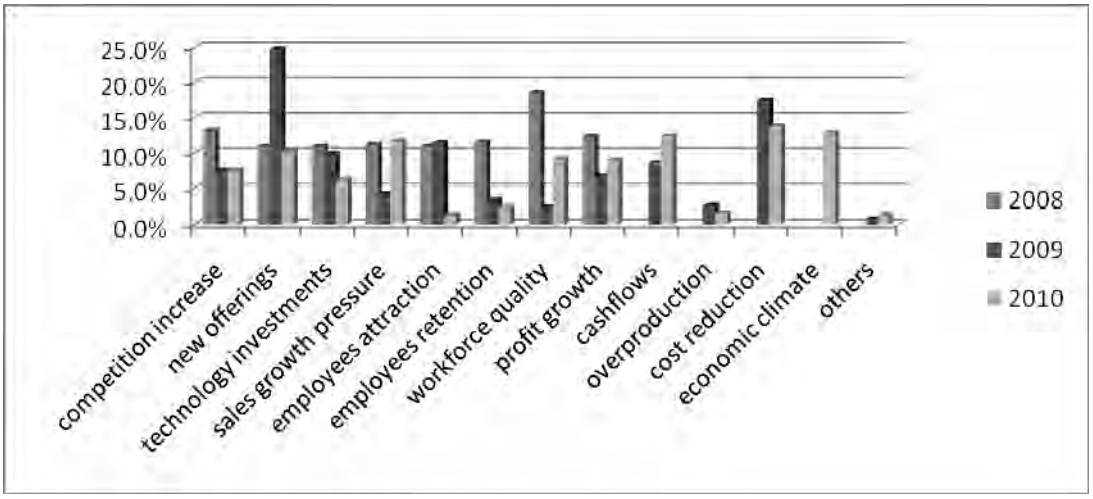
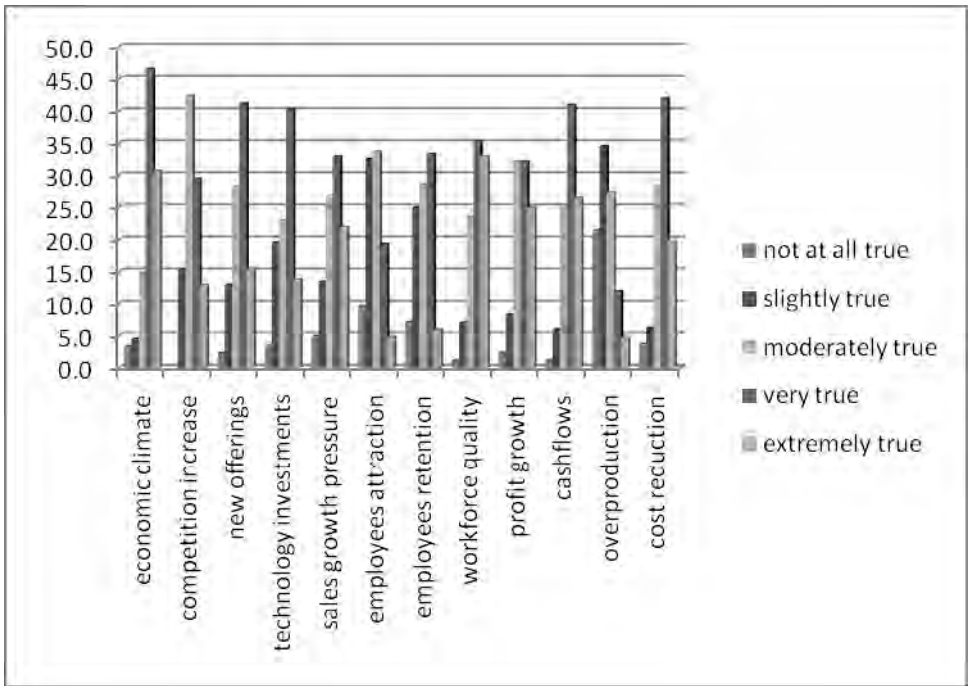


Chart 2b: Greatest challenges for organizations 2011



Over the period covered, the economic climate seemed to have had an overall negative influence on SMEs, varying from slightly negative in 2009 – 48.8 percent, to the dominantly stronger effects of the crisis perceived in 2010 – 56.5 percent, and a worsened negative effect on business in 2011 – 35.4 percent. In addition to this, ethics turns out to be rather disregarded in the Romanian business environment: the vast majority of respondents in 2009 and 2010 agreed that it is only slightly regarded, while in 2011 ethics seem to be even less appreciated than in the previous year, or at most – equally disregarded.

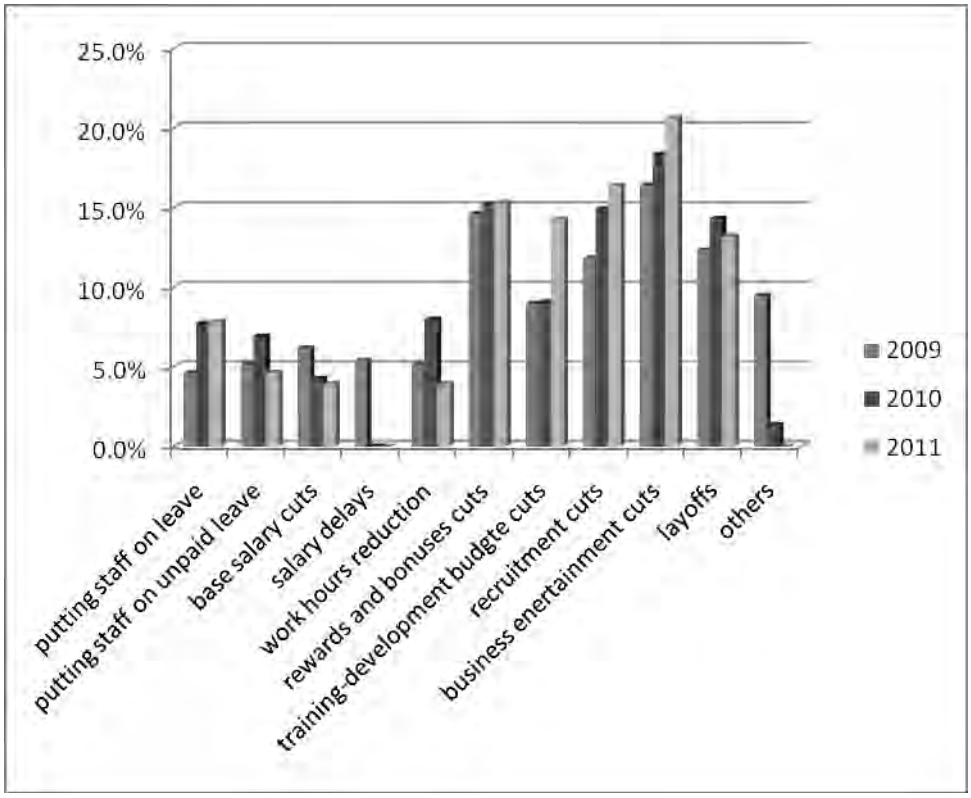
Measures taken by managers in times of crisis

The second dimension we have explored concerns managerial attitudes towards employees and the organisation as a whole, and executives' own motivational factors and decision making processes.

In what concerns the stress factors affecting executives, the top choice remained the lack of relevant information or delays in receiving it, and increased responsibilities. Other aspects leading to stress ranged from lack of support (in 2008, 2009 and 2011), to heavy workload (in 2009 and 2010). Surprisingly enough, the rhythm of organisational change, salaries, and workplace insecurity ranked least concerning.

When asked about anti-crisis measures taken in the past six months and impacting employees, many managers indicated the reduction of business entertainment expenses. From 2009, these were mostly accompanied by reduced rewards and bonuses, a less intense recruitment process, and layoffs. If reductions in training and development remained constant in 2009 and 2010, most recent results showed a more dramatic drop, despite ongoing complaints about staff productivity and quality of work (See Chart 3).

Chart 3: Crisis measures affecting employees



The long term impact of managerial decisions was next to be evaluated in the past two editions of the survey. In 2010, putting employees on leave or laying them off, slowing down recruitment and business entertainment budget cuts were mostly seen as having no significant impact, while reducing base salaries was equally regarded as having a slight negative impact or no impact at all. Managers seem to believe that most decisions will not have a positive long term effect on the company, and regard the above-mentioned measures as crisis-driven, rather than enforcement of a healthier business model. In 2011, perceptions were indicating even more negative effects than before, on forced leaves, base salary reductions, working hours' reduction, cutting rewards and bonuses, and smaller training budgets.

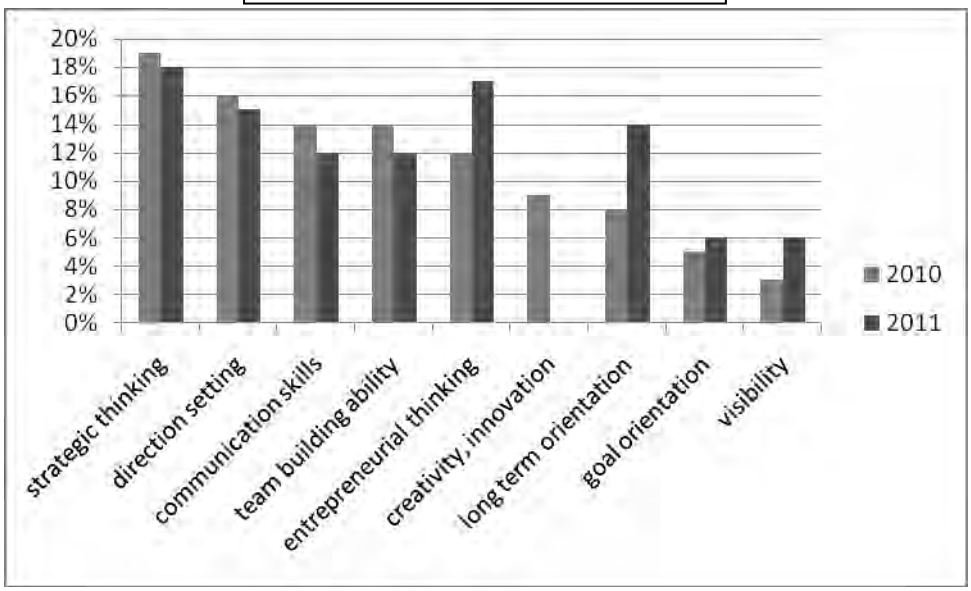
The next topic we focused on referred to management's decisions impacting staff's morale. In 2010, most parameters did not cause any categorical reactions, except for the reductions in rewards and bonuses, which were perceived as negative triggers by 56.9 percent of respondents. Most executives also thought that cutting training budgets and slowing down recruitments had no impact on staff's morale. In 2011, results were less evenly distributed. Forced leaves, work hours

reductions, training and development budget cuts, recruitments and base salary cuts were seen by the majority as having no impact. On the other hand, cuts in rewards and bonuses were the only ones that did appear as threatening – even if only for a timid 52.2 percent of executives.

In 2011, managers indicated as main obstacles in the way of supporting and developing the company the lack of strategic thinking and planning, of team work and of decisional power. On the contrary, departments showed their support for managerial decisions when needed. The previous year, the most frequent obstacle was also the lack of strategic thinking, but it was accompanied by lack of professional knowledge.

In what regards the essential qualities of a leader, most answers from 2011 underlined the importance of strategic thinking, ability of setting a direction and inspire, and effective communication skills (See Chart 4). One year before, respondents not only pointed towards strategic and entrepreneurial thinking, but were also more convinced of the importance of a long-term orientation.

Chart 4: Qualities of a leader



Influence of managerial decisions on organisations

The third aspect we have taken into consideration was the way decision making and implementation impacted organisational life in terms of work atmosphere or overall organisational climate.

Following organisations' responses to environmental challenges, we noticed that in 2008, most managers pointed towards increasing the number of employees and enforcing cost reduction strategies, while in 2009 even more companies planned cost reductions and started focusing on their core activities. In 2010, apart from decreasing costs, new products and services began to be developed and new markets to be tapped. The most recent results showed the continuation of cost cuts and an increased interest towards new markets and offerings, balanced by an almost equal focus on core activities (See Chart 5).

When it comes to most frequent problems caused by employees, low efficiency/productivity scored highest throughout the period analysed (See Chart 6). However, these issues would be hard to solve as measures often taken by managers indicated reductions in training budgets, which indeed reflects imperfections in strategic approaches at managerial level.

Chart 5: Organisational response
to challenges

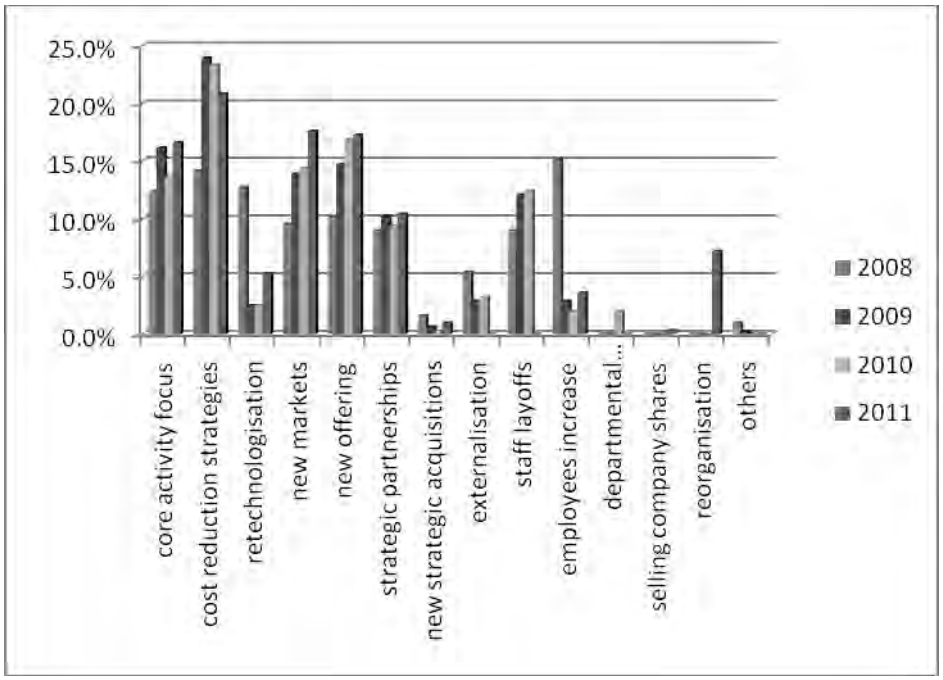
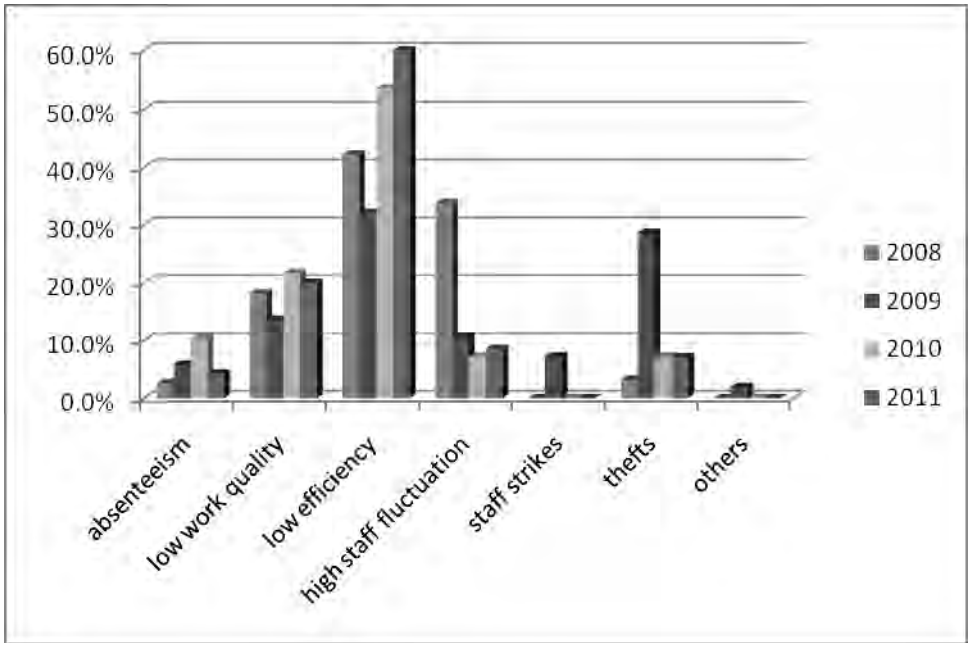


Chart 6: Main personnel issues



Interviewed managers also indicated the extent to which a series of factors contributed to their own motivation levels. Reaching individual targets scored high and very high in all four editions of the study, as did the recognition from colleagues and executives. Whenever applicable, the managing style of the direct superior was also seen as highly motivating, together with the importance of the work done, career development opportunities, salaries and fringe benefits, and, to a lesser degree, promotion opportunities, organisational image, and flexible schedules.

Equally relevant, demotivating factors were also covered by our study. Bureaucracy did not cause any strong opinions and only slightly changed its weight from one year to the other – going from very influential to insignificant. On the other hand, management styles showed a more balanced score – in 2009, 25.7 percent of answers categorised them as demotivating, while an equal percentage declared they are little influential. The relationships with co-workers and with superiors had a higher demotivating power in 2011, while increasing expectations' pressure seems to be less demotivating. Lack of development opportunities is also a rather strong demotivator, while lack of promotion opportunities and nature of work do not seem to be of great importance. Lastly, salaries were also believed to be of little importance in what regards demotivation causes.

Regarding the yearly evolution of a series of factors, responses seem to indicate similar perceptions throughout the period we have analysed. Employees' performance remained fairly the same from one year to the other, and so did their interest towards the quality of products/services offered. Staff's concerns over cost reductions were slightly higher in 2009 than in 2010 – when an equal number of respondents, 42 percent, saw them at the same level as the year before or lower. The number of resignations, the improvement ideas coming from employees, their contentment with current salaries, willingness to work more for the organisation and the pride of being a part of it were also perceived as approximately the same as in the previous years. Some parameters, however, appeared to be higher in 2009 than in 2008, and then maintained the same level in the following two years: employees' stress levels, and absenteeism levels, while another was lower in 2009, but then had a more linear evolution: job security.

On the skills or knowledge to be acquired by employees to support business development, most managers' responses in 2010 and 2011 pointed towards communication, team work, and time management. Conflict solving and negotiation were seen as less important from this perspective in both years.

Conclusions

One key contribution of this paper consists of its practical approach, and the consistency of the methodology throughout the 4 years covered by our survey.

The new findings of our study shed light on Romanian specificity and local cultural influences. To reduce the impact of the global economic crisis, most managers turned to cost reductions, tapped new markets, or developed new products. Nevertheless, reactions from local SMEs seem rather slow – though paradoxically, such companies appear to have a great flexibility in the local perception. Our conclusions also show an increased level of self confidence coming from SMEs managers in the country. Furthermore, slightly contradicting, managers indicated systematically that their main staff-related concern is the lack of efficiency, but agreed to reductions in training and development budgets. We have also noticed the changes in managerial approaches throughout the period analysed – although in 2008 companies were still hiring and only marginally considering cost reductions, in the following years they started to insist on cutting expenses and implemented layoffs and retargeted their offer.

The present paper ultimately presents a radiographic image of management practice during economic turmoil – focused on SMEs in Romania. Moreover, our main findings led us to the more general question on whether or not the local business environment might be facing a crisis of management, in the sense of acknowledging the need for creative thinking and introducing new managerial approaches and methods, to lead to different results. Annual surveys to be carried on regularly are likely to provide hints for a valid answer to this question and prove whether or not financial crisis became history for Romanian SMEs.

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Application of the FMEA Method for Improving the Implementation of EU-funded Projects

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Purpose *– This paper aims to identify the main risks of nonconformities in a European Structural Funds project and to analyze their impact using the FMEA (Failure Modes and Effects Analysis) method, in order to identify necessary improvement in the project implementation.*
Methodology/approach *– The proposed approach is supported by concrete results obtained by applying "in-process" risk analysis through the FMEA method and trying to minimize the occurrence of project risks. A case study is performed on a project which aims to develop a Bologna type master degree programme, financed through the ESF.*
Findings *– Through the case study in this paper, the authors highlight the possibility of using the FMEA method in order to increase the project success. The risks analysis is performed for the proper realization of project activities and for effective and efficient accomplishment of project objectives.*
Research limitations/implications *– The authors want to highlight the possibility of using FMEA method for improving the implementation stage of the projects funded by the European Union.*
Practical implications *– Theoretical and practical results obtained by applying the FMEA method can be relevant for the project management practitioner, or for other organizations, who want to access European funds for developing their business.*
Originality/value *– The research performed for this case study intends to contribute to the overall project implementation and also, the authors proposed to use the results of this research in similar projects in progress, or in future projects, to ensure their success in implementation.*

Key words: *Risk, Project Management, FMEA, European Funds*

Context

The actual financial and economic crisis has generated major challenges for the European Union, whose strategies focused on improving economic indicators. One of the biggest challenges in the member states of the European Union is the development of projects through the absorption of EU structural funds. Thus, the concern for accessing European funds in order to improve productivity and quality indicators emerged in Romania, which to counter the negative effects of the global economic crisis[1]should realize the importance of accessing funds to develop and implement sustainable development projects designed to stimulate economic growth.

The European Social Fund (ESF) is one of the EU structural funds that has become a key element of the Strategy Europe 2020. In Romania, ESF finances two Operational Programmes: Human Resources Development Sectoral Operational Programme (SOP-HRD) which aims to develop human capital and Administrative Capacity Development Sectoral Operational Programme (SOP-ACD), focused on improving the public policy[2]. These programmes are designed to promote economic and social cohesion (Theophilou V., et al., 2010) and to facilitate access to vocational training and retraining of human capital.

The European Union has allocated about 20 billion Euros for short, medium and long- term development of the Romanian economy and society[3]**,** but due to the reduction of loans and foreign investment the problem of European funds absorption has become increasingly more and

more important. According to data published by European Commission[1], the degree of EU funds absorption in our country was 8.6% of the total funds allocated for the period 2007-2013. Compared with other countries (as can be seen in figure 1) Romania has recorded the lowest rate of absorption of structural funds.

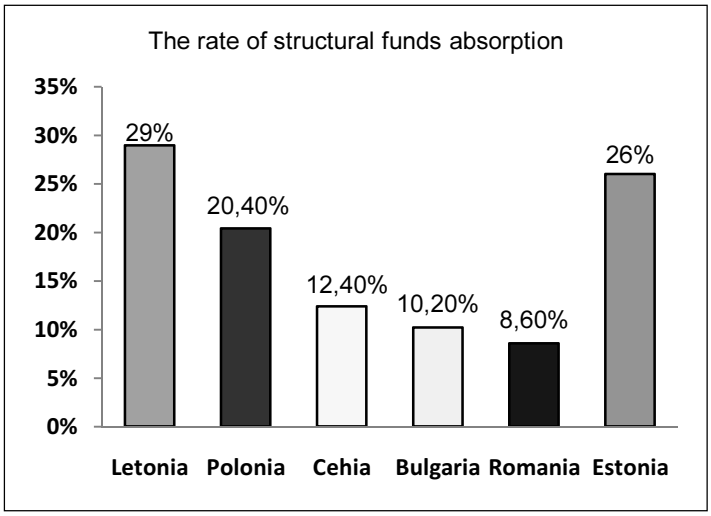

Figure 1 The rate of structural funds absorption[1]

Some of the main reasons causing the low rate of financial resources absorption are generated, by the deficiency of coherent long-term vision of the authorities, inadequate resources for co-financing projects, low administrative capacity at central and local level, lack of inter-institutional coordination, public-private partnerships failures and insufficient skills of the human resources (Berica C., 2010), (Gherghinescu O., et al., 2009). In this context, project management is very important, because it can make up for some of the previously mentioned deficiencies in the case of EU- funded projects and the development based on projects has become the key to survival and even prosperity of many organizations (Dragomir M., et al., 2009). Authors (Codre C., et al., 2010) consider that for achieving a long-term competitiveness of the organizations it is necessary to be sustainable in economic, environmental and social aspects.

Risk management is a very important aspect that should be considered in developing a project and includes processes through which the project risks are identified, assessed and mitigated (PMI, 2004). The aim of risk management is to increase the number of events with positive impact and reduce the negative impact on a project, in order to achieve the proposed results. Thus, the main specific project risk management processes are presented as (PMI, 2004):

- Risk Management Planning
- Risk identification
- Qualitative risk analysis
- Quantitative risk analysis
- Planning responses to risks
- Monitoring and controlling risks.

According to (PMI, 2004) the risk is defined as an uncertain future event that if will occur, will have impact on the achievement of project objectives. (Martin P., et al., 2001) defines risk as a problem that may occur, and risk assessment is done in order to prevent its occurrence.

In European funded projects, risk management represent the ability of the beneficiary who designs and implements a project, to identify since the project design phase, possible risks that may disrupt the successful development of the project[3].

Working objectives and research methodology

The risks and uncertainties that accompany a project in any economic or social areas should be identified and preventive measures should be proposed for their occurrence, in order to improve the implementation stage of projects. Based on these considerations, this paper will address the issues of using a systematic and proactive assessment method, called FMEA and to propose possible ways to eliminate the critical risks that may occurs in the implementation stage of the projects with European financing.

F.M.E.A (Failure Modes and Effects Analyses) is a method recognized for its ability to identify failure mechanisms and their potential causes. Using this method it can be determined corrective and preventive measures for project risks, allowing the analysis of life cycle stages planning, risk assessment in terms of customer requirements and detection of emerging risks from the begining of the project.

FMEA is "a proven and versatile technique" (Popescu S., et al., 2009) that can help the project team to identifying the major risks that can occur in any project. The method is used in this paper for defining the probability of occurrence of the risks, the severity of the impact of potential risks and the probability to anticipate the occurrence of the risks (Brad S., 2004). In order to run the FMEA, the following methodology was used:

1. Identifying risks in the implementation stage of project analyzed;
2. Establishing the impact on the project of identified risks;
3. Determining the severity of impact risk **"S";**
4. Determine the possible causes for the identified risks
5. Quantify the probability of occurrence of each of the failure mode causes **"O";**
6. Identifying control measures to reduce the likelihood of risks
7. Determine the ability of detecting the failure mode or its cause **"D";**
8. Risk Priority Number determination;
   RPN=Severity•Occurence•Detectability
   The RPN is an indicator of the overall risk used to prioritize items for corrective actions.
9. Corrective and preventive measures proposal
10. Recalculate the RPN and update the FMEA form.

According to the methodology mentioned above, the authors adapted the standard FMEA scales identified in the literature, to the case study conducted in this paper. Thus, table 1 shows the scales for severity factor (S), occurrence factor (O) and detection factor (D), all of them measured on a scale to 10.

Table 1 The FMEA scales adapted on project risk management

Severity([4])		**O**ccurrence ([5])		**D**etectability([6])	
Rating	**Description**	**Rating**	**Description**	**Rating**	**Description**
9-10	The project implementation is severally affected	9-10	Failure almost certain	9-10	There is no detection method available or known that will report the potential failure
7-8	The effect on the scope changes the outputs of the project and this generates customer dissatisfaction	7-8	High probability of occurrence is shown by previous experience	7-8	Effectiveness of detection method is not known the failure in due time
5-6	The activities that generated disruption in project implementation should be reconsidered	5-6	Medium number of failure likely	5-6	Detection method has medium effectiveness
3-4	Low impact, slight deviation from project specification	3-4	Low probability of occurrence	3-4	Moderately high chance to detect potential causes and subsequent failure mode
1-2	Very low impact on the project	1-2	Failure almost never	1-2	Detection method is highly effective and it is almost certain that the risk will be detected in due time

Case study

In order to achieve the objectives of the present paper, the authors conducted a case study on a specific project within the Technical University of Cluj-Napoca financed by European Union through ESF, which aims to develop a Bologna type master degree programme. The case study is focused on identifying risk prevention measures by applying the FMEA method.

According to the algorithm proposed in the previous section, we identified the risks that may occur in the implementation stage of the mentioned project; the potential causes and the potential failure effect were also presented, as recorded in table 2:

Table 2 Deployment of the FMEA method in the implementation stage of a European funded project

Implementation stage							
Risks	**Potential failure effect**	**S**	**Potential causes**	**O**	**Detection/Control measures**	**D**	**RPN**
Failure commitments	Project suspension and obligativity to return funds Inability to meet project objectives	10	- negative cash flow - lack of experts - the reduction of target group below the permissible limit - failure to meet predetermined deadlines	3	Compliance of EU regulation and rules Beneficiary manual Compliance the Partnership Agreement	7	210
Poor implementation of activities	Activity delays Failure to achieve the expected results Demotivation of project team members	8	- failure to meet predetermined deadlines - negative cash flow - not tasks fulfilled by experts involved in implementing the activities - frequent changes of experts	7	Monitoring project team Project Plan Gantt planning	4	224

Implementation stage							
Risks	**Potential failure effect**	**S**	**Potential causes**	**O**	**Detection/Control measures**	**D**	**RPN**
External constraints	Activity delays	7	- frequent changes in project management authorities - failure to meet the deadlines by the contracting authority - legislative changes	4	External communication Information	8	224
Unquantifiable objectives	Increase lack of motivation of project team members Failure to monitor project	4	- too general description of project objectives - ambiguous requirements formulated - lack of project team experience	3	Objectives tree SMART objectives	1	12
Inaccurate time estimation	Delays in execution Time lag in project implementation activities	8	- lack of proper knowledge of the project activities - non-correlation between time spent with the actual time required for each activity	6	Gantt planning Time management	6	288
Unbalanced partnership	Partners inability to fulfill their roles in the project	7	- deficient partner competencies - insufficient involvement of partners in the activities under the Partnership Agreement	3	Verifying partners experiences, skills, interest	6	126
Overcome existing financial resources	Failure to implement all the activities Need to finance from own funds Delays in implementation of activities	9	- underestimation of costs necessary for project implementation - increasing market price of equipment / services needed to be contracted within the project - exchange rate change	4	Project Budget Eligible costs Project acquisition plan Strategic management	3	108
Excessive bureaucracy	Excessive consumption of time Delays in project implementation	7	- exigency in reporting certain activities - binding justification of conducted activities - too complex procedures for implementation activities	8	Compliance of EU regulation and rules Beneficiary manual	5	280
Communication issues	Gaps in project implementation Overlapping activities	5	- erroneous attribution of responsibilities - omission or distortion of information from the transmitter - information hiding - low communication skills of project team members	7	Internal communication Communication courses Monitoring project team member	4	140
Regulatory changes	Certain activities within the project conflict with regulatory changes	4	- legislation institution still under development	3	Compliance with the regulatory	10	120
Insufficient training of human resources	Failure in carrying out the project activities as planned	6	- inadequate assessment of human resources competencies - lack of project team experience	5	Periodic training Testing the project team members competencies	2	60

After the application of FMEA method (the steps 1-8 from the proposed algorithm) in the implementation stage of the project analyzed, the authors identified the critical risks that may occur in the implementation stage. Table 2 captures the value of S, O, D and RPN. According to (Brad S., 2004), the risks that registered the RPN ≥125 should be addressed, because these are critical to the project. Also, if the S, O and D register value ≥ 8, that risks requires further analysis.

Conclusions

The FMEA is a powerful risk assessment method, simple to use and intuitive. The risk analysis performed by using FMEA method contributes to the proper implementation of project activities. The authors conclude that this method can be used by project management practitioners for identifying the critical risks that may occur in the lifecycle stages of the project and that require immediate risk response planning. Also, using FMEA method in the project can provide a basis for identifying root failure causes and developing effective corrective actions.

FMEA scales for project management at the moment are too generally defined, and this generates difficulties in adapting them to specific of project management. This is the main reason that the authors will continue the research on FMEA application in project stages, by defining the specific FMEA scales for project management in order to facilitate the application of this method in any European funded project, especially in ESF projects.

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Quality management in telecommunication services – Romania Study Case

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Abstract

Purpose *–The paper aims to highlight the evolution of telecommunication services (fixed and mobile telephony) at national level and the importance given to the customer on the telecom market by satisfying its requirements.*
Methodology/approach *– In order to observe attentively and systematically the telecom market in Romania, we have used the following: the scientific observation, deduction and immediate data collection techniques. The comparative analysis method has been used in order to highlight some similarities and differences of the telecom services in Romania compared to similar ones in the EU.*
Findings *- The paper is important because it offers a picture of the telephony services in the telecommunication sector from the point of view of the quantitative evolution, as well as of the feedback given by the users of these services.*
Research limitations/implications *– The comparative analyses of the fixed and mobile telephony services in Romania and those in the EU are based on information from 2009.*
Practical implications *–The competitive pressure supplemented by the availability of number portability should determine providers to make additional efforts in order to maintain and attract new clients.*
Originality/value *–The study observes the evolution of the telephony markets underlining the necessity to give maximum importance to the quality of the services provided.*

Key words: *telephony, quality, crisis*

Introduction

Quality research is considered essential in the evolution of things and phenomena but "it has never proved to be exhaustive or complete" (Oprean, Kifor, 2002), although it has been long approached and studied.

Although there is no unitary definition of the concept of quality, "topical approaches predominantly refer to the relation with the customer: satisfying the customer's requirements" (Oakland, 1993). The quality of services is an essential element of the relationship between the organization providing services and the customer, the survival of the firm depending on quality (Rusu, 2002), thus, if the provider company wishes to offer a quality service it should know what the customers' requirements are in terms of quality.

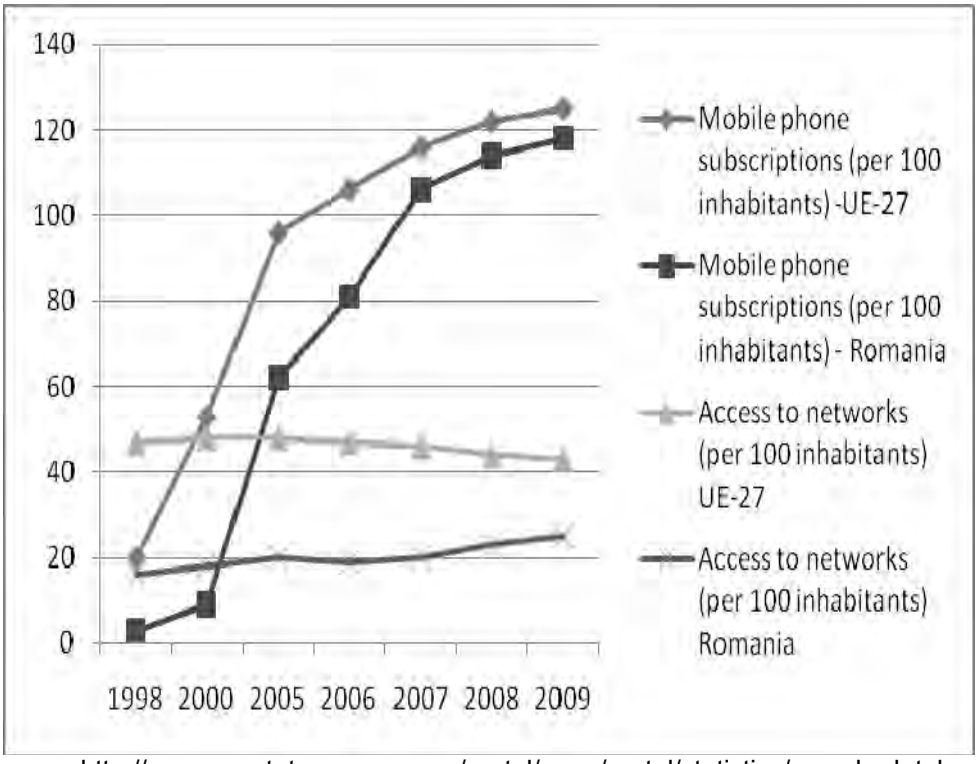
The advantages of a quality system arise from a survey presented in the Journal of Standardization (2008) which stated that an efficient quality system contributed to a large extent to the improvement of the relationship with the customer, and last but not least to the increase in the customers loyalty and their number respectively.

The evolution of telephony services in Romania

The world's developed countries have become true "economies of services" (Ioncica, 2005) within which the economic and social role of services is acknowledged, a special attention being given to the tertiary sector within the strategies regarding development.

According to the European Commission, between 1998 and 2009, the telecommunication sector in Romania developed spectacularly: the number of fixed telephony subscriptions per 100 inhabitants indicates a growth by 56.25 percent, while the number of mobile phone subscriptions increased 39.33 times. We can notice, in Romania, a more rapid growth on both segments than the ones recorded in the EU (figure 1).

Figure 1 Mobile phone subscriptions (per 100 inhabitants) and number of main telephone lines (per 100 inhabitants) from Romania vs UE-27

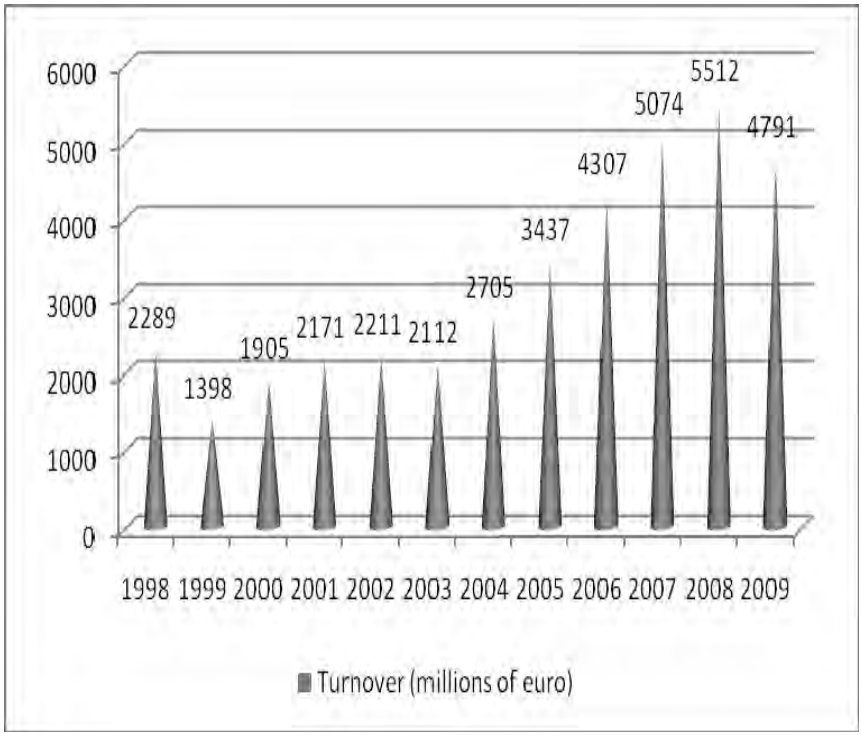


Source: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database

Moreover, we can state that the telecom sector in Romania developed spectacularly in the 1998-2009 period also from the financial point of view. Thus, in order to give arguments for this statement we present the situation (according to information provided by the European Commission) on the turnover of the telecommunication companies in Romania. From the data provided in figure 2, we observe that 2008 is the year when the highest turnover was recorded for the mentioned period.

As a result of the economic crisis, after a period of growth, the telecommunication market, in Romania, on the fixed and mobile phone segments has recorded a fall starting with 2008, by the decrease in the number of customers on both segments, the increase in traffic at inferior rates for the mobile telephony than in the previous years, as well as by the falls in traffic for the fixed telephony segment.

Figure 2 Total turnover from telecommunication services (millions of euro) in Romania



Source: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=isoc_tc_tur&lang=en

On the fixed telephony segment, according to data provided by the National Authority for the Administration and Regulation in Communications in Romania, in 2010 the number of subscribers maintained the decreasing trend by 1 percent compared to 2008, and 4 percents, respectively, compared to 2009. We mention that 2008 has been considered the standard in the current paper, as, in terms of fixed telephony, it was the year when for the first time, in the studied period, an increase in the number of access lines was recorded (according to data in table 1). Moreover, between 2008 and 2010 the volume of total traffic achieved by means of the fixed public networks in Romania, fell significantly (table 2).

Table 1 Number of main telephone lines (millions).
Access to networks (per 100 inhabitants) in Romania

Indicator	2004	2005	2006	2007	2008	2009	2010
Total number of main telephone lines (mil)	4.39	4.39	4.30	4.37	4.75	4.73	4.50
Access to networks (per 100 inhabitants) %	20.24	20.28	19.90	20.30	22.10	22.0	21.00

Source: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database

Table 2 The structure of total traffic volume achieved by means of fixed public networks in Romania

Indicator	2004	2005	2006	2007	2008	2009	2010
Total traffic volume (mil. Min)*	11489	10335	9668	8740	8976	7673	7245

Source: http://www.ancom.org.ro/uploads/links_files/SASP_raport_sem_II_2010.pdf

An explanation of this fall is given by the total number of fixed telephony providers operating on the retail market, as by the end of 2010, their number had reached the level it had in 2005 (table 3), being influenced by the acquisition and merger processes that took place between providers, as well as by the fierce competence recorded on all market segments. All these led to the fact that some providers gave up offering this kind of services.

Table 3 The number of fixed telephony providers operating at the retail market level, in relation to the category of services provided

Indicator	2005	2006	2007	2008	2009	2010
No. of alternative providers*	48	63	69	49	48	48
Nr. total providers**	49	64	70	50	49	49

* including phone services providers by means of call centres
** There are providers that offer more categories of services, thus in the total number, these have been considered only once
Source: http://www.ancom.org.ro/uploads/links_files/SASP_raport_sem_II_2010.pdf

Observing the evolution of the number of mobile telephony subscribers, we notice that in 2010 compared to 2009 a 4 percent decrease was recorded, but a slight growth by 0.4 percent compared to 2008, thus influencing the access to networks per 100 inhabitants (table 4).

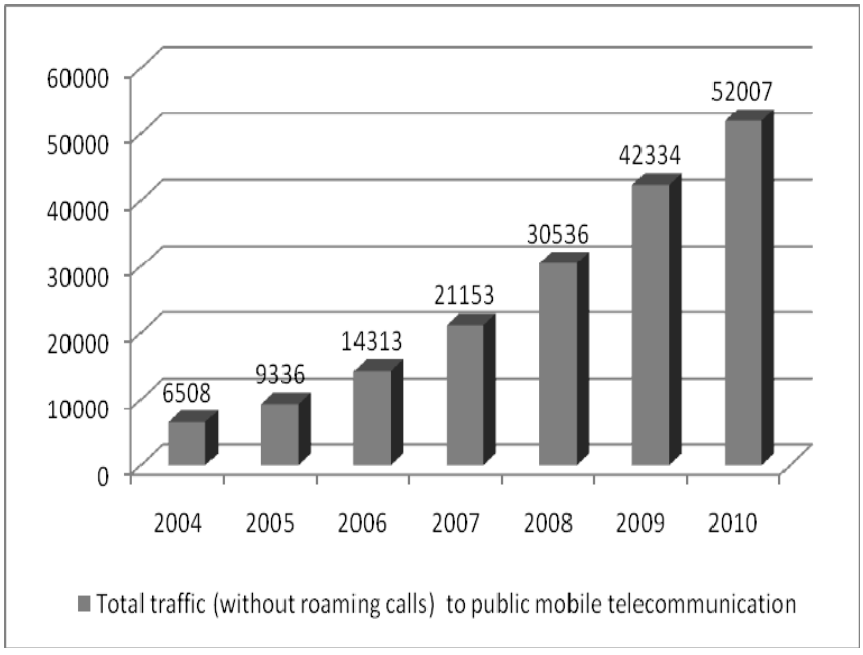
Table 4 Number of mobile phone subscriptions (millions).
Mobile phone subscriptions per 100 inhabitants (%) in Romania

Indicator	2004	2005	2006	2007	2008	2009	2010
Total number total of „active" users (basic users of active subscriptions and prepaid cards)* (mil.)	10,2	13,4	16,0	20,4	24,5	25,4	24,6
Mobile phone subscriptions per 100 inhabitants (%)	47,1	61,8	74,1	94,8	113,8	118,2	115

Source: http://www.ancom.org.ro/uploads/links_files/SASP_raport_sem_II_2010.pdf

The traffic in the studied period, also suffered changes and it recorded growth, but at inferior rates than in the previous years: the lowest being in 2010 compared to the previous year (figure 3).

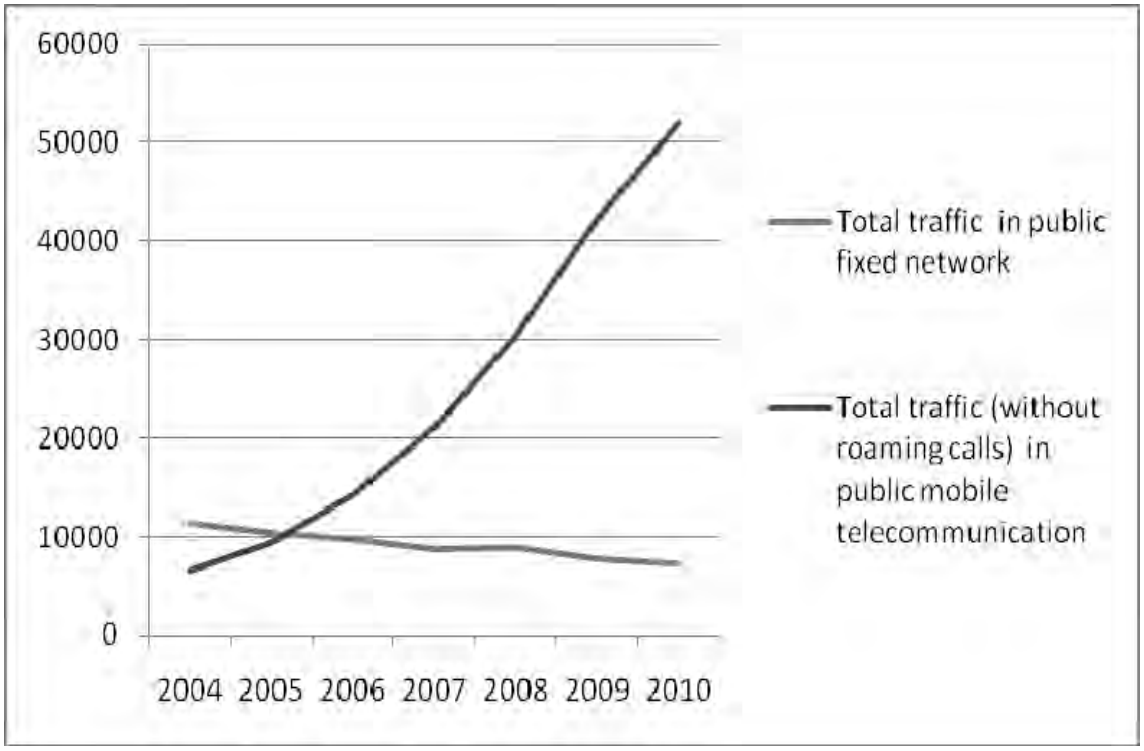
Figure 3 Total traffic (without roaming calls) to public mobile telecommunication



Source: http://www.ancom.org.ro/uploads/links_files/SASP_raport_sem_II_2010.pdf

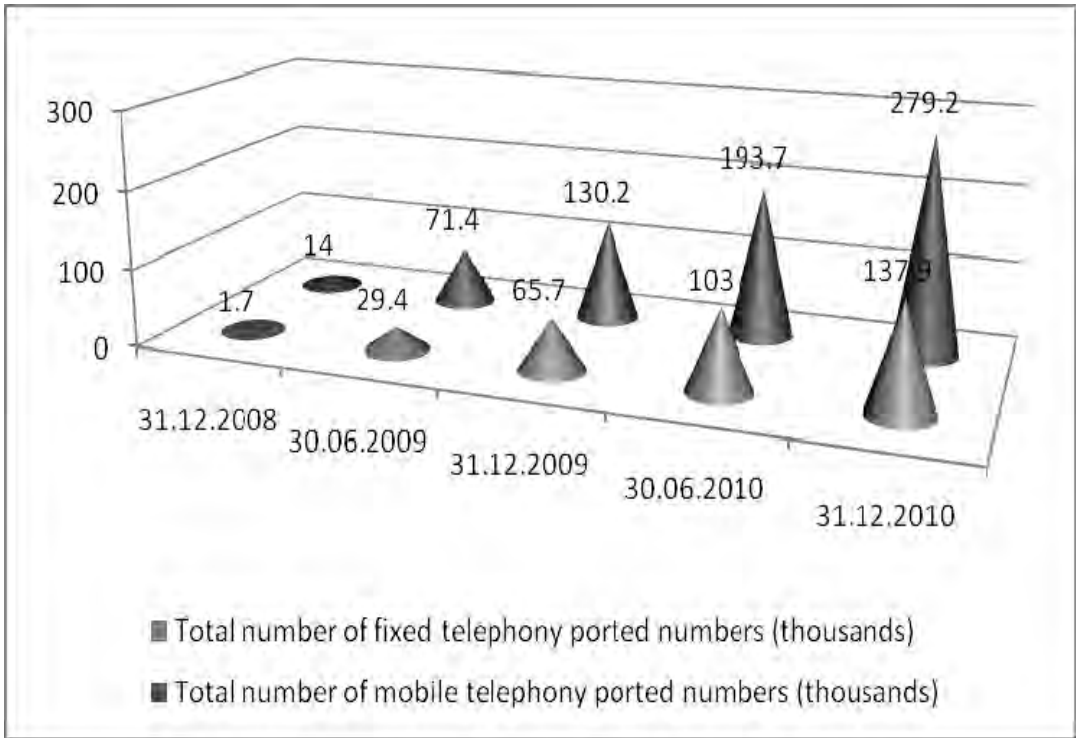
Comparing the dynamics of the traffic on the two segments we reach the conclusion that this is influenced to a great extent by the substitution of the fixed telephony by the mobile one (figure 4).

Figure 4 Total traffic by means of fixed and mobile public telecommunication networks (millions of minutes)



Source: own calculations according to http://www.ancom.org.ro/uploads/links_files/SASP_raport_sem_II_2010.pdf

Figure 5 Total number of fixed and mobile telephony ported numbers



Source: http://www.ancom.org.ro/uploads/links_files/SASP_raport_sem_II_2010.pdf

The competitive pressure on this market is supplemented also by the availability of number portability: which means that, starting with 21st October 2008, any telephony subscriber can migrate from one network to another one without changing its phone number.

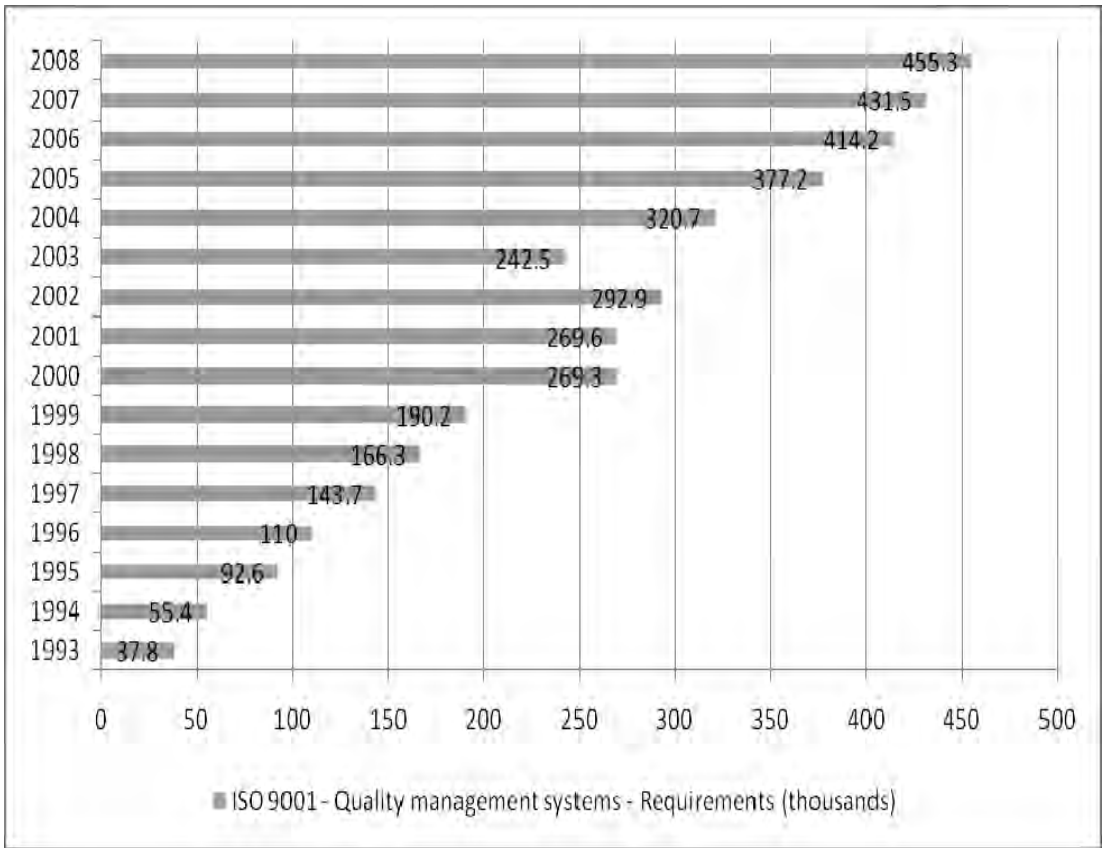
According to data provided by the National Authority for Administration and Regulation in Communications in Romania, after two and a half years since the launching of portability in Romania, the number of portings has exceeded 500,000. The proportion between the fixed and mobile numbers is relatively the same, 68 percent of the total ported numbers (over 340,000) being mobile telephony numbers. In those two months, in 2008, when number portability was possible, over 15,000 portings were made, in 2009 over 180,000, and in 2010 the number of portings increased up to 221,219. Thus, the average number of portings made monthly reached 18,434 in 2010. Most of the portings (25,331) were made in December 2010. On 31st December the total of ported numbers reached 417,139 (figure 5).

Under the circumstances in which currently the fixed and mobile telephony market is saturated, and the competition in this field is extremely fierce, a primary accent on quality services is required.

The importance of quality management in the telephony services

The increase in competitive pressure on the market requires a continuous effort of improvement in the quality level of the produced goods and provided services. Implementing a system of quality management is an ample process that can lead to profound changes in the organizations that want to reach and maintain the leader position on a market or market segment. The quality of a similar service is perceived differently by its provider and customer (Catuneanu, Dragulanescu, Dragulanescu, 2002). Statistical data in the 1993-2009 period confirmed that the number of applications for ISO 9001quality certifications of the management systems (expressed in thousands) in Europe recorded significant increases (figure 6).

Figure 6 ISO 9001 - Quality management systems –
Applications for certifications (thousand) – Europe



Source: http://www.iso.org/iso/survey2009.pdf

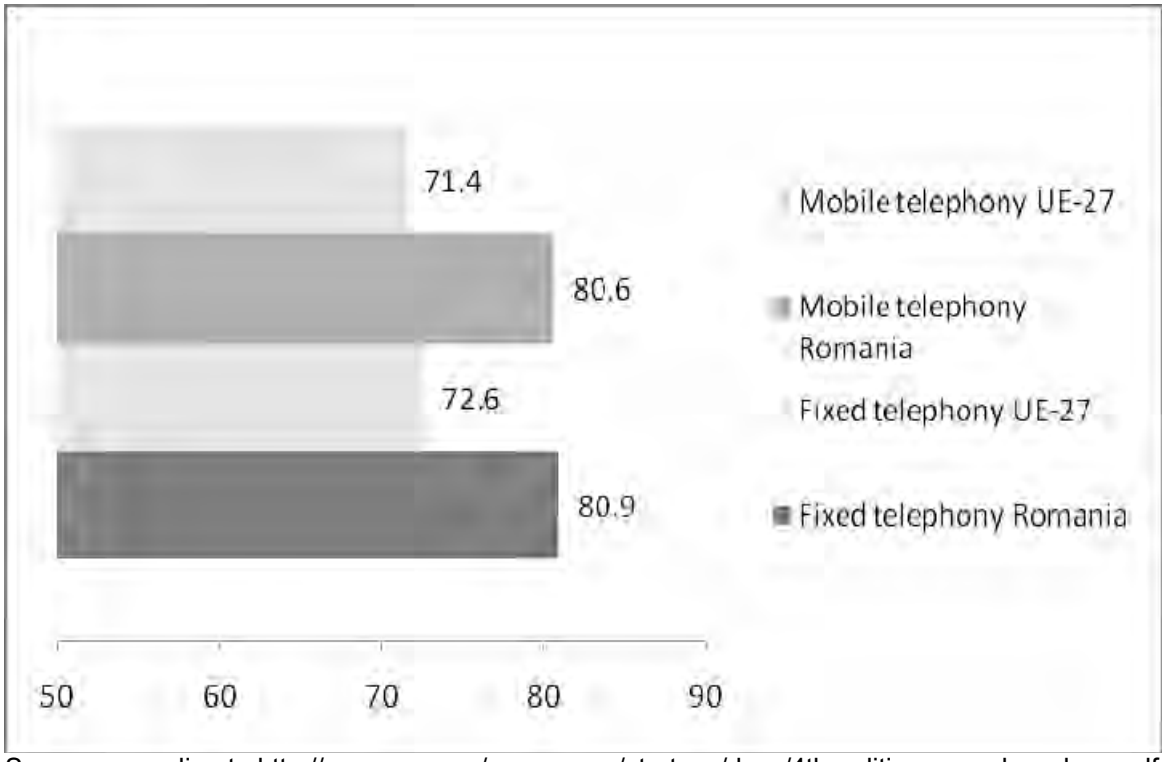
The modern measurement of quality needs to be closely related to the definition of quality (Rusu, 2002), put another way, the customer needs to be the last one to have an opinion on quality, and thus the system of quality measurement must be focused on the entire process that leads to customer satisfaction.

Therefore, any company in this field needs to be permanently focused on adopting the new technical innovations and on turning these into complementary services with a higher degree of utility and differentiation compared to the competitors.

Satisfaction or dissatisfaction is the result between preferences and expectations (Rusu, 2002): a buyer can be: dissatisfied when its preferences are not the same as its expectations, satisfied when its preferences are identical to its expectations, extremely satisfied when its preferences exceed its expectations. Thus, users' satisfaction can be considered an indicator of quality management.

It is interesting and worth noticing the results of a survey carried out by the European Commission through which the buying experience and opinions of the buyers have been evaluated related to 50 market fields. The monitoring investigation of the consumer markets at the EU level (28 countries among which also Romania) was organized by the European Commission – The Directorate General for Health and Consumers and published in October 2010. This focused on the opinions of the consumers who had recently had a buying experience related to every market reflecting the aspects of market functioning. These allowed the classification of the sectors based on the Market Performance Indicator (MPI). The lower MPI ratings indicated a possible poor functioning of the particular market from the point of view of the consumer. Comparing the results obtained for the fixed telephony services market and the mobile telephony services market respectively, at national level, with those corresponding in the overall classification at the EU level, it resulted that the two markets in Romania had a superior position compared to their EU ones (figure 7).

Figure 7 - Market Performance Indicator (MPI) in Romania and UE



Source: according to http://ec.europa.eu/consumers/strategy/docs/4th_edition_scoreboard_en.pdf

The complaints recorded in 2010 were as a reaction to the quality of the services acquired by the fixed and mobile telephony users. According to the National Authority for Consumer Protection, for the mobile telephony, Internet, TV cable and satellite services a number of 8,947 complaints were recorded. In a ranking of the consumer sub-markets with highest number of complaints, telephony services (fixed and mobile) are on the second place with an 11 percent, preceded by internet services (5.7 percent) and TV cable services (5.6 percent).

Conclusions

After 1989, the tendency in the Romanian telecommunication was clearly one of reaching the EU level, period in which we notice an accelerated increase in the competition degree.

Under the circumstances in which the telecommunication market is regulated by a series of laws and regulations, under the pressure of the economic crisis, the telecommunication market – fixed and mobile telephony – suffers substantial changes.

The availability of number portability should determine providers to make supplementary efforts in order to maintain customers and to offer increasingly attractive services for attracting new customers.

Education must have a permanent character, closely supported by a coherent and efficient legislation; customer informing being essential. Under the circumstances in which consumers who make informed choices do not only benefit from competition, they initiate and support it.

In this sense, the National Authority for Administration and Regulation in Communications comes to meet the general public interests by making available an interactive “price calculator” application which allows the rapid comparison of the tariffs and conditions offered by the mobile and fixed telephony and access to broad band Internet providers.

Companies in the field of services need to implement and certify a system of quality management which determines the improvement of the organization’s activity by increasing efficiency and effectiveness.

Therefore, for any telecommunication company it is equally important to find solutions in order to provide services of maximum efficiency and to know the reasons why consumers buy their services. From the obtained results, we clearly notice the necessity to continuously improve the quality level of the products and services provided on the telecommunication market, the close observation of the user’s behaviour, and last but not least the necessity for education, the one of changing the mentality of the operators’ staff and also of the users.

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Can enterprises have a positive impact on society through management of crisis?

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Abstract

Purpose – In this article we examine from a social point of view, how actually enterprises react to the impact of crises, and how social responsibility could be seen as an effective approach for crisis management.
Methodology/approach - The adoption of a large-scale approach on this topic is not as well suited as the adopted case study approach, because we wanted to underline the mentality of the managers that shape the Romanians enterprise social action toward crises.
Findings – Although many firms are strongly encouraged to develop corporate social responsibility, and the first reaction towards crises would be not to invest in the society due to cost cutting and because unfortunately such actions are not considered credentials in today's Romanian society, we could still highlight the fact that the chosen enterprise for our case study did exactly that and had success.
Research limitations/implications – The study focused only on the end consumers from Sibiu.
Practical implications – The case study provides valuable data on the how a Romanian enterprise reacted on crisis and managed it and fostered their competitiveness through improvement of social responsibility, positively influencing the society. Therefore social responsibility is an effective approach for crisis management.
Originality/value – We have broaden the knowledge about some of the not so common reactions to a crisis and how these reactions could influence positively the society, offering a possible general guidance for other enterprises involved in this process.

Key words: social responsibility, management, crises.

Introduction

Crises have always had a general negative impact on the survival and growth of enterprises. The issue of crisis remains topical in the academic field and not only, although no precise definition has been given. As in many other countries has the financial crisis decided on the survival of many companies that could not reach a satisfactory degree of financial stability.

The financial crisis marks a turning point by choosing not only between innovative, flexible and efficient companies but social-focused ones. The conceptions about how an enterprise reacts to crises are multiple. The awareness about the changes that have been taken place in the values of today's society must be proven to some managers, underlining the need for business ethics. In addition to a theoretical discussion, about the development of business ethics we give examples of some strategic tools that could have been used in operating a company after a crisis. A customer-oriented focus is essential, in satisfying the rising demand of consumers for not only real information on the social and environmental implications of the company through the offered products and services but also on how companies have assumed public responsibilities (Lindgreen, Swaen, and Maon, 2009)

The development of the concept of CSR

Corporate Social Responsibility is probably the most widely used and discussed concept nowadays. The concept of social responsibility appeared in the postwar period, with the publication of "Social Responsibilities of the Businessman" by Mark Bowen in 1953. The development of the concept meant, to give it a deeper meaning and clarity, due to the fact that it introduces an inaccuracy, because it does not mean the same for everyone (Fassin, Van Rossem and Buelens, 2011).

What is also contributing to the vagueness of the concept is the fact that new concepts are being developed and used simultaneously. For example the term responsibility was replaced with responsibilities, highlighting the variety of responsibilities that a company must face. Another related concept is Corporate Societal Accountability, which is by definition almost identical to the CSR, considering the company as a sociopolitical actor, like a government, with responsibilities to the wider society. Other concepts would be “corporate moral responsibility”, “corporate social responsiveness” and “corporate social performance”. Corporate social responsiveness reveals how a company responds to social pressure in a strategic way, in form of defence, accommodation or proaction (Sison, 2008). Managers should organize and coordinate the activities of the company according to the outside pressure. Frederick distinguishes two dimensions of CSR_2: a micro level - organizational dimension, that refers to individual companies and their strategic and practical implementation of social values, and a macro level - the institutional dimension referring to institutional arrangements and procedures that allow individual companies to have an influence on social issues, for example cooperation of corporations and government Frederick (1994: 157). On the other hand Corporate social performance is not a theory, but a measuring instrument for CSR. It deals with the investigation of CSR performance in companies, so the analysis of the success or failure of CSR strategies, programs, policies and methods (Sison, 2008). The table below shows the different results concerning the correlation between CSR and other factors.

Table 1

Author	Conclusion
Barnea and Rubin 2005	CSR investment is negatively related to insiders ownership
Orlitzky et al., 2003	positive relation between social responsibility and financial performance
Ruf et. al., 2001	CSR and sales increase positive correlated
Preston and O Bannon 1997	CSR and the financial evolution coincide

Source: Fernández-Feijóo, 2009:42

CSR is defined mainly as an illustration of the relationship between the business and the environment, bearing the responsibility for the role of redefining the obligations of businesses towards society (Keinert, 2008: 38). Therefore different group of interests should be involvement in the decisions and activities of the company. In this sense social and environmental factors play an important role. Important is to mention here Freeman's theory about the role of interest groups (Stakeholder Theory), and theories related to environmental sustainability.

The proposal of the European Commission in 2001 was to classify CSR in two dimensions namely an internal and external dimension. A company has a responsibility for those involved in his company, like employees or shareholders but also for groups outside the company. Such groups are the community and the society in general or the natural environment (Orbie and Tortell, 2009:176).

The link between management of crisis and CSR

In periods of economic crisis, most managers face the decision of deciding between a strategy and another. In order to reduce the impact of the crisis the most common used strategies were: reduction of costs, staff, investments, budget or consumption of resources. The CSR raised the

controversial question whether CSR activities should be done by companies in periods of economic crisis or whether the consequences of these activities would aggravate the situation of the company

Some scientists say that it would be better, especially in times of crisis for companies to support CSR activities. This type of company is considered to be a progressive-sustained company. Some companies try to obtain competitive advantage through improving their corporate reputation, so the image perceived by the internal and external stakeholders (Collins and Han, 2004) through CSR activities. The real purpose of CSR is to establish a balance between economic, philanthropic, and legal issues (Carroll, 1991). It offers a lay out for companies to improve their performance. The study of Sooyoung and Youngshin revealed that after a crisis the attitude in Korea toward CSR activities changed in a negative, cynical way (Sooyoung and Youngshin, 2009). An adequate tool to have positive reactions toward the company are introduced by CSR activities (Vanhamme and Grobben, 2009), that can reduce the harm that was done by a crisis.

Although the awareness of the company's actions is still low the positive reactions by the people interviewed can prove the true purpose, of corporate social responsibility once again. Through integrating non-economic factors like tradition or value Porter and Kramer shoved that a company and society can both benefit, when important social and economic goals are followed simultaneously and market-based solutions are being generated (Porter, and Kramer, 2002). Therefore by building a better image and reputation a differentiation in comparison with the competitor is created. Not only competitors would be influenced, but also the attitude and behavior of the companies own employees revealing its position as a major stakeholder in the co-creation and implementation of CSR programs (Bolton, Kim, and O'Gorman, 2011). This type of programs are seen as a win-win process for the company (Lindgreen, Swaen, and Maon, 2009), still researches in the way how consumers react to effective crisis communication are limited.

Case study

The adoption of a large-scale approach on this topic is not as well suited as the adopted case study approach, because we wanted to underline the mentality of the managers that shape the Romanians enterprise social action toward crises. As the business ethics movement is being driven mainly by large, multinational companies, we have focused at CSR-programs only at this level. This study is intended to improve the way the value of CSR is perceived in economic crisis showing that there is in fact a reputational increase in the way the company is perceived by the public and also by their customers.

Designed in and for Sibiu, as a small company, it was founded in 1993, offering services to builders and then to retailers. For the vast majority of Romanian companies, the crisis meant a hard lesson. The economic crisis that would hit it in the fall of 2008 the company meant a considerable decrease of the sales, by almost 60 percent in 2009 worth 104 million EUR and a reduction of the whole market. Hence follows that the phases of internal restructuring ware extended until the summer of 2010, and external help was needed (Ciolan, 2011)

So the first reaction taken at the end of 2008 by the management was to begin a restructuring in the financial and operational activity of the company, splitting the activity into two components with different specific businesses areas - retail and distribution of building materials. The company also turned to the consulting firm Roland Berger and ABS, relying on their experience, and also on the collaboration with a consortium of nine banks, from which they had obtained a new loan of 4.6 million EUR. Loans were renegotiated or converted into sale & leaseback contracts (store from Gheorgheni with EFG Leasing or, logistics areas from Sibiu with BRD, continuing to use the asset but no longer own it) and sale & rent back contracts (deposit of building materials with OTP Bank). In parallel with the restructuring process, the company has been in negotiations with a Swedish investment fund which ended abruptly.

The company registered last year a decrease in turnover of 48 percent from 852 million lei (231 million EUR) from 442 million lei (104 million EURO). Officials say this year so 2011 the financial

situation will be stabilized, estimating an increase of 15 percent, depending manly on the economic context (Voinea, 2011). This could be explained not only by the actions taken by the management but by the fact that the company has not opened any store in 2010 and has no expansion plans in 2011. The number of employees also decreased significantly, from 2,500 persons in 2008 to 1,600 persons. But company officials have said that only around 500 people lost actually they're job, because they were being transferred to partner companies that provide security services, cleaning or production. Also, several top management positions in the company were occupied by new persons in 2010, people recruited from larger companies.

For the restructuring of the company a centralized management was needed. The owner was e key factor for all the company's decisions. When he reached over 100 million euros he realized that it was not healthy that everything revolves around him. (http://www.revistabiz.ro/cum-se-face-o-schimbare-de-ambient-287.html)

Gaining the trust of the builders as customers is the hardest thing to do. If one succeeds than it will be a long term relationship (Ciolan, 2011). The first company, in which the manager and founder of the company was associated with members of his family, was Respect Ltd. Therefore we can conclude that the name that was chosen was not accidental, proving his interest for respect and trust. Many times because companies are made of people, while engaging in CSR activities we must look at their leader. And the fact that the company engaged in this type of activities for 18 years, suggesting that a leader should consciously choose an ethical approach for running a business. This approach should be used also during a crisis, because a strictly ''economic'' or rational approach may produce greater resentment and reputation damage (Bauman, 2011). As we have seen the founder and manager of this company was always guided by an ethical approach, although the company's priorities in crisis were as we have seen others. The company was primary concentrated on his financial aspects, even if at the discourse level all companies declare their commitment to responsible actions (Zaharia and Grundey, 2011)

As to underline the responsible participation of the company in the community life we must first mention the collaboration with the International Theatre Festival in Sibiu 2011in the period between 27 may – 5 June, each year. This festival aims to support creativity, talent and perpetuation of cultural traditions promoting Sibiu as a cultural capital. The visibility is also great because the International Theatre Festival in Sibiu is considered to be number 1 event of this kind in Europe and number 3 worldwide, with 350 plays, 70 countries participating, and 70,000 people attending (http://www.romanialibera.ro)

Important is also the activity called "The innocent choir held in Sibiu, and Cluj" The clay figurines of Andrei Antonescu Pandrea an artist from Bistriţa, helped raise money for a boy suffering from leukemia in Sibiu and for children aged between two and nine years from Maltese Nursery School Cluj suffering from severe neuromotor disabilities and other associated impairments (http://www.stiridecluj.ro/social/corul-inocentilor-a-strans-3-500-de-euro-pentru-tratamentul-unor-copii-bolnavi) Unfortunately the news was seen only 53 times and 22 face book users liked it.

Investments in the Theater Radu Stanca Sibiu were made with the objective of providing communities with access to culture by supporting the implementation of various stage performances like Electra in Cluj-Napoca in 2010, The bal in Târgu Mureş and A Stormy Night in Deva and Râmnicu Vâlcea or I like how you smell in Alba Iulia.

CSR is also hosting events like the exhibition of paintings organized by the Association of Artists, in the center of the Târgu Mureş or hosting the exhibition of icons on glass with the title "let the children come to me" in Bistriţa (http://www.mesagerul.ro/2011/04/12/expozitie-de-icoane-pe-sticla) or pproviding young students or graduates the chance to make a minimum work experience in 2010 in Sibiu, Alba, Deva, Cluj, Târgu Mureş. Health related education and activities are among CSR strategies (Urip, 2010). So the blood donation campaign for the hospital from Târgu Mureş, done by employees of the company can also contribute to staff motivation and productivity.

Because what matters to the community is important for the company, and the company has 12 shopping centers with a sales area exceeding 2,500 square feet, two warehouses for building materials in Braşov, Deva, Targu Mureş, Alba Iulia and Bucharest, and several smaller shops, concentrated in the center of the country. By choosing the majority of the CSR-projects to be de-

veloped in the cities in which the company is active, the company tries to nurture the employee motivation, pride, and also enhance their interest in the area in which they were born or live in.

Research methodology and results

To serve the purpose of this research, after we have analyzed the reactions taken by the management we have conducted a research based on a questionnaire survey, in order to see if the CSR programs were in fact perceived by the customers from Sibiu and if the knowledge of this activities would influence they're decision of buying further from the company. The company has two types of customers: the end consumer - families - and builders which required the separation of the Retail and trade line and the distribution line.

The study was made only for customers; therefore we have conducted a questionnaire based survey with their customers the sample comprises, 100 people from Sibiu between 20, 21, 22 May 2011. Data collection was conducted via personal interviews explaining each time the objective of this paper and assuring respondents of the confidentiality of their answers. In order to establish the general characteristics of the persons participating in the study we used five questions concerning age, gender, income, social status and completed studies. The sample is composed of 54 percent women, and 46 percent men. 70 percent of the respondents are employees, 10 percent are entrepreneurs and 20 percent pensioners. Concerning the age structure the majority so 52 percent has between 35 - 65 years, 30percent between 18 - 26 years, and 18 percent - between 27 - 35 years. The income structure has a twofold perspective over 2,000 RON had 40% of respondents, between 1,500-2,000 RON 32% between 1000-1500 RON 12%, between 500 - 1,000 RON - and 16 percent below 500 RON. Only 62 percent had a University degree, 33 percent of the respondents, had advanced academic studies and 5 percent have finished high school.

Using our selected case study, these theories are supported and supplemented. This study leads to a number of different results, which will be depicted. First of all, it becomes evident that the level of CSR – programs and the investments in this area has not dropped after the crisis as one would expect.

Still there is only a partial effect on the customers of the company to notice. Only 36 percent of the interviewed persons knew about the company's involvement in the International Theatre Festival in Sibiu 2011, despite the banners reflecting the position of the company as the main investor. Although the company firm increased its CSR investments, the lack of good CSR communication limited the opportunity of becoming more attractive. 86 percent of the respondents were pleased by the actions of the company. The respondents between 18 - 26 years possessed a vast knowledge of what CSR activities meant, and could give example of one CSR activity developed by the company. Although we must highlight the fact that persons between 35 - 65 years would chose to buy the company's products more likely know that they found out about some CSR programs than after hearing about a price reduction.

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The influence of environmental factors on the SMEs in Sibiu

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Abstract

Purpose – The main purpose of the paper consists of establishing the level of influence of environmental factors on the ways decisions are taken and objectives and long term plans are determined within small and medium-sized enterprises in Sibiu county.
Methodology/approach – The research was conducted based on a questionnaire, distributed in SMEs in Sibiu, the studied sample being from different fields of activity.
Findings – The need for this research started from the idea that SMEs are the steering engine of all national economies and their mode of action depends on the organisation's external influences. The obtained results are the impressions and opinions of SMEs managers regarding the environmental actions on their own enterprises.
Research limitations/implications – The results of the research are influenced by the continuous change in the number of active SMEs.
Practical implications – The results of the research shall be used as a starting point for other, wider, national researches, to determine the environmental factors most influential on the strategic management of SMEs in Romania, now but also in the future, with the purpose of preventing their negative effects and benefiting from the positive ones.
Originality/value – The authenticity of the paper is represented by the conducted research, the obtained results and the suggested corrective measures.

Key words: *SMEs, environment, strategies.*

Introduction

Given the necessity and importance of the strategic management in the existence and development of the organisations that are in a growing global competition and as a result of the growing importance of SMEs in most economies of the world, there is a greater interest in the strategic behaviour of small and medium-sized companies today, but more especially in the future, due to the important changes of the global economic crisis.

The economic crisis is felt in all organisations, regardless of their size, SMEs however are generally considered faster and more strongly affected by the environmental changes and where, most often, the management is concerned about the short term success, and nowadays more about survival. The strategic behaviour of SMEs is determined by their external environment's influences, and, in its turn, it is influenced by the economic crisis and how it is economically, socially and politically handled with in every country.

The research methodology

This exploratory research aimed to determine the level of knowledge among SMEs managers in Sibiu, of the characteristics and peculiarities of both the general and strategic management, this paper approaching only the aspects regarding their opinion on the future environmental influences over the SMEs' strategic actions. All questions were closed questions. The scale for

measuring the obtained answers had integer values from 1 to 5, corresponding to the following responses: 1 = not, 2 = little; 3 = average; 4 = much; 5 = very much. The results were processed in the SPSS 10.0 programme for Windows and more precisely the SPSS statistical package. The analysed SMEs belonged to different fields of activity and the surveyed managers were of different ages, sexes, training and occupations.

Environmental influence on the strategic management of SMEs

The present research aims to express the opinion of active persons within SMEs regarding the level of influence of the different environmental factors (external or internal) on the way decisions are taken and long term objectives and plans are formulated within small and medium-sized enterprises in Sibiu. There have been analysed: the level in which the various elements of the external environment shall influence the management of SMEs in the future, the strategic decisions, the influence of competition, suppliers and other factors on the long term planning process, but also the level of participation of organisational resources to putting strategies into practice.

The research was conducted in Sibiu and was applied only to SMEs. Their identification data were: main object of activity, turnover and number of employees. With regard to the people in the companies that have answered the questions, we have tried to determine their position within the companies subject to the survey, their job and also their sex and age, in order to determine their understanding and way of implementation of the strategic management within small-sized businesses, as related to all these identification information.

The results indicate that in Sibiu, the number of SMEs in services exceeds by 6% the number of business of productive character, followed by the enterprises in commerce. After the analysis, we have noticed that 34 % of the analysed companies have their objet of activity in the productive field and 40% of them are from the services field. In their turn, half of the analysed companies have a turnover below 100.000 Euros. Most of these companies belong to the medium-sized enterprises category, having less than 10 employees (59%). The position in the company of the interviewed people does not differ greatly, all being in the management structure of the businesses, in different departments, their training being both in the technical and economic fields. The percentage of the male respondents (59%) exceeds by 10% that of the female respondents, their age varying from 20-60 years, as it follows: 22% are below 30 years, 41% are aged between 30-40 years and 37% are over 40 years.

The influence of external environment elements on the SMEs' management

The activity of all organisations is affected and influenced by the factors that make up its external environment, such as political-legal, economic, social-cultural, technological, international factors, the competition, the suppliers, the company's management, the local community, etc.

According to the respondents, in the future, the SMEs shall be strongly influenced by the elements of the political- and legal environment (43%) and the economic environment (51%), their action significantly affecting the companies' activities. A great percentage of the people state that in the future, the influence of the environment's social and economic elements shall be reduced (38%) or that it shall not have such a great influence on the long term planning of the small-sized companies. The technological factors in the future are regarded as having an influence on the businesses' long term management, the percentage of the answers showing evenness in the statements: average influence (22%), great influence (22%) and very big influence (22%). However, 14% of the respondents consider that this element does not have any influence on their businesses and 20% consider that this factor's influence is very low (14%).

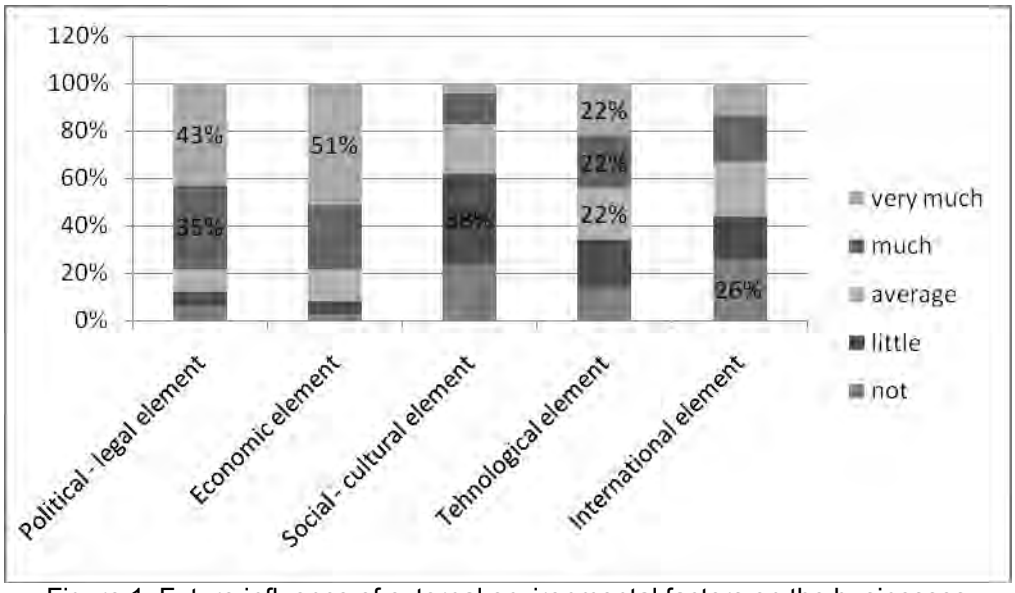

Figure 1. Future influence of external environmental factors on the businesses

After identifying the opinion regarding the influences of the general environment on the businesses, we also wanted to identify the opinion regarding the level of influence of the different economic factors outside the company on the companies' strategic decisions and thus, we have analysed the following factors: the inflation, the rate of exchange of the NBR and the unemployment, giving respondents the possibility to suggest other environmental factors that influence the strategic decision process regarding the future of the companies, as well as their level of influence.

Table no.1 Future influence of the different environmental factors on the strategic decisions

	no	little	average	much	Very much
Rate of exchange	11%	5%	21%	32%	31%
Reference interest rate of NBR	14%	21%	26%	25%	14%
Inflation	3%	8%	30%	37%	22%
Unemployment	12%	29%	29%	17%	13%

The analysis of the answers shows that in the future, all economic factors have strong influences on the companies' future activities, the most influential factors being considered "the rate of exchange", 63% of the respondents considering this factor as the most influential for the long term planning of SMEs' activities. The second influential factor is the inflation, the answers indicating a cumulative percentage of 59 for the statement "the inflation shall greatly and very much influence the strategic decisions regarding the company's future". The next influential factor is the "reference interest rate of the NBR" where we identified that 39% of the respondents consider that this factor influences much and very much the strategic decisions, but also that 35% of them believe that the influence of the reference interest rate of the NBR is very low. The economic factor with the lowest influence on the companies' future decisions is unemployment (30% much and very much). Other factors considered to influence the strategic decisions and the strategic management in general, were: the budget for infrastructure; the competition; the economic crisis; the flat-rate tax; the economic legislation; the country's economy; the price of iron; the purchasing power; all of them being considered of great influence in adopting the strategic decisions regarding the future of the companies within which they operate, manage or administrate.

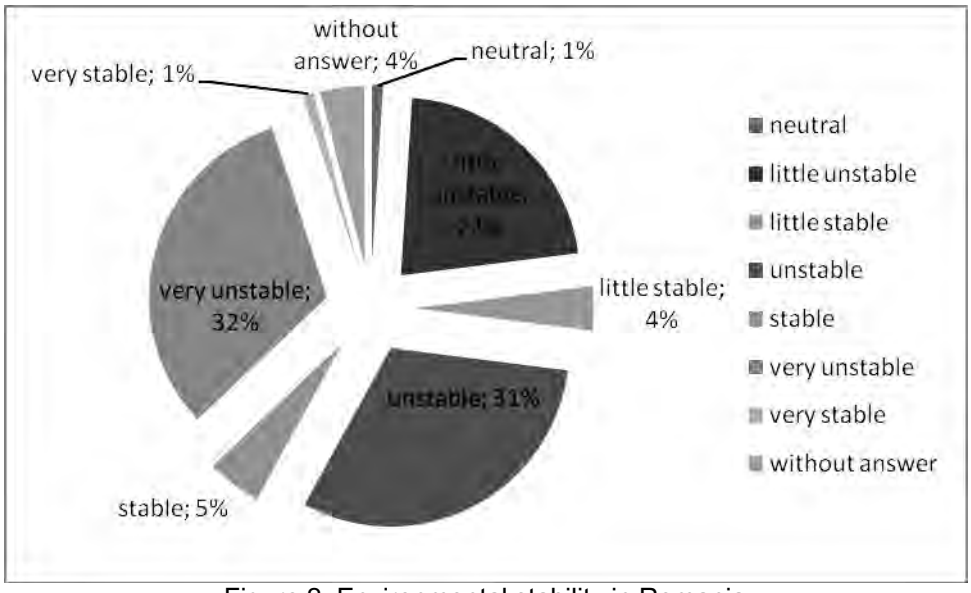

Figure 2. Environmental stability in Romania

Businesses, regardless of their type of activity, are affected by the changes in the evolution of external environmental factors. The changes in the external environmental elements determine its stability or instability. The opinion of the interviewed persons regarding the environment's stability is, mostly, that, currently, in Romania, the business environment is unstable (31%) and very unstable (32%).

The research continued with the identification of future influences of other environmental factors on formulating the long term objectives and plans, namely: the competition, suppliers, buyers, employees, the company's management, shareholders, banks and financing institutions, the local community.

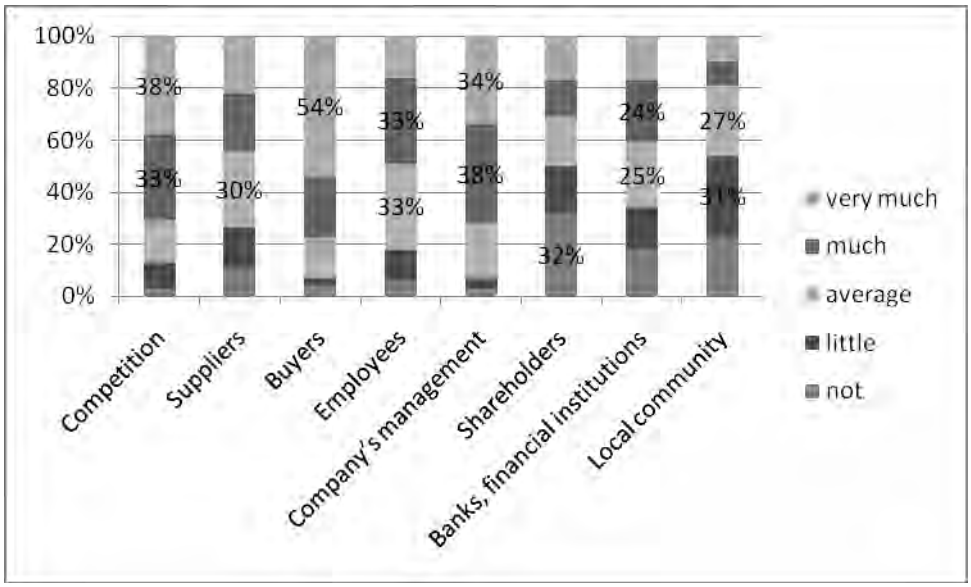

Figure 3. Future influence of environmental factors in formulating long term objectives and plans

From the analysis of the answers on these factors, it can be noticed that, in the future, buyers (54%) and competition (38%) have the strongest influence on the strategic decisions. The percentage of the answers related to employees demonstrates the equality of opinions regarding their average and great influence on the companies' strategic management (33%), and the com-

panies' management is considered to have a great influence (38%). Suppliers, employees and financing institutions are considered factors whose influence has an average level on how long term objectives and plans are formulated.

The level of implication of organisational resources in the strategic management of SMEs

Resources and their proper management are necessary and essential factors for meeting the organisational objectives. Therefore, we have tried to determine in our research the managers' opinion regarding the resources for putting into practice the companies' strategies, and also which of those are considered as competitive competencies and sources of competitive advantages for the companies they administrate.

The conducted analysis regarding the answers received show that in the future, resources shall be considered more competitive, and their participation to the putting into practice of the companies' strategies is regarded as very important in categories of resources. The performance of human resources regarding the implementation of organisational strategies is very big – 78% of the interviewed persons, followed by the performance of financial resources (77%), then the performance of information resources (60%), the last place being held by material resources (57%), the latter one not being disregarded, but the other categories of resources are given a greater power in the implementation of organisational resources.

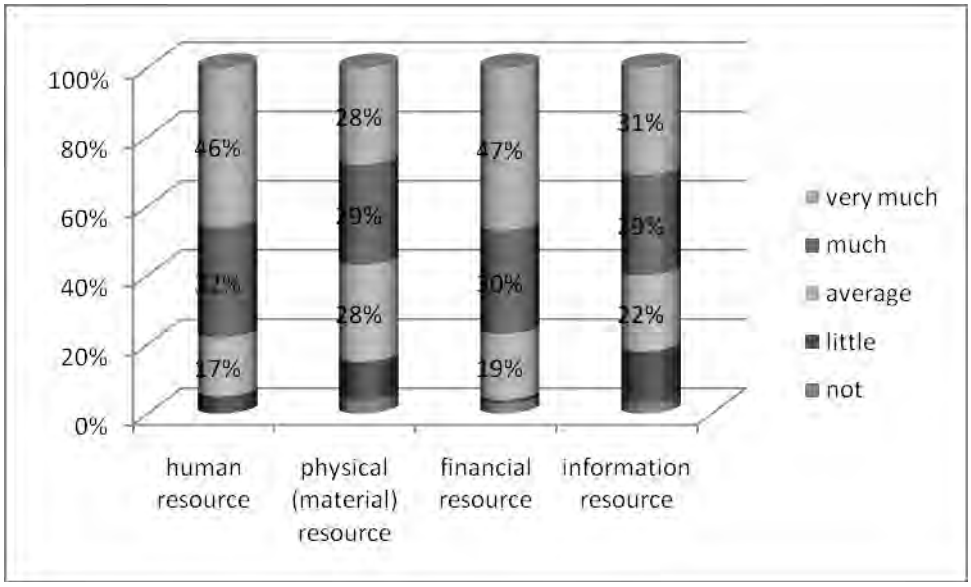

Figure 4. Future percentage of competitive resources that are part of implementing the companies' strategies

The result of the analysis indicates the level in which resources are regarded as special competitive resources for the managers of the interviewed organisations. This analysis included: the human resource, the financial resource, the material resource, the informational resource, the intellectual capital, the name of the brand and the technological resources.

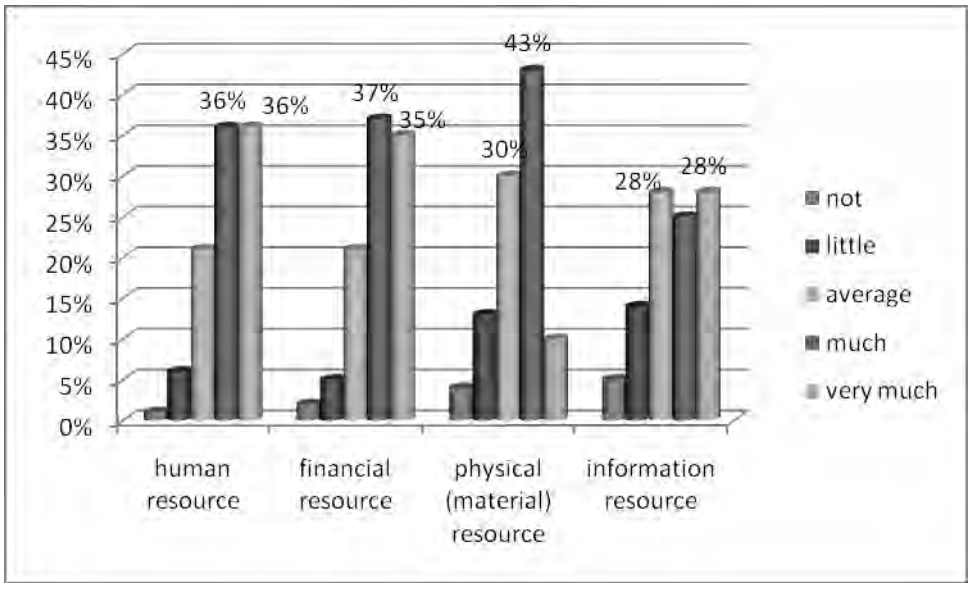

Figure 5. Organisational resources. Source of competitive advantages

As it can be noticed, the respondents' opinion regarding the organisational resources as competitive competencies is that human resources in an organisation are the ones that bring the most competitive advantages, together with the financial resources, a fact stated by 72% of the respondents.

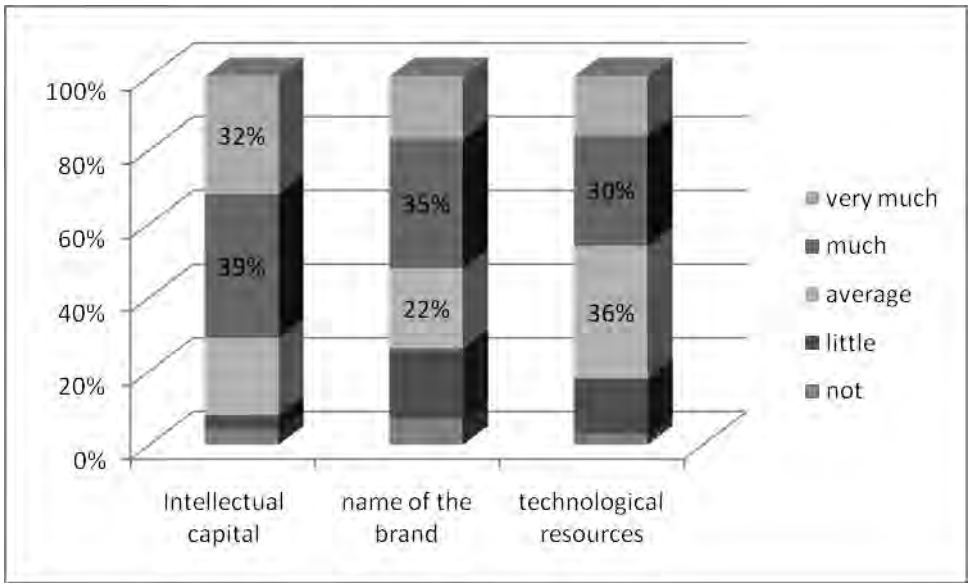

Figure 6. Other resources of the organisations considered as sources of competitive advantages

The intellectual capital, the name of the brand and the technological resources are considered by most of the respondents as the competitive competencies of the companies in which they operate, assigning the name of competitive advantages, due to the big and very big importance given to them (the percentage being 71 for the intellectual capital, 52 for the name of the brand, 46 for the technological resources).

Conclusions. Recommendations.

As a conclusion, we may state that the strategic management of the SMEs is very strongly influenced by the political, legislative and economic environment (with all the elements: inflation, rate of exchange, reference interest rate, etc.), the other elements, such as the social-cultural, the international and technological environment, being considered as having a smaller impact on the long term decisions and plans. The specific external environmental factors are regarded differently by the managers of the analysed organisations, however, a high percentage of them consider that shareholders, banks and the local community have a lower impact on the companies' strategic activities.

The respondents opinion on organisational resources show that the human and the financial resource are considered as very competitive in terms of putting into practice the strategies, the physical resource, namely the equipment and fixed means, and the informational resource being considered only competitive.

The human, financial, material and physical resources are all considered special competitive competencies for the companies, representing sources of competitive advantages within the companies in Sibiu, and only for the information ones the percentages are without extreme maximum points. The intellectual capital and the name of the brand are considered by the great majority as being important competitive competencies of the organisations, only for the technological ones opinions tend towards their average consideration as sources of competitive advantages.

Therefore, a first recommendation would be for the managers to give a greater importance to the social-cultural, international factors and also to the local community in the companies' strategic planning process. Another recommendation refers to the necessity of educating SMEs' managers about the composition and impact of these types of external environmental elements on the organisation.

Becoming aware of the importance of all resources, a little stronger in terms of the information resources, would be advisable for managers, as well as creating courses for managers and software for stimulating how the environment works on the companies' activities.

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Efficient Corporate Communication: A New Mechanism of Crisis Management

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Purpose *– Emphasize on the importance of efficient corporate communication in crisis planning and strategic management process.*
Methodology/approach *–Systematic analysis of scientific literature, deduction logic, and practical construction method of theoretical method.*
Findings *– Efficient communication is an integral part of organizational performance as it helps in generating trust among all the stakeholders of an enterprise .If the organizations use communication as a strategic tool they can efficiently avoid crisis situation or can manage crisis in a better way.*
Research limitations/implications *–The study is conceptual in nature. Not much empirical studies have been conducted stating the importance of communication in crisis management.*
Practical implications *– The study elaborates the practical recommendations for the plan of efficient crisis communication*
Originality/value *– the study can serve as the base for the empirical research in the field of crisis communication management.*

Keywords *–Corporate communication, Strategic management, Crisis management*

Introduction

Managers, consultants and researchers have traditionally been focused on the problems of financial performance and growth, but have paid little attention to effective management of corporate crisis. This crisis problems are not solved in its primary stage and usually chaotic without any strategic crisis solution or crisis management plans (Yair, Galenko-Ginzburg, Laslo, 2007; Bivanis, Tuncikiene, 2007; Kaplinski, 2008; Markovic, 2008). It can create related threats: public safety, financial loss and reputation loss. Some crisis such as industrial accidents and product harm can result in injuries and even loss of lives. Cases such as Three Mile island nuclear power plant in 1979, Cyanide in Tylenol capsules of Johnson & Johnson in 1982, Leakage of methyl isocyanides gas from a storage tank at the Union Carbide plant in Bhopal, India in 1984 and Coca-Cola case in Belgium in 1999. Nowadays the companies have to be oriented to the MOTTO of management strategy to continue change in management's philosophy to manage socio-economic factors in business environment and to be socially responsible. In order to manage crisis situation, it is important to understand crisis management and management processes in an organization (Klein, 1981; Rosenblatt, Sheaffee, 2002). It is also important to inform the employees about the changes in a company's external and intyernal environment (Deephouse, 2005; Sare, 2005; Kompikatie, 2007; Rees, 2008). A new paradigm has emerged takes in to accounts such issues and is getting due acceptance in scientific discussions and global management practice – corporate communication importance in conceptual and practical levels. Nowadays when the companies are experiencing the transformational changes – incorporation, international capital appearance, wide geography of companies, mobility of employees, global crisis, there is a need to manage communication process in business to generate communication ideas for crisis prevention and management.

Understanding Corporate Communication as a Management Function

There are two methodological aspects of understanding the corporate communication. The first aspect is to describe the relation of social environment and business expression management of corporate communication system (Heath, 1994; Varey, White, 2000) and maintenance of company's business strategy – implementation of practical decision (Steyn, 2003, Goodman, 2004, 2006). In the second methodological aspect, it is necessary ton explore the case for, and value of corporate practice and productive global relationships as underpinning of sustainable business strategy (Goodman, 2006). These methodologies can be discussed in details as:

First Methodology: The term corporate communication is increasingly being used in practice to describe the management function that is referred to as public relations, crisis and emergency communication, corporate citizenship, reputation management, community relations, media relations, investors relations, employees relations, government relations, marketing communication, management communication, corporate branding, image building and advertising. According to this first methodological aspect, this understanding explores the integration of corporate and marketing communication system of managing. It defines a need for a total stake holders perspective and to integrate corporate communication activities. According to Varey (2000), marketing is describes as a special case of human communication in which all elements of marketing mix all seen as communicative in action. With the corporate communication model of systematic managing is forwarded foe this purpose. It means that corporate enterprise has two primary communication systems that are inter-related. The internal system directs the activities of organizing to accomplish goals that are based on the gathering and interpretation of data on expectations and attitudes and on conditions for corporations relevant environment thought external channel of communication. External systems of communication are also used to present relevant information about the internal processes of corporation to the relevant external environment to attempt to influence the behavior of various publics. The focus of internal communication is to establish the organizational structure and stability while external communication focuses on the innovative for corporate development. These have to be a proper balance between the two for stability.

Second Methodology : As stated earlier according to the second methodology it is important to find out case for, and the value of corporate communication practices in professional development (Valackiene, Asta, 2010). For a successful sustainable business strategy it is important to target a positive relationship between corporate communication practice and productive global relationship (2006). Successful professional development of the next generation of corporate communication executives will focus on understanding of corporate communication functions and on strategic implementation capabilities. This practice of corporate communication has profound implication for professional development programme world wide as per the findings of Corporate Communication Institution (CI "Corporate Communications Practices and Trends" 2005).

Models For Developing Corporate Communication Strategy

Before moving to the crisis communication strategy models it is very important to review the existing models of corporate communication strategy.

Grunig & Repper's model : Grunig & Repper's model (in Grunig 1992:124-150) for the strategic management of public relations consists of three stages: The stakeholder stage refers to the identification of strategic stakeholders through environmental scanning and the need for ongoing communication with them. The public stage refers to the identification of groups/individuals who see the consequences of organisational decisions as problematic, involving them in decision making. The issues stage deals with the management of issues and the important role of the media therein. These stages are regarded as the phases in formulating corporate communication strategy, whereas stages four to seven (objectives, planning, implementation and valuation) refer to the operational level of corporate communication

Moss & Warnaby's conceptual model : The conceptual model of Moss & Warnaby (in Kitchen 1997:65) is the most extensive attempt to date to explain how corporate communication fits into the strategic decision making processes in organisations. It overcomes some of the chief weaknesses of the Grunig & Repper model (in Grunig 1992) and provides a framework for linking the development of corporate communication strategy to corporate and business-unit strategy. This model outlines the environmental scanning role of corporate communication at the corporate level, identifying and analysing strategic issues and stakeholders, and advising top management on how the different strategy options might influence relationships with key stakeholders.

Steyn's (educational) model: This model for developing corporate communication strategy is the outcome of a longitudinal action research project being conducted at the University of Pretoria (Steyn 2000b). The hypothesised model has been implemented amongst 94 non-profit organisations, 48 government institutions and 68 small-to-medium sized companies in South Africa, and has been adapted based on the findings of the action research. It consists of an analysis of the organisation's internal environment (corporate profile, organisational strategies and policies, corporate culture and values), as well as a stakeholder and issues analysis of the external and internal environment by means of environmental scanning.

The above models for developing strategy at the functional level provide considerable insight on the corporate communication strategy formulation process

The Plan of the Efficient Crises Communication

The most viable methodological approach in the cognition of Crisis Communication is systems approach. Theoretical studies (Bernstein, 2004; Chong, 2004; Turney, 2004; Zerman, 2004; Seymuor, 2006; Luecke, 2007) show that Communication and Mastering the Media are an important tool for every crisis handler and in each active stage of Crisis Management: contingency planning, containment, and resolution. It is important as an instrument of control and coordination. Effective media relations begin before a crisis occurs. The basic steps of effective Crisis Communications are not difficult, but they require advance in work in order to minimize damage.

Chronology of Crisis Communication

Bernstein (2004) implement's these 10 steps of Crisis Communications; the first seven of which can and should be undertaken before any crisis occurs.

1. Identify Your Crisis Communications Team: Ideally, the team will be led by the organization's CEO, with the firm's top public relations executive and legal counsel as his or her chief advisers.

2. Identify Spokespersons: The decision about who should speak is made after a crisis breaks — but the pool of potential spokespersons should be identified and trained in advance.

3. Spokesperson: Training. Spokesperson training teaches you to be prepared, to be ready to respond in a way that optimizes the response of all stakeholders.

4. Establish Notification Systems: the means to reach our internal and external stakeholders using multiple modalities.

5. Identify and Know Your Stakeholders: Who are the internal and external stakeholders that matter to your organization

6. Anticipate Crises: There are two immediate benefits to this exercise: realize that some of the situations are preventable by simply modifying existing methods of operation; begin to think about possible responses, about best case/worst case scenarios, etc. There is a more formal method of gathering this information - a "vulnerability audit".

7. Develop Holding Statements: While full message development must await the outbreak of an actual crisis, "holding statements"- messages designed for use immediately after a crisis breaks - can be developed in advance to be used for a wide variety of scenarios to which the organization is perceived to be vulnerable, based on the assessment you conducted in Step 6 of this process.

8. Assess the Crisis Situation: Assessing the crisis situation is, therefore, the first crisis communications step you can't take in advance. But if you haven't prepared in advance, your

reaction will be delayed by the time it takes your in house staff or quickly-hired consultants to run through steps 1 to 7.

9. Identify Key Messages: The team already knows, categorically, what type of information its stakeholders are looking for. Have no more than three main messages for all stakeholders and, as necessary, some audience-specific messages for individual groups of stakeholders.

10. Riding out the Storm: Some of your stakeholders are not going to react the way you want them to. What do you do? Take an objective look at the reaction(s) in question. Is it your fault, or their unique interpretation? Decide if another communication to those stakeholders is likely to change their impression for the better. Decide if another communication to those stakeholders could make the situation worse.

Segmented Communication Strategy for Effective Crisis communication

According to Zerman, (2004) masterly communications are: when we give to media the facts; use the right Spokesperson; match the message and media to different segments; segment your audience; select the most appropriate media. Audience segmentation is the basis of an Effective Communication Strategy, identifies key market segments and unique concerns of each segment and then speak to each in a suitable way and through a medium most likely to create high impact. Luecke, (2007) describe the principle of audience segmentation (community leaders; employees; customers and suppliers; shareholders; the general public) using segmentation to create a systematic communication strategy (Table 1).

Table 1: Segmented Communications Strategy

Segment / Key Cons--iderations	Employees	Investors	Customers	Suppliers	Community leaders	Regulators, Government agencies
KEY Messages	Jobs in new place; Retraining program	Full disclosure of the change	Making changes to serve you better; Changes will make the company stronger;	Changes will make the company stronger;	Full disclosure of the change	Full disclosure of the change
Media	Companywid e meeting; Letter to each employee	Letter to shareholders; Webcast	Letter to all purchasing managers; Industry trade magazine	Letter to all; Personal calls to suppliers	Meeting with community leaders	Registered letter
Timing	Prior to press conference; Frequent follow-up	Immediately	Concurrent with press release	Immediately	Prior to press conference	Prior to press conference
Spokes-person	CEO	CEO; Investor relation	VP of marketing	Corporate supply-chain manager	CEO;	CEO; Legal counsel

(Source: Luecke, 2007; Valackiene,2010)

Steps to Prepare an Effective Corporate Communication Plan at the moment of Crises:

Step 1: Clearly state the Communication Team's Mission in a crisis ,Step 2: Identify your organization's most critical publics and themes to emphasize in communicating with each of them, Step 3.: Determine where crisis communication team members will be needed and the location of any special operations centers, Step 4 Define task-related communication roles needed in a crisis, Step 5 Prepare a crisis communication team roster showing your „starting line-up" with contact information ,Step 6 Don't wait until a crisis to disseminate the plan., It won't be

much help unless those who need to use it are familiar with it and have it instantly accessible. Everyone listed in the plan should have copies of it as well as having additional fact sheets and contact lists relevant to their specific assignments

Conclusions

The understanding of Corporate Communication is focused on two methodological aspects: to describe the relation of social environment and business expression – management of corporate communication system and maintenance of company‘s business strategy – implementation of practical decisions.. Depending on the organization, Corporate Communication includes: public relations; crisis and emergency communication; corporate citizenship; reputation management; community relations; media relations; investor relations; employee relations; government relations; marketing communication; management communication; corporate branding and image building; advertising. A conceptual paradigm of the phenomenon under discussion is applied: Crisis Planning and Management Strategy within the business environment are analyzed, In crisis planning process discussions and future perspectives are essential. In order to be able to strategically manage the crisis situations within business environment, it is essential to talk about the process of crisis planning, as well as strategy management within the organization.Adequate training of staff is necessary, in addition to that the analysis of the situation and search for alternative solutions are required. To be able to properly get prepared for a Crisis Planning and Strategy Management processes, Crisis Management requires collaboration with systems, efficient internal and external communication, setting the persons and their roles expressed by special duties and responsibilities, effective collective decision making, control and collaboration responsibility. Another important element is the managers' ability to communicate with the media representatives in crisis situations. The managers have to be prepared what to say, ho w to present information in order not to damage the company's reputation.

The most viable methodological approach in the cognition of Crisis Communication is systems approach. Theoretical studies and practical research of Corporate Communication Institute shows, that Communication and Mastering of the Media is an important tool for every crisis handler and in each active stage of crisis management: contingency planning, containment, and resolution. It is importance as an instrument of control and coordination. Audience segmentation is the basis of an Effective Communication strategy. The Model of Crisis Communication Plan emphasizes the six stages of preparation: the mission of organization; the stakeholders of organization; the specialists of communication and the place of special operations center; the role of crisis communication team; the composition of crisis communication team; the control of crisis communication plan.

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It is a global crisis! Marketing is also in crisis?

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Abstract

Purpose *– This paper represents the continuation of previous research aimed at analyzing the impact of global crisis on the various elements of marketing.*
Methodology/approach *- These studies are based on a series of case studies, bibliographic research and analysis conducted by observation.*
Findings *– Consumers are marketing center of the universe. From this perspective, one can consider that the global crisis, regardless of shape, expansion and reflects its depth and regarded as the marketing philosophy as a science, as art or as part of the organizational structure of firms, forms, tools, etc.*
Research limitations/implications *– It is tried to delimitate the marketing aspects that suffered the strongest influences, analyzing this problem both at the conceptual and practical levels, continuing to the implications of the crisis on how marketing is made at the organization level.*
Practical implications *– A good illustration of this is even the emergence of the concept of „marketing a crisis" and how the organizations would be would be to tailor responses to environmental factors with significant changes given the global crisis .*
Originality/value *– The authors propose an analysis of the adaptations they have undergone several marketing elements during the global crisis and pointing out their causes.*

Key words: *global crisis, chaotics, "recession marketing".*

Introduction

It is certain: the period that humanity is now going through is a specific and unique in its evolution - is the global crisis. Global issues is through the crisis reflected the emergence of at least three perspectives:

— territorial - affecting all countries around the world, propagating the crisis is global, extending to this level was just a consequence of globalization, but also a result of increasing the overall level of technology;

— the affected areas - the financial crisis has triggered an economic crisis; human resources have been affected in such a crisis occurring social organizations, human ;political crisis it was propagated by the military level, is becoming stronger and a food crisis; and an energy crisis occurs, there is also an oil crisis, a crisis of water and a strong environmental crisis, following the developments listed above types of seizures shows that all were marked by moments or even periods of turbulence;

— depth—regardless of any crisis is likely to impact mondoeconomic propagating to the microeconomic level but perhaps the most significant influence is found at the individual level, every inhabitant of this planet is feeling in one way or another global crisis.

Impact of global crisis on individual consumers and organizational

Currency fluctuations, restricting lending opportunities, drastically reducing revenues, rising unemployment and price increases, etc. are environmental factors affecting individual and organizational consumers forcing them to change consumer behavior and purchasing.

Thus, individual consumers are living under the pressure of a state of general insecurity which leads to a greater caution in personal actions, both those related to career, job, etc. And the actions that relate to consumer needs and providing coverage Consumer. As a result, consumers become more sober, a real manager of his needs and financial resources available.

The results of research that we achieved [e.g. Pop, D. and Roșca, D.] have highlighted the family orientation towards greater consumption cheap food, DIY products and cosmetics, but some apparel, footwear and electronics. Also exhibit behavioral changes that are reflected by: savings on daily food basket (both value and quantity), changing priorities of the types of acquisitions, exploitation promotions deeper, stronger evidence of the process of searching for information (the purchase stage of decision-making system), leisure and reorganization of the party; changing, etc.

The individual or family existing budget is geared towards covering the costs of maintaining current housing, to food consumption, for any life insurance (It was found that in periods of crisis, individuals prefer to restrict the other expenses for maintaining life insurance) to cover other liabilities. If the budget does not cover these types of expenditure seek ways of supplementing the budget or restrict food expenditure. Regarding priorities for acquisition, giving a range of products or reduce the frequency of purchasing clothing, shoes or appliances.

In terms of organizational customers, in addition to those listed above pressures facing the phenomenon of drastic reduction in demand which is largely the result of just acquisition and modification of behavior of individual consumer. Also, companies are under the influence of reducing the creditworthiness of the partner firms. and if the consumer was the primary organizational effect of reducing revenue.

As a result of the influence of the global crisis and firms are affected in their capacity as consumers organizational. Driven by the need to maintain the market, they have adapted to new conditions and have changed their behavior also. Thus, firms reactions may include: strict monitoring of receipts and payments, a greater flexibility of planning embodied in the development of multiple scenarios on the business plan and annual budget to be reviewed depending on progress quarterly earnings and sales, and careful monitoring of changes occurring in consumer behavior and their customers, reduce and optimize inventory, increase employee performance, more aggressive promotion in.

Regarding the behavior of nonprofits that has changed in the following areas: cost optimization, planning and more stringent control of activity ,a stronger and more accessible communications with their customers, better promotion, training and permanent employees skilled loyalty, a larger volunteer orientation, stimulation of pooling, etc.

All descriptions above are elements of a new stage of development of mankind, characterized by turbulence, sometimes sharp. These features become more of a "new normal" period that mankind travels [en Kotler, Ph. and Caslione, J.A, 2009].

Following turbulent environmental changes are found at least two major effects: vulnerability and opportunity. Creates vulnerability and adaptation mechanisms lead to the opportunity of its operating systems, systems that reflect the policies of organizations, called systems haoticiste chaotics designs. An important part of their marketing schemes concern because it is one of the most creative areas, with ample opportunities to adapt.

Global crisis and marketing

Every individual on this planet is in a consumer, but not necessarily in the client. But at the same time, consumers are marketing center of the universe, modern marketing with the assumption that any economic or non-economic activity is efficiently directed towards satisfying the needs or desires of actual or potential consumers.

From this perspective, one can consider that the global crisis, regardless of shape, expansion and reflects its depth and regarded as the marketing philosophy as a science, as art or as part of the organizational structure of firms, changing concepts, forms, tools, etc..

A good illustration of this is even the emergence of the concept of „marketing a crisis";or"recession marketing" It basically refers to how the organizations would be would be to tailor responses to environmental factors with significant changes given the crisis. The first measure of self that is taking companies to reduce costs.

The easiest way to do this is to reduce costs rapidly falling profits. For this reason wrongly most often are reduced marketing expenses, which is one of the serious mistakes that can have a disastrous effect on the company. Marketing crisis is proposing alternatives.

Implement a marketing crisis proposes an analysis of the promotional mix, of the distribution, target markets, consumers and geographic mix in order to determine which activities and costs can be reduced without risk. It assumes that any company engaged in the promotion, distribution, market segments, customers or geographic areas that do not produce income or make low profits. In essence, the crisis has positive aspects which one is found precisely in the elimination of all corporate activity is inefficient and unduly consume resources.

To see how it behaves in marketing during the crisis should be pursued key marketing tools that they use. Thus, the basic pillar on which the system consists of marketinkul called the 4P marketing mix: product, promotion, price and placement (distribution).

Product

The cornerstone of the marketing mix and in this regard can be considered the most exposed part of the marketing firm in the crisis. The first reaction of firms would be to reduce product costs through the replacement of raw materials, subassemblies, etc.. with more flights by non-technological processes (these phases are eliminated or restricted technology that have high costs but not substantially affect the product and its quality) by using cheaper labor and less training, etc.. Companies who use this option seriously wrong of the above can have immediate effects, but medium and long term effects can be disastrous.

— some of the alternative options it proposes for marketing firms to protect their product portfolio are:

— creation and marketing of a range of secondary products, so that the cheapest commodity to maintain quality and provide value to the consumer expects it, which was normal value;

— implementation of innovation to be reflected in the introduction and establishment of new products that can combine the desires of consumers in this period: low prices and a higher value;

— to take measures which do not affect the value of its brand promise, brand becomes an organizational concept around which all activities are carried out company;

— improving product portfolio through the combination of related services without a corresponding increase in prices, while increasing the quality of such services in an attempt to close and chia more to retain existing customers;

— more thorough study of consumer behavior and its going into situations where this is possible by customizing products;

— etc.

Promotion

Promotion Policy organizations and she has adapted to the constraints of crisis. Ways to promote choice is based on better communication with customers by targeting the widest possible to contact directly with them. Thus, some appropriate measures in such a period are:

─ customer orientation promotion to attract attention by means such as: brand association with important personalities of the time and area;

─ reduction or elimination of commercials advertising policy not bring any new, relevant product information tailored to specific circumstances asestei period;

─ orientation means of advertising-based systems such as digital and virtual social networks are less expensive but more efficient;

─ indicating the product type TV shows talk shows, for example, whose subjects have no connection with the product;

─ Wider use of measures such advertising BTL (Below The Line) more than type ATL (Above The Line) advertising BTL media refers to";unconventional";, which exhibit more inspired and original; it is generally events;

Better-looking consumer needs and desires, a more accurate delineation of the target segment (which may consist of a single individual, leading to supply custom) firms may resort to more penetrating types of advertising, such as, for example, aspirational advertising; using this type of advertising is based on the idea is not enough to illustrate a single component of the product, similar to one of the target audience - people want to see something to represent them fully.

Price

In terms of pricing the most relevant means that we believe can be used are:

─ maintaining or even reducing food prices;

─ avoid price changes for the use of promotional sales;

─ closer approximation to the consumer through their involvement in setting the price, this is possible by creating specialized sites through customers can compare the square price level and propose a price considered fair by them;

─ finding a balance between sales volume and profit margins but take into account the following aspects: adjustment of price levels and the proposed value to current customer needs, continuous monitoring of price structure, continuous updating of data on the sensitivity of demand the price levels, etc.

─ the business of business-to-business communication nearest creating enabling customers to reduce costs but not by reducing prices, but by finding better ways to use products.

Distribution

Some marketing alternatives proposed by the crisis are the following:

─ choosing a distribution channel to allow a firm and direct contact with customers;

─ keeping traditional selling system and supplementing it with the online marketing Internet products;

─ motivating and providing aid to support intermediaries that can lead to further market their products

─ to stimulate the additional fees associated with the retailers offering deliveries;

The main idea that should guide the entire organization marketing activity is near as close to the consumer and ensure its loyalty. This requires continuous monitoring of clients and targets as diverse. At the same time, it is vital as a good communication with target customers through traditional forms of communication and expansion and strengthening of electronic communication, virtual.

Conclusions

To maintain a market position an organization should recognize that in times of crisis following things are important: building and maintaining brand value that it promises and it was time, increase product benefits customers but maintaining price and not least, use a more aggressive marketing to clients focused on removing the competition..

As a result, marketing, the tools we use perfectly adapted conditions imposed by the global crisis. Creativity and flexibility are specific elements that have enabled it to adapt to any constraints..

Marketing may not reached a crisis because its role is precisely to study the consumer and finding solutions cover the needs and wishes. Or, as shown, any change in consumer behavior is detected, making the change based marketing tactics..

The essence of this adaptation is the marketing people by professionalism, creativity or innovation, vision and responsiveness to find ways to reach consumers, to be closer to him (in what they offer in what form, how time, etc.) and win loyalty.

At the same time, marketers must work only for creative professionals working because the company can not survive on the market at a time of crisis without their contribution, and hence no reviews.

As a confirmation of his opinion is relevant to consider that Philip Kotler: “Marketing should not collapse in times of crisis, only marketers imagination is not collapsing”.

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Talent Crisis and its Impact on Organizational Commitment

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Abstract

Purpose *– To Assess the impact of talent management on organizational commitment under the talent crisis setting.*
Methodology/approach *– Variance research design with a five-point Likert scale to measure talent management dimensions and organizational commitment. Analysis was done using OLS-based regression analysis technique*
Findings *– Career development as a significant antecedent to organizational commitment.*
Research limitations/implications *– It is one of the first few studies to examine talent management from the perspective of crisis theory.*
Practical implications *– Because talent crisis puts both demand and supply of talent under crunch, organizations need to harness their existing pool of talent by institutionalizing better approaches to career development.*
Originality/value *– The findings is in somewhat contrast to a generically accepted approach of reducing the employee strength. The study suggests that fostering existing talent would be a better approach to survive talent crisis.*

Key words: *talent crisis, talent management, organizational commitment*

Introduction

For most industries, finding, developing and retaining talent is a tough task facing the HR practitioners and team managers (Chambers et.al, 1998). The challenge gets even harder when the business is operating under uncertain environments such as recent global financial meltdown. It is therefore important to appreciate that talent management is not as a luxury but as a commoditized business function that is leaving its footprints at all organizational levels (Guthridge et.al, 2008). Talent management may be conceptualized as an approach for dealing with the impending labor crisis as well as an effective strategy for enhancing the competitive positioning of the organization as well as its employer brand (Hughes & Rog, 2008).

Because of its all-encompassing role, it is important to examine the impact of talent management on key macro-level organizational variables. This paper seeks to examine the impact of talent management on one such variable known as organizational commitment (Mowday et.al, 1979). Thus, study aims to answer following research questions:

In the prevalent talent crisis, what is impact of different talent management dimensions on organizational commitment?

In order to reflect the context of the study (namely, talent crisis) more accurately, we selected India's Information Technology sector. This sector has had its share of turbulent times in the infamous dot-com burst at the start of the century as well as in the latest financial breakdown. As

is well understood, Organizations are competing to recruit and retain IT talent in a tight labor market and this has forced companies to develop new strategies specifically to address recruitment and retention of scarce IT specialists (Lockwood & Ansari, 1999). Figure 1 explains the brewing talent crisis in India's IT sector.

Figure 1

Theoretical Background

With the importance of talent crisis as a context, we adopted the crisis theory as our theoretical foundation. Central tenet of crisis theory pertains to economic crisis (Weisskopf, 1978; Shrivastava, 1993). However, theoretical extension was not without conceptual glitches. Since its inception by Karl Marx, crisis theory has been largely examined in macro-level contexts (for example, nation's economic stance) that transcend organizational boundaries whereas talent management challenges are studied in an organizational setting (Lawrence & Joseph, 1977; Weisskopf, 1979). Hence to resolve this contextual conflict, we qualify challenges in talent management as a crisis. For this, we adopt Lawrence & Joseph's (1977) conceptualization of **organizational crisis: a situation where rising tension results into emergency mobilization of tension-reducing mechanisms.** When the financial meltdown reduced the liquidity for organizations, the cost cutting mechanisms were set in. One of these mechanisms was to reduce human resources while the other one was to halt new recruitments. These two scenarios have squeezed the talent pool of the organization resulting into talent crisis. Thus it can be argued that formation of talent crisis have roots in the theoretical framework of organizational crisis. Secondly, organizational commitment has been theorized by number of organizational researchers (Buchanan, 1974; Mowday et.al, 1979; Porter et.al, 1979; Ferris & Aranya, 1983; Randall, 1990). We adopt conceptualization given by Mowday et.al (1979) owing to its singular focus on developing measurement for organizational commitment.

Research Problem

Talent crisis is two-fold phenomenon. On demand side, it is characterized by non-availability of desired employers while on the supply side it manifests in lack of talented potential employees. Such a scenario gets even more acute under strenuous environments in which the businesses

operate. One instance is that of recent financial crisis that wiped out behemoths in sectors such as financial services, automobiles and real estate. It was during these turbulent times, that talent crisis was observed more prominently where organizations struggled to retain talent (in order to save the cost of hiring and training new employees) while talented employees could not find suitable employment (as most organizations had frozen the recruitment efforts) (Fernández-Aráoz et.al, 2009; Zatzick et.al, 2009; Fodor, 2009). Interestingly, even after having well-established talent management practices, these organizations faced the heat of talent crisis and struggled to manage it. Thus, it may be argued that mere presence of talent management practices is not sufficient to tackle talent crisis. Rather, it is important to understand impact of talent management on critical employee-oriented functions. This paper looks at organizational commitment which is a well-known indicator of employee's job performance. More formally, the paper looks at impact of different dimensions of talent management on organizational commitment. The study is set in Information Technology sector which has been subject to turbulent business environments in the past.

Research Approach

The study adopts the positivistic research approach. This was considered suitable as the research follows the variance path where the aim is to examine impact of change in one variable over others (Van de Ven, 2006). A 5-level Likert scale was employed for measuring the constructs. Organizational commitment has been measured by many organizational scholars. This has led to number of scales that claim to measure organizational commitment accurately. For the purpose of this study we chose 15-item scale developed by Mowday et.al (1979). For examining talent management practices, we adopted the TM's dimensional model and developed a set of activity-based items for each dimension in consultation with talent management experts from industry and academia. The interaction with experts is to assess the face validity of the items and is an important step for ensuring rigor while developing new scales (DeVellis 2003; Hinkin, 1995).

The sample frame was executives from Information Technology companies. They represented a sector that is at once one of the largest employer as well as one of the most tumultuous. Hence, it is prone to talent crisis. This is indeed evident from high level of attrition rates faced by leading organizations in the sector. We received a total of 65 responses.

Methods of Analysis

There were two stages of analysis. First was evaluating the reliability and validity of the talent management scale. Towards this, confirmatory factor analysis was carried out through construction of measurement model in AMOS. We also carried out the reliability analysis of the talent management scale (because a new scale was constructed). In the second phase of the analysis, impact of dimensions of talent management on organizational commitment was examined using regression analysis based on ordinary least square.

Main Findings

Because the analysis was done in two steps, the findings can be reported in same manner. In the first stage, measurement model confirmed the fit between the data and presumed measurement model. The Goodness of Fit Index (GFI) was 0.887 while Comparative Fit Index (CFI) was 0.917. This indicates sufficient match between the data and the measurement model. Root Mean Square Error of Approximation was 0.14. This was higher than permissible levels of 0 to 0.1. One of the reasons could have been the smaller sample size. We also conducted reliability analysis. It showed that scale constructed was reliable (Chronbach's alpha values were within the permissible range i.e. >0.6) (for more on reliability analysis, see Streiner & Norman, 1989). There are however, certain caveats in using reliability analysis. One of them is the dependency of the alpha value on the items in the scale. In order to avoid the duplication of items (one of the cause of higher alpha values), we also conducted a face validity checks with two independent experts in the talent management domain.

Table 1: Reliability Analysis of Talent management scale

Talent Management Dimension	**Cronbach's Alpha (measure for reliability)**
Reputation Management	0.735
Recruitment	0.853
Selection	0.842
Compensation Activities	0.625
Performance Management	0.912
Training	0.853
Career Development	0.934

In the second phase of the analysis, OLS based regression analysis was executed to understand the relationship between talent management dimensions on organizational commitment. The variables were entered using stepwise method as the research aimed to determine the best possible model with given set of predictors. The stepwise regression algorithm found that career development was the best predictor of the organizational commitment. The predictability of the model was 43 per cent. Table 2 summarizes the regression analysis output:

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.674(a)	.454	.437	.28729

a Predictors: (Constant), Career_Dev

Table 3: ANOVA(b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.201	1	2.201	26.662	.000(a)
	Residual	2.641	32	.083		
	Total	4.842	33			

a Predictors: (Constant), Career_Dev
b Dependent Variable: Organizational_Commit

Table 4: Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.226	.172		12.946	.000
	Career_Dev	.308	.060	.674	5.163	.000

a Dependent Variable: Organizational_Commit

Table 5: Excluded Variables

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Reputation	.164(a)	1.003	.324	.177	.635
	Recruitment	-.244(a)	-1.498	.144	-.260	.619
	Training	-.017(a)	-.115	.909	-.021	.795
	Compensation	.032(a)	.196	.846	.035	.663
	Selection	.000(a)	.003	.998	.000	.468
	Perf_Mgmt	-.126(a)	-.754	.457	-.134	.614

a Predictors in the Model: (Constant), Career_Dev
b Dependent Variable: Organizational_Commit

Discussion and Conclusion

The study examines the impact of different talent management dimensions on organizational commitment and thus extends current understanding of impact of TM on key organizational behavior aspects in industries that are prone to turbulent business environments. Surprisingly, we found that career development is the lone significant predictor of the organizational commitment.

An employee cannot switch a job often because the demand-side for talent would often be under pressure to avoid recruitment. Therefore, employees are looking for a sustained growth. A strong career development plan is likely to provide such assurance to employees and hence would positively affect his/her organizational commitment. This finding is in-line with other similar studies (Cohen, 1991; Tansky & Cohen, 2002)

There are at least three research directions. We aim to take forward this study to include other relevant constructs such as job satisfaction and intention to leave. We also aim to examine possible interaction effects between predictors (that is, talent management dimensions). Lastly, we aim to test the findings in other sectors that are prone to talent crisis in order to assess variations across different sectors.

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Small and Medium-Sized Enterprises – A Possible Solution for Getting Beyond the Crisis in Romania

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Abstract

In the last decade before the financial and economic crisis, the Small and Medium-Sized Enterprises (SMEs) knew a spectacular growth being recognised as the engine of the European economy.

The crisis started in 2008 sopped that growth and transformed it in a decrease in 2009.

Romania felt the financial and economic crisis latter then it started (August-September 2008) because the Romanian economy had a lower opening level to the world economy.

In order to support the economic increase, the Romanian government must take measures to improve the entrepreneurial environment (as it is stipulated in the Government Strategy for developing the SME sector between 2009 and 2013).

The paper presents an overview on the SME sector in Europe and Romania during and right after the crisis, and makes some recommendations for the public policies in this particular sector.

The findings and recommendation are based on an extensive research on the European Commission and Romanian Government documents, and discussions with Romanian experts from Team Europe for Entrepreneurship and National Council of Small and Medium Sized Private Enterprises in Romania

Key words: *SMEs, economic crisis.*

Introduction

Small and medium sized enterprises represent a balance at the micro- and macroeconomic levels. A strong SME sector generates also an adequate distribution of the economic power. Life demonstrates that within concurrent economies, the economic concentration has negative long-term effects. The SMEs may reduce the capacity of the large companies to form monopolies and oligopolies and therefore to control the markets compete by.

One main function of the SME sector is to be an important source for employment. Two thirds of the new jobs are in this dynamic sector. The costs involve in creating new jobs are much lower in case of an SME then in a large company. In addition, SMEs may reduce the fluctuation on the labour market by diminishing the unemployment.

In a turbulent economic environment, the small and medium sized enterprises adapt themselves easier, have high competitiveness and resistance levels during the crisis.

Because of their size and their simple organizational structure, SMEs can make numerous organizational strategic changes that allow them to function efficient from the economic point of view. They easy adept to the requirements of there clients and can become specialized suppliers for the large companies. The products and services provided by the SMEs are chipper then the same products and services provided by large companies.

The SMEs labour climate makes possible the successful experimentation of some systems, methods, and techniques imported from the management theory. In addition, those companies offer a favoura-

ble framework for developing new management methods and procedures. Therefore, the activities of the SMEs in solving practical problems contribute to the enrichment of the management tools and to the increasing of the organizational efficiency.

SME sector in Europe

At the European economy level, SME sector represents a source for entrepreneurial skills, innovation, and employment. At the EU-27 level, almost 23 million SMEs generate 75 million jobs and represent 99% of the companies.

In 1996, the European Commission defined for the first time the micro, small and medium-sized enterprises (SMEs) in order to increase the efficiency of the communitarian programmes addressed to that particular sector[1]. Based on that document, SMEs are defined as enterprises that have fewer than 250 employees, and have either, an annual turnover not exceeding ECU 40 million, or an annual balance-sheet total not exceeding ECU 27 million. In the same document, a 'small enterprise' was defined as an enterprise which has fewer than 50 employees, and has either, an annual turnover not exceeding ECU 7 million, or an annual balance-sheet total not exceeding ECU 5 million, and micro-enterprises as enterprises having fewer than 10 employees.

In 2003, because of the economic development, the Commission adopted a new recommendation to redefine that very important sector for the world economy. The result was a new guide in defining the SMEs[2].

The document started from the reality that, in a common market without internal frontiers, is essential that all the measures for the SMEs start from a common definition. This is more important as long as there is a strong interaction between national and EU measures regarding the regional development and research financing.

Based on the new definition, an SME is an enterprise that employ fewer than 250 persons and which have either an annual turnover not exceeding 50 million euro, or an annual balance sheet total not exceeding 43 million euro.

The role of SMEs for the European economy was repeatedly recognised at the highest political level. In 2008, European Council strongly encouraged an initiative called *the Small Business Act* (SBA)[3] for Europe that drive at consolidation of the sustainable growth and competitiveness of the SMEs and asked for it rapid enactment

Relatively recent studies[4] reveal that 92% of SMEs are in fact micro enterprises (1 to 9 employees). In the attempted to solve this situation, the European Commission placed the SMEs in the core of its industrial politics. EC understood that SMEs must increase there size (increase the number of employees, diversify the range of products, markets, increase there income) if they want to have a significant impact on the European economy.

In the last decade before the financial crisis start, the SME sector had a dramatically growth. Table 1 illustrates the situation of EU-27 SMEs in 2008.

[1] European Commission Recommendation (1996/280/EC) concerning the definition of small and medium-sized enterprises, 3 April1996.
[2] European Commission (2005) The new SME definition. User guide and model declaration, Enterprise and Industry Publications, 2005.
[3] European Commission (2008) Small Business Act, Bruxelles, Belgium.
[4] European Commission (2010) European SMEs Under Pressure, Annual Report on EU Small and Medium-Sized Enterprises 2009, EIM Business & Policy Research.

Table 1. Number of companies and employees in EU-27, per category

Size	Micro	Small	Medium	SME	Large	TOTAL
Companies						
No.	19,058,000	1,424,000	226	20,709,000	43,000	20,752,000
%	91.8	6.9	1.1	99.8	0.2	100.0
Employment						
No.	39,630,000	27,652,000	22,665,000	89,947,000	43,414,000	133,362,000
%	29.7	20.7	17.0	67.4	32.6	100.0
Employees per company						
	2.1	19.4	100.3	4.3	1006.1	6.4

Source: European Commission (2010) European SMEs Under Pressure, Annual Report on EU Small and Medium-Sized Enterprises 2009, EIM Business & Policy Research

The actual economic situation started with a financial crisis that culminated in the last part of 2008 with a sudden discredit in the business environment. That led to a rapid decrease of the international trade.

In only three month, the commercial flows collapsed with a velocity without precedent since the Second World War. The production level followed the trade trend and the recession appeared. Table 2 illustrated the evolution of some macroeconomic indicators in EU (for EU-27, Euro Area and Romania), USA, and Japan starting with 2007 as they were presented in European Economic Forecast – Autumn 2010, including forecasts fro 2010, 2011, and 2012.[5]

Table 2. Some macroeconomic indicators for EU, USA, and (annual gross rates, %)

				Autumn 2010		
	2007	**2008**	**2009**	**2010**	**2011**	**2012**
Export of goods and services						
EU-27	5.5	1.5	-12.5	10.2	6.4	6.6
Euro Area	6.3	1.0	-13.2	10.7	6.1	6.3
Romania	7.8	8.3	-5.5	17.0	6.0	7.7
USA	9.3	6.0	-9.5	11.8	8.4	7.4
Japan	8.4	1.6	-23.9	24.7	4.8	5.1
Total investments						
EU-27	5.8	-0.8	-12.1	-0.6	2.8	4.2
Euro Area	4.7	-0.8	-11.4	-0.8	2.2	3.6
Romania	30.3	15.6	-25.3	-9.9	4.2	7.3
USA	-1.4	-5.1	-15.5	3.2	4.8	6.3
Japan	-1.2	-2.6	-14.0	-0.2	2.6	3.0
Gross Domestic Product						
EU-27	3.0	0.5	-4.2	1.8	1.7	2.0
Euro Area	2.9	0.4	-4.1	1.7	1.5	1.8
Romania	6.3	7.3	-7.1	-1.9	1.5	3.8
USA	1.9	0.0	-2.7	2.7	2.1	2.5
Japan	2.4	-1.2	-5.2	3.5	1.3	1.7
Employment						
EU-27	1.7	0.9	-1.9	-0.6	0.4	0.7
Euro Area	1.7	0.6	-2.0	-0.7	0.3	0.6
Romania	0.4	0.0	-2.0	-0.8	0.1	0.6
USA	0.9	-0.7	-5.0	-0.5	0.8	1.1
Japan	0.4	-0.3	-1.6	-0.6	-0.2	0.1

Source: European Commission, European Economic Forecast – Autumn 2010, Directorate-General for Economic and Financial Affairs, 2011.

[5] European Commission, European Economic Forecast – autumn 2010, Directorate-General for Economic and Financial Affairs, 2011.

The exports decreased by two digits. Investments had also an abrupt decrease while the consumption decreased gradually. The most part of the industrial sectors, especially, manufacturing, constructions, transports and automotive industries, were hit by the recession. The reduction of the international trade affected also the whole trade, while the retails and services had a lower decrease.

EU and USA took strong measures to help the banks, to counter-balance the decrease of aggregate demand, to help the business sector and to reduce or postpone the unemployment. In this respect, the European Economic Recovery Plan contents some important initiatives especially for SMEs.

The last data indicate that the recession ended in Germany and France starting the third quarter of 2009, and in USA and European Union as a whole with the forth quarter[6]

The world crisis and the Romanian economy

In Romania, the economic and financial crisis strongly affected the evolution of the economy in 2009 and 2010. The business environment, especially the SME sector, knew significant changes because of the impact of the world economic crisis. Besides the demographic changes of the SME sector and the negative economic results, the crisis affected also the entrepreneurial spirit and the antipathy for risks assumption by the investors increased.

In the same time, the crisis represented a learning period for entrepreneurs, managers, employees in adapting to new situations.

The companies faced with new conditions, characterized by shortages or discontinuities of cash, deterioration of contractual relations consolidated in the period of the economic growth, and diminished of consumption and number of clients, both in the manufacturing and services sectors.

Starting the last quarter of 2008, the macroeconomic context was difficult, with negative and unpredictable evolutions that had a stronger impact during 2009, as long as the area covered by the economic and financial crisis became larger and larger. In addition, the impact of the difficult macroeconomic conjuncture was amplified because the negative changes appeared suddenly after a relatively long favourable period for development.

Romania felt the financial and economic crisis latter then it started (August-September 2008) because the Romanian economy had a lower opening level to the world economy. Nevertheless, the crisis impact was amplified by the vulnerabilities specific to an emerging economy that did not had the necessary time to access and consolidate the cohesion and integration in the European economy mechanisms in only two years from it adherence to EU.

Thus, after 10 years of continues growth, because of a mix between world economy turbulences, crisis and internal factors, Romanian economy had a negative economic growth (-7.1%) in 2009. The explanation for this situation consists in a mix of three major factors: contraction of the domestic consumption demand, withdrawal of the foreign flows of capital, and decay of export and import trade.

Romanian SME sector and the crisis

Between 2000 and 2009, the Romanian SME sector grew with 51.6%, as shown in figure 1. The figure clearly indicates two period of the SME sector development – between 2000 and 2003, and between 2005 and 2008. Actual, the maximum number of registered SMEs was at the end of 2008 (662,024 enterprises).

The first demographic crisis of the Romanian SME sector from 2004 (larger then the crisis from 2009) was generate by some administrative regulations and not by economic conjuncture.

In the next four years, the SME sector knew a strong comeback that allow it to have a continue growth until the end of 2008.

[6] OECD, Quarterly National Accounts, 2010 (http://stats.oecd.org/index.aspx).

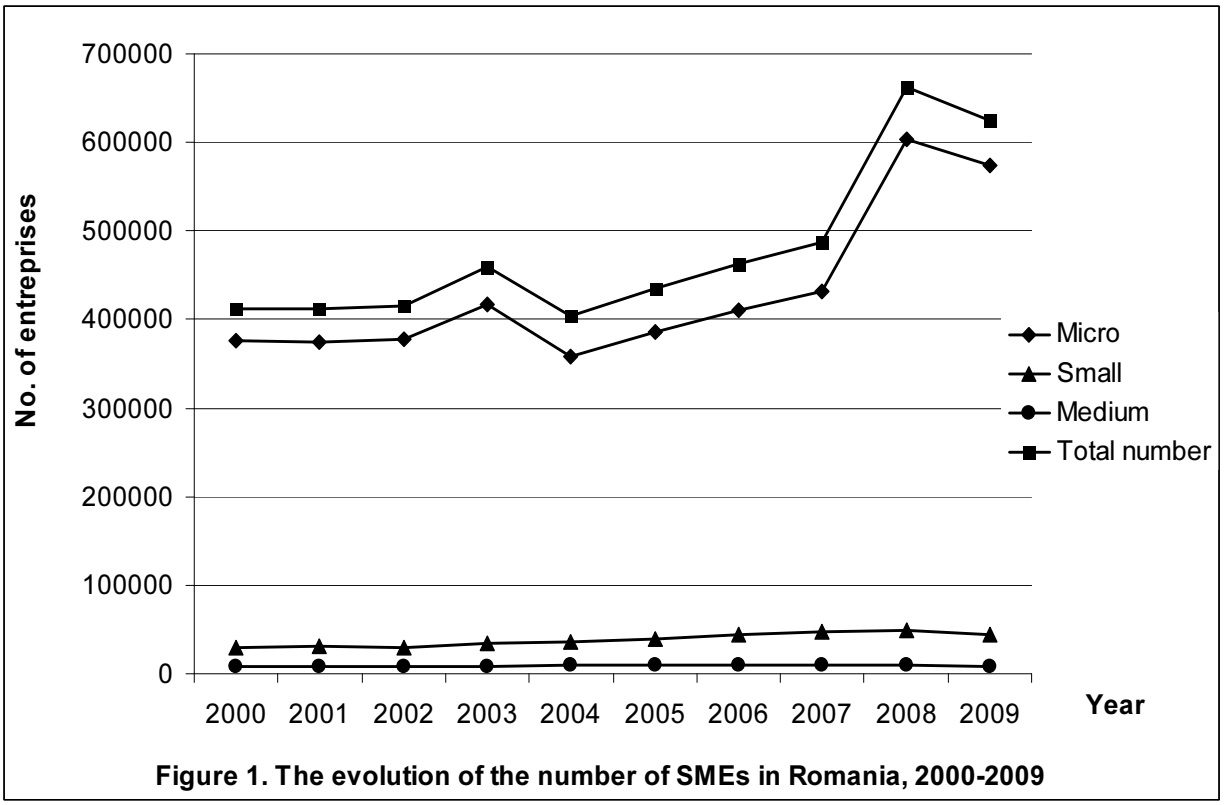

Figure 1. The evolution of the number of SMEs in Romania, 2000-2009

In 2009, the financial and economic crisis led, for the first time after four years of growth to a decrease of the number of SMEs in Romania.

At the end of the year, the number of SMEs registered at the National Trade Register Office was 625,458 comparing with the number of enterprises at the end of 2008 (662024). That meant a decrease of 6.5%. Even so, the level of demographic growth was superior comparing with 2007 (128.7%).

From the total number of registered SMEs at the end of 2009, only 379,627 were active (60.6%). Even if the macroeconomic features of years 2008 (the year with the greatest economic growth from 2004) and 2009 (with economic recession), the rapport between the registered and active SMEs is the same.

The evolution of SMEs between 2007 and 2009, presented in table 3 illustrates some particular aspects regarding that period.

The fluctuation process within the SME market is a natural process resulted from its feature: capitalization of new market opportunities and conjunctures, innovation, technology development, orientation towards client needs and demands. Even if this process is normal, 2009 highlighted some particularities regarding SMEs demography.

The figures from table 3 indicate that during 2009 the dynamics of start-ups continued to increase but slower while the exits from market suddenly increased substantially, through strike off and temporary suspension of activities.

In 2009, over 133,000 SMEs suspend there activities comparing with only 12.000 in 2007 and less then 12,000 in 2008. It means that the suspensions increased more the 11 times comparing with the past years. Suspension had a spectacular dynamics not only comparing with the last years but also with strike offs (in 2009 suspension of activities was 3 times greater then strike offs).

Table 3. Dynamics of the registered SMEs between 2007 – 2009 [6]

Period	2007	2008			2009		
		Sem I	Sem II	Total	Sem I	Sem II	Total
New registration	142,073	76,460	64,182	140,642	60,979	55,043	116,022
Strike off	20,401	6,495	11,181	17,676	12,037	31,578	43,615
Suspension	12,012	7,194	4,825	12,019	71,250	62,112	133,362

Source: National Trade Register Office, http://www.onrc.ro/english/statistics.php

The number of strike offs in 2009 comparing with 2007 was 2 times greater, from 20,401 to 43,615. This situation had also positive influence on SME sector, because only healthy companies (active and competitive) remained in market. More then 80% from the strike offs and one third of suspensions were inactive companies.

Table 3 shows also that the start-ups continue to grow in 2009 (116,000 new registered companies) even if the rhythm was slower comparing with 2008 (82.4%).

The fact demonstrates the Romanian entrepreneurial potential, on one hand and the necessity to support de development of SME sector as a solution for egression from crisis and economic revival on the other hand.

Discussion and conclusions

The dynamic context of searching a way to get beyond the crisis and preparing the economy for re-launching the economic growth shows the necessity of fundament the future economic development of Romania on applying innovative solution based on knowledge to the entire business sector, especially to SMEs.

Moreover, the features of the EU countries, particularly the vision and the objectives assumed through Strategy Europe 2020 that seek after modernization, innovation, eco-efficiency and social inclusion enforce the creation of all the necessary condition to mould an economy based on knowledge and innovation on long term base

The European Commission initiated the Strategy Europe 2020 in order to get beyond the crisis and prepare its economy for the next decade. The core of this Strategy for an intelligent, sustainable and favourable for inclusion growth consists of three interconnected priorities that define the commune vision of the social market economy of the 21st century.

First stays the intelligent growth, the development of an economy based on knowledge and innovation. For that to take place is necessary to have at least the following:

- an improvement of the quality of education
- a reinforcement of the research performances
- innovation and knowledge transfer promotion
- usage on a large scale of the information and communication technologies
- assurance that innovative ideas may be transformed in products and services, which will generate economic growth, quality jobs and will substantiate the approach of the challenges at the European and World levels.

Second is the sustainable growth based on

- promotion of an ecological and competitive economy that uses the resources in a more productive way by using the leader position of Europe in the race for developing more clean, ecological technologies
- improvement of resources exploitation
- acceleration of large intelligent networks dissemination
- reinforcement of the competitive advantages of the European enterprises, especially from the productive and SME sectors.

In the third place comes the growth favourable to inclusion that promotes an economy with a high occupancy rate of the labour force, which generate social and territorial cohesion. In order for that to take place is necessary to develop the citizens' competences through:

- assuring a high occupancy rate of the labour force
- investments in competences
- fighting against poverty and modernizing the labour market
- long life learning
- modernizing the social protection systems in order to build a cohesive society.

Therefore, Romania must understand that encouraging the entrepreneurial spirit including the access to finance may be a solution for getting beyond the crisis.

Starting from those things, here are some recommendations regarding the public politics in Romania:

- increasing of the Romanian SMEs competitiveness through productivity improvement
- simplification of the administrative procedures and barriers elimination starting from registration to strike off
- reducing the discrepancies between different development regions through investments programmes addressed to SMEs
- reinforcement of the technological transfer and innovation networks
- continuous development of the business structures
- fosterage the usage of the information and communication technologies and development of the digital economy.
- promotion of the entrepreneurial spirit and improvement of the entrepreneurial culture through facilitation of the exchange experiences between different generations of entrepreneurs
- creating innovative financial instruments for financing SMEs activities.

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Business Process Reengineering and Crises Management: A Conceptual Framework

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Abstract

Purpose: *To manage organisational crises by utilizing the fundamental principles of Business Process Reengineering.*
Methodology/approach: *A conceptual analysis is under taken to develop a framework which creates linkage between various aspects of crises and principles of Business Process Reengineering.*
Findings: *The analysis reveals that a synergy can be created between existing organisational resources and Business Process Reengineering which can create a suitable environment to manage the crises effectively.*
Research limitations/implications*: Most of the data used is secondary data which is having less reliability. Also, current paper takes into account the Indian business scenario thus, some factors can vary in other territories of the world.*
Practical implications: *Crises in current business world are so prevalent that every organisation is deploying resources to tackle them. Business process Reengineering uses critical fundamental approach to indentify the misfits within the organisation. Thus, BPR can help organisations to develop sustainable crises proof business environment.*
Originality/Value*: No research paper exists which has developed such a unique linkage between Crises and Business Process Reengineering.*

Keywords: *Crises Management, Business Process Reengineering, Conceptual Framework*

Introduction

Globalisation in business world has vanished distances and converged resources. Now, every organisation has access over every other organisation's resources thereby creating highly sensitive markets all-over the world. Nowadays, keeping the global business scenario in view emergence of crises within organisation is quiet expected. Thus, In recent past business corporations have realized the significance of crises management. Crises within organisation are so fatal that every organisation is deploying resources to overcome existing crises, if any, and make secure organisation from them in future. Crisis management is the process by which an organization deals with a major event that threatens to harm the organization, its stakeholders, or the general public. Three elements are common to most definitions of crisis: (a) A threat to the organization, (b) The element of surprise, and (c) A short decision time. Venette argues that "crisis is a process of transformation where the old system can no longer be maintained." Therefore the fourth defining quality is the need for change. If change is not needed, the event could more accurately be described as a failure or incident. Never before has crisis management been more important. As recent events have shown, the business community, as well as communities at large, is vulnerable to disruptions that can be extremely costly. Examples of recent crises that resulted in lost lives, displaced families and communities, shutdown businesses and damaged economy are hurricanes Rita and Katrina, the London bombings, the South Asia tsunami, the Northeast blackout and the September 11 terrorist attacks. Other serious events,

such as financial failure from poor business management, workplace violence, fires, cybercrime, computer viruses, product tampering or union strikes, can also lead to substantial damage and loss. According to Blythe, B.T.(2004) there are five reasons why corporate fail to protect their assets: 1) Denying that it can happen: “It cannot happen here” attitude. 2) Being reluctant to make crisis preparedness a priority: Competing priorities are allowed to subvert efforts at vital preparedness. 3) Remaining unaware of risks inherent to the business: Without a comprehensive foreseeable risk analysis conducted throughout the company’s operations, the full range of risks is not highlighted. 4) Ignoring warning signs: Organizations often fail to critically analyze their own histories or the disaster experiences of others in their industry or locale. 5) Relying on weak, untested plans: Unless your crisis plan has been thoroughly constructed and tested, it will not effectively protect your organization in a real crisis. Although, crises occurrence cannot be clearly demarked into different phases but, to some extent various stages of crises can identified by using Timeline model given by R.J. Craddock (2006). This would helps us to plan and use the crises management techniques according to the specific requirements. The phases of crises proposed by R.J. Craddock are as under:

Pre-incident phase: This is a period of time prior to an incident occurring. Incident pre-cursors may exist, the detection of which will warn of an incident and enable prevention and preparation to take place. This phase consists of the following top level activities:

Prediction – determination of what incident is going to occur, and when it is going to occur, is the key to minimising the effects of an incident. Once the incident has been accurately predicted, prevention and preparation responses can be formulated and implemented.

Prevention – the best way to minimise the damage done by an incident is to prevent it from occurring, however, not all incidents are preventable, e.g. natural disasters. In addition, some preventable incidents may be detected too late to prevent them. Figure 4 shows where prevention fits into the overall crisis timeline. Prevention measures are initiated by the detection of incident pre-cursors.

Preparation – there are two forms of preparation: 1) Preparation of the response designed to prevent the incident, 2) Preparation for the incident. This occurs when an incident cannot be prevented or it is too late to prevent the incident

Incident occurrence: This is the instance in time at which the incident occurs (or starts to occur), if it has not been prevented. After this point, the incident will evolve during the next phase. If not predicted, this is the first time the incident is detected.

Post-occurrence phase: During this phase, the incident may get worse, e.g. by triggering other incidents, it may stay the same, or things may improve, e.g. emergency services intervene to resume normality as quickly as possible.

Post-incident phase: The incident is likely to have a finite lifetime, e.g. in a fire, there is normally a limited amount of fuel to consume. Most incidents will conclude without intervention, however, without intervention the effects of the incident may be worse and / or the incident may last longer. At the end of its lifetime, the incident concludes and normality starts to return – the post-incident phase. This phase consists of the following top level activities:

Post-incident discussion activities – such activities include immediate incident debriefs and other types of incident discussions occurring some time after the incident concludes e.g. multi-agency debriefs, hearings, trials and inquiries. The aim of the debriefs is to identity and feedback areas for improvements.

These phases of crises management by R.J Craddock provide an outlook of the whole process in a much lucid way and make the job of crises management team using BPR as tool very easy and convenient.

Business Process Reengineering – A tool to manage organisational crises

Business Process Reengineering which is a multi-dimensional tool, utilizes several methods to examine processes from a holistic perspective, transcending the narrow borders of specific functions. Michael Hammer and James Champy's definition "the fundamental reconsideration and radical redesign of organisational processes, in order to achieve drastic improvement of current performance in cost, service and speed" (Reengineering the Corporation: A manifesto for Business Revolution, 1993) enjoys a fair measure of consensus. BPR is a radical change rather than an incremental change. Davenport (1993) advocates radical change as: Objectives of 5% or 10% improvement in all business processes each year must give way to efforts to achieve 50%, 100%, or even higher improvement levels in a few key processes.

These properties of Business Process Reengineering can be followed to manage the crises which have usually following features. The situation materialises unexpectedly, decisions are required urgently, time is short, specific threats are identified, urgent demands for information are received, there is sense of loss of control, treasures build over time, routine business become increasingly difficult, demands are made to identify someone to blame,ooutsiders' take an unaccustomed interest, reputation suffers, communications are increasingly difficult to manage. BPR is a transformation technique which aims to revive the organisations that are mal functioning due to change in external and internal environment. These crises may have their origin in processes, people, strategies, structure, and technology. These are exactly the areas over which BPR works and tries to remove the inefficiencies.

Following conceptual framework relates the various aspects of organisational Crises and subsequent implication of Business Process Reengineering principles of Re-think, Re-tool, and Re-design in managing these crises effectively. The framework utilizes the existing crises management model and incorporates the Principles of BPR at every stage and in each type of crises. BPR first of all looks into cause of crises to identify the origin of the problem, after that it finds out the alternative courses of action available and finally BPR re-frames, re-organises and redesigns the identified process or area of work.

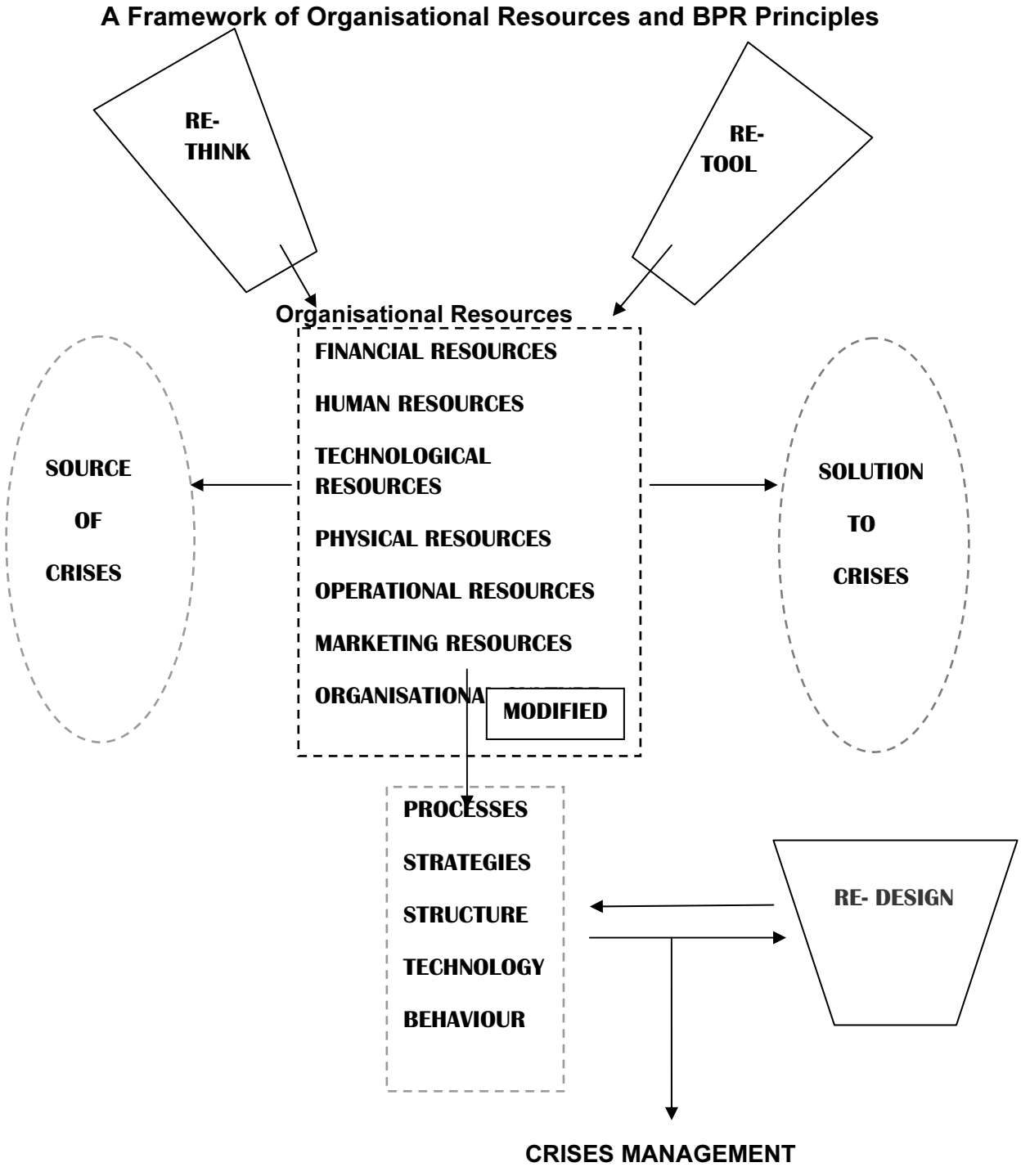
Towards The Development of Crises Resolution Framework Through Review of Background Studies

Business process reengineering has become useful weapon for any corporate organisations that is seeking for **improvement in their current organizational performance** and intends to achieve cost leadership strategy in its operating industry and environment. Reengineering process remains effective tools for organizations striving to operate as **effectively and efficiently** as possible and organizations are required to reengineer their business processes in order to achieve breakthrough performance and long term strategy for organizational **growth and performance** (Adeyemi, et.al, *2008)*. Organisations achieve competitive advantage by implementing Business Process Reengineering (BPR). It was observed that BPR makes organisation more competitive by significantly modifying the **costs incurred, customer services, quality and productivity.(** Magutu, P.O et al,2010). Reengineering of business processes directly affects the satisfaction level of customers. The researchers have supported that more use of IT, wide network of ATMS, Re-Skilled staff, help nationalized banks to gain **competitive advantage** in the industry (Datta, S.K., Gupta, A., 2009). Business Process Re-engineering (BPR) is a State of the Art, is the constitution of setting the work and waste concept in each step in any process in any entity, that's it as a Generic Concept. The researcher maintains that increase in work efficiency and decrease waste is the goal of BPR. (Ragab, E.A.,2009). CRM should be reengineered even if it is in practice since years. The researcher concludes that successful implementation of BPR for CRM will result in reduced costs, shorter cycle time, improved quality and most important happier customers (Pruit, C. 2009). There are certain critical success factors (CSFs) which are responsible for success or failure of a BPR project. Interpretive Structural Modeling (ISM) to indentify critical success factors.The researchers have identified 9 CSFs through the use of ISM Approach along with their relative significance. (Salimifard, K., 2010).

Many experts have advocated the need to prepare for crisis by developing plans and training teams. McCartney et al. (1999) notes that the reason for developing a crisis management team may come from two directions. (a) A crisis or crises may occur, causing the organization to react to the event(s) and implement damage control and corrective action. The event(s) will create a process of **organizational learning** causing management to develop **contingency plans** that set forth actions that can either prevent or provide a response to a crisis event. (b) An organizational development process that focuses on continual improvement might recognize an organizational vulnerability stemming from lack of crisis planning; this leads to the cultivation of a culture that focuses on crisis planning, which in turn leads to the establishment of a **crisis management team**. These teams are responsible for planning for crises before they occur, as well as dealing with it when it really occurs. Fink (1986) states that it is necessary to establish a crisis management team before a crisis plan can be developed. Pearson and Clair (1998) reports that organizations with crisis management teams show a greater concern for and attention to **potential crises** than those without crisis management teams. Moreover, there is a higher degree of concern for crisis events in businesses with crisis management teams compared to those businesses with no teams. It is regrettable that it was found that even those businesses that had previously experienced crises did not have crisis management teams. Even with the crisis management team, but will not achieve its due role and exist in name only without actual effect. So far, Most of the team members are consisted of the department leaders in the enterprise plays a little part in the team, so it is necessary to modify the composition of the crisis management team. Conventional decision-making no longer suffices when an organizational crisis occurs. By “organizational crisis” (which we will use interchangeably with “crisis”), we mean a low-probability, **high-impact event that threatens the viability** of the organization and is characterized by ambiguity of cause, effect and means of resolution (Pearson, 1998); information flows rapidly and sporadically (Smart, 1977); diverse stakeholders become involved (Pearson, 1993); time is limited (Quarantelli, 1988); crises may be a surprise or they could be anticipated (Milburn, 1983), and although **timeliness is essential, decision quality** cannot be sacrificed for the sake of speed (Smart, 1984). When a crisis occurs, organizations must find a solution with actions that are acceptable to the decision makers. A new solution must be generated by the crisis management team when pre-existing solutions do not meet the needs of the important, urgent and uncertain situation. In short, the decision-making process is still waiting to be modified and the decision-making technique improved. The Resource Based View (RBV), suggests that the method in which resources are applied within a firm can create a competitive advantage (Barney, 1991; Mata, Fuerst, & Barney, 1995; Peteraf, 1993; Wernerfert, 1984). The resource based view of firms is based on two main assumptions: resource diversity and resource immobility (Barney, 1991; Mata et al., 1995). According to Mata et al. (1995), these assumptions are defined as: **Resource diversity** (also called resource heterogeneity) pertains to whether a firm owns a resource or capability that is also owned by numerous other competing firms, then that resource cannot provide a competitive advantage. **Resource immobility** refers to a resource that is difficult to obtain by competitors because the cost of developing, acquiring or using that resource is too high. The resource based view of the firm suggests that an organization’s **human capital management practices** can contribute significantly to sustaining competitive advantage by creating specific **knowledge, skills and culture** within the firm that are difficult to imitate (Afiouni, 2007; Mata et al., 1995). In other words, by creating resource diversity (increasing knowledge and skills) and/or resource immobility (a culture that people want to work in), sustainable competitive advantage can be created and maintained. In order to create human capital resource diversity and immobility, an organization must have adequate **human capital management practices, organizational processes, knowledge management practices and systems, educational opportunity** (both formal and informal) and social interaction (i.e., community building) practices in place (Afiouni, 2007; Barney, 1991; Mata et al., 1995; Schafer, 2004).

Using J.B.Barney’s Resource based view (1991) and Michael Hammer’s fundamentals of BPR following framework is developed to create logically suitable bases for the resolution of organisational crises. Irrespective of the phase or stage of crises this frame provides flexible and dynamic guidelines to suggest the solution. This framework critically analyses the organisational resources and pursues SWOT analysis aided with rethinking and retooling to break stagnation within the organisation. In light of findings from rethinking and retooling of resources the

organisations people, process, strategies, culture, technology are modified and which forms a comprehensive re-design to facilitate crises resolution and establish crises management.



DISCUSSION AND CONCLUSION

Crises Management has attained central position in the global business scenario. Business firms strive to keep their assets safe from any sort of miss happening which is not an easy task to perform. Often, organisations are not able get to the origin of crises and thus plan superficially keeping in view the outcomes of crises. This whole process results in wastage of time and resources. The point of concern is that how to reach to the roots of the crises and manage them successfully. The study has taken opportunity to apply the principles of one the potent change

oriented technique that is Business Process Reengineering to achieve the above mentioned objectives. Through the review of secondary literature it has become quite evident that BPR principles can give satisfactory results in resolving crises within organisation. BPR is versatile tool but, it requires expertise to get implemented successfully and give satisfactory results.

From the study it is clear that Business Process Reengineering is a potent tool to dealt with the crises prevailing in the corporations. The suitability of the BPR in managing crises is its flexibility and diverse applicability. Business Process Reengineering tries to gauge into the fundamentals of processes, strategies, structure, human resources etc where the crises originate and thus there are better chances that these crises may be resolved with the use of Business Process Reengineering. Further, the study reveals that most prevalent causes of crises in business organisations are:

- Deficient resource utilization
- Process inefficiencies
- Myopic strategies
- Constraints in structure
- Partial analysis of business environment.

Business Process Reengineering critically analyses the core business processes, procedures, strategies, structure, so that deficiencies are nullified from the domain of an organisation. Thus, it minimizes the emergence of crises to a greater extent by following error proof analyses and subsequent constructive measures which subvert resources and form the bases for crises management. Business Process Reengineering follows an inside out approach and undertakes a complete SWOT analysis of most crucial aspects of organisation which become the source of crises if unnoticed. One of the merits of BPR is its comprehensiveness and inside out approach these feature enable firms to undertake a fare appraisal of the organisation. The challenge is hidden in the fact that how to rightly implement the principles of Business Process Reengineering to make a it a perfect solution for crises. For this purpose an extensive research is to be carried out in and outside the organisation to get right picture of various aspects and resources of organisation.

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Organizational practices

Ethics – a priority within the 21st century's organizations

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Abstract

Purpose *– The purpose of the paper is to present the entrepreneurs' perspective with respect to the ethical behavior within their organizations.*
Methodology/approach *- A qualitative research using face to face investigation, in order to have a better control over the interviews – the research's instrument.*
Findings *– 72% of the investigated organizations have good internal relationships. Most of the interviewed entrepreneurs consider that the relationship with the internal partners and competitors are unfavorable (40%).*
Research limitations/implications *– The number of entrepreneurs that have been interviewed is 25, which does not allow an extrapolation of the results with a certain probability and a limited error.*
Practical implications *– As an organizational priority, ethics will not only influence the decision making process, but also the organizational culture. In order to achieve this goal, there has to be a process of alignment that will integrate business ethics in the mission, vision, strategy and objectives of the organization.*
Originality/value *– Most of the studies in the field of ethics are being done from its philosophical perspective, thus studying the business aspects of ethics is really important, considering that a great opportunity of today's organizations is represented by the potential of ethical values in defining their future.*

Key words: *business ethics, relationship, partners.*

Introduction

Ethics has become one of the priorities of an organization. In the 21st century, ethics is not a luxury, nor an option. Within the society there can be noticed selfish and irresponsible actions that make some poor and other rich [Brimmer, 2007].

Responsibility represents a ground basis in understanding organizational ethics. Greed can determine the leaders to lose their perspective and reasoning with respect to an unethical behavior.

As an organizational priority, ethics will not only influence the decision making process, but also the organizational culture [Kidder, 2001]. In order to achieve this goal, there has to be a process of alignment that will integrate business ethics in the mission, vision, strategy and objectives of the organization. Ethical values are mainly social ones, thus this process will involve relationships and it will define certain relational expectations. The purpose of an organizational ethical culture is the best thing of all possible. The internal relationships between the manager and the employees as well as the relationship with the clients, suppliers and the community are included. Thus the people are treated fairly, an ethical culture also appearing.

The hypothesis of the research

Starting from the issue that has to be studied, a series of hypothesis can be elaborated.

H01: The majority of the interviewed subjects believe that, from the ethical point of view, the relationship with the internal business partners and competitors are unfavorable
H02: The main cause for the unfavorable business relationships with the internal partners and competitors is the lack of education, including the managerial one.
H03: The main type of ethical aspects that have been solved in time and has an effect on within the organization has been the one related to the professional discipline.
H04: The majority of the interviewed persons believe that the relationships with the international business partners and competitors are good.
H05: The main cause of a good relationship with the international business partners and competitors is represented by the cultural differences.
H06: The main external ethical incidents are related to bureaucracy.

The instrument of the research

It is a descriptive research, which has used "face to face" investigation in order to have a better control on the conditions during the interviews. So, the operator could clarify a series of questions with a higher level of complexity, offering the subjects explanations and guidance, thus obtaining correct answers [Zikmund, 2002].

The interview protocol has been elaborated based on the objectives of the research. We can find open questions (addressed to the active process of the subject's memory, verifying and testing what is stable, consolidated in the behavior and knowledge of the subject) and closed questions (dichotomic, multidichotomic and scale responses).

For the elaboration of the interview protocol, the following basic principles have been respected:

- The question should be as short as possible, meanwhile clear and concise;
- The question should be elaborated in such a way that it is avoided a predisposition of the subjects to offer a certain answer;
- The ability of the subjects to answer certain questions has to be taken into account;
- The question should not be threatening or unpleasant.

There are introductory questions, crossing ones, filter, control and identification questions. The funnel technique has been used, meaning that there is a cross over from general to particular, the subject having to answer general questions at first and then particular ones [Bacali et al., 2010].

The interviews took place at the organization's headquarters, between June-August 2010, lasting between 30 minutes and 1 hour and 40 minutes. Each interview has been recorded, transcribed and finally analyzed.

The sampling

The size of the sample was 25 subjects. A non-aleatory sampling has been used, based on reasoning, which means that there were interviewed those members of the community that were considered the ones able to offer relevant information for the business environment, thus we cannot talk about a representative sample, the conclusions referring only to the investigated sample, without extrapolating them.

The results of the research

The conclusions synthesized after centralizing the answers related to the first analyzed hypothesis confirm, at the level of the investigated sample, the initial hypothesis. So, the relationships are considered to be unfavorable by 40%, representing 10 of the 25 interviewed persons.

The opinion concerning the business relationships with the internal partners and competitors, from the ethical point of view

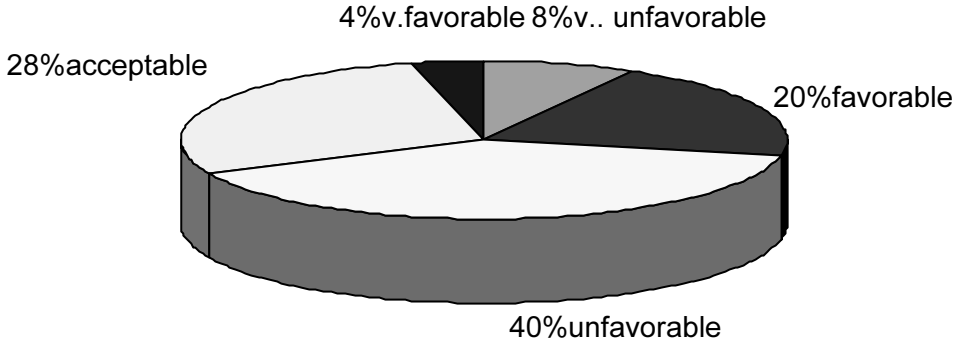

Fig. 1. The opinion concerning the business relationships with the internal partners and competitors, from the ethical point of view

H02: The main cause for the unfavorable business relationships with the internal partners and competitors is the lack of education, including the managerial one. In the decreasing order of the frequency of their appearance, the causes for these unfavorable relationships are presented below, being noticed that the main cause is inequitable competition:
- inequitable competition (5);
- contracts disruption (4);
- disparagement from the competitors (3);
- the lack of managerial education (1);
- the lack of communication (1).

The causes of the unfavorable relationship with the internal partners and competitors

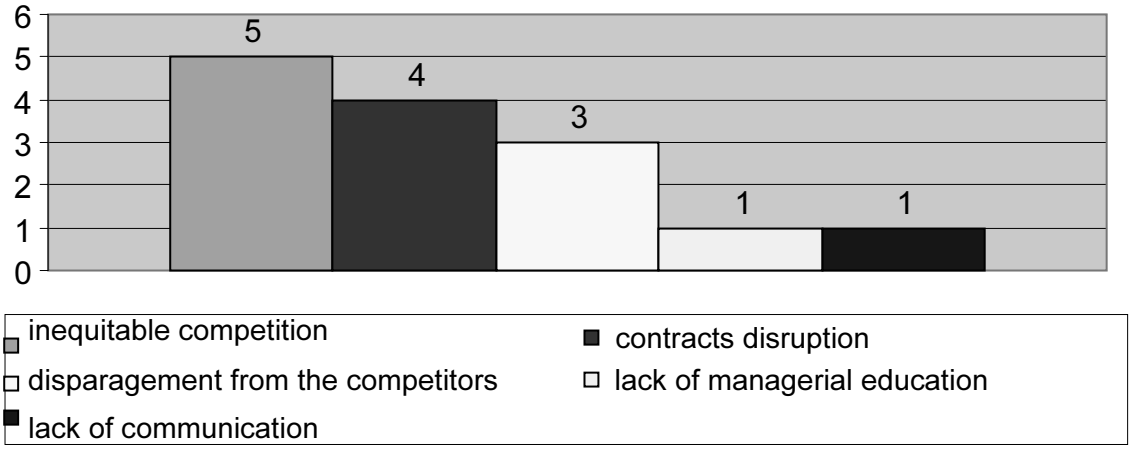

Fig. 2. The causes of the unfavorable relationship with the internal partners and competitors, from the ethical point of view

„The competition element in mass media is exclusivity. I do believe that the relationships are mainly correct. But, due to the fact that there is no law that regulates the profession of journalist, there are also totally unethical situations. There was a person working within a court of law as

well as for a newspaper. His brother was a TV reporter, thus they always has information within the court. That person was unethical from two perspectives: towards the institutions as well as the newspaper." [INT 23]

"An area with lots of problems is the sales area. The pressure of the target generates unethical behaviors. There are many situations such as: the consultant goes to a brokers company. The chief knows that if he tells him very few or too much information he won't be able to sell. So, there are consultants who only know the advantageous part of the product, so they say what they know. Others do it by omission, other on purpose. When the sales force is externalized it is difficult to have control. We have tried to check the quality of consultancy: I am not signing a contact unless I am talking to the client, in order to see that he understood the basic things about it." [INT 24]

"I have caught a competitor twice, with whom I have had good relationship until then, calling and telling me: "it is not worth to send an offer to that client, because he is not serious, he does not have any money" finding later on that the phone call was made from the client's office." [INT 1]

It has to be mentioned that 9 organizations, representing 36% of the total of 25 organizations in the sample state that they do not have foreign partners or competitors. From the ethical point of view, the relationships with the external partners and competitors for the other 64% organizations are good ones, for the majority of the interviewed persons who have such relationships.

The opinion concerning the relationship with the external partners and competitors, from the ethical point of view

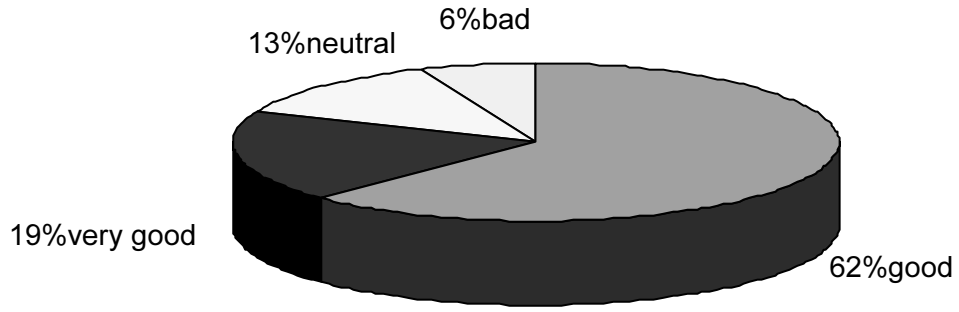

Fig.3. The opinion concerning the relationship with the external partners and competitors, from the ethical point of view

The main cause of the relationship with the external partners and competitors, from the ethical point of view is represented by the cultural differences, not bureaucracy, as it appears in the hypothesis.

"It is more difficult with the Italians at the beginning. When Romania was not a member of the European Union, they did not understand why we need so many papers for the custom. Later on I have sent them my diploma as a custom house officer and it started to be ok." [INT 6]

"It is a big difference. You are trying to be one step ahead. You are impressed by the way they keep their word, by correctness. From a simple confirmation e –mail: the date, the hour when something is supposed to take place….to the very thing itself which really happens then. We are in a free fall from the point of view of the foreign companies." [INT 7]

"Ethics has the most important place and there are no more sensibilities, affections, friends. Business is business and friendship is friendship." [INT 16]

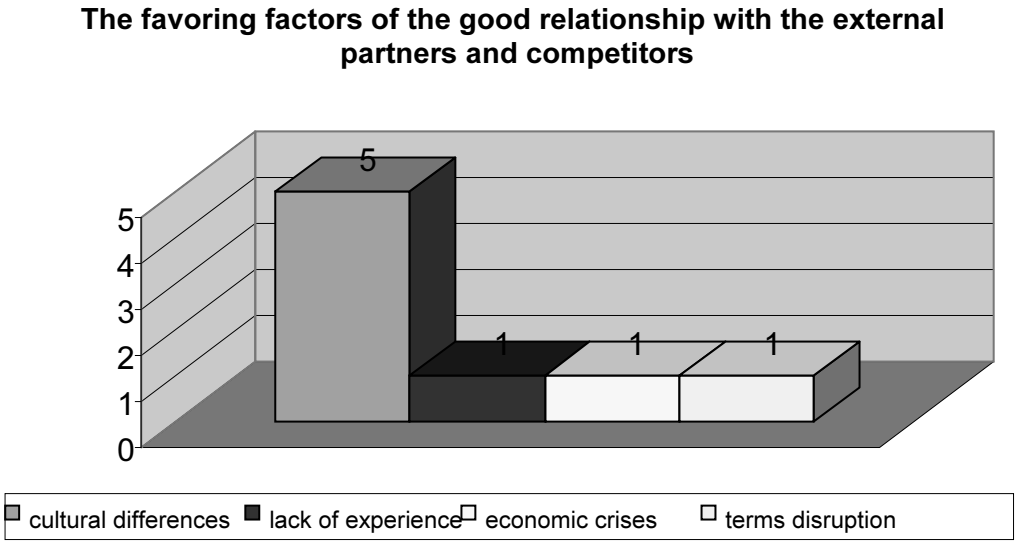

Fig. 4. The causes of a good relationship with the external partners and competitors, from the ethical point of view

"At the international level things are different. Our most recent relationship is with Austria. They are extremely punctual, they do not waste time. We are a team, and when there are some problems, they do not lie. If they cannot do a thing tomorrow, but the day after they can, it is exactly how it will happen." [INT 18]

The ethical incidents at the international level can be grouped, in a decreasing order of the frequency of their appearance as follows:

- contracts disruption (4);
- inequitable competition (2);
- the lack of communications (1);
- false accounting recordings (1);
- commissions (1).

"During the last period of time, due to the economic crises, a lot of things have changed. There was a flow that really functioned. All the steps took place in a maximum 24 hours since the order; you knew exactly what and when you will get. Now you have to ask for an answer, you get a wrong one and finally the merchandise that you receive is a totally different one than the one that has been ordered. We exchange at least 10 e-mails: I have ordered this thing, I have received 4 packages more. How about my products? Well, It has been sent. No, it has been not. It becomes a joke. The bills say one thing, the reality is another. This has never happened before." [INT 3]

"There is an aggressive marketing, my telephone numbers have been stolen, my clients the same, with promises of smaller prices. When an employee leaves, one or more clients disappear, but later on they usually come back." [INT 18]

"I had situations when the partners simply told me that they went banckrupt and they will not pay." [INT 19]

"In the construction field there are certain people who cash the advance money, blind the clients with coffees, car walks or misses and then leave and abandon their clients." [INT 22]

Discussion and conclusions

The paper has identified the entrepreneurs' perspective with respect to the ethical behavior within their organizations as well as the relationship with their internal and international partners and competitors. It also underlines the main factors that cause these relationships.

Notes

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About the lack of managerial power for organizational management

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Abstract

The organizational power must be displayed clearly since it is a main element of the management efficiency. Analysts and researchers have promoted for a long time the styles and aptitudes which competent organizational leaders should have, but now they disagree that individual features and adaptability are essential and try to find the sources of proper power use for a leader.

***Purpose** – Power can be defined as a property of relations between parties (individuals, groups, departments, divisions, organizations), where one party influences the actions of other parties. Organizational power is determined by its structure, rules, relations and by way the organization deals with its problems..*
***Methodology/approach** - In an organization power may represent efficiency and capacity - things that managers need for directing the organization towards its goals.*
***Findings** – The managerial power in an organization is the ability to mobilize resources (human and material) for reaching the organization goal.*
To find the real source of productive power, we should not look at the person but at the position occupied by that person within the organization.
The efficiency given by the power results from two types of skills: first is the access to resources, information and support required to solve the task and the second is the ability to persuade people to cooperate in doing what is necessary.
Both skills do not depend so much on the style and skills of a leader, but more on his position within the organization systems - in terms of defining the job and of his connections to other important people in the company.
***Research limitations/implications** – The paper presents the specific concept of managerial power, with different sources and types and its fundamental place within effective management processes.*
***Practical implications** To say that people need power to be efficient within the organization does not mean that we know where the power comes from or why some people in certain positions appear to have systematically more power than others.*
To find the real source of productive power, we should not look at the person - as is the case in conventional classifications of effective managers and employees - but at the position occupied by the person in the organization and its internal and external relations.
The organizational power sources of a manager are represented by three elements: supply, information, support.
The productive power is represented by connections to other parts of the system. Such systemic aspects of power have two sources - the specific activities of the position and the relevant connections of the position.
***Originality/value** – Knowing what to do to gain power and recognition of the classic behavior of the powerless can help managers to understand a number of common organizational problems such as:*

- *the inefficiency of first-line supervisors;*
- *the protection of the small interests and the stiffness of the professionals with operational responsibilities;*

shortages at senior management level; special case of women managers.

***Key words:** Organizational power, Organizational factors, Productive power*

Introduction

Mintzberg [Mintzberg 1994], defines power as „the capacity to affect the organization outputs". This doesn't refer to social, individual power, but to relations and event influence. Power may be defined as a property of the relations between parts (individuals, groups, departments, divisions, organizations), where one of them influences other actions.

The organizational power is determined by the structure, rules, relations, and also by the way of dealing with critical situations. The relations between parts, which influence the organizational power, are grouped as following: investors (financial, shareholders, owners), employees, clients, suppliers, community, environment. These groups are referred as stakeholders.

In the paper [Doval 2001] Winstanley suggests a model based on two coordinates:

- „criteria of determining power": to define purposes, objectives.
- "operational power": resource distribution (financial, human) etc.

The model supports the managers in front of stakeholders and make them reflect on the implications of the strategic process.

Power – element of the managerial behavior within an organization

"Power" is a word which covers one of the most controversed aspects of human relations. People who have the power contests this aspect, the ones who want it don't want to reveal this, while all people involved in power relations keep many things secret.

We hit the power concept, not generally, but to organizational management power with the purpose of identifying the power sources and types and its role as main element within the management efficiency.

In the paper called: *"Power: internal experience"*, David C. McClelland makes a comparison between oppressive power and productive power.

The organizational power may increase if it is shared between different members. We don't have enough information about new management models in order to state that the productive power may be extended to infinite or if there is a point where its efficiency starts to decrease. We know that sharing the power does not mean giving up or abandoning the power.

The organizational power must be displayed clearly since it is a main element of the management efficiency. Analysts and researchers have promoted for a long time the styles and aptitudes which competent organizational leaders should have, but now they disagree that individual features and adaptability are essential and try to find the sources of proper power use for a leader.

The access to resources and information, and the capacity to act quickly resulted in more achievements and in the transmission to employees of a larger volume of resources and information. Therefore, people tend to prefer the "influential leaders". The influence is the form of displaying the power in human relations, generally, but also, particularly, in human leadership. When the employees consider that their manager has influence on superior levels or outside the organization, their status is consolidated, his morale is higher, he is less criticized by his superiors and gets less opposition from the employees. The stronger leaders are the ones who share more authority, being too occupied to reward the talent and form a team where his inferiors have important roles.

On the other hand, the lack of power consists in an autocratical attitude without presenting the qualities of a true leader. In large organization, the lack of power is often the cause of inefficient management, unorganized and of forming dictatorial management styles, dominated by rules. The responsibility without power – the demand for results without disposing the resources to obtain them – leads to frustration and failure. The people who feel weak and without power and see

that their inferiors oppose resistance or disconsider them tend to use punitive forms of influence. If the organizational power "elevates" the company, the lack of power brings "corruption".

This is why the organizational power should have a better reputation. Instead of suggesting domination, control and oppression, the power could mean also efficiency and capacity – things that managers need to have in order to make the organization reach its objectives. In other words, the power in an organization is equivalent to the physical power: the capacity of mobilizing resources (human and material) for getting things done. The true sign of power represents the achievements, not fear, terror and tirany. Where the power is "on" the system is productive, where the power is "off" the system is not working.

Saying that people need power to be efficient in an organization doesn't mean that we know where the power comes from or why some people, from different positions, seem to have systematically more power than others. To find the sources of productive power we don't need to see the person – as it is done when classifying managers and employees by efficiency – but the role that person holds within the organization.

Capacities, organizational sources and factors which generate the power of a manager

The efficiency brought by power results from two types of capacities: the first is the access to resources, information and support needed to perform a task and the second is the capacity to determine the people to cooperate in doing what is necessary. Table 1 presents some forms the power of a manager is displayed (influence on superior levels and outside the organization).

Table 1. Forms of power displayed by a manager from an organization

To what extent a manager can:
• To obtain a favor for someone who has problems with the organization
• To get a proper position for a talented inferior
• To get approval for expenses over budget
• To get for inferiors above average salary raises
• To have own department problems discussed in organizational policy meetings
• To get quick access to superior decisional factors
• To get regular, often access to superior decisional factors
• To get quick information regarding decisions and changes from organization policy

Both capacities depend less on the style and the aptitudes of a leader, but more on his position from official and unofficial organizational systems – both regarding his position influence and his connections to other important persons from the organization. Even his capacity to determine his inferiors to cooperate is strongly dependant of his outside organization influence. People react better if their leaders appear to obtain more benefits for them from the organization.

We consider that the organizational sources of power for a manager are expressed by three flows:

- *The supply flows.* The outside influence on bussiness environment involves the fact that managers have the capacity to obtain the things the organization needs – materials, money, resources to be distributed as rewards, prestige.
- *The information flows.* To be efficient, managers need to be informed, official and unofficial.
- *The support flows.* Officially, the manager parameters need to consider the possibility of taking unusual decisions, of showing his decision freedom of his judgment. So, the managers need to know that they can take responsibility for innovation activities, which involve risks, without having to pass through a bureaucracy process of obtaining the ap-

provals from different hierarchy levels. Unofficial, the manager needs the support from other important persons from the organization, whose approval represents another resource brought to their department, showing the fact that the manager is “empowered”.

We notice that the productive power is displayed through the connections with other parts of the system. Such system aspects of the power have two sources – the specific activities of the position and the main relations of the positions with others:

- The power is achieved easier when the position within the organization allows the manager to have decision freedom (his activity is not based on routine, allowing the manager to have flexible, adaptable and creative initiative), recognition (standing out and observation) and importance (main role in solving difficult organization problems).
- The power appears also when the manager connects himself with sustainers (superiors who ensure the approval, prestige and support for his projects), same level managers (familiars who ensure reputation and information, rumors circulating always faster than official information) and inferiors (which may be formed so the managers to leave a part of their tasks to them).

When having the power, the managers find it easier to achieve things. Since they have the instruments, they are likely well motivated and they can motivate their inferiors too. There are higher chances for their activities to reach the goals and to bring them success. They can interpret things in a flexible way and may model the organizational policy to support different domains of activity, to deal with situations that may appear or to deal with quick modifications from the business environment. They earn the respect and cooperation which their power ensures.

The talents of their inferiors are rather resources than threats. Since powerful managers have so many connections and are oriented towards outside organization, they are inclined to leave the control of the inferiors by forming deputies which will act independently.

The managers who lack power have big difficulties. They lack resources, information and support to complete tasks, so they likely choose their main weapon – oppressive power: holding on other persons and punishing them through different threats.

In table 2 there are presented the main methods where power or lack of power is generated inside an organization.

Table 2. Methods of generating power or lack of power inside an organization

Factors	**Generate power**	**Generate lack of power**
Rules applied to the position	Few	Many
Predecessors from that position	Few	Many
Routine activities	Few	Many
Task variety	High	Low
Rewards for regularity / predictability	Few	Many
Rewards for unusual results / innovations	Many	Few
Flexibility regarding human resource usage	High	Low
Approvals needed for activities unrelated to routine	Few	Many
Physical location	Central	Peripheral
Current activity advertisment	High	Low
The relation between tasks and the domains with problems	Central	Marginal
Task orientation	Outside orientation	Inside orientation
Personal contacts at work place	Many	Few
Contacts with superiors	Many	Few
Participation to programs, conferences, meetings	High	Low
Participation to the activities of operative teams for solving problems	High	Low
Perspectives of promotion for inferiors	High	Low

Situations leading to lack of power inside an organization

We have stated above that the adaptability is not a main element in identifying capable leaders. However, the adaptability materialized in development and usage of power sources is essential.

Knowing what needs to be done to gain power and the recognition of the classical behavior of the people without power helps the managers to understand a number of familiar organizational problems which are usually assigned to improper persons:

- ineffective first line supervisors;
- small interest protection and the conservatorism of professionals with operative responsibilities;
- superior management crisis;
- special case of women managers.

Instead of condamning the persons involved in organizational management, we should analyze first their position. Certainly, the lack of power from a position might not represent the entire problem. Sometimes inefficient persons are to blame and they need to be reeducated or replaced. But when many similar situations appear, the problem might be the lack of power at organizational level. Then we should regard the managers who lack power as victims, not as guilty persons.

First line supervisors

Since the most important work relation of an employee is with his supervisor, when most talk about “company” they refer to their direct superior. Therefore, the behavior of a supervisor is decisive for the report between the common employee and his work and represents an essential link of the production chain.

However, it is hard to find companies completely satisfied of the results of their supervisors. Most consider that they exercise too strict control and do not instruct their people. In an industrial company, the workers were asked how they have learned their job, having a list of seven options, “from my supervisor” was the penultimate option chosen (only “company instructing programs” had a lower score). Also, it is considered that supervisors do not implement the company policies – for example they do not respect the right of every employee to have his results analyzed or to benefit of professional advice.

When the company is reorganized the supervisors often appear as negative factors, they are to blame for the inefficiency of the work program. They are considered “managerial failures”.

The problem affects both the supervisors from administration and the supervisors from production. In an important government agency, the survivors from the territorial offices were considered source of the problems related to the situation and transmission of information from and to the central office. “They have a negative attitude” said a superior “they turn the people towards the agency, they undermine the superiors. They highlight themselves complaining of the superiors, but also prevent the employees to obtain direct information. We cannot afford such an attitude to be transmitted to the territorial employees.”

Which is in fact the problem: the supervisors need more managerial instruction or the positions are occupied by unqualified persons ? None of the explanations are satisfactory. The problem is related mainly to the position – one which almost always generates lack of power.

First line supervisors are “persons in the middle” and this was considered the source of their problems. Acknowledging that the first line supervisors are caught between their superiors and lower level workers, we start to see the true dimension of the problem. Practically there is no organizational category lacking more power.

First of all, these supervisors might be in a turning point of their professional career. Even within the companies where this position was a step towards superior levels, now usually specific skills persons are recruited. Therefore, the transition from the operative to the supervising work usually

means a stop instead of a promotion. Since the employees do not regard the supervisors among the organization leaders, the supervisors may consider that they lack the connections needed to have influence. Indeed, the supervisors change sometimes so often so the workers feel that they can overcome with their skills any superior.

Secondly, even if they lack influence and support from superiors, the supervisors have to manage programs and explain policies which they didn't contribute to. In a program related to the human resources of a company, the supervisors were asked to develop advice interviews with the employees. However, they were not instructed for this task and they were not stimulated to get involved in this. It was just another obligation. Afterwards, the superior managers encouraged the workers to avoid the supervisors and put pressure on them. The human resource department told the workers to ask for these advice interviews as it is their right. Therefore, because of the pressure coming from below but instrumented from above, the supervisors felt their lack of power.

The people they lead may give the supervisor hard times in different ways. This happens often when the supervisor did arise from that group. The employees who didn't succeed doing this may be resentment and ironic towards their ex-colleague, and they believe that he tries to look like a boss. Often, the workers break the rules easy and let things get away.

Often, the supervisors are judged by rules and regulations, although they are limited regarding the disciplinary measures they can take. They often lack resources to influence and reward the workers, especially since the workers have their salaries and benefits given by other people, not by supervisors. The latter ones cannot control the events, they can only react to them. In a factory, for example, the supervisors complained that they couldn't control their activity: they couldn't accomplish their production plan unless they were efficiently supplied, but they couldn't influence in any way the persons responsible with supplies.

Another obvious example for the lack of support for first line managers, especially in large organizations, could be met in another company. Since they were asked if the contact with the managers from higher levels (who had the possibility to offer them support, information and cooperation) lowered their feeling of professional vulnerability and the number of work problems, the supervisors of five out of seven work units had positive answers. For them, this contact was indeed correlated to a stronger feeling of acceptance at his workplace and within the organization.

But the other two work units where the contacts were stronger, the people felt higher professional vulnerability. Further investigations have shown that supervisors from these units drawn attention only when they had big problems, otherwise nobody bothered to talk to them. For these supervisors, getting information from a superior was not a sign of recognition and potential support, but a danger signal.

It is not a surprise that supervisors often display the symptoms of lacking power: excessive control, scrupulousity and tendency to do themselves what needs to be done instead of instructing their workers (since their professional aptitudes represents one of the few things they hold). Maybe this is the reason for the existing barrier between supervisors and the higher levels of the organization.

Professionals from operative departments

Specialists from operative departments also work in conditions which may generate lack of power inside the organization. As backstage counselors, they need to share programs and make deals for resources, but if they don't consolidate their position within the organization power networks they will get les favors. They are regarded as useful helpers in accomplishing the main tasks of the organization, but non essential in daily activities. This lack of rights appears usually when the operative work assumes achieving administrative functions easily transformed in routine, which are outside the main areas of work and involve a small number of innovative decisions.

Furthermore, in some organizations, if the employees with execution roles do not have operational experience, they tend to have limited possibilities of moving from one department to another.

The hierarchy ladder of a specialist is short, and professionals have high chances to get stucked in positions as the ones who occupy less prestigious operative or administrative roles.

Apart from the people trained for important executive positions, the professionals from the operative staff may be employed due to their special knowledge or outstanding experience. However the organization leaders rarely pay attention to transforming them into general organizational resources. Lacking development perspectives and working alone or in very small teams, they are not capable to train other workers or to transfer them power. They lack an important possibility to accumulate power.

Sometimes, specialists from operative staff, and the ones involved in strategic planning, accountants, internal law advisors, communication specialists or management instructors, realize that their work tasks are assigned to other companies or the most important problems are solved by external advisors. The superiors consider that the operative departments are suitable for routine activities, but when the activities involve a higher risk or pose problems, external experts are called. This handling says something about their knowledge but also about the status of their function. Since the company can always hire short term talents, it is not clear if the superiors need their own people on these positions or if they consider this thing important. And since the professionals from the operative staff are often regarded as helpers in achieving the main tasks, their efficiency and contribution to the organization activity are often hard to measure. Therefore, the capacity of being noticed and the recognition of skills, but also the risks to take and their relevance may be refused for the employees from executive positions.

The employees from the operative staff tend to show their lack of possibilities in their attitude by creating groups inside the organization. They consider themselves as the only ones who can control their professional standards and evaluate their work. Sometimes they create false distinctions between them as experts (nobody can do what they do) and unprofessionals. But this thing keeps them apart from the organization activity.

One of the forms this kind of attitude displays is a combination of contempt, manifested when operative managers try to act in their professional exclusive domains, and subtle refusal of supporting the efforts of the managers. Another form is the struggle between groups of employees to gain control of “problem-domains”, the result being that the problem will not be solved. To deal with the lack of power, groups of employees try to obtain a superior status and draw borders between them and others.

When the executive positions are considered the final destination of the ones who reached the maximum competence level inside the organization – a proper place for the managers who are too old to learn other things but too young for retirement – the groups of employees become also conservative entities resistant to changes. Not taking risks make the groups oppose to anyone who comes with inovative ideas. In the past, for example, the human resource departments were sometimes the latest in the organization who heard of the innovations regarding the development of human resources or who were interested in applying them.

Superior level managers

Despite the fact that the main resources and responsibilities are concentrated at the top of the organization, the leaders may still lack power because of reasons that affects the other two categories analyzed above: lack of information and support.

We trust leaders because of their capacity of make things happen at higher levels, of creating possibilities for others and to attract resources to an organization. These are their power sources. But the influence outside the organization – credibility source for inferior levels – may be diminished together with environment change, taking out of the control of the leaders the connections between people and the conditions. Independently of the organization plans, the environment puts pressure on the leaders. What happens outside the organization may draw a leader’s attention and consume his energy. More damaging for an organization is the fact that decisions taken outside it may have serious consequences and may affect the power of the leaders and their interior operative style.

Let's think about the changes which took place in U.S.A. regarding the role of general managers. For example, within the context of the years 60's and 70's dynamic economy when the american technology still dominated the world markets, almost every important chairman or owner of an organization was regarded as a successful person. In Europe, national leaders dominated the protected markets from different countries. The easy success offered these leaders credibility inside the organization which also gave them the power to develop the company.

Lately, the industrial riot and the global competition reduced the power of the superior leaders especially in traditional branches who suffered massive changes. The capacity of organizational leaders to influence the external environment created new limits. A series of "new players" have appeared: arabian oil corporations, japanese industrial giants, institutional investors, corporate raiders, government authorities who open markets for competition or investigation commissions. And administrating regress or saturated markets is totally different to administrating growth. When leaders feel that they lose control, the control function from the organization is amplified.

Just like the lack of power from inferior levels is manifested by the existence of positions characterized by excessive routine, where the appreciation of results is oriented towards respecting rules and lack of change, the same goes for superior levels as well. Routine often removes non-routine. Task accomplishment becomes a problem of clarifying details. It looks easier to reduce massively the costs and announce redundancies than to take strategic decisions with the aim of raising the incomes, because the superior managers may order the reduction of costs but cannot order the clients to buy their products. Short term results bring immediate satisfaction and please the involved parts or other members with limited interests.

A strong leader is needed who is willing to suffer short term shortages in order to get the desired long term results. Just like first line supervisors tend to concentrate on respecting daily rules, the leaders tend to concentrate on short term fluctuations and miss the strategic objectives. They tend to focus immediately on solving problems, just like a general chairman of a production company has done when he decided that he is the only who can save a regression unit and ran into operative details – taking the power from experienced managers who could solve the problem. Such a situation is perpetuated by itself. The less long term objectives are taken into consideration, the more the leader feels to lack power and will try to prove that he is in control of the organization. The more he is involved in short term organization business, the more he loses control of the long term objectives, and the probability for him to be left without power is higher.

The credibility of the high level leaders is often shown by exceptional facts: exercise of discernment, creation, innovation, planning and unusual actions. But since common problems are easier to solve, claim less changes and others' consent, are good as short solutions and give a good image to every superior, the leaders avoid the danger by doing what their inferiors should do. Every manager may succeed in bringing all everyday problems to his own desk. This may cause delays even for managers who try to solve more difficult problems.

The top level managers need to isolate from organization routine in order to gain and exercise power. But this isolation may lead to another cause for the lack of power – lack of information. In a big corporation, top level managers who are locked in a big office, flattered by their inferiors, are frustrated by the distance that separates them to the action areas.

At top levels, the care for discretion and privacy is mixed with aloneness.

Therefore the leaders who are disconnected from the informational networks of an organization, do not understand what is going on in fact at lower levels and also the fact that their isolation may have negative effects. Too often top level managers elaborate good programs for new employees or announce the implementation of humanitarian policies (for example "participative management is our new style") which are ignored or watched with distrust because employees consider that the these programs come from ignorant leaders.

The lack of information has serious consequences when the managers are so isolated from the organization as they do not realize the imminent collapse – situation which can be met in case of

political leaders. Such an isolation is partially caused by the position in the organization and, sometimes, by the management style.

For example, leaders may create small groups of “phantom-doubles”, persons like them, which are their main sources of information regarding the organization who tell them only what they want to hear. The distorsion reasons are varied: key-helpers want to free the leader from burdens, think the same as the leader, want to protect their own power positions or the familiar syndrome “kill the messenger” determines the leader relatives to be reserved in giving him bad news.

Finally, just like inferior supervisors and workers need support to feel empowered, the same thing happens with top level managers. But in their cases it is not a matter of individual support, but one of support from broader sources of legitimacy from society. In case of top level managers the issue is not to be accepted by same rank people but the public and the members of other organizations to perceive the ideas the leaders promote as very interesting. If there is low public opinion support sources and the leaders are under fire or if the internal support is fragmented and the employees consider that their interests are better represented by opposing groups than organization leaders, then the lack of power appears.

When the objective is lost, the own system policy may reduce the action possibilities of the top level managers. Just as managing the regression generates an attitude more passive and reactive than managing the growth, same happens with mediating the conflicts of interest. When they cannot control what happens inside and outside the organization, most top level managers transform in regression managers and conflict mediators. None of these roles gives positive organization power.

When the top level managers lose their own supply, information and support links, they suffer from some sort of lack of power. They are tempted to snatch from the others any shred of power, and to reduce their action possibilities. The innovation loses terrain to control. There are established limits instead of targets. The financial objectives are fulfilled by reducing the administration expenses (personnel), not by giving workers the instruments they need to raise their own production capacity. From the high organizational levels come dictatorial statements, which spread further the mentality specific to the lack of power until the entire organization becomes apathetic, the workers concentrating on protecting what they’ve got instead of producing what they can.

Women managers

The traditional problems women managers are relevant for the way official and unofficial practice combine to generate lack of power. In time, women managers occupied positions which presume more routine and don’t stand in the spotlight. They usually have human resources leading positions, where they serve as deputies for the managers of the operative departments, without having hierarchical responsibilities, or they have as inferiors inflexible workers, so they aren’t in the position of taking risks which generate credibility or form its own team by pushing forward smart employees.

Such positions offer few favors, and tend to keep women apart from the main course of the organization. This lack of influence, combined with the enhanced difficulty which every “different” person faces when trying to break into the informational and support networks, made the women managers to have higher probability to lack power, compared to men managers, in any organizational situation. This is one reason why most women who gained power had often family connections which placed them in the organization structure.

The number of women managers who work as first line supervisors or as operative professionals is disproportionately, and they, just like men managers from similar situations are susceptible to lack power at organizational level. The behavior of other managers may contribute to the lack of power for women managers in different ways.

One of the methods other managers may lower the power of women managers is to unduly “protect” them, as putting her in a “safe position”, without giving her too many opportunities to prove what she can do and without giving her high difficulty tasks which may remark her. This protective

attitude comes sometimes from the “good” intention to give the woman the best chances to succeed (why giving her an advantage from the start ?). For managerial reasons, due to the fact that women may face situations which only men should deal with, some well intended managers protect their women-managers (“it’s a jungle, why sending her there?”).

This unduly protection may also mask also the fear of a manager to associate himself with a woman which may fail. A superior usually asks himself the following question when he wants to promote a woman: “What will happen when other managers will not be as benevolent to women as I am ?”. “I know I’d be in a mess, they would accept her more because of my recommendations than because of her skills. What if she doesn’t succeed ? My judgment will be contested”.

Unduly protection is relatively inoffensive compared to lacking of power a person by launching obvious signals regarding her lack of support. If a women’s superior or other managers listen to the critics regarding her and show that they are worried by every negative comment, thinking that she is to blame, then those managers will help her undermining. If managers tell others that they are worried about a certain woman employee or that they want to test her, it means that they invite others to search for proof of her inadequacy or failure.

Moreover, people think that they can avoid women because they “have to be not informed” or because they “do not know profession”. Even if they can be respected for their competence and knowledge, it doesn’t mean that women are regarded as overcoming the position requests. However, it is possible that this is a historical truth since most women reach the top as “outsiders”, not through the usual road.

Also because until not too long ago men felt uncomfortable when meeting business women (business clubs didn’t accept women), they tended to meet them for unofficial discussions. Any person, man or woman, without organizational experience and lacking “inside information” sources will find out that his/her information possibilities are limited.

Finally, when women obtain some kind of power, it doesn’t mean that they could transform the personal credibility into organizational power base. In order to create a network of supporters based on her influence, it is necessary for the person to share power, so the other managers and inferiors to have the authority because of the connections to that certain person. Traditionally, neither men nor women consider that they are able to support others, even if they are capable of results on their own. Women are regarded more as beneficiaries than as suppliers of support.

As more and more women prove their competence and try to promote youngsters, this situation may change. Although women managers make specialists ask themselves more about the method they can use the mentor, supporter or manager networks than the way themselves support others and use their own resources for others’ benefit.

The opinion about managers depending on the power they have helps us to explain two common stereotypes about women and organizational management: nobody wants to have a woman as boss (although studies show that most had positive experience with women bosses) and the reason why nobody wants to have a woman as boss is that “women are too authoritarian, formalistic and bordered.

The first stereotype basically explains that the power is important for a leader. On base of the preference for men stands the presumption that, due to the distribution of women within the organizational leader position, it is more possible that men instead of women to have more chances to gain power and distribute it to others. Similarly, the stereotype of the “authoritarian boss” is a perfect image of lacking power. All those features are also characteristic for men who lack power, but for women there is a bigger probability to lack power because of circumstances mentioned above. Women who have power in an organization are just as efficient as men.

A series of interviews done with 6000 managers from banking area have shown that when a woman displays mean features, characteristic for their lack of power, people think that their behavior is caused by the fact “she is a woman”. When a man has the same behavior, the differ-

ence is huge: people think that it is style and characteristics and consider that he is not fit for a manager job.

Possibilities of extending the organizational power

We must not consider that the people from the three hierarchical levels presented always lack power, however, they are sensitive to the common conditions which may contribute to losing power. In table 3 there are presented the most usual symptoms of lacking power for every level and also some typical causes of that behavior.

We mention also the difference between the outstanding concentration of economical and political power from large corporations and the lack of power which may overwhelm even the ones who hold the highest positions in these corporations. What grows together with the advance on the hierarchical ladder is not the productive power but the power to punish, stop, reduce, fire employees without having to worry about consequences. It is that kind of power – oppressive power – which often turns into corruption.

The lack of ways for preventing negative social and individual effects determines the government to consider that empowered persons must be surrounded by constraints, regulations and laws in order to limit their use of authority. But if the oppressive power corrupts, the same thing happens with the lack of productive power. In large organizations, the lack of power might be a bigger problem than the power itself.

Some knowledge could be transferred from the economic field to the organization and management fields. The capital investments in factories and installations are not the only solutions for raising efficiency. The nation and corporation production capacity grows if the knowledge base improves. The men who have the necessary instruments, information and support for taking grounded decisions and act quicker may often get more. By empowering others, a leader doesn't lose authority, he can even enlarge it – especially if the entire organization gets better results.

Table 3. Common symptoms and causes for lack of power for three key positions of an organization

Position	Symptoms	Causes
First line supervisor	Strict supervising, based on respecting rules	Routine, working „by the book", with low control of the supplies
	Tendency to make things on his own, blocking development and low information for inferiors	Limited information lines
	Averse inferiors, with low efficiency	Limited promotion or implication perspectives for himself and inferiors
Operative working professionals	Defending his territory and control of information	Current tasks are considered outside the „real tasks" of the operative workers
	Professional retreat	Blocked professional careers
	Opposition conservative to changes	Easy replacement with inside experts
Top level managers	Concentrating on internal efficiency, short time results, „punishments"	Uncontrolable supply lines because of environment changes
	Dictatorial up-down communications	Information communication lines blocked or limited, regarding the inferior levels of the organization
	Retreat to the comfort offered by the deputies with similar opinions	Support lines reduced because of the doubts regarding legitimacy (for example, coming from the public opinion or special interest groups)

This analysis leads to conclusions opposite to those we find intuitive, tautologically speaking, the low power people's problem is that they lack power. People who lack power are usually the last ones anyone wants to give them more power as they fear of wasting or abusing it. But these

people are usually the ones who may benefit most from a power injection and whose behavior might change if they were offered options.

Also, if the managers who lack power were encouraged to share a part of the power they still have, this would increase. However, only those managers who are certain of their outside organization power – with their supply, information and support flows – may see the empowering of their inferiors as a gain, not a loss. The two sides of power (gaining and offering it) are strongly connected.

There are a few important lessons here, both for inferiors and for the ones who want to change the things within the organization, managers or change agents. Instead of opposing resistance and criticizing a leader who lacks power, thing which only amplifies his sensation of lacking power and his necessity to gain control, the inferiors could help that leader to become more powerful. Managers could increase the efficiency of the production islands from the organization, not only through people training and instructing, but also through structural solutions like amplifying the supply and support flows.

Similarly, the organizational change agents who desire a new program or politic to succeed should ensure that the change does not imply an organizational level to lack power. When we make changes it is wise to ensure that the key-persons one or two levels above us and the ones from the connected positions are involved, informed and taken into consideration properly, so the program can also serve to consolidating their power feeling. If this kind of implication is not possible, it is better to get those people out of the area, instead leaving behind a group of people who were dispossessed of power and could oppose resistance and undermine the program.

Of course, sharing the power means educating the people in accordance with its new definition. But words are not enough, the managers need to really experiment a new leadership.

We present below the lessons a professional training manager of a company has learned by passing to a participative management, oriented to teamwork, based on sharing power.

“Get used to involve inferior managers to the decision and approval process. But don’t give up your position ! Tell them what you expect and where was your starting point. Do not try to create a “democracy” of workers with just one manager. Make the managerial hierarchy to work for you.

Don’t get discouraged and don’t quit. Try to not change your view just because one day everything goes bad. Be open-minded: talk to people and tell them what you feel. They will want to put you back on track and will do something for this to happen – as they will not want to see a strict manager. Your inferiors will determine you to behave more like a boss, however, they want to see others held responsible for what happened.”

Normally, people need to have power first so they can learn how to share it. Usually, it is not enough for managers to be urged to change their managing style. In a big factory producing electronics, the first line supervisors were the source of multiple complaints from top level managers, as they were considered a major obstacle in raising the unit efficiency but also to be insufficiently qualified employees. As a result, the human resources employees have developed two pilot-programs for raising the efficiency of the supervisors. The first program was based on a qualification and training traditional model with the objective of teaching the participants what success supervisors do. The second program was meant to give them power, influencing directly their flexibility, the access to resources, the connections with the top level managers and their work control.

After collecting data from supervisors and their inferiors, the team in charge of the change planned meetings where all supervisors were given instruments for elaborating action plans regarding the transmission of data to their inferiors and for cooperating in trying to find solutions to the stated problems. Afterwards, apart from the usual organizational practice, there were formed operative groups of supervisors to conceive new systems for solving their work problems but also the professional problems of them and their inferiors. The operative groups were awarded budgets, consultants, they were ensured to be represented in a committee of coordinating a project of

the organization together with higher level managers and they were given the freedom to define the nature and scale of the changes they wanted to do. Basically, they got opened supply, information and support flows.

As the operative groups progressed with their work, the company leaders were convinced that the desired changes regarding the efficiency of the supervisors took place much faster because of these structural power modifications in comparison to the usual management courses, so they gave up the conventional training. The pilot groups not only developed new useful procedures for that company, amazing many times the top level managers with what they knew and could do, but, more important, they have learned to lead their workers better.

More supervisor groups decided to involve some workers in their activities, as they could see now from their own experience the benefits of involving their inferiors in solving the work problems. Other supervisors started to experiment methods of applying “participative management”, offering their inferiors control and higher influence without giving up their authority.

Soon, “problem supervisors” from the “most unsettled unit of the company” obtained the highest performance qualifications possible, being considered models for those who were in charge of managing the production activities. Sharing the high level organizational power made possible the productive use of power at lower levels.

Many will ask why companies do not choose these strategies of sharing power. There is a set of standard answers: giving up control represents a threat for those who fight to obtain it; people don’t want to share power with those who are inferior; managers fear that they will lose their place and their special system privileges; “predictability” is often considered to have a higher organizational value than “flexibility” and so on.

However, on the head of the list is the skepticism regarding the employees’ capacity. Lots of modern bureaucracy systems are projected so they reduce to minimum the dependency of human intelligence, transforming in routine most of the decisions. This is the reason why the top level managers are really surprised when people who execute routine activities may take complicated decisions or can smartly use their resources.

In the same company producing electronics, at the end of a quarter, the pilot groups of supervisors were asked to report to the leaders their results and further plans in order to get approval for their funds. The operative groups were well prepared and the leaders were surprised. In fact, they were so surprised so they interrupted the presentations with compliments, observing that the supervisors can easily perform difficult work activities.

At first the supervisors were flattered. Such praises from the leadership were a sign of favorable response. But when the initial enthusiasm ended, many of the supervisors were unsatisfied. They considered that excessive praises were proof that they were looked upon by the top level managers: “They didn’t consider us capable of working ? They didn’t imagine that were able to do this work ?” asked one of them. “They considered us a bunch of fools. No wonder they have given us so limited tasks”.

Regarding these supervisors, their capabilities always existed, although sometimes in latent form. As people they didn’t change – only the power they had inside the organization.

Conclusions

1. Instead of suggesting exclusively domination, control and oppression, the power may represent efficiency and capacity – things which every level managers need to turn the organization towards the proposed objectives. The power inside an organization is similar to the physical power: it represents the capacity to mobilize resources (human and material) and get things done.

2. Saying that people need power to be efficient inside an organization doesn't mean that we know where that power comes from or why some people, from different positions, seem to have more power than others. To find the real sources of productive power we don't need to see the person – as it is the case for conventional classifications by the efficiency of managers and workers – but the position that person occupies within the organization and his internal and external relations.

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Societal Culture Dynamics in Romanian and Polish students' Mind

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Abstract

Purpose: *identifying signs of harmonization between the "average" future manager, when assessing the cultural practices and developing the ideal value system in their societies.*
Methodology/approach: *Cultural practices and values are assessed with a Likert scale on the nine dimensions used by GLOBE (Global Leadership and Organizational Behavior Effectiveness) international research project. 732 Romanian and Polish students in business and engineering were surveyed in 2008 and 2009.*
Findings: *Similarity in perceiving the societal Future orientation practice. Similarity in expectations to diminish Power distance, increase Performance orientation, In group collectivism and Gender egalitarianism. All the other societal practices and, respectivelly, expectations record statistically significant differences. Beyond some signs of harmonization, the cultural orientation of Romanian and Polish future managers will differ in many regards.*
Research limitations/implications: *broaden the body of knowledge about the cultural harmonization between the former communist countries joining European Union.*
Practical implications**:** *dissemination of our empirical findings among active managers, researchers, academic staff and management consultants may contribute to improving management training of students, as well as the management practices in investigated countries.*
Originality/value**:** *first empirical research on compared countries.*

Key words: *societal culture, Romania, Poland*

Introduction

Although much has been written about the transition in Central or Eastern Europe, little is known about the societal values trends, including cross country comparisons in this part of Europe, after the falldown of Iron Curtain. Our study enlarges the existing literature in the field, comparing Romania and Poland. It helps in understanding if the preferences for culture dimensions change as the generation of managers change, provide better insight as to which culture dimensions are affected by the economic and political transformations (change) and which are more enduring in peoples mentality (stable).

Twenty two years ago, both countries turned to the market economy after nearly 50 years of communist regime. Both shifted towards democratic institutions, mechanisms and laws and joined European Union (in two separate vawes) and NATO. Could be assumed that these radical transformations had influenced the young generation's value system, leading to a certain degree of harmonization in this respect. On the other hand, the specificity of historical, economic, social, religious etc. factors might help to preserve certain values in each society.

Based upon GLOBE international research project dealing with top and middle managers, GLOBE STUDENT project was initiated (2008)*, aiming at targeting *future* managers. One of its

* The project is co-ordinated by R. Lang from Chemnitz University of Technology. The data for Poland has been collected by Schaefer Renata (Wyższa Szkoła Bankowa, Poznan)

objectives is to determine the *profile* of future managers from their perceptions on and expectations about societal culture dimensions point of view.

The reason we have chosen to compare Romanian sample with the Polish one is the scientific curiosity of finding out if there are signs of cultural harmonization of Romania with a previous communist country, an older member of European Union, and the only one European country having sustained positive economic growth during the last economic crisis. In doing so, our study will hopefully broaden the body of knowledge about the cultural harmonization in European Union. Specifically, we will answer the following *research questions*:

1) Which are (if any) the significant differences between Romanian and Polish students' perceptions of current societal practices?
2) How do (if) Romanian students' societal values differ from those of Polish students?

Theoretical support

Our study shares the culture definition used by GLOBE international research project: "shared motives, values, beliefs, identities and events that result from common experiences of members of collectives and are transmitted across age generations" (House et al., 2002: 5). GLOBE project distingwishes between *practices* (*as it is*) and *values (as it should be).* The values predict future cultural practices, as well as leadership features and behaviours in a culture (House et al. 2002).

As the above definition show, the value system of a society is relatively stable. The values which are resistant to change are those "high in centrality, pervasive, and supported by powerful sanctions and high consensus and supporters of these values hold positions of high prestige and authority" (Williams 1979: 34). Accepting that values are resistant in time, we also are aware that they change when the individuals enter and experience their life cycle stages (Mead 1998, Helson, Jones, Kwan, 2002) and when one generation succeeds another (Keating et al., 2002: 637). Comparing the Romanian and Polish prospective managers view on culture, our findings are helpful in imagining the societal culture in its *dynamics* and in identifying signs of *convergence* in the young generation cultural expectations.

The assessment of culture in GLOBE project is based upon a psychological/behavioral approach, which assumes that shared values are embeded in behaviors, policies and practices. To measure these values and behaviors, GLOBE researchers use nine *dimensions*: 1) Uncertainty Avoidance; 2) Future Orientation; 3) Power Distance; 4) Collectivism I (Institutional collectivism); 5) Humane Orientation; 6. Performance Orientation; 7) Collectivism II (In-group collectivism); 8) Gender Egalitarianism; 9) Assertiveness (House et al., 2002: 5-6). As the GLOBE researchers acknowledge (House et al., 2002: 6), the first six dimensions are rooted in cultural dimensions defined originally by Hofstede (1980), Future Orientation and Humane Orientation from Kluckholn & Strodtbeck (1961), Putnam (1993) and McClelland (1985), while Performance Orientation from McClelland (1985). Short definitions of these cultural dimensions are given in GLOBE related books (House et all, 2004, Chhokar et all, 2007).

Methodology

Questionnaire: GLOBE student project uses the section 1 (*as it is*) and, respectively, section 3 (*as should be*) GLOBE research *Beta* questionnaires (House et al., 2004) with some modifications required by the subjects' nature (students). Scales in section 1 ask the students to value *the way our society is* (practices), while scales in section 3 ask the students opinion about *the way our society should be* (values) using a seven points Likert scale. The culture dimensions as used in GLOBE and examples of questionnaire items are presented in Table 1.

Table 1. Sample items of the societal culture dimensions

Cultural dimension	Nr. of items	Examples of items and scales*
Uncertainty avoidance *practice (society as it is;* section 1 in GLOBE Beta questionnaire)	4	1_1: In this society, orderliness and consistency are stressed, even at the expense of experimentation and innovation (1= strongly agree;…7= strongly disagree) 1_16: In this society, most people lead highly structured lives with few unexpected events (1= strongly agree;…7= strongly disagree) 1_19: In this society, societal requirements and instructions are spelled out in detail so citizens know what they are expected to do (1= strongly agree;…7= strongly disagree) 1_24: This society has rules or laws to cover (1= almost all situations;….7= very few situations)
Future orientation *value (society as it should be;* section 3 in GLOBE Beta questionnaire)	4	3_3: I believe that people who are successful should (1= plan ahead;…7= take life events as they occur) 3_4: I believe that the accepted norm in this society should be to (1= plan for the future;…7= accept the status quo) 3_8: I believe that social gatherings should be (1= planned well in advance/2 or more weeks in advance/;….7= spontaneous/planned less than an hour in advance) 3_30: I believe that people should (1= live for the present;…7= live for the future)

* except 3_30, all the other items are reverse scored when computing the mean scores of the cultural dimension
Source:
http://www.thunderbird.edu/wwwfiles/sites/globe/pdf/GLOBE_Phase_2_Beta_Questionnaire.pdf;
http://www.thunderbird.edu/wwwfiles/sites/globe/pdf/Syntax_for_GLOBE_Leadership_and_Culture_Scales.pdf

Sample: 732 students in business (320) and engineering (412), attending bachelor and master degree, out of which 427 Romanians (166 business; 261 engineering) and 305 Polish (154 business; 151 engineering). Respondents consists of 51 percent male and 49 percent female students. The surveys were carried out in either 2008 or the first half of 2009. Business and engineering students were chosen based on the assumption that the future generation of middle managers will mostly come from these two fields of study.

Data processing: SPSS 17. Descriptive statistical analysis was carried out separately for Romanian and Polish sample. In comparing Romanian sample with the Polish one, the *independent samples t-test* was used, with 0.05 significance threshold.

Findings

The research findings concern: 1) differences between Romanian and Polish students' perceptions of current cultural *practices*; 2) differences between Romanian and Polish students' *expectation*s concerning societal values.

Differences in perceptions: Romanian versus Polish students

Table 2 displays the significant differences between Romanian and Polish sample with respect of perceptions of societal culture *practice*s, while the differences between the mean values of perceptions on cultural practices in Romania and Poland are displayed in Figure 1.

Table 2. Significant differences in cultural practices: Romania versus Poland

Cultural practice (*society as it is*)	**Romania**	**Poland**	**Absolut differences**	**t-test* (sig 2-tailed)**
Uncertainty Avoidance	3.49	4.00	-0.40	-8.550 (0.000)
Future Orientation	3.44	3.55	-0.11	-1.599 (0.110)
Power Distance	5.81	5.27	0.54	8.433 (0.000)**
Collectivism I (Institutional)	3.78	4.48	-0.70	-11.256 (0.000)
Humane Orientation	3.83	3.67	0.16	2.341 (0.020)
Performance Orientation	3.66	3.86	-0.20	-2.627 (0.009)
Collectivism II (in group)	5.13	4.84	0.29	4.982 (0.000)
Gender Egalitarianism	3.99	3.75	0.24	4.452 (0.000)**
Assertiveness	3.51	4.10	-0.59	- 9.987(0.000)

95% confidence; *two independent samples; ** equal variances not assumed

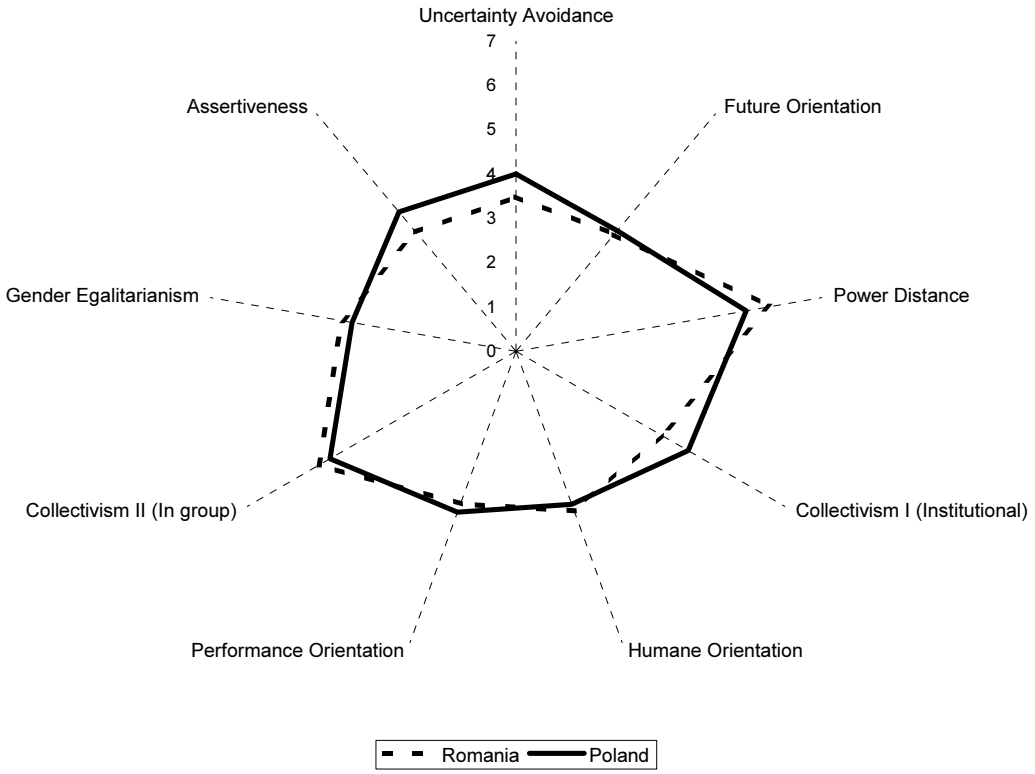

Figure 1. Differences in perception of cultural practices: Romania versus Poland (mean scores)

T-test of differences between the mean scores (*two independent samples*) shows that the only one cultural practice which is perceived quite similar in both countries is Future orientation. We find that relevant differences are statistically significant for eight out of nine cultural dimensions. The computed two-tailed significance levels shown in Table 2 prove this conclusion, as eight differences are significant at $p < 0.05$ (Uncertainty avoidance, Power distance, Collectivism I, Humane orientation, Performance orientation, Collectivism II, Gender egalitarianism and Assertiveness). The Romanian future managers perceive existing cultural practices according to four dimensions (Power distance, In group Collectivism, Gender egalitarianism and Humane orientation) as present more decisivelly in their society than their counterparts in Poland. The Polish respondents perceive their society promote a much stronger Institutional collectivism, Assertiveness, Uncertainty avoidance and Performance orientation.

Beyond the relative similarity in the rather low Future orientation of both societies (mean scores bellow the scale midd point), it is hard to argue that existing Romanian cultural practices are quite similar to the Polish ones.

Differences in expectations: Romanian versus Polish students

The data in Table 3 summarized the significant differences between the most appreciated cultural *values* by the future managers and leaders in the Romanian and Poland and the *spider* in Figure 2 reveals the differences between the average score of cultural expectations (values) in Romania and Poland.

Table 3. Significant differences in societal values: Romania vs. Poland (mean scores)*

Cultural values (*society as it should be*)	**Romania**	**Poland**	**Absolut differences**	**t-test (sig 2-tailed)**
Uncertainty Avoidance	5.10	4.70	0.4	6.580 (0.000)
Future Orientation	5.23	4.69	0.54	7.530 (0.000)
Power Distance	2.65	2.76	-0.11	-1.872 (0.068)
Collectivism I (Institutional)	4.94	4.23	0.71	11.833 (0.000)
Humane Orientation	5.41	5.21	0.2	3.376 (0.001)
Performance Orientation	5.89	5.84	0.05	0.856 (0.392)**
Collectivism II (in group)	5.70	5.66	0.04	0.624 (0.533)
Gender Egalitarianism	4.42	4.42	0.00	-0.043 (0.965)**
Assertiveness	4.01	3.20	0.81	13.339 (0.000)**

*two independent samples; ** equal variances not assumed

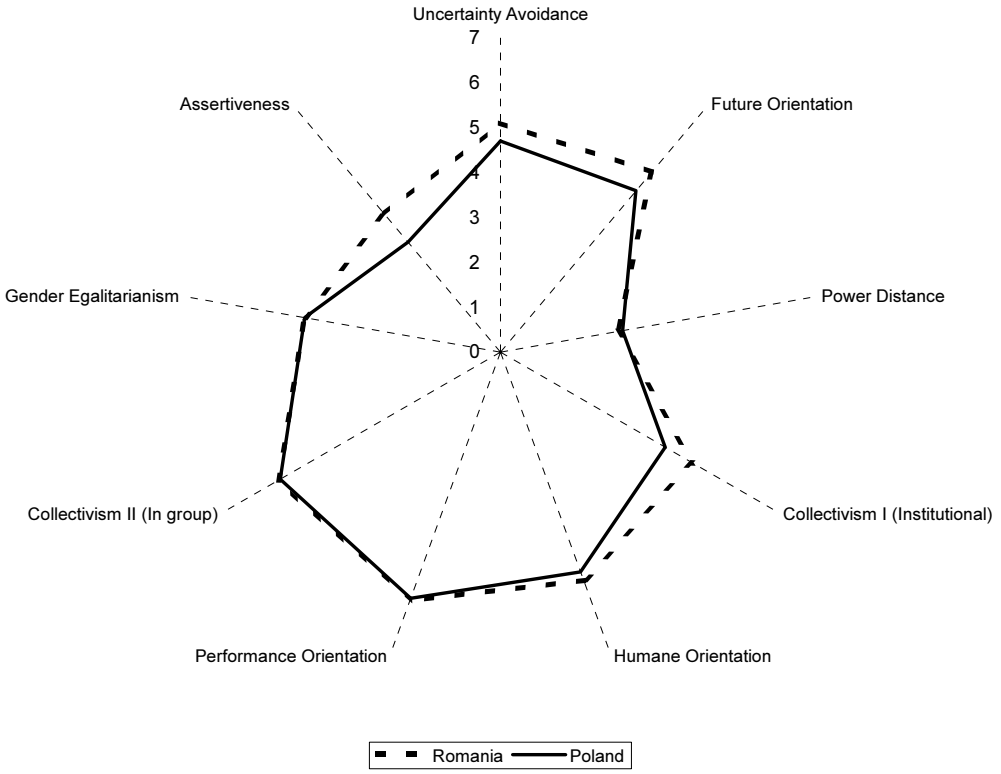

Figure 2. Differences in perception of cultural practices: Romania versus Poland (mean scores)

The computed *p*-values in Table 3 offer ground for predicting that the value system the next generation of managers will use has points of convergence, signaling a certain culture harmonization in the near future in the compared societies. Both countries will have similarities in four out of nine cultural dimensions: Power distance, Performance orientation, In group Collectivism, Gender egalitarianism. Relevant differences are statistically significant for five out of nine cultural dimensions. The computed two-tailed significance levels shown in Table 3 prove this conclusion, as five differences are significant at $p < 0.05$ (Uncertainty avoidance, Future orientation, Institutional collectivism, Humane orientation and Assertiveness). In all of these five cases, Romanians have significant higher scores than their Polish counterparts.

If we compare the mean values in Table 2 and Table 3 we find out that both samples desire to diminish the Power distance and to increase their society's concern for Uncertainty avoidance, Future orientation, Humane orientation, Performance orientation, In group collectivism and Gender egalitarianism. The Romanian future managers also desire to increase the Institutional collectivism and Assertiveness (Polish students would like these two dimensions to be less stressed than are in today's societal practices).

The identified differences between cultural practices and values in both societies offer ground for arguing the next generation of managers and leaders will act to change the value system, to transform the displayed expectations in effective cultural practices. The lack of significant differences in the four above mentioned cultural values might lead to a conclusion that a certain harmonization of cultures of the compared countries could be expected in the near future. Still, with all the expected changes in cultural dimensions, cannot speak about a *complete* harmonization of culture in the two countries under study.

Conclusions

Our empirical research findings allow us to answer the paper's main research question concerning similarities and differences between Romanians and Polish *average* future manager's view on his/her societal culture.

1. At *practices* level, Romanian and Polish students in our sample are *similar* in the following aspects: a) they perceive their society as having high Power distance and In group collectivism (first and, respectively, second in the cultural dimensions ranking), relative low Performance orientation (sixth place in the ranking) and low Future orientation (lowest mean score); b) *T-test* of differences between the mean scores shows that the only one cultural practice which is perceived quite similar in both countries is Future orientation (both samples record mean scores bellow the scale middpoint: 3. 44 and, respectivelly, 3.55). The computed two-tailed significance levels (Table 2) show that the differences in all the other eight cultural practices are significant at $p < 0.05$. This findings confirm a replication of Hofstede's survey carried out in 2005 by Interact and Gallup Romania (Luca, 2005), which discovered a high level of Power Distance index (90) in Romanian society. It also confirms the empirical finding of a research performed on a sample of 216 actual Romanian middle managers, showing that the sample perceived a relatively high Power Distance (4.06 mean value) (Catana&Catana., 2011). As a conclusion, Romanian and Polish future managers cannot be seen as sharing similar perceptions on their societal cultural *practices.*

2. At expectations level, our findings show the Romanians and Polishs are *similar* in the following aspects: a) same ranking of the first three expectations: Performance orientation (highest mean score in both samples), In group collectivism, Humanism; same desire for a much lower Power distance in their societies (lowest mean scores); b) *T-test* of differences between the mean scores shows that four out of nine expectations do not record statistically significant differences (Power distance, Performance orientation, In group collectivism and Gender egalitarianism). These findings might reveal a certain *harmonisation* of cultures

within the compared countries in the near future. The computed two-tailed significance levels (Table 3) show that the *differences* in all the other five cultural expectations are significant at $p < 0.05$ (with the highest difference for Assertiveness).

3. Both samples display higher mean values for all nine cultural dimensions at *expected* level, except Power Distance in both samples and, respectively, Institutional collectivism and Assertiveness in Polish sample. This offer us the basis to expect that the next generation of managers and leaders will act to change itsr cultural environments. Still, the cultural orientation of Romanian future middle managers will differ in many regards from the Polish sample averages.

We are aware that our research findings have a few limitations, among which the assumption that business and engineering students will become a core part of the future population of managers. Beyond the limitations, we believe the dissemination of our research findings among active managers, researchers, academic staff and management consultants may contribute to improving the management training of students, as well as the management practices in Europe. Future research should focus on the role of subjects demographic characteristics (age, gender, field of study, major subject etc.) on the findings and on comparisons with other countries taking part to GLOBE student project.

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Values, Attitudes and Behaviours Specific to a Proactive Management Strategy to Deal with the Work Motivation Crisis in the Academic Environment

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Abstract

Purpose *– In the conditions of a severe motivational crisis at the level of the academic staff, amplified by the ongoing economic crisis, this paper proposes to outline a redirection of the traditional managerial strategies, based on the stimulating and inhibiting elements found to condition the individual's appetence for work.*
Methodology/approach *– An interdisciplinary pragmatic reference model, based on interpretative-constructivist methodological inter-conditioning, has been used, combined with the direct research method, by means of a questionnaire.*
Findings *– The capacity of the universities to select and maintain the intrinsic stimulation of their teaching staff was found to be harmed, thus generating the necessity to reformulate the managerial action directions, capable of dealing with the motivational crisis.*
Research limitations/implications *– Although the analysis was limited by using only multiple choice closed questions, and the conclusions have fructified subjective perceptions of the respondents, the valorisation of the "given" framework is relevant as it points out the peculiar motivational specificity of the academic staff.*
Practical implications *– An optimal managing of the motivations crisis have been proposed, by means of a proactive management strategy reverted towards humanism.*
Originality/value *– The confirmation of the formulated hypotheses has provided the "revelation" of the privileged status of an academic staff member who needs, beyond the public acknowledgment of his competence, the valorization of the specifically human attributes: vocation, devotion, commitment and, especially, charisma.*

Key words: *work motivation, locus of control, participative management.*

Introduction

In the framework of the ongoing economical crisis, the motivations crisis developed within the work process became a permanent topic for thoughts and interpretations. Correlated with various generating sources, the crisis is – in fact – the result of the attrition of the respect of the individual towards norms intercepted as objective representations of simple apodictic judgements. Such crisis can be interconnected with the disappearance of the traditional values: professional conscience, commitment towards work, personal engagement.

The risks of the internalization of a crisis philosophy – cultivating doubt and disorientation within mentalities – are developed and worsened on the background of the generalised perception of **work desacralisation**. Therefore it is necessary to avoid entropy as a tendency making chronic the disorganisation of the work climate. Such aspiration can be accomplished by identifying and implementing proactive management strategies capable of improving present vulnerabilities observed in the organisational environment.

Research Design and Methodology

The field selected for the analysis and investigation of the alteration of the work symbolic capital was the Petroleum-Gas University of Ploiesti. The case study performed tried to point out the motivational specificity of the academic staff – a socio-professional category drastically affected by the tribulations of the present economical, social and political background – contaminated by the crisis.

We have therefore dedicated our investigation to finding answers to the interrogation marks regarding the social dynamic of needs creation, the way in which the aims – means relationship affects the individual values system, and the part played by the perception effects – the frustration and satisfaction are not universal invariants of human nature, but relative data, amplified by the uniqueness of social subjectivity. The research problem constitutes a pressing necessity due to the motivational crisis that stimulates or imprints a defensive reaction at the level of the teaching staff attitude – translated at the limit by making useless their action capacity. This fact justifies the further strategic orientation for the crisis management.

The multifaceted approach of the stimulating or inhibiting factors acting within the educational process implies an interdisciplinary, pragmatic reference model with a synchronic development, based on interpretative-constructivist methodological inter-conditioning. The information has been collected by means of the direct research method: the used investigation instrument has been the questionnaire, applied to a significant number of the members of the academic staff from our University.

The sample dimension necessary for the research has been calculated using the simplified formula proposed by Bacali (2002, p. 34). According to the numerical size of the teaching personnel within the University of Ploieşti, 330 persons, and for a significance threshold of five percent, the sample dimension required for our analysis was found to be equal to 178 subjects. The subjects' selection aimed at a stratified sampling as a function of the didactical grade, investigating a representative fraction from each sample-segment.

The data have been collected in the period February – March 2011. A number of 190 questionnaires have been distributed, from which 147 valid forms have been returned. Figure 1 indicates the respondents' distribution according to the didactical grade, length of service in the University, and age.

The questionnaire structuring implied the focalisation of our interest on significant target-zones such as: extrinsic motivation, the frame of work valorisation, the system of professional values and expectations, the possibility of following and accomplishing the personal projects, the perception of the changes within the organisation. The eight multiple choice closed questions have successively allowed for the graphical representation of the answers distribution (shown in figures 2-9), followed by an ample interpretative analysis based on the hypothesis that the "reality" is build by means of the subjective interpretation of the interactions and conditionings between the elements of the real.

The achievement of our research was based on the following **hypotheses**:

1. In the academic environment, the appreciation granted to work is mainly founded on the intrinsic motivation, taking into account the content generating satisfaction of the activity performed.
2. A significant fraction of the teaching staff accuses the aggravating development of an external **locus of control**, due to the contamination of the professional parameters and organizational culture by the effects of the economic crisis.
3. The majority of the investigated subjects endorse the idea that money represents a value-instrument, whose importance is intensified in accordance with the quantum of the salary.
4. The lack of equilibrium between effort and reward is declared by a significant share of the sampled group (above 60 percent), an increased contribution having the fact that the pecuniary stimuli are precarious.

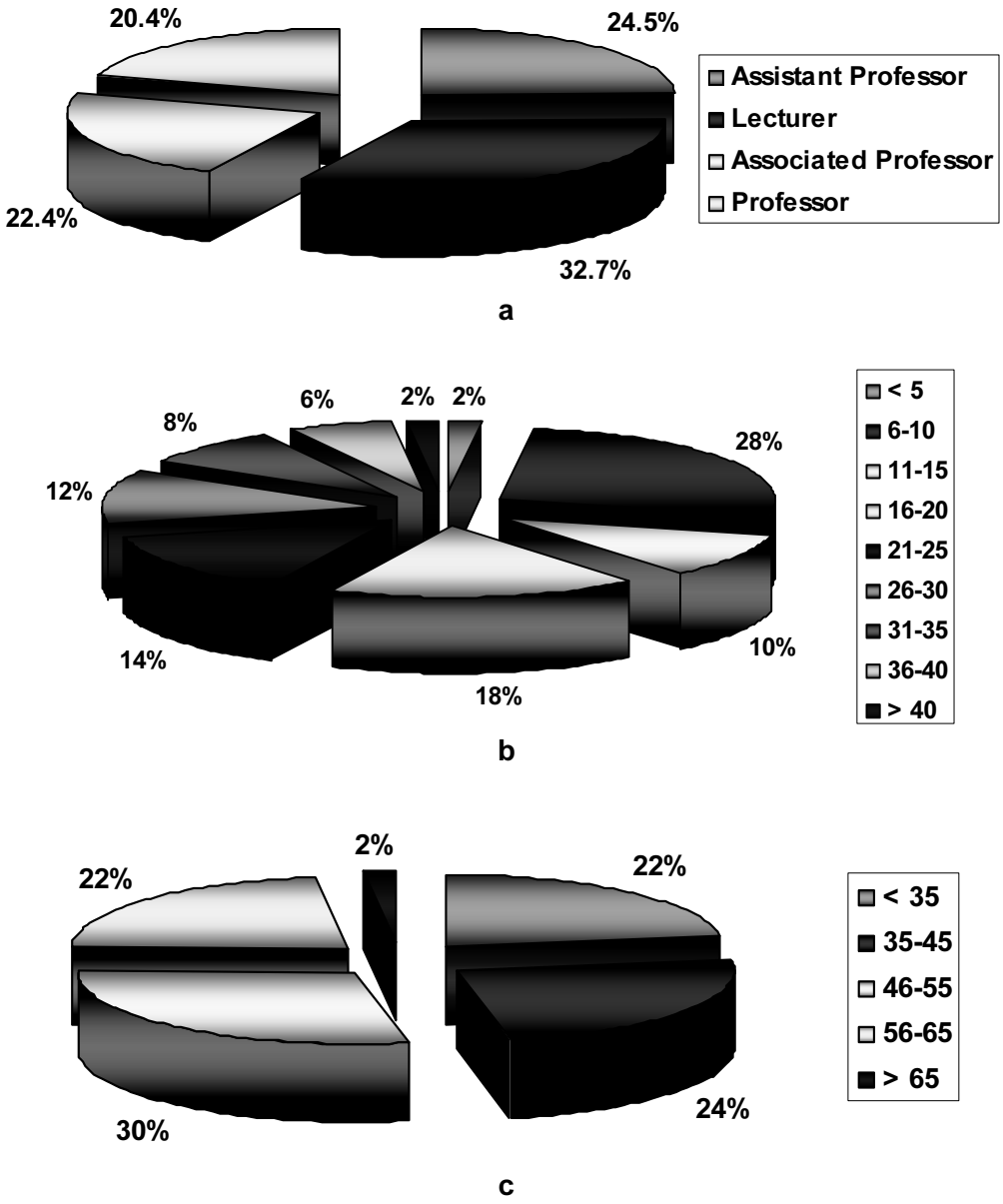

Figure 1. Distribution of the respondents according to:
a – didactical grade; b – length of service in the University (in years); c – age (years).

5. The difficulty to predict future, from the perspective of professional evolution, constitutes one of the present preoccupations manifesting at the level of an important fraction (above 50 percent) of the sampled group.
6. Changes are well tolerated at the level of our University, the majority of the academic staff being motivated in its implementation, being conscious of the necessity to introduce new performance criteria.

Responses Analysis and Findings

Using as argument the implications of the graphical representation from figure 2, which points out the importance and the intentionality of the work oriented toward the fulfillment of a certain objective, we observe the main tendency of the respondents (42.2 percent) to opt for the preponderantly expressive orientation to the act of working.

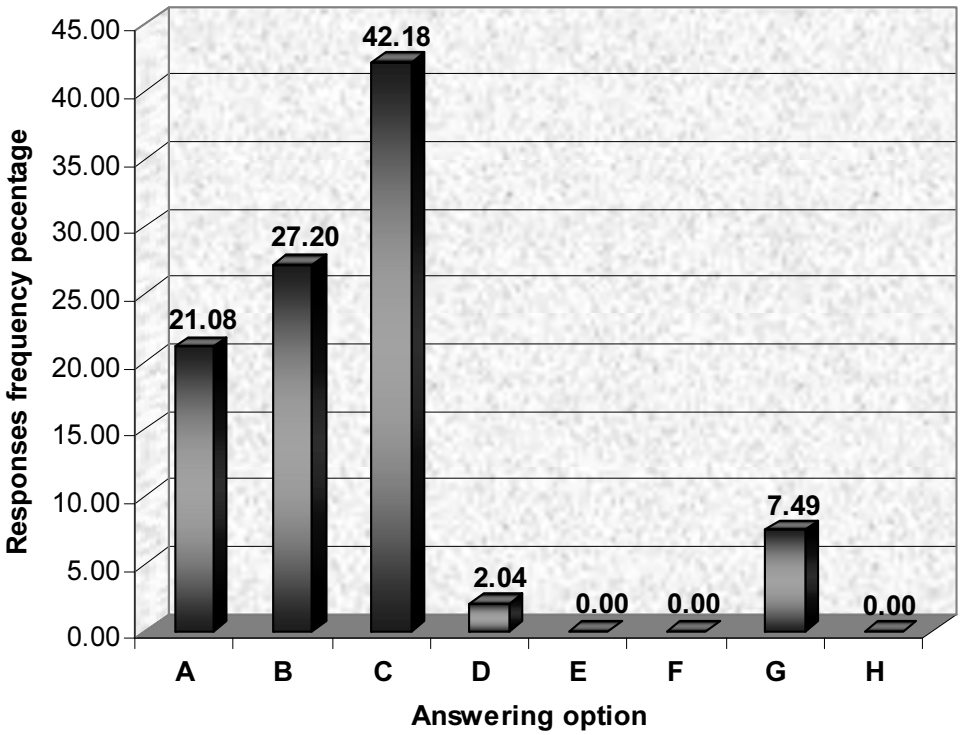

Figure 2. Responses distribution for Question 1: What is the importance that work has in your life ? A – an existential necessity; B – it motivates me from the point of view of professional fulfillment; C – a source of satisfaction due to the type of activity; D – a „luxury" (I benefit by other financial resources, but I need status); E – a secondary activity (deprived of any moral significance); F – a social obligation and constraint; G – it stimulates me (by the confirmation of my own value); H – it is totally unattractive.

Its identification with a climate propitious to the germination of intrinsic motivation is correlated to the necessity of obtaining professional fulfillment (27.2 percent), direction aimed at the superior motivation of self-achievement, but without provoking an annulment of the **instrumentalist orientation** rendered by imprinting – at the work level – of a character of **existential necessity** (21.1 percent). The avoidance – by lack of options – of the alternatives E, F, and H, which consider work a secondary activity, a social constraint or being totally unattractive, invalidates the hypostasis of a profound alienation of the individual toward its own activity, fact validating hypothesis 1.

This constitutes the framework for valorizing and practicing work, which impresses to the professional expectations of the respondents a peculiar specificity synthesized – based on the interpretation of figure 3 – through a **pre-eminence of intrinsic motivation**, transposed in the necessity to **acknowledge value in front of one's own conscience,** finding that furthermore confirms hypothesis 1.

Such central tendency (33.3 percent) undermines the artificially recognized position of money – as a universal motivator having priority – although, in the conditions in which it becomes insufficient due to the crisis conjuncture, we note a relatively important direction of appreciation of a future **economic security** (22.1 percent). However, we appreciate as being a sore point of the implications of our analysis the finding that a significant number of respondents (20.4 percent) perceive the **uselessness of the mental configuration of future selves**. Corroborated with the modest dimensions of the expectations corresponding to the public acknowledgment of value (14.3 percent) or to the social status (9.9 percent), this direction has the imprint of the contamination of the Romanian education and of the symbolic capital of teaching staff by the hostile social and political environment.

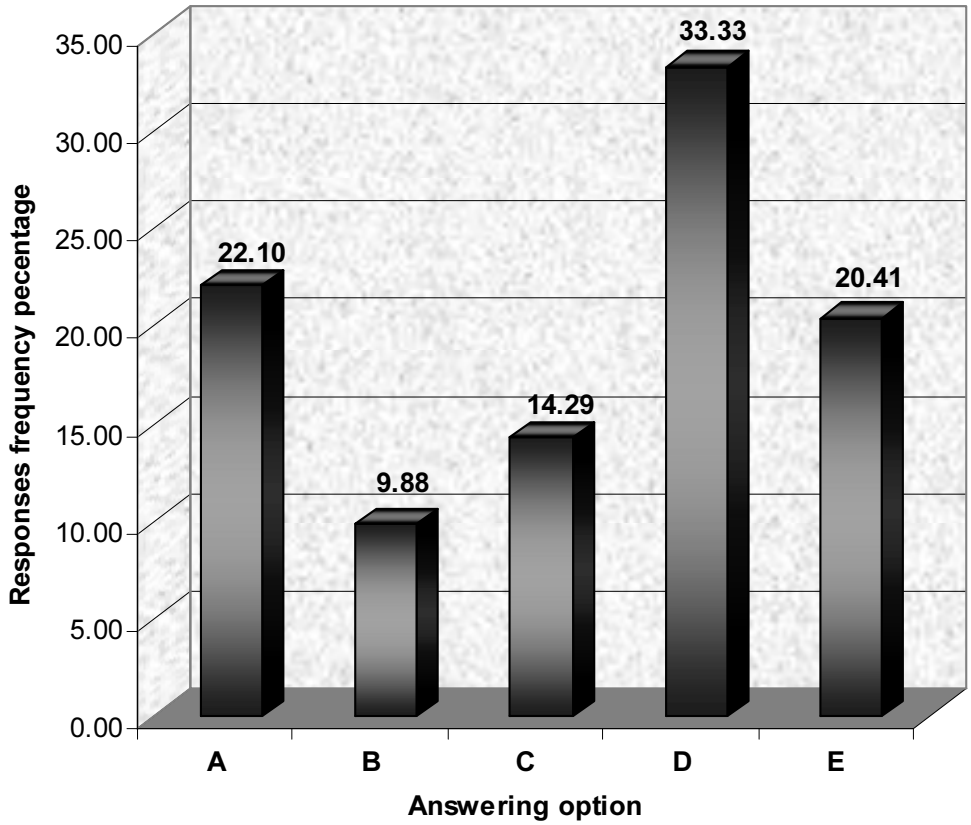

Figure 3. Responses distribution for Question 2: What are your main expectations for the future (from the professional standpoint) ? A – economic security; B – social status; C – prestige, renown, public acknowledgment of value; D – acknowledgment of value in front of your own conscience (self image); E – lack of preoccupation for the future, due to the uncertainties of the present.

The perception by the employees of the organizational reality – basis for the configuration of "cognitive bridges" between present and future – is unveiled through the interpretation of the conditioning of the personal objectives fulfillment by the individual effort or – on the contrary – by unpredictable, external elements. Visualizing figure 4, we note the prevalence (41.5 percent) of the option certifying the **equilibrium between the personal and situational factors**, equally observing a relatively uniform tendency for the distribution of the respondents' options between the next three alternatives.

Exemplifying, we point out: a weighted fragment (16.3 percent) affected by **internal causal forces** or **dispositional factors**, and two almost equal samples (20.1 percent each) which attest the endangering of the personal objectives by the constraints of the social environment, respectively the frustrating perception of the un-correlation between professional advancement and value. The situation presented – even excepting the minor fragment (2.0 percent) severely un-motivated and not having objectives – reflects the prioritization by the academic staff of an external **locus of control**. This reality – transposed in the sentiment of the aggravating diminution of work instrumentality – confirms hypothesis 2.

The relevance of money stimuli in the life of the university staff can be found from the analysis of the graphical representation in figure 5, characterized by a main tendency (38.8 percent), not at all surprising: money is a **decisive** element, as long as **its level is under the limit of a decent existence**.

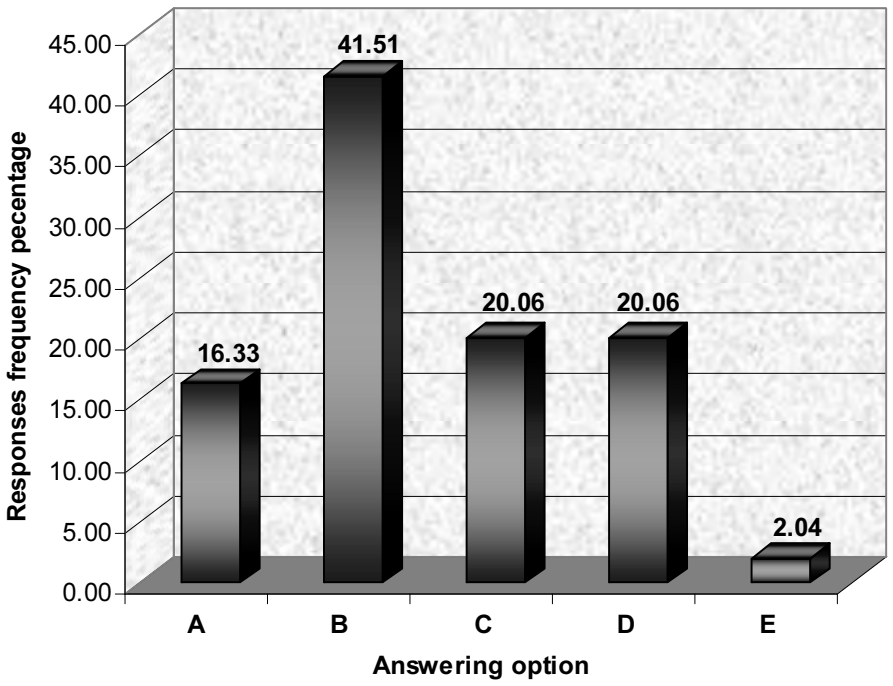

Figure 4. Responses distribution for Question 3: To what extent is it possible to follow and satisfy your professional objectives within your institution ? A – professional success exclusively depends on the individual competence, will and tenacity; B – professional success is based on values criteria, but corroborated with the chance of application; C – individual objectives are permanently jeopardized by the constraints of the social environment; D – promotion often based on subjective criteria, uncorrelated with value; E – I don't have objectives.

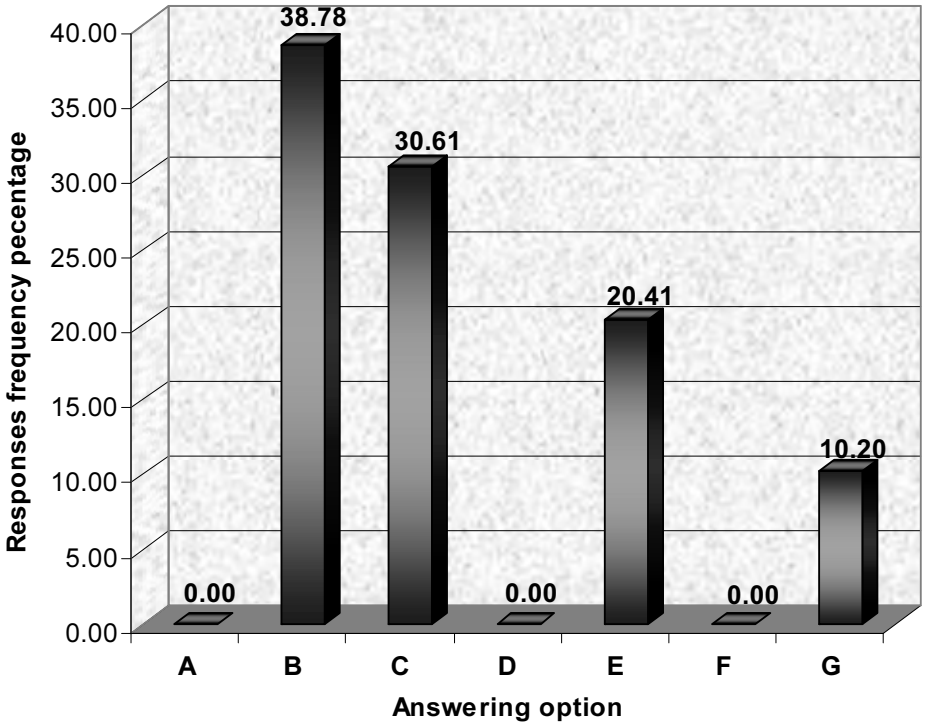

Figure 5. Responses distribution for Question 4: What is the significance of money for you ? A – essence of life; B – very important element (as long as its level is below the limit of a decent existence); C – equity symbol (rewarding the work executed); D – purpose in itself; E – means of procuring other goods; F – means of saving for the future; G – confirmation of my social success.

Closely succeeded by the assimilation of money to an **equity symbol** (30.6 percent), this finding entails a natural consequence: money is motivating only with the condition that the salary is connected to the effort performed. Transposed in a valuable instrument only when it is characterized by absence or insufficiency, the pecuniary stimulus becomes a **mean of procuring goods** (20.4 percent), direction of thinking supplemented by the lack of options at the level of identifying money with the purpose or essence of life, fact that sustains the validity of hypothesis 3. In the same way, the scarceness of money resources hampers their conversion in "useless" goods destined for saving.

Exploring the implications resulting from the interpretation of figure 6, we observe that the majority of the respondents (51.0 percent) orient themselves on a trajectory of frustration, felt as a result of the fact that the investment in one's own education outruns the reward offered by the institution. The lack of satisfaction, which generates lack of motivation, reveals not only the shortage of incomes, but particularly a severe managerial crisis, requiring an optimal managing.

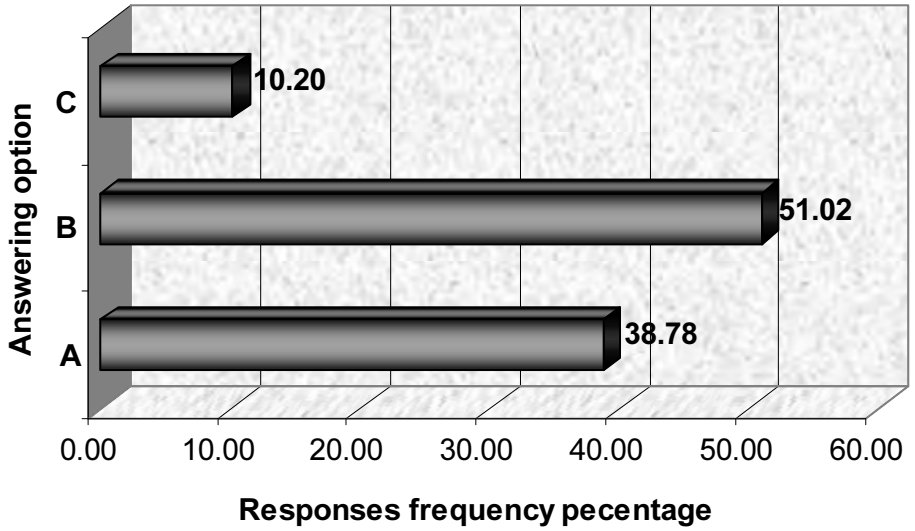

Figure 6. Responses distribution for Question 5: Do you consider that there exists an equilibrium generating satisfaction between what you offer to the institution and everything that the institution offers you ? A – Yes; B – No, I bring more than I receive; C – No, I bring less because I don't receive sufficiently.

The following line of consensus (38.8 percent) certifies the observance of the principles of equity at the level of instituting the balance effort-effect, while the last option – interesting not because of its quantum (10.2 percent), but due to the subject's reaction – is translated by a reduction of the individual effort, in order to avoid the "exploitation" by the organization by means of a "**free riding** type of behavior" (Pânişoară, 2010, p. 50). The leading perception of the absence of equilibrium between effort and reward confirms hypothesis 4.

Quasi-present in any organization, stress is a source generating fractures at the level of the professional identity. Thus, analyzing figure 7, we ascertain – as a percussive element for the lack of motivation within the higher education from Ploiesti – the prevailing perception (56.8 percent) of degradation of the professional parameters by the present economic conjuncture, intercepted by: salary reductions, blocking of posts or rendering difficult the possibilities to accede at a superior didactical grade, and dismembering the existing cohesion by setting up new organizational structures.

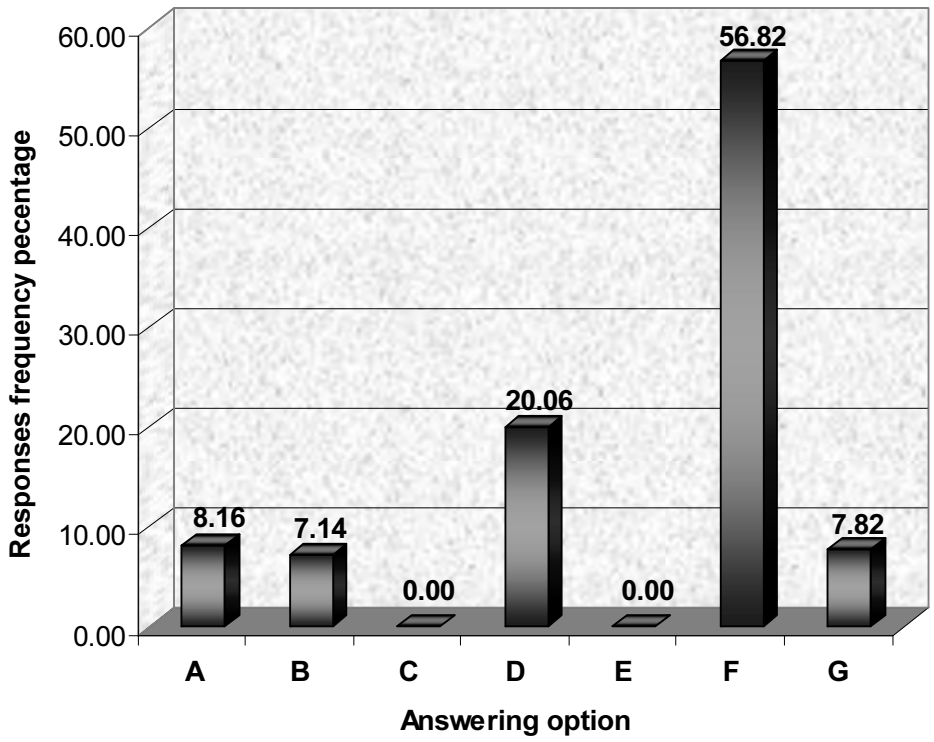

Figure 7. Responses distribution for Question 6: What do you consider that fits you regarding the effect of professional stress within your institution ? A – an overloading of the role; B – a non-correlation between the exigencies of the job and your characteristics; C – an inadequacy between the specific work features and your characteristics; D – the absence of any stimulation; E – a reticence in your adaptation to changes; F – the contamination of the professional parameters by the general economic context; G – the insufficient degree of transparency in the decisions taken within the organization.

The transparency of the motivations crisis is continued by the following direction of consensus (20.1 percent), which attests the perception of the lack of stimulation and the dissonance between the **social image** of the self and the **own image** of the self. The other options take into consideration the role overloading (8.2 percent), the insufficient decisional transparency (7.8 percent) or the personal inadequacy to the job requirements (7.1 percent). We consider that the hypothesis 5 – stating the poor predictability of the professional trajectory – is confirmed.

Another question – that brings back in the foreground the issue of equity, oriented yet exclusively towards the financial side – entails as interpretative implications, according to figure 8, the following aspects. The central trend of the respondents (61.2 percent) to locate a **total lack of satisfaction**, due to the **major discrepancy between effort and reward**, dominates by far the other options, being supplemented by a softer alternative with the weight of 24.5 percent, propitious to the installation of the states of discomfort and distress.

This observation does not annul the validity of the distinction made – by the university staff – between the desire to have more money and their perception regarding what is reasonable and correct. Looking, in the followings, at the last two options, we note that 8.2 percent of the subjects are satisfied with a “competitive” salary, while others 6.1 percent attest the equilibrium of the balance performance-reward. In spite of all these, the dominant line of thinking **supports the validity** of hypothesis 4.

The respondents’ perception corresponding to the impact presupposed by the implementations of the changes dictated – at the level of our University – by the socio-economic context of the crisis can be seen in figure 9, from which results the **evident disapproval** of the teaching staff (51.7 percent), argued by means of the **chaos generating** mechanism which fractures the individual sentiment of permanence and continuity.

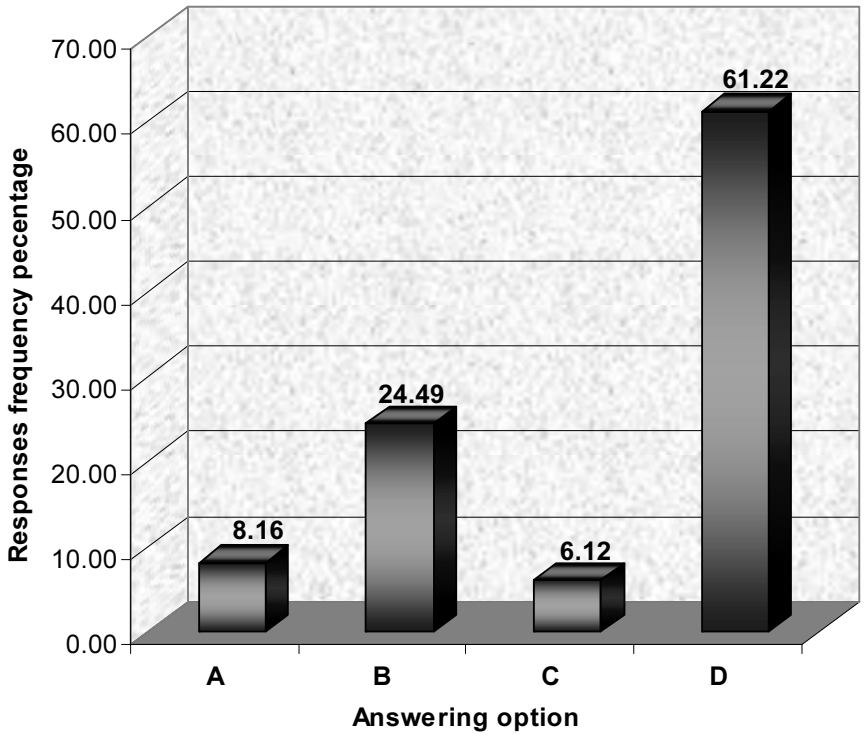

Figure 8. Responses distribution for Question 7: How do you appreciate the salary received for the work performed ? A – it is competitive on the labor market; B – I should receive more money; C – it corresponds to my performances; D – it is much below the level of my intellectual effort and time dedicated to this profession.

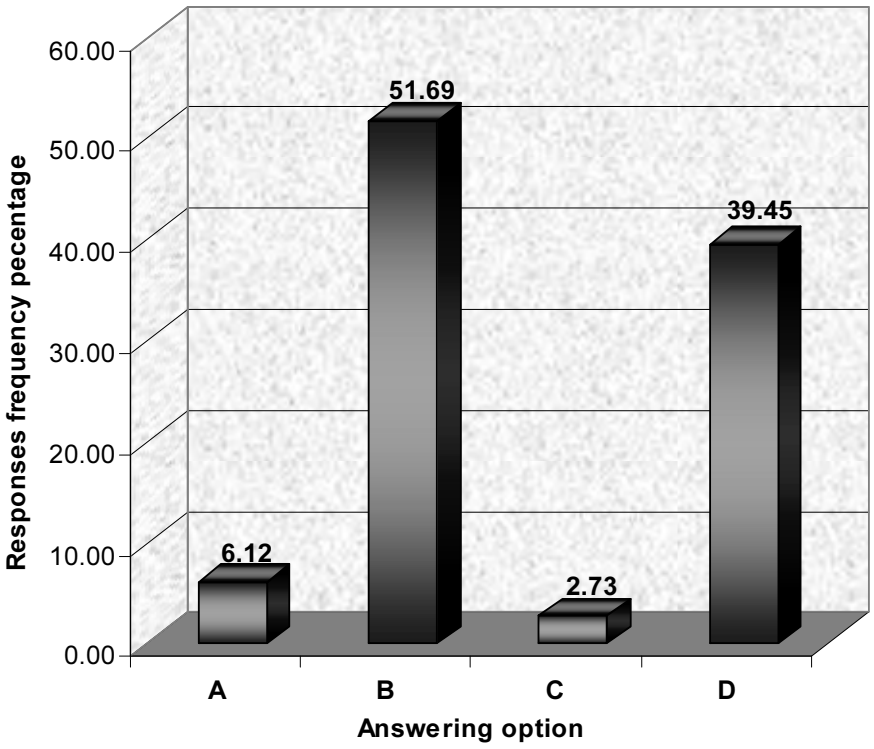

Figure 9. Responses distribution for Question 8: What do you think about the implementation of the changes imposed by the social, economic and politic context within your organization ? A – most changes are more than necessary; B – they create chaos, leading to lack of motivation; C – I am reticent to changes, as they outrun the mentalities restructuring; D – I approve changes, but part of them are inefficient.

The active resistance to changes discussed above – corroborated with its passive and hidden alternative, D, which defines another typological category of subjects (39.5 percent), and with the declaration of the reticence (2.7 percent) by apprehending the outrunning of the mentalities restructuring by the changes – delineates a quasi-unanimous option and an absolute cohesion regarding the profoundly negative perception of the implications of the changes implementing process in the academic environment. This concluding statement **invalidates hypothesis 6**, the percentage (equal to 6.1) of the supporters of changes being considered irrelevant.

Orientations for a Proactive Management Strategy

Based on the findings presented above, we have formulated some orientations for a proactive management strategy aimed at restraining the consequences of the work motivations crisis. The most significant orientations are the following:

- the **intensification of the self-trust**, measure presuming as finality an increase of the development level of the self-efficacy of the teaching staff;
- the constitution of a climate of appreciation for the well done work, by re-defining the performance criteria with the transition from their **quantitative preponderance**, subjectively applied, toward a **qualitative re-orientation**;
- the diminution of the stress symptoms determined by the degradation of the symbolic capital of the academic activity, by means of a corresponding re-valorization of its **real** importance;
- the **limitation of the exertion of negative stimulation modalities**, developed as a result of a non-personalized implementation of changes at the level of the University of Ploiesti, by means of a strategic line replacing the control with the **optimization of the communication between leadership and employees**;
- the **organization of focus groups**, in order to explain unequivocally the **real** situation of the academic institution, in a period marked by economical crises and profound mutations, through which the incertitude and anxiety of the personnel are diminished, making place for a proactive behavior;
- the **opening towards dialogue** of the management structures, by **stimulating the expression of the opinions of the university staff**, starting from the hypothesis that its members are the first capable of signaling what functions adequately and what should be improved, directly referring to their expectations and problems;
- the **improvement of the vertical formal communication** at the institution's level, by addressing more complex tactics destined to facilitate the development of the individuals' sentiments of belonging to their own organization, counteracting the effect of distancing;
- the need for approaching the leadership - employees interaction model to the patterns of **participative management**, by means of promoting a **reciprocal influence**, capable of stimulating the development of the employees' autonomy of thinking and action;
- focusing of the organizational policy on **the employees' stimulation in building** technical and social **competences**, by making intrinsic motivation a priority, which increases the degree of conscious and unconditional acceptance by the subjects of their responsibilities;
- the creation of **programs promoting the state of well being** of the employees, by appealing to training activities developing the professional competences, and by implementing stress management.

We believe the implementation of these orientations is equivalent to the **reversion to humanism** of the organizational policy in the academic environment.

Conclusions

The main aspects underlined by the exploratory analysis performed synthesize the impact that the present weakening of the work instrumentality concept has upon the mental constructs corresponding to the pre-figuration of the professional trajectory in a future less and less predictable. At the level of the academic staff we therefore recognize the more and more accentuated delineation of a “crisis conscience”, in which frustration generated by the status harming leads to a tacit refusal of the approval and recognition of the social accomplishment, the accent being focused on the interest granted to the valorization endorsed by the own conscience.

At the same time, we estimate as an optional direction presenting real causes for worrying the frequent declaration of the perception of uselessness in the configuration of one’s future self in the conditions of a generalized incertitude. Correlated with the affirmation of a numerical superiority of the responders for which the destiny, the hazard, the other’s power are key-elements allowing for or blocking the career evolution to the detriment of cultivating an internal locus of control, the outlined direction generates a profound de-motivation expressed by means of loosing the significance of the performed activity.

Our research proves its utility within the larger context of a frequently used concept – the **crisis management** – in which not only the remediation of prejudices already in place is important, but also focusing on a proactive behaviour of the employees, which allows them to re-evaluate the perspectives by undertaking and facing the challenges, the crisis finally offering new opportunities to the individuals centred on self-guiding their career.

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Performing organizational culture when updating IT-tech in local public services in Romania in times of crisis

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Abstract

The purpose of the present study is to check if the maturity, capacity of adaptability and the complexity of local public institutions' organizational culture can influence the continuing updating of Information Technology. The study is also aiming to check if this relationship is having an impact upon the organizational performance, even if it is more difficult to quantify this in the public sector, a field that is still passing through a period of reforms since 1989, in its attempt to catch from behind the explosive developing private field in Romania.

Introduction

Recent researches are focused on the impact of Information Technology upon organizational culture, but few are those researches analyzing the impact of the organizational culture upon Information Technology - techniques.

These are also focused on private organizations, and reason consists in the fact that private sector has firstly implemented IT-tech within the organizations and they were more interested in checking the results of the IT-tech implementation, so that they could easily predict the organization's expenses and profit. IT-tech implementation has only recently become an important issue for the public sector and this is due to the transition of the public system towards the new theory of Public Management.

Key words:
- Organizational Culture;
- Information Technology;
- Organizational Performance.

Organizational culture: concept, dimensions and models

Organizational culture hasn't been an important factor in accounting for organizational performance because it refers to values, underlying the assumptions, the expectations, and the definitions assimilated in an organization. It represents "how things are around here and it reflects the prevailing ideology that people carry inside their heads" [Cameron and Quinn, 1999]. It conveys a sense of identity to employees, provides unwritten and, often, unspoken guidelines for how to get along in the organization, and enhances the stability of the social system that they experience.

Unfortunately, people are unaware of their culture until it is challenged, until they experience a new culture, or until it is made overt and explicit through, for example, a framework or model. This

is why culture hasn't been studied for so long by managers and scholars. It is simply undetectable most of the time.

Organizational culture is also defined as being "those believes, values and hypotheses shared, that exist in an organization" [Gary Johns, 1999, p. 277] and that "collective programming of thinking that distinguishes the members of a group from one another" [Geert Hofstede, 1996, p. 21].

Cameron, Quinn (1999) and Denison (1990) present a framework of culture characterized by two dimensions:

- *Internal focus* (attending primarily to what is going on inside the organization) versus External focus (attending primarily to what is going on outside the organization);
- *Stability and control* (interest in keeping things unchanged) versus Flexibility and discretion (interest in making changes).

They also identify four models of culture [Cameron and Quinn, 1999]:

- Hierarchy Culture - based on Weber's theory of bureaucracy and values tradition, consistency, cooperation, and conformity and focuses more on internal than external issues and values stability and control over flexibility and discretion
- Market Culture focused more on external (market) and views the external environment as threatening;
- Clan Culture focuses on internal issues and values flexibility and discretion (teamwork, participation, and consensus)
- Adhocracy Culture focuses on external issues and values flexibility and discretion (creativity and risk taking).

The Denison Model, the result of fifteen years of research by Dr. Daniel Denison, and it measures four critical traits of culture and leadership (mission, adaptability, involvement, and consistency). The researcher established a link between organizational culture and bottom-line performance; measures based on these four cultural traits, and had a significant impact on organizational performance. Each of these traits is further broken down into three indices, for a total of twelve (Figure 1).

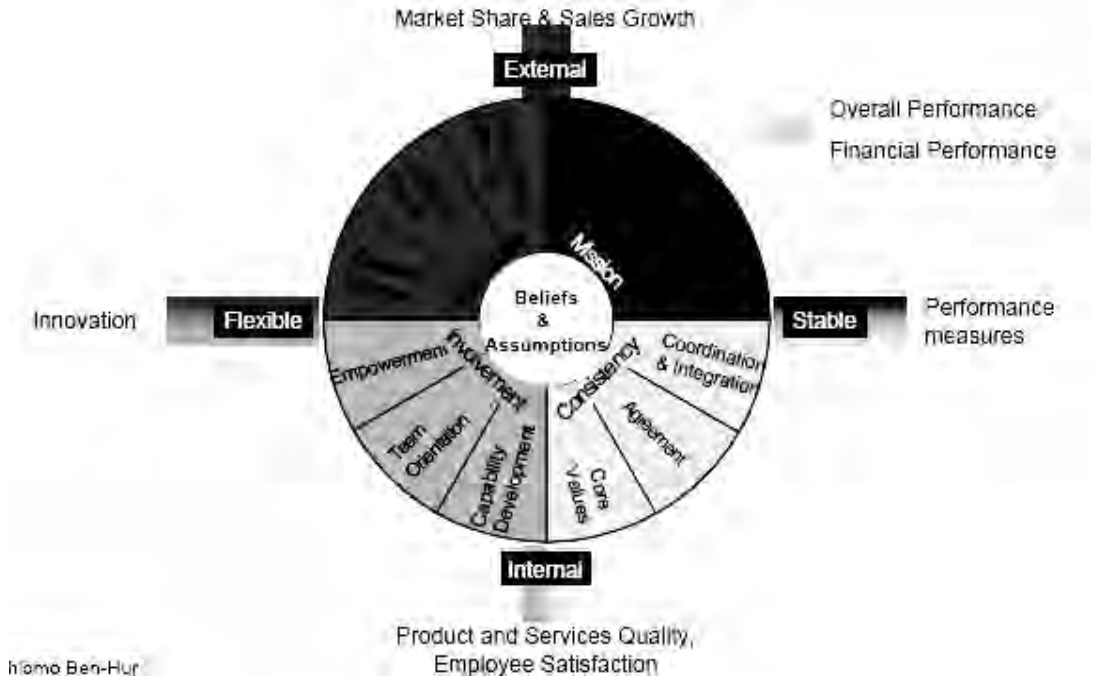

Figure 1.

Information technology

Theoretical and empirical studies have recently emerged to address the impact of information technology on organizational structure, organizational change, and the nature of work and there have been issued theoretical models for measuring the relationship between technology and structure [Hoffman, Cullen, Carter and Hofacker. 1992]. But, despite the diversity of research on the impact of information technology in organizations, we have poor information on what types of organizations are adopting the technological changes of the information era. We have also little information on the organizational characteristics that are associated with the adoption of technological change, and we have little systematic or comparative data (across organizations and across sectors) on the economic, structural, and environmental factors that are associated with the spread of information technology across organizations.

Tózsa and Balazs (2002), in their research on the Hungarian e-government outline the elements of e-government that can be found in the local public sector. In their perception, the telephone, fax, cell-phone, e-mail and Internet is a question of individual welfare: there is no legal or technical problem blocking their use. E-government in public administration can be interpreted as the appearance and application of electronic data conveying devices (communication). The wireless, telegrams, radio transmitters and receivers, telephone, telex and even fax could be considered as 'ancient' means of e-government, yet we cannot speak about e-government at all in the previous decades.

In the past few years, the impact of culture on information technology diffusion, adoption, and usage, as well as the potential impact of information technology on culture has been the research focus. These studies are divided into two groups:

a) the effect of national culture on IT;
b) the effect of organizational culture on IT

Analyses of the relationship between technology and organizations cover a wide spectrum of issues ranging from innovation to organizational efficiency to the management of human resources. A number of seminal studies have focused on the relationships among technology, manufacturing, and industrial labor markets, an area that is increasingly demanding attention today is the relationship between organizations and information technology. Nowadays governmental institutions have implemented information technology, even in states such as Mexico and Venezuela. For example, Mexico has implemented an e-government strategy that positioned the country among the top performers of online services in the world. And the government is now searching for possibilities of integrating e-government in a broader reform agenda which defines e-government as a tool to improve the quality, transparency, and efficiency of government and public services. Venezuela has also recently implemented a Presidency Web Site and a Government's Central Web Portal.

Organizational performance

Organizational performance factors provide the social context within individuals and groups must perform. Organizational performance is the result of factors such as work processes; team/group communication and interaction; corporate culture and image; policies; leadership; climate for innovation, creativity; and loyalty. Human performance factors can either positively or negatively influence organizational performance and vice-versa.

Organizational performance can be approached either from the perspective of culture (internal) or brand (external):

- Organizational Culture: members' sharing patterns of perception, representation, and response surrounding internal and external operations. Some aspects of culture are "invisible" (e.g., prevailing values, attitudes, assumptions and beliefs) and others are visible such as an organization's artifacts (e.g., employee dress, product line, signage, publications, interior architecture, and furniture) and its behaviors (e.g., financial reporting, hiring and firing practices, employee training, and recycling programs);
- Brand: the perceptions of the organization in the minds of consumers resulting largely from their relationships with products, services, or the company itself.

A significant advance in systematic quantitative research on this subject has become possible recently, due to the availability of a remarkable dataset. That material was gathered in a survey of more than a thousand public sector organizations located in eight European countries, which was conducted during 2003 and 2004 by the Momentum Research Group for the Net impact 2004 report sponsored by Cisco Corporation.

Kilmann (1985) recognizes that there is considerable disagreement about what culture is but concludes that "it is still important to consider what makes a culture good or bad, adaptive or dysfunctional'. He describes culture almost as a physical force: "Culture provides meaning, direction, and mobilization – it is the social energy that moves the corporation into allocation … the energy that flows from shared commitments among group members" and "the force controlling behavior at every level in the organization". He believes that every organization has a distinctive culture that can develop and change quickly and must be managed and controlled: "If left alone, a culture eventually becomes dysfunctional".

Research hypothesis and methodology

The aim of this research is to check the relationship between one organizational culture type and its capacity to adapt to the daily changes that take place in the information technology system and how this will influence the organizational performance. The research is mainly focused on the City Hall of Cluj-Napoca.

The survey is conducted in order to respond and verify the validity of the following four hypotheses:

1. *The organizational characteristics positively influence the adoption of Information Technology within a public organization.*

2. *Organizational performance is the outcome of the organizational culture adaptability to daily updating of information technology. The more adaptable, the higher performance an organization provides.*

3. *There is a negative association between organizational complexity and information technology updating.*

4. *There is a positive relationship between organization "age" and its flexibility. The younger an organization is, the more flexible it becomes.*

The research method we used in the empirical research is the *quantitative – qualitative method* and the analyses methods used are:

Document analyses. The purpose to use this method is to describe the organization that makes the object of the research and also to collect information regarding the organization structure and personnel.

The instrument of the *quantitative survey method* used is the *questionnaire*. We used a questionnaire built after the *Denison model*. The reason for choosing the Denison model of survey is to be able to see what are the types and characteristics of the culture of the organization chosen and to check if there is a link between organizational culture and performance measurements based on the four traits in Denison model.

The tool used is the interview guide (*qualitative survey method*). The main reason for which we have chosen to use this instrument is to check if there is any relationship between the organizational culture and information technology and how the first influences the last one and how this influence will furthermore produce organizational performance.

The type of sampling we have chosen for the survey is the *probabilistic – aleatory* one, so that the survey *target group* – civil servants in the City Hall of Cluj-Napoca - has been chosen from the total of 100%, without taking in account any categories or memberships. The *procedure* used is the *lottery* one.

The empirical research development and outcomes

The data, collected from the taken interviews to the leaders of the City Hall of Cluj-Napoca departments are homogenous with similar shape, especially from the answers concerning the capacity of adaptability of the civil servants to the IT-tech changes. The results are concerning the performances, obtained after following a training course and also the perception over the institution complexity.

If we make an association between the variable regarding "Adaptability" in the questionnaires and the answers of the 12 interview questions, we can see that most of the questionnaires' respondents – 72.7% are sustaining that they adapt quickly to changes with probably one week for their adaptation. The rest of 27.3% will quickly adapt to changes (Table 1).

Table 1

Reaction to changes * Adaptation to changes in IT-tech

Crosstabulation

			Adaptation to changes in IT-tech		
			Immediately	One week	Total
Reaction to changes	Quick adaptability	Count	3	8	11
		% within Reaction to changes	27,3%	**72,7%**	100,0%
	Asking for colleagues' help	Count	1	0	1
		% within Reaction to changes	100,0%	,0%	100,0%
Total		Count	4	8	12
		% within Reaction to changes	33,3%	66,7%	100,0%

If we try to classify on age groups on ranges which adapt more rapidly to changes or which need maximum one week for that, will be observed that the most balanced group is between 25 – 34 years, while the other two groups (18 – 24 and 35 – 44 years) divide themselves both into two subgroups. And the last group – 45 and considers that needs approximately one week for their adaptation to IT -tech changes (Table 2).

Table 2

Reaction to changes * Age * Adaptation to changes in IT-tech Crosstabulation

Adaptation to changes in IT-tech				Age				
				18-24 year	25-34 year	35-44 year	45 and ove 4 5 years	Total
Immediately	Reaction to changes	Quick adaptability	Count	1		2		3
			% within Reaction to changes	33,3%		66,7%		100,0%
		Asking for colleagues' help	Count	0		1		1
			% within Reaction to changes	,0%		100,0%		100,0%
	Total		Count	1		3		4
			% within Reaction to changes	25,0%		75,0%		100,0%
One week	Reaction to changes	Quick adaptability	Count	1	4	2	1	8
			% within Reaction to changes	12,5%	50,0%	25,0%	12,5%	100,0%
	Total		Count	1	4	2	1	8
			% within Reaction to changes	12,5%	50,0%	25,0%	12,5%	100,0%

Each organization that does not encounter any problems in the changing periods of its organizational life will finally succeed with its performance. As we could see in the respondents' answers, most of them adapt to changes without any problems, choosing the best suitable way (even asking for the help of a colleague). The data collected in the interviews show that most of

the civil servants took part to a training course on IT-tech – in proportion of 75-80% and until nowadays nobody refused any training challenge on IT-tech. This could also be influenced by the fact that the groups for trainings were aleatory formed, without any rules, such as “groups for the next training program should be formed by the civil servants in that particular Department or Service”.

In Table 3 we can see that those individuals who are rapidly adapting to changes are also the same with those supporting innovation for the institution. This means that the majority of the civil servants are supportive of changes and innovation for the institution means Performance, as Killman affirms (1985).

Table 3

Reaction to changes * Opinion about Innovation Crosstabulation

			Opinion about Innovation				
			Risky	Indiferent	Accepted	Necessary	Total
Reaction to changes	Quick adaptability	Count	3	0	20	31	54
		% within Reaction to changes	5,6%	,0%	37,0%	57,4%	100,0%
	Asking for colleagues' help	Count	0	1	3	1	5
		% within Reaction to changes	,0%	20,0%	60,0%	20,0%	100,0%
	Do the same usual old duties	Count	1	0	0	0	1
		% within Reaction to changes	100,0%	,0%	,0%	,0%	100,0%
Total		Count	4	1	23	32	60
		% within Reaction to changes	6,7%	1,7%	38,3%	53,3%	100,0%

As we could see from the respondents’ answers, most of them are used to work and accomplish their job attributions inside their department. The table below demonstrates that not only the attributions are divided between departments, but also the decision making process is related to the division of labor shared between departments. This makes the City Hall of Cluj-Napoca a complex institution.

Because of this departmental division, information technology updating will not have the same impact and changes will not be equally implemented in the departments. Because of the poor inter-departmental relationship, there will be differences of IT-tech updating (Table 4).

Table 4

Decision making process * Team working Crosstabulation

			Team working				
			Individual	In groups of 3-4	Entire department	Inter-dep artmental	Total
Decision making process	yes, between my department	Count	11	4	13	2	30
		% within Decision making process	36,7%	13,3%	43,3%	6,7%	100,0%
	no, only regardin my job attribution	Count	4	5	13	8	30
		% within Decision making process	13,3%	16,7%	43,3%	26,7%	100,0%
Total		Count	15	9	26	10	60
		% within Decision making process	25,0%	15,0%	43,3%	16,7%	100,0%

Conclusions

In our attempt, to check if there is any relationship between one organizational culture type and its capacity to adapt to the daily changes that take place in the information technology systems and techniques in public services in Romania and to demonstrate how this adaptation capacity of the organizational culture will produce organizational performance; if the complexity of the

organization and the organization's "age" will affect the information technology updating and how it does affect it, the results were that the hypothesis are a valid and their validity couldn't have been demonstrated without using both instruments: the questionnaires and the interview guide and the Data Analysis method. In conclusion, the organizational culture of the City Hall of Cluj-Napoca has those characteristics that allow its members to better adapt to the challenges of Information Technology application updating and therefore this fact will lead to what is defined as organizational performance. As a "young" institution, something rather unusual to public institutions in Romania nowadays, it can easily adapt to those changing and updating in the IT-tech field. But its formalism and complexity are still a problem for this matter that, fortunately for the moment is well accomplished by the institution' members, but who knows for how long.

Crisis in the public sector in Romania, as in every other private organization, has as an immediate prevention effect the reducing of resources – human, financial, investments (most in technical equipments, trainings and IT-tech). Besides this, IT is the quickest developing field in the past few decades and for an organization to resist on the market competition or to best respond to citizens' needs (our case), it should continuously update its technology. So, even if we have a young, quickly adapting local public institution, facing the existent economical crisis could be considered and external, uncontrollable resistance factor to change and adaptability.

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Defining and Involving the Virtual Prosumer through Participative Marketing Strategies in the MPT Master Program

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Abstract

Purpose – With the advent of the global economic crisis, the third millennium new tendency outlines a new type of consumer, the prosumer, with abilities that companies need to take into consideration for their survival in a continuous changing market. Therefore, the purpose of this article is to justify the importance of involving the virtual prosumer in the innovation process.
Methodology/approach - The article proposes a cooptation strategy for the virtual prosumer in the realization process of a master's program in "Politehnica" University of Timisoara, Faculty of Management in Production and Transportation, which responds to the actual market requirements through a social media application.
Findings – The results supply collaborative creation opportunities and an additional value for the consumers.
Research limitations/implications –For the preliminary study, we took into consideration only a limited number of participants. Further research will analyze a larger sample and a curricula that covers the university's needs.
Practical implications – The collaboration between prosumers has relevant practical implications not only in the educational field, but also in all areas where innovative creation is needed.
Originality/value –The originality of this approach is reflected by the managerial competences research using new media software and the co-creation of value through effective means of communication.

Key words: prosumer, participative marketing, managerial competences.

Introduction

Change is the logo of the third millennium society. We live in a fragile environment, where companies need to face the market transformations, technological tendencies, more accessible each day for the general public and the spreading of the Internet throughout the last decade. The transactions, news, mass influences, everything happens online. Web 2.0 has transformed marketing into a consumer centered process, or a relational marketing [Kotler, 2009].

Nevertheless, the biggest change, forecast by the futurist Alvin Toffler (1980), was the more productive role of the consumer in the digital age. The concept of the "production process involved consumer"[Tapscott, Williams, 2010] is very common today, because its tendency is rather to participate to the product/service creation than to consume a standardized product.

New ideas have been born upon the concept of "co-creation" [Prahalad, Ramaswany, 2004] and the new "wikinomic" model [Tapscott, Williams, 2010], where companies put their consumers at work, counting on them, on their ideas, needs, opinions for the production of products or services.

The aim of the present study is to clearly define the characteristics of the new type of consumer within the information age and the way the corporations are constrained to collaborate with it for their well being. The proposal of this article heads towards a participative marketing strategy for the prosumer involvement in the educational process.

Studying crowd creativity, we realize that the companies of the future will depend more and more on their member's creativity to survive. This trend has generated a digital media reorientation thanks to the awareness of the importance and necessity of the online presence and the consumer's involvement in the media processes. Social media represents the newest generation of content and networked applications which brought a revolution in the participative communication, the construction of communities and the creation and knowledge sharing [Joel Postman, 2008]. This new media has corporate communication tools that can interact with each other, maximizing their impact and utility.

One of this well known tools in the virtual world is the wiki page, a web application that allows the creation and editing of any number of interlinked web pages by anyone, via a web browser using a simplified markup language or a WYSIWYG text editor.

In today's world, the use of new media tools in the classroom, for team projects, led to a higher applied learning than in traditional seminars. But all these methods were restricted, only for small projects, for specific subjects, loosing sight of the whole context. Faculties are compelled by the actual international context to take into consideration the opinion of their consumers, for high class educational products, meeting the market requirements.

Defining the digital prosumer concept

George Ritzer (2010) stated that when we are mentioning the term ¨prosumer¨, we are employing a word compiled by two notions of the industrial age: the producer and the consumer. This affirmation was confronted with other definitions that involved other term contractions: proactive and consumer, proffesional and consumer or provider and consumer.

Likewise, in the online world, a new congenial expression had emmerged, the digital or sometimes called virtual prosumer. Therefore, we find ourselves in the position to discuss about two related terms, without a clear clasification or definition.

After the identification of the two environments in which the new consumer can find himself in, the present article introduces two classifications:

1) The prosumer from the physical world is the one who contributes with his own opinions in the company's suggestion box, who is producing his own jewels, clothes, furniture, realizing a partnership with the supplier companies, who's proposing new themes in seminaries, in collaboration with the professor, and so on.
2) The prosumer from the virtual world finds himself in a boundless, timeless and space less world. He has a new culture and multiple levers of involvement in the production process.

Therefore, in the authors' opinion, **the virtual prosumer represents the knowledgeable consumer, a digital user who employs technologies for participating to the product or service conception and execution and who has a high impact on his social network.**

It was prefered the term ¨virtual¨- refers to a new world that's emerging in this last century on the web, because it covers a larger scale than the term ¨digital¨- which refers to numbers. The virtual prosumer is a person eager for knowledge, accustomed with the digital technologies, in a continuous identity quest, trying through all his actions to influence his social network. He participates in the production process through creative abilities, bringing extravalue to the company he works for. The traditional advertising has no effect on him thanks to his proffesional orientation.

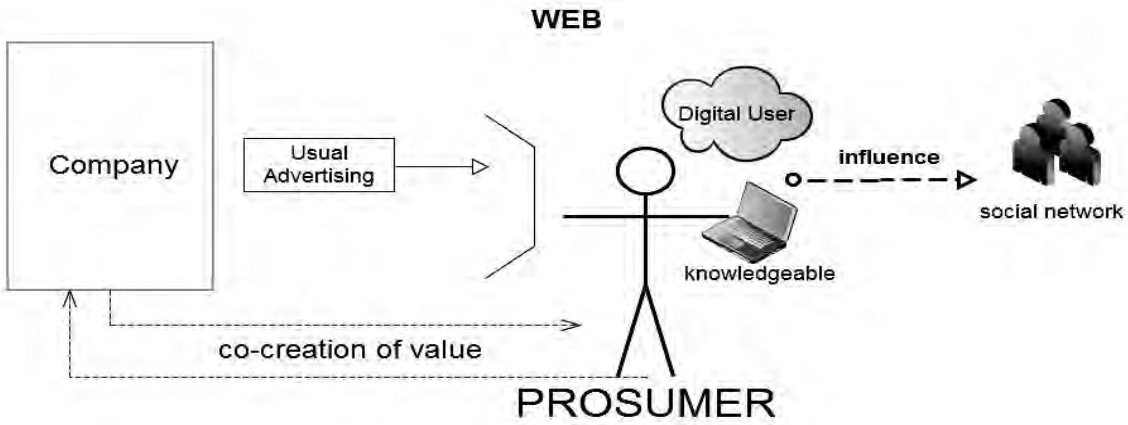

Fig. 1 The characteristics of the digital prosumer

The Participative Marketing Strategic Steps in realizing a ¨master's product¨ with the involvement of the virtual prosumer

For a participative marketing strategy application, all the standard relational marketing strategy stages are entirely followed, the specificity consisting in:

a) The definition of the virtual prosumer as the target audience, taking into consideration his characteristics

b) The determination of the feature framework which will help the virtual prosumer in the definition of his final product.

The authors define the ¨ feature framework ¨ as the plurality of elements that can be combined for the fulfilment of the virtual prosumer's taste and necesities, thereby creating the desired product.

The above explained sequences are illustrated for the ease of understanding the steps that are to be performed by the virtual prosumer in the participative marketing strategy context.

a) The MPT ¨ master product¨ target audience is : a faculty graduate, obliged by his work nature towards continuous improvement or trying to commute his proffesional field of expertise, and that therefore requests a master programme.

The virtual prosumer has the following characteristics:

1. informed consumer that knows what he wants
2. information technology user, with a virtual connection habit
3. with the desire of buying a product (a kit with professional features – master degree) which will help him develop his competencies and his passion for the thoroughgoing specific domain
4. owner of a collaborative culture, with the desire of involvement in the conception, execution or customization of a product
5. a social connector who has the power to influence the buying behavior and the attitudes of his network of friends.

b) The feature framework from which the virtual prosumer selects and draws the finished product represents the competencies which he incorporates in the desired master program.

The exemplification of the participative marketing strategy with the involvement of the vitual prosumer for the Faculty of Management in Production and Transportation

The Management in Production and Transportation Faculty from ¨Politehnica¨ University of Timisoara is an educational entity specializated in the management domain with engeneering features. The university prepares the next generation of managers of the labour market and has three types of master programmes in the engeneering and management field.

Since the Romanian and European Union working landscape is continuously changing, well prepared young people discover that the market competences and requirements are shifting each year. Therefore, they are looking for high class educational products which have the ability to satisfy their actual needs.

The virtual prosumer, in this case, is the future master student, who is spontaneously involved in the value creation activity, on a voluntary basis.

The feature framework implies all the managerial competencies with what the new consumer will deal with on the Internet. From the multitude of offers and needs, he chooses, as a response to the faculty's strategy, those competencies that are required in the marketplace, transforming the unfinished, raw product – the master program offered by the faculty, into a finished product – the master program designed in collaboration with the potential client.

The participative marketing strategy for the master program in MPT - Management in Production and Transportation takes place after the following steps:

1) The execution of a friendly web interface with a checklist of competencies in a form of a questionnaire

2) Putting the prosumer at work, through a wiki page

The first sequence of activities refers to the appropriate information of the user regarding the feature framework existing in the faculty curricula. By answering the online questionnaire, the program will deliver a report which will contain all the courses appropriate for the competences chosen and will calculate the optimum master program.

The prosumer has the possibility to choose the master program that best fits his necessities from the existing ones and can anticipate what he will learn in its curricula, or go through the second step, for its creative customization.

The managerial competencies were clasified upon an engineering schedule, in five categories:

1) strategic competencies
(business vision, making decisions on a long bases, business evolution analyzis and the identification of its opportunities, customer orientation, goal and action plan setting, resource management)

2) logistical competencies
(people and team management, quality and standard control, planification and organization, monitoring and diagnosis, time and stock management)

3) financial accounting competencies
(investment estimation, accountancy, financial solutions for cost reduction, audit)

4) personal efficiency competencies
(leadership, critical thinking and personal development, creativity, emotional intelligence, integrity)

5) information competencies

(production optimization, material flow modelation, management option appreciation)

The technical base has been acquered during college, therefore it isn't comprised in the above classification.

If the prosumer doesn't obtain all the courses that he desires after a standardized master, he is drawn towards an idea sharing moment (Fig.2) or captivated for the sake of a new curricula proposal, an ideal master creative suggestion (Fig.3) or other innovative improvements to the present study opportunities through the medium of a new media application, a wiki page.

Competente manageriale dorite	Motive pentru alegerea lor
luarea deciziilor in risc	un domeniu interesant
motivatia angajatilor	domeniu ce-l doresc a-l explora
antreprenoriatul si intraprenoriatul	domenii de actualitate
sustenabilitatea in secolul XXI	domeniu in plina expansiune
abilitati de ingineria marketingului	domeniu foarte putin explorat pana in momentul de fata
ingineria si marketingul strategic	Tooluri din inginerie pot fii folosite in luarea deciziilor de marketing management.
E-marketing (facebook, tweeter,bloguri etc) si marketingul viral	Acest domeniu se afla in plina crestere.
Etica in afaceri (ABC-ul relational)	Fiecare student masterand trebuie sa aibe cunostine in acest domeniu
Leadership	Necesitatea conducerii grupurilor de lucru
Management de proiect	Insuficente cunostiinte in acest domeniu pe piata
Managementul situatiilor de conflict	Insuficente cunostiinte in acest domeniu pe piata

Fig.2 A wiki page that incites towards the editing of needed competences from a managerial master program

Realizarea unui nou master in management

http://www.mpt.upt.ro/

Pe site-ul Facultatii de Management in Productie si Transporturi veti gasi cele 3 tipuri de master propuse si planurile lor de invatamant.

In functie de acestea si de cerintele dumneavoastra actuale, asteptam propunerile pentru cursurile si titlul noului master realizat in colaborare cu viitorii sa consumatori.

Cursuri	Titlu master	Motivarea alegerilor
Antreprenoriatul si intraprenoriatul	Master Antreprenorial	Domeniu de interes pentru studenti in dezvoltarea cunostintelor acumulate
Relatii de munca la nivel national si international, Compensatii, Managementul timpului, Etica si sustenabilitate, Dreptul muncii, Dezvoltare organizationala si individuala, Siguranta si securitate in munca, Tehnologie	Managementul Resurselor Umane - master online	domeniu util multor persoane; fiind online este accesibil unui numar mai mare de oameni
Codul bunelor maniere; Managementul comunicarii, resurselor umane si al eficientizarii timpului de lucru; Dezvoltarea individuala si organizationala;	Management in administratie publica, sau Management administrativ	O mare nevoie de implementare a unui management eficient in cadrul acestor nivele ierarhice sociale

Fig.3 An active wiki page where you can edit the wanted courses and master type

The person who wishes to attend the courses of a managerial master program, after some working experience, has the chance to fill in the table, on the wiki page presented above, all the competences that he needs, the courses that he is anxious to study, the competences that he is eager to discuss with other interested prosumers. He also has the opportunity to co-create with the university an up-to-date master program and to promote it to his circle of friends.

The preliminary study results

After the preliminary results, a specific ease of filling in the tables and introducing innovative ideas and new approaches has been observed.

The questioned samples were both from the first year MPT master students, who contributed through feedback and new improvement ideas and from the employed persons from different companies in Timisoara, who are thinking of attending the courses of a managerial master and have specific educational needs.

First of all, some new desired target competencies were outlined:

- decizion making in risky conditions
- employee motivation
- sustenability in the 21th century
- digital marketing
- business ethics
- conflict situations management
- collaboration in the digital world
- administrative competences
- resource management

The written competences were motivated in two ways: new domains, rudimentary disscused till present or fields of knowledge with little information on the marketplace.

A strong demand for practical activities and self management was also identified, because in the last few years, Romania was confronted with a major problem among the young generation: the incapacity of carrier self-management.

The proposed courses were: Time management, Personal and organizational development, Communication and work relation management to a national or international level. There have been some suggestions for new master degrees in MPT, seen as essential for the labour market. An Entrepreneurial master's degree would be necessary for the development of qualified and competent entrepreneurs, and other online or administrative type of master programs could be taken into consideration, especially in the above mentioned faculty.

Conclusions

The anticipated results of such a strategy fit in a win-win relationship.

The gain of the university:

- image improvement (authenticity, trasparence)
- brand awareness improvement (the university name, its preference in the disadvantage of other brands)
- consumer closeness (the image of an institution that focuses on its consumer needs)
- the user's accountability (a certain responsibility, because the online anonimity doesn't exist)
- forecast of tomorrow's demand
- using innovative ideas which will help the long term optimization of the curricula.

The gain of the prosumer is present on multiple areas, he has the posibility of :

- expressing his thoughts(he feels like he is listened to)
- involvong himself in the educational system improvement (which will a better oppinion about himself)
- having the desired product, better than the last
- having a reputation in his circle of friends (known as the one who contributed to...)

Finally, this article proposes a new point of view about the new type of this decade's consumer, a changing age full of new borderless communication techniques and technologies, an accurate definition, which prepares the viewer's mind for new trends and classifications according to the environments of action, consumption or production prevailing. After the preliminary study of the participative marketing strategy for the Management in Production and Transportation Faculty of Timisoara, we predict an implementation of the online questionnaire on the faculty's website, a data collection, followed by the wiki page promotion in the city of Timisoara through a public relation strategy. This model can be implemented both for the ¨Politehnica¨ University of Timisoara, on it's constituent faculties as for all national or international universities for the bachelor's or masterate studies, with the changing of competences for each area of knowledge.

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Trends in Building Partnerships Between Smes and NGOs For Sustainable Enterprises in Romania

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Abstract

Purpose *– The purpose of the article is focused on investigating the current state of Corporate Social Responsibility (CSR) practices regarding partnerships, to identify the benefits which can be provided by this aspect to both the business environment and NGOs.*
Methodology/approach *- The population investigated in the quantitative research consists of the SMEs that activate in Romania, the study was based on a sample survey, using the questionnaire.*
Findings *– 32.42% of the investigated SMEs have developed a partnership with NGOs from a total of 484 investigated SMEs.*
Research limitations/implications *– The number of SMEs that have been interviewed is 484, which does not allow an extrapolation of the results with a certain probability and a limited error.*
Practical implications *– The aim of this research is to emphasize that in a pragmatic and real way, socially responsible activities can be conducted by companies in order to develop partnerships with NGOs, so that it becomes a profitable strategy for both partners.*
Originality/value *– The novelty of the approach is that NGOs are considered to be an important catalyst for partnerships in achieving corporate socially responsible activities, from this perspective we managed to obtain an overall picture of the two sectors, business and nonprofit.*

Key words: *CSR, Partnerships.*

Introduction

In a dynamic and complex environment, corporate social responsibility (CSR) becomes an increasingly important factor in academic and business circles. Corporations have gained socio-economic power due to their increasing number of branches, number of employees, purchasing and sales power in relation to supply and distributions services and broaden the impact that corporations have on customers, through their price management strategies and practices and product quality.

The partnership building process is not a simple on, especially when the involved parties have different strategic orientations, but the results created by these partnerships can be extremely solid.

Many nongovernmental organizations (NGOs) have tried to develop at least one form of relationship with the local companies or multinational corporations present in Romania. The relations are fundamentally based on financial support, goods and/or services in exchange for advertising (philanthropic type of corporate social responsibility). The pace in establishing and maintaining a dialog with the small and medium sized enterprises (SEMs) or local authorities on matters of interest for local development was slow. In some cases, NGOs, for instance those from the local development field, have developed programs that bring together all community's stakeholders. In

other cases, NGOs or foreign volunteers have undertaken projects to develop a socially responsible business environment or its cooperation with NGOs.

Building coherent and lasting partnership relations is a challenge for both nongovernmental organizations and business sector. NGOs need to understand what determines corporations to provide their support.

General concepts on partnerships in a CSR context

The European Commission defines CSR as a concept by which " companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis" [Ec.europa.eu, 2011].
While the big Romanian companies started to gradually develop their own culture of social responsibility, the notion of CSR is still little known in SMEs in most cases, as national, local and regional public authorities do not develop activities to promote the CSR concept for the benefit of the communities in which they operate, therefore the involvement in CSR campaigns is extremely low.
The CSR concept can be found both in large companies and in small and medium sized enterprises (SME). CSR should be both an additional and an integrated part of the SME and it should not compromise the course of the activities undertaken by the company, but it should represent a positive aspect of SMEs responsibility towards society, which generates benefits for both the society and the SME.
Social responsibility is essential to ensure long-term prosperity of small and medium sized enterprises and it emphasizes the human dimension of business, providing a bond with the society in general and to the community in which the company is located, in particular [Austin, 2004]. For a better understanding of the market trends on the involvement of SMEs in partnerships with NGOs we have conducted a survey presented below.

The purpose of the research on involving Romanian SMEs in CSR activities

The survey was conducted between January 17 and March 25, 2011 in Romania and the questionnaire was made available to respondents through websites such as eSurveysPro. The answers were recorded and for a better accuracy in the graphical representation, we used the KaleidaGraph.

The objectives of this research are:
- identify the respondents awareness of CSR practices;
- identify the extent to which respondents initiate and engage in CSR activities;
- identify the extent of companies involvement in partnerships with NGOs;
- analyze how respondents chose to pursue such partnerships.

The population investigated in the research consists of SMEs which conduct activities in Romania, between December 2010 and March 2011. The research was conducted based on a sample survey, using the questionnaire [Chelcea et al, 2004].
To determine the minimum sample size, we used the following formula [Balaure 2002]:

$$n = \frac{t^2 * p * (1-p)}{\Delta\omega^2} \quad (1)$$

where:
n = size of the minimum sample;
t = coefficient which corresponds to the probability of results guaranteeing (from the statistical tables of the Student distribution);
p = proportion of sample components that have the researched characteristic (when the value of “p” is unknown, it is considered equal to 0.5 – corresponding to maximum dispersion);
$\Delta\omega$ = maximum acceptable error.

To determine the minimum sample, the coefficients from the above formula have the following values:
t = 2 (corresponding to a probability of 0,95)
p = 0,5 (corresponding to the maximum value of dispersion)
$\Delta\omega$ = 0,07 (maximum error)
By introducing the values of t, p and $\Delta\omega$ in the formula, we have obtained the value of 205 enterprises for the size of the minimum sample (2):

$$n = \frac{2^2 * 0,5 * (1-0,5)}{0,07^2} = 205 \quad \text{enterprises} \qquad (2)$$

For the purpose of this research, the number of questionnaires presented in Table 3.1 were sent and received:

Table 3.1. The situation of processed questionnaires

Country	Number of questionnaires sent	Number of questionnaires received	Total number of questionnaires used in the study
Romania	**35 000**	**508**	**484**

According to statistical data, we have a rate of response of 1,45% and the rate of erroneous answers is 2,16%.
Within this chapter, we will present the results obtained following the analysis of responses regarding the partnerships between SMEs and NGOs in CSR context.

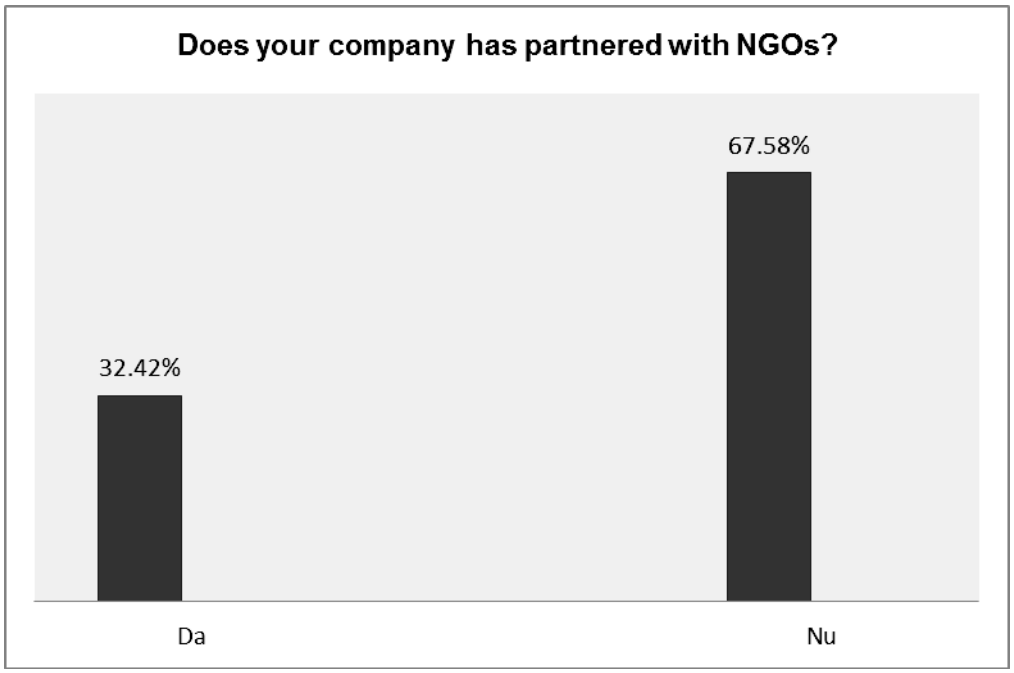

Fig. 3.1 The investigated companies opinion on the development of partnerships with NGOs

Regarding the development of partnerships with NGOs, only 32.42% said yes. Thus the hypothesis of "No more than 30% of the companies investigated have partnered with NGOs" is confirmed.

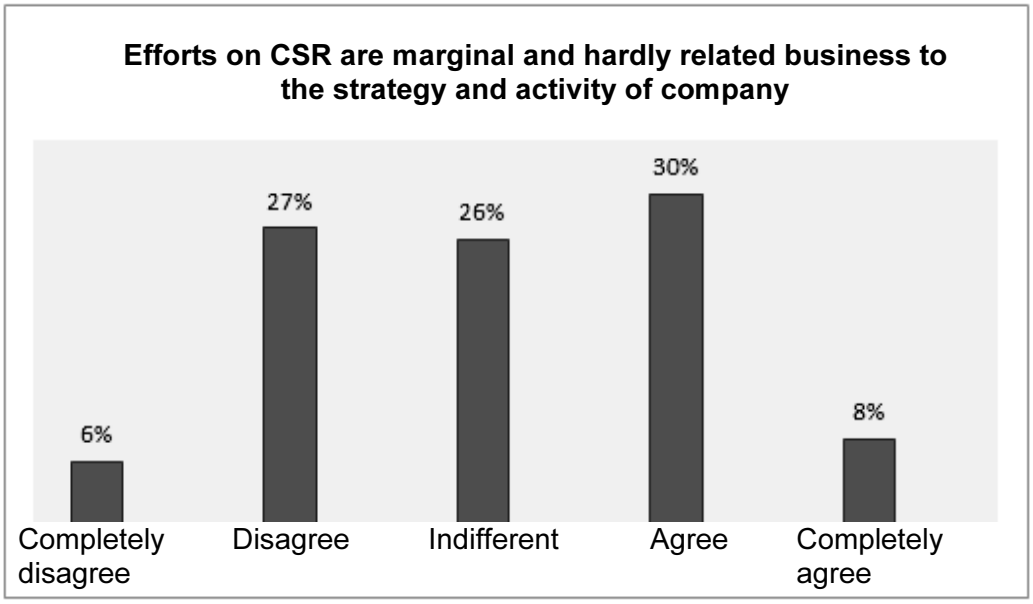

Fig. 3.2 The investigated companies opinion on their CSR efforts

According to figure 3.2, we can observe that the investigated SMEs believe that their CSR efforts are not marginal, through the positive reply of 30% of respondents.

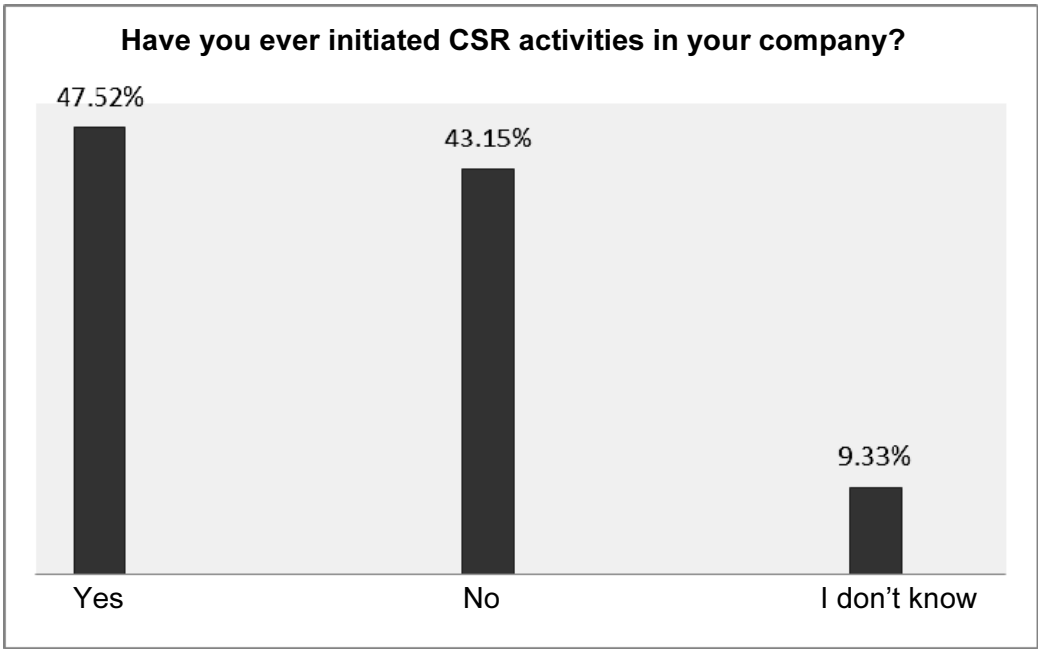

Fig.3.3 The investigated companies opinion on their initiation of CSR activities

The respondents opinion on their initiation of CSR activities is mostly positive, with 47,52%.

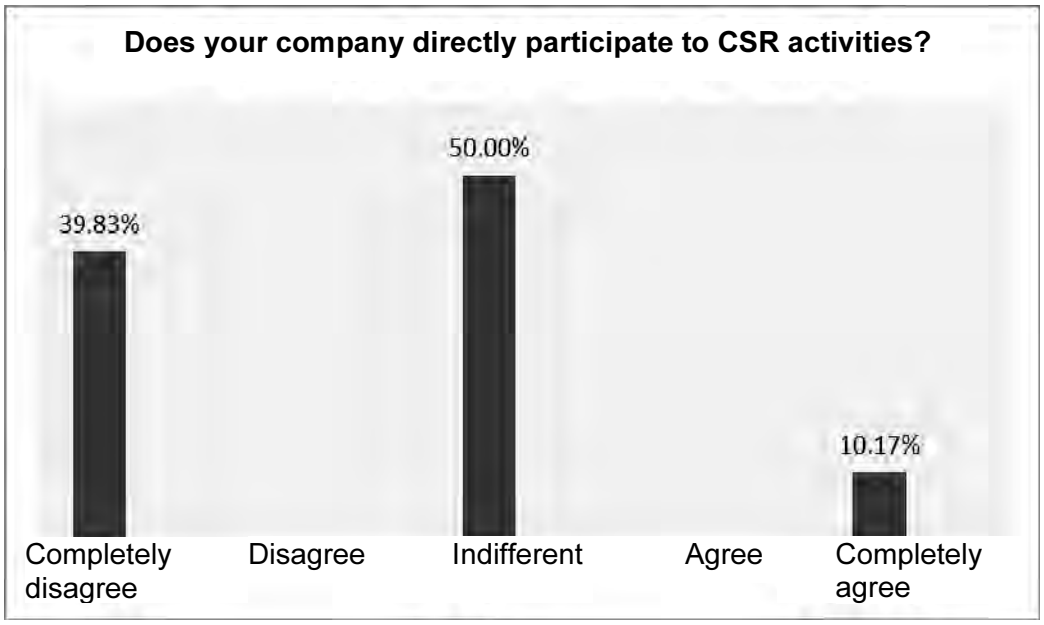

Fig. 3.4 The investigated companies opinion on their involvement in CSR activities

Regarding the direct participation in CSR activities only 39,83% respondents stated that they accomplish this aspect.

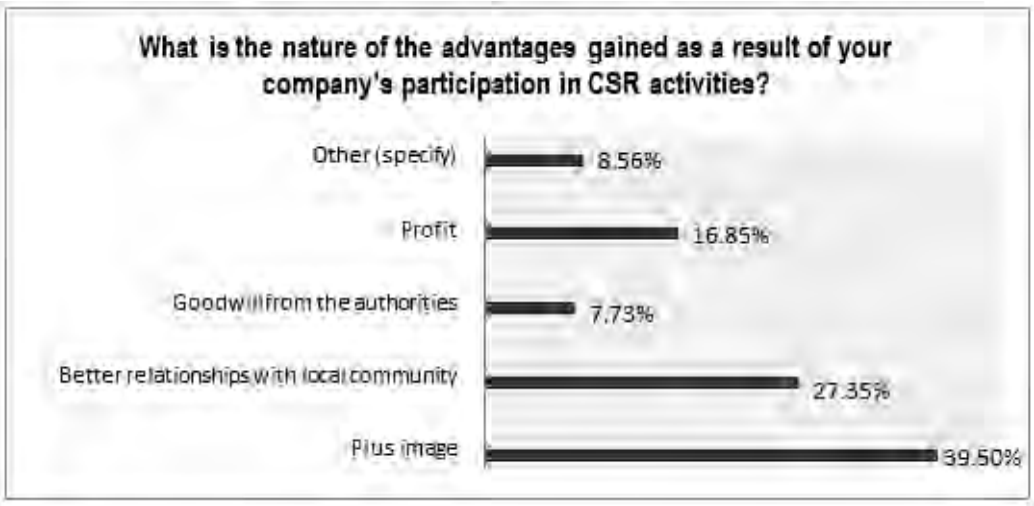

Fig. 3.5 The investigated companies opinion on the obtained benefits

Among the advantages derived from these activities, most respondents (39,50%) stated that it was in image enhancement.

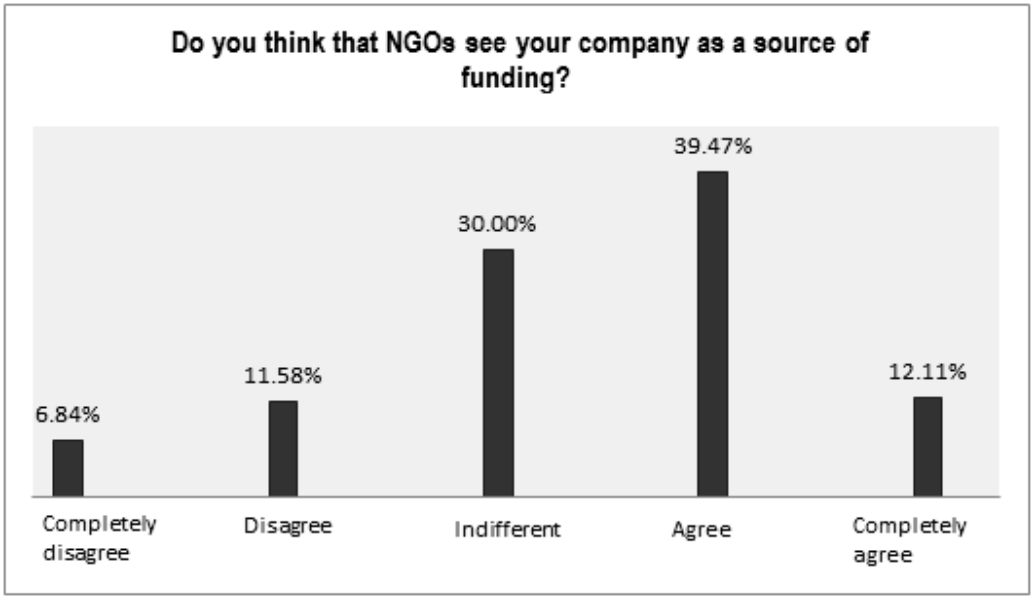

Fig. 3.6 The investigated companies opinion on the funding of NGOs

33,9% of respondents agree that NGOs see the company as a source of funding.

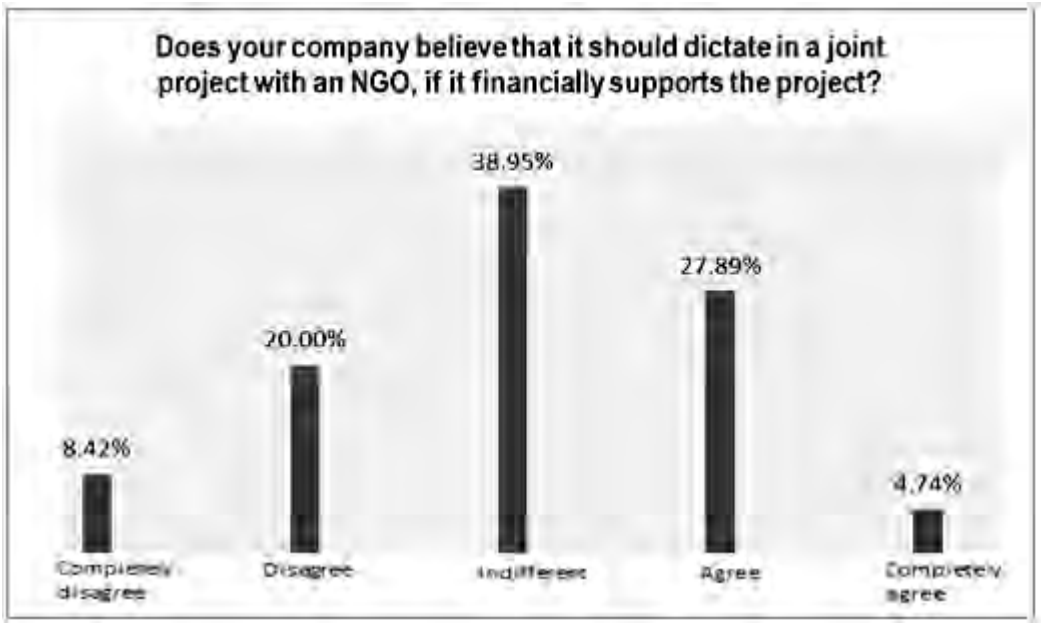

Fig. 3.7 The investigated companies opinion on how partnerships should run

Regarding on how partnerships should run, 38,95% of the investigated companies are indifferent to the idea of dominating a joint project with NGOs.

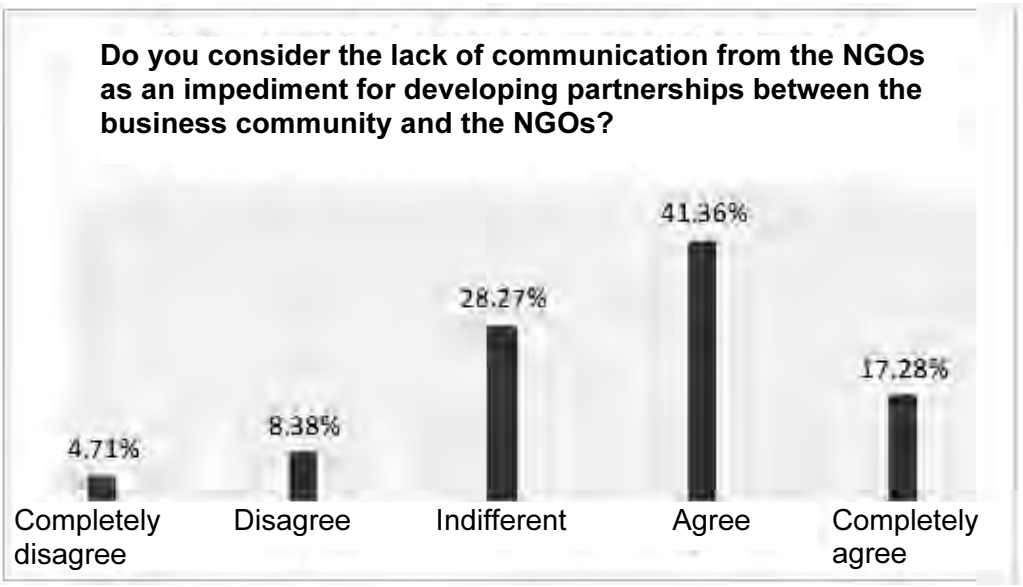

Fig. 3.8 The investigated companies opinion on communication with NGOs.

41,36% of respondents agree that the lack of communication hinders building of partnerships with NGOs.

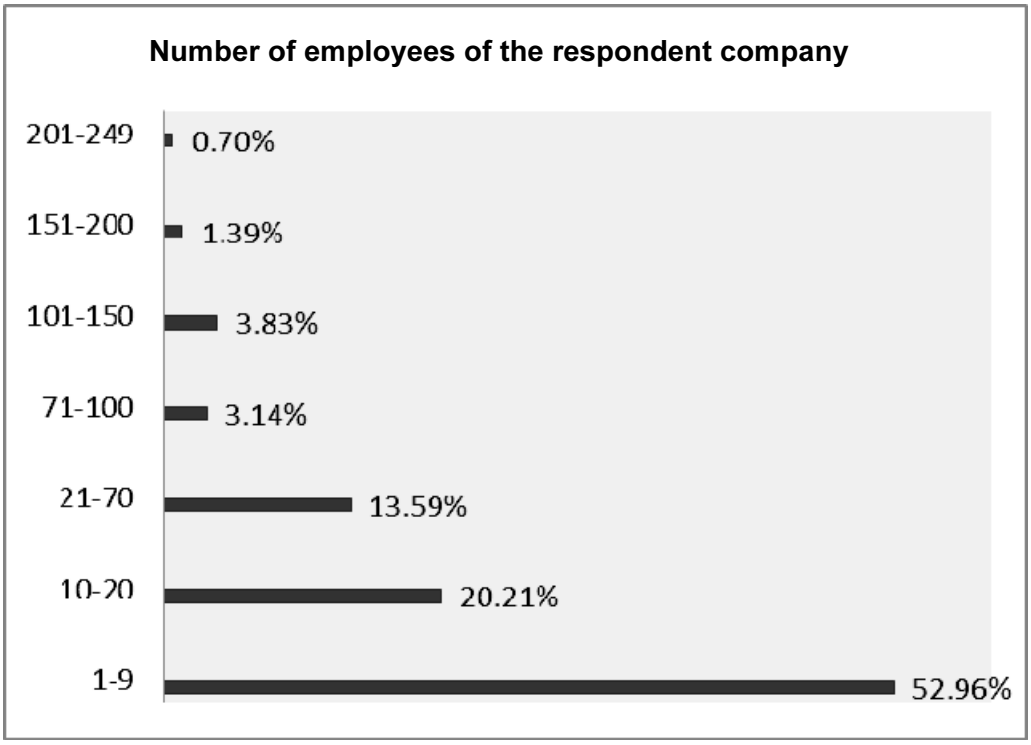

Fig. 3.9 Number of employees within the investigated companies

Most respondents are SMEs with up to 9 employees (52,96%), followed by SMEs with up to 20 employees (20,21%).

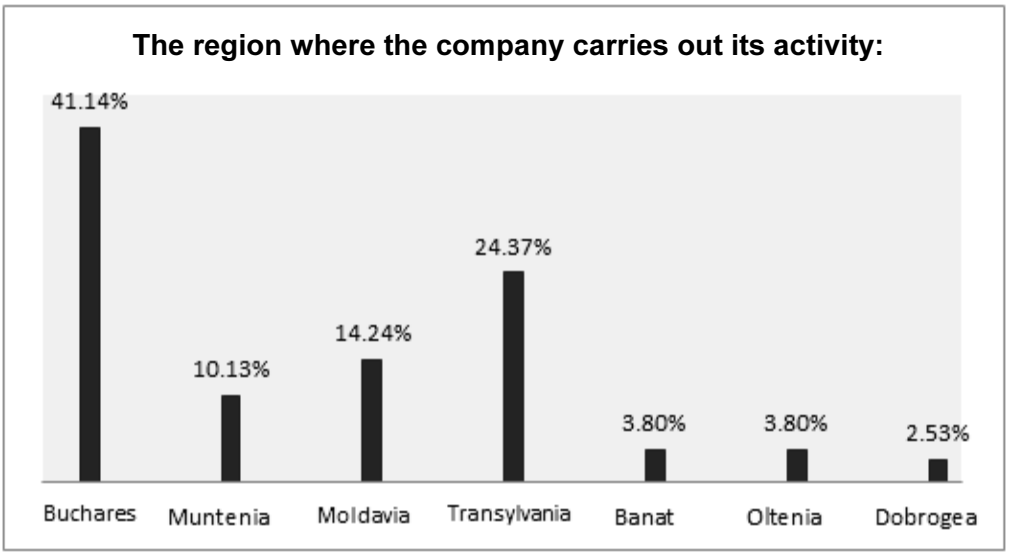

Fig. 3.10 The investigated companies opinion on the region where they carry out their activity.

The region where most of the investigated companies carry out their activity is Bucharest (41,14%), followed by Transylvania (24,37%).

Discussion and conclusions

Following the conducted study, regarding the commitment of Romanian SMEs to CSR practices, we were able to determine the extent to which CSR principles are found in their concerns. However, the research has sought to emphasize the degree of awareness of these principles, and how they are implemented. Based on the data obtained, we can summarize both the positive and the less encouraging aspects.

Thus, for the positive aspects we have recorded the following elements:
- 39,83% of the investigated SMEs participate directly to actions of social responsibility;
- Most of the investigated SMEs, over 32%, have built partnerships with NGOs;
- 46% of the investigated SMEs agree that the lack of communication is an impediment to building partnerships with NGOs;

The negative aspects that were noted during the study can be grouped as follows:
- Regarding the consistency in terms of CSR, over 20% of the respondents are indifferent to this aspect;
- Most of the investigated SMEs have never initiated CSR activities;
- Most of the investigated SMEs – 60% - have never built a partnerships with an NGOs;
- 21,05% of the investigated SMEs have never interacted with NGOs to ensure a proper functioning of the partnerships developed by the company and the NGO.

We can say that, by strategically applying the concept of social responsibility, an SME certainly brings benefits to both community members and the company itself. Corporate social responsibility is a key element of the progress that combines, in an integrated approach, the economic, social and environmental dimension, based on building partnerships to better solve local problems.
A small or medium sized enterprise can start to act in the field of CSR through a selection of the main problems of society (e.g., health and safety) and focusing its activity on supporting them.
A successful CSR activity requires full commitment and devotion to the chosen cause and involves the assumption of long-term objectives, not pursuing immediate benefits.
We must also emphasize that a CSR project does not represent a charitable activity, nor a public relations campaign, but it is the process of investing in the community where the company operates, without expecting immediate benefits. In addition, a CSR activity is more believable when performed by the company's employees.

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Continuous Transition of the Agricultural Economic System in Hungary

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Abstract

Purpose – In this paper the structural changes of the Hungarian agriculture caused by the political turnover of 1989-1990 are surveyed..
Methodology/approach – Desk research, evaluating of primary data from statistics and surveys.
Findings – It is shown that the demolition of the former co-operatives caused the emergence of small farms which are now the main form of farms dominating Hungarian agriculture. The restructuring caused many disadvantages and the system itself is still changing.
Research limitations/implications – Lessons for transition countries, unsolved fundamental problems int he time of crises.
Originality/value – Unique approach of current tendencies with specific approach of historical analysis.
Practical implications – As a result, a new agricultural policy was introduced; the current structure has many malfunctions, including inefficient land size, lack of capital and up-to-date technology.

Key words: agriculture, transformation, structural changes

Introduction

Over fifteen years have elapsed since the transition from the centrally planned economic system started in the early 1990's. During this time agricultural and rural areas of Central and Eastern Europe have undergone profound structural changes with wide variations in the degree of transformation and in the rate of success in creating a competitive market and private ownership based food and agricultural system. By becoming member of the European Union the „transition" in its traditional interpretation has been concluded in ten of the Central East European countries. The transition to market based agriculture, however, is far from completion in Southern and Eastern Europe and especially in the CIS countries. (Csáki, 1994)

The events of 1989 mark the fourth major shock in the economic life of Central Europe in the past one hundred years. The first came in the late nineteenth century as the uneven spread of modern economic growth through the Habsburg Empire uprooted traditional agrarian societies. World War I and the dismemberment of the Habsburg Monarchy brought the second shock by disrupting the economic unity of the lands under Habsburg rule. World War II and the Cold War provided the third and perhaps most devastating shock by dividing Europe in half through the heart of "the lands between" (Good, 1992). In all cases, the transition periods were painful and difficult because of economic rigidities, social conflict, and political instability.

Effects of the transition on the Hungarian agriculture

Hungary is a small country in Central Europe; its territory is 93,000 km^2. Considering land use, approximately 6,3 million ha is used for agriculture and related activities, of which 4,5 million ha is arable and a further 1,8 million ha is for other agricultural activities including forestry. The total population is 10 million, of which 2 million people live in the capital Budapest, which, is the greatest food market within the country. Around 8% of the employees work in agriculture producing 4.5% of the total GDP of the country. The total share of agriculture (including the food and processing industry) in the national GDP is 8%.

The 1990s brought very important transformations in the agricultural economy of the post-communist countries of Central Europe. Privatization, re-establishment of ownership, universal accessibility of production means, as well as a number of other socio-economic processes and phenomena changed the reality, in which agriculture functioned till then. This was the result of the passage of the countries of Central Europe from the centrally managed economy to the market economy, and the preparation, followed by the accession, to the European Union.

The effect of the post-war agricultural reforms and of the central steering of agricultural economy before 1990 was nationalization or “socialization” of agriculture and marginalization of significance of private property. After the “iron curtain” fell and the socio-economic transformations were set in motion, the significance of private property increased again, which entailed a number of other phenomena in agricultural economy (Magda, 2007).

The role of Hungarian agriculture in the economy

Before 1989, agriculture in Hungary, like other Eastern European countries, was characterized essentially by different types of distortions. The structure of agricultural production exhibited extreme duality. The first group consisted of large scale farms: agricultural production co-operatives and state farms. In 1989 in Hungary there were about 1500 large-scale farms, which used 85 percent of the arable land. The average size of the area of large-scale farms was about 5000 hectares. These each employed on average, 540 persons. At the other extreme were the small-scale private farms. The average area of the 1.4 million private farms was 0.62 of a hectare. The efficiency of this agricultural system was poor relative to industrial countries. The food processing, distribution and input supply was highly concentrated, characterized by pervasive state monopolies. Simultaneously with political and economic changes in Hungary, the transformation of agriculture also began. As a consequence of it, Hungarian agriculture is not significant already in the national economy; its role has gradually been decreasing since 1986. The performance of agriculture decreased, as shown by various economic indicators.

The proportion of agricultural employment in total employment during this time also declined (*Table 2.*). The reduction of employment’s share in agriculture was dramatic between 1990- 1993, after that the proportion of employment has declined relatively slightly. At the end of the period agriculture’s role in total active employment decreased below 6 percent, which ratio is close to the level of developed countries. The decrease however can be explained partly by the change of the methods in recording. The numbers in agricultural employment also declined dramatically, especially first years of transition. More than 700 thousand people were out of agriculture. In 2000 there were 252 thousand people worked in agriculture which amounts to about 26 percent of the 1990 level. The number of active earners has started to increase recent years, but the decline of number in agricultural employees has continued slightly.

Table 2. Employment in agriculture and related branches

Sector	1990	2000	2003	2009
National economy total (thousand)	4 795	3 849,1	3 921,9	3 781,9
Agriculture	818	234,0	199,7	163,5
Food industry	203	152,2	152,0	132,3
Forestry	45	17,7	15,5	12,3
Total	**1 066**	**403,9**	**367,2**	**308,1**
	Proportion (%)			
National economy total (thousand)	100,0	100,0	100,0	100,0
Agriculture	17,1	6,1	5,1	4,3
Food industry	4,2	4,0	3,9	3,5
Forestry	0,9	0,4	0,4	0,3
Total	***22,2***	***10,5***	***9,4***	**8,1**

Source: Central Statistical Office (2010)

In the behind of the process described above a similar change in agricultural production can be found. Agricultural GDP between 1990-1993 continuously declined by about 28 percent. The reduction of agricultural production exceeded the decrease of GDP. From 1994 to 1996 however there was larger increase in agricultural production than in total economy. After 1996 the growth of agricultural GDP has stopped, whereas the GDP has continued to grow.

It is paradoxical that the proportion of agri-food export in total export was able to remain above 20 percent during first part of this period, and moreover was actually enhanced in the critical years (1991-1992). In 1993 a smaller share of agricultural production reached exports, and since then the performance of agricultural export gradually has declined. After 1995 the role of agricultural exports has decreased significantly. It can be explained by rapid growth in total export with stagnant agricultural exports. (*Table 3.*)

Table 3. Hungarian agricultural sector in numbers

Year	Agriculture's role in…					Foreign trade balance, Billion HUF
	GDP	Consump-tion	Export	Invest-ments	Employ-ment	
	%					
1990	15,4	37,1	23,1	8,7	15,2	15,4
1995	5,9	32,4	22,0	..	8,0	227,6
2000	3,7	27,7	6,9	5,0	6,5	302,2
2001	3,8	27,7	7,5	6,2	6,3	374,8
2004	3,8	27,0	6,0	4,3	5,2	243,1
2009	4,3	25,1	4,5	3,6	4,1	256,6

Source: Central Statistical Office (2010)

The value of agricultural trade fluctuated between 2 and 3 billion US dollar, and it was rather stagnant last years. It must be noted that Hungary is only one country among Eastern European countries, which had positive agricultural trade balance continuously (regarding the whole agricultural trade).

Analysis: restructuring of agricultural structure

The system change (in 1989) was followed by a decline in the Hungarian economy for a decade. The national GDP reached the level of 1989 in 2000 at first (*Table 4.*).

Table 4.: Volume of production of the economic sectors, 1989 = 100 (%)

		Gross production	
Year	**National GDP**	**Agriculture**	**Industry**
1990	96.5	95.6	96.7
1993	81.7	64.8	78.1
1996	87.3	72.5	92.3
1999	99.9	70.9	127.4
2002	112.9	73.6	160.2
2005	128.7	79.1	195.6
2006	133.7	76.7	215.2

Source: Central Statistical Office, 2008

Even if the average of the 2004-2007 figures are considered, *Table 5.* still shows that the total output figure did not equal that preceding the regime change. In the second half of the 1990s crop production reached rock bottom, but later recovered and shot straight up. However, animal husbandry appears in an unstoppable downward spiral. In the 1970s and 1980s there tended to be a 50-50 % output distribution between the main sectors, but subsequently this radically shifted toward crop production. Therefore, domestic demand for forage plants plummeted and caused severe sales problems.

Table 5.: Agriculture gross output volume indices (1986-1990=100)

Period	**Agricultural production**	**Crop production**	**Animal husbandry**
1986-1990	100	100	100
1991-1995	73	76	70
1996-2000	70	75	65
2001-2003	74	81	66
2004-2007	83	104	58

Source: Central Statistical Office, 2008

Thanks to post-EU accession intervention procurement policies, those farmers producing cereals, oil, and protein crops (GOFR products) had a much bigger and guaranteed income. However, most of the 2004 area based subsidies were delayed until 2005, creating severe liquidity problems for the majority of farmers. Storage problems have largely been solved, but selling accumulated stock still poses great difficulties. On September 28, 2006 Hungary's intervention cereals stock was 5,616 million tons, most of which was maize (the latter constituting 80 % of the entire stock of the EU-25 countries).

The spectacular change in the production structure was caused by significant decrease (almost 10 percentage point) in the share of animal husbandry. The development of the two main sectors rather differed, as *Table 6.* shows.

Table 6.: Distortion of the production structure – Switch towards extensive farming

	1998	**2000**	**2002**	**2004**	**2006**	**2008**
Plant production	51.4	55.8	51.4	49.9	56.1	64.0
Animal husbandry	48.6	44.2	48.6	*50.1*	43.9	36.0
Agricultural products in total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Central Statistical Office, 2008

The number and distribution of registered corporations in agriculture changed radically in the period under scrutiny. Until 1989 the agricultural company system was characterized by a predominance of state farms and co-operatives. From 1990 to 2000, the total number of registered corporations grew by about six-fold. The corporation number rose at the different rates in the various company categories.

As a consequence of transformation the former extreme duality of the Hungarian agricultural systems has been moderated considerable. One can distinguish three main types of farms:

1. *Industrial farms and co-operatives*. They stem from former state farms (currently join-stock companies), co-operatives, newly established agricultural firms and they are mainly from the breakup of co-operatives into smaller units. The important characteristics of these farms are based on hired labour and hierarchical organizational structure. Despite transformation, these corporations have remained predominant in Hungarian agricultural structure.
2. *Private or family farm*. They arise from: (1) the lands from former co-operative members and state-farm employees; (2) beneficiaries by compensation; (3) members seceding from co-operatives with their land; and (4) a combination of the above. These farms are based on family labour (farmers and their family members) and some of them also employ full-time and seasonal hired labour. However it is difficult to determine the exact number of family farms.
3. *Part-time farms*, which plays a traditionally significant role in Hungarian agricultural structure. There are two main types of part-time farms. First, the agricultural households which produce basically for the markets. Some of them have specialized in particular commodities, e.g. pigs, fruits and vegetables. In 1997, 800 thousand people registered as primary producers.

Conclusions

The fundamental purpose of the ownership changes in the countries of Central Europe was transformation of the socialist sector towards the requirements of the modern market economy. The biggest changes took place in Hungary. The disadvantageous phenomenon, resulting from the ownership changes, was disintegration of the previous structures in agriculture, not accompanied by the emergence of the new forms. Thus, for instance, liquidation of the socialist cooperatives and state farms caused in many cases disrepair or complete destruction of farm buildings, infrastructure, equipment, livestock, irrigation systems, etc. Besides, in many cases the sales market collapsed, which forced many farmers to get directly involved in distribution and sale of agricultural products. This brought about a worsening of labour productivity. Many newly established farms with smaller acreages produce first of all for their own needs and do not constitute competition for the limited group of the truly commercial farms. They are doomed to marginalization and gradual decline. This concerns also some of the cooperative farms, established by the owners of small properties, devoid of appropriate capital and experience. Members of such cooperatives frequently live in towns, far away from their property, and are thus only “loosely” tied to this property.

Main features of the transformational depression in Hungary are:

Low agricultural productivity. The annual working unit (520 thousands AWU in 2005) producing the characteristically and essentially stagnating output approaches the values of Germany. The German agricultural output is, though, more than six times higher than the Hungarian value. In spite of the fact that the number of the Hungarian AWU might be overestimated the low productivity counts as a central problem of the transition. It is based on the already mentioned fundamental structural distortions.

Investments keep declining. In spite of the increasing amount of support in the process of adaptation and the registered income growth, after accession the level of investments has dropped. The net accumulation in agriculture has been negative again since 2004. The more than

25 years of consuming our capital reserves has been continuing even after the country's accession to the EU

Unfavorable competitiveness. In relation to the above mentioned problems – especially to the institutional constraints of the adaptation – the competitiveness of the Hungarian agriculture has become unfavorable. On the one hand (also due to the declining external protection) the growing competitive import in the inner market limits the national production. On the other hand the competitiveness of the export products is low

A particularly big challenge is caused by the real appreciation connected also with the Balassa-Samuelson effect that strongly brings to the surface the competitiveness problems of sectors with low productivity.

Unexploited possibilities. Parallel to the structural problems, the low competitiveness significant potential resources and potential market possibilities stay unused. Data of *Table 8*. show that either the share of agriculture in the total export or the export performance per hectare of utilized arable land or per agricultural work unit are far less than the values in the EU-15.

Table 7.: Shares of agricultural export

	Percentage share of the total exports	**Per hectare of utilized arable land (1000 EUR/ha)**	**Per agricultural work-unit 1000 EUR/AWU)**
Belgium	8.2	14.5	310
Denmark	18.5	4.3	154
France	10.0	1.2	10
Ireland	8.4	1.6	64
Netherlands	13.6	20.2	242
Hungary	5.7	0.4	4

Source: Based on Central Statistical Office, 2009.

Long-lasting depression. The stagnation that followed the transformational decline has been lasting for more than a decade. As the structural efficiency problems (serving as a basis for the stagnation) still exist – and it is a complex task to overcome them – the situation might last.

Depression and EU-adaptation. The EU-adaptation opens up basically new possibilities for the new Member States. It might offer chances to overcome the transformational depression. But the realization of this possibility is not automatic. Basic parts of the reality at the moment are the challenge of growing competitiveness, the continuous capital deterioration, and lack of net fixed assets accumulation – against the introduction of direct payments, the declining net export, the farming getting more and more extensive.

Furthermore, one should handle the followings as a challenge for the agricultural and rural policy due to the fact that the adaptation hasn't been able to solve the problems of the depression automatically:

(1) Up till now the agricultural policy was only capable of a surface treatment.
(2) There is definitely no chance to reach the former production level (level of the 80s).
(3) There is, however, need for structural transformation. Competitiveness has to be enhanced. Change in productivity is required.
(4) The agricultural policy has to focus on the structural transformation
(5) Besides the net fixed asset accumulation could be regarded as an important prerequisite in order to overcome the depression.

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Competitive Strategies applied by the Small Business Sector from Baia Mare

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Abstract (max. 200 words)

Purpose: The paper aims to investigate the small enterprises from Baia Mare region, searching for their preferences in the usage of a certain competitive strategy from those defined by Michael Porter (1980).
Methodology/approach: The practical evidence was gathered through the survey method, based on a closed answers questionnaire, which was submitted to a sample of small business owner-managers from the region of Baia Mare. The answers were then illustrated as pie charts.
Findings: The main finding of the research was that SMEs do show some kind of strategic behavior. They tend to use differentiation focus and cost focus in almost equal proportions.
Research limitations/implications: The research can be further developed, by extending the sample to a bigger region and even trying a statistical approach of the investigation.
Practical implications: By conducting an empirical research, the paper brings an insight into the reality of the strategic approach of the SMEs sector, being useful to both academics and researchers of the field.
Originality/value: Taking into consideration that the literature from the field of strategic marketing is mostly dedicated to the corporative sector, trying to find evidences of a strategic behavior amongst the small business sector (even if at smaller scale) tends to bring valuable outcomes for the researchers of the field.

Key words: competitive strategies, small business, strategic behavior.

Introduction

After many years of academic and scientific interest in the strategies of large enterprises, situation has turned increasingly to the strategic behavior of smaller enterprises. Implementing competitive strategies in the current activity of the small enterprises has become a stringent necessity. This situation is a consequence of the serious challenges that exist on the market place, of the unstable balance of the business environment forces and other influencing factors that can be identified in the actual economic context of crisis.

The existing literature on strategic management, whilst being difficult to reconcile in terms of the conflicting theories stated in the field, appears even further flawed in the SME context. On the other hand, whilst SME strategies largely appear to be about growth and development, the corporate sector appears to have spent the last twenty years in a process of sub-division and shrinkage.

Strategy-making across the small business sector

The strategic management process in SMEs is case-specific in that each context has a range of strategic variables and issues that may be widely diverse. Rather than SMEs not fitting the mould

of the strategy process, strategic processes are difficult to reconcile with and transplant into the SME sector. There are a number of factors that militate against this process (MacGregor, 1999):

- Any vision of growth and configuration is emergent and rarely formalized by the entrepreneur.
- There is often a dichotomy between the business planning process (satisfying stakeholders) and the entrepreneur's long-term strategic view (often an informal or hidden agenda).
- The strategic paradigm is often not communicated to or agreed with other stakeholders by the entrepreneur.
- Strategies are emergent and adaptive.
- Strategic rhetoric is only used to communicate with peers and stakeholders. It is never used to communicate with employees. Those from the SME sector often misapply the strategic rhetoric and language of strategy and planning.
- The strategy process often lacks analytical credibility. There is often event contagion where the organization is a hostage to fortune and events overtake and pollute any analytical clarity or reflection.
- The strategy process is often outcome or crisis-driven.
- There is often much choice and implementation without recourse to analysis reflection and evaluation.

Some authors are skeptical of the existence of clearly visible strategies in many small business settings - see e.g. Curran (1996). The main problem is undoubtedly the link between "corporate strategy" (general policy) and "business strategy" (operational strategy). It is not possible, in small business, to talk of strategic planning in the way that term is used in the corporate sector (Julien, 1998).

Practical evidences of a competitive strategic behavior amongst small firms

As previously stated, the paper seeks to identify which of the three generic competitive strategies (Porter, 1980) is mainly applied in 16 small and medium sized firms from Baia Mare, no matter how formal this attempt really is. For this, a transversal study (Saunders *et al.*, 1997) was carried out, using a questionnaire with multiple choice answers that was submitted to firm's senior management.

Please note that the study has no statistical validity, only a small sample being analyzed. So, no conclusions can be drawn on the type of competitive strategy that is prevalent overall, showing only a tendency that exists strictly in the selected sample.

Strategic choice is the simultaneous selection of long-range objectives and grand strategies. When strategic planners study their opportunities, they try to determine which are the most likely to result in achieving various long-range objectives. Almost simultaneously, they try to forecast whether an available strategy can take advantage of preferred opportunities so the tentative objectives can be met (Pearce & Robinson, 2007).

The selection of long-range objectives and grand strategies involves simultaneous, rather than sequential, decisions. While it is true that objectives are needed to prevent the firm's direction and progress from being determined by random forces, it is equally true that objectives can be achieved only if strategies are implemented. Objectives indicate what strategic managers want but provide few insights about how they will be achieved. Conversely, strategies indicate what types of actions will be taken but do not define what ends will be pursued or what criteria will serve as constraints in refining the strategic plan.

Starting from these premises, the first question which addressed the owner-managers targets the firm's long-range objectives (see chart 1).

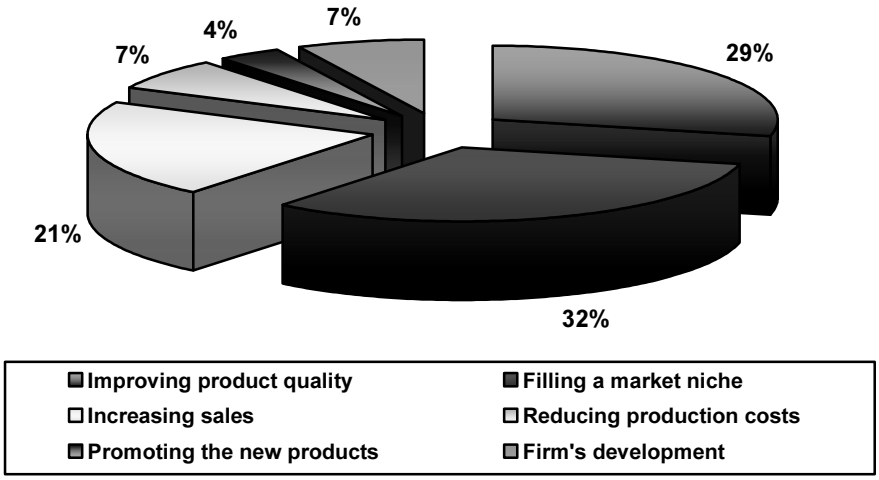

Chart no. 1: Company's long-range objectives

Occupying a market niche and *increasing product quality* seem to be the main strategic concerns of the interviewed owner-managers (with 32% and 29% incidence amongst the analyzed SMEs), closely followed by the objective of *increasing sales*, with 21%. What appears somehow striking about these figures is the absence of a linkage between the firm's development objective (scoring only 7%) and the ones targeting the market niche or the sales increase. Any of these last two objectives is based on the firm's development as the main support for its achievement. Concluding, it seems that, despite their good intentions, the interviewed owner-managers are still lacking proper experience and expertise in defining the firm's grand strategies and its long-range objectives. But such an aspect can be easily corrected through strategic management trainings.

Going further with the analysis of the strategic objectives an SME may pursue, it was really interesting to notice that 11 of the total 16 investigated firms are simultaneously pursuing three strategic objectives (see chart no. 2). This is once more suggesting a kind of strategic immaturity of the owner-managers, since one of the main constraints a small business is facing lays in the acute lack of resources in pursuing the market opportunities. So, following more than two objectives at once can be quite challenging (even dangerous) for a small firm.

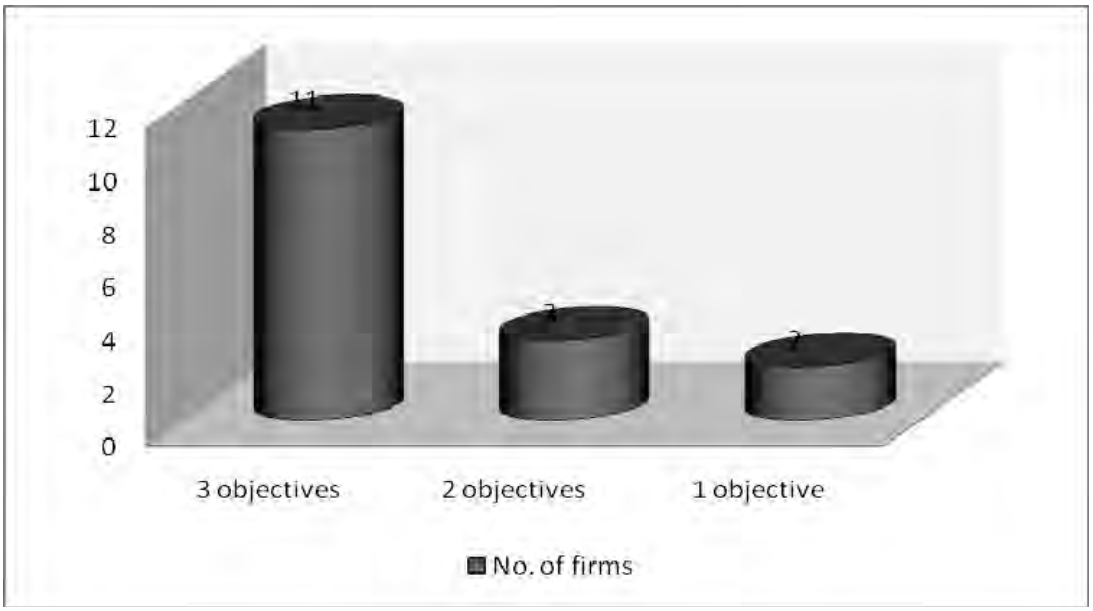

Chart no. 2: The number of objectives being pursued

One of the challenge facing smaller firms is their limitation in selecting an effective corporate strategy. Porter's (1980) well-known study argues that there are three major options open to firms: cost leadership, differentiation and focus. But cost leadership and marketing differentiation both benefit from economies of scale that are generally not forthcoming in the smaller enterprise (Bamberger, 1983). As a result, focus strategies emphasizing innovation or high quality may be the major viable ones (Miller & Toulouse, 1986).

Trying to practically investigate what type of corporate strategy a small firm prefers, I've firstly asked the owner-managers a question about their new product launching activity. 69% of them (see chart no. 3) declared they've recently launched a new product on the market. This confirms once more one of the major strengths a small firm has, namely that of an increased dynamism and flexibility. It also confirms Hambrick's opinion (1983), which state that the more dynamic the environment the more necessary the strategy of innovation and less appropriate the strategy of cost leadership (launching new products is an outcome of a highly innovating strategic behavior).

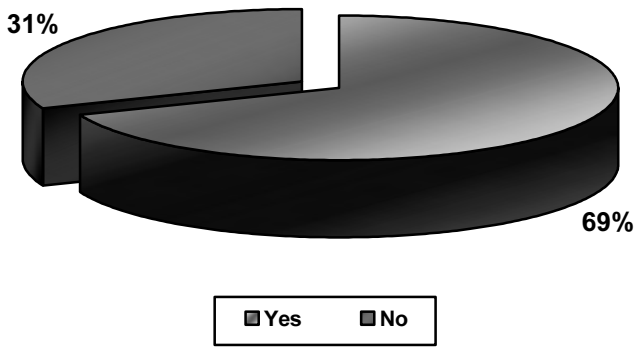

Chart no. 3: Small firms that have recently launched a new product on the market

Going further with the analysis, another flaw of the strategic management practice in small business appears. An amount of 69% declared that they've recently launched a new product, but only 29% of them set the promotion of new products as a strategic objective (see chart no. 1). Launching new products without a dedicated strategic marketing plan, meant to sustain and promote the new product is very risky, if not prone to failure.

On the next step, trying to identify how many small firms from the selected sample are pursuing a strategy of cost leadership, the owner-managers were asked if they tried to achieve low costs in their activity and if so, what is the advantage the company got from this. They had to select from a preset list of advantages, which includes:

- Holding a position in which to protect themselves from competitors,
- Placing the company on a favorable position in relation to substitute products,
- Obtaining high profits,
- Defense against powerful suppliers.

Chart no. 4 illustrates the results, and the fact that none of the investigated firms uses low costs to defend itself against powerful suppliers is quite remarkable. But on a more thoughtful thinking, a small firm is hardly able to negotiate in any way with a powerful supplier, unless more SMEs belonging to the same industry form some kind of consortium to negotiate in their name.

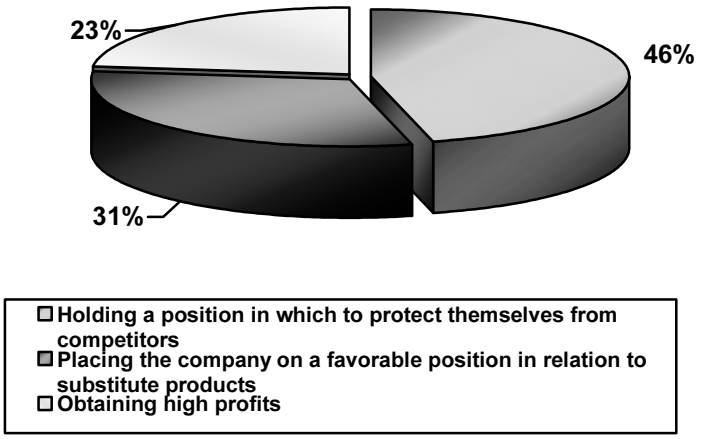

Chart no. 4: Distribution of competitive advantages resulted from a low costs strategy

Worth noticing also is the fact that the big majority of the firms are using the advantage of low costs to protect them from competition, be it a direct one (46%), or indirect one, induced by the substitute products (31%). On the other hand, obtaining high profits is a powerful defense tool against threats of industry competitors, suppliers, buyers or potential entrants in the industry. But such situation tends to be quite volatile, since an industry that shows the potential of high revenues will always attract new (sometimes powerful) entrants, increasing rivalry and finally, reducing prices and the benefit margins of the industry. An appropriate strategy for a small firm should target market segments that are less vulnerable to substitutes or where a competition is weakest to earn above-average return on investment.

Being asked if they consider that their firm can achieve a sustainable competitive advantage based on low costs, 62% of the managers appreciated that this is possible, whilst 25% of them were undecided (see chart no. 5).

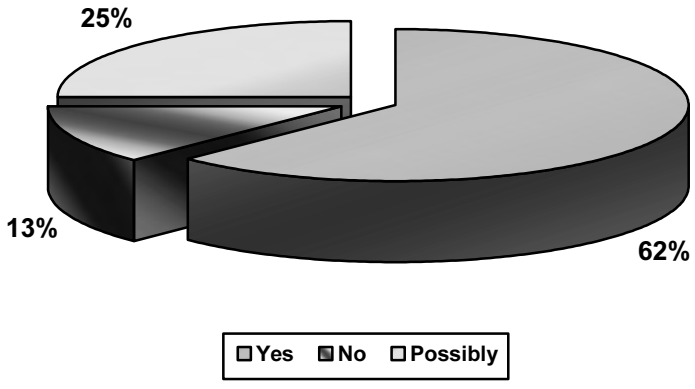

Chart no. 5: Evaluation of the sustainability of a competitive advantage based on low costs

The inconsistency here is related to the figures from chart no. 3, where 69% of the managers declared that the firm recently launched a new product, whilst only 31% of them (see above) disagreed with the idea of a competitive advantage based on low costs. It should be interesting to study how the remaining 38% of the managers can sustain a new product launching whilst pursuing cost leadership. And this mostly because of some empirical research (Wright *et al.*, 1990), which indicated companies pursuing both differentiation and low-cost strategies may be more successful than companies pursuing only one strategy.

Though Porter (1980) had a fundamental rationalization in his concept about the invalidity of hybrid business strategy, the highly volatile and turbulent market conditions will not permit survival of rigid business strategies since long term establishment will depend on the agility and the quick responsiveness towards market and environmental conditions. Market and environmental turbulence will make drastic implications on the root establishment of a firm. If a firm's business strategy could not cope with the environmental and market contingencies, long term survival becomes unrealistic. Diverging the strategy into different avenues with the view to exploit opportunities and avoid threats created by market conditions will be a pragmatic approach for a firm. Still, a small firm should be cautious on initiating such a hybrid strategy, since it may require more resources than the classical, "rigid" one does.

Further on, the owner-managers were asked to rank, on a three levels scale (high, medium and low), their firm's adaptability and capacity to respond to market demands. None of them ranked these abilities with low, and the dispersion between high and equal is quite balanced, as seen in chart no. 6.

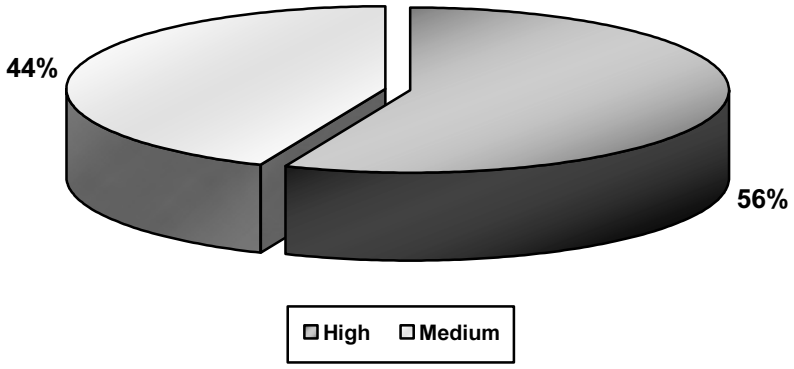

Chart no. 6: Ranking the firm's adaptability and capacity to respond to market demands

The results are once more confirming the small firm's increased flexibility and capacity to respond to market demands, through a close and sometimes personal contact with the customers, aspects which are widely accepted as major strengths of this type of firms.

Because of the typical limitations of strategic alternatives available to the small firm by virtue of such factors as small market share and limitations of resources and skills, it has been suggested that certain strategic alternatives are typically more appropriate for a small firm, namely those that avoid direct competition with larger firms and that involve the development of close customer relationships and product adaptation (Storey & Sykes, 1996).

The niche strategy is often recommended for small firms, but they also must be able to obtain a key-competitive advantage from it, and their advantage must be based on a craft mastered by the owner-manager and the organization. Bearing this in mind, I've tried to find out which criteria the owner-managers prefer to ground their segmentation strategy or niche strategy. From the two suggested criteria (customers preferences and geographical area), a big amount of managers picked customers preferences (75% - see chart no. 7). It is hoped that by focusing their marketing efforts on one or two narrow market segments and tailoring their marketing mix to these specialized markets, a small company can better meet the needs of that target market.

If the primary determinant of a firm's profitability is the attractiveness of the industry in which it operates, an important secondary determinant is its position within that industry. Even though an industry may have below-average profitability, a firm that is optimally positioned can generate superior returns.

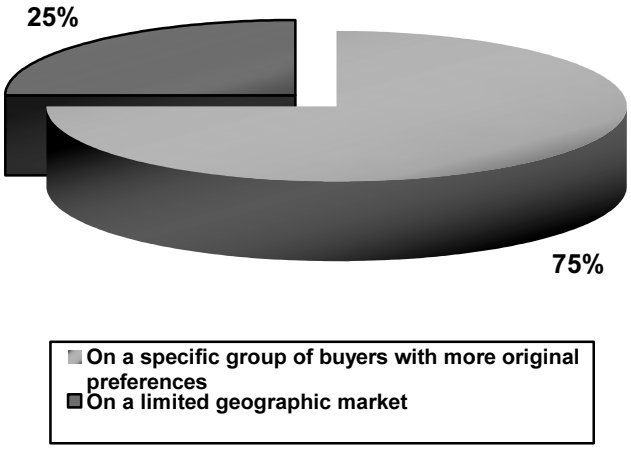

Chart no. 7: Analysis of the way small firms are trying to focus their activities

A firm positions itself by leveraging its strengths. Michael Porter (1980) has argued that a firm's strengths ultimately fall into one of two headings: cost advantage and differentiation. So, as a closure of the inquiry, I've asked the owner-managers to specifically indicate the competitive advantages on which the company bases its market position. The results pointed out a preference for the use of differentiation as the source for their competitive advantage, even if not overwhelmingly (see chart no. 8).

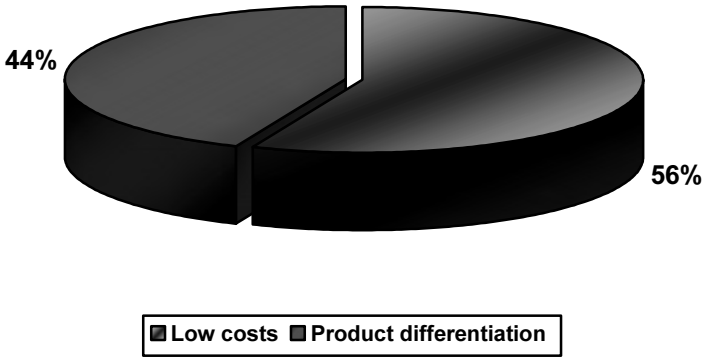

Chart no. 8: Distribution of firms based on competitive advantages that the company bases its market position

Discussion and conclusions

Strategy, its formulation, or creation, and implementation are recognized as key aspects of the management of all large organizations, be they profit making or non-profit making enterprises. In the world of the small business, strategy may be much less formal in its nature; at the extreme the small owner-managed business may have an implicit rather than an explicitly stated strategy.

It seems that in the field of strategies pursued by SMEs, five kinds of competitive strategies could be distinguished, of which four are forms of differentiation (by marketing, quality, innovation and technical competence and service), and one cost leadership (Bamberger & Wrona, 1994; Miller, 1988).

As a main conclusion of the practical study, the investigated SMEs seem to lack an integrated vision of the strategic management, but they tend to behave very dynamic and adaptive, aiming to compete based on differentiation of their products and predominantly investing their efforts on market stabilization and on increasing product quality.

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God's Governance According to the Swedenborg's Spiritual Worldview and Its Consequences on the Management of Organizations

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Abstract

Purpose – To present and discuss a model of God's Governance according to the spiritual worldview of Emanuel Swedenborg and to find its consequences on the management of organizations.
Methodology/approach - This paper makes a bibliographical study of the Swedenborg's works concerning the world layout, the influence factors of human actions and behavior and God's Governance. It can be a starting point in others future studies and developments.
Findings – This paper presents an integrated view on the Natural and Spiritual worlds as described by Emanuel Swedenborg in his works, a new approach on the complexity of factors in determining human action and behaviors and a model of God's Governance according to a set of Laws of Divine Providence.
Research limitations/implications – The research was limited by the speculative aspect of the approach.
Practical implications – We may consider it as a good premise for transfer and adapting of the findings on the management of organizations.
Originality/value – As there are no other papers or studies found on the subject, the paper contributes to the development of a new management paradigm, which could be called a "spiritual approach on management".

Key words: God's Governance, Divine Providence, management of organizations, Swedenborg, spiritual approach on management.

Introduction

Challenges of nowadays seem to be more and more complex: in the same time we have to face with a global financial crisis that is still not ended, the effects of the global warming are not accomplish at all, asymmetric conflicts like terrorism destroy our traditional expectation on future days putting us to hard testing our ability to predict threats, environmental damages caused by a lack of knowledge in managing the secondary effects of our technologies rise serious concerns to us. What is the meaning of this all about ? Do we have to increase our abilities in managing crisis or it's about a crisis of our management ?

In one of our former papers [Lungu, Lungu, 2010], we stated the necessity of developing a so called "*spiritual approach on management*", thou a different one from what is known today under "spiritual management", considering there that such an approach should rest basically upon: an integrated view of both physical world and spiritual world by looking on earth and heaven like a whole; assuming as a consequence that humans are also spiritual beings, so that a mechanical view on them is not able to provide a comprehensive understanding of their motivation, behaviors and actions; considering God as a stakeholder, and therefore playing a certain role, idea been however already formulated [Schwartz, 2006] but on argumentations basically based on "natural"

rationale like the stakeholder theory and business reality and not on how the spiritual effective influences the natural, like the theory of spiritual influx, as we'll see in this paper.

This paper is based exclusively on Emanuel Swedenborg's work[1], a Swedish scientist and mystic as well, who lived in the 18th century and who stated had been taught by entities of the spiritual world. We are not intended to relate here theological aspects of the Swedenborg's works, neither to agree with them, nor to reject them thou we are aware of most controversial issues of his works [Peabody, Hoste][2]. Our purpose is only to "fetch out" where is it possible the main aspects conducting to a "pattern" of God's Governance according to the Swedenborg's spiritual worldview and to draft its consequences on the management of organizations.

God's Governance According to the Swedenborgian's Spiritual Worldview

Swedenborgian spiritual worldview in brief

In this section our purpose is to outline the main aspects of the Swedenborgian spiritual worldview[3] despite its difficulty due to the extensive information and its abstract presentations split in his numerous works and so to avoid the risk of entering too much details of how the world is built. We'll therefore try to sketch first this *angelic worldview* by answering several topics as: 1. Is there also another reality beyond our physical world, and if yes, what is the frame of this different vision ? 2. How does this vision integrate the idea of a Divine Being ? 3. What is the place for the man in the new light shed by this vision ?

1. The *angelic worldview* presented by Swedenborg is basically a holistic one, in which the physical or *natural world* we live in and perceive the reality with our senses subsists along with a spiritual one, being the place we are going after death [H&H §491]. Thou these two worlds appear to us totally distinct from each other, they are still interrelated by a so called Law of Correspondences [DLW §83][4]. What maintains these two worlds not to vanish, is God, who created them by means of *Divine Love* and *Divine Wisdom*, that are according to Swedenborg the very constituents of life, radiating from God, the single one that has or is life in itself [DLW §4]. The relation between these two is that "love is the reality of life and wisdom is its consequent manifestation" [DLW §358]. Since all created things in both worlds do not have life in themselves, in order to come to existence, they have to be vessels of life, receiving it from God as Divine Love and Divine Wisdom.

In order to provide a concise view of these two interrelated worlds, we'll take a brief look on how the spiritual world is articulated and then we'll see their differences and similarities.

Spiritual world is divided into a superior region called Heaven [H&H §20], an intermediate one, the World of Spirits [H&H §292] and a lower region known as Hell [H&H §536].

i. The **Heaven** consists of a so-called *Celestial Kingdom* (also named higher or interior) and the *Spiritual Kingdom* (or lower) [H&H §32-34].
ii. The **World of Spirits** laying between Heaven and Hell where man arrives after death and being the place where spirits dwell before to be risen to the Heaven or casted to the Hell [H&H §421-431].
iii. The lowest region of the Spiritual world is called **Hell**. The worst inhabitants of the hellish societies are the *evil demons* and the less malevolent the *evil spirits*.

Differences between these two worlds:

a. Since in the *spiritual world* all things are spiritual, in the natural world all things are natural (except the humans, that have both elements).

b. The natural world is the dwelling place of the mineral kingdom, the vegetable kingdom, and the animal kingdom, and above all of the mankind[5] [DLW §61]. The spiritual world is in turn the place where angels and spirits dwell, and is called Heaven.

c. There is no space and no time in the spiritual world as it in the natural world is. Therefore there are no distances, but in turn, states.

d. Unlike our natural sun, that rise and sets over a day, the spiritual sun "stands immovable at a middle altitude between the zenith and the horizon, whence the angels have perpetual light and perpetual spring" [ISB, p.323], and therefore differ also the cardinal points [DLW, §73].

Similarities between these two worlds:

a. Both worlds are quite similar, having their own suns, atmospheres, lands, liquids, solids, and their specific inhabitants, etc. [DLW §173].

b. In both worlds everything has been created must have a form and to be from a substance, as can exist without having a form and being of a substance.

c. Both angels and spirits have a *human form* as individuals since they can see, hear, speak, feel, move and they breath [H&H §73] and also in the aggregate [H&H §68, §78]. And vice versa, every angelic society and respective angel is a Heaven on smaller scale [H&H §51].

d. The difference among the infinite variety of things existing both in the spiritual world and physical world is given by the levels. There are two kinds of levels, vertical levels, and horizontal levels [DLW §184]. Vertical levels are providing a distinct relative state or position, like outer, inner and inmost location, or like antecedent, subsequent and final events, or like the purpose, the means, and the results of something. Horizontal levels are "gradual levels", that describe the gradually change of a feature like the when decreasing (or increasing) from coarser to finer, or from denser to rarer, or when going from light to darkness, or from warm to cold [DLW §185].

A special attention owe also the so-called *useful functions* and the new causal scheme. Swedenborg defines the *usefulness* as being "for the sake of others" [DLW §308] and the *useful function* as "those processes that were created by the Divine-Human One, or the Lord, as part of the design" but not the "activities that derive from our own self-concern" [DLW §298]. There are three kinds of useful functions [DLW §331-333]: *useful functions for the support of our bodies* ("nourishment, clothing, shelter, recreation and pleasure, protection, and the preservation of its state"); *useful functions for the development of our rational ability* (our knowledge gathered from parents, by learning, by dealings with each other and inner reflection); *useful functions for our acceptance of what is spiritual from the Lord* (related to religion, and its worship, understanding and recognizing God). Then, Swedenborg promotes the idea that opposite to the dyad *cause* - *effect*, which has to be considered incomplete and therefore unable to provide correct understanding, we have to deal with the triad *end(s) – cause(s) – effect(s)*. These three appear in the development of events (under the form of purpose - means – result, or antecedent - subsequent – final (events)) or compound structures (like tiny fibres – bundles of motor fibers - muscle) and being an effect of existing the vertical levels mentioned above.

2. Above the two worlds reign God, whose transcendence is absolute, He being beyond these two worlds. God is "uncreated and infinite", He is "life itself or life in itself " [DLW §4]. God is the "essential Person" [DLW §11]. Divinity is not in space [DLW §7], thou "He fills all space in the universe non-spatially" and also "Divinity is in all time, non-temporally" [DLW §69 and §77]. And also "Divinity is the same in the largest and smallest things" [DLW §77]. This does in any case not mean that God is omnipresent in any of the created things in the universe, or to be more precisely, "there is not the slightest thing in the created universe that is God" [DLW §283]. The frame of Gods governance is given by the Laws of Divine Providence as shown next.

3. Man consists of two interleaved sides: one physical, and one spiritual and the spiritual cloths the natural like a garment. In it's complex and subtle connection, the spiritual determines the physical and not the reverse, i.e. the spiritual has life in it but not life in itself, as it receives it from the source of life, that is God only, and vivificates the physical part of us[6]. To be this possible, God, who is in his true essence Divine Love and Divine Wisdom, has put in us (in our soul) two life carrying agents: *volition*, for His Divine Love and *discernment*, for His Divine Wisdom [DLW §360]. Volition and discernment are located primarily in our whole brain and secondary in our entire body [DLW §362]. Thou we have these two life carrying agents in our spiritual side, we are not at all aware of it[7]. Our mind, i.e. our spirit, consisting of our volition and discernment has a human form, being therefore a person [DLW §394]. So, like shown above, it has pulse and it

breathes. The impulse of our soul affects our physical body and put it in action, as we'll see next. To be this possible, the union between the human spirit and body has to rely on mutual correspondences. This is done by that the volition corresponds to the heart, while the discernment corresponds to the lungs. As a result, "the pulse and breathing of our spirit flows into the pulse and breathing of our body and causes them" [DLW §390]. But the breathing of our spirit is so subtle that we do not sense it [DLW, 391].

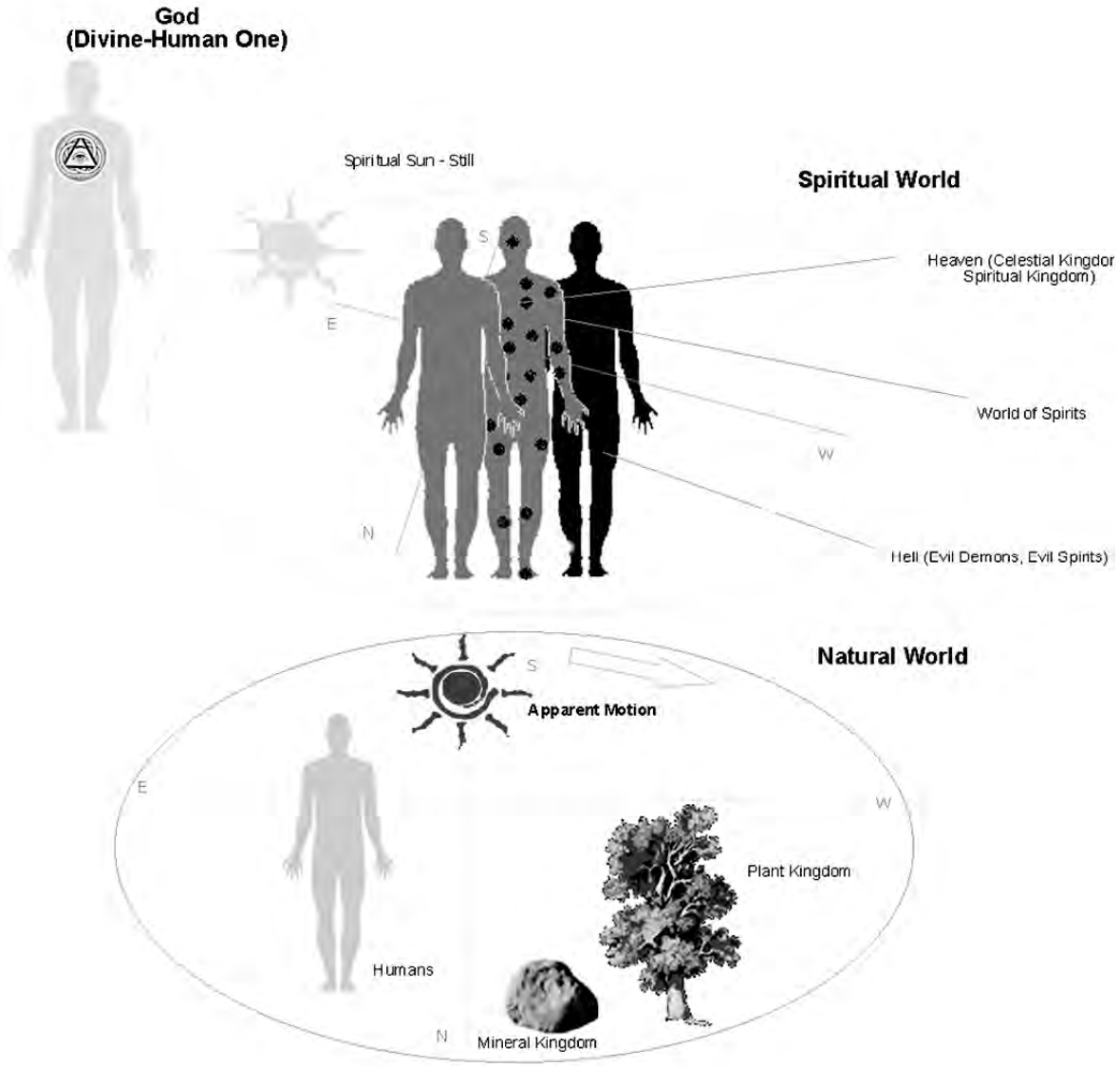

Fig.1 Layout of Spiritual Word and Naturat World

Let's explain now how the *Theory of Influxes* asserted by Swedenborg works in sustaining our lives (see Fig. 2). There are three levels of influxes of life flowing in man. The first influx flows directly and immediately from God, through the Spiritual Sun into his *soul*, and from here into his *mind* (affections and thoughts) and finally into his *body* (senses, speech and actions) [ISB, p.329]. *Affections* are defined as derivates of good of love (being in the same time the life of will) and thoughts as derivates of truth of wisdom (being in the same time the life of understanding). The second way is that the human mind receives influx from God through the spiritual world. In this respect, there is a passage in which Swedenborg speaking about the connection of man with the spiritual world, predicates that man is also subject of the action of spirits. So, he asserts the idea that both good and evil spirits dwelling in the World of Spirits, the intermediate region of the Spiritual world are attached to every individual, by which "we have our union with heaven through the good spirits and our union with hell" but they are limited in being aware of it by God [H&H §292].

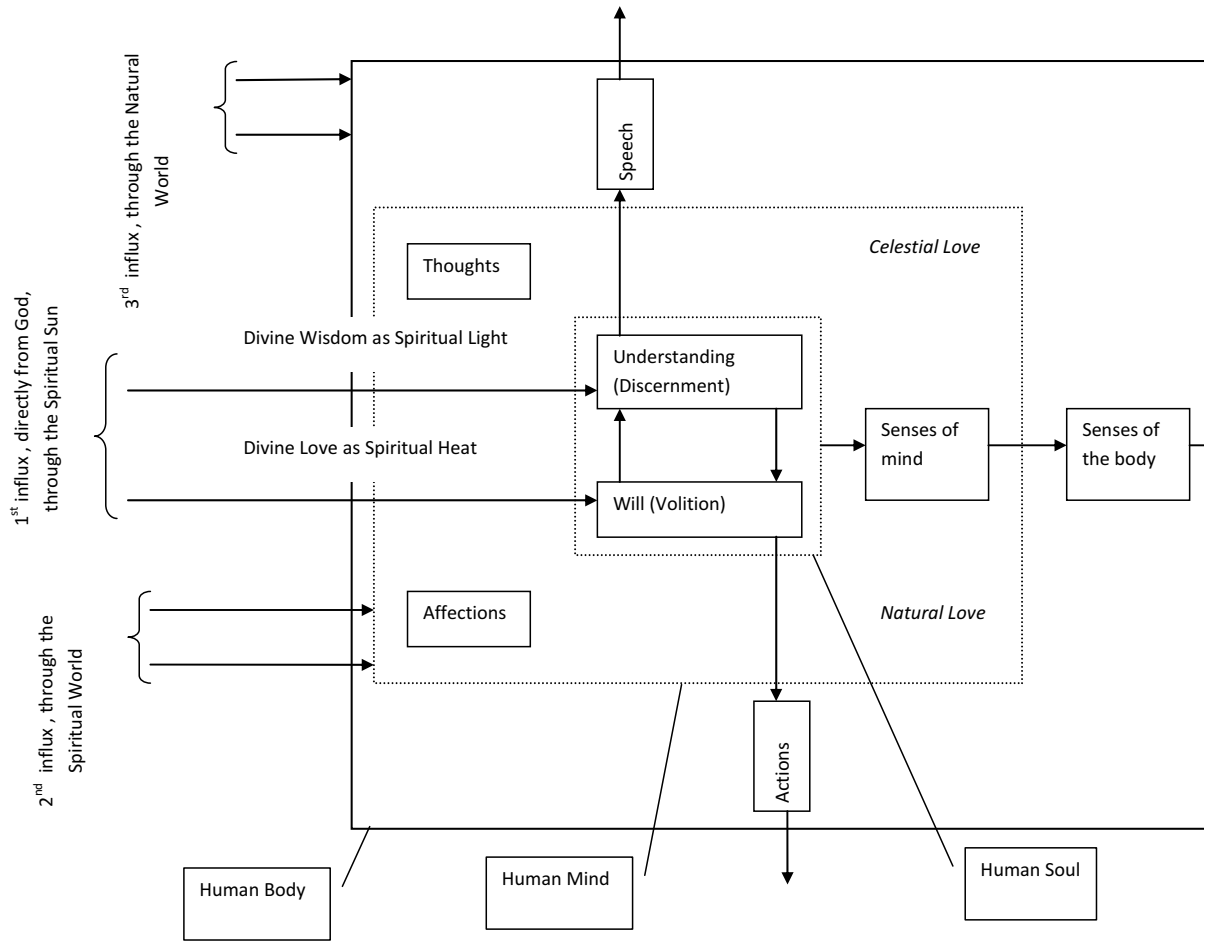

Fig.2 Influxes Layout

The third way man receives influx from God, this time in his body, are intermediated by the natural world. As wee see, every influx receiver must be of same nature of the environment that mediates these influxes.

A comprehensive layout of how influxes operate the on man is shown in Fig. 2

About God's Governance and how it works

In this section we would like to present the *angelic worldview* on: 1. How was the universe and all things in it created; 2. How does God get involved in governing the two world presented above.

1. According to Swedenborg, God has created the universe from eternity and all in it by means of the spiritual sun [DLW §290]. This sun radiates three aspects of the Divine: a divine element of *love*, a divine element of *wisdom* and a divine element of *service*. These three are made visible outside the sun of the spiritual world as *warmth* for the Divine Love, as *light* for the Divine Wisdom and as *atmospheres* for the Divine Service, the last one enclosing the first two, and being a vessel for them [DLW §296]. In its true essence, the Divine is Love and Wisdom [DLW §28] and these two are so close united that "Divine Love is a property of the Divine Wisdom and the Divine Wisdom is a property of the Divine Love, they being a distinguishable one" [DLW §34]. The goal of creation is explained in terms that everything should return to the Creator and that there should be a union.

2. We may draft the frame of God's Governance by looking first at His general involvement in sustaining the life and order in the whole creation what we usually call Divine Providence, and second to see how is in particularly governed the Spiritual and the Natural World.

Speaking about the Divine Providence, Swedenborg defines it as"the form of government exercised by the Lord's Divine Love and Wisdom" [DP, §1] or "the way the Lord's Divine Love and Wisdom look after us" [DP §2]. How things are maintained is shown by that "the Divine fills all things, and by filling preserves all things in the state in which they were created" [ISB, p.325].

Looking now at how the Spiritual World is governed, we found at Swedenborg some characteristics that could offer a concise view on it:

- the governance is grounded in the Spiritual World basically on mutual love;
- there is a variety of government forms, in accordance with the diversity of functions the societies living in the Spiritual World are fulfilling. So, since the form of governance in the highest or celestial kingdom is called *justice* and here leads and teaches in matters of life the Lord alone, the lower or Spiritual Kingdom, called *judgment*, is led by a number of "officials" according to the needs of their community. [H&H, 215]. Their leadership is relying on serving ("doing good for others out of a love for what is good ") and minister ("making sure that it happens") and not on control and command, and also putting "the welfare of the community and of their neighbor first and their own later" [H&H, §218].
- on a lower scale, there are masters and servants, their relationships relying also on reciprocal love. Since the master's task consists in teaching and expressing the common needs, the servant's ones is to obey and fulfill their functions, because "being useful is the essential delight of life for everyone".
- the Lord's kingdom is a an "organized structure of function", in which every society is assimilated to the different parts of the human body;
- in the hellish societies, the governance is quite opposite to the aforementioned. So, it relies basically on selfishness, on the desire of being preeminent and controlling others and the obedience to others is got only out of fear [H&H, §220].

Now, speaking about God's Governance of the Natural World, and above all, of us as humans, Swedenborg reviews a set of Laws of Divine Providence[8] as follows:

- **Law of Freedom and Reason** *("*we should act in freedom and in accord with reason" [DP, §71] *);*

- **Law of Removing Evils** (only putting aside evils in our outer nature Lord can put aside the evils in our inner nature [DP, §100]);

- **Law of Uncompelling** *("*we should not be compelled by outside forces to think and intend and so to believe and love in matters of our religion" [DP, §129]);

- **Law of Leading and Teaching** ("we should be led and taught by the Lord, by means of the Word, and this should happen while it seems we were acting independently" [DP, §154]);

- **Law of Awareness & Acknowledgment** *("*we should not sense or feel anything of the working of Divine Providence but that we should still know about It and acknowledge It" [DP, §175]);

- **Law of Prevalence** (our own prudence is ineffective, but "Divine Providence extends to the smallest details" [DP, §191);

- **Law of Focus on Eternal Matters** ("in everything that it does the Lord's Divine Providence is focusing on what is infinite and eternal and focuses on temporal matters only as they coincide with eternal ones [DP, §214]);

- **Law of Restricted Access to Inner Resources** ("we are not granted inner access to the truths that our faith discloses and the good effects of our caring except as we can be kept in them to the end of our life" [DP, §221]);

- **Laws of Permission** (evils are allowed for the purpose of our salvation) [DP, §234]);

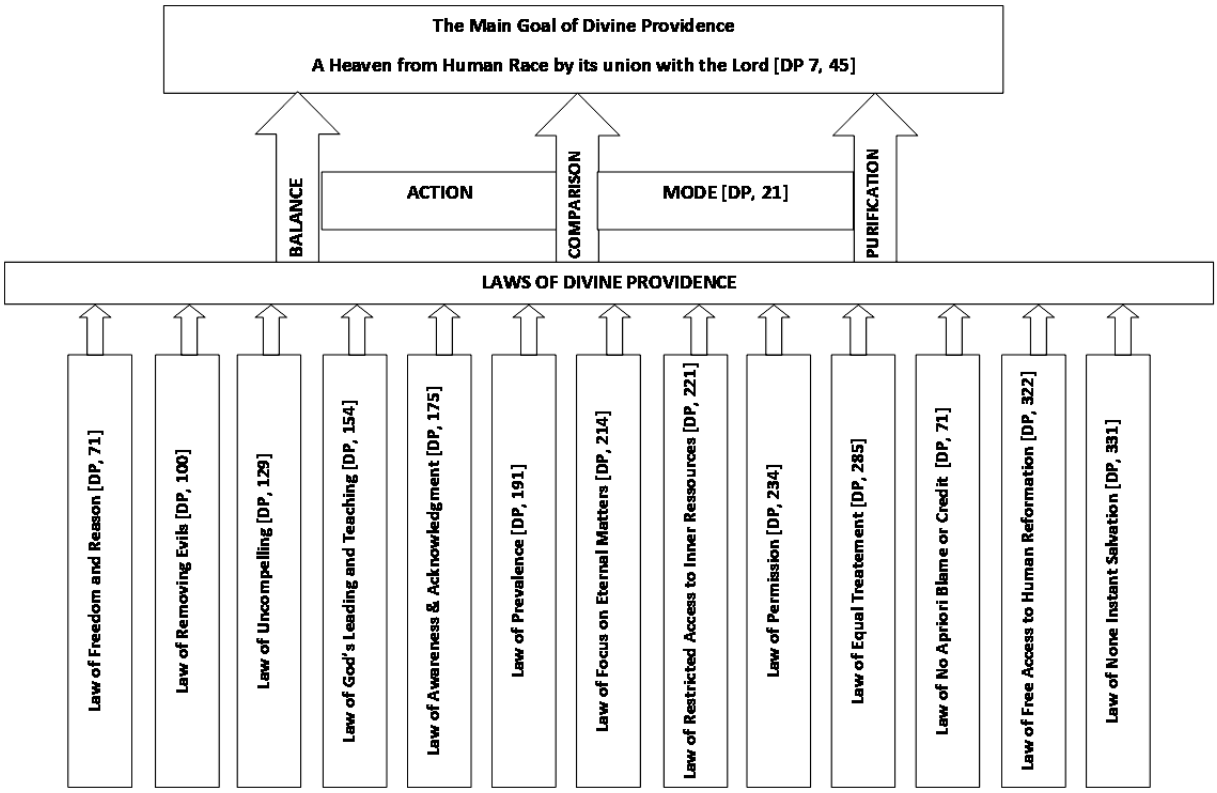

Fig.3 Divine Providence

- **Law of Equal Treatement** ("Divine Providence is for evil people and good people alike" [DP, §285]);
- **Law of No Priori Blame or Credit** ("Divine Providence does not charge us with anything evil or credit us with anything good" [DP, §71]);
- **Law of Free Access to Human Reformation** (everyone can be reformed [DP, §322]);
- **Law of None Instant Salvation** ("The Lord cannot act contrary to the Laws of Divine Providence" [DP, §331]).

According to the above Laws of Divine Providence, the *angelic worldview* presented by Swedenborg provides also a list with the seven kinds or levels of profanation: making / using lightly the Word or the divine gifts of the church; violating the divine truths though being aware of it; misusing the literal sense of the Word to argument evils and falsities; hypocrisy in devoutness and piety; "claiming divine qualities for ourselves"; "accepting the Word but still denying the divine nature of the Lord"; apostasy from the divine truths and living [DP §231].

Discussion and conclusions

After presentation the spiritual worldview and the God's Governance outline, according to Swedenborg, let's trace some consequences of the above on the management of organizations.

a) the presented layout of the Divine Providence shows first a strategic management approach of the Divine having as Vision a Heaven from the Human Race, as Mission the unity of the whole creation with God, and as action methodology the triad of balance-comparison-purification relying on a ruling frame give by the aforementioned Laws of Divine Providence.

b) as we have seen above when speaking about how the various heavenly societies are led, the relationships between masters and their servants owe on our opinion a deeper insight as this could provide additional elements to what is known under “servant leadership”.

c) the influences exercised by the influxes on man may provide a better understanding of the human nature and behavior, by reconsidering their inner or spiritual aspects, as rationality and freedom are the main features making the difference in comparing them with animals [DP, §74] and as “our physical behavior whether in speech or in action, is nothing but an effect of the inner and outer levels of our spirits, since the body is simply obedience” [DP, §104]. Moreover, “Lord provides and oversees our emotional and mental processes” [DP, §70].

Swedenborg asserts that man receives influx of life from God in a degree according to the extent of its state of love and wisdom [ISB, p. 13]. If we would formalize this, then:

$$Ø_{life} = \nabla_{L\&W},$$

where $Ø_{life}$ is the influx degree of life, and $\nabla_{L\&W}$ the state of love and wisdom.

Then, it is shown that on one hand, the elevation of a man’s *understanding* into the light (or into the angelic wisdom) depends on cultivation of his reason and on the other hand, the elevation of his *will* into the heat of heaven (or into love) depends on the deeds of his life, but only under the restriction condition according to which he should will and do just and only “those things which the wisdom of the understanding teaches” [ISB 14]. In a formalized form,

$$I_{SpL} = f \text{ (extend of cultivation of reason)}$$

$$T_{Sp} = f \text{ (life deeds)}$$

$$M_{deeds} \subset \{ \text{ teachings of understanding } \},$$

where by I_{SpL} was intensity of spiritual light, T_{Sp} the heat degree of spiritual love, and M_{deeds} the multitude of ones human deeds.

It is shown also that the quality of man may be evaluated according to the quality of his love. As there are three kinds of loves, the love of heaven (spiritual), the love of the world (material), and the love of self (corporeal), we may conclude that the quality of a certain man is given basically by the dominant of this three. Formalizing, we get

$$Q_{man} = Q_{Love}, \text{ and Love} = \{L_S, L_W, L_C\},$$

where Q_{man} is the quality of man, Q_{Love} is the quality of its love and L_S, L_W, L_C are the three above mentioned kinds of love. And we may add here that “every impulse or desire has its own partner or spouse. A desire of physical love has knowledge, a desire of spiritual love has intelligence, and a desire of heavenly love has wisdom. In comparison, by animals there is a “marriage” between desire and knowledge. [DP, §74].

Applying now this intermediate conclusion to the triadic model of “purpose - cause - effect” to the specific case of man, we will get a picture like below (s. Fig. 4)

And Swedenborg concludes: “he who knows the ruling love of anyone, and at the

same time the progression of ends to causes and of causes to effects, which three things follow in order according to the degrees of altitude, knows the whole man” [ISB, §17].

d) as God is further involved in maintaining creation by Its Divine Providence Laws and also directly, as shown above, according to Swedenborg we have to include Him among all other stakeholders , being involved also in practical aspects of life of humans and organizations.

e) the aforementioned “levels of profanation” could be used for refining a Cod of Conduct (or Ethics), by taking into account also spiritual aspects;

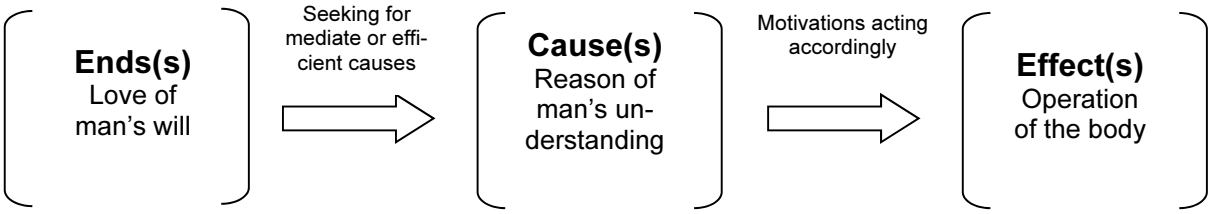

Fig. 4 End-Cause-Effect Process

f) as the whole creation relies also on useful functions, like those *for the support of our bodies, for the development of our rational ability, for our acceptance of what is spiritual from the Lord*, these may be applied also in management. So, an immediate consequence on the management of organizations, we could imagine that the optimum (U_{opt}) may be reached by an equilibrium between these three:

$$U_{opt} = U_b \circ U_r \circ U_{sp},$$

where U_b represents the usefulness for our bodies, U_r for our ational ability, and U_{sp} the spiritual one.

g) the Triadic *end(s) – cause(s) – effect(s)* Approach, the Theory of Correspondences between spiritual and physical, as well the Theory of Influxes, by which the Divine Love and Divine Wisdom infuses with life first the Heavens and then, on vertically levels the natural world, could bring an added value in understanding and explaining phenomena in different domains.

Conclusions

The most important conclusion after this brief account on Swedenborg's works is that it clearly states the existence of a Spiritual World, besides our well-known Natural World. We have seen above how is it structured in its very close details and how is it related to our world. Swedenborg also promotes in his works the creationist theory according to which the Divine has created the whole universe and moreover, He takes care of it in its smallest details by His Divine Providence. We think therefore that the present paper has provided enough arguments to sustain, on our opinion, the idea of a "*spiritual approach on management*", as stated in the introductory section. In this respect, it will be a future work to whom will wish to develop some essential features of such an approach which are only drafted here. So, it has to be developed the Theory of Influx, as a comparative approach to the existing knowledge of social sciences like psychology and sociology, and also what does it mean to reconsider among the stakeholders the Divine, and not only based on "natural" rationale, but also taking into account spiritual aspects, and of course the Laws of Divine Providence. Not at least, in formulating the inner aspects of this approach, it will be necessary to incorporate the Theory of Correspondences and the Triadic *end(s) – cause(s) – effect(s)* logic as well. And finally, it will be necessary to deep the study of Swedenborg works, in order to recover inevitably missed things due to the inconvenience of a paper length and the difficulties given by the extent of his works.

Notes

[1] There are a lot of comprehensive Internet sources relating to Swedenborg's biography and providing lists of his works. We may mention, inter alia, the free Encyclopedia Wikipedia, the Information Swedenborg (www.swedenborg.ca), The Swedenborg Digital Library (www.swedenborgdigitallibrary.org), Emanuel Swedenborg Studies (http://emanuelswedenborg.org/) web sites, etc. The used version in citing the Swedenborg's works in this paper is the Dole's English translation. However we have compared the text with other texts at hand, e.g. Ager's one.

[2] For instance, on the Overview Of World Religions web site (http://www.philtar.ac.uk/), Swedenborg is presented as having "taught a pantheistic theosophy centred on Jesus Christ".

[3] Swedenborg does by no means claim in presenting this worldview as to be a personal vision, created by himself, but rather one he have received it from the angels, and being actually a result of the Angelic Wisdom [DLW §394]. We have therefore preferred to use the term of angelic worldview.
[4] Swedenborg emphasizes the importance of these correspondences by which everything in the natural world has its correspondence in the spiritual world and also with the human form [DLW §83].
[5] "Only we humans are receptive of the life not only of the three levels of the physical world but also of the three levels of the spiritual world" [DLW §66].
[6] "Natural things, which are of the body serve the soul for vehicles and means, that it may produce effects in the natural world" [ISB, p.331].
[7] So, for instance we use to say that our eyes are seeing, our ears are hearing, etc., but it's only appearance. In fact our discernment is seeing through our eyes, or hearing through our ears. We may as well hear someone and not to pay him attention, or listen him, these two (attention and listening) being " actually functions of discernment as «hearing»" [DLW §363].
[8] The concise formulation of the above Laws of Divine Providence belongs to the authors of the paper.

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Online CSR Communication. Comparative study between Romanian and Swedish SMEs

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Abstract

Purpose *–This paper aims to compare the online CSR communication of the Romanian and Swedish SMEs and to identify the benefits provided by this type of communication.*
Methodology/approach *– The data were collected from the SMEs websites, so to investigate the style of presentation, the nature and extent of information on CSR programs. The firms were chosen randomly from a database provided by the Chamber of Commerce and Industry Cluj-Napoca and Umeå Universitet.*
Findings *– The number of SMEs that post CSR communication on their website is low in Romania (27%), but higher in Sweden (61%).The Romanian SMEs do not use the potential of their websites, while the Swedish SMEs show greater interest in communicating their CSR programs.*
Research limitations/implications *– The sample investigated makes difficult to generalize the results, but they are in coherence with the results of similar studies.*
Practical implications *– The study provides insights and basic principles for better usage of the web, online CSR activities that organizations may find interesting and hints to improve websites for a better style and image of good citizenship.*
Originality/value *– The paper explores the current situation of online CSR communication both in Romania and Sweden. It shows that even the SMEs are increasingly concerned with communicating ethically and responsibly to the diversity of stakeholders through the web.*

Key words: *Corporate Social Responsibility, Communication, Small and Medium sized Enterprises, comparative study.*

Introduction

The European Commission defines Corporate Social Responsibility (CSR) as being: “a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis” [Ec.europa.eu, 2011]. With the increase of environmental consciousness around the world since the 1970s, CSR has become an approach for better business management and consequently more and more firms and the academic world are acknowledging the importance of CSR [Colvin, 2001; Harrison & Freeman, 1999; Waddock & Smith, 2000].

The firms desire to increase competitiveness, to improve stock market performance [Waddock & Smith, 2000; Russo & Fouts, 1997; Klassen & McLaughlin, 1996], to create a positive self-image, brand-image among consumers [Handelman & Arnold, 1999; Osterhus, 1997], besides the external obligations or regulatory compliance, are a part of the reasons for socially responsible behavior and social reporting. Firms also use CSR initiatives to receive society’s support and to influence consumer behavior, but there is a greater demand for CSR initiatives [Birch, 2003; Owen, 2003].

Jacoby emphasized the role of socially responsible communication so to eliminate the negative perception about business as insensitive to social issues [Jacoby, 1973]. Big companies realized the importance of CSR communication [Birth, et.al., 2008], especially in the banking and finance sector [Cândea, R.M., Cândea, D., 2009], while Small and Medium sized Enterprises (SMEs) still neglect this [Dawkins, 2004]. For companies willing to build a good reputation and creating value is an imperative to be involved in CSR activities and to communicate these activities [Rowe, 2006]. SMEs involved in CSR activities, through the Internet, have a very low cost mass communication, instant access and update possibility. Firms want stakeholders to be aware that they are socially responsible, but they are reticent about communicating their CSR activities, fearing criticism and creating expectations [Schlegelmilch & Pollach, 2005]. Communication, as a corporate operation, has known in Romania a spectacular evolution from the phase of complete lack of concern, before the 1990s, to institutionalizing it, today. We are now witnessing the development of departments for communication and training of specialists in this new profession [Cândea, R.M., Cândea, D, 2009].

This paper presents the role of the internet in contemporary SMEs communication, namely CSR communication. Focusing on the content of the websites and their style, we will examine the extent and characteristics of SMEs CSR communication. SMEs are investing increasing amounts of resources on various CSR activities and they want to communicate those activities to influence their stakeholders and to gain benefits and potential sources of additional value for their firm. We selected the SMEs websites for our investigation because the SMEs are fast adapters to new technologies. Firms need to be active in the CSR field to remain competitive, so CSR communication gains an important role within CSR activities. The Internet is the cheapest and an essential communication tool in today's world, so our investigation and its implications become more interesting for local firms which are not yet using or neglecting the Internet. Our investigation could be used in benchmarking purposes and as an example of potential importance of the Internet. This paper attempts to survey the availability of SMEs websites for their CSR communication so to draw a complete picture of the situation of online CSR communication of SMEs in Romania and Sweden. The investigation will also provide hints for managers to use better the possibilities offered by the web and to improve websites for a better style and image of good citizenship.

The following questions were addressed so to investigate how SMEs in Romania and Sweden present their CSR programs on their websites:

1. How prominent is CSR communication on the websites?
2. To what extent do SMEs in Romania and Sweden communicate their CSR engagement?
3. How is CSR communication incorporated in the website?

This investigation is exploratory and descriptive in nature. It encompassed 2071 firms having websites, from a total of 26041 firms registered with the Chamber of Commerce and Industry Cluj-Napoca, respectively 2864 firms having websites, from a total of 35574 firms registered in the database provided by Umeå Universitet.

The paper consists of four sections. The following section (methodology) describes the methodology of the study. The findings section presents the results of the study. The conclusion and discussion section provide a summary of the findings and draws conclusions while the implications sections discusses recommendations for improvement of the situation.

Methodology

To analyze the current online CSR reporting situation of SMEs, we first chose the databases provided by the Chamber of Commerce and Industry Cluj-Napoca, respectively Umeå Universitet. The Romanian database contains over 26000 member firms, while the Swedish database contains over 35000 member firms. Both form wide databases important for any cooperation or business opportunities. The databases gave us information on the sector of the firms, their main products and services and contact information. Only 2071 Romanian SMEs had a website, while

there were 2864 SMEs with websites, so we decided to use all of these firms in our analysis and worked on their websites to explore how they communicate their CSR initiatives. We also checked that the firms in the sample were successful enough in the past year to afford the necessary resources to contribute to social and development issues.

The CSR concept covers many kinds of projects contributing to the development of the society by corporate citizenship, stakeholder engagement, community development, social contribution, philanthropy [Waddock, 2004] and so forth, so we examined the SMEs websites for any information or project contributing to the responsibility of the firm to consumers, to employees and to other stakeholders or to the environment, we also searched for activities for the community development [Besser, 1998] and for the philanthropic activities.

Out of the 2071 Romanian SMEs used for our analysis, 559 had a dedicated CSR section, and from the 2864 Swedish SMEs, 1747 had a dedicated CSR section, and were subjected to further analysis. We searched all the websites using keywords like CSR, corporate citizenship, philanthropy, community or social involvement and development, stakeholder engagement, environment protection, and so on. The firms from the final samples were operating in many sectors.

The websites were investigated on the following aspects of CSR communication [Pollach, 2003]: placement of CSR information (homepage vs. other pages) which indicated the communication prominence; the extent of information, determined by the number of pages dedicated to CSR and CSR related documents available on the website; and format of CSR presentation (textual, visual, multimedia and interactive features). After developing a coding system, we analyzed the relevant websites in the period August – September 2010, for Romania, and November 2010 – January 2011, for Sweden. This analysis was realized using Internet Explorer 7.0 and a form to fill according to the information in the websites. This form was prepared according to previous work such as Pollach [2003].

Findings

In our analysis we first checked the websites for a link to CSR activities. The firms that had in their homepage a link to CSR activities were 40% in Romania (224 firms), respectively 39% in Sweden (681 firms), and the rest of the sample had a link in a subsection under “about us” or “who are we?”. The websites should include a separate section for social and environmental information, so the consumers can reach with a minimum effort. The SMEs from the sample realized the importance of presenting CSR information on their websites, and according to [Chambers, 2003] the number of pages used for CSR is an indicator of the effort invested by a firm to communicate its commitment to CSR. Most of the firms from the sample (50% Romanian SMEs, 54% Swedish SMEs) covered their activities in two to ten pages and most of them adding some photos. We also examined the online content regarding CSR awards, annual reports and press clippings. About half (48% Romanian SMEs) and 38% of Swedish SMEs stated their projects results and announced the visit or a greeting message from a local authority in their websites, since the awards and rankings are always given to bigger companies. Only the Swedish SMEs had a Q&A section and a feedback contact for CSR section, which shows a greater implication of stakeholders in the firm’s activities. The findings and the coverage level of the firms are summarized in Table 1.

To investigate the presentation of CSR activities we had three options: text, visuals and text accompanied by visuals. The multimedia features or the interactive feature of the section were used only by the Swedish SMEs (14%), mainly in form of streaming video in the CSR section. Most of the firms in the sample had contact information where general inquiries could be e-mailed.

Table 1 Summary of the findings

	No of Romanian SMEs	%	No of Swedish SMEs	%
Sample size	2.071		2.864	
Websites with CSR section	559	27%	1.747	61%
Communication features CSR section				
In the main page	224	40%	681	39%
Under other pages	335	60%	1066	61%
Coverage				
One page	256	44%	629	36%
Between two and ten pages	283	50%	943	54%
More than ten pages	20	6%	175	10%
Content				
CSR projects results, visit or message from local authority	270	48%	664	38%
Newspaper clippings	95	17%	332	19%
Firms related memberships to associations or foundations	40	7%	280	16%
Detailed report	154	28%	471	27%
Presentation				
Q&A section for CSR projects	-	-	192	11%
Feed-back contact for CSR section	-	-	52	3%
Only text	268	48%	839	48%
Text and visuals	273	49%	559	32%
Multimedia	18	3%	105	6%

Conclusion and discussion

The paper investigated the online CSR reporting situation in Romanian and Swedish SMEs. We used two comparable samples in terms of size, 2071 Romanian SMEs from a database of the Chamber of Commerce and Industry Cluj-Napoca, and 2864 Swedish SMEs from a database of Umeå Universitet. The content analysis and presentation style of CSR practices used a sample of 559 Romanian SMEs and 1747 Swedish SMEs. Despite the growing importance of CSR, in the Romanian context CSR online communication seems to be neglected, since 27% of them have published CSR information, whereas 61% of Swedish SMEs have CSR information on their websites. This could be due to the limited number of CSR projects undertaken by Romanian SMEs or maybe they just do not fully recognize the importance of communicating CSR practices. These activities, using communication strategies, build company reputation first locally, then nationally and internationally. But each firm that takes steps towards social responsibility is trying to get a competitive advantage when implementing CSR programs.
Perhaps in Romania did not develop a culture of online communication because of peoples:

- high uncertainty avoidance (90) in comparison to Swedish people's low uncertainty avoidance (29) – Romanians rely on rules, laws and regulations, they want to reduce the risks to the minimum and proceed with changes step by step;

- power distance (90, for Romania, vs. 31 for Sweden) – in Romania is a large gap between the wealthy and the poor, and there is not a strong belief in equality for each citizen;
- individualism (30, for Romania, vs. 71, for Sweden) – Swedes expect from each other to fulfill their own needs, group work is important, but everybody has the right of his own opinion an is expected to reflect those, Swedes tend to have more loose relationships than Romanians who embrace collectivism and have large extended families;
- masculinity (42, for Romania, vs. 5, for Sweden) – Masculine traits include assertiveness, materialism/material success, self-centeredness, power, strength, and individual achievements. Both countries have scores under 50 which means that they are not very masculine, especially Sweden;
- long term orientation (33 for Sweden) – Romanians are not long term orientated, they prefer personal steadiness and stability, protecting their "face", respecting the tradition, and prefer reciprocation of greetings, favors and gifts, while the Swedes are persistent, thrifty, ordering relationships by status and observing this order, having a sense of shame. [Hofstede, 1984].

These characteristics explain the Swedes orientation towards CSR involvement, communicating this involvement and using a new communication channel for this. Romanians have recognized the importance of CSR involvement from observing corporations activities, but they will have either to be persuaded or get accustomed with the Internet being an appropriated tool for communicating important information on the firm's activities.

The Internet is gaining ground as a communication tool that companies use to present themselves as socially responsible businesses, providing an official perspective on CSR [Bondy, 2004]. The Internet has been used as a multimedia communication channel since the 1990s, so the sites may not be the most preferred communication tool by SMEs, which mostly target local public. No offline communication channels are taken in consideration in our exploratory study, but, in general, we can affirm that our study indicates that there is a lack of broad, proactive CSR communication on websites on Romanian SMEs [Mirea, 2011]. Swedish SMEs websites are user friendly, meet the needs of their stakeholders, the information is structured, the user easily finds what he is looking for.

The Romanian SMEs do not fully use the advantage offered by the Internet and the presentation style, since they do not exploit the communication technology although they have an unlimited free space to be used for CSR engagement; most of the firms in our sample have only minimal information (one page). Since the SMEs target the local public, they seem to believe that the online communication does not help them in reaching their target audience. Swedish SMEs websites use two to ten pages to communicate their CSR engagement; they have interactive sections, using most of the tools to attract users' attention to what they do best. Although 11% of the sample firms were in Romania in the textile and chemical industry, we observe that there is a lack of interest from SMEs towards CSR issues. Social and environmental issues are very important for firms in these industries, being integrated in the mission and vision declaration. This lack of interest may be due to the low number of visitors concerning CSR activities or perhaps firms' owners do not believe in CSR communication via the Internet. 25% of Swedish firms were in the wood processing and pulp and paper industries and they are actively engaged in environment protection, the activities progress being regularly updated on their websites. There are several papers showing that the traditional media is more credible for consumers than the information posted on the web by the company [Dawkins, 2004].

Regarding the presentation style, firms mainly use traditional hypertext features, ext, links and images. This lack of creativity and omission of multimedia and interactive opportunities to support CSR engagement are reported in similar studies [Pollach, 2003]. Swedish SMEs seem more open to collaborate with their stakeholders, their websites having Q&A sections and contact information for their CSR projects, compared to the Romanian SMEs websites where these tools are not used.

Implications

The aim of this paper was to examine the presence, extent and characteristics of online CSR communication by Romanian and Swedish SMEs.

The businesses are becoming more and more aware of the need to communicate with their diversity of stakeholder groups in an ethical and responsible way. The Internet becomes one of the main tools for CSR information disclosure, since it allows firms to publish more information less expensively and faster than ever before. It also gives firms the chance to differentiate from each other through CSR communication style. It also gives the opportunity to communicate proactively by involving stakeholders in the formulation of CSR strategy and practice, through its multimedia features and interactivity. Thus firms can develop long-term relationships and effectively respond to stakeholders needs.

So to become competitive in the market, Romanian SMEs should compete in terms of CSR practices and communication. First they have to add more meaningful information to their websites CSR section, including their future projects, a clearer justification for supporting actual activities and demonstrating their involvement and support. They should also regularly update the information provided on their websites, to have more credible and relevant information for decision-making. One of the reasons for which the Swedish SMEs managed better the financial crisis was this type of online communication. They could adapt faster to change; they had crucial information from their stakeholders; through this type of communication they managed to attract a greater share of loyal customers.

On the Swedish SMEs websites we also found past projects, overcome challenges and learned lessons, which is helpful for other SMEs, as examples, maybe best practices. Information sharing, feedback and websites usage, in the CSR section, in form of interactive CSR reporting or downloadable brochures and CSR project video presentations, also show commitment to local communities, helping local firms and other stakeholders to promote development of mutual trust, cooperation actions and shared values. While Nordic nations are considered cold, uncommunicative, it seems that they managed better the online communication to improve their prospects for sustainability. Swedish firms realize the importance of communication and stakeholder involvement, perhaps due to active involvement and support from the state organizations, informing SMEs about CSR, stakeholder involvement and new technologies. The online communication may improve relationships between SMEs and state organizations, key stakeholders, and even the competition. And even the relationships with and between employees may be improved, important information being accessible in due time, improving decisions making, employees being able to identify with the firm depending on the CSR activities undertaken by the SME.

Management communication is one of the aspects that need to be constantly revaluated in an ever changing world and communication ethics becomes one of the conditions required for organizations' sustainability. When adopting a CSR approach, the communication forms, tools and style have to adapt to the new attitude of the organization's management. The objectives that reflect the active assuming of corporate social responsibility should be incorporated in the general strategy of the organization and; implicitly, in every activity. [Cândea, R.M., Cândea, D., 2008]

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Study on temporal influences on management and managers of business organizations

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Abstract

Purpose – The research that includes this paper is trying to identify basic elements regarding the implementation of time management in the Romanian business organizations.
Methodology/ approach – The research was based on a questionnaire addressed to managers and other professionals practicing in business organizations in Romania, following the evaluation of the most important factors affecting the judicious use of time in organizations and the extent to which implements Romanian organizations time management.
Findings – There are relevant the extremely high mutations that business organizations need to implement in the organizing and structuring the activities with major implications for human resources and radical changes in organizational culture, and changes and reorganization of new bases production processes and activities that generate value for consumers.
Research limitations/ Implications – For reasons of space economy, in the following lines there can be found only conclusions of the two objectives pursued in the questionnaires administered.
Practical Implications – Romanian organizations' managers notify the need to improve production processes and deliver value to consumers and hold radical transformation of human resources to adapt to time-based competition.
Originality/ value – This paper demonstrates the viability of the proposal on the triad Time – Value – Performance and demonstrates to practitioners in managerial endorsement that there is a very important connection between this three elements that are vital to an organization, especially in a business environment governed by two very influential "V" s: velocity and value!

Key words: time, time management, value.

Introduction

The paper presents results of a selective research based on a questionnaire administered in some business organizations in Romania. The research that is presented in this paper was a much broader one and sought to identify some basic elements regarding time management implementation in Romanian business organizations. For reasons of space economy, in the following lines there can be found only conclusions of two of the objectives pursued in the questionnaire administered. Thus the research was based on a questionnaire addressed to managers and other professionals practicing in business organizations in Romania, following the evaluation of the most important factors affecting the judicious use of time in organizations and the extent to which Romanian organizations implement the management based on time. These results and conclusions are based on responses from general managers and managerial representatives within 33 business located in Sibiu, Bucharest and Timisoara, in different fields of activity (production profile, services, trade, transportation). The structure of the research was based on tracking a set of main objectives, in this work being presented the results of the questionnaire for two of them:

- O_1 – *Background opinions on time and its representation*
- O_2 – *General opinions regarding the influences of time on management and managers organizations*

These objectives have a degree of relevance to temporal factor analysis on the influences exerted on organizations and their members, and in terms of skills development needed to implement time management in Romanian organizations.

Centralization of the results of the questionnaires was performed using SPSS 13.0 program for Windows and worksheets in Microsoft Excel. The analysis of the survey tabulation results lead to the following significant conclusions.

Background opinions of the managers concerning time and its representations

$O_{1.1Mg}$ *What does „time" represent to you? Please shape your answer in 3 ways.*

Opinions on this open question are extremely diverse, which proves the fact that the way managers report to time and it forms implies several facets, some of them very interesting.

Because a manager must be a very pragmatic person, most representations of time considering the pragmatic aspect of existence, and given the English dictum *„time is money"*, many responses stated that the time is in first, money. But for many is also an extremely valuable resource, irreplaceable, irreversible and irretrievable to be managed carefully. Just to see the many facets of time from the perspective of a manager, shown in Figure 1, a centralization of the main representations of time and links gathered through this research, emphasizing the ideas that are distinguished from the general context.

However, to achieve centralization and concentration of these views in relation to time as set in the chart attached a summary of the most common remarks on the temporal dimension. Thus, analyzing the chart in Figure 2 there can be seen that for more than 33% time is an extremely valuable resource for the organization, but at a rate of almost 25% representation is that "time is money".

$O_{1.2Mg}$ *Evaluate from your point of view, the importance of the following perspectives on time:*

	1	2	3	4	5
Time is a common measure that defines actions course and events for the synchronization and coordination of different elements or different participants					
Time is a perception scheme built interpersonal, closely related to conventions and traditions, that can be a part of the culture and organization goals					

Two perspectives on time are particularly relevant:

- *Objective perspective* – focuses on time as a common measure that defines actions and events during synchronization and coordination of different elements or different participants. It is used in many disciplines while maintaining the same semantics;
- *Subjective perspective* – defines time as a scheme of perception, which is constructed interpersonally. This perspective is closely related to conventions and traditions and can be a part of the culture and organization goals to be achieved on the basis of conduct so that the company resources remain viable in a dynamic environment.

Fig. 1 Managerial perspective of time

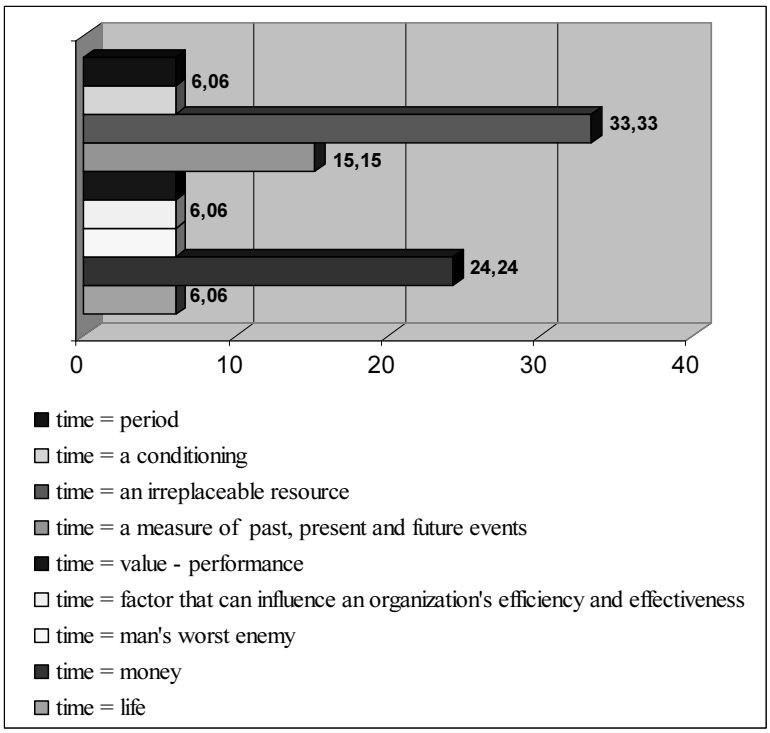


Fig. 2 Hierarchy of perspectives on time, from the managers' point of view

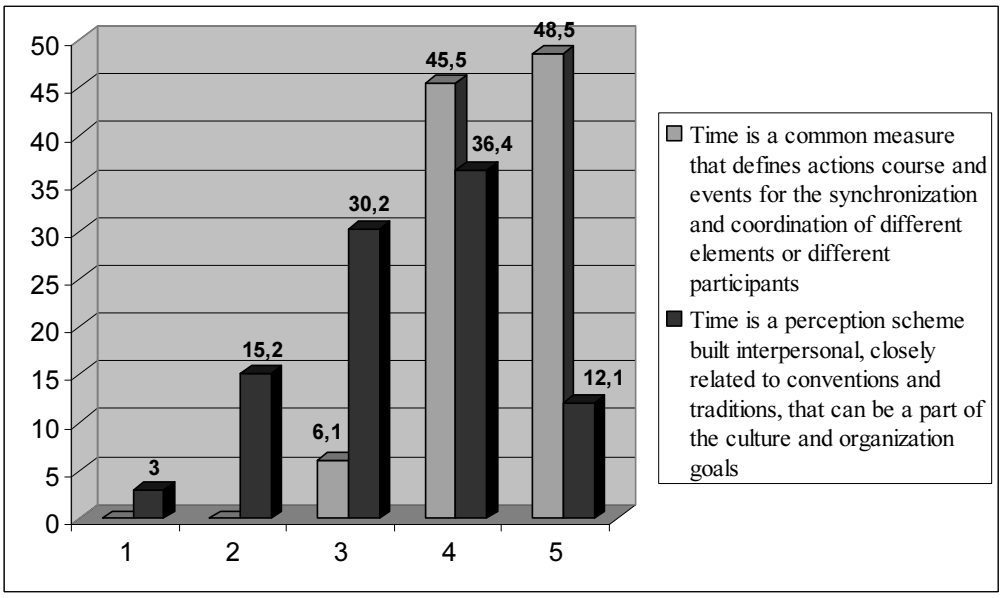


Fig. 3 Relationship between objective and subjective view of time

Analyzing the results drawn from the research, concerning this question (Figure 3), there can be seen the pragmatic and relatively objective perception of managers in relation to the temporal dimension. Summarizing the responses recorded on the rating scale evaluation important and very important (i.e. items 4 and 5) it is found that ***the objective perspective on time records a share of 94% responses***, while the subjective perspective has a share of only 48.5%.

One can say that is a relatively expected result, because modern organizations face major problems related to the rate of development of events and their timing with the rhythms of business, a thing that determines the management of these organizations to have a maximum

responsibility concerning the time aspect, which may represent an essential component in achieving competitive advantage. An aspect observed during the research is that some experts say that is desirable for organizations to become true examples of temporal synchronization.

$O_{1.3Mg}$ *Mention three fundamental changes due to time in organizations, based on the idea that this is a irretrievable resource, a decisive thing strategic competitiveness.*

This is the second open question, included in the questionnaire that was asked to managers of business organizations, and registered a very high percentage (55%) of non-responses. This can be caused by two basic reasons. One of them concerns the aspect of time and the time crisis in which we live, with more important accents for an organization manager and it probably much faster and more comfortable answering questions with predefined answers. Another reason may relate to the difficulty of specifying some fundamental changes as determined by the organization, considering that it was not yet perceived to be a determinant factor at the organizational level, to trigger major changes or as the basis for establishing strategic plans.

However there was a variety of answers shaped by a variety of facets of the business processes performed within an organization and the markets in which it evolves. There were mentioned the need to reduce waste and costs, increasing process quality, process improvement, organizational development and culture change, increasing the speed of response to consumer demands and the opportunities on the market. From this range of views in Figure 4 are the most significant, which had a higher degree of occurrence, as indicated in the parentheses, being mentioned the frequency recorded by some of these responses. It has been tried to group them based on their areas of interest covered by them, to the extent that some responses had common elements.

Fig. 4 Basic mutations determined by time in organizations

Based on the centralization and clustering of similar hue answers, it was possible design a graph (Figure 5) targeting the most important changes, as a percentage of occurrence, as determined by the business organization, based on the idea said that it is a irrecoverable resource, crucial to achieving competitiveness in the new strategic environment of an extremely dynamic business environment. These mutations or courses of action identified at the organizational level are:

- Improving processes to eliminate any kind of waste;
- Increase productivity and efficiency of work performed;
- Radical transformation of organizational culture;
- Competitiveness and entering new markets by surprising competition through a rapid initiations of strategic actions;
- Enhancing opportunities much faster;

All these have as an objective to form skills and competencies for the implementation of time management, based on the reorganization of business processes and transform organizational culture, through an optimal knowledge management, starting with their collection and finishing with generating new knowledge to increase the value of the intellectual capital of the organization.

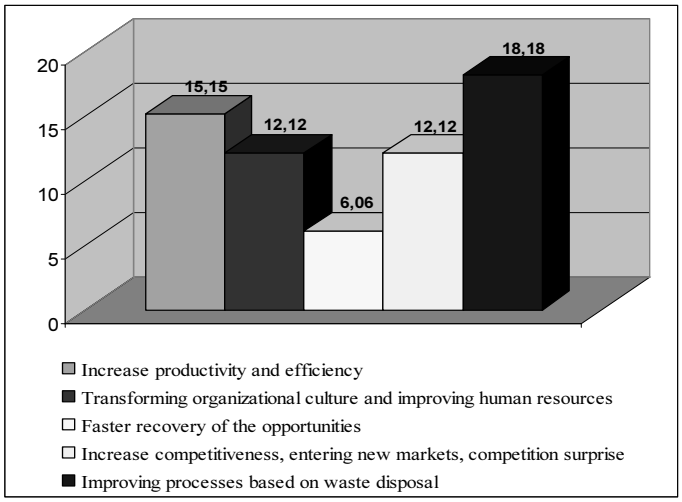


Fig. 5 Hierarchy of the most important mutations determined by time, from the managerial perspective

General views on temporal influences on management and on managers of business organizations

$O_{2.4Mg}$ *Evaluate the importance of involving the following factors of success in your organization's performance:*

	1	2	3	4	5
Production cycle time					
Company Information System					
Innovation					
Know-how					
Customizing					
Activities efficiency					

Defining and identifying success factors is one of the stages of creating and monitoring system processes, these critical success factors are in accordance with Rockart (1979), "the limited number of areas where the results will ensure successful competitive performance organization".

Critical success factors are identified at every level: of the organization of the process and the aims of the represented, following the classification made by Mende (1995).

These success factors specifically target the performance of the process of generating value to consumers of the organization.

Their importance in terms of managers surveyed is shown in the graph in Figure 6

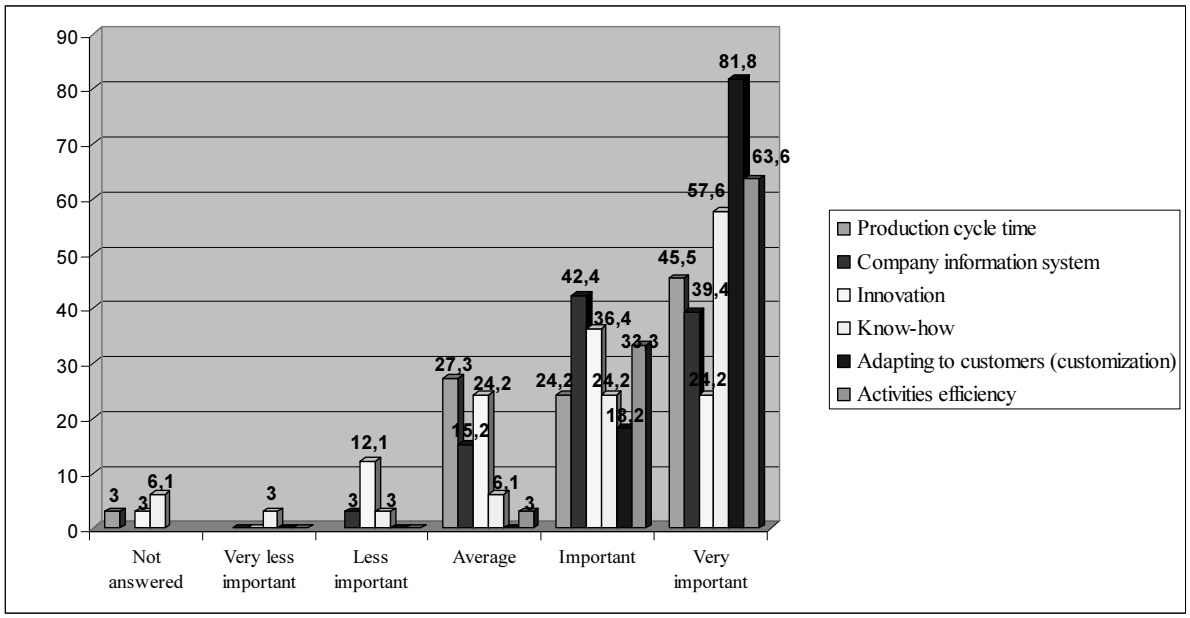


Fig. 6 Importance of the involvement level of the following success factors in the organizational performance

The analysis of the results is very interesting. On the first three positions, by summing the answers from “important” and “very important” headings on the assessment scale, stands: *adaptation to customer requirements (customization) - 100%, efficiency activities - 96.9% and know-how and the system information - 81.8%*.

It is very interesting that although the adaptation to customer requirements is the most important success factor identified by the managers surveyed, innovation with 60.6% is only on the last place, being hard to understand how these organizations are still able to adapt products and services to consumer demands, being involved in constant changing, without a successful innovation process and with a short cycle of research and development or creation.

If they are analyzed the 30.3 % of the organization with the main activity production, the importance of the footprint of the factors listed is slightly different, in the sense that on the third place appears as the main element, the production cycle time (80%) and innovation although deals here last, still holds the highest percentage - 70% - of all other studied CAEN classification, which shows that, however, in production, research and development is an element that cannot be ignored but in time must be taken into account with much more consistency.

$O_{2.5Mg}$ *Evaluate which of the following causes contributes to the waste time or to the inefficient use of it within your organization:*

	1	2	3	4	5
Lack of proper processes planning within the organization					
Deficiencies in the clear transmission of information					
Insufficiently justified overtime					
Large number of employees in relation to the work planned					
Delays in decision making					
Lack of efficiency in making the necessary arrangements for repair or maintenance of machinery					
Managerial deficiencies in own work and in employees organization					

To this question has been listed the major causes of wasted time in an organization, identified in the specialized literature or mentioned by the managers of business organizations. These causes are the first which must be eliminated to provide a serious foundation for implementing time-based management.

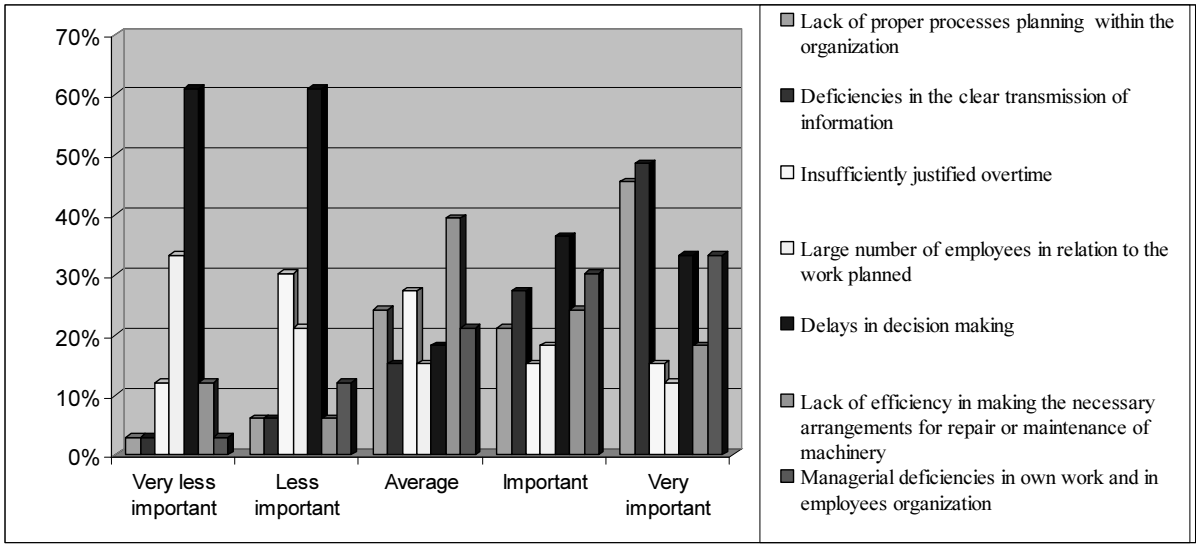


Fig. 7 Causes that contribute to time waste or inefficient use of it within the organization

After analyzing the results, shown in Figure 7, it is noted that the order in which these causes contribute to the waste of time is, as follows (looking mainly answers 4 and 5 on the scale of assessment)

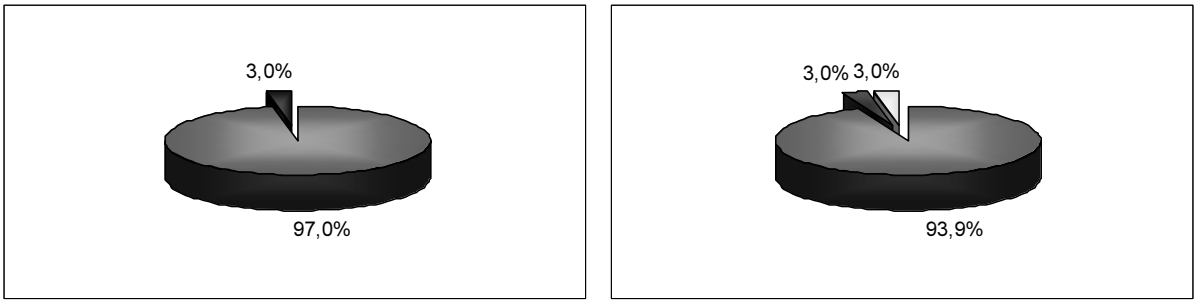
- deficiencies in the transmission of clear information – 75.8%
- delays in decision making – 69.7%
- lack of proper planning processes within the organization – 66.7%
- managerial deficiencies in work organization and of the its employees – 63.6%
- lack of promptness in taking measures necessary for the repair and maintenance equipment – 42.4%
- poorly justified overtime hours and excessive number of employees compared to workload planning – 30.3%

By correlating these results with those recorded on the previous question can be noted that the two main causes, which are responsible for the time waste in an organization, according to their managers belong are closely linked, to company's information system, which to the previous question were not located, however, among the most important success factors for organization.

Very significant indicator issues in the organization for time wasting records and activities that fall under the direct influence of the managers of firms – deficiencies in managerial activity and the lack of rigorous planning, which records a score of over 60%. This is an interesting element in order to show that managers of organizations that participated as a subject to the analysis are aware of their limitations and problems arising in management processes or existing coordinated the self.

$O_{2.6Mg}$ *Do you consider that there is a link between the following? If the answer is YES, please evaluate the importance of these relationships for your organization.*

	In percent (%)		1	2	3	4	5
Time - Value - Performance	Yes	97,0			12,1	39,4	45,5
	No	3,0					
	I don't know						
Cost - **Time** - Quality (procedural success factors)	Yes	94,0			12,1	42,4	39,4
	No	3,0					
	I don't know	3,0					



a *b*

Fig. 8 Considerations on the existence of a link between: a – time – value – performance; b – cost – time – quality

The first link between procedural success factors mentioned in point two of the question was released by the originators of the concept of time-based competitiveness and the supporters of introducing time management in modern industrial organizations. Their launched dictum that is still pursued nowadays assiduously is: *QCD – quality – cost – delivery.* The initiators of the monitoring process, in the desire to establish some parameters to measure performance of the organization in accordance with the requirements of major interest holders they redefined these factors as presented: *cost - time - quality*.

So, it was shown that this combination is beneficial for the organization and offers certainly prerequisites for outstanding performance compared to major competitors in the market. A rigorous management based on optimal time management in the production systems and other business processes gives security in reduction of costs and of any kind and, logically, reduce production costs and increase the quality offered by the radical change of mentality of employees and increase their responsibility at every job.

The first concept mentioned in this question - ***time – value – performance*** - ***is a new and original concept***, being built to demonstrate that temporal resource through proper management can provide unexpected opportunities to increase value for consumers and the value global organization, thereby increasing the performance of the organization, both in terms of the carrying out business processes and outcomes in terms of the overall performance assessment of the organization.

Therefore this question is intended to analyze the viability of this proposal and those already circulated in the Western business environments.

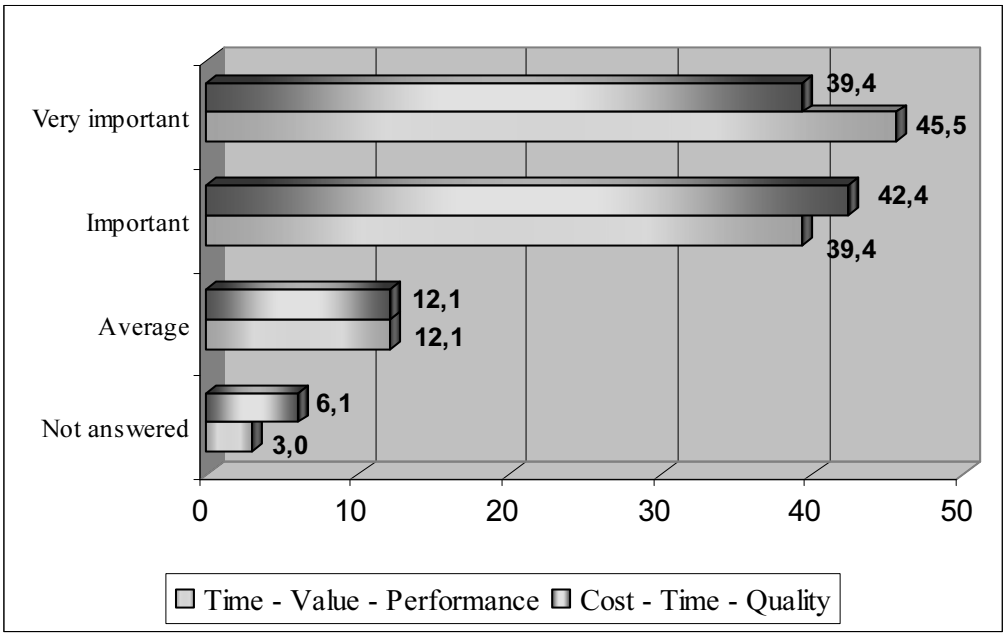


Fig. 9 Assessing the significance of the two relations for the organization

It can be seen from the graphs shown in Figure 8 that the managers of organizations surveyed are in overwhelmingly agree that there is a link between these elements, the option time - value - performance comprising 97% of positive responses, and option cost - time - quality comprising 94% of positive responses. This shows that managers do not perceive the business organization these two formulas presented as dichotomous, but on the contrary, they are seen in a perfect combination, the first being actually a corollary of the second.

Looking at the graph in Figure 9 and linking the recorded answers to important and very important on the scale to the proposed assessment, we find that the link between Time – Value – Performance recorded a score of 84.9% slightly ahead score which 81.8% recorded Cost – Time – Quality. This result demonstrates the viability of the proposal on the triad Time – Value – Performance and gives to the practitioners in managerial the endorsement that there is a very important link between the three elements vital to an organization, especially in a business environment governed by two special elements: speed and value!

Taking into account the answers split by industries, managers of some industry types, such as manufacturing construction that responded affirmatively to this question in proportion of 100% for both types of proposed relationships.

Conclusions

It can be stated that the main perception of time is objective, that time is regarded as a common measure that defines actions and events during the synchronization and coordination of different elements or different participants. Besides a lively topic of interest raised by time topical and time representations from various perspectives are multiple, and often difficult to quantify. Therefore, from the pragmatic and material perspective time, for more, means money and its loss leads to lower profit in their organizations.

It is remarkable that the Romanian organization managers notify need to improve the production processes and to those who deliver value to the consumers (18.18%) and the radical transformation of human resources (12.12%), defining elements for preparing the organization in entering markets where time and speed of response to consumer demands are essential.

From the perspective of the major changes mentioned by respondents in this research it can be said that two of them rive from off all the others, first is about the very large changes that an organization must implement in the organization and the second is about how to structure activities with major implications for human resources and with radical changes in organizational culture, and about the mutations and reorganization based on new production processes and activities that generate value for consumers.

All this emphasizes the fact that organizations who are aiming for a time orientation as a resource for ensuring competitive advantage, can evaluate the success in terms of time - value - performance, therefore these are redesigning there processes by e time thematic and their own rhythms synchronizes to environmental rhythms and base their external competitiveness with the speed of the consumer needs (much faster than the competition).

Time has a very high intrinsic potential but only by a very good recovery can generate value and can lead to performance both in individual life and in the organization. It is gratifying fact in itself, because this awareness of the latent value of time can be a basis for building a coherent management architecture based on time and providing time-based competitive advantage.

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Innovation and Communication in Management 2.0 New Perspectives for the Romanian Companies

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Abstract

Purpose *– The present research aims to identify the main causes of poor results recorded by Romanian companies in innovation and identify new directions for redefining the management of innovation*
Methodology/approach *- This study is based on a survey of 2500 Romanian companies from all fields of activity. The authors also analyze the data from the surveys from 2003, 2005, 2007 and 2009 of the Romanian National Institute of Statistics („Inovarea in industrii si servicii in perioada 2000-2002", annual report 2003, "Inovarea in industrii si servicii in perioada 2002-2004", annual report 2005; "Inovarea in industrii si servicii in perioada 2004-2006", annual report 2007; "Inovarea in industrii si servicii in perioada 2006-2008", annual report 2009).*
Findings *– The results indicate a low rate of adaptability to change and a low rate of innovation in the economic dynamic of the companies. The preliminary results also indicate an inefficient internal and external process of communication, due to a lack of involvement of the employees.*
Research limitations/implications *– More than any kind of innovation, management innovation has permitted companies to achieve high levels of performances. Although this is recognized and very present in words, few companies have a well developed-process for continuous management innovation.*
Practical implications *– The practical implications are based o two important values that every company has to implement from now on: innovation and the communication within the company.*
Originality/value *– The paper presents a comparative study at a national level and new directions of development for the concept of Management 2.0 .*

Key words: *innovation, communication, Management 2.0, change, crisis*

Introduction

After 1989, the East Europe, and Romania implicitly, has tried to assimilate the management principles already acknowledged in the West, so that they could develop a viable economy and performance at an international level. After 20 years of "fine tuning and adjustment" during which the eastern European region has become an emerging economy, the global crisis has reset all management principles that have hardly been implemented: organization, resource allocation, planning, recruiting and motivation.

Threatened by the crisis, the companies have applied crisis management strategies so that the company could get through the financial crisis. However, a very low number of these companies have succeeded in this matter, growing and having profit in this difficult period. These companies happened to be exactly the ones which adopted innovation as full scale strategy, getting out of the standard principles of management.

The financial crisis has shaken the basic principles on which the global economies were built. The management as we knew it until now didn't manage to predict and it is now struggling to fight back the effects of the crisis. We are already talking about "rewriting the source code" of the new version of management: Management 2.0.

Looking up the bright side though, the new economic reality has leveled the companies all over the world, no matter their level of development. These companies will have to find new variables that can lead them in a pole position in the new economic order. The future challenge will be to try to shape the new principles of management – Management 2.0 which will have to be capable to resolve the new types of economic problems.

Research problem: Innovation as a major driver for development

The prevailing management model in most organizations was based on the bureaucratic organization, with its emphasis on standardization, specialization, hierarchy, conformance, and control. These principles comprise the philosophical foundations of Management 1.0 and are deeply baked into management mindsets and processes.

The concept of Management 2.0 will have to analize the passage from an economy based on a long-term predictable organization, to a much more dinamic economy based on change, in which innovation will be the main growth engine.

In the last 50 years, innovation research had a traditional perspective which focused only on technological innovation, process innovation in manufacturing, or industrial high tech. This is a very restrictive concept. Pekka Himanen (2007) proposes a larger concept on innovation describing five different areas of innovation: technological, business, design, product/service and cultural.

Moreover, innovation is not the exclusive result of R&D departments anymore; the present challenge is how to involve everyone into the innovation process. Therefore, the role of communication into the dynamics of innovation will be essential for the success of return on investment.

The present article proposes an analysis about the capacity of Romanian companies to innovate and to adapt to change. The authors also analyze the efficiency of the communication process, which they consider to be an important driver for the employees' involvement and successful implementation of innovation. These findings will help the autors to propose some necessary directions on the definition of Management 2.0.

The authors suggest that the concept of crisis management must be analyzed from the perspective of a new definition of the concept. This will have to take into account the adaptability to change, based on the capacity for innovation and supported by an efficient process of communication.

Research findings. Methodology

This study is based on a survey of 2500 Romanian companies from all fields of activity. The authors also analyze the data from the surveys from 2003, 2005, 2007 and 2009 of the Romanian National Institute of Statistics („Inovarea in industrii si servicii in perioada 2000-2002", annual report 2003, "Inovarea in industrii si servicii in perioada 2002-2004", annual report 2005; "Inovarea in industrii si servicii in perioada 2004-2006", annual report 2007; "Inovarea in industrii si servicii in perioada 2006-2008", annual report 2009).

Findings

In Romania, starting with 2000, a first attempt was made to estimate the evolutionary process of innovation at the national level. In a study at the time, but in subsequent studies too, revealed that innovation activity is modest, mainly to the following aspects:

- firm's organizational rigidity (resistance to change), the inexistence of a dedicated staff to introduce new management and more oriented toward cost reduction than to increase competitiveness

- lack of funding and government support for this type of activity and high costs for developing new products and services or import new technologies

Statistical data presented below are provided by the National Institute of Statistics, years 2003, 2005, 2007 and 2009 in Chapter Science, Technology and Innovation (annual report 2003, 2002-2004, 2005 annual report, 2004-2006, 2007 annual report, 2006-2008, 2009 annual report).

Enterprises with innovative activities have been classified in two categories:

- Enterprises with technological innovation:
    - Enterprises with product innovations and / or processes
    - Enterprises with innovations unfinished and / or abandoned
- Enterprises with organizational and marketing innovations

This last category complements the previous definition of innovation statistics in the intervening period 2006-2008, innovative companies changing map explicitly, from 21.1% to 36.3%, although until then the growth rate was about 2%. (Fig. 4)

The studies done by the Romanian NIS and reported in equal period of two years is eloquently highlighted the trend of innovation capacity of Romanian companies, although at a relatively low rate.

The addition of organisational and marketing innovations determined an increasing percentage of the innovative companies, as it can be easily seen in Fig. 4 comparing the data collected in 2004-2006 and 2006-2008.

The study highlighted the fact that technological innovations reported on shows the Romanian companies must strive to catch a level they are still far away, as the European average is 47%.

The report concluded also that in Romania currently R&D activity is reduced and therefore cannot be a major source of innovation. (Fig. 5)

However, the Romanian companies in recent years (2006-2008) have demonstrated innovative activity level in organizational growth. It remains to be seen wether this trend has been preserved in the last two years, 2008-2010, as the report will show evidence that INS has in preparation (2011).

When it comes to the importance of communication in the new The survey conducted by the authors shows clearly that the most important barrier in obtaining financial rentability of an innovation process is the fact that the managers are afraid of assuming risks.

There is no culture for taking risks and obtaining profit from it. Most of 20% of the respondents identified the culture of risk taking as an important barrier in obtaining financial rentability of their businesses (Fig. 1). The communication process of innovation is not considered as an important factor of disruption: less than 3% of the respondents identified the barriers of communication as being a significant obstacle in obtaining financial stability. So, the authors ask themselves whether this low rate demonstrates a preparation of a communication strategy for the innovation or, it just means that the respondents are simply ignoring communication and they do not give any importance to it in the innovation process. The authors are optimistic, due to a percentage of 68% of the respondents that answered that the communication of innovation was a result of a previous communication strategy (Fig. 2). This means that communication is well taken into account when it comes to the innovation process.

The survey conducted by the authors also reveals the fact that the concept of innovation communication is not yet understood in Romania. One of the most important variables of innovation communication – the expert journalists – is not yet perceived as a significant mean of diffusion of the innovation: 58% of the respondents considered that expert journalists have a low and a very low relevance in the communication of innovation.

Another interesting issue is that 65% of the respondents said that they had problems with the financing during the idea stage or the implementation stage of the innovation process (Fig. 3). The authors tried to find out what percentage of these 65% respondents have tried to communicate their innovation in order to find external financing. The rate is a very encouraging one: 74% of those who had finance problems had started to communicate externally. This means that they tried to reach for external financing by communicating their innovation to different potential investors. This is one of the most important features of the concepts of innovation and communication: to try to find the support and the finance the innovation process.

Fig. 1 Which do you consider the most important barrier in obtaining ROI in innovation?

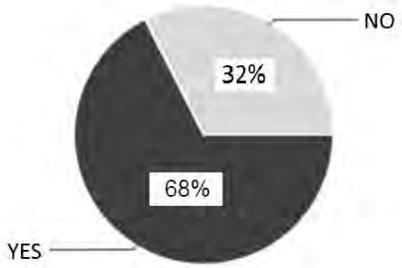

Fig. 2 The communication of innovation was a result of previous strategy?

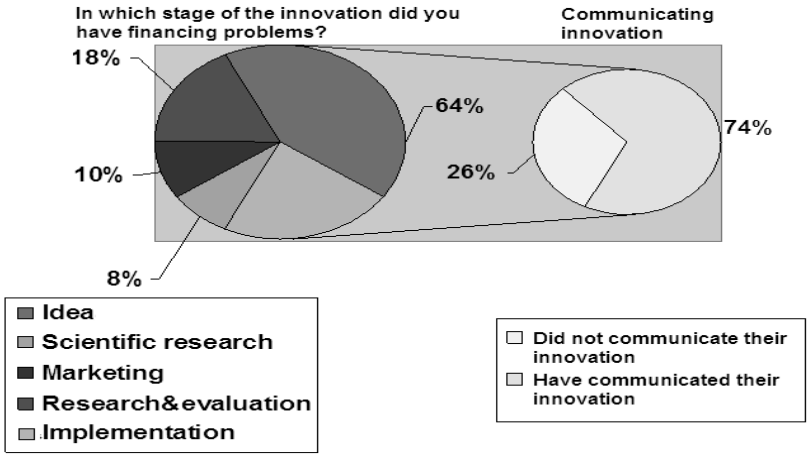

Fig. 3 In which stage of the innovation process did you have financing problems

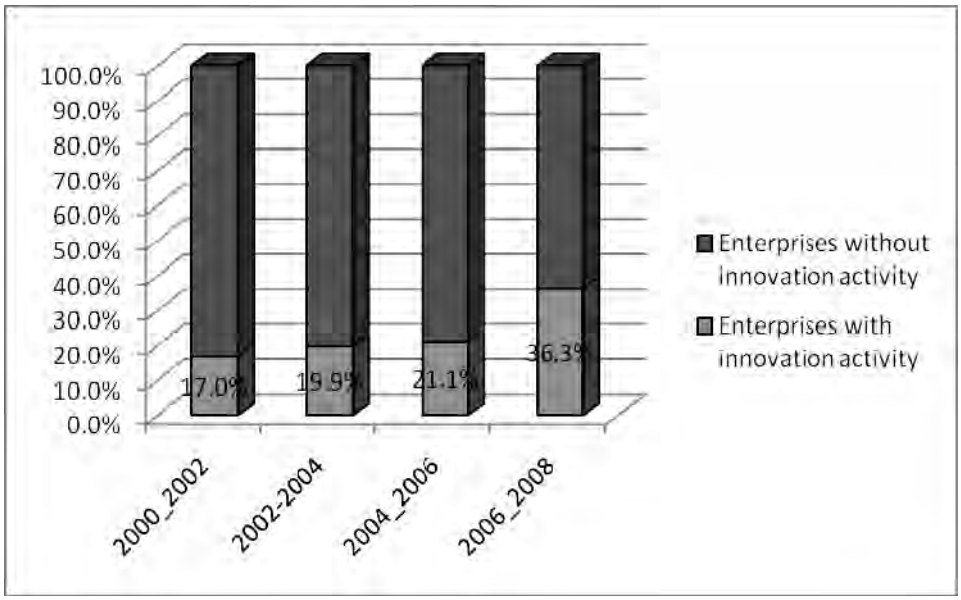

Fig. 4 Share of innovative enterprises in the total active enterprises by period

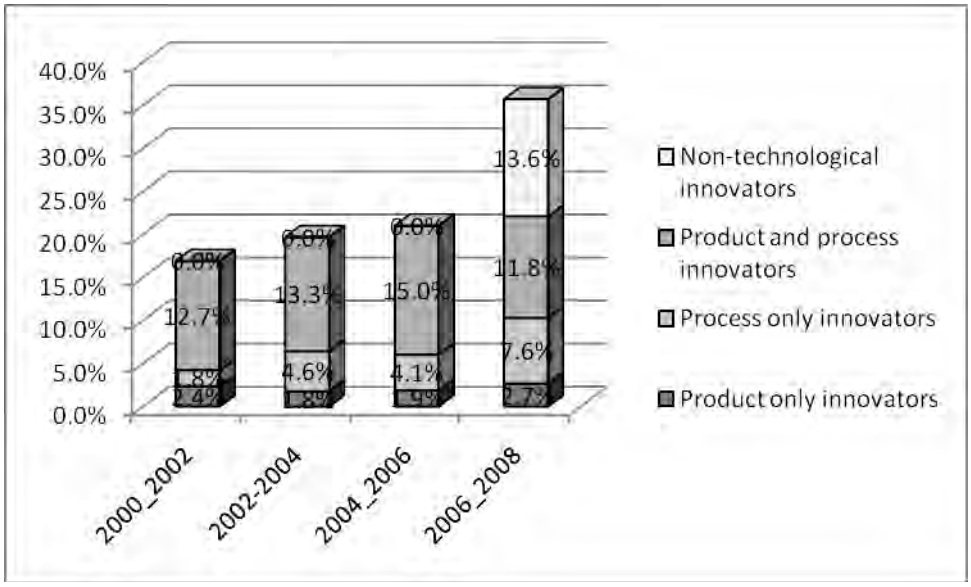

Fig. 5 Innovative enterprises divided by types of innovation

Conclusions

Management 2.0 is a concept based on innovation as a driver for development. The Romanian enterprises have to shift their management conduct

The results of the survey indicate the fact that Romanian enterprises show a low rate of adaptability to change. The authors suggest that a possible explanation could be the fact that innovation is only annalyzed from the traditional perspective: technological innovation (process and product), by the Romanian executives. Therefore, innovation seems to have an small role in the economic dynamics of the companies.

Even though, when it comes to the companies that perceive innovation as a driver for the development of their business, there is indication for an important internal communication process. This is an important aspect, because the authors have still identified a lack of involvement of the employees in the innovation process. This can only mean the inneficiency of the communication process within the company. This is why the authors consider that creative

means of communication in organizational communication such as social media, highlight corporate issues and innovative thinking in companies through new and intelligent combinations of strategic communication planning and operational communication tools (Grigoras, 2011).

As for the external communication, the authors have discovered that the majority of the companies with problems in financing the innovation process at a certain moment, have immediately chose to communicate externaly. In the majority of these cases, the results show that the process continued. This means that Romanian companies are much more aware of the importance of external than internal communication.

There are more challenges on the horizon. The authors recommend the following three as being of fundamental importance in defining new approaches to Total Innovation Management:

- investment in training for specialization in innovation; some companies already have dedicated employees who deals with innovation and since 2010 their role was officially recognized and was included in the Classification of Occupations in Romania, as "Innovation Manager ". The authors recommend accelerated professional development of this function, given that until now were only 30 specialists certificated in Romania, also implementing in companies this kind of specialized management.
- too much bureaucracy to go through in the innovative process
- for a more accurate analysis of the innovative process and its environment it is necessary to develop a better system of measurement.

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Sustainable energy: the key towards a post-crisis world

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Abstract

Purpose – The purpose of this paper is twofold: it studies the effects of past energy choices on welfare and also their feedback on future development.
Methodology/approach - The approach tackled by this paper consists of three steps: (1) assesses the correlation between oil price variations and global gross domestic product, (2) analyses the effects of variations of oil prices on social conditions and (3) appraises the consequences of oil price variations on modern society.
Findings – The main findings reveal a correlation between the rise of the oil price and economic slowdown, together with a negative influence on social conditions registered during all previous and current crises. To limit these, the authors recommend a 3×3 array of tasks depicting sustainable energy that is to be enforced through several specific measures.
Research implications – The consequences of oil price variations on modern society are reflected in terms of intelligent energy choices that encourage a sustainable development.
Practical implications – The appropriate grasping of the energy issues might be an opportunity to exit the present crisis and to build a sustainable post-crisis world.
Originality/value – In a three dimensional perspective of the sustainable development, the present paper ascertains the key indicators of the sustainable energy package.

Key words: sustainable energy, welfare.

Introduction

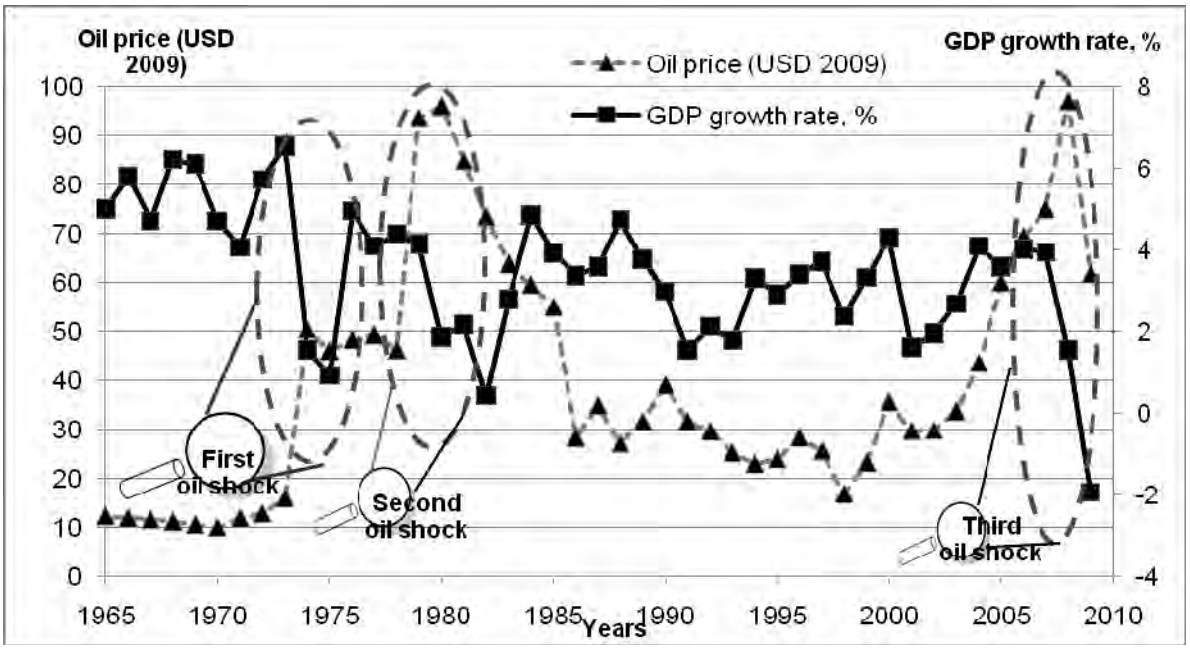
Energy has a key role in the global economic development, reducing poverty, improving human welfare and essentially shaping the living standards of the modern society. Therefore, the forthcoming energy options will strongly depend on sustainable criteria [Momete, 2011]. The current hard times trigger unemployment along with poverty, and sustainable energy appears to be a fundamental part of the solution to present economic crisis. The complex relationship between energy and economic growth requires redefining energy economics in terms of sustainability, where economic, social and environmental issues must be properly balanced.

There is no consensus about a theory that explains the causality of the present crisis [Devezas, 2010], but energy might be regarded as an important player in all previous and current recessions. Energy problems have a dual role in any economic downturn, as they may be considered as one of the triggers, but at the same time, they may generate solutions that reveal a way out of the crisis. Therefore, the appropriate grasping of their effects might be an opportunity to exit the crisis and to build a sustainable post-crisis world.

Analysis of the effects of oil price variations on global economy

Energy use has almost tripled since 1965, the global primary energy consumption reaching 11,164 million tons oil equivalent (Mtoe)* in 2009, from a value of 3,813 Mtoe in 1965 [BP, 2011]. More than 80 percent of this energy was in the form of fossil fuels, generating concerns about the sustainable production and use of energy [EIA, 2010]. Among the fossil fuels, oil is the most important global source of primary energy, accounting for about 35 percent of the total. This fact, together with the rising prices of fossil fuels, coupled with energy insecurity represent major threats to economic development. An important indicator of the energy market is represented by oil price, therefore its evolution is further analyzed spanning over the 1965-2009 interval.

An oil shock is defined as a sudden and steady increase in international oil prices, as those encountered in the 1970s, when the values of oil prices increased from about 16 USD/barrel in 1973 to 51 USD/barrel in 1974, or in the early '80s, when the values of oil prices increased from about 46 USD/barrel in 1978 to 93 USD/barrel in 1979 (the USD values are expressed in USD 2009). By analyzing the effects of the 1973-1974 and 1979-1980 oil shocks we may affirm that the global result of a spectacular increase of oil price is a net negative impact on world economy, expressed as global gross domestic product (GDP) (see figure 1).



1965-1983 Arabian Light (Ras Tanura), 1984-2009 Brent dated.

Figure 1. The effects of the international oil price variation on global GDP.
Source: data processed from [BP, 2011] and [WB, 2011].

Due to the fact that this aggregator of the whole economy and its use in statistics stirred controversial discussions [Stiglitz, 2009], we employ GDP historical rates of growth. Moreover, the data for oil are expressed as absolute values, as the oil price growth rate is not suggestive enough for the present crisis, which was preceded by several years of gradual enhancement. An increase in the international oil prices that is prolonged over a certain period of time is transmitted over the entire world economy, leading to negative impact on GDP, which is mainly explained by the recessionary effect on consumption [Momete, 2005]. We may assert that the majority of economic downturn registered after 1970 were preceded by a sudden increase of oil prices. This is also true for 2008, when the oil prices in actual dollars reached the maximum value ever recorded of 97 USD/barrel (annual value). However, this third oil shock is different from the first two, as the strong increase was spanned over the period 2003 – 2008. During mid-1980s to 2003, the price of a barrel of Brent crude oil was generally under 35 USD/barrel. During 2004 the price rose above 45 USD/barrel and further series of events led the price to exceed 95

USD/barrel by 2008 (annual values). This strong steadily increase was followed by a collapse in price in 2009, as a result of the increasing concerns about the deepening recession. However, the effect of oil price on global GDP is unsymmetrical [Hamilton, 2003], as an increase generates output contraction, whereas the decrease does not necessarily generate an economic boom.

At the time of this analysis, the oil prices reached again worrying levels, from a value of 90 USD/barrel in January 2011, to a maximum value in April 2011 of 120 USD/barrel (Organization of Petroleum Exporting Countries - OPEC daily basket). This oil price rise is registered in spite the recession, as this commodity is very sensitive to the turmoil from Northern Africa and Middle East. As the oil prices have proven during time to have the ability demolish the global economy, the recent increase may suffocate the ongoing economic recovery, if it lasts.

Analysis of the effects of oil price variations on social conditions

High oil prices that are prolonged over a certain period of time have multiple channels that transmit the shock from the macroeconomic level, to the microeconomic one, and finally to individual households. The increase of the oil prices has as an effect the reduction in output, since the available inputs for oil-related products are characterized by rising prices, leading to a decline in productivity [Dogrul and Soytas, 2010]. This, in turn, has as consequences on labour market, determining the decrease of real wages growth, and an increase in the unemployment rate. High oil prices generate multiplier effects on an economy, being followed by a general increase in producer and consumer prices. Therefore, the consumers' demands for goods and services decline, as they lose purchasing power, generating additional unemployment. Furthermore, the unemployment rate is adversely affected by a possible shift of the production structure to a less oil-intensive one, leading to relocation of capital and labour. Moreover, the income of vulnerable persons is adversely affected, the two combined factors, a decrease of the national output, and lower incomes leading to a serious decline of the welfare and living conditions.

Due to the fact that oil prices increase has complex, cascading effects on labour market, the social effects of an oil shock appear with a certain time lag of several years. The unemployment rate for the European Union (EU15) fluctuated around a value of 2 percent for years before the first oil shock [Bermeo, 2002], but has gradually risen to 4 percent after the first oil shock and even to 9.6 percent [EC, 2011] after the second oil shock, with lag of two years. However, this strong increase cannot be entirely attributed to oil price variations, as it happen in a special geopolitical context and contradictory economic reforms. More recently, after 2008 turmoil, the unemployment rate in the EU15 has risen sharply to 9.6 percent in 2010 [EC, 2011]. Therefore, in authors' opinion, the macroeconomic effects of a rise in the oil prices, coupled with uninspired economic and fiscal policies may have tremendous consequences, leading to deepening recession and unemployment.

Appraisal of the consequences of oil price variations on modern society

The global economy entered a new era, and the forces transforming it are better understood from the energy perspective. Important progress has been made in renewable energy (RE) utilization since the first oil shock back in 1970s, when the world and its leaders recognized the great energy interdependence. RE sources – wind, solar, biomass, geothermal, hydroelectric - are of a paramount importance for the welfare, leading to poverty decrease and environmental benefits, as they are often carbon-free, therefore improving the macroeconomic efficiency of economies [Chien and Hu, 2008] and smoothing the path out of the crisis. By analysing data over the last 40 years, RE sources have achieved a strong growth since 1970s. From a value of the global energy consumption of RE sources of 284 Mtoe in 1970 [EIA, 2010], to 660 Mtoe in 2000, and 993 Mtoe in 2010 [BP, 2011], recording more than a triple increase in absolute values and an average growth of 2 percent per year. However, important challenges are to be faced by the energy sector in the quest to a sustainable future, considering the increasing energy consumption rates.

Despite the increase in absolute values, as a percentage of total energy consumption, RE contribution to energy supply was rather modest and almost constant during the 1970 - 2010 interval, recording values that fluctuated around of 13 percent [OECD, 2010]. To increase the

share of RE sources in the total energy supply, an intelligent energy package must be taken into consideration that offers a strong competitive advantage into the post-crisis world. The assessment of the key indicators of sustainable energy package is presented in figure 2, where the authors recommend that the three dimensions of the sustainable development – economic, social and environmental – should be equally considered.

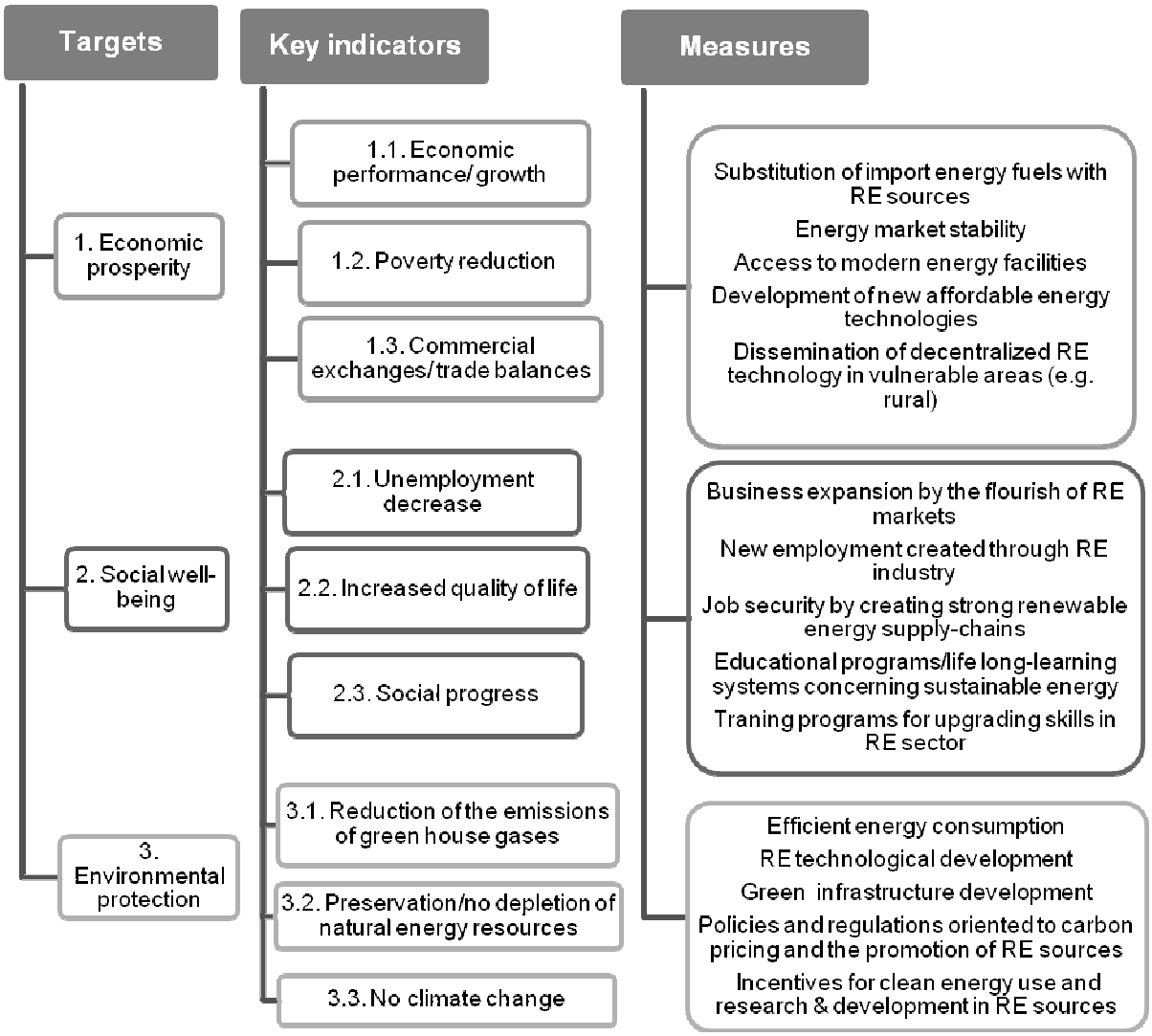


Figure 2. Key indicators of the sustainable energy package.

The 3×3 array of tasks is to be enforced through several specific measures that are taking into consideration *(1) prosperity* in terms of economic growth, poverty reduction and trade, *(2) social well-being* throughout the development of labour market, education and social progress and *(3) environmental protection* in terms of reduction of the emissions of green house gases, climate change control and preservation of natural energy resources. An important issue is the strong support of energy market stability, which requires adequate planning of possible responses to critical situations, as an oil shock. The appropriate support in creating and maintaining new jobs must be an essential condition in crisis conditions, and sustainable energy appears to be the engine of sustainable development [Momete, 2009] and a fundamental part of the solution to current crisis. Moreover, better policies and regulations oriented to carbon pricing and the promotion of RE sources should be thought with priority. The development of green infrastructure and efficient energy consumption are other important measures towards a sustainable

development. In such a way, the effects of oil price instability should be kept under control, and its consequences on modern society will be reflected only in terms of intelligent energy choices that imply a mix of efficient energy consumption and low-carbon sources.

Conclusions

The economic crisis might constitute a wakeup call for the development of a new economy and contribute to a global energy transition that is required for fostering a sustainable development. The energy issue is a regarded as a major quandary in today's world, as the decision on what to consider first, the security of supply, safety, pollution or climate change is a complicated one. Nevertheless, the proper management of energy matters might lessen their effects on the global economy.

An oil shock is accompanied by many negative effects on economy, but also by positive ones. The global result of a spectacular increase of oil prices is a net negative impact on world economy, recorded during all previous and current crises. The macroeconomic effects of a rise in the oil prices, coupled with uninspired economic and fiscal policies may have tremendous consequences, leading to deepening recession and unemployment. However, although very costly, the 1970s oil shock transformed the world economy. The present turbulent times might displace attention from fossil fuels to newer RE technologies and generate the shift to a low-carbon economy. Behind these lie a whole array of tasks, including economic growth and poverty reduction, unemployment decrease and social progress, together with reduction of the emissions of green house gases and climate change control. This entails the endorsement of the measures recommended by the authors that have in view the encouragement of a sustainable development. Nonetheless, the response of the market will depend on further quantifying the key indicators set for sustainable energy package.

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Notes

*1 Mtoe = 4.4 TWh = 42.63 * 10^{12} British thermal units = 10^{12} kilocalories [Goswami, D.Y. et. al., 1999].

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Aspects of advertising as part of communication process in small and medium enterprises (services sectors) in time of economic crisis

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Abstract

Purpose *– Economical crisis has brought important modifications to the services market in Romania that imposed a substantial adaptation of the firms' processes. The communication process, especially advertising, has made no exception. These adaptations lead either to overcoming the crisis period, or to sinking even more into it.*
The paper aims to determine how the economical crisis has modified advertising as a part of communication strategy in small and medium sized enterprises from the services field.
Methodology/approach *- Utilizing the questionnaire based examination the authors try to determine how much the services companies have adapted their advertising strategies to the new economical conditions and to identify those changes that allowed them to continue or even develop their activity.*
Findings *– In order to accomplish this purpose, economical indicators have been correlated with specific advertising actions that permitted identifying some of the special measures for overcoming the crisis.*
Research limitations/implications *– Subjective measures of performance were used because of practical obstacles in obtaining financial data from the sample, which would have severely reduced the response rate.*
Practical implications *– Based on these results, in order to improve the marketing communicational process, the authors have developed a series of recommendations for preventing and overcoming difficult moments and also for avoiding those actions that might lead to failure.*
Originality/value *– Adds a specific focus on advertising strategies to existing studies of measures taken by companies in times of economic crises.*

Key words: *advertising strategy, overcoming crisis, market services.*

Introduction

In times of economic crisis, companies will do their best to resist on the market: one of them will fire their employess, others will create new products, but most of them will be forced to reduce their expenses. Survival of the company will be the main objective of the management team and all the cuts will be targeted for this objective. One of the first budget to be cut will be the advertising budget. But selling is very hard related with advertising activities, especially when market is full of a wide range of similar products.

Companies that will know how to promote their products in the most cost efficient way and will find the perfect combination among Integrated Marketing Communication (IMC) tools will be winners in this battle.

During crisis period it is very important to find the proper promotional mix which will have to prove that the spent money bring more money. Advertising must be an investment not an expense. Communication strategies no longer have to focus on profit but on long term brand awareness.

Authors tried to determined how small and medium business adapted their advertising strategies in order not only to survive but to obtain an profits.

Theoretical Context

Nilson (1995) had detailed in "Chaos Marketing" the importance of understanding how the marketplace, competition and society are changing. A major economic crisis is a land of changing. Managers must know how to act in such an changing environment. When we discussed about to creating a strategy in a changing environment, Nilson (1995) make a distinction between companies that are market leaders and those which are challenging. Leading organizations must continous with the flow and slowly adapt to the new situation, whereas challenging companies should change fast. No matter if leading or challenging, according to Nielsen (1995) and Köksal and Özgül (2007), companies have to adapt their strategies and particularly the communication strategy in order to gain market share in changing environments like financial crisis.

It is important to understand that changes in marketing strategies should never include or mean cutting of marketing expenses especially cut in communication expenses. Many researchers and studies (Profit Impact of Market Strategy - study presented by Kieth Roberts (2003), showed that organizations that keep or even increase their marketing spending during an economic downturn do not make any significant loss during the crisis. On the contrary they make profit and gain market share much faster after the downturn than the companies that cut their costs. Very little research has been done in the area of how communication strategy should be adapted in a changing environment like financial crisis.

A financial crisis like this one we are going through, affecting basically the whole world and all business sectors, determine people changing their buying preferences (Shama, 1978; Ang et al, 2000) and companies have to cope with this situation in one way or another. Since the marketing strategy is the way for companies to match customers needs and wants (Ferrell & Hartline, 2002), it is here we have to adapt. Communication strategy as part of marketing strategy should be adapted and be able to make costumer aware of the changing. The communication strategies is the place where the changes can be seen, therefore the focus of this research will lay on how this is changed during financial crisis. (Figure 1)

Figure 1

In accordance with the paper "Optimizing the Marketing Budget in Recession" carried on by the Ogilvy group for the clients affected by the crisis, the investment in marketing and communication should not be stopped if the company wants to have a solid business in the post -recession period. Many companies are successful during the recession period because its onsider the economic crisis as an opportunity for development. Increasing strategies through sustained investments could be the key for succes. The only problem that must be solved by this companies is the improvement of the structure of marketing budget. Companies that decide to invest in marketing – especially in communication -- usually develop more as if they had in a normal period.

During crisis periods, companies have the opportunity to gain more market share than in a normal period. A profitable company should spend even its last cent in order to continue the development process. The companies that reduce expenses will have even more problems and it will take them longer to return to the ante recession period.

Using Integrated Marketing Communication and finding the ideal ratio between its elements could be an element of success in economic crisis. Each tools plays distinctive role within the marketing communication plan and adapting each of them at the environment situation should lead for long term brand awareness. (Figure 2)

Figure 2. IMC - Elements

Advertising – as any paid form of nonpersonal communication -- can be used to create brand could be a very important capability for companies selling products and services that are difficult to differentiate on functional attributes. There are several reason why media communication is an important part of IMC: very cost effective method for communication with a large audience and have the ability to strike a responsive chord with consumer when differentiation across element of IMC is difficult to achieve.

Sales promotion – know as those marketing activities that provide extra values or incentives to the sales forces. Consumer sales promotion is targeted to the ultimate user and encourge for an immediate purchase. Trade sales promotion is targeted toward marketing intermeires. In 2000 sales promotion expenditures, in Unitend States, exceded 60% of the promotiona budget of many companies. Anyhow, according to Ferrell & Hartline (2002), all customers love sales. This is strengthened by the research made by the Nielsen Company (2009), that shows that customers prefer different campaigns and becoming members of hops to get discount, instead of switching to discount chains. Especially retailers very often offer customer sales promotions in form of coupons, rebates, loyalty programs, premiums etc (Ferrell & Hartline, 2002).

Public relation – activity that systematically plan and distributes information in an attempt to control and manage company image. PR "evaluates public attitude, identifies the policies and procedures of an organization with thw public interest, and executes a program of action to earn public understanding and acceptance". One of advantage is credibility. Consumer is less skeptical towards favourable information when it comes from a source tey perceive as unbiased.

Direct marketing – in wich organization communicate directly with target consumer to generate a response. Become very popular over the past two decades, owing primarily to changing lifestyle.

Internet marketing – the most dynamic and revolutionary change of any era in the history of marketing. This allow for a back-and-forth flow of information wherebay user can participate in and modify the form and content of information. Thousands of companies, from large to small, have developed websites to promote their products. Companies that are using internet effectively are integrating their web strategies with other aspects of IMC programs.

Personal selling – a form of person-to-person communication in which seller attemps to assist or persuade prospective buyers to purchase. This interaction gives marketer communication flexibility.

The IMC approach to marketing communication planning and strategy is bein adopted by both large and small companies. There are a number of reasons why marketers had adopting the IMC approach:

- Planning efficiency and effectiveness
- Consumer adoption of technology and media
- Innovative marketing practices

In a developing promotional strategy a company combines the IMC elements balancing the strengths and weaknesses of each. The art and the sciences is to mix element to develop a controlled, integrated program of effective marketing communication.

In the special case of economic crisis this process is most complex.

Research Methodology

There are two different methods to use when doing a research, qualitative and quantitative. The main difference between the two methods is that the data in a quantitative method usually consist of a large amount of numbers, whereas qualitative data is expressed in words (Bryman & Bell, 2007; Jacobsen, 2002). For this paper we combine a qualitative research method with a quantitative one. The authors have conducted a study trying to determine which communication strategy lead to success in times of economical crisis. The target group was consisted of managers from small and medium enterprises. We tried to cover all sectors of economical activities starting with industries, services and commerce, in order to obtain a better view of how communication strategies has influenced survival or progress of the company during crisis period.

Starting from these circumstances, the research has addressed the following objectives:

- To investigate how managers from small and medium companies adapt the communication strategy to face the crisis.
- To determine how IMC was used to overcome the crisis.
- To develop recommendations for managers in order to determine the right strategies to follow in crisis periods.

Variables Measurement

We have set out three types of variables: nominal, specialized knowledge and attitude. For the nominally scaled variables we considered information regarding the company like: years in business, number of employees, evolution of turnover. For this part of research -- quantitative – we design a multiple-item scales, as we have shown in table 1.

Table 1. The map of research variables

Research variables		**Conceptual description**
Nominally Scaled Variables	Information regarding the company	Years of activity
		Turnover
		Number of employees
		Economic evolution
		Activity field
Specialized Knowledge Variables	IMC	IMC knowledge
		IMC usage
Attitude Rating Scaled Variables	IMC	Capacity dimension
		Attitudes dimension

We used a five-point Likert scale, whereby 1 - Strongly Disagree, 2 - Disagree, 3 - Tend to Agree, 4 - Agree, 5 - Strongly Agree, for measured qualitative questions. Each respondent was asked about his/her degree of agreement or disagreement concerning the usage of IMC elements in order to survive.

For the attitudes dimension we have asked respondents to express their general opinion regarding the following items: advertising – media channels, PR, sales promotions, direct marketing, internet marketing, personal selling as parts of IMC system. Another question refers at the importance of using each of the elements above, correlate with economical results. The items

shows in what way using or not using of the IMC elements determines economical results. To measure the degree to which using of these elements determined a positive reaction, has been used a scale where 1 - Unsatisfactory, 2 - Satisfactory, 3 - High 4 - Excellent.

Data analysis

The questionnaire had started with questions to evaluate the company: profile, dimension, years of activity, field of activity. The questionnaire was distributed to 300 small and medium companies managers. Only 73% of them had answer point out all requested information.

The structure of the sample in terms of years of activity indicated that 48% had more than 6 years of activity on market, 26% of them had between 4 and 6 years and only 16% were companies born in crisis period. (Figure 3)

From the number of employees point of view 38% of the companies had around 20, 33% had a number between 20 – 35 employees and 12% were bigger having more than 35 employees.

From the turnover standpoint, 36% of the respondents had a turnover which exceeded 1.000.000 Euro, 29% had a turnover between 500.000 and 1.000.000 Euro and 23% of respondents had a turnover between 100.000 and 500.000 Euro. (Figure 4)

Only 21% of the respondents affirmed that they had a lower growth of 10%, and 38% of them said they had loss.

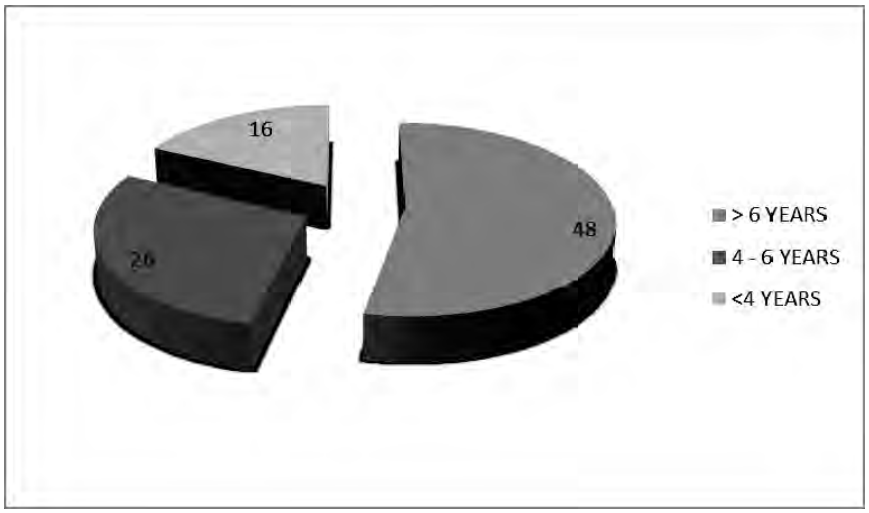

Figure 3. Years of Activity

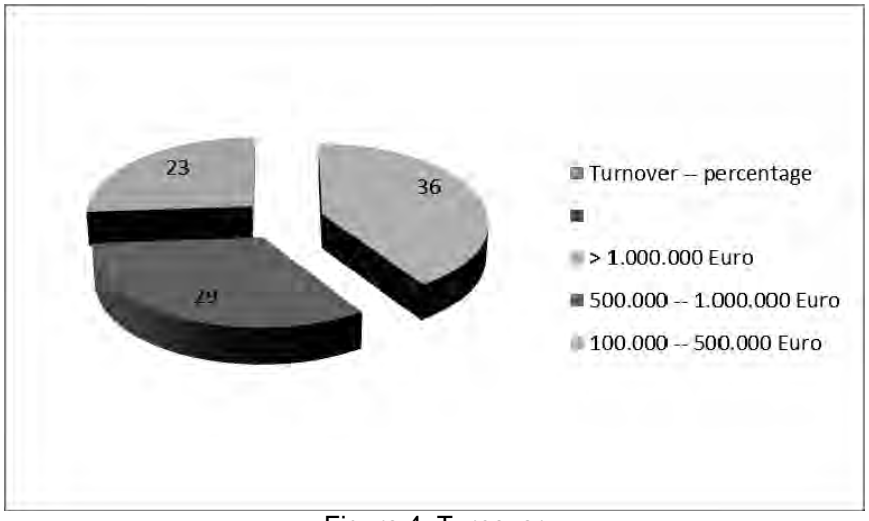

Figure 4. Turnover

When we talk about a communication department in organizational structure only 8% of the respondents have one and a percentage of 16% have a specialist in marketing communication.

From the theoretical point of view regarding perceptions of IMC elements from managers, 73% of the respondents considered that media advertising had a major impact, 81% think that internet marketing could generate growth, most of them considered public relation (21% majore importance) and sales promotion (34%majore importance) element that could help in communication strategy.

If we refer at the usage of the IMC element during the crisis period, 68%of the companies used internet marketing as communication means in order to achieve their objectives. Media advertising was used only by 5% of the respondents, high cost was the reason indicated. Sales promotions were used by 37% and direct marketing by 31% of them. (Figure 6)

64% of the respondent strongly agreed that a IMC campaign could generate growth up to 20%, but only 21% of them are up to date with information regarding this subject.

An important percentage – 68% -- considered that creativity is the balance factor in obtaining the best mix of communication elements to ensure growth. Understanding the consumer behavior (57%) and permanently adaptation of IMC at market changing (48%) are other important feature for a small and medium company manager.

Marconi (1997), highlight the idea that especially in economical downturns, a constant communication with the customers is very important. 56% of respondents agreed and used constantly communication with consumers. 92% of the managers considered that a communication campaign focused on price reduction could be the key of success.

Research Findings

No business sector has gone untouched by the worldwide financial crisis. Since a lot of literature can be found about buying behavior and how this changes in economical downturns, but not as much about how companies change communication strategies in order to meet their customers new preferences, the following question was developed: How do small and medium companies adapt their communication strategies to the changing consumer behavior during the financial crisis?

Analyzing results show that a majority of respondent agreed that IMC have an important role in the development of a company especially in crisis times. 27% of the managers tried to increase the communication budget, only 29% of them tried to sustaine the same level. An important percentage had reduced the communication budget (44%). The main reason for this reduction was reducing activity and budgetary constraints.

The analysis of data regarding the components of IMC generally used and accepted as profit generators shows internet marketing combining with sales promotions on top. Those, who used this combination recorded profits and were able to overcome the crisis.

All companies, have cut expensive promotion as TV (if they had any in the past) and focus more on direct marketing, sales promotion, internet marketing and prints. All of them further emphasize direct marketing, as a way to build a closer relationship with the customers and gain their trust in these times of financial crisis. Moreover, there were companies which have started campaigns, with messages that draw customers in these times.

Conclusions

Considering the research results, there are several conclusions:

1. The companies should not reduce communication expenses during the economic crisis. Cut of communication will determine even more problems and it will take them longer to return to the ante recession period.

2. More creativity in using IMC will generate positive reaction for the company.

3. A better understanding of consumer behavior, a permanent analyzing of the market can determine a proper communication strategies adaptation.

4. The communication budgets should not be spent but invested.

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Management influence over organizational culture and organizational climate in current crisis conditions

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Abstract

Purpose *– The present paper deals with some pertinent aspects of both organizational culture and organizational climate during the economic crisis in Romania.*
Methodology/approach *– The paper dwells on three aspects concerning this issue: the Romanian organizational cultural specificity - mainly determined by the national culture, the characterization of the organizational climate and the organizational communication during the crisis.*
Findings *– Performance cannot be reached in an organization in which the economic crisis is always present. Combine the lack of performance and the managerial stress and you will get a cultural environment based on strain and unwillingness. By way of consequence, management becomes "management in crisis" instead of crisis management.*
Research limitations/implications *– Approaching the organizational culture and the organizational climate in a financial crisis period involves taking into consideration some aspects, such as the existence of different organizational cultures and different aspects of the crisis in case.*
Practical implications *– The knowledge of the characteristics of organizational culture, especially the correct understanding of the organizational climate in the current stage of the financial crisis, can be of real help to the management of the companies in taking the most appropriate decisions.*
Originality/value *– In this paper we can identify specific features of the organizational culture in Romania alongside with the characteristics of the organizational climate in the present day crisis. A connection is being made between performance as a result of managerial steps and the restrictions imposed by the cultural background and organizational climate.*

Key words: *Organizational culture, organizational climate, crisis management.*

Introduction

The crisis culture is in fashion and has penetrated the majority of the companies. The organizational culture and climate can be two key elements in the crisis management. These two elements can become a real threat to the managers who do not pay enough attention, but once known and well managed, they can contribute to the recovery of the organization supporting the managerial decisions.

Cultural and managerial dimensions with substantial impact on organizational culture in Romania

The best known analysis tool of cultural dimensions was made by the Dutch professor Geert Hofstede. Based on a survey, he studied the organizational behavior of tens of countries and managed to find a set of 5 fundamental variables (dimensions) that differentiate one culture from another. Unfortunately, Hofstede could not conduct his survey in the Eastern European countries - former communist countries, one of which was Romania, yet he made some estimates

(http//www.geert-hofstede.com). In 2005 the “Training Interact" company from Bucharest along with “The Gallup Organization Romania”, following exactly Hofstede’s methodology and applying the exactly same survey, undertook a study in which 3 of 5 dimension cultures have indicator values visibly different from the estimates made by Hofstede in his study concerning our country. The study (Interact, 2005) (although lacking a high rank of credibility) points out that in Romania cultural problems must be approached in different ways. These facts are proof of Romania having similar values with other Balkan countries, such as: the deep gap between the average citizens and authority/ power, collectivism (low grade of individualism), femininity, high level of uncertainty avoidance, short-term planning. Romania, together with all Balkan countries like Greece, Bulgaria, Serbia, Albania, Macedonia are the complete opposite of the Anglo-Saxon countries, from where they borrow all the managerial practices and those of human-resources management. Similarly, a new characteristic specific to the Romanian country has been revealed: The Power Complex. In a psychological way, this concept means the entire complex of representations and aspirations that tend to situate the Ego above all the influences, regardless of their origins, whether the outside or the inside (feelings, subjective thoughts). As a result of all the characteristics above, Romania signals the need for authoritative leaders, centralization in decisions, and the population’s desire to follow the rules of such strong-minded leaders. Another explanation of the big distance between people and power is that a lot of employees prefer a closer relationship between them and a single boss in order to obtain their protection and to avoid assuming the responsibility of opposing viewpoints. In the case of the Romanian femininity, a possible explanation would be the prevailing orthodox religion, which is more inclined to the complementarity of sexes than to the subordination of women to men. The high degree of avoiding the uncertainty, demonstrates that the population has a considerable level of anxiety concerning the future to which they prefer the certainty of today; accordingly, such a society cannot devise a long-term strategy. Some of the Romanians have difficulties in dealing with certain ambiguous situations and others with opposing viewpoints. If we consider the low level of individualism, we deduce that members of the society cannot tolerate the opinions of the minority due to the principle of the minority obeys the majority. It may also mean that Romanian people have a high resistance towards something new. People still keep their essence of being peasants, conservative in their beliefs based on myths, legends, heroes, superstitions and ancient symbols which can be traced back to over 2,000 years ago.

In spite of being so diverse and complex, two types of organizational cultures can be identified in Romania: the bureaucratic and the entrepreneurial cultures both of which are extremes of a great diversity. The bureaucratic culture is typical of different enterprises such as state property, autonomous administration, educational, health, public and military institutions. It can be described as strong, focusing towards the system inland and extremely involved in the political life of the country. In such institutions, regulations and a high degree of nominalizations prevail. Within cultures of bureaucratic character, especially in public institutions, there is a significant difference between the proclaimed values and real actions. Top management is more concerned about its own image and less interested in implementing new efficient plans that can lead to performance in the quality domain or improve the satisfaction of the clients. Employees are not open to change. The entrepreneurial culture, much under way, is typical of the private firms, opened after 1989. Given the fact that all private firms have been opened recently, the entrepreneurial culture has not been defined yet as a culture, still being precarious. Being components of the cultural organization, the set of values, rules, traditions, ceremonies, the unwritten laws of behavior, actions and the way of thinking, they develop in time through the interaction of the employees. For this type of culture, a decisive factor is the role model that the leaders stand for in front of their employees. Two specific attributes of this culture are the innovative spirit and the capacity of working through the system (due to a faulty manager or the unclear assignment of duties). Another serious problem encountered in the Romanian managerial world is the incapacity of delegating, and when that exists - the lack of trust. There are some successful firms where a culture based on and people-oriented is promoted and where the employees are appreciated for their individual contribution to the fulfillment of the general mission. The entrepreneurial culture, compared to the bureaucratic one, can also be characterized through flexibility. Romanian people have an extraordinary capacity of adapting and learning quickly, they are diligent and creative. A fundamental difference between the organizational climate from Romania and the one existing in

other countries is the managerial system. An organizational culture from outside the country is rather centered on duty, whereas in Romania it is rather based on connections.

Characteristics of organizational culture and climate in the current conditions

Nowadays, Romania is passing through a turbulent period, with a lot of reforms, most of the times incoherent ones, that pose serious problems of adapting to the companies.

It is difficult to make the difference between the organizational climate and the organizational culture. When these two terms are compared, in the specialists' literature**,** there is a high degree of superposition and ambiguity. These differences can be observed and highlighted in the table below:

Table 1. Main differences between organizational cultural concepts and the organizational climate

CRITERION	CULTURE	CLIMATE
Type of approach	holistic	comparative
It can be studied by	Annalists by studying employees	Employees with special abilities of psychological analysis
Objective/Subjective character	imbued with a lot of subjective elements	It can be appreciated from an objective point of view
Methodology	qualitative and interpretative	quantitative and descriptive
Contents	Values and symbols	Perceptions, attitude and opinions
It surprises	All that it is in depth, essence, hidden elements	All that is visibly expressed
It makes reference to	What is stable	What is fluctuating
Research techniques	Qualitative techniques	Quantitative techniques
It expresses	The personality of the company, the idea of continuity	Contextual aspect
It raises interest for	Anthropology, sociology and internal marketing	Psychology and management
Time factor	Hard to modify	It can change rather easily from time to time

In the current stage of crisis, if the organizational culture stays mainly the same, the organizational climate is the one to suffer important changes in terms of damage under all the aspects of the job climate. Given the fact that the organizational climate describes the momentary state of mind of the employees, the attitudes, their behaviors from the current stage, the management of obtaining the performance can analyze one of the following aspects: satisfaction through work, level of involvement, identification with the firm, the fears and hopes of the employees. Sadly, the main way of motivation- the employees' salary- remains at an extremely low level, unsatisfactory for the great majority of employees.

Performance cannot be reached in an organization in which the economic crisis is always present. Combine the lack of performance and the managerial stress and you will get a cultural environment based on strain and unwillingness. Thus, management becomes "management in crisis" instead of crisis management, because of the unwillingness to study in depth the methods that can be used in such situations together with the lack of experience. In the organizational climate there exists a state of uncertainty and you can feel the need of reducing the anxiety level concerning the course of the events. More than a lot of people live with the fear of losing their work places, thus they are willing to make all kinds of compromises (they overwork, way past their schedule, they accept very small wages and so on), they settle almost for nothing, because their level of expectations has become very low. The attitudes and the behaviors of people are extremely different: starting with surfeit, depression, until the ones that follow a series of courses in order to obtain new abilities, search for more jobs, and integrate spirituality in their life. Religion - spirituality from the organizational culture environment - becomes more and more striking. There are situations in which management, in order to handle the situation, encourages the unhealthy competition between the employees, tolerate mistrust, threat to fire or reduce the salary.

Looking at a larger frame, the legal and institutional environment, as an external factor, important for influencing the organizational culture and climate from within the companies, according to a report made by Transparency International Romania - an NGO (nongovernmental organization) that firstly has as aim to fight against corruption, the trust of the Romanian people in public institutions was worryingly reduced in 2010; a dramatic deterioration of the integrity climate in Romania is found, marked with a lack of strategic coordination concerning the legislative and institutional measures made to determine the coming to an end and the way out of the economic crisis.

This deterioration of the internal and external environment has led to the appearance of one organizational culture of the defensive type that can be found in a lot of companies affected by the financial crisis. The companies lose more over an inefficient crisis management and only the managers who will understand that people are the most valuable and that they deserve recognition will be the winners.

The communication climate and communication during the crisis

We must consider clarifying the notion of crisis: it is not only about the generalized economic and financial crisis with which a lot of countries, one of them being Romania, confront, but the organizational crisis that threatens one or more organizations and appeared at the expense of the economic crisis. From the category of the organizational crisis we can find the one that has risen because of the negative media impact as a result of a less pleasant series of events involving one or more organizations. In this way the crisis can be seen as an unpredictable event that threatens important expectations from relevant audiences, it can have a serious impact on the organizations' performances and can generate negative results.

In Romania we can find, still shy, concerns of evaluation of the communication climate. For example, the interested companies have the possibility to evaluate their organizational climate and the communication climate thanks to an online integrated system of analysis and diagnosis of the organizational climate and culture – DCCO System that allows the identification and quantification of the essential factors that describe the climate and culture of any organization. The system was created by specialists of "Profiles East Europe" and uses validated questionnaires on the population of Romania. The questionnaires allow the evaluation of different aspects, such as: the type of the organizational culture, the satisfaction of the employees regarding the work, salary, promotion, colleagues, bosses, internal communication and the communication climate.

In most of the companies, the concern involving communication in crisis situation does not exist. A lot of managers do not know that in crisis situation, whatever they might be, communication must be enhanced. If in the public space attempts are still made (eventually realizing a communication plan), in private companies, management has no intention regarding this problem, especially now that the appearance of unpleasant events is substantially favored by the general crisis itself which we face. Lack of communication begins with the failure of the managers to deliver objectives, the strategy direction which the companies follows. People are disoriented, they believe all the rumors, can be easily manipulated, they do not know where they are heading.

Discussion and conclusions

Between the bureaucratic and the entrepreneurial culture there are no essential differences. There are a lot of similar customs, attitudes and behaviors. These common features refer to the following aspects:

1. The Romanian society has minimal inclinations towards a strategic planning because of the high level of anxiety and of the rapid changes of the economical, institutional and legal environment. The strategic planning is therefore short term oriented (18-24 months) and the financial projections under one year; there is the need of organization and discipline; few managers use specialists and foreign consultants for setting the long term strategy.
2. Concerning the restructuring, few entrepreneurs consider the restructuring to be a cyclical adaptation process of the company to the markets environment because of the resistance to change; this is why most of them see the cost savings and firing staff as short term solutions to exiting the crisis.
3. The universalism and provincialism have new meanings in Romania: the rules and laws are applied by case, or the rules are not for everyone, like the laws, they are meant to be

passed by. A rule is adapted to each particular situation and will not be followed in each situation; the employees discuss each managerial decision till exhaustion.

4. Implementation of modern management systems, like Management By Objectives will encounter difficulties because of the resistance to change and the difficulty of individual evaluation of each employee; because they will hardly make the distinction between the company's performance and their own.
5. Regarding the innovation, one can harvest many original and creative ideas from teams of Romanians; the difficulty here is the implementation of these ideas.
6. Regarding the organization and the organizational structure, there is the risk of the family model that the entrepreneurs seem to prefer, because the lack of knowing how to build a clear structure, adaptable to the market's requirements'; this way, internal corruption mechanisms can be created, favoritism and hiding the real performance.
7. The level of collectivism is high in the state institutions, but also in the private companies, both medium and large; the employees like to form large groups, so that the responsibility of each employee can be observed as little as possible; this can have a negative impact on the communication and collaboration in small teams.
8. The client orientation is neglected, both in the state institutions and private ones; the focus is aimed at money and less on client satisfaction.
9. The bribery is a custom not only in the private sector, but also in the public one, at all levels; unfortunately, bribe tends to become a cultural axis, and not only a political constraint.
10. There are serious issues concerning the time management; time is not considered to be an important resource, like in the American culture, for example; the working time is poorly organized in most of the companies, according to the Pareto principle, the manager is running after clients 80 percent of the time, and the rest of 20 percent he works at his office for money; 80 percent of the information a manager receives are unnecessary, they are mostly informal and gossip.

Considering the above presented, the Romanian managers need to learn, as fast as possible, how to organize the activities inside their companies the best way possible, to optimize the structure and the procedures; and if they do not know how to achieve that, to accept advice from consultants. A better inside organization, a more efficient planning, a better time management, a better internal and external communication and mostly a better management of human resources, are just a few of the endogenous success factors, that can lead to overcoming the crisis and creating performance.

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Research on the adoption of sustainable development practices among Romanian enterprises

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Abstract

Purpose *– To analyze the pro sustainable development behavior of SMEs within three geographical areas: Romania - Canada-Tunis by comparing different aspects from the economical, social and environmental point of views which are specific to these organizations.*
Methodology/approach *- The survey method is the method that stood at the basis of this research, and the working instrument used was a complex questionnaire structured on five modules.*
Findings *– Similar as well as different profiles of sustainable development have been identified for the autochthon SMEs with respect to those in Canada and Tunis.*
Practical limitations/implications *– The results of this analysis are relevant only for the investigated sample.*
Practical implications *–The analysis has been achieved on three directions: individual, organizational and contextual, trying to identify the personal and different characteristics of the subjects that have been involved in the study.*
Originality/value *– The determination of the strong as well as less developed points from the perspective of the practices of sustainable development within the Romanian and foreign enterprises submitted to analyses.*

Key words: *Sustainable entrepreneurship, Sustainable development practices*

Introduction

Sustainable development (SD) has become nowadays a world wide objective. This type of development focuses on the existence of an agreement between economy and environment on a new trap of development that represents the basis of human progress, not only in a few places for a certain time, but for the entire planet and an undetermined future[1]. The concept of sustainability involves drastic changes in almost all life areas.

The European Commission mainly aims the adoption of such regulations for the SMEs activities, which are considered to really catalyze the progress of the practices of sustainable development.

The results of the research

This section presents the detailed results for three companies within the Romanian and foreign business environment, grouped in three categories: the committed, aware and indifferent ones.

An analyses of the three countries within the study allows us to underline certain contrasting aspects that are specific to them, from the economic, social and environmental point of view. Thus, the GDP per capita is different from one country to another: Canada 39.600 dollars, Tunis 9.500 dollars and Romania 11.500 dolars[3]; the ecological fingerprint has the following valences[4]: Canada 7.1; Tunis 1.8; Romania 2.9; and the Index of Human Development allows the following top: Canada place 8; Tunisia place 81; Romania 50.[5]

From the commitment's perspective

At the individual level, in the three countries, **the entrepreneurs** manage SMEs characterized by a different level of involvement in the practices that are specific to sustainable development, having more common aspects, but also some differences. (insert tab. 1 about here)

First of all it can be noticed the presence of a special sensitivity towards the causes of sustainability and the values, personal beliefs are important engines for applying the principles of sustainable development. The entrepreneurs have a high level of responsibility towards their employees, their company and the community ion which they activate.

The strategic reasons do not play the same role in the entrepreneurs' behavior in the three countries within the study. In **Canada**, the entrepreneurs position themselves as proactive and voluntary on the local niche markets or implement a series of activities in the favor of their community. They appreciate that their actions will allow the community's development and insure a certain living level for their employees. The cost has never been considered as representing a problem.

The practices of sustainable development achieved by the Tunisian entrepreneurs' families seem to be a part of their families' history and seem to be inoculated since the beginning through the founder's vision. The religious beliefs are considered to be a strong impulse for the social action. They can be found less in the instrumentation of the activities for stimulating the environment. At the present, in **Tunis**, the achievement of a high competitiveness level is not identified as being a major reason for the involvement if the sustainability practices. There are Tunisian entrepreneurs who have long term visions for their firms, with the purpose of modernizing the way in which the things used to be done by the ancestors.

In **Romania**, there are practices that could be included in the category of the responsible actions from the economic, social and environmental point of views, but the entrepreneurs are very indifferent, not interested in including them in a business strategy.

In **Canada**, the normative reasons are strong. These entrepreneurs react according to the social and environmental pressures and consider being their duty to give back to the society a part of the obtained benefits. In some companies this behavior is not totally altruist, being stimulated by the competitiveness of the business environment.

A certain altruist behavior can also be identified in Romania. Still, in our country, even if it is known that having a responsible behavior is required at the international level, the actions which are specific to sustainability come second.

At the organizational level the study indicates a prevalence of the Canadian firms that have the best SD practices. Thus, the formalization of processes in this group is high, because these firms try to increase their credibility by obtaining internationally recognized accreditation and awards for the accomplished activities that show respect for the environment. In order to promote the best practices of the Romanian and Tunisian SMEs with respect to SD, there is a wider approach for associations with Commerce Chambers and similar organizations.

In **Tunis,** innovation is present through the concern to constantly search new markets and products. These firms have usually started with conventional activities before integrating the sustainable ones, frequently using new associations for the achievement of this process. With respect to the demographic characteristics, the small firms seem to be more open to sustainability and the involvement of the entire chain values, while the age of the firm has not been an influencing factor in the other two countries. The pollutant activities, as in Romania's case, also encourage the development of the environmental protection systems and innovation promotion.

In **Canada** innovations are more radical. All firms take into consideration some risks in the investment that they are doing in the fields of sustainable practices. They focus on the integration of sustainability in the firm's processes since the stage of business planning. The customers are trying to be influenced so that they have ecological manifestations. Also at the firm's level, the

employees are a part of maintaining innovation and sustainability impulse, in Tunis, on the other hand they can be resistant and create barriers due to inertia and customs, as well as lack of competency even within the most enlightened firms.

In all the three studied countries, the firms take into account a certain risk in their activity of investing in SD. These risks are diminished by the integration in strategic networks, mobilizing resources and involving the shareholders.

At the contextual level, the respondents agree that the society is more and more aware of the sustainability aspects due to mass media, governmental programs and education. Thus the firms within the group follow a niche strategy because either the market is not developed enough, or to protect themselves against competition, or both.

In **Canada** there are niche segments for sustainable products and services that are becoming more and more viable. In **Tunis and Romania**, the different forces at the macro level are at stake. Thus the local customers for responsible products and services are limited and these firms, especially the Tunisian ones have to focus on the foreign markets in order to survive. In our country, as influencing and motivating factors for sustainable products there are the suppliers and the government, besides the clients.

For explaining the sustainable behavior of the Canadian firms the following elements are advanced: new norms regarding the professionalization of the sustainability sector; the competition's behavior and the constraints through new laws and regulations. In **Tunis and Romania** the only appreciated element as the basis of sustainable behavior is the one concerning the pressure of the foreign customers or partners and the pressure determined by the regulations. This proves a low level of awareness with respect to SD in the two countries.

In conclusion, for the extremely involved entrepreneurs, the normative and strategic motivations vary between the three studied countries. Even so, at the entrepreneurial level, the individual factors are instrumentally underlined for explaining the firm's commitment for sustainability. The position on sustainable markets is determined by the social consciousness and personal motivation. These main aspects are present within the owners-managers in the three countries, who want to adopt pro-active strategies even if the contextual environment is not favorable.

From the awareness's perspective

At the individual level, the aware entrepreneurs declare as motivations the ones based more on the economic reasoning than the ethics or responsibility towards the shareholders. Generally speaking, in this group sustainability is on the second place after profitableness and the SMEs owners in Canada an Tunis state that they are strongly involved in the community's development. The entrepreneurs are mainly driven by the economic perspectives, sustainable practices that they apply firstly in order to obtain benefits and to survive. Their actions, even limited, are planned in order to improve in a certain extent the context in which they operate and the structure of their internal costs. The legitimacy is a reason of concern, but not to the extent that the financial performance and competitiveness are sacrificed, these being focused on cost.

At the firm's level, there are ad-hoc actions with a reduced level of integration in their strategy. Yet there are no official reports and the owners-managers do not want to be seen as facade ecologists. The **Tunisian and Romanian firms** within the group are really careful with respect to the quality of the product and the working environment. It can be noticed a missing point from the perspective of the special know-how with respect to the externalization practices for sustainable development or a constant concern for innovation.

In **Canada**, for instance, it is considered that sustainability is an important, but not urgent objective. Sustainability comes first when the situation requires it. As a consequence, resources have never totally been immobilized and the strategies have never been completely integrated.

In **Tunis**, the entrepreneurs hire the resources and develop alternatives hoping to determine a favorable situation for the workers.

The fields in which the activities that are specific to sustainability are applied, the somehow differ in the three countries. In **Canada,** these are mainly based on the environment and some philanthropically actions, while in Tunis the accent is on the social area and in Romania there is an orientation towards the environment and the community.

At the contextual level.Thus, for those aware, the orientation of the international firms comes as a supplementary pressure for the Tunisian and Romanian firms, while being coercive is operative for the Canadian firms. (insert tab. 2 about here)

From the indifference's perspective

At the individual level in the three countries, the firms are leaded by entrepreneurs who understand by sustainability the survival of their company. They are generally characterized by the lack of knowledge and interest with respect to the SD practices.

The main reason for **the indifferent** ones is represented by the fact that any responsible action is focused on the firm more than on altruistically reasons. Even if some isolated actions can be associated with sustainability, such as: the employees' development, ecological practices or the involvement in the community's life, the entrepreneurs connect this to good sense in business. On the contrary, **the aware** entrepreneurs consider these actions as being their mission, more than anything else.

At the organizational level, the indifferent owners-managers only accomplish a limited number of sustainable practices, such as the periodical achievement of maintenance operations regarding their equipments and investment, training and development of the employees – both being considered as having a direct impact on profitableness.

Some opportunistic behaviors are observed in the Tunisian firms as a result of the stimulating governmental programs. The sustainable practices which are applied are achieved due to the legal constraints and do not go beyond these requirements or are not extended to other departments.

At the contextual level, the indifferent entrepreneurs blame the macro-environment and feel that they do not have opportunities at the desired level or feel threats regarding the commitments with sustainability. They strongly believe that it is necessary to have leadership from the government by proving a more consistent and coherent involvement in sustainability.

The Canadian firms within the group operate in a favorable context, but the entrepreneurs are not interested or do not have the knowledge to gain from the opportunities and to change the strategic direction of their firms. In **Tunis and Romania**, the entrepreneurs have an opportunistic behavior and would be interested in changing the direction of their company, if offered stimulants. The most conservatory ones would conform to stricter rules in order to stay in the business, but they would not have stronger entrepreneurial behaviors in order to change their way of making business. (insert tab. 3 about here)

Discussion and conclusions

The research achieved has underlined that the Romanian firms that have been studied from the perspective of commitment in sustainable development are at the beginning of the road, but obviously are focused on o good direction. Even if in our country there is no clear consciousness at the entrepreneurs' level with respect to SD practices, there are still some signals that allow us to consider that there are some chances to become more responsible, maybe not further than the law, but open to achieve such practices.

The sustainability problem finds its place among the activities of the Romanian firms, but not in a sustained manner, completely integrated through a formal strategy.

There is the perception according to which the existence of more laws might determine an increase of the organizations' involvement. Unfortunately, solving the environmental, socio-communitarian problems do not attract the voluntary support of the entrepreneurs, not considering it their main obligation to return to the society a part of the benefits.

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Tab. 1. The pro sustainable development commitment of the investigated subjects

Commitment	Canada	Tunis	Romania
Entrepreneurs Similarities	Strong beliefs, faiths ethics vis-a-vis sustainability.		
Entrepreneurs Differences	The entrepreneurs find in pro-active manner opportunities, viable market niches. Wide and profound knowledge with respect to SD	Young, educated entrepreneurs The environmental problems are more strongly associated to this concept. Considering the SD activities as being the return to the roots, a modernization of the past. Considering SD as a cultural dimension related to education and family.	No strong beliefs from the SD perspective. Indifferent towards the involvement in professional networks with the purpose of improving the SD processes. They consider the involvement in the societal and communitarian development as a constraint to which it adjusts. The SD practices have to be included from purely economic reasons, for diminishing the environmental, social, communitarian costs, risk costs and legal non-conformity costs.
Organizations Similarities	The social actions are focused on the employees and are implemented intensively.		
	They use networks in order to gain, implement and validate knowledge on SD.		
Organizations Differences	They involve in sustainability since the beginning. It is pursued to anchor in three dimensions: formalization, integration and voluntarism. The achievement of radical innovations for the employees and the community, believing that these would determine a competitive advantage. The cost is not taken into account.	Progressive implementation of SD practices. The employees' resistance to change. The environment represents a priority. The pollution activities determine the involvement in SD. Young firms. Little training for the employees. Opportunistic behavior. New associations for diminishing risk.	Few organizations confirm the existence of a formal strategy and as integrating part there are the environmental activities. At the managerial team's level it is declared that such a strategy is not known. Indifference with respect to the integration of social principles and social development in an assumed policy. The employees are supported in developing activities for continuous learning and it is invested in the personnel more than the legal requirements are asking.

Tab. 2. Centralization of the data regarding the importance of the awareness level of SD practices

Awareness level	Canada	Tunis	Romania
Entrepreneurs Similarities	There is a social consciousness, but the economic objectives prevail. A partial understanding of the sense and purpose of the enterprise's sustainability.		
Entrepreneurs Differences		Strong involvement of the aged entrepreneurs in the area of professional and political networks.	Few actors are interested in politics and the involvement in professional networks.
Organizations Similarities	Few SD processes that can be implemented with easy to accomplish results. There are ad-hoc actions with a minimum integration in strategy.		
Organizations Differences	There is no accreditation. Few formal processes.	Opportunistic behavior. Partial integration of the aspects specific to sustainability. Limited opening of the young ones towards the institutionalized environment. Externalization of the activities for administrating the waste products.	
Context Similarities	Low level of awareness and pressure of shareholders. Fiscal and financial stimulants are expected.		
Context Differences	It is underlined the existence of a predominant access to conventional goods and services. It is expected a higher pressure form the shareholders.		
	Partial and formal accreditation is desired.	The need to have more laws is identified, which will increase the commitment .	

Tab. 3. The level of indifference with respect to the SD practices for the investigated subjects

Indifference level	Canada	Tunis	Romania
Entrepreneur Similarities	There is a lack of interest, of knowing the SD problem and the existence of a short term thinking.		
Organizations Similarities	The existence of limited resources. Laws are respected, but the application of SD actions does not go beyond them.		
Organizations Differences	The cost is a strong reason.	Few pollutant activities.	There are not a lot of Romanian firms to consider that they have invested more than the law requires.
Context Similarities	The fiscal-financial stimulants are expected. More governmental regulations are desired.		No fiscal stimulants for encouraging environmental friendly technologies.

Inroad into the Romania's ante and post-December economy in terms of production - progress or regress?

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Abstract

Purpose – This paper aims to present the evolution of Romanian economy based on the production realized in Romania before and after the 1989 revolution.
Methodology/approach – In order to treat this issue we used certain indicators such as industrial production by activity, value added, etc.
Findings – By means of data provided, the authors wish to raise some questions like in terms of how investment and production were made after 1989.
Research limitations/implications – Analysis is based on official data taken from credible sources.
Practical implications – Results of this approach could lead to the identification of possible wrong decisions that were taken in the past.
Originality/value – The selection and data processing that we consider relevant for the purpose.

Key words: investment, production, machine tools.

Introduction

The authors have started this debate on the premise that an important driver for economic development of any country is the production. The higher added value to a product is the higher remuneration of those involved in production is and, therefore, the standard of living is higher.

Further a series of indicators that will give us clues on the level of development of Romanian economy compared to other countries are used and the production of main industrial products will be analyzed, focusing on the production of machine tools.

Before the Second World War, Romania was a country with agrarian economy. "Romania's rural population in 1948 was, in fact, the overwhelming majority of the population, approximately 12 million people out of a total of 16 million"[1], approximately 75%.

After the Second World War, during the communist regime, the accent was on industrial development but based on the possible elimination of import and realization of equipments and products in domestic production. "Over 85% of the machines and equipments of the country are provided at present (1959) by domestic production, compared to only 5% in 1938."[2]

At that time, the government has focused on developing heavy industry, namely, the development of backward branches, and above all, the machine building industry and its raw material base - the steel industry.

Table 1 - Investments in national economy and industry in groups A and B, from 1950 to 1989[3]

Years	Investments in national economy mil. lei in current prices	Investments in industry		of which:			
				Group A		Group B	
		mil. lei in current prices	as a percentage of investments in national economy	mil. lei in current prices	as a percentage of investments in industry	mil. lei in current prices	as a percentage of investments in industry
1950	6,304	2,751	43.64	2,372	86.23	379	13.77
1960	27,665	11,828	42.75	10,051	84.98	1,777	15.2
1970	79,990	37,961	47.75	32,139	84.66	5,822	15.34
1980	210,451	107,058	50.87	89,880	83.95	17,178	16.05
1985	246,302	119,121	48.36	106,980	89.81	12,141	10.19
1986	249,001	124,668	50.07	110,941	88.99	13,727	11.01
1987	245,473	116,047	47.27	102,695	88.49	13,352	11.51
1988	240,208	114,959	47.70	101,532	88.60	13,060	11.40
1989	236,411	102,527	43.37	88,437	86.26	14,090	13.74

In group A were included branches producing means of production, namely industries such as metallurgical, steel, machine building, mining, etc. and in group B were included industries producing goods for individual consumers, food, textile, leather and so on.

In group A, "the party and government have allocated significant materials and cash funds to create a strong machine tools building industry."[4]

As a result of these investments, many enterprises and workshops specialized in cutting were made, but were equipped with conventional equipments.

Table 2 - Number of industrial enterprises during 1960-1989[5]

Enterprises, number	1960	1970	1980	1985	1986	1987	1988	1989
Total of which:	1,658	1,731	1,752	1,713	2,048	2,072	2,091	2,102
State industry with local and republican subordination	1,319	1,372	1,334	1,456	1,520	1,526	1,532	1,541
Cooperative industry	339	359	418	457	528	546	559	551

Reported to 1938, industrial production in 1989 was 65 times higher.[6]

"Along with employment growth in industry the employed in agriculture decreased, their weight in total employment in 1950 representing 74.1% and 27.5% in 1989".[7]

After 1989 it passed from an economy commanded and controlled by the state to a market economy and industrial production began to decline.

In 1990-1995 GDP (Gross Domestic Product) and value added showed significant decreases from 1989, which shows the crisis of adaptation of the Romanian economy to the new requirements of the market economy.

Table 3 - Energy efficiency in 1990-1995[8] (the year 1989=100)

Indicators	1990	1991	1992	1993	1994	1995
Gross domestic product (GDP)	94.4	82.2	75.0	76.1	79.1	84.7
Gross value added (GVA)	97.6	86.1	78.4	81.0	84.5	90.3
Energy consumption	84.9	68.3	57.7	57.9	55.7	56.8
Energy consumption / GDP	0.9	0.83	0.77	0.76	0.7	0.68
Energy consumption / GVA	0.86	0.79	0.74	0.72	0.66	0.63

Source: calculated according to 1996 Statistical Yearbook of Romania CNS Bucharest 1996

Table 4 - Production of iron and steel from 1965 to 1995[9]

Indicator	UM	1965	1975	1980	1985	1990	1995	$\frac{1990}{1965}$	$\frac{1990}{1980}$	$\frac{1995}{1990}$
Iron ore gross	kt	2,419	3,065	2,333	2,287	2,002	865	82.8	85.8	43.2
Cast iron	kt	2,019	6,602	9,012	9,212	6,355	4,203	314.8	70.5	66.1
Raw steel	kt	3,426	9,549	13,175	13,795	9,761	6,557	284.9	74.1	67.2
Steel	kt	193	872	1,374	1,650	1,199	309	621.0	87.3	25.8
Coke	kt	1,215	2,582	3,503	5,182	3,942	3,384	324.0	112.5	85.8
$\frac{\text{Raw steel}}{\text{habitant}}$	$\frac{kg}{habi\tan t}$	180	449	593	600	420	289	233.0	70.8	68.8
$\frac{\text{Steel}}{\text{habitant}}$	$\frac{kg}{habi\tan t}$	10	41	62	72	28	14	280.0	45.2	50.0

Source: calculated according to Statistical Yearbook of Romania 1986, 1991, 1996

It also dropped the amount of steel per habitant required for production of machine tools and cutting tools, in 1985 it was 72kg/habitant and decreased in 1995 to 14 kg/habitant. This marked the decline of high-tech metallurgy that provided raw material for production of machine tools, in which Romania had become till 1990 a significant exporter to the European market.

Table 5 - Evolution of the main indicators in 1990-1998[10]

Indicator	1990	1991	1992	1993	1994	1995	1996	1997	1998 Sem I
GDP	- 5.6	-12.9	-8.8	1.5	3.9	7.1	3.9	-6.6	-5.2
Industrial production	-23.7	-22.8	-12.9	1.3	3.6	9.4	9.9	-5.9	-19.1
Investments	-38.3	-25.8	-1.1	-8.4	26.4	10.4	4.5	-19	0.8
Export	-41.5	-26.1	-2.3	12.1	25.7	28.6	2.2	4.3	-1.3
Variation of inventory	-8.6	-10.0	-36.3	-27.7	-56.6	-53.7	-58.3	9.2	7.3
Final consumption of population	9.1	16.8	-7.5	0.9	2.6	13.1	10.9	-5.6	-8.4
Gross productivity	-23.7	-22.8	-21.9	-1.3	3.3	9.4	9.9	-5.9	-19.1
Real salary	10.5	-16.7	-11.9	-14.6	-0.5	16.0	2.3	-15.9	-7.4

Source: calculated according to Statistical Yearbook and monthly newsletter published by the National Commission of Statistics during 1990 - 1998 sem I

Romanian economy in the 1990-1998 period (semester I), achieved good macroeconomic results only half a period within 8 years, but by the end of the first half of 1998 failed to reach the level of 1989.

Comparative data on the economic achievements, both over time and towards other states, are presented in the tables below.

Table 6 - Industrial production by activities [million lei (RON)][11]

Years	Industrial branch				
	Total	Extractive industry	Manufacturing industry of which:		Electric and thermal energy, gas and water
			TOTAL	Metallurgy	
1990	116.3	10.4	99.8	9.9	6.1
1991	276.8	24.5	231.3	26.6	21.0
1992	672.5	50.6	548.4	71.3	73.5
1993	1,808.9	123.6	1,530,0	158.7	155.3
1994	4,429.6	317.2	3,624.7	418.5	587.7
1995	6,033.3	415.8	4,858.4	625.4	758.1
1996	9,296.9	427.4	7,618.8	965.0	1,050.7
1997	21,734.0	1,721.3	17,136.3	2,518.1	2,876.4
1998	26,089.9	1,776.5	20,544.5	2,536.8	3,769.0
1999	39,287.8	2,068.6	29,230.2	3,527.0	7,988.9
2000	63,203.2	3,565.1	50,155.4	7,232.2	9,482.7
2001	96,644.5	5,540.3	76,993.9	12,811.9	14,100.3
2002	128,642.6	6,780.7	100,157.9	15,254.2	21,704.0
2003	157,836.3	7,703.6	123,512.4	17,180.7	26,622.3
2004	186,831.6	8,558.0	148,312.0	18,714.8	29,961.6
2005	211,081.9	9,914.6	170,129.7	19,531.7	31,037.6
2006	247,373.1	10,585.7	199,286.8	22,169.0	37,500.6
2007	276,110.4	12,083.8	222,771.4	25,714.0	41,255.2

Table 7 - Net investments by activities of national economy [million lei (RON)][12]

Years	Activity		
	Total	Agriculture	Industry
1990	16.84	3.05	7.8
1991	31.40	3.16	17.13
1992	88.86	9.57	50.26
1993	282.16	19.64	141.08
1994	800.46	152.86	295.18
1995	1,299.55	142.03	540.24
1996	2,094.53	242.74	918.68
1997	4,413.47	288.98	1,977.6
1998	6,051.52	408.84	2,756.1
1999	8,394.81	593.28	3,717.21
2000	12,498.7	988.0	4,939.4
2001	20,419.5	1,297.7	8,173.6
2002	27,173.5	3,167.9	10,463.4
2003	35,651.2	2,093.7	13,394.0
2004	44,869.9	2,468.1	17,992.4
2005	54,566.0	2,122.3	17,702.5
2006	72,891.0	3,843.6	23,729.0
2007	98,417.7	3,312.6	27,229.9

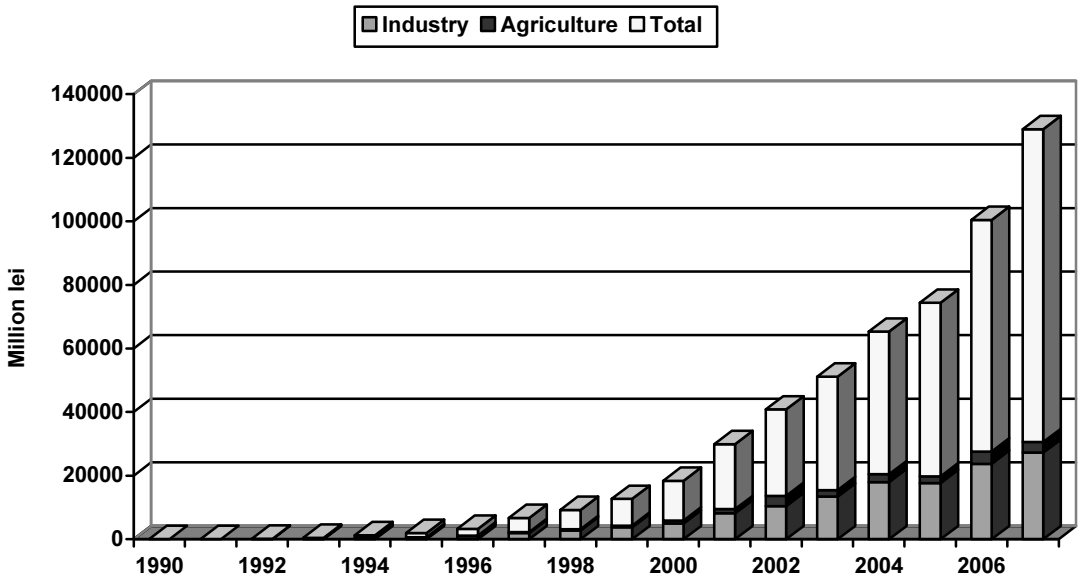

Figure 1 - Evolution of net investments in 1990-2007

After 1989 the accent has been on increasing investment but the orientation was the development of other sectors besides agriculture and industry. Production growth in industry was done in other branches of activity, while the production of machine tools and products made by cutting followed a fluctuating trend, decreasing.

Table 8 - Production of steel in the world during 2001-2006[13]

Țară	Total (thousand tons)						Per habitant (kg)
	2001	2002	2003	2004	2005	2006	2006
Republic of China	151,634	182,370	222,340	272,800	349,362	422,660	322
Japan	102,866	107,745	110,511	112,718	112,471	116,226	909
U.S.A.	90,103	91,600	93,677	99,681	93,285	98,539	329
Russian Federation	58,970	58,567	62,839	65,583	66,143	69,308	487
Germany	44,803	45,015	44,809	46,374	44,524	47,224	573
Republic of Korea	43,852	45,390	46,310	47,521	47,820	48,433	999
Ukraine	33,108	34,049	36,922	38,738	38,641	27,337	584
India	27,291	28,814	31,779	32,626	38,083	44,622	40
Italy	26,544	25,930	26,832	28,479	29,319	31,624	536
Brazil	26,716	29,604	31,147	32,909	31,610	30,901	165
France	19,395	20,524	19,758	20,770	19,481	19,852	324
...	...	...	...	...	...	...	...
Romania	**4,935**	**5,490**	**5,693**	**6,076**	**6,280**	**6,266**	**290**
...	...	...	...	...	...	...	...
Luxembourg	2,725	2,736	2,675	2,684	2,194	2,802	5,604
Hungary	2,065	2,138	2,045	1,944	2,004	1,992	197
Bulgaria	2,035	1,888	1,950	2,106	1,940	2,100	273

It is noted that in most countries, steel production remains almost constant or in a slight increase or decrease, while in Brazil, India and, in particular, Republic of China production increased greatly. For Republic of China, which experienced a great boom in the industrial production, the success is due to the very small price practiced, which leads to winning the markets.

In Romania, during 2001-2005, there was an increase in steel production but this remained below the level achieved before 1989 (in 1985 production was 13,795 million tons).

Data from Table 9 are the value added practiced in some European countries being used to determine the production costs. This includes labor and other production-related domestic expenditure.

Table 9 - Value added of the countries in Europe (%)[14]

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Belgium	26.8	26.0	25.6	25.5	27.8	25.5	25.0		25.8	24.5	23.7	21.6
Bulgaria							18.4	18.4	19.5	19.7	19.9	
Czech Republic							24.7	26.3	26.6	25.6	24.7	23.3
Denmark	34.6	35.3	36.1	36.3	36.3	34.7	33.7	34.3	34.5	35.7	33.1	32.4
Germany					33.5	31.8	31.4	31.0	31.0	30.3	29.6	29.1
Ireland	34.5	34.4	36.0	33.9	35.9	35.4	33.6	36.2	38.7	34.9	32.0	31.4
Spain	29.5	29.2	29.0	29.0	28.9	27.9	27.3	28.2	28.2	27.6	27.3	26.7
France		27.5	26.7	26.2	24.4	24.7	23.6	22.5	22.5	24.5	24.6	24.6
Italy	28.3	29.3	27.8	27.3	27.4	26.1	25.4	25.5	25.9	25.0	25.1	24.4
Luxembourg	32.2	34.1	33.4	33.3	32.3	31.7	31.5	31.9	31.5	29.7	30.0	27.0
Hungary						23.4	22.1	23.4	24.7	24.2	24.3	23.1
Netherlands	30.6	29.9	29.3	29.3	29.0	26.8	25.9	26.8	26.9	26.1	25.2	23.6
Austria	38.2		37.0	37.1	37.6	36.1	34.7	35.0	34.9	33.5	33.4	32.8
Poland					34.7	30.9	37.6	32.9	31.8	31.5	31.0	25.1
Portugal		27.0	27.2	28.2	28.6	27.8	26.9	27.8	27.7	27.3	26.7	25.6
Romania						**31.2**	**29.5**	**26.0**	**25.5**	**23.9**	**23.0**	**22.9**
Slovenia					26.2	26.0	25.9	26.7	32.8	32.2	30.5	30.5
Slovakia						19.8	23.1	21.8	19.7	20.8	20.3	19.3
Finland	33.3	33.2	33.7	32.5		30.3	28.4	29.7	29.9	31.3	29.9	29.6
Sweden	31.0	29.4	33.7	32.5		30.3	28.4	29.7	29.9	31.3	29.9	29.6
Great Britain		32.4	34.2	34.8	35.0	33.8	33.5	34.1	34.3	34.3	33.0	32.7
Norway		31.2	29.9	30.8	30.8	32.8	31.6		32.0	31.4	29.6	29.5

Value added (the difference between the products / services sold and value of materials / services purchased - excluding VAT) reflects the degree of processing done by the enterprise on the materials purchased, respectively the technological level. From the table above it can be inferred that Romania had in 2000 a coefficient for the added value of 31.2 which situated it among top countries such as Germany (31.8), etc. This ratio declined steadily reaching in 2006 a value of 22.9 at the level of the most inefficient countries in this regard.

It is known that in all factories of machinery, mechanical construction, mechanical repair workshops, stations for metalworking, machine tools have decisive role in the production process.[15]

In 1989 it produced 3.600 lathes, while in 2007 there was only one lathe.[16]

Table 10 - Production of the main industrial products[17]

Years	Product name								
	Raw steel	Low steel and steel	Finite rolled steel	Medium and light-weight rolled steel	Machine tools for metalworking of which:				
					TOTAL	Lathes	Milling Machines	Horizontal milling machines and boring machines	Grinding machines
	kt	kt	kt	kt	million lei	pcs	pcs	pcs	pcs
1993	5,446	297	4,105	1,759	1.8	489	436	29	88
1994	5,800	303	4,510	1,815	3.4	312	162	17	53
1995	6,557	309	4,959	1,801	6.6	471	341	55	52
1996	6,083	301	4,479	1,592	10.4	587	458	82	50
1997	6,665	199	4,806	1,611	22.3	681	403	49	50
1998	6,336	188	4,391	1,293	23.2	573	321	36	59
1999	4,392	165	3,379	795	33.1	330	333	48	33
2000	4,672	203	3,687	848	33.6	307	242	73	32
2001	4,935	212	3,639	922	50	388	236	32	59
2002	5,490	163	3,951	884	53	281	155	23	41
2003	5,693	175	4,757	905	59	45	244	12	119
2004	6,076	235	5,192	1,120	71	32	102	20	273
2005	6,280	581	5,311	1,084	65	40	74	12	202
2006	6,266	429	5,696	1,364	93	109	133	7	116

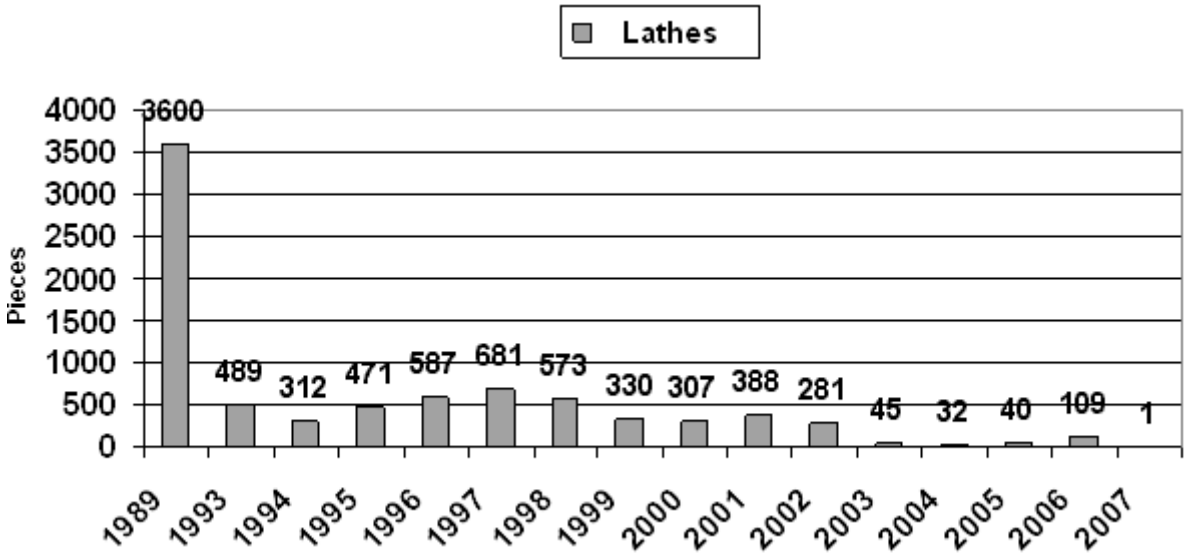

Figure 2 - Evolution of the lathes production in 1989-2007

The only manufacturer of lathes and parts from Romania, SC ARIS S.A. Arad, reached the brink of bankruptcy in 2006[18] and went bankrupt in 2007 "because traditional markets were abolished."[19]

Until 1990, Romania was one of the top ten among countries producing machine tools and, especially, heavy and very heavy machines, machines that were produced based on acquired licenses from famous companies, such as: Waldrich Coburg, Morando, Line, Pama, Schibaura, etc.[20]

These machines, though outdated, and some even physically, are widespread in our country and widely used at present and can't be replaced for reasons of mentality or financial reasons. Due to the spread these machines can't be excluded from the studies are done.

After the 1989 revolution as a result of direct commercial relations between businessmen from the country and from outside, depending on financial possibilities, in the country were brought more and more modern processing machines (second hand first, and then modern machines).

For example, a total of 19 large German companies producing machine tools and manufacturing systems have shown interest in exporting products to Romania and to develop trade relations with Romanian importers, among which are Schutte, Siemens, DMG, EMAG. A third of the machines imported in Romania come from Germany, other countries used for import are Italy and France.

The President of the Manufacturers Association of Machine Tools from Germany, Carl Martin Weicker said: "The German exports of machine tools and manufacturing systems towards Romania increased by 545% during 2000-2007, to 93 million Euros. Romania occupies the 24th place in the ranking countries where Germany exports machinery and tools". The main machine tools that are imported are lathes and processing centers.

So now in the cutting industry in our country are found in very large number conventional machines (for turning - lathes type NS) but also modern equipment (for turning - CNC lathes).

Discussion and conclusions

- As shown in the paper, machine tools play a crucial role in the production process whether they are used in the plants of machinery, mechanical construction, mechanical repair workshops, metal processing stations, etc. After 1990 production of machine tools and products made by cutting followed a fluctuating trend, downward reaching in a position to no longer produce what, once, we were placed among countries producing machine tools, contenting us to import such equipments.

- Added value reflects the degree of processing done by the enterprise on purchased materials, namely the technological level. If the coefficient for value added of Romania was in 2000 among top countries such as Germany, this coefficient declined steadily reaching in 2006 a value similar to those of the most inefficient countries in this regard.

- Given that net investments in the industry after 1990, in other branches of activity than those "traditional" have increased and knowing that value added has decreased appears inevitable the question: was this change of perspective appropriate?

Notes

[1] Comisia prezindenţială pentru analiza dictaturii comuniste din România, Raport final, Humanitas Publishing House, Bucharest, 2007, pp.238, apud Cătănuş D., Roske O. (editors), Colectivizarea agriculturii în România. Dimensiunea politică, vol.I, 1949-1953, INST, Bucharest, 2000, pp.14
[2] Diaconescu I., S. Pop S. and I. Corodeanu, Maşini-unelte, vol.I, Transporturilor şi Telecomunicaţiilor Publishing House, Bucharest, 1959, pp.5
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[5] Comisia prezindenţială pentru analiza dictaturii comuniste din România, Raport final, Humanitas Publishing House, Bucharest, 2007, pp.225, apud Anuarul Statistic al României 1990, pp.420
[6] Idem 5, tab.13, pp.231
[7] Idem 6, pp.225
[8] Soroceanu V., Creşterea economică şi mediul natural, Economica Publishing House, 2000, tab.3.6, pp.144
[9] Idem 8, tab.3.22, pp.175

[10] Idem 9, tab.3.24, pp.177
[11] According to http://www.insse.ro/cms/files/pdf/ro/cap16.pdf, accessed at 18.04.2009 and updated at 18.06.2010
[12] According to http://www.insse.ro/cms/files/pdf/ro/cap12.pdf, accessed at 18.04.2009 and updated at 18.06.2010
[13] According to http://www.insse.ro/cms/files/pdf/ro/cap23.pdf, accessed at 18.04.2009 and updated at 18.06.2010
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*** http://www.shopitonline.ro/home/19-firme-germane-vor-sa-exporte-masini-unelte-in-roma_nia/, accessed at 26.07.2008

The Moral Improvement of Managers

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Abstract

Purpose *– The purpose of this article is to outline the role of management ethics and manager morality in the practice of management, which requires, in our opinion, to approach well-established philosophical concept and theories, due to their profound relevance in making decisions with a major economic and social impact.*
Methodology/approach *– A set of high-profile bibliographical resources are referenced in the approach of the article's most relevant theoretical aspects.*
Findings *– We may accept that we live in times of crisis: the „actual" world seems to have gone astray or completely separated from the spiritual, social and moral reality.*
Research limitations/implications *– Many people today speak about science, politics, religion, culture, economy etc., as if they were completely separate areas, any association between their specific issues, concerns and pursuits being thereby prohibited.*
Practical implications *– It is impossible to devise effective recipes and formulas that can be reasonably expected to yield higher standards of performance in times of crisis. The improvement of moral behavior in business activities represents competitive edge for any organization.*
Originality/value *– Theoretical approaches conveyed in this article may be perceived as a call to mindfulness and to the managers' awareness as to the importance of improving the moral climate of the workplace.*

Key words: *management, business ethics, morality.*

Introduction

Andrei Pleşu (2005) asserts in a book entitled „*The Public Obscenity*" his belief that: „today's tawdriness of domestic realities has an annoying obscene edge, that is, a profound affinity with the psychology of *immodesty:* immodesty in politics, immodesty in journalism, immodesty in the mores, in public conduct, in speech, in the way people (fail to) think. We're talking about an aggressive exposure of uncritical nonchalance, a general suspension of values and decency. We're talking about the dissolution of discretion, scruples and any form of inner censorship. The resulting landscape is hilarious as it is dramatic".

The most obvious symptom of the modern crisis concerns its ethical aspect, i.e. the so-called moral crisis. Could this be just a tiny facet of a bigger crisis? The essence of the moral crisis basically consists in the decline of religiousness. The major effects of such decline forces us to consider some fundamental moral issues. And what do we see? (Geană, 2005):

- ✓ an inconsiderate craving for money;
- ✓ unchecked egoism;
- ✓ a widespread lack of honesty and openness;
- ✓ the decline of family as a social institution;
- ✓ the breakthrough and pervasive presence of sexuality in the public sphere;
- ✓ increasingly acerbic discord;
- ✓ the proliferation of all kinds of conflicts and frictions (between individuals, between individuals and society, between various social groups, between generations) etc.

The emergence of the market as a mechanism of social and moral valuation is basically determined by specific and highly-objective economic phenomena. It is however obvious that an optimal working of market rules is determined in turn by the quality of the social environment, by the shared culture and moral values that people adhere to.

Why is an ethical approach to management necessary?

The role of ethics is to help people determine the best course of action, the criteria that should underlie their choices and the moral motivations of their actions. The mission of ethics as a science is not to produce theoretical considerations on morality, but to provide a guide for the improvement of society's moral values.

The ethical perspective on management is motivated by the importance of moral judgment in designing an adequate management concept in *humanistic* terms that may complement and even improve various activities. A human being must, generally speaking, come to terms with his/her profession and position and find a proper balance between what he/she has to, is able to and wants to accomplish.

The modern concept of business ethics considered from its most important angle addresses the problem of social responsibility and the creation of a new organizational culture that takes into account not only the necessity to maximize the profit and the shareholders' income, but also the necessity of adequately meeting the needs of society at large.

The ethics of managements seeks to answer the following questions (Ionescu, 2005):
1. Are the consequences of an action or policy positive or negative?
2. Does your decision interfere with the rights of those who are affected by it?
3. Does your decision comply with or serve the moral obligations?
4. Are the results of the decision fair to all those involved?

Each of these questions stands for a different type of ethical analysis, with a unique analytical focus and a central management question of its own.

The invisible manifestations of organizational culture (values, beliefs, behavioral norms, the basic concepts of the organization) are likely impart a specific character to the organizational culture. The visible and invisible manifestations of the business organization culture have a positive role in these organizations. Making a diagnosis of organizational culture is a difficult task, considering the multitude of manifestations and elements that make up the organizational culture; therefore identifying and choosing the most appropriate research methods is undesirable as a study and scientific rigor.

We are perfectly aware that utility and profit are necessary to prosperity, although they come with a cost that more often than not eludes the moral aspect of business. We must however find proper solutions to make conflicting interests converge and to find acceptance for a humanistic approach in business. We believe therefore that it is possible to focus our responsibility on effectiveness, performance and profit maximization without ignoring the moral implications of our endeavors.

It appears that the free market system, in which only voluntary and mutually beneficial exchange are permitted, is a necessary condition for a moral order in which the integrity of the individual conscience is respected. Friedrich Hayek (1944) points out in *The Road to Serfdom* that only: „where we ourselves are responsible for our own interests […] has our decision moral value. Freedom to order our own conduct in the sphere where material circumstances force a choice upon us, and responsibility for the arrangement of our own life according to our own conscience, is the air in which alone moral sense grows and in which moral values are daily recreated in the free decision of the individual. Responsibility, not to a superior, but to one's conscience, the awareness of a duty not exacted by compulsion […] and to bear the consequences of one's own decision, are the very essence of any morals which deserve the name".

Each individual is responsible for a deed or omission, as long as his free will is involved. The degree of guilt depends on the importance of the tasks to be performed, on their difficulty, on the degree to which the doer is aware of the seriousness of the deed, on the amount of external influences in adopting decisions etc.

Every business decision has an ethical side because its implementation involves a conduct that has to conform to several fundamental values, rules, principles and norms enforced by law-makers and communities. Under such circumstances, the management morality could be regarded as a favorable attitude towards ethical conducts, concepts, ideas and models.

Many theorists suggest that business supervision against moral criteria is mandatory, because management is primarily a social and humanistic discipline that qualifies as an economic science on account of its aims (maximization of profits, efficiency and effectiveness). Other authors regard business morality as a simple umbrella that covers all of the company's internal and external relations, where the dividing line between right and wrong is not always very sharply drawn.

The role of managers in establishing a moral order in business organizations

Making and implementing sound ethical decisions in an organizational environment is a qualification or skill that requires experience and education. Some managers make mistakes because their „short-sighted" and fail to grasp the ethical aspects of the situation. Other managers are unable to comprehend and do justice to the importance of competitional ethical factors or to see a situation from other people's perspective (Ionescu, 2005).

Pastin (1986) belives that that managers that prove high moral standards in business and seek an effective competitive edge for their organization must take into account a set of principles detailed below:

- ✓ The organizations interact easily with various internal and external stakeholders. Their basic regulations are based on the tenet that all stakeholders must partake of the company's benefits.
- ✓ The members of the organization are deeply concerned with fairness. Their basic principles emphasize the belief that other people's interests are as legitimate as one's own interests.
- ✓ Responsibility is rather individual than collective and individuals accept personal responsibility for the actions and results of the organization.
- ✓ The organizations plan their actions in terms of a purpose that the members of the organizations must be educated to value as a manner of working and that acts a link between the organizations and the environment which supports them and their activities.

Other authors believe that the main characteristics of an organization with high standards of integrity are:

- ✓ A clear concept of integrity shared throughout the entire organization.
- ✓ This concept is formulated and gradually implemented by the company's management.
- ✓ This vision of integrity translates into an adequate reward system.
- ✓ The policies and practices of the organization conforms to this vision.
- ✓ It is clearly understood that each significant decision of the management has an ethical aspect and value.
- ✓ All the members of the organization must manage their activity within a system of conflicting relationships with various stakeholders according to a set of moral values.

Human life is not conceivable in the absence of values, but they depend on various circumstances, on political, cultural, economic influences etc., in other words, what people value depends on their subjective attitudes, rather than the objective nature of the values.

Managers that have a well-defined set of values will be able to persuade other more easily. It must be kept in mind that in order to define a set of values, they have to be clearly formulated, realistic, consistent, attractive, easy to communicate, to stimulate performance and generate a feeling of fulfillment and self-confidence. The set of fundamental values must be translated in the

company's mission and provide a benchmark against which managers can permanently assess their decisions and actions.

In face of ethical dilemmas, organizational learning offers the best solving answer, especially when the external environment exerts a constraining influence on the organization.

In Romania, management ethics has a special relevance in comparison with other countries that have a robust market economy tradition. To ignore the development of the ethical side of business by advancing the argument that the observance of laws (many of which are inconsistent) is supposedly sufficient means to ignore the fact that managers are more than just doers, that they have their own values and that they stand before decisions with deep ethical implications, as they are often in the position to choose between their own personal aspirations and their organizational responsibilities. And, after all, abiding by the letter of the law does not always and necessarily equate to an ethical behavior.

By defining morality as a human „self-surmounting" effort towards realizing one's moral value, Kant made a contribution to this interpretation, by understanding man as a *pro-active* being, predisposed to morality in the form of personality, in order to honor *„humanity",* both in himself, as well as in others.

We believe that moral improvement must be possible, necessary and, why not, mandatory for both managers and employees. It is true that in the process of labor, managers will tend to exercise virtues such as restraint, order, justice, caution, fairness etc., while employees will mainly exercise virtues of subordination: loyalty, conformity, dutifulness etc. Furthermore, all employees of any organization must work in a spirit of respect for property, as well as assume and promote all those values required in order to maintain a high standard of moral behavior within the organization.

The responsibility must be assumed not only by the doer, but also by his fellows. Responsibility elevates man to an absolute level (deep and steadfast spirituality), which confers the highest degree of solidarity to one's fellow men, thus becoming an active force.

„Man has a *specific responsibility towards the life environment that* is towards the creation that God committed to the service of man's personal dignity, to the service of his life. A certain participation of man to God's capacity as Lord manifests itself in the specific responsibility that is entrusted to him towards human life (John Paul II, § 42,43)".

The Managers' Moral Profile

We have to point out from the very start that our approach of this issue is not based on the assumption that managers are by definition immoral people (that are in urgent need of a lecture in management ethics) or that management is a breeding ground of morally questionable practices. After all, as Professor Ioan Abrudan (1999) elegantly put it, „let us not forget that everything we have, no matter how much or little, we owe to managers and other people with similar responsibilities. The rest of us live safely sheltered behind a front line where ferocious battles are being fought. Let us therefore pay our due respects to the ones in the trenches and try to properly lend our support to the front line. After all, nobody prevents us from joining the troops in the trenches ourselves".

Mangers are people who promote a particular culture, they can see ahead, to relate to long term, to read between the moral lines. Subordinates will work and be paid for what they do. The emblem of the organization, its fame, authority and respect are built by managers.

Some managers think that a decision-maker fulfills his/her duties by strictly conforming to the law and to the contract clauses and by meeting his/her obligations in a prompt and exacting manner. Others believe that a good leader, in addition to observing the applicable rules and regulation, must be also honest to his colleagues and collaborators and sympathetic to the needs and ideas of those who are interested in the optimal operation of the company.

Managers also manage the ideals, dreams, hopes, targets and expectations of all stakeholders. The influence of the managers on their subordinates extends far beyond a strictly professional relationship, as the former forges characters and influences destinies.

Managers must be aware of the fact that the decisions they make and the activities they plan and supervise convey both rights and obligations for themselves.

Managers that have a moral conduct tend to:
- ✓ support each employee's freedom, growth and development;
- ✓ approach employees with courtesy;
- ✓ design and endorse a balanced work and rest schedule;
- ✓ treat the employees' families with respect;
- ✓ regard all employees as unique and valuable human beings;
- ✓ protect the employees' life, safety, health, well-being etc.;
- ✓ ensure a discrimination-free work environment;
- ✓ be fair and honest in financial matters;
- ✓ maintain an open and honest communication with the subordinates;
- ✓ fosters a positive attitude towards others and their accomplishments etc.

Managers must maintain a steady concern for everybody's well-being, carefully examine the consequences of their decisions and submit to reason, regardless of their beliefs and needs.

Moreover, we think that a responsible manager must act with caution, moral integrity and must be able to take chances and act efficiently and calculated in difficult situations, in addition to be law-abiding and sympathetic towards his co-workers.

Discussion and conclusions

Managers find access to the „moral realm" by appropriating the moral practice of the community they belong to. They can train themselves into morality as a practice of existing morals, learning to make decisions, to carry out various actions, to solve ethical dilemmas, to assess the moral deeds of others etc.

We must re-appropriate, as Nicolas Grimaldi (1992) exquisitely puts it, „this continual subversion of the present through a future, whether we call it tension or effort or impetus or desire or will". In order to avoid the lure of passivity and surrender, the human consciousness must „undertake to speed up that what is expected, to make it come to pass through labor and perseverance, always busy to shape and alter the substance of the present, slowly revealing the face of the future designed by our efforts".

The essence of management ethics must be the development of moral proficiency in managers, construed as a person's skills and capacity to understand moral modes of behavior and action and to implement them in accordance with the existing moral law.

In our view, the managers' professional competence must include a moral aspect that both transcends and complements the core technical proficiency with a sense of honesty and loyalty in all dealings with the stakeholders, a sense of objectivity that must underlie the decision-making process and a sense of duty towards the relevant professional norms.

We believe that the modern manager is a *creative person*. The understanding of his creative dimension can only be enabled by an ethic of creation that must be effectively involved in the process of „human reconstruction".

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An Exploratory Study on the New Management Theories Emerged in the 21 Century. Several Insights from Romanian Managers and Consultants

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Abstract

Purpose *– The purpose of the paper is to explore the need for reinventing management that Romanian professionals perceive and their familiarity with the new management ideas emerging at international level.*
Methodology/approach *– The authors conducted a literature review on the new management theories to point out the main directions in this context. Also, the qualitative method was employed, the instrument being a structured interview, to investigate how these new management theories are seen by Romanian managers and consultants.*
Findings *– The research revealed several coordinates related to management in the context of the so called crisis and the calls for its reinvention. The interviews made possible the identification of how these ideas are perceived by Romanian professionals.*
Research limitations/implications *– Benefiting from the answers of a limited number of managers and consultants, results have limited representativeness and cannot be easily generalized.*
Practical implications *– However, the in-depth results can be used as basis for generating hypothesis for a quantitative research to explore the aspects revealed by the qualitative research at a much larger scale.*
Originality/value *– The paper explores a very actual topic and the insights collected from the respondents can be used as a starting point to solve management issues that Romanian professionals face.*

Key words: New Management Theories, crisis of management, exploratory study

Introduction

Reporting on management theories, it was a short way between Gary Hamel's (2007) question on "Why does management seem stuck in a time warp?" and Michael Porter's (2011) description on how nowadays businesses view value creation, by "optimizing short-term financial performance in a bubble while missing the most important customer needs and ignoring the broader influences that determine their long-term success".

In this context, much has been written on the need for new management approaches, numerous specialists talking about a so called crisis of management. But maybe the most daring attempt was that of the "Moon Shorts for Management" – a roaster of 25 make-or-break challenges aimed at driving the energies of management innovators anywhere - the result of the shared work of a group of scholars and business leaders aiming to illuminate the way to a management 2.0 era.

Based on the premises mentioned above, the paper investigates the issue of the need to reinvent management, exploring some of the main new management theories and ideas emerged in the 21th century, in terms of contents and forms of manifestation. Further on, we investigate how Romanian practitioners (both managers and consultants) comprehend and use these ideas and

theories and at what extent they think of the so called crisis of management. We focus our attention towards managers and consultants in Romanian SMEs, as they represent the great majority of Romanian managers and employ empirical, but innovative management practices that are worthwhile analysing.

New management theories and ideas shaping the 21th century – a literature review approach

Even from the end of the past century, it was clear for many that the existing management practices were no longer suited for the new economic and social realities. Stafford Beer, the pioneer of the viable systems model, argued that organizations must start to be seen as systems, just like the human body. Viability implies that the system is organized in such a way as to meet the demands of surviving in the changing environment. In such organizations, the old style of opaque, financial management is transformed into a new style of management, transparent and cybernetic (Howard, 2009).

In the context of questioning the actuality and suitability of management in the 21th century, it is argued that the recent financial crises are actually crises of management (Straub, 2010; Birkinshaw, 2010). Straub (2010) outlines that the global crisis has triggered the question of whether management is the problem, and not the solution to the challenges of the 21th century.

Moreover, there are authors suggesting that research and teaching themselves have lead to "bad management theories destroying good management practices" (Goshal, 2005). The author mentions the case of the agency theory, which has thought the students that managers cannot be trusted to do their jobs and that to overcome "agency problems", managers' interest being aligned with those of the shareholders by means of stock options, for example. Also, the need for tight monitoring and control of employees in order to prevent "opportunistic behavior" was preached (Goshal, 2005), leading to a "command and control" management approach that is not suitable to help nowadays organizations build employee engagement and sustainability. In this context, it is deeply supported the need for innovation and reinventing management. Julian Birkinshaw (2010), the author of the book titled "Reinventing Management: Smarter Choices for Getting Work Done" speaks about two major prejudices affecting the practice of management, that have to be overcome by a change of optic and a change of management practices:

- Management is simple, timeless and unchanging;
- What organizations really need is leaders, not managers.

The author argues that while the functions of management are relatively stable and unchanging, the methods of management (how things get done) have known dramatic changes. We would add that this relates to the advances in other disciplines that have influenced management, such as information technology and cybernetics. Regarding the second prejudice, the author argues that management and leadership are both important, but they serve different, complementary purposes. Indeed, we would add that much has been written and many contributions have been added in the recent years to the field of leadership, and less to the discipline of management.

A comprehensive and daring initiative to innovating management is that of a group of scholars and professionals that created in 2008 an ambitious agenda for reinventing management. The result was a collection of 25 ideas that diagnose the current state of management and outline the future of the discipline in the years to come, published by Gary Hamel in the Harvard Business Review. Even the name for the "Moon Shots for Management" suggests the boldness of this attempt to reshape management for the new millennium. Some of the ideas emerged refer to (Hamel, 2009):

- The use of management for greater purposes than the maximization of shareholder value and the integration of corporate citizenship and community in the management practices;
- Eliminate formal hierarchies, reduce fear and increase trust;
- Redefine the role of leaders as social architects who create environments where everyone can innovate and excel;

- The need to use holistic performance measurement systems that focus on the critical factors that drive success;
- Create democracies of information and increase employee autonomy;
- Learn from other disciplines that have influenced and have the potential to further influence management, such as cybernetics, theology, biology, social sciences etc.

An interesting appearance in the context of management and strategy in the last years have been small and medium-sized enterprises (SMEs). Analyzing their management practices and business results can lead us to conclude that they have much to say in reshaping management in the years to come. A study conducted by professor Hermann Simon (2006) revealed that SMEs are actually what he calls "hidden champions" of the 21th century, meaning organizations that are not that well known to the general public, but that succeed in realizing extremely ambitious market leadership goals. It seems that their management efforts are focused towards narrow markets where they observe and adapt to both consumers' needs and technology, and combine this product specialization with global marketing and sales. Also, what characterizes them is innovation: while large corporations have around 10 patents per 100 employees, top "hidden champions" have 30-50 patents per 100 employees. But maybe the most important lesson to learn from the "hidden champions" of the 21th century is that "they do things differently from the modern management gurus" (Simon, 2006).

While they are smaller, more flexible and more innovative, SMEs can be the engine to drive not only the economic growth, but also innovation in management practices. It is argued that in the context of the economic crisis, knowledge – defined not only by research and development, but also by sound management competencies, sales and procurement structures, marketing and branding etc. – will be of critical importance for enhancing SMEs' growth and prosperity (European Parliament – Directorate-General for Internal Policies, 2010). Hence, focusing attention towards SMEs in the context of the so called crisis of management and the need to reinvent the discipline can reveal valuable findings.

Methodology of the research

Analyzing the relevant literature on the new theories and ideas that influence the field of management, we could synthesize some aspects to further explore at the level of Romanian practitioners. Using a qualitative research approach, we conducted an exploratory study in order to gain in-depth insights from Romanian managers and consultants related to what we found as important trends and ideas emerging at international level. The instrument used was the structured interview, conducted online. Being an exploratory study, we did not establish criteria for the respondents, besides their role as managers or consultants in SMEs, our purpose being that of gaining as many and as diverse opinions as possible related to the ideas explored. We have investigated the following aspects mentioned below and finally concluded on whether a management crisis exists in Romania or not:

- Perceptions on the management practices and the role of the manager in Romanian SMEs;
- Perceptions on the Romanian leader and his traits;
- Alternatives to the "command and control" management approach;
- "Democracy of information" and its suitability to Romanian SMEs;
- Agility, adaptation to change, and challenges managers face;
- Disciplines influencing management in the years to come.

We have had seven respondents, three activating in micro-enterprises (below nine employees), two from small enterprises (below fifty employees) and two from medium-sized enterprises (below two hundred and fifty employees). Five respondents are executive managers, whereas two are department managers. Two respondents are activating in the consultancy industry.

Findings and discussion

Regarding the current management practices in Romanian SMEs, the most often trait mentioned by the respondents is "empirical". This means that these practices develop as managers gain experience, and not as a structured approach, and are driven by intuition, rather than planning. One potential factor could be the young Romanian educational system that forms managers as a profession. Here is what a manager answered: *"Empirical. Unstructured. Lacking maturity"*. Another aspect mentioned refers to the management style, which is characterized as "directive" (corresponding to the "command and control" approach), with "poor teamwork", and "authoritarian" (which is explained as being the "simple way" in management).

Regarding the role of the manager, respondents' perceptions related to this are connected to the previous question. One respondent answered briefly that the manager's role in Romanian SMEs is that of *"coordination and control"*. Another manager gave the exact same answer, continuing with, *"in detriment of analysis and planning"*. Other opinions refer to the manager as the "engine" of the organization, in terms of strategy and value-add. We would add that, indeed, in Romanian SMEs it often happens that managers are the owners of the business themselves, in which case their involvement in strategy as well as daily operations is high.

The fact that managers themselves mention control as a significant role of the Romanian manager reveals their awareness of this practice. However, we tried to find out whether they consider there are viable alternatives to the "command and control" approach, and what they mentioned was participative management, leadership, education, engagement and sharing profits with employees. One manager mentioned the systemic approach (i.e. this being a major management trend, Peter Senge and Stafford Beer being authors with great contributions to the specialized literature dedicated to systems thinking), which sees the organization as a system made of various components that work together in a synergy to obtain maximum of its potential.

While leadership is a very actual concept in organizational management, we wanted to see how respondents perceive the Romanian leader. Some of the traits mentioned were:

- *"Control freak, with no empathy and with lack of respect towards subordinates"*
- *"Visionary, but egocentric and with limited patience and perseverance"*

It is interesting to notice that such traits are associated with Romanian leaders, as judging by the definition of leadership, this implies that those who influence people and make them follow are actually egocentric, but probably with manipulation skills. However, respondents believe that respected leaders are guided by different kinds of principles: *"integrity, performance and responsibility"*.

Regarding the concept of "democracy of information", respondents acknowledge that it is desired that employees have an increased access to information that can make them perform better their job. They believe that the current state of this practice is not good enough in Romanian firms, as *"Romania is not yet an environment ready to become transparent"*. Although desired, this "democracy" must, however, exist in the limits of confidentiality and security. Aspects such as new products in test should, of course, be treated with caution. However, compensation and benefits policy, which was mentioned by a respondent as to remain confidential is, in our opinion, an aspect that would reflect a true "democracy of information", indicating that the company is mature enough so as to cope with such a thing being known by all employees. This is why we believe that Romanian firms are not ready for this yet, a thing that was confirmed by a respondent that mentioned having experimented, but with negative impact among employees, the "democracy of information".

Regarding agility and adaptation to changes, which is a major idea discussed in management in the 21th century, respondents mentioned several things Romanian firms should consider to improve agility. What is notable is that both internal (continuous communication, planning, SWOT analyses) and external (seek market opportunities, greater emphasis on customer relationship management) aspects were outlined. One interesting answer could be emphasized - *"improve the*

quality of managers" - this reflecting that the respondent believes that Romanian managers are not agile and change-oriented enough.

In what concerns the disciplines that the respondents believe to have the potential to influence organizational management in the years to come, they mentioned: entrepreneurship, political science, organizational psychology, marketing, project management and information technology. This was a question where we found difficulties in respondents answering to it, probably due to the limited information they have on this topic.

Whether or not a crisis of management exists in Romanian firms, opinions are diverse. Most of the responses were affirmative, this signaling a pessimistic approach towards management in Romanian firms and the need to change and improve practices. Some symptoms of the crisis mentioned by the respondents are: the fact that *"managers are not taught to delegate, to maximize teamwork"*, and they have a short-term orientation towards *"profit maximization"*. While one respondent believes that this is a natural thing, as management, like any profession, takes time to consolidate and has its ups and downs, another respondent believes that Romanian managers are on the right track, and the recent economic crisis leads to an improvement in management, firms that survive becoming stronger.

Conclusions, limitations and further research directions

Analyzing the primary data we collected from the respondents to the interview enabled us to identify some major traits of management performed in Romanian SMEs and correlate them to the new management ideas emerging at international level.

Even the practice of management is seen to be at an incipient level in Romanian SMEs, respondents perceiving it as empirical and unstructured. Of course, this can further on be a cause for the "command and control" management approach that respondents believe is defining for Romanian firms. However, it was interesting to find that they perceive that viable and realistic alternatives exist to this approach, the systems thinking being mentioned in this context.

Exploring their perception on the concept of "democracy of information" was interesting, the conclusion being that Romanian firms are not yet ready for such an approach, nor are they agile and adaptive enough.

We could also identify some disciplines that are expected to influence management in the years to come, as well as perceptions on the so called crisis of management which seems as a very actual challenge for Romanian managers.

While limited to the opinions of the managers and consultants interviewed, our study accomplished its purpose to gather diverse and in-depth opinions on the issue of new management ideas shaping the 21th century, on the crisis of management and the need to reinvent the discipline and practice. We believe that the ideas emerged can represent valid starting points for further, more complex studies. Aspects such as suitability of systems thinking and "democracy of information" to Romanian firms can be further explored in case studies conducted in actual firms from Romania and even be validated at a large scale, using quantitative researches.

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Cultural Intelligence and Customer Satisfaction: A Quantitative Analysis of International Hotels in India

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Abstract

Purpose- *The primary objective of the present study is to understand the relationship between Cultural Intelligence and Customer Satisfaction in the International Hospitality Industry.*
Methodology/approach- *The Cultural Intelligence Scale (CQS) and a self administered questionnaire on Customer Satisfaction is used. Data was retrieved from three internationally functioning hotels namely The Oberoi, The Taj Palace and ITC Maurya Sheraton, New Delhi, India. The respondents are employees working in international hotels as well as the international clientele visiting these hotels. The sample size is 300.*
Findings- *The results indicate that there exists a positive relationship between Cultural Intelligence and Customer Satisfaction. Also, Cultural Intelligence enhances the overall productivity of employees. It suggests Cultural Intelligence can be enhanced through Cross Cultural Training.*
Research limitations – *As the employees in the hotels work in shifts, it was an intricate task to retrieve data from the employees. Also, as the customers do not want to be disturbed during their stay with these hotels, to identify the clientele who would be cooperative was indeed very challenging.*
Practical Implications- *The research suggests that in order to be successful in the international hospitality industry it is significantly important to be acquainted with Cultural Intelligence to satisfy and meet the culturally based expectations of the international clientele**.** Also, Cultural Intelligence can be engraved amongst the employees through cross cultural training programmes that attempt to address issues of cross cultural diversity in the hotels.*

Keywords- *Cultural Intelligence, Customer Satisfaction, International Hospitality Industry*

Introduction

With the advent of globalization, the world has become a small, networked global village. As its consequence, cultural differences and cultural diversity need to be addressed as challenges that need to be faced by individuals and organizations. The understanding of the managers in the context of identifying such cultural differences begins when they realize that such differences have an impact upon the behavior of individuals from diverse cultural backgrounds and consequently upon the overall functioning of the organizations.

The growth in the service sector internationally has created a substantial need to deal and interact effectively with people from different cultural backgrounds. People belonging to different nationalities possess varying cultural backgrounds and therefore contrasting beliefs, values, attitudes, perceptions, expectations and varying underlying assumptions. Hotels and other sectors of hospitality are faced with the challenges of cross cultural service encounters and

continuously need to assess their performance against the expectation of their customers, employees and suppliers from a diverse background (Mohsin, 2006). The acknowledgement of such variations that exist in the outcomes resulting from cultural differences is eminent as it helps to closely understand the needs of your customers and others and meet their cultural expectations too. Thus, culture can be the source of cooperation, cohesion and progress, instead of conflict, disintegration and failure (Harris, 2004).

The role of the service providers, therefore, takes a foot forward when dealing with international customers. If service managers are unaware of the core cultural expectations of customers, it will result in gap of performance of service (Mohsin, 2006). Thus, when considering the case of the international hospitality industry, it becomes important to understand that in order to benefit from the cross cultural interactions between the service provider and the customers, an "intermediary factor" or element is needed that can help to develop a link between the understanding of cultural issues by the service provider, on one hand, and the customer's cultural expectations on the other. Therefore, cultural differences need to be respected and accommodated for, while transacting in the business of tourism or hospitality.

However, one of the key managerial competencies that is needed for dealing effectively with people from different cultural backgrounds is "Cultural Intelligence" Cultural Intelligence (CQ) is a person's capability to function effectively in situations characterized by cultural diversity. It aims at providing a new insight into the social skills and development of mental frameworks that help in bridging cultural differences. Cultural Intelligence consists of specific knowledge about different cultures as well as general knowledge about how cultures work. It explains how some individuals are more capable of navigating in the culturally diverse environment than others.

However, such interactions with global customers are extremely relevant and essential while transacting in a people intensive sector like hospitality. There has been an exponential growth in the need for hospitality services in almost every country in the world. In response to this global need, and to take the advantage of the changing social phenomena, the definition of hospitality has expanded nationally and internationally. Firms, customers, and employees have all become international and multicultural (Kandampully, 2002). Most deluxe hotels anywhere in the world expect a significant proportion of their customers to be foreign. This is where the role of Cultural Intelligence comes into play in the context of bridging the gaps and acting as an "intermediary factor" to extract the benefits of cultural diversity in the international hospitality industry.

Problem Statement

The authors identified that managers in the international hospitality industry experience problems when dealing with customers from diverse cultural backgrounds which implies a set of varying cultural values, beliefs, perceptions, attitudes, expectations and basic underlying assumptions. When the interaction between the service provider and the customer on the grounds of cultural expectations is not successful, it leads to the failure of the service encounter, creates dissatisfaction and also leaves an impression on the customer, which is not appropriate or desirable. One reason behind such a failure of the service encounter could be that the managers are not "culturally intelligent" to deal with the global customer. Thus, if the managers develop the skills to become "culturally intelligent" the possibility of getting positive and fruitful outcomes, increases. Also, the employees learn the art of harnessing and extracting the benefits of cultural diversity. On these grounds the relationship that exists between Cultural Intelligence and Customer Satisfaction was sought to be studied in the international hotels in India namely The Oberoi, The Taj Palace and ITC Maurya Sheraton, New Delhi.

Review of Literature

Cultural Intelligence

Cultural Intelligence is relevant and essential for those who deal with people from different cultures. According to Earley and Ang (2003), CQ is "a person's capability for successful adaptation to new cultural settings, that for unfamiliar settings attributable to cultural context". It recognizes the skills and characteristics required to work effectively with international clients, and

partners. As an individual difference capability, CQ reflects what a person can do in culturally diverse settings. Thus, it is distinct from stable personality traits which can describe what a person typically does across time and across situations (Costa and McCrae, 1992). Still some personality traits may relate to CQ.

Earley and Ang (2003) conceptualized CQ as comprising of four facets, namely meta cognitive, cognitive, motivational and behavioral dimensions which have relevance to functioning in culturally diverse situations. Meta-cognitive CQ reflects mental process that individuals use to acquire and understand cultural knowledge including knowledge and control over individual thought processes (Flavell,1979) relating to culture. Those with high meta- cognitive CQ are consciously aware of other's cultural preferences before and after interactions (Ang et al., 2007).

Cognitive CQ focuses on the knowledge of the norms, practices and conventions in different cultures acquired from education and professional experiences (Ang et al., 2007). This includes the knowledge of the economic, legal and social systems of different cultures and subcultures (Triandis, 1994) and knowledge of the basic frameworks of cultural values (e.g., Hofstede, 2001).

Motivational CQ reflects the capability to direct attention and energy toward learning about and functioning in situations characterized by cultural differences (Ang et al., 2007). Behavioral CQ reflects the capability to exhibit appropriate verbal and non-verbal actions when interacting with people from different cultures (Ang et al., 2007).

Ang et al. (2006) demonstrated that the four dimensions of CQ were distinct from, and yet related to, more distal Big Five personality traits in conceptually meaningful ways. In another study, Sternberg & Grigorenko (2006) points out, "Someone could be relatively successful across cultures but not highly successful within any one of those cultures".

Based on Gardner's (1984) multiple intelligences theory, Peterson (2004) identified four dimensions of CQ: (a) linguistic intelligence refers to the language skills needed to interact with people from other cultures, but one does not have to speak a second language fluently to have cultural intelligence; (b) spatial intelligence refers to the ability to adapt spatial behaviors in other cultural settings; (c) intrapersonal intelligence refers to the ability to know one's own cultural style; and (d) interpersonal intelligence refers to the ability to respond appropriately to others.

According to Thomas and Inkson (2004), a manager who is high on CQ will first be knowledgeable about the cultures and fundamental issues in cross cultural interactions; second, be mindful of what is going on in intercultural situations, having a sensitivity to cues and an ability to interpret them to respond appropriately to different inter cultural situations. Thus, higher CQ can strengthen workplace communication and build solid business relationships.

Ng and Earley (2006) discussed conceptual distinctions between CQ, a culture-free etic construct, and the traditional view of intelligence that is culture-bound and emic; Triandis (2006) discussed theoretical relationships between CQ capabilities and forming accurate judgments; Brislin et al. (2006) discussed Cultural Intelligence (CQ) as critical for expecting the unexpected during intercultural encounters. Earley and Peterson (2004) developed a systematic approach to intercultural training that links trainee CQ strengths and weaknesses to training interventions. Janssens and Brett (2006) advanced a fusion model of team collaboration for making culturally intelligent, creatively realistic team decisions. Thus being cognisant of the importance of CQ will be critical factor in providing the service.

Ang et al. (2007) conducted three substantive studies in Singapore and US across different cultural, educational and work settings which demonstrate a systematic pattern of relationships between dimensions of CQ and specific intercultural effectiveness outcomes. It has also helped to describe the development and cross validation of the 20-item cultural intelligence scale (CQS) and test substantive predictions based on integration of the intelligence and inter cultural competencies literatures. The multidimensional conceptualization of CQ and the differential relationships of the dimensions of CQ with specific intercultural effectiveness outcomes suggest the importance of continuing to theorize about and examine CQ as a multidimensional construct, where specific dimensions of CQ have special relevance to different outcomes.

Ang and Inkpen (2008) developed a conceptual framework of firm- level cultural intelligence and also discussed its relevance in the context of global business ventures like offshoring which consisted of three dimensions of intercultural capabilities of the firm: managerial, competitive and structural.

Menon and Narayanan (2008) discuss the applicability of Cultural Intelligence (CQ) to understand it's relation to outcomes in culture-specific contexts. The authors have theoretically examined the relationship between Cultural Intelligence and cultural differences to identify the organizational outcomes that could be interpreted for future research.

Van Dyne et al. (2010) focuses on Cultural Intelligence as the capability to make oneself understood and lead in culturally diverse situations and display appropriate behaviors in situations characterized by cultural diversity.

Despite the newness of the construct, empirical research on CQ is promising. Ang et al. (2007) found CQ to be significant in explaining the variance in performance. Thus researchers in this area have consistently suggested for more research to address both the measurement issues as well as the substantive issues to pursuit of CQ construct validity (see Ang et al., 2004).

Influence of Culture on the International Hospitality Industry

Business success in the 21st century will be dependent on how individuals and organizations acquire and practice cross- cultural sensitivity and skills in dealing with customers from diverse backgrounds (Harris, 2004). Thus, it is of great significance to identify the impact of culture on the international hospitality industry where individuals come across customers, employees and others belonging to varying cultural backgrounds.

When people are aware of the potential differences in thought processes, they tend to make isomorphic attributions, defined as interpreting behavior from the actor's perspective and giving it the same meaning as intended by the actor (Triandis, 2006). This holds true for the hospitality sector where the customer may belong to a different cultural background and the employee takes the challenge of addressing the needs of the customer and bringing him satisfaction, contentment and most importantly meeting his cultural expectations. When customer expectations are not met this often leads to disappointments, fear, loneliness which can result in cultural conflicts (Weiermair, 2000).

Hospitality services are "high contact" services with a high degree of human involvement and face to face contact (Lovelock, Patterson, and Walker, 2001). If the service provider and the customer come from different cultural backgrounds, there can be serious implications with regard to the most important of hospitality issues- the perception of service delivery (Strauss and Mang, 1999).

Numerous researchers have attempted to apply Customer Satisfaction theories developed by consumer behaviorists in the areas of tourism (Pizam and Milman, 1993; Danaher and Arweiler, 1996; Ryan and Cliff, 1997; Hudson and Shepard, 1998) in order to investigate Customer Satisfaction applicability to the hospitality and tourism industries. These researchers point out that the organizations must set their customer satisfaction levels and a complete understanding of who is their customer. They must always set their benchmarks and identify competitive advantages they can have over the others while dealing with customers, including customers from diverse cultural backgrounds.

In the hospitality industry the true measure of any company's success lies in an organization's ability to continuously satisfy customers to gain a competitive edge by acknowledging and managing customers of different cultural backgrounds (Kandampully et al., 2001). Global customers have different expectations and different ways of evaluating performance (Vavra, 1997). When designing global customer satisfaction measurements, regional and cultural aspects must be taken into account. And indeed, studies conducted by Chadee and Mattson (1995) and Scott and Shieff (1993) found significant cross-cultural differences when measuring customer satisfaction. Services and products important to Asians may be completely different from those sought by Europeans.

Mattila (1999) studied the influence of culture on consumer perceptions of service encounters. In his study he pointed out with relation to hotel industry that because first class hotel services are delivered by people, cultural factors are likely to mediate the hotel customers‟ attitude toward the service component of their service experience.

Barker and Hartel (2004) in reporting the service experiences of culturally diverse consumers in multicultural society of Australia stated that on the basis of the service provider behavior (both verbal and non-verbal), culturally diverse customers perceive they are the recipients of inequitable service and consequently experience low levels of satisfaction.

Research indicates that cross culturally sensitive employees provide to customers better service. They are able to adjust to their serving styles to meet the needs of their foreign customers. Such an act in extremely beneficial for any hotel as such employees are able to generate more revenue for the hotel through their impression on hotel guests and suggestion selling (Mohsin, 2006).

But, despite the importance and relevance of this topic, however, very little research has examined the influence of culture on service perceptions (Malhotra, Ugaldo, Agarwal, and Baalbaki, 1994) and our understanding of how customers from different countries evaluate service encounters is very limited (Winsted, 1997).

Research Objective and Aim

The objectives of the study are:

- To present the “essence” of Cultural Intelligence as a behavioral requisite.
- To evaluate the status of Cultural Intelligence across hotels under study.
- To understand and identify the cultural barriers as experienced by the employees/ respondents in the organizations under study.
- To undertake a comparative analysis of the status of Cultural Intelligence existing in these hotels.
- To identify the role of HR in driving customer responses while seeking to comprehend the relationship between Cultural Intelligence and Customer Satisfaction.

Hypothesis

The hypothesis behind the study is stated as under:

H_1: Cultural Intelligence (CQ) is a function of Meta-Cognitive, Cognitive, Motivational and Behavioral Responses.

H_2: Cultural Intelligence and Customer Satisfaction are positively correlated.

H_3: Relationship exists between Cultural Intelligence and Productivity in organizations.

H_4: Variation exists along Cultural Intelligence indices across hotels in the Hospitality Sector.

Research Methodology

The present study is an empirical investigation conducted in three international hotels in India namely The Oberoi, The Taj Palace and ITC Maurya Sheraton, New Delhi, India, through the use of the 20-item Cultural Intelligence Scale (CQS) to get an in-depth understanding of the relationship that exists between Cultural Intelligence and Customer Satisfaction. The first section of the questionnaire deals with Cultural Intelligence. The second section constitutes questions relating to Cross Cultural Training provided in the hotels and the last sections deals with productivity of employees. Then a small section dealing with the demographic profile of the respondents (employees here) is addressed to.

Another self administered questionnaire was developed for measuring the satisfaction level of the customers staying with these hotels was developed. The first section dealt with the general profile of the international travelers. The second section was concerned with measuring the customer satisfaction of the respondents and the last section was developed for understanding the demographic profile of the respondents.

Also, personal interviews were conducted with the employees in the hotels in order to identify the cultural barriers as experienced by them when dealing with international clientele and also to identify the areas of cross cultural training being provided to them.

The sample size was 300 (150 employees and 150 customers)

Findings, Results and Discussion

Profile of Employees and International Clientele

The employees who responded to this CQS questionnaire were 76% males and 24% females. 8% of the employees belonged to the age group of 18-24 years, 59.3% of them were of the age group of 25-34 years, 26% were of the age group of 35-45 years and only 6.7% were above the age of 45 years. A majority of employees (47.3%) had taken a graduate degree only, while 34.7% had taken a professional qualification in the field of hospitality management. 18% of the employees had taken a post graduate degree or above. The total number of employees from each hotel were equal (i.e., 33.3 % each from The Taj Palace hotel, ITC Maurya Sheraton and The Oberoi respectively). The various positions held by the employees in the hotel were that of supervisor (36.7%), manager (33.3%) and the rest 30% of the positions was held by others. Majority of the employees (34%) had been employed for almost 3-5 years. The percentage of employees who worked for almost 1-3 years or above 5 years in the hotels was 31.3% each. A very few employees (3.3%) of them had been employed in their respective hotels for less than 1 year.

Looking at the international customer's end who responded to the Customer Satisfaction Questionnaire who had visited these hotels were equivalent in number (i.e 33.3%). 50.7% of customers had visited India for leisure purpose only, 24.7% visited India on a business tour, 14.7% traveled mainly for shopping purpose while only 10% visited India for meeting their friends. The travelers obtained information regarding the respective hotels which they visited through travel agency (40%), friends/family (22.7%), magazines/newspapers (15.3%) and internet (22%). These visitors were primarily frequent travelers (48%), 33.3% of them were seldom travelers and 18.7% were highly experienced travelers.

The demographic profile of the customers consisted of 58.7% males and 23.3% females. A vast major (42.7%) fell in the age group of 25-34 years, 35.3% of them belonged to the age group of 35-45 years, 14% of them were above 45 years while only a small segment of 8% customers belonged to the age group of 18-24 years. 39.3% of them had attained a post graduate degree or above, 30% had attained a graduation degree, 26.6% had a professional qualification while just 4% were undergraduates. The international clientele belonged to North America (36.7%), Central/South America (0.7%), Western Europe (25.3%), West Asia (10%) , East Asia (8%) , South Asia (12%) and Australia (7.3%). 56% had English as their first language while the rest 44% had English as their second language.

Construct of Cultural Intelligence (H_1)

The Kaiser-Meyer-Olkin (KMO) is a measure of sampling adequacy to test if the distribution of values is adequate is adequate for conducting Factor Analysis. The value of KMO as depicted by Table 1 represents a high degree of validity for the data. Also the Barlett's test is highly significant ($p< 0.001$), and therefore the factor analysis is appropriate.

TABLE 1
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.767
Bartlett's Test of Sphericity	Approx. Chi-Square	973.047
	df	171
	Sig.	.000

On conducting the Factor Analysis, four factors were extracted. As the construct of Cultural Intelligence is previously suggested of having four dimensions (Ang et al, 2004), the criteria was met. More important observations were made by analyzing Table 2 on Rotated Component Matrix (a) where the factor loadings were observed. It was seen that the questions that load highly on Factor 1 were all the ones on Motivational Cultural Intelligence (MoCQ), questions loading highly on Factor 2 were all the ones on Cognitive Cultural Intelligence (CCQ), questions loading highly on Factor 3 were all the ones on Meta-Cognitive Cultural Intelligence (MCQ) and questions loading highly on Factor 4 were all the ones on Behavioral Cultural Intelligence (BCQ). The right questions loaded onto the right factors as given in the Cultural Intelligence Scale (CQS). This rightly suggests that Cultural Intelligence CQ is a function of Meta Cognitive (MCQ), Cognitive (CCQ), Motivational (MoCQ) and Behavioral Cultural Intelligence (BCQ). Thus, H_1 stands accepted.

TABLE 2
Rotated Component Matrix(a)

	Component			
	1	2	3	4
MoCQ5	.833			
MoCQ4	.782			
MoCQ3	.760			
MoCQ2	.749			
MoCQ1	.721			
CCQ3		.770		
CCQ4		.701		
CCQ2		.696		
CCQ6		.687		
CCQ1		.678		
CCQ5		.505		
MCQ2			.844	
MCQ1			.751	
MCQ3			.722	
MCQ4			.573	
BCQ2				.772
BCQ4				.561
BCQ3				.552
BCQ1				.522
BCQ5				.571

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 5 iterations.

Relationship between Cultural Intelligence and Customer Satisfaction (H_2)

Table 3 represents the correlation between Cultural Intelligence (CQ) and Customer Satisfaction (CS). The Pearson's r for the correlation between Cultural Intelligence and Customer Satisfaction is 0.637 and is positive. Also, the Sig. (2-tailed) value is 0.000. This enables us to conclude that there is statistically significant positive correlation between Cultural Intelligence and Customer Satisfaction. As Cultural Intelligence (CQ) increases, Customer Satisfaction (CS) also increases and as Cultural Intelligence (CQ) decreases, Customer Satisfaction (CS) also decreases. Thus we conclude that H_2 is also accepted.

TABLE 3
Correlations

		CQ	CS
CQ	Pearson Correlation	1	.637(**)
	Sig. (2-tailed)	.	.000
	N	150	150
CS	Pearson Correlation	.637(**)	1
	Sig. (2-tailed)	.000	.
	N	150	150

** Correlation is significant at the 0.01 level (2-tailed).

Relationship between Cultural Intelligence and Productivity (H_3)

Table 4 given below represents r^2 value equivalent to 0.431. This indicates that 43.1% variation can be seen on Cultural Intelligence by variability in the independent factors (i.e., PR1, PR2 and PR3). The value of r = 0.657 shows a fairly positive correlation (r >0.5) between Productivity and Cultural Intelligence.

TABLE 4
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.657(a)	.431	.420	.360

a Predictors: (Constant), PR3, PR1, PR2

Further, the results of the coefficient estimates are presented. All three variables PR1, PR2 and PR3 are significant at p-value < 0.05. This indicates a positive relationship between the productivity variables and cultural intelligence which signifies the acceptance of the H_3. Also, as table 5 denotes the value of t>2, we conclude that all the three productivity variables are statistically significant at the 5% level.

TABLE 5
Coefficients Estimates

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.592	.438		3.631	.000
	PR1	.166	.053	.217	3.137	.002
	PR2	.294	.066	.333	4.484	.000
	PR3	.295	.067	.306	4.424	.000

a Dependent Variable: PR_CQ

Relationship between Cultural Intelligence and Cross Cultural Training

Table 6 represents the relation between Cross Cultural Training (CCT) and Cultural Intelligence (here represented by CCT_CQ). The Pearson's r for the correlation between Cultural Intelligence and Cross Cultural Training is 0.550 and is positive. Also, the Sig. (2-tailed) value is 0.000. This enables us to conclude that there is statistically significant positive correlation between Cross Cultural Training and Cultural Intelligence. As Cross Cultural Training (CCT_CQ) increases the level of Cultural Intelligence (CQ) also increases and as Cross Cultural Training (CCT_CQ) decreases, Cultural Intelligence (CQ) also decreases. This relationship enabled the achievement of the objective that was drawn to establish the role of HR in driving customer satisfaction.

TABLE 6
Correlations

		CCT_CQ	CCT
CCT_CQ	Pearson Correlation	1	.550(**)
	Sig. (2-tailed)	.	.000
	N	150	150
CCT	Pearson Correlation	.550(**)	1
	Sig. (2-tailed)	.000	.
	N	150	150

** Correlation is significant at the 0.01 level (2-tailed).

Further, on the basis of the results drawn from the above table as well the inferences drawn from the personal interviews from the employees, it was implicit that cross cultural training does enhance the overall interaction of the employees with the international clientele. During the personal interviews the employees reported that there were certain cultural barriers that they encountered during their interaction with the customers from varying cultural backgrounds. These were primarily verbal and non-verbal issues, etiquettes, language issues, motivational issues, cognitive issues, stress and anxiety, religious and cultural issues. On the basis of these barriers the cross cultural training programmes were designed that dealt with these issues in order to make the employees more comfortable in dealing with international clientele having different perceptions and expectations. Such training programmes enabled the employees to satisfy the customers more closely to their expectations.

Variation along Cultural Intelligence indices across hotels under study (H_4)

The total number of employees who responded to the Cultural Intelligence Questionnaire (CQS) were 150 (50 from each hotel). The mean values for the statement measuring overall Cultural Intelligence for the three hotels were $\bar{x}_{(The\ Oberoi)} = 6.2$, $\bar{x}_{(ITC\ Maurya\ Sheraton)} = 6.16$ and $\bar{x}_{(The\ Taj\ Palace)} = 6.46$. This signifies the existence of differences in the Cultural Intelligence indices across the hotels under study though the magnitude of difference is not much. As such, hotel Taj Palace is seen to be the most Culturally Intelligent hotel amongst the three hotels, The Oberoi being second and ITC Maurya Sheraton to be the least Culturally Intelligent amongst the rest. But it is eminent to note that despite little variation in the scores of these hotels, all the three hotels under study are Culturally Intelligent. Thus, H_4 is also accepted though the extent to which the variation is seen is very minute.

Conclusion

The results of the present study indicate that in order to satisfy and meet the expectations of the international clientele in the international hospitality industry, it is significantly important to be Culturally Intelligent as Cultural Intelligence is a key ingredient that enables today's managers dealing with people belonging to diverse cultural backgrounds to meet their goal of satisfying their

customers, enhance their productivity and simultaneously better profitability as well as retained customers for their organizations.

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Are Romanians Machiavellian?

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Abstract

The paper presents a study in which the authors have struggled to find the answer to the question "Are Romanians Machiavellian?". Starting from the perspective that Machiavellian characteristics can be present through manipulation both in human behavior and communication we have asked 322 people to share their opinions regarding 24 items. The population engaged in this research is between 16 and 60 years. This paper has a diagnostic purpose and presents results based on age and sex. The study reveals a disturbing reality of Romanian agreement with Machiavellian behavior. How else should we consider the following facts: 25.71% of the Romanians interviewed agree with lying, concealment and chameleonism 22.77% agree with opportunism and 15.16% agree with unfair competition, to mention only some of the findings. These facts could be an answer to what really happens in our society, and why things go wrong.

Key words: Machiavellian, concealment, chameleonism, lying and opportunism behavior.

Introduction

Interpersonal relationship is the reality in which people have a consensus of general behavior rules that each participant is required to know and respect. Rules can clarify the interrelations goals, can differentiate behaviors, are restrictive and are also beneficial because they make possible social behavior and communication. The human behavior (DEX, 1984) is understood as a set of objective events which exteriorize mental life. Knowing and respecting the rules of social behavior in different groups, environments and social situations (family, work, friendship, marriage) may result in a deeper human knowledge, effective communication and realization of the group and/or organization common objectives.

The concept of Machiavellianism describes a cunning, treacherous or in bad faith behavior. By extension, it describes something or someone who is clever, unscrupulous and/or insidious. Machiavellian type characteristics may be present both in communication and human behavior and they manifest themselves in the manipulation of others to achieve their interests, their own good.

According to Machiavelli (2004, 1513), the Prince understands the laws and rules of life and society he lives in and has a duty to use them as a tool in building his own thinking. He must dominate the rules of logic - sometimes cruel - to show firmness against any opponent and should not manifest a weak heart in any situation. The Prince's ethical responsibility is always linked to an end in itself, to the purpose of his victorious action - a responsibility that must be done without giving importance to the means used.

One aspect of our research interest on Machiavellian behavior is based on the belief that a manager can be more effective when he knows the people he works with. The purpose of this knowledge concerns the good and the results of the organization, knowing that human resources are a decisive factor in achieving these objectives. Geert Hofstede (1997) states that an

organization individualism is reflected in several prevalent behaviors, among which, one is Machiavellian. So it is considered for career advancement, that no means is immoral. Individualism (DEX, 1984) means the attitude of man that is concerned exclusively by himself, ignoring the interests of others. From a philosophical point of view, individualism is the theory that considers the individual as a supreme value in all areas of life. Machiavellianism and individualism are attitudes that reinforce each other in satisfying the desire for domination.

New writings similar to Machiavelli's Prince treacherously infiltrate themselves in our fragile moral world times when "collective lie" (Liiceanu, 2007) became an explicit "modus vivendi" for Romanians. Greene and Elffers (2002) and, also, Joule and Beauvois (1997) continue Machiavelli's belief that "one who deceives will always find one to be deceived" in order to achieve individualistic goals to the detriment of the organization or society. These authors lay down the rules of contemporary human relationships and consider that human values as a carrying-axis to power and not to morality. Power and not morality is considered specific to human nature .

Manipulation, in its everyday dimension, produces disasters due to the use of specific insidious forms of "intentional false" (Liiceanu, 2007). The victim remains with the impression that he is free in decision making and his actions are apparently favorable to him. In reality, the victim is only serving the interests of his puppet manipulator. An indispensable tool in the manipulation is lying, which appears in many complex and nuanced forms. For this research we consider important the following behaviors involving: lying, dissimulation, chameleon behavior, opportunism, abuse of power, unfair competition, servitude and conformity.

Man that lies becomes scaring (Liiceanu 2007). And yet those who lie find enough reasons to remain steadfast in the lie. How can it be called the man who distorts intentionally the truth, being able to reach the extreme mendacity? Odysseus is characterized as "polytropos: with many faces, with many ways of being, versatile, chameleonic, showing differently in different occasions, with multiple resources of being, with massive change potential and, therefore able to deceive and therefore a liar “ (Liiceanu, 2007).

Interpretation of research results

The fundamental concept of research - Machiavellianism - is understood in three dimensions: psychological, social and organizational. The whole approach is based on the following general hypothesis: If in a company, community or organization the Machiavellian behavior is manifested strongly (over 10%), then there is a danger that society will not fulfill its long-term objectives due to excessive individualism, even if the short term objectives may be reached apparently or actually easy.

The specific assumptions carried out by our research are:

1. Men and women approve equally the Machiavellian behavior;
2. People with experience in leadership positions approve Machiavellian behavior greater than those without such experience;
3. People living in urban areas largely approve Machiavellian behavior, compared to those living in rural areas;
4. There is a direct relationship between the Machiavellian behavior and the study level;
5. People show a greater absolute or moderate agreement to the Machiavellian behavior when family responsibilities are high and incomes are low.

The paper is based on a pilot study conducted on 322 subjects enrolled in seven age groups. They were given an anonymous questionnaire consisting of 24 items, five-choice closed questions. We considered that the responses "absolutely agree" and "agree" are quantified as agree, and responses "against" and "absolutely against" are understood as disagreement with the Machiavellian behavior.

The population engaged in this research is between 16 and 60 years. Sampling is simple, random and was based on age, gender, and family responsibilities, managerial experience, education level and monthly income. This paper has a diagnostic purpose and presents results based only on age and sex. We believe that this study is not able to provide universally valid answers to a problem with many facets and nuances. From a total of 322 subjects, 214 were women and 108 men. Therefore the results have been reported to the number of women and the number of male participants. For the 322 subjects, the confidence level is 93% with a tolerance of +/- 0,1 or, otherwise stated, with a margin error of 7%.

Table 1 shows that the absolute and moderate agreement to Machiavellian behavior is almost twice (19.38%) compared to the maximum expectation of 10%.

Table 1 General Results of the Research

	Totally Agree (TA)	**Agree (A)**	**Partially Agree/ Disagree**	**Disagree (D)**	**Totally Disagree (TD)**	**Missing Answers**	**TOTAL**
No of Answers	1498		2189	4023		18	7728
%	19.38%		28.33%	52.06%		0.23%	100.00%
Females	219	706	1469	1713	1015	14	5136
%	4.26%	13.75%	28.60%	33.35%	19.76%	0.27%	100.00%
Combined TA+A/D+TD	18.01%		28.60%	53.12%		0.27%	100.00%
Males	135	438	720	819	476	4	2592
%	5.21%	16.90%	27.78%	31.60%	18.36%	0.15%	100.00%
Combined TA+A/D+TD	22.11%		27.78%	49.96%		0.15%	100.00%

Also the conclusion that can be drawn is that the first hypothesis is ruled out because there are differences between the sexes in terms of the agreement with specific manifestations of Machiavellian behavior. Women expressed a moderate and absolute agreement of 18.01% and men 22.11%. Therefore, the difference of 4.10% shows that women are agreeing less with Machiavellian behavior than are men.

Indicator #1. Dissimulation, Lie and Chameleonism

Given the ratio of two to one in terms of gender itself, we may see in Table 2 that out of the 414 responses expressing total or moderate agreement, the number of men (6.31%) who absolutely agree with statements related to concealment, deception and chameleonism is higher than of women (4.68%). The same is found in terms of moderate agreement: women (19.74%) to men (22.08%). Summarized, the two types of attitudes, show that males (28.39%) are more willing than women (24.42%), are wanting and are being able to use the specific means of concealment, deception and lie to achieve their individual interests.

From the analysis based on age and sex (Table 2) we can see that the total agreement is clearly expressed by the first three age groups, both for women and men, but the highest percentage is held, this time, by the women over 60 years old. These women have also the highest percentage when we observe the moderate agreement. Despite them, the men over 60 years old have the highest percentage of absolute disagreement with concealment. We should mention also that the dissimulation and concealment, the flattery and acceptation of a distorted reality is often considered social intelligence

Table 2. Dissimulation, Chameleonism and Lie based on Sex and Age [%]

Answer		Totally Agree	Agree	Partially Agree/ Disagree	Disagree	Totally Disagree	No answer
F	**Age**						
86	16-20	6.98	20.23	42.33	22.33	8.14	0.00
30	21-25	8.00	23.33	38.00	17.33	13.33	0.00
18	26-30	3.33	25.56	40.00	25.56	5.56	0.00
27	31-40	0.00	10.37	38.52	34.81	16.30	0.00
25	41-50	0.00	24.00	27.20	40.00	8.80	0.00
19	51-60	0.00	10.53	45.26	31.58	11.58	1.05
9	Over 60	11.11	26.67	26.67	15.56	20.00	0.00
214		**2.94**	**19.72**	**38.88**	**26.07**	**10.56**	
M							
31	16-20	10.32	29.03	36.77	17.42	5.81	0.65
21	21-25	7.62	22.86	33.33	26.67	9.52	0.00
11	26-30	5.45	16.36	34.55	34.55	9.09	0.00
16	31-40	5.00	25.00	25.00	26.25	18.75	0.00
7	41-50	0.00	11.43	45.71	34.29	8.57	0.00
11	51-60	0.00	14.55	29.09	36.36	20.00	0.00
11	Over 60	5.45	16.36	25.45	27.27	25.45	0.00
108		**6.3**	**22.04**	**32.78**	**26.3**	**12.41**	
322		**5.22**	**20.52**	**36.88**	**26.18**	**11.19**	

Concluding this indicator we notice that young people, up to 30 years, both men and women and the elderly over 60 years expressed a moderate or absolute agreement. This indicator has a high score, well above what was expected in the general hypothesis.

Indicator #2: Opportunism

With regard to the opportunism we can see that the agreement for specific events of this type of behavior is clearly declared with the highest percentage on both sexes, on age group over 60 years (Table 3). Moderate agreement is significant in the age group 16-20 years of males (28.49%).

The comparison with the results from the first range of responses, the balance tilts toward middle age groups for the second place in the hierarchy. Women between 41-50 years (17.73%) and those of 26-30 years (13.89%) moderately agree with the opportunistic practices and behaviors. In terms of total disagreement, both males in the age group over 60 years and women between 51-60 years group showed the highest percentage.

The young ones agree with opportunism in a large number of answers. Their reasons may be due to changes in the economy and society, but it is difficult to understand what determines the absolute agreement of respondents over 60 years.

The fact is that both sexes have totally agreed with, in a very large number, that a boss should know how to use with ability the alliances that guarantee himself the success and power.

Table 3 Opportunism [%]

Answer		Totally Agree	Agree	Partially Agree/ Disagree	Disagree	Totally Disagree	No answer
F	**Age**						
86	16-20	8.53	17.05	26.94	28.49	18.60	0.39
30	21-25	6.67	18.89	27.22	33.33	13.89	0.00
18	26-30	3.70	13.89	24.07	44.44	13.89	0.00
27	31-40	1.23	14.20	20.99	41.98	20.99	0.62
25	41-50	1.33	17.33	19.33	40.00	21.33	0.67
19	51-60	0.88	10.53	22.81	37.72	26.32	1.75
9	Over 60	9.26	12.96	33.33	25.93	18.52	0.00
214		**5.00**	**16.00**	**25.00**	**34.00**	**19.00**	
M							
31	16-20	6.45	28.49	26.88	26.34	11.29	0.54
21	21-25	11.90	19.05	27.78	24.60	16.67	0.00
11	26-30	4.55	12.12	36.36	25.76	21.21	0.00
16	31-40	8.33	13.54	25.00	32.29	20.83	0.00
7	41-50	0.00	7.14	30.95	40.48	21.43	0.00
11	51-60	0.00	9.09	28.79	39.39	22.73	0.00
11	Over 60	12.12	18.18	16.67	24.24	28.79	0.00
108		**7.00**	**18.00**	**27.00**	**29.00**	**18.00**	
322		**5.00**	**16.00**	**25.00**	**34.00**	**19.00**	

Indicator #3: Abuse of Power

Respondents were given the picture of a physical and emotionally distance regarding the ones they represent, in an effort to find out how they appreciate a negative behavior which cares only a personal interest. The normality of such behavior is supported by Machiavellian principles, but is fought out by the professional responsibilities and moral principles.

A comparative analysis (Table 4) shows that women (3,28%) manifest their total agreement with the abuse of power as men do (3.10%).

We note that both women under 20 and those over 60 have the highest scores in terms of the agreement with the abuse of power. We may understand that women often ask for help, believing that it is not a problem if they solve their interests by inverting the image about who is the beneficiary. They sometimes turn to faith, beliefs and values of people, if they may keep their promises only if they can already maintain their position.

Table 4 Abuse of Power [%]

Answer		Totally Agree	Agree	Partially Agree/ Disagree	Disagree	Totally Disagree	No answer
F	**Age**						
86	16-20	5.43	10.47	29.84	32.36	21.71	0.19
30	21-25	2.22	13.89	28.33	31.67	23.89	0.00
18	26-30	1.85	8.33	21.30	45.37	23.15	0.00
27	31-40	0.62	6.79	17.90	44.44	30.25	0.00
25	41-50	0.67	6.67	20.67	47.33	24.67	0.00
19	51-60	1.75	3.51	19.30	37.72	36.84	0.88
9	Over 60	7.41	9.26	33.33	29.63	20.37	0.00
214		**3.28**	**9.20**	**25.59**	**37.05**	**24.88**	
M	**Age**						
31	16-20	4.30	15.05	29.57	36.02	13.98	1.08
21	21-25	3.17	15.08	28.57	31.75	21.43	0.00
11	26-30	1.52	15.15	36.36	33.33	13.64	0.00
16	31-40	5.21	11.46	14.58	40.63	28.13	0.00
7	41-50	0.00	14.29	21.43	40.48	23.81	0.00
11	51-60	0.00	9.09	21.21	46.97	22.73	0.00
11	Over 60	3.03	12.12	21.21	30.30	33.33	0.00
108		**3.1**	**13.62**	**25.7**	**36.53**	**21.05**	
322		**3.22**	**10.68**	**25.62**	**36.88**	**23.60**	

Indicator #4: The Unfair Competition

Table 5 shows a lower percentage for absolute agreement (15.18%), but is still more than the percentage established in the general hypothesis.

The responses of absolutely agree are equally gender sensitive, however, men agree moderately in a greater extent than women, with 3.10%. Therefore, 17.41% of men and 14.06% of the women expressed the idea that in a competition of any kind the moral means can be ignored. A total of 31.47% of responses on this indicator are expressed as agreement.

Men agree moderately with over 3% more than women, which shows that Odysseus is still active, but only for personal interests.

We note that there is a group of women (31-40) and three age groups of men (26-30, 41-50 and 51-60) which do not express their total agreement with unfair competition. By reporting the number of subjects in each age group, we can say that there is a balance in how they responded. Surprisingly large is the percentage of 8.33% of group 21-25 years of women who expressed a moderate agreement. Also a very high score have obtained both women and men over 60 years. We should consider here the age peculiarities and vicissitudes.

Table 5 Unfair Competition [%]

Answer		Totally Agree	Agree	Partially Agree/ Disagree	Disagree	Totally Disagree	No answer
F	**Age**						
86	16-20	6.51	14.42	31.86	27.67	19.30	0.23
30	21-25	2.00	12.00	29.33	33.33	23.33	0.00
18	26-30	1.11	12.22	25.56	41.11	20.00	0.00
27	31-40	0.00	1.48	21.48	48.89	28.15	0.00
25	41-50	0.80	8.80	27.20	34.40	28.80	0.00
19	51-60	1.05	4.21	17.89	41.05	33.68	2.11
9	Over 60	4.44	13.33	24.44	33.33	24.44	0.00
214		**3.37**	**10.68**	**27.65**	**37.11**	**23.71**	
M	**Age**						
31	16-20	3.87	21.29	34.84	32.90	7.10	0.00
21	21-25	6.67	23.81	20.00	31.43	18.10	0.00
11	26-30	0.00	16.36	36.36	29.09	18.18	0.00
16	31-40	2.50	5.00	23.75	37.50	31.25	0.00
7	41-50	0.00	2.86	25.71	40.00	31.43	0.00
11	51-60	0.00	0.00	20.00	50.91	29.09	0.00
11	Over 60	5.45	7.27	14.55	30.91	41.82	0.00
108		**3.33**	**14.07**	**26.30**	**35.00**	**21.30**	
322		**3.36**	**11.82**	**27.19**	**36.40**	**22.90**	

Indicator #5: Conformity and Servility

From the answers given by people of both sexes (Table 6), we can see that 20.56% of respondents agree with total and moderate conformism and servility.

It is surprising to find out that almost a quarter of men (24.54%) and 18.54% of women express their agreement with this indicator. 26.17% of respondents partially agree and are partially against servility. 53.27% is the difference in the responses of those who moderately or absolutely disagree, which means that just over half of the responses expressed behavior based on self-respect, dignity and criticism of their statements showing conformity.

Compared with other types of responses there is an average small percentage, but if we represent the situation they expressed, respectively one fifth of the population approve and adopt specific attitudes of servility and conformism, the result is unfavorable in terms of people dignity.

There are three groups of respondents who recorded zero responses to "absolutely agree" namely the 41-50 years old group of women and the groups 26-30 and 41-50 years for men. But, the same group recorded extremely high scores expressing moderate agreement: 24% females and 36.36% and 21.43% for males.

Table 6 Servility/Conformity [%]

Answer		Totally Agree	Agree	Partially Agree/ Disagree	Disagree	Totally Disagree	No answer
F	**Age**						
86	16-20	6.98	13.95	27.91	28.49	22.09	0.58
30	21-25	8.33	6.67	26.67	36.67	21.67	0.00
18	26-30	2.78	16.67	22.22	41.67	16.67	0.00
27	31-40	1.85	9.26	22.22	40.74	25.93	0.00
25	41-50	0.00	24.00	20.00	44.00	12.00	0.00
19	51-60	2.63	15.79	23.68	36.84	18.42	2.63
9	Over 60	5.56	5.56	33.33	33.33	22.22	0.00
214		**4.93**	**13.62**	**22.59**	**35.21**	**20.66**	
M	**Age**						
31	16-20	11.29	22.58	27.42	29.03	9.68	0.00
21	21-25	7.14	9.52	38.10	30.95	14.29	0.00
11	26-30	0.00	36.36	40.91	18.18	4.55	0.00
16	31-40	9.38	12.50	18.75	28.13	31.25	0.00
7	41-50	0.00	21.43	21.43	42.86	14.29	0.00
11	51-60	9.09	9.09	18.18	31.82	31.82	0.00
11	Over 60	9.09	4.55	18.18	36.36	31.82	0.00
108		**7.87**	**16.67**	**27.31**	**30.09**	**18.06**	
322		**5.92**	**14.64**	**26.17**	**33.49**	**19.78**	

Research Limitations

During the study we discovered that in order to analyze such behavior to draw close to reality conclusions we needed two or three items more. On the other hand, we are convinced that the results we have obtained are an evidence that we have been affected by the period of dictatorship. Instead, it is difficult to understand the reasons that lead young and very young people to express themselves as losers. Several explanations may be: their dependence on adults, their parents education, who have experienced sharp times of conformism and servility, often taken to extreme, the failure to intervene with something concrete in the current events, the indifference and the priority concern for our life. However, age characteristics, enthusiasm and youth strength should be generate nonconformity - not only in family relations.

We should notice that the answers do not clearly set out servility and humility by humbleness. In this study we noted that many respondents reject the servitude - although they agree with conformism, which can be a basis for servility, confusing the pride, ego and vanity with dignity and self-esteem.

Conclusions

"Are Romanians Machiavellian? In the general hypothesis we set the benchmark of 10% given that: "There is no man alive who never made mistakes" (The Holy Liturgy, 1974), therefore we cannot be radical in analyzing human behavior. The results of the study warn us however, that the bounding fault of habit is exceeded. On all five indicators people have expressed total and moderate agreement above the absolute maximum estimated (10%).

The general picture that emerges is of a group (community, even people) that each person conceals, distorts the truth, adapts as chameleon - perhaps as much as it is allowed - believing that bridges must be passed, even though for this purpose he or she "shakes hands with the devil," the "father of lies" (Bible, John 8.44). But life itself is, in essence, a bridge, and such an attitude makes every man a victim, not just of those who manipulate him, but also his own victim: he self deceives himself. Machiavelli's motto: "Use your neighbor!" is creating a modern form of slavery, masked as an apparent freedom of decision: the slave of his manipulator and his own slave.

Career advancement and immoral means placed in the same equation and combined with research findings lead to the conclusion that Machiavellianism is manifested in the Romanian society for the fulfillment of "personal of needs: self-esteem, consideration paid by others, self-overcoming and self-realization (Duse, 2001). A society that manifests behaviors such as "homo homini lupus" cannot work to achieve the common good, but becomes a hunting game where everyone is the hunter and the hunted. Machiavellianism would not exist if we did not agree with it and if we stop this scourge. The domestic Machiavellianism, the innocent daily deceit, is a cancer cell that acts on the cell (man) and affects the body (society). "The battle to heal the evil begins at home. And our purification will always be the best weapon." (Peck, 2004).

What chance of healing do we have, if 25.71% of Romanians agree with lying, concealment and chameleonism? How are the relationships in the Romanian society if 22.77% approve opportunism and 20.50% subscribe to conformism and servility? What kind of representatives do we have if 15.16% agree with unfair competition and 13,87% allow the abuse of power? What is the role of Machiavellian behavior in this crisis?

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A Chance to Transform Romanian Organizations – Stimulating Entrepreneurial Behavior of Young People

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Abstract

Purpose *– To reduce youth unemployment is one of the major global challenges for decades to come. Identifying and nurturing entrepreneurial potential among youth can have long-term implications for Romanian economic development.*
Methodology/approach *- To accomplish the objective of this study, comprehensive desk research was combined with consultation with young people. A questionnaire was designed to analyze the attitudes of young people starting their own business.*
Findings - *Entrepreneurship should be presented to young people as a career option since one of the fundamental problems in our educational system and in our society is the low entrepreneurial aspirations among people.*
Research limitations/implications *– The present study attempts to create a better understanding of the role of entrepreneurship education in developing entrepreneurial qualities by confronting theory and practice.*
Practical implications *– Becoming owner of a micro or small enterprise could be an alternative for young person who has an entrepreneurial mindset.*
Originality/value *The aim of this article is to demonstrate that increase levels of entrepreneurial activities can have positive repercussions on employment generation and economic growth.*

Key words: *entrepreneurship, young entrepreneurs, opportunities*.

Introduction

Entrepreneurship is no longer an abstract concept. The old paradigm of the twentieth century is being replaced with the new paradigm of the entrepreneurial society which rewards the creative adaptation, seeking of new opportunities and the drive to make innovative ideas happen. Entrepreneurship is the most powerful economic force known to humankind. The process of transforming creative ideas into commercially viable businesses continues to be a major force in today's world economy. Entrepreneurship is the symbol of business tenacity and achievement.

An entrepreneur is an innovator who recognizes and seizes opportunities; converts those opportunities into workable/ marketable ideas; adds value through time, effort, money or skills; assumes the risks of the competitive marketplace to implement these ideas; and realizes the reward from these efforts. Entrepreneurs are individuals who recognize opportunities when others see chaos or confusion.

Entrepreneurial ventures are those for which the entrepreneur's principal objectives are innovation, profitability and growth. Thus the business is characterized by innovative strategic practices and sustainable growth.

In Romanian economy, the transformation that started in the 1990s has changed the market economy, caused a transition of national economy into market oriented one. The transformations had a significant impact on a reform in the labor market and it mostly affected the young people.

The development of entrepreneurial talent is important to sustain a competitive advantage in a global economy that is catalyzed by innovation. Entrepreneurs have an important contribution to economic growth through their leadership, management, innovation, research and development effectiveness, job creation, competitiveness, productivity and creation of new industries. The aim of this article is to demonstrate that increase levels of entrepreneurial activities can have positive repercussions on employment generation and economic growth.

Unemployment among young people

Unemployment describes the state of a worker who is able and willing to take work but cannot find it. The unemployment report is an important statistic used by the government to gauge the health of the economy. Nationally, the unemployment is caused by the slowdown in the economy that forces the businesses to cut costs by reducing payroll expenses. Unemployment can also be caused by the competition in specific industries or between companies. Advanced technology such as computers or robots cause unemployment by replacing the manual worker with the machines.

Young people represent 25 percent of the global population of working age but totals 43,7 percent of the total unemployed and almost one out of every two unemployed is aged between 15 and 24 years old. The problem of unemployment occurs in every single economy. Its level differs in EU-27 (European Union).

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
EU - 27	**8.7**	**8.5**	**8.9**	**9**	**9.1**	**9**	**8.2**	**7.2**	**7.1**	**9**	**9.6**
Euro area	**8.5**	**8.1**	**8.4**	**8.8**	**9**	**9.1**	**8.5**	**7.6**	**7.6**	**8.6**	**10.1**
Belgium	6.9	6.6	7.5	8.2	8.4	8.5	8.3	7.5	7	7.9	8.3
Bulgaria	16.4	19.5	18.2	13.7	12.1	10.1	9	6.9	5.6	6.8	10.2
Czech republic	8.7	8	7.3	7.8	8.3	7.9	7.2	5.3	4.4	6.7	7.3
Denmark	4.3	4.5	4.6	5.4	5.5	4.8	3.9	3.8	3.3	6	7.4
Germany	7.5	7.6	8.4	9.3	9.8	11.2	10.3	8.7	7.5	7.8	7.1
Estonia	13.6	12.6	10.3	10	9.7	7.9	5.9	4.7	5.5	13.8	16.9
Ireland	4.2	3.9	4.5	4.6	4.5	4.4	4.5	4.6	6.3	11.9	13.7
Greece	11.2	10.7	10.3	9.7	10.5		8.9	8.3	7.7	9.5	12.5
Spain	11.1	10.3	11.1	11.1	10.6	9.2	8.5	8.3	11.3	18	20.1
France	9	8.3	8.6	9	9.3	9.3	9.2	8.4	7.8	9.5	9.7
Italy	10.1	9.1	8.6	8.4	8	7.7	6.8	6.1	6.7	7.8	8.4
Cyprus	4.9	3.6	3.6	4.1	4.7	5.3	4.6	4	3.6	5.3	6.5
Latvinia	13.7	12.9	12.2	10.5	10.4	8.9	6.8	6	7.5	17.1	18.7
Lithuania	16.4	16.5	13.5	12.5	11.4	8.3	5.6	4.3	5.8	13.7	17.8
Luxembourg	2.2	1.9	2.6	3.8	5	4.6	4.6	4.2	4.9	5.1	4.5
Hungary	6.4	5.7	5.8	5.5	6.1	7.2	7.5	7.4	7.8	10	11.2
Malta	6.7	7.6	7.5	7.6	7.4	7.2	7.1	6.4	5.9	7	6.8
Netherlands	3.1	2.5	3.1	4.2	5.1	5.3	4.4	3.6	3.1	3.7	4.5
Austria	3.6	3.6	4.2	4.3	4.9	5.2	4.8	4.4	3.8	4.8	4.4
Poland	16.1	18.3	20	19.7	19	17.8	13.9	9.6	7.1	8.2	9.6
Portugal	4	4.1	5.1	6.4	6.7	7.7	7.8	8.1	7.7	9.6	11
Romania	7.3	6.8	8.6	7	8.1	7.2	7.3	6.4	5.8	6.9	7.3
Slovenia	6.7	6.2	6.3	6.7	6.3	6.5	6	4.9	4.4	5.9	7.3
Slovakia	18.8	19.3	18.7	17.6	18.2	16.3	13.4	11.1	9.5	12	14.4
Finland	9.8	9.1	9.1	9	8.8	8.4	7.7	6.9	6.4	8.2	8.4
Sweden	5.6	5.8	6	6.6	7.4	7.7	7.1	6.1	6.2	8.3	8.4
United Kingdom	5.4	5	5.1	5	4.7	4.8	5.4	5.3	5.6	7.6	7.8

Fig.1 The Evolution of EU – 27 unemployment rate 2000 - 2010

In EU–27 countries the youth unemployment rate was around twice as high as the rate for the total population throughout the last decade. The EU–27 youth unemployment rate was systematically higher than in the euro area between 2000 and 2008. Since 2008 these two rates were almost identical.

In addition, for the EU–27 the rate or unemployment among young people aged 15 to 24 rose by 4 points between the beginning of 2008 and the beginning of 2009, reaching a global level of 18,9 percent by the first four months of 2009. This rise is especially starkly obvious in the Baltic States, Spain and Ireland. Spain shows the highest unemployment rate, at 35,7 percent, whereas the Netherlands is no more than 6,5 percent.

	15-24			**25-59**						
	2008q01	2008q2	2008q3	2008q4	2009q1	2008q1	2008q2	2008q3	2008q4	2009q1
EU -27	**14.9**	**15.1**	**15.7**	**16.6**	**18.9**	**6.2**	**5.9**	**5.8**	**6.3**	**2.6**
BE	16.5	14.3	22.7	17.8	20.8	6.3	5.7	6.2	5.6	6.8
BG	14.4	13.1	11.4	12.1	14.2	5.9	5.1	4.6	4.4	5.7
CZ	10.1	8.6	10.3	10.4	13	4.4	3.9	3.9	4	5.3
DK	6.9	7.2	6.7	7.6	9.5	2.8	2.4	2.4	2.8	4.5
DE	10.6	10.8	11.1	9.5	11.3	8	7.4	6.6	6.6	7.7
EE		8.9	14.7	15.8	24.5	3.7	3.6	5.3	6.6	10.3
IE	8.8	10.7	15.1	15.9	19.3	4.3	4.5	5.4	6.4	9.2
EL	23.4	20.6	23.3	23	25.5	7.5	6.5	6.4	7.3	8.5
ES	21.3	23.9	24.2	29.2	35.7	8.4	9	9.9	12.4	15.7
FR	17.2	16.9	17.7	20.7	22.5	6.4	5.9	6	6.5	7.3
FF	23.3	20.4	19.5	23.9	26.3	6.1	5.8	5.3	5.9	6.7
CY	11.2	7.1	8.4	9.3	10	3.8	2.7	3.3	2.8	4
LV	10.7	11.9	12.2	18.5	28.2	6.3	5.9	7	9.3	12.7
LY	10.1	10.8	15	17.3	25	4.5	3.9	5	7	10.9
LU	17.3	13.5	23	18		3.3	4.4	4.2	4.3	
HU	20.1	18.8	20.8	19.7	25.3	7.2	6.9	6.8	7.2	8.7
MT	12.4	12.9	11.4	12.3	12.6	4.7	4.7	4.7	5.1	5.5
NL	5.7	5.6	4.9	5	6.5	2.5	2.2	1.9	2	2.4
AT	8.1	6.8	8.2	9	9.2	3.6	3	3.3	3.2	6
PL	18.9	17.1	16.1	17.1	19.3	6.9	6.1	5.6	5.6	7.1
PT	16.4	14.3	17.1	18	20.1	7.3	7.1	7.4	7.4	8.5
RO	19.8	17.4	19.2	17.9	21.3	5.3	4.7	4.2	3	5.7
SI	12.8	9.3	9.1	10.9	14.3	4.3	3.6	3.5	3.6	4.6
SK	19	19.1	19.4	18.6	22.4	9.6	9.1	7.9	7.7	9.3
FI	17.1	22.2	11.2	14.2	19.3	5.5	4.9	4.9	5	6.4
SE	20.5	25.1	16.2	18.8	24.3	4.4	4	4	4.4	5.7
UK	13.3	13.9	16.5	16	17.5	3.8	3.8	4.2	4.5	5.4

Fig. 2 The Eu-27 Unemployment rate by age 2008-2009

At EU–27 level the unemployment rate rose faster among young people aged 15 to 24 than in the rest of the population aged from 25 to 59. The latter, in fact, experienced an increase in unemployment of only 1,4 points between the first four months of 2008 and 2009. This table shows that the countries with a low general unemployment rate also have a low youth unemployment rate. The most striking differences were seen in Italy, with a youth unemployment rate of 24,9 percent against a total unemployment rate of 7,4 percent, Spain- with 33,6 percent compared to 16,5 percent and Sweden - 24,2 percent compared to 7,7 percent. The smallest gaps were recorded in Germany (10,5 percent against 7,4 percent), the Netherlands (6,0 percent against 2,9 percent) and Denmark (8,9 percent against 4,7 percent).

In Romania, the evolution of the unemployment rate has generally characterized the evolution of the economy. The decrease of the unemployment rate (2004-2008) has been accompanied by

economic growth and by an increasing number of employed people. Young people aged 15-24 share an occupancy rate of only 23,4 percent in 2008, but the unemployment rate had the highest level - 17,9 percent among young people, reaching 22,2 percent in the urban area and 14,25 percent in the rural area. Since 2009, the increase of the unemployment rate has been accompanied by a negative economic growth and by a decreasing number of employed people.

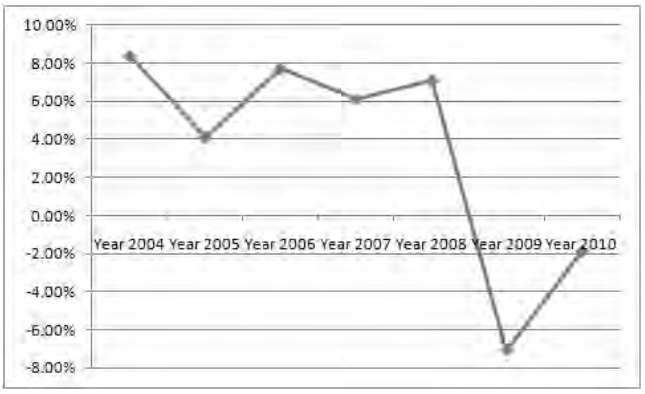

Fig. 3 The evolution of Romania's economic growth 2004-2010 %

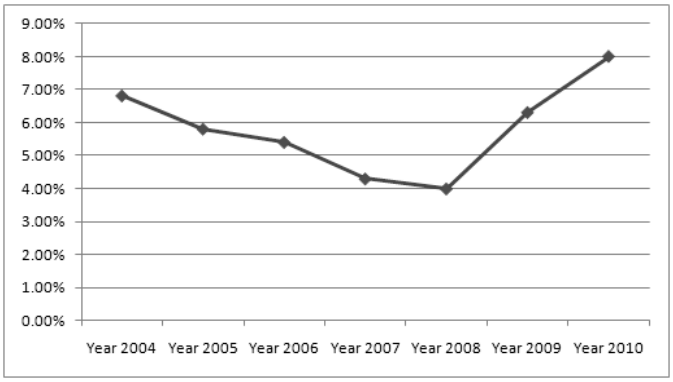

Fig. 4 The evolution of Romania's unemployment rate 2004-2010%

In Romania, youth unemployment rates are generally much higher than unemployment rates for the whole of the population. But many young people are studying fulltime and therefore they are neither working nor looking for a job so they are not part of the labor force. The high youth unemployment rates do reflect the difficulties faced by young people in finding jobs.

Low demand for workers exerts a far heavier toll on younger people than on the rest of the active population: they are more vulnerable to the vagaries of the economic cycle and therefore more exposed to exclusion. In a period of economic recession they are at greater risk than adults of losing their job or remaining unemployed. The practice of "last in, first out" means that they are the first victims when the redundancy axe falls.

Young entrepreneurs: a solution to the crisis?

Young people are a great resource for the development of the society but their potential is not fully exploited because of the labor market inefficiency. To reduce youth unemployment is one of the major global challenges for decades to come. Becoming owner of a micro or small enterprise could be an alternative for a young person who has an entrepreneurial mindset. Identifying and nurturing entrepreneurial potential among youth can have long term implications for Romanian economic development.

If we were to travel back in time and ask Joseph Schumpeter for a solution to the present crisis, he would perhaps answer: entrepreneurship. Entrepreneurship is generally understood to define the risk taking activity of people who start a new company based on an innovative business opportunity. Entrepreneurial contributions to society are: entrepreneurship as an expression of a person's unique vision, creativity, purpose and fulfillment in life; creation of material wealth as measured in shareholder value; innovation through new products and services as well as in stimulating competitiveness in the economy; job creation through venture employment and additional creation of jobs in supplier's and customer's companies; small entrepreneurs can meet market demands in a flexible way especially when it comes to the use of new technologies and following market trends; contributions to the quality of live in the local community.

Youth entrepreneurship varies according to the age.

Pre – entrepreneurs (ages between 15 to19): This is the formative stage. These young people are often in transition from the security of the home or education to the workplace.

Budding entrepreneurs (ages between 20 to 25): This is the growth age. These young people are likely to have gained some experience, skills and capital to enable them to run their own enterprises. They often follow one of the enterprise pathways: remaining stuck in marginal activities; going out of business; running successful enterprises.

Emerging entrepreneurs (ages between 26 to 29): This is the prime stage. With valuable experiences in business, emerging entrepreneurs have a higher level of maturity than the young people in the lower age groups. Hence, they are more likely to run more viable enterprises than younger people.

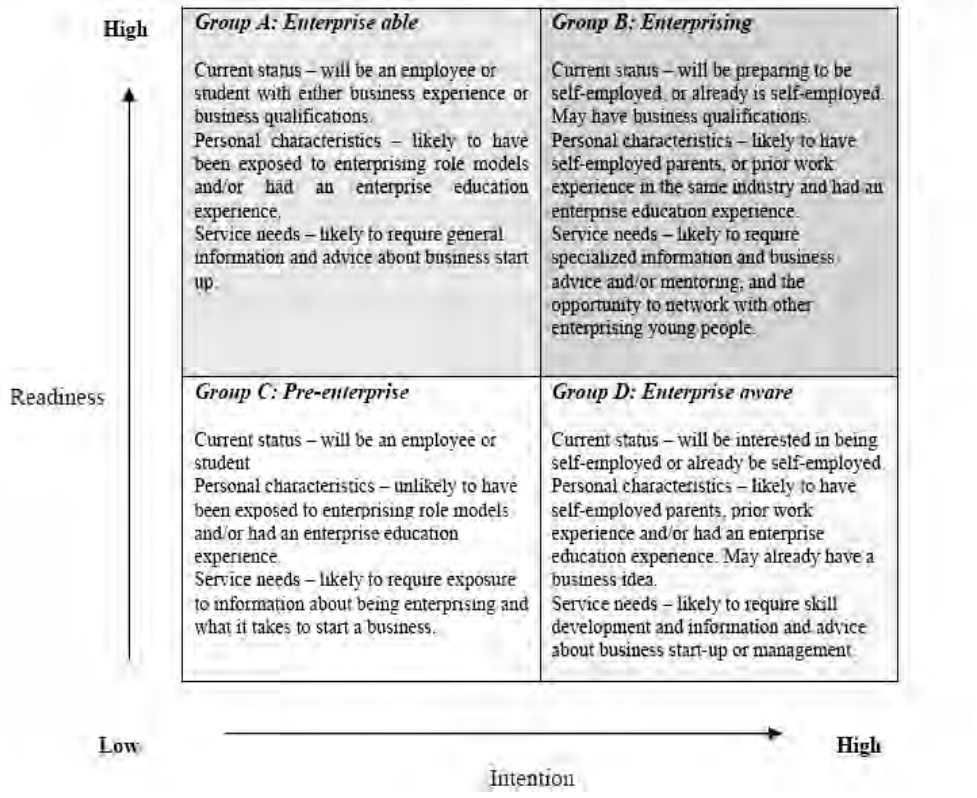

Fig. 5 Diagnostic framework for young entrepreneurs
Source: Lewis and Massey (2003),p.10

The literature on entrepreneurial characteristics has included a number of variables that address psychological attributes, personality traits, attitudes and behaviors.

The most important attributes are:

- Hard work – entrepreneurs put a lot of physical and mental effort into developing their own ventures. They often work long and antisocial hours. After all, an entrepreneur is their own most valuable asset. Balancing the needs of the venture with other life commitments such as family and friends is one of the great challenges which is faced by an entrepreneur.
- Self starting – entrepreneurs do not need to be told what to do. They identify tasks for themselves and then follow them through without looking for encouragement or direction from others.
- Setting of personal goals – entrepreneurs tend to set themselves clear and demanding goals. They benchmark their achievements against these personal goals. As a result, entrepreneurs tend to work to internal standards rather than look to others for assessment of their performance.
- Resilience – not everything goes right all the time. In fact, failure may be experienced more often than success. Entrepreneurs must not only pick themselves up after things have gone wrong but also learn positively from their own experience and use that learning to increase the chances of success next time around.
- Confidence – entrepreneurs must demonstrate that they not only believe in themselves but also in the venture they are pursuing.
- Receptiveness to new ideas – entrepreneurs must recognize their own limitations and the possibilities that they have to improve their skills. They must be willing to revise their ideas in the light of new experience.

Chiqunta (2002) sums up a number of reason for the importance of promoting youth entrepreneurship:

- creating employment opportunities for self – employed youth as well as the other young people they employ;
- bringing alienated and marginalized youth back into the economic mainstream and giving them a sense of meaning and belonging;
- helping address some of the socio – psychological problems and delinquency that arises from joblessness;
- helping youth develop new skills and experiences that can then be applied to other challenges in life;
- promoting innovation and resilience in youth;
- capitalizing on the fact that young entrepreneurs may be particularly responsive to new economic opportunities and trends.

This paper analyzes the necessity of applying the contemporary concept of entrepreneurship to the Romanian market, with a special emphasis on the role of the young people. To accomplish the objective of this study, comprehensive desk research was combined with consultation of young people. A questionnaire was designed to analyze the attitudes of young people when starting their own business. The population of this study involved students from the “Vasile Alecsandri” University of Bacau. A total of 120 students were targeted for this study. All the students involved were in their final year of studies.

The results of the survey showed that most of the students (82,46 percent) would like to start their own business at some time in the future. The most commonly started motivation for starting a business was “to be your own boss”. Some claimed that they disliked “being told what to do” or felt that they were not good at taking orders from others. Participants have perceived that owning their own business would provide then with independence, freedom and flexibility, giving one the freedom to make decisions about their salary, working hours and location, their career and the direction of their business. Being your own boss was seen to allow someone to be self-reliant and in control. Apart from the personal rewards, an equally common reason cited for starting a business was reaping financial rewards. Many believed that owing their own business was the easiest

or the most guaranteed or the sole way of making lots of money. A few have said they felt exploited working for others and wished to receive the direct benefits from profits they generate.

Over two thirds of those surveyed (68,4 percent) felt they have the practical skills needed to start a business of their own and most of the rest felt that they could acquire these skills. The perceived importance of "accepting the possibility of loss in order to have a chance of succeeding" was high, although relative to several other characteristics the risk taking was seen as less critical to the success of an entrepreneur. Generally the respondents rated themselves low, relative to entrepreneurs, on their attributes.

In 74,36 percent of cases the most important reason given by students for not starting their own business was the lack of the right idea. The surveyed students indicated that they are mostly deficient in the foreign languages (32,64 percent) considered to be the basics of entrepreneurship skills for small business (26,12 percent) and international transactions (18,64 percent).

The biggest obstacles to starting their own business as indicated by surveyed students are:

1. an unstable political and economical situation (46,34 percent)
2. long and complicated registration procedures (18,24 percent)
3. excessive taxes (12,4 percent).

Conclusion

This study has shown that students today need courses and programs that lay down a basic framework for understanding the concept of entrepreneurship. Introducing a structure for supporting and encouraging entrepreneurship education and designed to stimulate and facilitate entrepreneurial activities could result in a lower unemployment rate, increased establishment of new companies and fewer failures of existing businesses. By cultivating the youth entrepreneurship aptitudes, the young people are also taught to be responsible, enterprising individuals who may become future entrepreneurs or entrepreneurial thinkers and will make their contribution to the economic progress and increase of sustainable communities. Young people can no longer expect to find the traditional "job -for - life" careers but rather "portofolio careers"(contract employment, freelancing, periods of self – employment).

Entrepreneurship education for students must focused on developing student's skills to start their own ventures, or a more enterprising attitude to different situations:

- developing more creative, innovative approaches to learning, school work and the school community;
- developing in students the self – esteem, confidence and positive attitudes necessary for consideration of entrepreneurship or self – employment as a viable career option;
- developing in students the attitudes, skills and behaviors to succeed in work – force entry and career progression;
- developing in students the positive attitudes, skills and behaviors needed for integration into the community and participation in its development;
- developing in students the capacities to positively contribute to the social and environmental sustainability of their communities.

Further efforts to inculcate entrepreneurial skills among young people will be futile unless development of entrepreneurial culture are included in educational institutions. Practices like setting up business operations run by students on campuses will give them the necessary hands-on experience and entrepreneurial culture in the inculcation of entrepreneurship.

Encouraging the enterprise spirit in young people is a precondition to achieve increase in employment rates, economic growth, competitiveness and innovation. The challenges of entrepreneurship education can be best overcome by setting-up a partnership between education provid-

ers, government and businesses. Businesses in particular will need to evaluate their own role in designing new ways of preparing young people for the entrepreneurial challenge of the 21st century. This is an opportunity for us to reassess the type of partnership needed between schools and businesses and the role of business mentors within the education system. Without such a re-appraisal and the dialogue that must necessarily go with it, it may be too difficult to achieve the goal of adapting education to the diverse entrepreneurial needs of the next century.

In this time of crisis, the youth entrepreneurship holds the key to overcome the challenges of the economic downturn.

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A research methodology of organizational culture in Romanian small and medium enterprises

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Abstract

Purpose *– The purpose of this paper is to show the difference between organizational culture in big firms and in small and medium enterprises. The comparison included aspects related to the period of the foundation(there where considered for each size an enterprise founded before 1989 and one founded after 1989).*
Methodology/approach *- . The method of research used was the survey. The instruments used where the questionnaire and a short interview. The research was made between may and june 2011 in four enterprises from the Cluj county.*
Findings *– The results show major differences not exactly because of the size of the enterprises but especially because of the background.*
Research limitations/implications *– The limitations of this study regard the fact that for now there were taken in consideration only one enterprise for each type analysed and that organizational culture is somehow specific to each firm.*
Practical implications *–The main goal is to try and make a generalization using the characteristics of this type of enterprises.*
Originality/value *– The studies in literature are mostly focused on the influence of organizational culture on big firms and multinationals. The analysis regarding organizational culture in small and medium enterprises is less present.*

Key words: *organizational culture, SMEs*

Introduction

The objective of studying organizational culture is to help understand organizational life more. Understanding organizational life is important as it is widely acknowledged that organizational cultures have an impact upon company performance. This article examines the importance given to organizational culture in the life of small and medium enterprises and the influence upon other organizational variables. The observation is made throught comparison with the data concerning organizational culture in big companies.The idea began with the simple observation that small and medium enterprises were very affected by the crisis, many facing bankrupcy.

Culture is a multi-dimensional concept that can be applied to firms, industries or nations. A review of existing literature yields an array of definitions of culture. By far one of the most widely accepted definition is proposed by Schein(2004) , who defines organizational culture as “a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid, and therefore, to be taught to new members as the correct way you perceive, think, and feel in relation to those problems”. The measurement of something so complex and amorphous as an organizations culture has been the subject of much debate. Some argue that each culture is unique and must be intuitively “sensed” rather than measured; other argue that the best way to uncover culture is through ethnographic studies that analyze the stories and events making up the folklore of every organi-

zation.Using a survey technique to study organizational culture has both advantages an disadvantages. The key strength is that the same method can be applied to many organization in the same way. The results then provide a basis for comparison and generalization. One disadvantage of the survey method is that there is no safeguard against overgeneralization (Ashkanasy, Wilderom and Peterson, 2000).

Culture matters. It matters because decisions made without awareness of the operative cultural forces may have unanticipated and undesirable consequences. Not only does culture reside within us individuals , but It is also the hidden force that divides most of our behavior both inside and outside organizations(Schein, 2009).The essence of culture is not what is visible on the surface. It is the shared ways groups of people understand and interpret the world. Although the organizational theory developed in the 1970s introduced the environment as an important consideration, It was unable to kill the dream of the one best way of organizing. It did not measure the effects of national culture, but systematically pointed to the importance of the market, the technology and the product for determining the most effective methods of managing and organizing (Trompenaars, 1993). If culture is to be analyzed and managed, it is important that we be clear about what is meant by the term. Failure to clearly specify what "culture" is can result in confusion, misunderstanding and conflict about its basic function and importance(O'Reilly,1996).

The first and most obvious difference between small and big companies is the number of employees. This translates in a more simple structure for the small and medium enterprises. This factor also can bring some disadvantages to SMEs like less specialization or in some cases the absence of the manager (the owner fills the manager position).The small firms are known for their flexibility related to the changes of the enviroment. But not so many firms react well in case of enviroment change. A good example could be the recent economic crisis that had a negative impact on SMEs and lots of firms where faced with bankrupcy.Most SMEs realize annual plans and policies, only a few elaborate strategy within 3-5 years and over 30% of SMEs in Romania do not enterpise planning activities. These figures show that companies do not look to the future only from day to day, do not think in perpective that's why all this problems in this time of crisis because of lack of vision and effective concern for the future. In support of this statement it would be good to notice that searching for SMEs targets for the next two years more than half of the companies main goal is keeping the company afloat and avoid bankruptcy (Tidor and Morar, 2011).Through this characteristics conclusions lead to the question: why in small and medium enterprises is not well known and implemented organizational culture? Why it is less exploited? Organizational culture could be a cheap and easy way to make things work better. Organizational culture can take the company to greater performance, to expanding the market and to customer confidence. SMEs must look into the future not preffer the current state. The culture must focus on results, competition and achievements. Strong cultures are associated with homogenity of effort, clear focus and higher performance in changing environments.

Research Methodology

The method used to collect data was the survey technique. The instruments used were a questionnaire and a short interview. The interview was designed especially for persons in the top management of the firm. The questionnaire has 11 questions. The first question is about the domain of activity of the enterprise. The second refers to the number of employees of the firm (that will give the size of the enterprise).The third is about the year of foundation (if the foundation was before 1989 or after 1989). The fourth question is about the experience in the organization of the person that completes the questionnaire. The fifth question is in fact a set of 20 questions with responses on scale from 0 to 5, about the organization and the perception that the employees have about different practices regarding the organizational culture. The sixth is also a set of 26 questions aimed at the respondent's personality. The seventh question askes respondents to rank in order of importance certain concepts related to organizational culture. The eith question is about findind out how employees discover the values and policies of the enterprise (trought what means and from who). The ninth and tenth question askes the employee to rank the first three strengths and weaknesses of the organization regarding organizational culture. The last question is for the respondent to give 2-3 remarks about what could be better in the organization.Because

of the fact that few persons responded to the last 4 questions, this ones were excluded from this study. The interview was targeted on the recent problems facing the economic crisis(strategies to surpase the crisis, influence on the performance , the reaction facing the changes in the environment), the evolution of the organization in the last two-three years and the major policies regarding organizational culture in the enterprise (values, ethics, statements, satisfaction and motivation of the employees, strategies).The sample was formed by a number of 30 employees from each firm. This number was chosen because of the fact that small and medium enterprises have few employees and because the questionnaire could not be completed by simple workers. The limitation of this study regards the fact that for now there where taken in consideration only one enterprise for each type analysed and that organizational culture is somehow specific to each firm. But with future research in this field a common design for small and medium enterprises will result. That is the main goal to try and make a generalization using the characteristics of this type of enterprises.

The main hypothesis of study were(about the organization):
The organization encourages innovation and individual initiatives.
The organization properly motivates its employees.
First come the people and than the material benefits.
The organization faces well the changes in the enviroment.
The majority of the employees are concerned about the organization.
The employees are respected and involved in the process of decision.
What the officials say is the same with the truth.
The hypothesis about the employees were:
The employees have time for their personal life.
The employees feel satisfied about everything at their workplace.
The employees trust the leadership of the organization.
The ethics and values of the organization are well-known and asumed.
The employees feel that they are important and valued by the leaders.
The employees change rapidly their plans.

Results

From the total of 30 questionnaires at firm A a procent of 100% were complete. At firm B only 22 questionnaires were complete. At firm C 20 questionnaires were complete and at firm D 27 questionnaires from the total of 30 were complete. The problems were at the sixth questions were the respondents were asked to order a list of concepts regarding the organizational culture of their enterprise.

The four enterprises were all coming from the industry. Firm A is a medium eneterprise founded before 1989. Firm B is a big enterprise founded before 1989. Firm C is a medium enterprise founded after 1989. And firm D is a big enterprise that founded the Romanian branch in 2006.

The experience in the organization of the respondents was: in firm A the majority were in the firm for more than 10 years, in firm B also the majority was formed by persons with seniority grater than 10 years, firm C had an equilibrium at this level and firm D had a majority of respondents with a seniority between 6 months and 2 years (see figure 1).

The questions regarding the organizations were grouped into 7 groups corresponding to the hypothesis stated above. The results are presented in the figures 2-7.The questions about the employees were also grouped into 7 groups and presented in figures 8-14. To illustrate the hypothesis were selected only the charts for the questions that present best the situation in the firms (for each hypothesis was selected only one question considered most relevant).

At the sixth question the answers will be presented in figure 16 after the average values for each concept listed was calculated. Comparing the results we can observe that the small firms but on the first place quality and try not to have bureaucracy but unfortunately it seems that they consid-

ered that they don't have tradition. The big firms consider discipline to be their strength and their weekness the lack of ethics and motivation/implication of the employees.

The interview was completed by managers or technical director from the four enterprises considered. In firm A a study regarding organizational culture was realized over 15 years ago and as a result the whole organizational structure was modified. The enterprise is not profitable at the moment. The main sales market are outside the country. The main stated values are: experience and discipline. The unaccepted behaviors are: drinking at work and indiscipline. The strategy is based on the needs of the clients and mantaining the current work force. The crisis had a major influence on the enterprise, materialized in a big decrease of the turnover. The specific measures taken for improvement of the situation were: activity restriction, temporary unemployment, cautious management of financial resources.

Firm B made a study about organizational culture 6 years ago but they didn't make any changes after receiving the results of the study. The enterprise is profitable at the moment although that the sales market is only intern.The main values stated are tradition and quality of the products. The unaccepted behaviors are indicipline, theft and drinking at work. The strategy is based on the demands of the clients.The crisis had a big effect on the firm and the number of clients decreased dramatically. The principal measure taken was the fast decrease of cost and staff cuts.

In firm C this was the first organizational culture study realized. The enterprise is now profitable. Their sales markets are inside and outside the country. The main values stated are: seriousness and involvement in work. The unaccepted behaviors are: indifference, superior atitude and non-involvement. The strategy is based on the needs of the clients and on the enviroment of the enterprise. The crisis had a slight effect on the sales of the enterprise and the measure taken was the reduction of costs in all areas of production.

Firm D didn't have a organizational culture study, at least not at the lower levels in the organization. The enterprise is not profitable at the moment. The most important value in the enterprise is quality. The unaccepted behavior is indiscipline. The clients are the most important in establishing the strategy. The crisis afected badly this enterprise and the main measure was to decrease indulgence to zero and to multiply controls in production.

Discussions and Conclusions

All the firms have problems in this period of crisis. But in the big companies this problems do not put the existence of the enterprise in danger. The resources more limited in the small firms make them more carefull and more vulnerable to the instability of the enviroment. All the firms demonstrated that the most important remains the client. Tha values stated are: discipline and tradition for the „old" firms and involvement and quality for the „new" firms. In every firm the unaccepted behavior refers to indiscipline in different expressions. The „old" firms did not make employments in the last 2-3 years, that is why organziational culture did not have a new infusion from the outside.

The main observation is that for now it is impossible to make up a rule for the small and medium enterprises. Because of the cases considered we observed that the similarities appear between the „old" firms and the „new" ones, not between enterprises of the same size. The further research with a bigger number of enterprises will show in what directions the generalization will be considered.

Acknoledgements

This paper was supported by the project "Doctoral studies in engineering sciences for developing the knowledge based society-SIDOC" contract no. POSDRU/88/1.5/S/60078, project co-funded from European Social Fund through Sectorial Operational Program Human Resources 2007-2013.

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APPENDIX

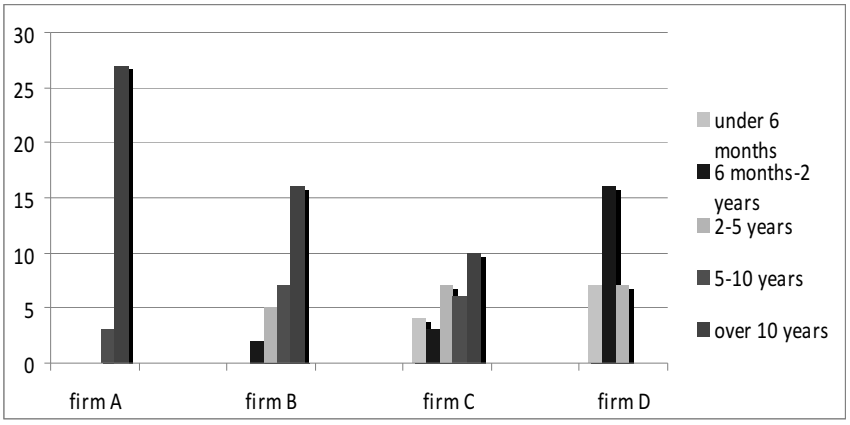

Fig.1 – The experience of the employees in the enterprises

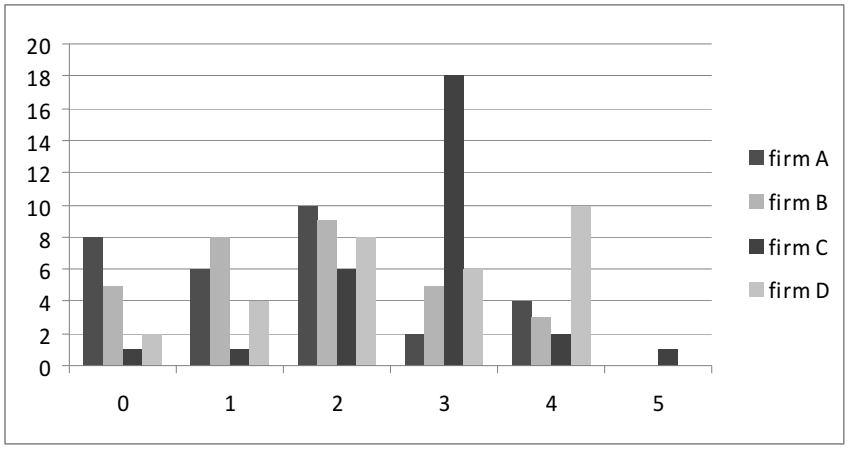

Fig.2 - How much encourages the organization innovation among employees

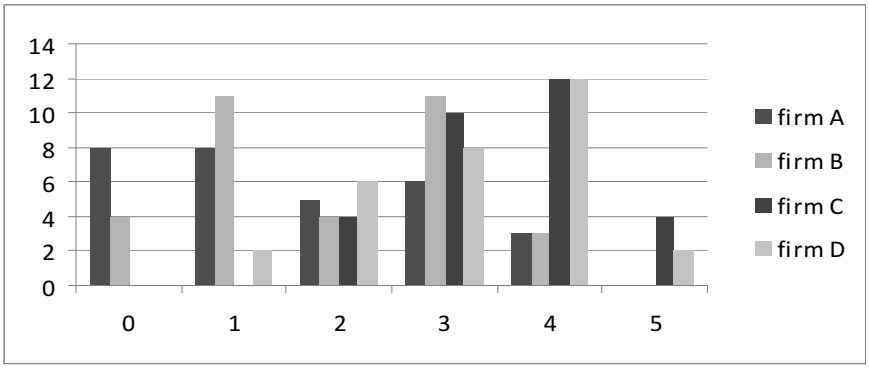

Fig.3 – The level of the motivation of the employees

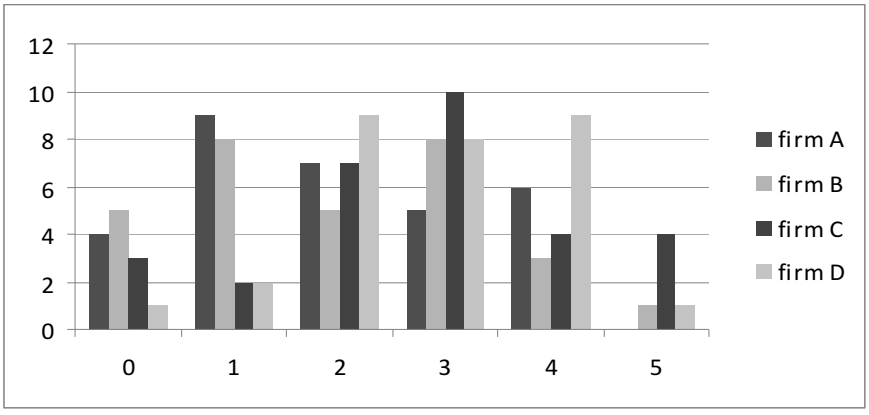

Fig.4 – The importance of the people versus the material gain

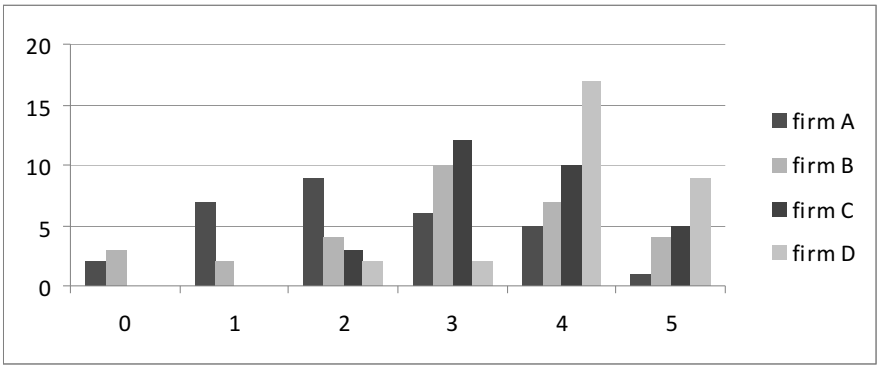

Fig.5 – The grade in wich the organization adapts to enviroment changes

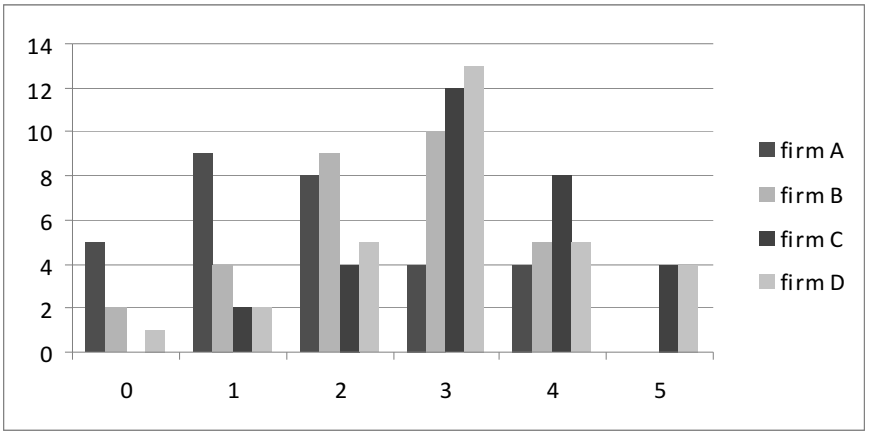

Fig.6 – The interest of the employees in the profitability of the organization

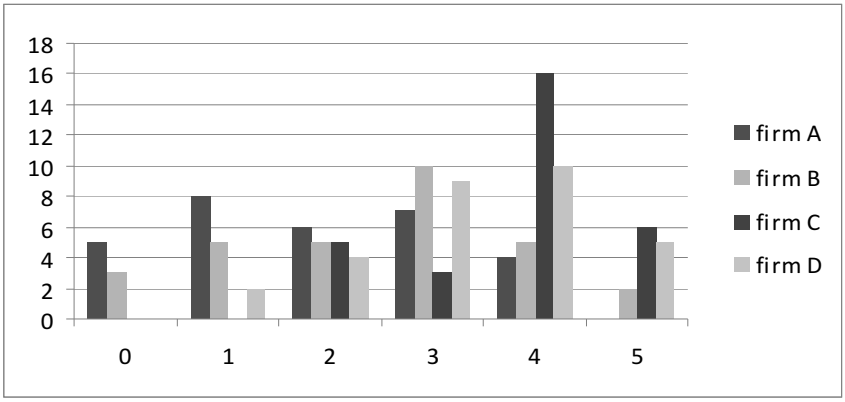

Fig.7 – The grade in wich the organization encourages trust and open communication

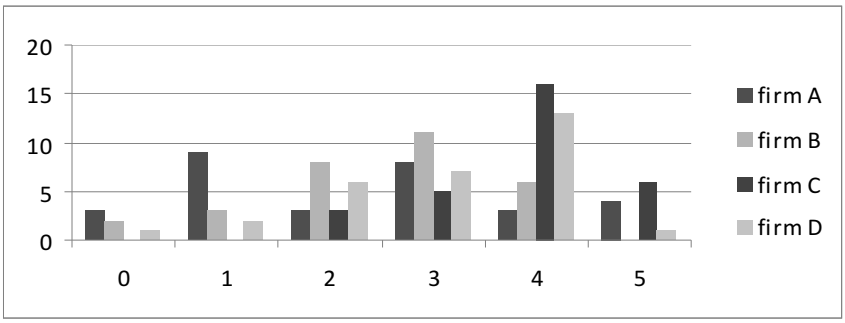

Fig.8 – The level in wich the officials present the true situation inside the organization

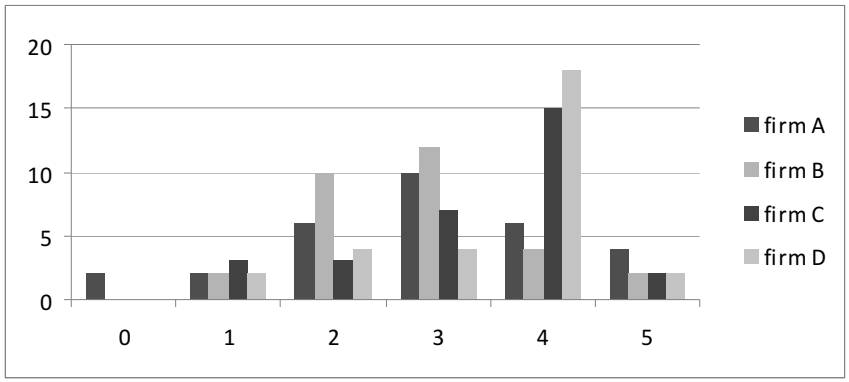

Fig.9 – The level in wich employees have time for their personal life

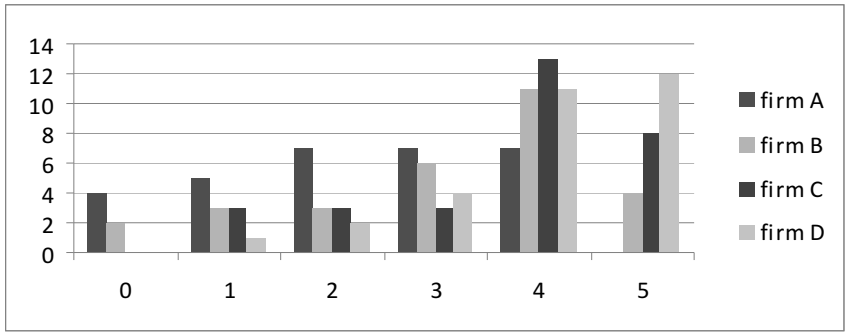

Fig.10 – The level in wich employees feel well at their workplace

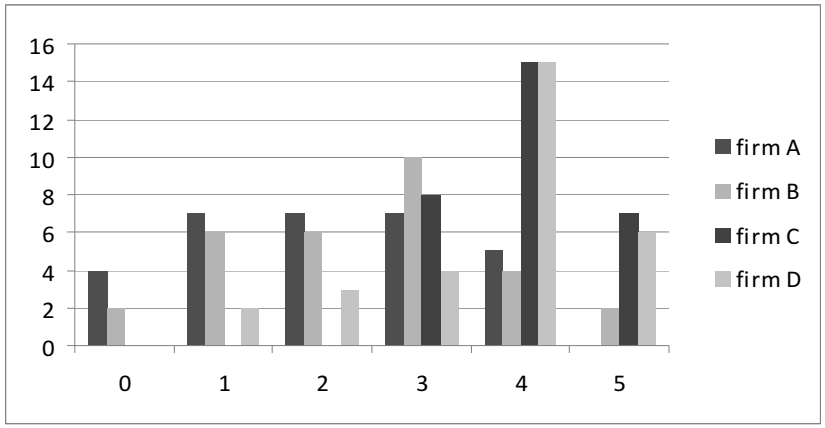

Fig.11 – The level in wich employees know the values and ethics of their organization

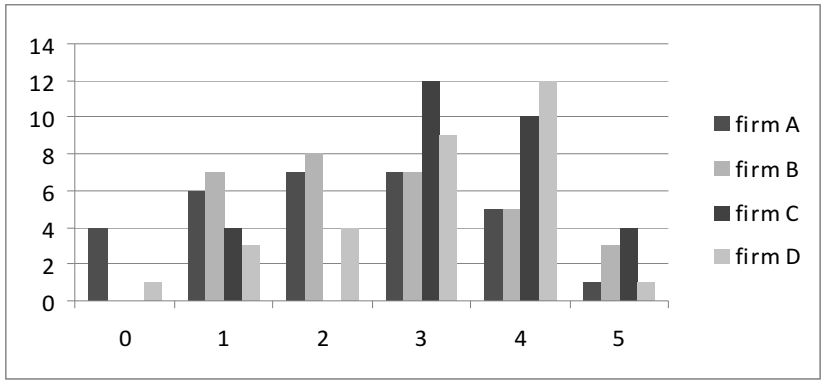

Fig.12 – The level in wich employees trust the leadership of the organization

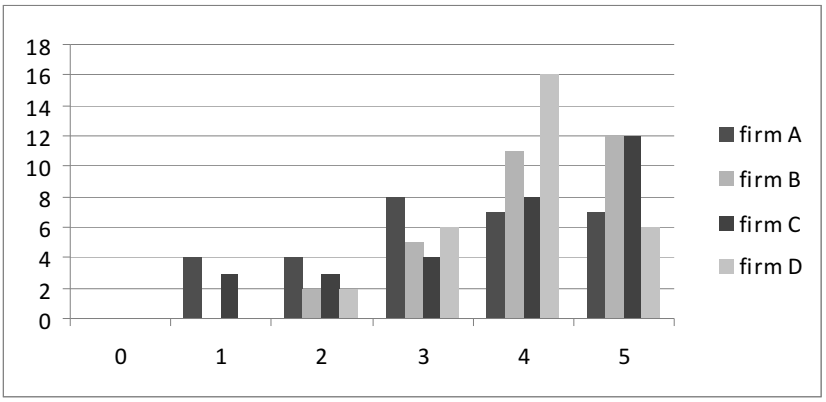

Fig.13 – The level in wich employees feel important in the organization

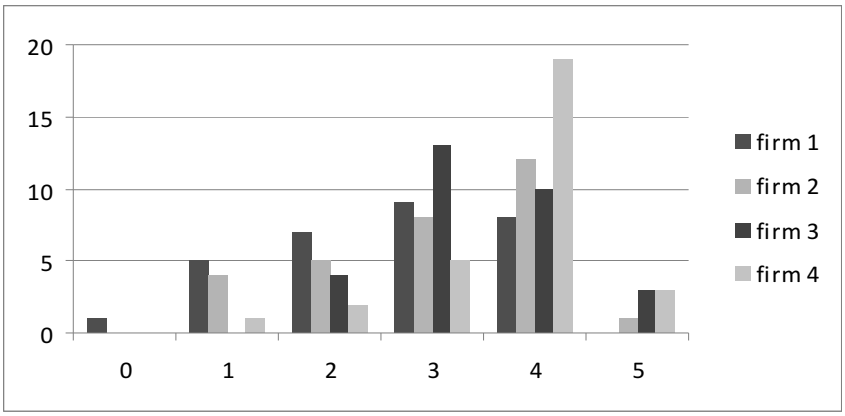

Fig.14 – The level in wich employees change their plans acording to the plans of the organization

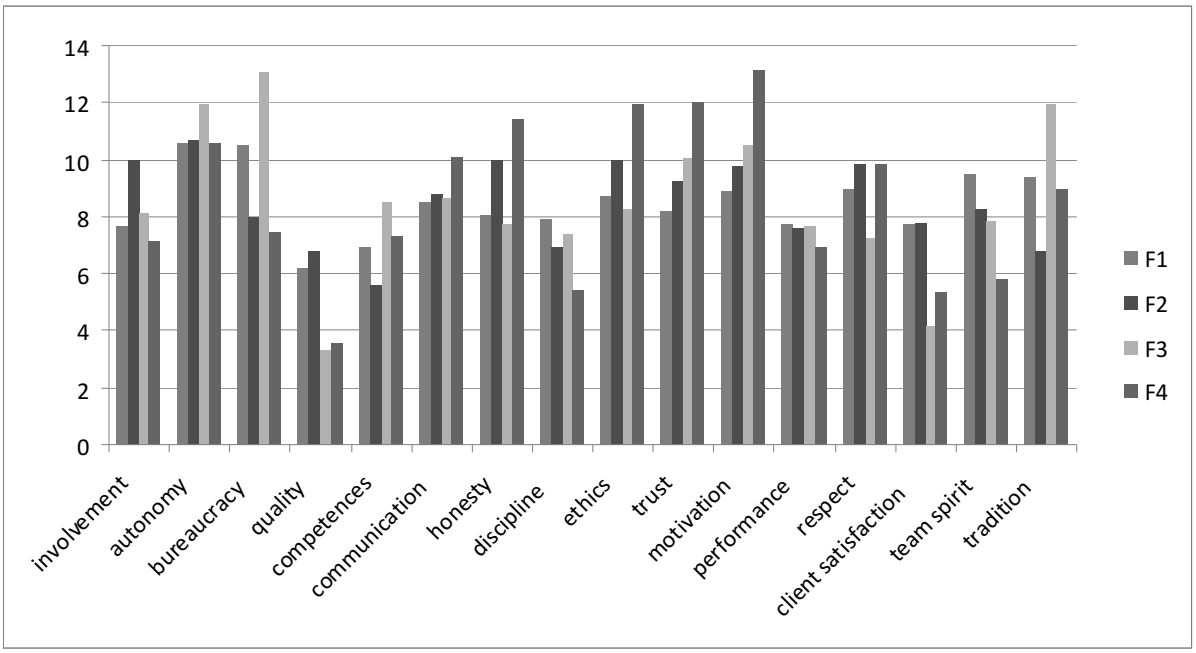

Fig.15 – The concepts that define the organizations(the higher score mean less importance)

Study on the active attitude towards lifelong learning in the context of student-centred university at the Romanian-German University of Sibiu

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Abstract

Purpose *– This article aims to identify the research, innovation, learning attitude of students of 2007-2010 classes of the Romanian-German University of Sibiu by means of the presence, involvement and publications they have had at the Scientific Students' Events and to identify the involvement they are willing to show for the future Students' Events.*
Methodology/approach *– the article contains two studies, the first one is an analysis of the number of students at the Faculty of Economics during 2007-2010 with contribution to the research. The second study is an exploratory research based on a questionnaire, which aims to present the expectations, and involvement that students are willing to show in the future.*
Findings *– the study has a major importance for the university as the conclusions show us the directions that the university should take for engaging students in activities, as well as the state of knowledge within the university.*
Research limitations/implications *– the identified state of knowledge aims only the students' contribution to the scientific research within the university.*
Practical implications *– the results of the study shall be used as a starting point for other extensive research to determine the state of knowledge within the university, the study being an element of the knowledge cycle that paves the way for implementing knowledge management in the university.*
Originality/value *– the originality of the paper consists of the conducted research, in the obtained results and the proposed corrective measures.*

Key words: knowledge, university, student.

Introduction

Knowledge management has developed in the recent decades as a result of the organisations' need to get competitive advantage and strategic differentiation in the context of globalisation and information boom, becoming a valuable instrument for providing success. Given the circumstances of operating in a competitive environment and in the light of new regulations on higher education, universities borrow features specific to a private organisation, to which the use of knowledge management is a goal and a necessity.

Knowledge management is a relatively recent phenomenon in its scope, especially in Romania, where organisations seek to apply formal techniques and information systems to make their resources available and usable, the development of human resources, cooperation systems and systems to create work capacities.

In the academic environment, knowledge also comes from the annual research done by teachers and students under the teachers' guidance. The information identified and gathered from these studies is shared to all participants to such events and not only, and their implementation shall give rise to new knowledge useful to the organisation and to further researches as well.

The present article wants to make a study on the maturity of knowledge management at the Romanian-German University of Sibiu, by identifying the level of knowledge, focusing on the studies made during 2007-2010 by the students of the Faculty of Economics.

The research methodology

The article contains two studies: the first one is an analysis of the number of students at the Faculty of Economics during 2007-2010. The second study is an exploratory research which points out the expectations and the involvement that the students are willing to show in the future scientific events. The research concludes with recommendations regarding the increase of students' involvement towards developing quality researches in the Romanian higher education system.

We would like to mention that the questions used in the study are, on one hand, open questions, and on the other hand, closed questions. The scale used for measuring the responses took values from 1 to 5, where 1 = not, 2 = little, 3= average, 4= much, 5 = very much. The data has been analysed in SPSS 18.0 for Windows, namely SPSS statistical analysis package. The students included in the study belonged to different fields of study and activity, aged 18-50.

The main objective of the two studies was to determine the level of knowledge within the Romanian-German University of Sibiu, thus approaching only aspects regarding the students' involvement in the quality increase of scientific research.

Students' involvement in scientific research during 2007-2010 (academic years 2007-2008, 2008-2009, 2009-2010)

The study is conducted on the students of the Faculty of Economics, with majors in Management, Marketing, Accountancy and Auditing Informatics, classes of 2007-2008, 2008-2009, 2009-2010.

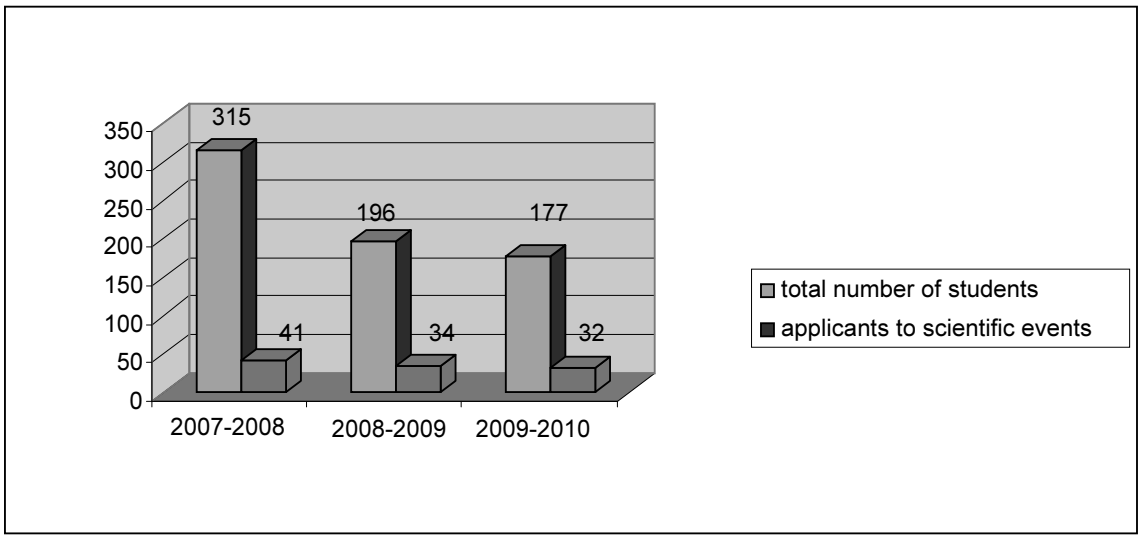

Figure 1. The situation of students and applicants to scientific events during 2007-2010

Comparing the three generations of students, there can be noticed a slight decrease in the number of students of the Faculty of Economics. The large number of students of 2007-2008 can be explained by the fact that in 2008 there were two generations of graduates (with 3 and 4 years bachelor studies), as a result of the Bologna Convention which provides that the duration of bachelor studies is of three years. As a result of the students' evolution, a decrease in the number of published papers in Student Scientific Events can be noticed.

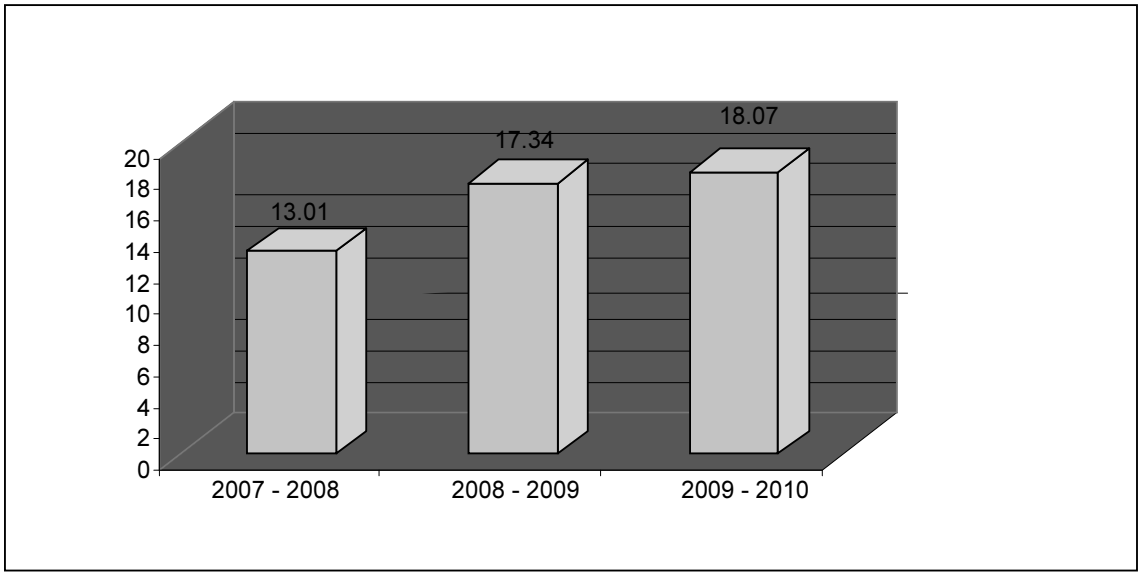

Figure 2. Students' level of involvement in scientific events

But correlating the number of participants to the total number of students, a slight increase of the level of students' involvement in the annually scientific events of the university can be noticed, which demonstrates an increased interest for research and implicitly for knowledge.

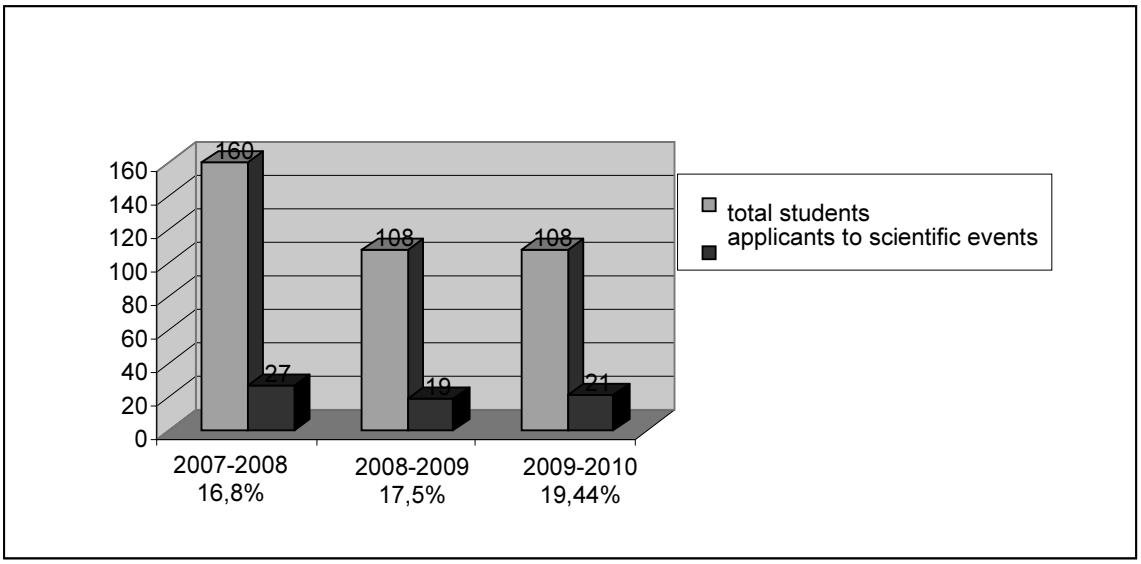

Figure 3. The situation of students involved in scientific events from the Management specialty during 2007-2010

With regard to the Management specialty, although the number of students had a slight decrease (a variation of 52 students during 2007-2010), their interest for research being relatively constant noticed a slight increase (from 16.8% to 19.44% during 2007-2010).

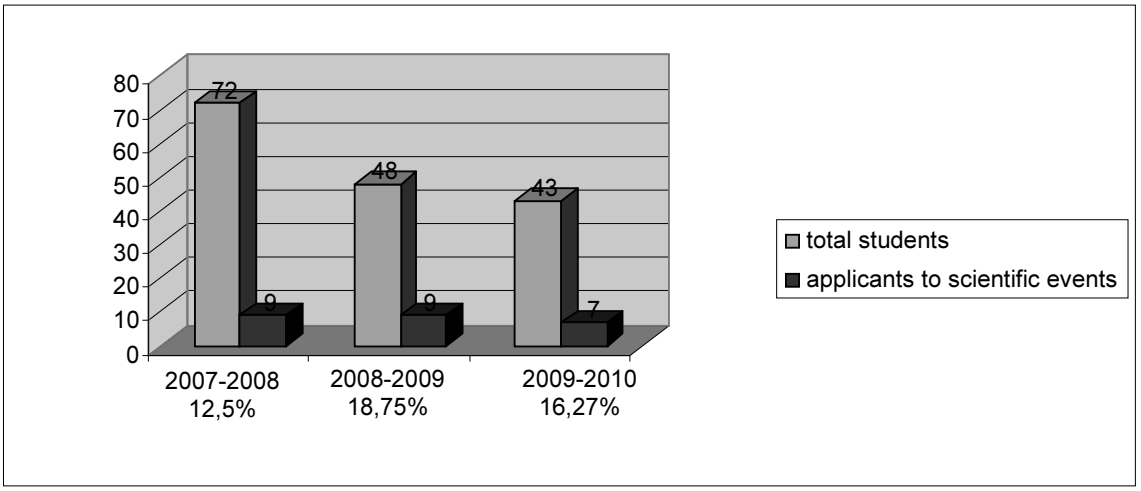

Figure 4. The situation of students involved in scientific events from the Marketing specialty during 2007-2010

Analysing the results from figure 4, there can be noticed different variations, from year to year, namely: in the academic year 2008-2009, there was a significant increase of the student level of involvement in research, the percentage of involved students being 18.75, from a total of 48 students. Their involvement in research during the academic year 2009-2010 decreased by 2.48%, the number of students involved in research being diminished by 2.

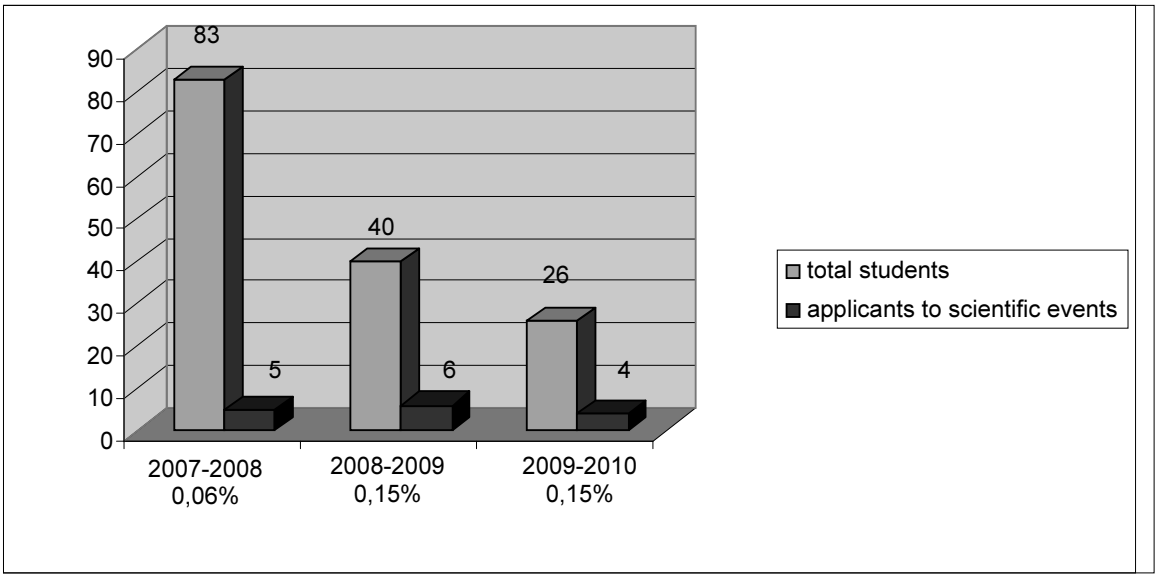

Figure 5. The situation of students involved in scientific events from the Accountancy and Auditing Informatics specialty during 2007-2010

The specialty Accountancy and Auditing Informatics has the lowest number of students involved in research, these ones having other interests. Therefore, the percentage of students involved in research from this specialty is relatively constant along the years, although the number of registered students has varied during 2007-2010. The class of 2007-2008 has the lowest number of students interested in writing papers in this field (0.06%).

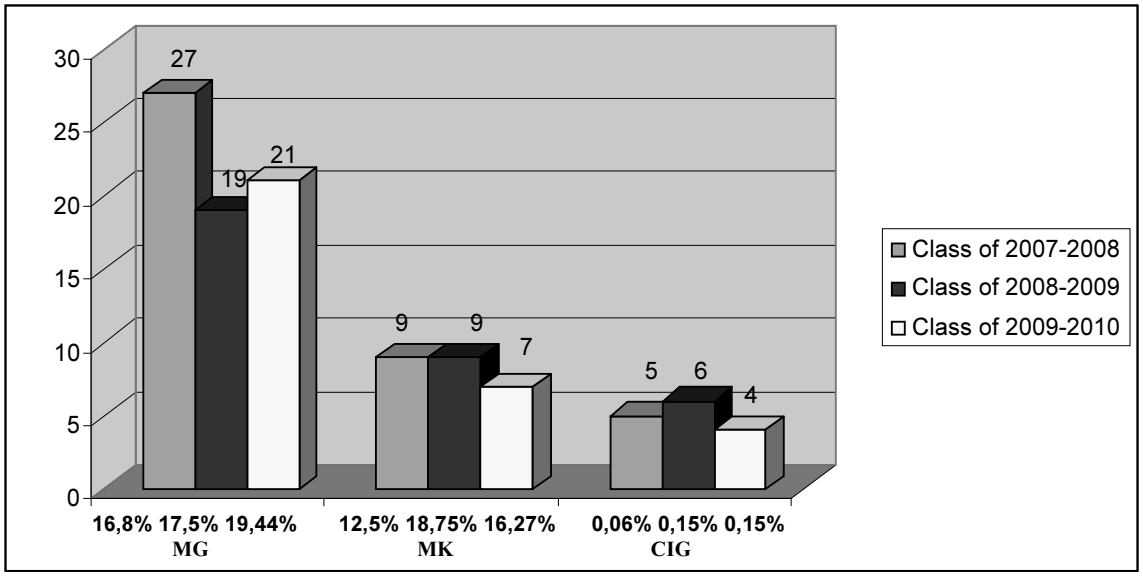

Figure 6. Comparison between the three specialties in terms of students' involvement in research

Comparing the three majors of the Faculty of Economics at the Romanian-German University of Sibiu, in terms of students' involvement in research, there can be noticed an increased interest of students in Management (Mg) for scientific events organised during 2007-2010. The students' interest for this type of activity is lower among majors in Marketing (Mk) and Accountancy and Auditing Informatics (CIG). One reason could be the low number of registered students at these majors, as well as the different fields of study which generate different areas of interest for students.

Identifying students' interest in scientific research in the academic year 2010-2011

After identifying the contribution of the students from the Faculty of Economics, we would like to identify the interest in research shown by the students from the 2010-2011 generation. The university's objectives are creating a proper environment for research, thus motivating students, offering them support and guidance for writing scientific papers.

The sample of this questionnaire-based research is represented by a total number of 350 students, of which 187 students from the specialty Management, 93 students from the speciality Marketing and 70 students from the specialty Accountancy and Auditing Informatics. The objectives of this questionnaire are the students' experience on research, namely the writing of articles, taking part in scientific events and also if they intend to attend such activities in the future.

Like in the previous study, the students from the specialty Management are more of the students that have attended, presented or would like to attend such scientific events. It can be noticed that from those who attended scientific events, only a percentage of 62,22% have actually orally presented their papers. The number of those who show interest in future research activities is relatively high, 62 students, respectively 33,15% of the total number of students from this specialty.

The interest for research is kept high and even increasing for the specialties Marketing and Accountancy and Auditing Informatics, namely 52,68% and 44,28%. The university should maintain this interest for research high and to permanently inform students through different and frequent workshops on these issues.

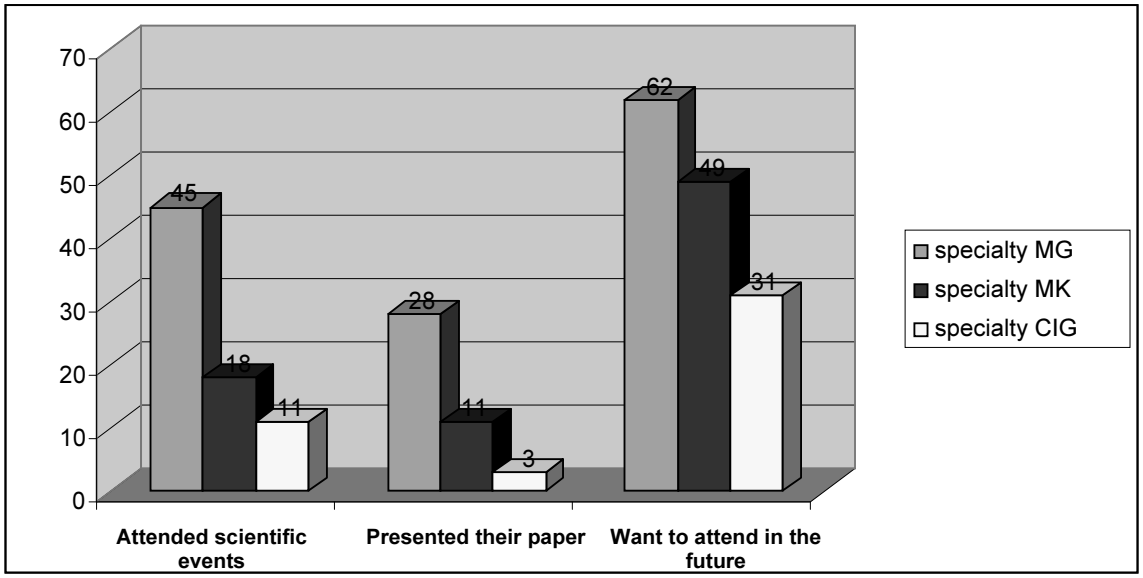

Figure 7. The results on the involvement in research of 2010-2011 graduate students

Conclusions and recommendations

In the context of a new emerging economy, an economy based on knowledge and ideas, where the key factor for prosperity and for creating jobs is the implementation of new concepts, innovating ideas and technology in all economic sectors, a new concept appears, which brings major changes to the higher education: the student-centred university.

If satisfying the students' needs is central to student-centred learning, training should answer their needs. In order for this to be possible, their needs should first be established.

In the first part of the research we have identified the contribution of the Faculty of Economics' students from the three specialties: Management, Marketing and Accountancy and Auditing Informatics, the classes of 2007-2008, 2008-2009, 2009-2010 within the scientific research conducted at the Romanian-German University of Sibiu. Reported to the number of students registered at each specialty, the results are satisfying, varying according to the specialty.

With regard to the second study, we have identified an increased interest for research shown by the students of the 2010-2011 class. The role of the university is to maintain and stimulate students to increase this interest for shaping future specialists in the contemporary knowledge-based society.

The university, through continuous information and by encouraging students hopes that the number of those interested in such scientific researches increases, regardless of the field of activity and their number.

One first recommendation is that students, on one hand, and teachers, on the other hand, and the university as a higher education institution give a greater importance to the implementation of a knowledge-based management and to the improvement of competencies of managing access to new knowledge in the society. Another recommendation refers to the need to educate students in this direction because the signs of a real "boom" of the interest to manage knowledge are especially visible in books, specialised publications and magazines.

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