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AVANT-GARDE TECHNOLOGIES IN THE MANAGEMENT
OF THE MULTINATIONALS

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SUMMARY

Motivation of the our scientific research, consists in the national and international, challenges arising from globalization and the development of information and communication technology, on the company activity in general and their management, in particular. Thus, *the personal contribution* consists in the contribution to the management of multinational companies, through both, the theoretical and the empirical aspects, derived from field research and case studies.

Theoretical concepts were analyzed and interpreted, according to the actual conditions in Romania and the European Union, as reflected in the information obtained from applied research. Theoretical research has contributed to highlighting the main features of management at the level of multinational companies, suggesting the existence of three points marked on the evolutionary ladder of management, globalization factor that led to the expansion of internationalization, increasing the amount of information to be processed in time the increasingly shorter, the modern technologies that marked the work of managers by providing a support computerized and decision-making, and the Internet, which provided the means of integration of smart business, on the integrated management of business support, from the company. Therefore, we believe that this area of research, is and will continue to be, extremely challenging for both researchers and practitioners.

Starting from the reality, that in the market economy, the business environment is characterized by a special dynamic, due to the need to adapt to market changes permanent, it is mandatory, for firms to be flexible and able to substantiate and take decisions in real time, we drew two axes of scientific research: theoretical and practical axis. The two axes, are divided into two segments, which are designed to make the gradual transition from one concept to another (theoretical axis of scientific research), and the methodology of scientific research, results and recommendations (axis practical scientific research).

For details of the two axes of scientific research, we noted that the main objective of our doctoral work, consists in studying and developing recommendations on process optimization substantiation and decision-making at the level of multinational companies, in the new economy. In addition to the primary objective, we drafted and secondary objectives of scientific research, which consist in:

- ✓ clarify the main characteristics of multinational companies, and their management, the evolution in time, and the effect of the global crisis on their;
- ✓ systemic investigation of multinational companies in multicultural context, and addressing management methodology at their level;
- ✓ analysis and impact assessment of the systems for integrated management of business processes on the management of companies;
- ✓ testing and highlighting of some link causation, change and dynamics of the main indicators that influence the substantiation and adoption

decisions under risk and uncertainty, on the example of a multinational company.

The practical implications of our work, relates to the analysis and interpretation of research results. The recommendations, were elaborated, taking into account both the difficulties faced managers, in the information society era, in the management of the effects of globalization and the global crisis, and peculiarities multinationals in the European Union. One of the benefits of our research, lies in the fact that outlined the need and role of modern technologies in substantiating and decisions-making in real time, taking into account that in the knowledge society, it is a basic objective. This assertion, is supported by information, which we find in studies and reports by the national and international level that we present throughout our work.

The originality and value of our research, is reflected in the case studies that highlight the use of an interactive system for decision support under risk and uncertainty, in a relatively affordable package in terms of costs, which can integrate on Microsoft Excel, Palisade DecisionTools Suite. Case studies have demonstrated the support that it can provide modern technologies at the level of a multinational company, which is facing a multitude of risks and uncertainties.

For the *theoretical research axis*, we used the literature of the country and abroad, which led us to draw conclusions regarding the main features of the management of multinational companies in the information society era. Thus, we conclude, that the evolution of information and communication technology has a direct effect on the management of multinational companies, especially in the way they manage the effects of globalization and the global crisis. Therefore, to clarify these issues requires a detailed analysis of managerial methods from the major economic powers in the world and European level, in the new economy era, that is transferred through multinationals and the least developed countries, by permitting technique and technology transfer, which leads to rapid and continuous improvement of economic performance.

New economy, "digital economy" is characterized by radical changes in the nature of work and labor relations, with profound implications on work and life styles of the people, be necessary to encourage the creation and development of innovative companies, it need to have the ability to assimilate and convert new knowledge to improve productivity and create new products and services. New technologies will establish a new economic system, global, globally accessible, favors intangible assets, intellectual work products, being interconnected through a network.

Multinational companies, we have analyzed them, in the context of globalization amplification, which brought out the world market, a new type of leadership, companies may no longer isolated adopt decisions, the management must consider the corporate culture, that mentality, and the diverse mode of the intercultural understanding. As a business strategy, in the new economy, we can say, that the center of gravity of the market, becomes the customer, and less product, which requires major changes in processes,

operational systems and even companies culture. Changes, should consider increasing in the reaction rate and implementing decisions. In this sense, the scientific information, has become the primary resource, that makes big companies to enter into a new phase, the new economy, in which the interrelationships will be mediated by relevant information and appropriate, generating a social dynamic new, economic and policy, in which the amount of information will be found in the economic effects.

After analyzing the characteristics of multinational companies, we can say that they produce most of their turnover over the borders of their own country, which means lower taxes for countries of origin, which may have an effect on policies supported by the State: education, welfare and health. In Romania, multinational companies achieve 60% of total exports, and from this value, the top ten exporters, achieve more than 40% of exports in the economy, which means that companies with foreign capital plays a vital role in the national economy. It is expected that over the next 15 years, to appear 189 multinational companies with Romanian majority, which will mean, that Romania will thus be on the same level with other countries in the region, such as Ukraine (192 new multinationals in the same interval) and Hungary (221). Most multinational companies new, to the region, but will be made in Russia (930) and Poland (287).

Thus, we conclude, that we are witnessing the creation of new types of relationships between companies and their environment, and the birth of new types of technique-based companies and modern technology of the XXI century, which is one of the most representative vectors of progress, which contributes to improving the entire business environment. Basically, we are witnessing the creation of a new culture of the economic agent's competitiveness across all sectors in the new economy, the digital economy.

In the context of the new economy, based on information and communication technology, the success of a multinational, is based on in-depth understanding of the environment in which they operate and on the ability of the successful implementation of strategies and organizational structures, that can be mapped the best situations existing. Thus, in our view, knowledge has become the most important factor of production in the modern economy, accounting bases of power exercise that generate increases productivity and ensure business competitiveness. In this regard, at the level of management system of multinational companies, are continuously improving, it must be characterized by creativity, flexibility and diversity, given that multiculturalism leads to increased competitiveness of companies that operate in the global market.

Following studies, we consider it important to emphasize the need for perceived need for change at the level of company's managers, as being defining for existence on an ever-changing market. In this respect, we considered that the existence of management can not be thought without decision, which we consider, as a core business management. Decision is the most important time from management activity, and involves choosing courses of action, in order to achieve objectives, and in a very complex and dynamic

environment, choosing the best alternative is becoming increasingly difficult. Thus, managers need to think and act rationally as possible, as required to take into account the particularities of the production and transmission of information in the international environment, different degree of accessibility of its, factors that may adversely affect, ensuring information compatibility.

While, companies become more complex and active in the international field, managers the increasingly depend more on external sources, along with the internal, and the quality of decisions, is the starting point to measure their effectiveness, some of them may have strong impact on the success of the organization, while others may be less important. However, all decisions have an effect (positive or negative, large or small), over the company, its evolution and its members, its relationship with the environment in which it operates.

In the era of globalization and unprecedented development of science and technology, increasing complexity of relationships with companies, has led to significant changes in the approach to the concepts of risk and uncertainty. Changes, should consider increasing in the reaction rate decision and implementing decisions, thus, the scientific information has become the primary resource that makes big companies to enter into a new phase, that of the new economy. In this new phase, risk is a permanent dominant within multinational activity, it had to implement appropriate risk management mechanisms that emphasize rapid changes that have occurred and the measures adopted.

The topic of risk and uncertainty at the level of company, in general, and of the multinationals in particular has become increasingly complex, enriching with new meanings. Managers are forced, as in always, to know the risk level, and for the rigorous the substantiation of decisions and reduce the number of unknowns with which operate, it is absolutely necessary to improve the quantity and quality of information to turn possible situations of uncertainty in risk situations. One possible solution, to address situations of uncertainty, is the use of "smart" tools.

Depending on the objectives of each management level, managers will have to determine the management method, techniques and appropriate tools that lead to achieve the objectives, by the strategy adopted at the level of multinational company, turning information into action through decisions. Quantification and evaluation of uncertainty and risk, in multinational company's activity, is achieved through a risk analysis, after which she seeks orientation of decision on the base analysis of alternative strategies, so that they can be identified and assessed risks, based on forecasts uncertainties and on the possible reactions of the market.

Following our analysis, we estimate that multinationals, have the main feature, the combination of a globalize economy, with information technologies the increasingly more sophisticated, which enables global companies to consolidate control on a scale that has not been possible up to now. Traditional forms of organization, not coincide with the new conditions of globalization and structural changes, companies react to new market dynamics

and on the increased uncertainty through strategies of defense or risk splitting.

For practical axis of research, we provided solutions for process optimization substantiation and decision-making, at the level of multinational companies in the new economy. In this respect, we started from emphasizing the defining elements of integrated management systems, of the business processes and we highlighted the role of artificial intelligence in the adopting a decision, by submitting e-Business solutions, for as in finally, the research approach to be completed, with decision analysis, using specific informatics tools, made available by the Palisade package.

Multinational companies, are organized in networks and markets, with variable geometry, the network becomes gradually "backbone and the air we breathe" and the technological implications, behavioral, but especially organizational, are extremely high: they are forced to and enhance and restructure production circuits, including to reduce them for information to circulate more quickly, to manage products with maximum efficiency by eliminating, where possible, stocks, to ,, think ", to produce and respond to market signals in real time. Thus, we considered, that it appropriate integrated software, as a necessary solution and simultaneously modern for any company that wants to remain on the market.

Increasing global competition, an access of the potential customers to information and change their behavior, in the purchase decision has generated the need of tender's custom by customers in real time. In this way, has established itself as the information systems for businesses to constantly evolve, to include components covering the entire analysis domain, decision support, forecasting and business planning at all levels from executive to senior management that can provide real-time information and with meaningful content, working in an integrated way with the release of actions required and follow-up their in the organization. Thus, firms, to maintain a market in constant change, are obliged to use integrated systems that to computerize all functional departments and provide the managers support for strategic and tactical decision making, that to lead activity them and to strengthen its market position and its economic efficiency.

Following the analysis of interactive decision support systems, we found, that they have ability to generate solutions or recommendations, but the final decision, choice, is carried out still by managers, and based on risk attitudes, experience and the company's activity. The upper level of these systems is the expert systems that are able to make the decision instead of the manager. Currently, there is a trend for expert systems integration and other areas of artificial intelligence, on the decision support systems level, so as to obtain decision support systems as strong, business intelligence (BI), and easy to use in terms of user interface.

A key element in smart businesses, Internet it plays, which has brought new opportunities and new ways of doing business, making on classic skeleton of business management systems in companies, connectivity with customers and suppliers, which was materialized in an integrated value chain. Because

systems Business Intelligence (BI) have the ability to gather all data at the level of a company and provides a set of tools for analysis and creating reports, may discover that the most profitable clients, the most requested products, the more efficient employees, etc., I thought it appropriate to present the functionalities of the three integrated packages.

To see but actually, the use of a decision support system at a multinational level, we used three modules of the package Palisade - DecisionTools Suite for Decision Support in SC Automobile Dacia SA. For this, it was first necessary to study, the activity and company management Automobile Dacia SA for a period of three years. We found that managers at SC Automobile Dacia, have permanently regard to the preservation the position in the automotive market in Romania and EU countries, the continuation of investment to introduce the production of new vehicles and parts, and last but not least, improving quality and reduce costs while maintaining brand image in the Renault Group. In this sense, managers pursuing an activity supported both to maintain on a declining market, and to penetrate new markets. Because, the company which we analyzed, is part of a multinational group, risk factors and uncertainty have a significant impact on business.

For example, we chose a software, product by Palisade Corporation, because is the market leader, in software for risk analysis and decision support in Microsoft Excel, is a robust and innovative decision support. DecisionTools Suite, contains multiple modules, which added to Microsoft Excel, ensuring flexibility, ease of use being able to offer solutions for risk analysis. For the case study, we used three modules PrecisionTree, @ RISK and @ RISKOptimizer.

Using the PrecisionTree (which brings advanced concepts of environmental modeling and decision analysis for Microsoft Excel, based on the traditional model of decision tree), consisted in taking the best decision for a problem that occurred in the company. Although the launch of the new model, Duster facelift, was a success, the company faces appearance possibility of a competing product (in early 2014), the Citroen, which could exceed the performance model. Thus, we intend to discuss now the reactions they may have potential clients of the firm Dacia, on hearing the news, are shared by French company Citroen on the public. In this way, by making a decision analysis, we obtained direct reports, including statistical summaries, different risk profiles, policy suggestions, on that manager may take into account, and all can be reported directly in Excel. The decision maker, has thus able to interpret the choices easier, because making more intelligible structure, to provide for conflict of interest and principal objectives without having to know special techniques. Risk analysis can be carried out by means of sensitivity analysis.

Decision tree method deficiencies, start from the lack of information on the dispersion and shape distribution of possible outcomes. To eliminate or mitigate these limitations, we still approached package @ RISK, which can achieve a probability distribution.

We used this way to make the analysis of the evolution of sales (focusing on exports, because they are more consistent) in accordance with the decrease under more market demand. We created the pattern necessary, in order to start the process of risk analysis, based on sales in 2010-2012, trying to anticipate their evolution, and how they will be distributed in the future. @ RISK is based on simulation technique, being able to combine all uncertainties identified in a model analyzed, providing results in graphical form, thus, show more significant risks that may constitute the basis for further analysis. Basically, risk analysis involves the following steps: identification of uncertain input values, achieving an estimate of the occurrence of inputs, generate inputs, calculation of output data, making decisions having as basis risk profile.

To achieve different predictions, we can, as in each chart type, to simulate certain scenarios and conduct a series of stress tests. Scenario analysis, I believe that is one of the most powerful management tools, providing a combination of variables to be included in the test, and their values, which leading be the best or the worst, performance. Thus, managers have the necessary information, and the probability of occurrence the risk, and the necessary elements of transformation of uncertainty in risk, so that opportune decisions can be adopted to develop the work. Basically, in this way, the decisions taken, considering the optimization of certain variable output for varying input. One type of analysis, performed with this module is advanced sensory analysis, through which you can run a full simulation, at each set of possible values for input, and aims simulation results for each value. The results is changing in the extent to which, the input value has been changed. In this sense, we can change the values by which we arrive at the best meet.

At company level, however, managers need to be able, as from a desire to maximize or minimize an indicator, to see how they can act on the elements that contribute to the achievement of that indicator. For this purpose, we used RISKOptimizer module, to maximize profit, by analyzing variation associated elements. During optimization, running successive simulations, each with a different set of values associated cells, generating a distribution of possible outcomes for profit. We have chosen a set of adjustable values (including the number of employees and cost), that can maximize the profit distribution medium.

Following application of these modules, within the software package provided by Palisade, believe that integrated decision support systems, are essential tools for managers, in terms of addressing complex problems, time consuming, to improve the reliability decision process. Advantages that are obtained from the use of a decision support system, are not identified in all situations or all decision-makers, but depend on the degree of matching between the decision maker, the decision context and decision support system.

In conclusion, we can say that the package Palisade - DecisionTools Suite is a specialized system for risk analysis that allows users to control the

decision-making process and have the ability to optimize so that ultimately the decisions taken to cope with an uncertain environment, with a range of different risks. In this way, we believe that for managers of any company, such a powerful tool in an uncertain world, is mandatory for face challenges.

Decision support systems should be an integral component of the decision process, which extends the decision-maker's ability , to process information quickly and to tackle complex, time-consuming, reducing the time allocated to this process. It will also improve the reliability of decision-making, encouraging exploration and learning process, thus creating a strategic and competitive advantage for the company.

Our research has shown that due to increasing global competition, has emerged as the business systems designed to constantly evolve to include components which covering the entire problematic analysis, decision support, forecasting and business planning at all levels, starting from executive to senior management, that can provide real-time information and with meaningful content, working in an integrated way with the release actions required and their follow-up in the organization.

In conclusion, we can say that the main objective of our research, which was to study and develop recommendations on process optimization substantiation and decision-making at the level of multinational companies in the new economy, has been achieved and presented in detail, in the fourth chapter of this paper.

The objective of clarifying the main features of multinational companies and their management, the timing, and the effect of the global crisis on their, was achieved by identification of the defining elements of management at multinational companies in an economic system, global, marked of technique and modern technology of the XXI century.

The second objective was to investigate systemic multinationals in multicultural context and methodology management approach to their level, and was met by an international approach to the management system, pointing out that managers need to think and act rationally as possible based on the peculiarities of production and transmission of information in the international environment, a different degree of its accessibility.

Analysis and impact assessment of integrated management systems of the business process management on firms, is an important objective that was met by a harmonious combination of research on the competitiveness of multinational companies with modern technology.

Thus, we stated that due to increasing global competition, has established itself as the business informatics systems, designed to constantly evolve to include components which covering the whole problem of analysis, decision support, forecasting and business planning at all levels starting from executive, to senior management, that can provide real-time information and meaningful content, working in an integrated way with the release actions required and their follow-up in the organization.

Regarding the fourth objective, testing and highlighting of some causal link, change and dynamics of the main indicators that influence the

substantiation and adoption decisions under risk and uncertainty, on the example of a multinational company, its fulfillment lies in achieving overall objective of the thesis.

Now, the advanced applications, are based on the specific processing platforms, able to access data (structured and unstructured), from sources and external applications platform, in various forms (documents, text, etc.), by direct search or contextual, real-time processing them, to give the information in various forms (graphics, tables, reports).

The user interface is friendly, flexible and interactive allowing selection of information, to be analyzed and the use of technology "in memory" is achieved real time processing of large volumes of data.

Subsequent developments, of the research conducted, will consist in extending axes of the management review, toward use intelligent systems, in the field of decision-making, and even if, at this time, the cost is quite high, the increasingly more companies, seeing their benefits, and will implement such a smart business package, to be a reliable support in adopting decisions process. From my point of view, after studies, I think the most appropriate intelligent system for a multinational company, is the SAP Business Suite, SAP HANA platform, which I hope, to have the opportunity to deepen in the future.

We believe, that our research is useful to managers at the level of any company, if they want to be competitive in a changing market. We recommend managers to integrate into the company's decision, a smart component of e-business, which can process information quickly, improving the reliability of decision-making.