MODERN SYSTEMS FOR DECISION SUPPORT IN MACEDONIAN COMPANIES

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-abstract-

The Decission Support Systems (DSS) give logistic support to the process of making decisions in the contemporary companies. DSS are complex computer programs which based on the input data from the database can predict the activities of the real system and some future circumstances.

DSS provides the management to test the system activities of the environment's different changes and to test the environment's reaction when different changes occur. Namely, DSS provides a very fast way to consider the effects of the made decisions.

All the methods that are used as a support in the process of decision making could be based on different ssimulation models, optimization techniques or heuristic algorithms. When solving practical problems, large application procedures are based on combination of optimization and heuristic procedures. With an adequate combination of optimization, heuristic and experiental procedures that desribe different segments of the real system for a very short time can emerge a separate satisfactory solution.

In this project will be implemented a method of objective collection, analyzes, and interpretation of the data, by which the research process gets a scientific character. This methodological approach has been used through the gathered information about the application of the modern DSS through systematic, empirical and analytical research of the previously shaped hypothesis. In order to research the condition in our country is used the method of the structure survey, by which we will get information about the implementation of DSS in the business entities in Macedonia.

As priority objectives that are established by this project are the following:

»Assessment and conclusion on the application of Decision Support Systems

 »Indicating the benefits of implementation of the Decision Support Systems

»Providing strategic guidance under which the companies will develop in the implementation of the contemporary Decision Support Systems.

Keywords: decision making, support, business entities.

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1. INTRODUCTION

The process of deciding is a part of the things that each manager has to do during his work. We make decisions every day, in accordance with the things connected to the classical functions, as: planning, organizing, managing with the employees, the management in general and control. The process of deciding is not an individual process[3], i.e. isolated function of the management but it is in realization with all the business functions. The managers (the decisions makers) at all the levels make decisions that sometimes they are "small" and sometimes they are "big". However no matter whether the made decisions will realize or not all their decision makers go through the decision-making processes. Therefore, this process should first be well acquainted, and then you can manage with it. In all approaches that are present in the contemporary management theory, the term decision-making means rational choice of one of the possible alternatives.

On the other side, the decision theory[4], and the quantitative methods and models as well, were previously developed independently from the information technology and information systems. Namely a whole range of quantitative methods and models emerged (linear programming, network planning, simulation, dynamic programming, theory of waiting lines and others.) that have no mutual elements. This development of quantitative methods and models entered in a crisis that is caused by the adjustment problem methods rather then (vice versa), *i.e.* insisting to optimal and not real decisions or orientation towards achieving the goal, regardless the means that will be spent, not existing an adequate theory of key problem areas etc. The efforts to overcome the crisis in the use of quantitative methods and models in the decision process led to the end of the seventies of the twentieth century appeared to support decision-support system.

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[3] Gareth Jones, Jennifer George: "Modern Management" (translated in Macedonian), McGraw Hill 2008 page 253

[4] Cooke, S. And Slack, N. (1991), "Making Management Decision", (second edition), Prentice Hall, New York, page 13

The Decision Support Systems[5] generally are defined as information systems that are built to help the decision maker in the solving the poorly-structured decision-making problems. Their main goal is to provide qualitative information for the decision-making process, in order to increase the efficiency in decision-making. The main characteristics of these systems are: oriented decision-making, orientation towards solving the poorly-structured problems and orientation towards the final user. The decision-making systems help and support the decision-maker in the process of decision-making, but they do not make this process automatic, because they do not replace the man in "judgment" about the problems of decision-making and related human functions. They help the decision-maker to make more qualitative decisions, so it is said that they serve to improve the effectiveness (the quality), instead of (the speed) of the process of decision-making.

DSS should provide the manager time exact information, that will be at the same time accurate, relevant and complete. DSS must give the information in an adequate form in order to be easy to understand and manage. The information presented with the DSS could be a result, or could be taken from outside sources. The DSS could present either internal or external facts, different opinions and predictions that could help the manager. That is the reason why he wants the right information, at the right time and in the right form.

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[5] James A. O'Brien.(2006), "Introduction to Information Systems", College of Business Administration Norbern Arizona University, McGraw-Hill, page 330

2. MODERN SYSTEMS FOR DECISION SUPPORT IN MACEDONIAN COMPANIES

Information Decision Support Systems are based on a set of procedures which are used by the data processing models and making decisions models. The central place have neither the data nor the information, but the decisions. The analysis system has a form of a prototype and the description of the things is semi-structured. The system outputs are relational views while the software basis is a generator of the program
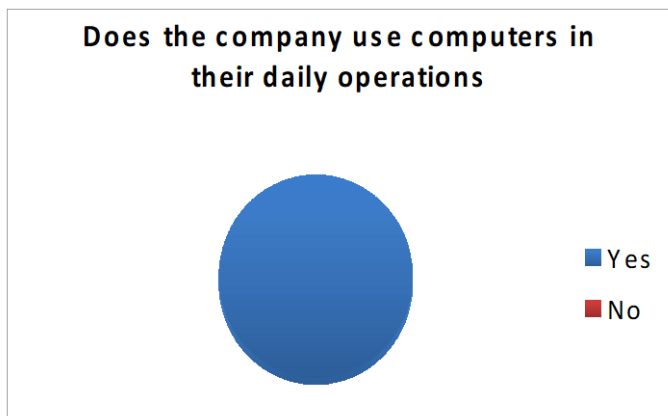
In order to identify the use of decision support systems in the companies in the Republic of Macedonia was needed to conduct a survey. The statistic sample was created out of 30 companies from various fields in order to get more relevant results about the use of the Decision Support Systems in the companies. The survey was focused on three main aspects:

- Basic indicators for existence of the Decision Support Systems in the companies;
- Using the Decision Support Systems;
- Strategic aspects.

For a better overview of the survey results they are presented in charts.

From the first aspect of the research results are as follows:

In the first part we were asked for the use of the computers on which all respondents responded positively as seen in the following graph: Responses to this question were expected because as previously mentioned computerization cover and the Republic of Macedonia and Macedonian companies are aware of the facilitation work which offer computers.

Chart 1 (responses of the first question)

The second question was about whether companies know about the systems for decision support and their responses are tracked in Graph 2. 6 of 10 companies or 60% know about the systems for decision support. If we actually perceive the fact that the survey covers entrepreneurial businesses negative rate that is 40% of companies do not know about the systems for decision support should not be intimidating.
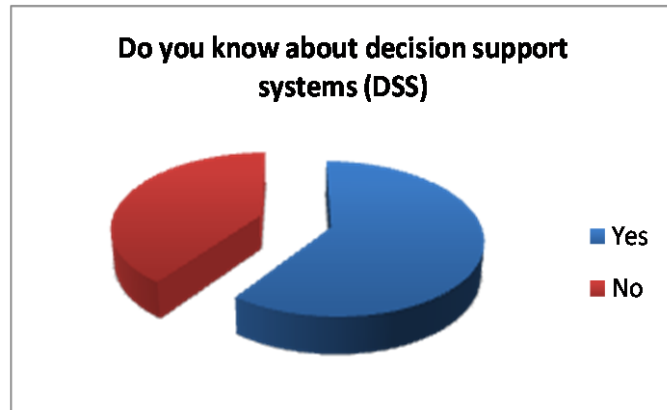

Chart 2 (responses of the second question)

In addition was the question of whether companies use systems for decision support. Responses to this question indicated that implored 3 out of 10 companies use systems for decision support and 70% responded negatively. Given that most of the surveyed companies know about systems for decision support is expected to have a growing number of companies that use these systems. However the results are negative which means that Macedonian companies need to work on the implementation of these systems in their operations.
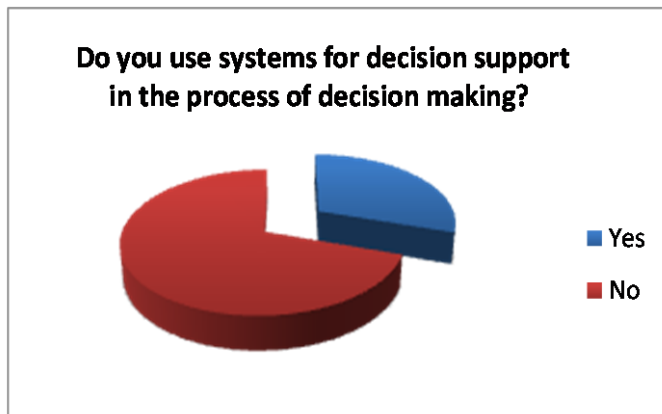

Chart 3 (responses of the third question)

Asked if your company has developed systems for decision support, 30% of respondents said

they have developed such systems and 70% said no. These responses were expected. Companies that use systems for decision support gave a positive answer to this question. It can positively reflected on being able to develop their own systems for decision support which means that Macedonian companies have the potential to follow and develop the trends.
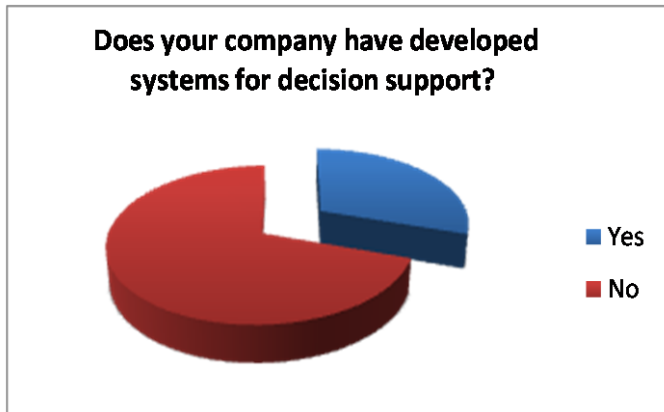
Chart 4 (responses of the fourth question)

The Graph 5 shows the proportion of companies that have a special department for decision support and those who have not such department. It can be noted that only 2 out of 10 companies have separate department for decision support. Company size and employment are some of the reasons for this results . Department for decision support is not able and there is no need for it in every single company. But for better and more efficient operation, and making better decisions is necessary bigger number of companies to gave positive answer on this question.
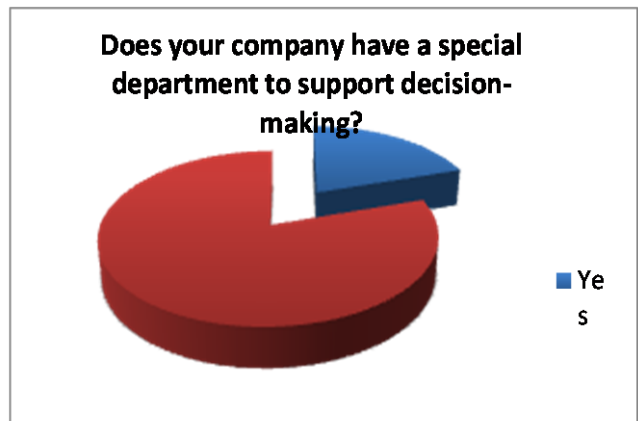

Chart 5 (responses of the fifth question)

On the question about future plan to develop system for decision support, 8 out of 10 companies said that they planned to do it while the other 2 companies answered negativequeand it is shown in Graph 6. The eight companies responded positively on this question, that there is opportunity for the development of systems for decision support.

Are you planning to develop systems for decision support?

- Yes
- No

Chart 6 (responses of the sixth question)

Six of the ten companies responded that they have a strategy for the development of systems for decision support and 4 in 10 said they have no strategy for the development of systems of support. If they plan to develop their own systems for decision support would be better to have a strategy for developing them. But the results of the survey shows that six, not eight companies have a strategy for the development of systems for decision support.

Do you have a strategy for the development of systems for decision support ?

- Yes
- No

Chart 7 (responses of the seventh question)

50% versus 50% is the results about question if companies know about use of the systems for decision support in the competition. This results are shown in Graph 8. It is good to know what is the level of development of competition in any field of operating. But some things can not be easily discover so the answer of this question seems quite realistic.

Do you know how the systems of decision support is implemented in the operation of the competition?
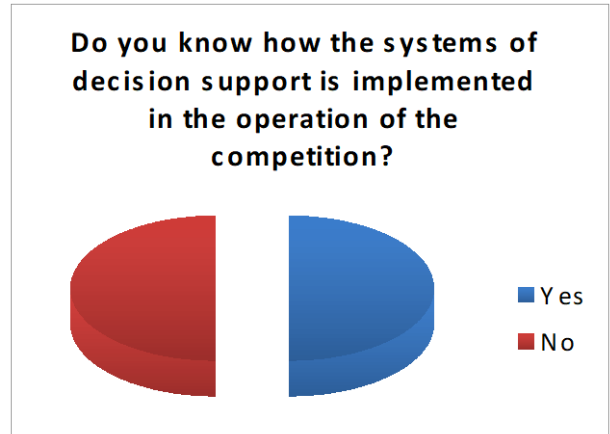
- Yes
- No

Chart 8 (responses of the eighth question)

Of the total 10 companies 6 think they can apply systems to support decision-making 60% of respondents answered "yes" and the remaining 40% answered "no." Every company knows his own abilities. Thus it can be said that 60% of companies are able to apply systems to support decision-making which means that Macedonian companies are hesitant to introduce changes, new concepts of operation specifically for decision making.

Do you think your company can apply these systems for decision support
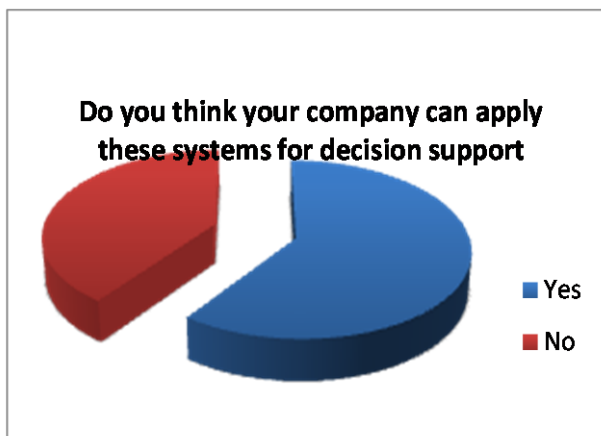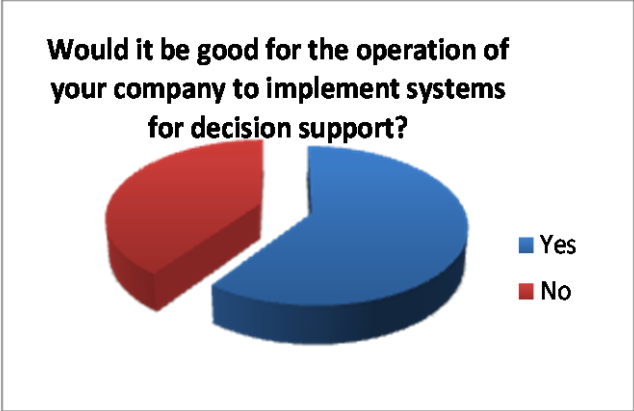
- Yes
- No

Chart 9 (responses of the ninth question)

The Graph 10 shows the answer of the last question and it may be noted that 6 companies consider implementation of systems for decision support will positively affect the company's operations and contrary opinion have 4 other companies. Although there are no known reasons why companies see negative and given that some companies do not know the existence of systems for decision support answer is expected. However, they should inform and see all the opportunities and advantages offered by the systems for decision support and then make judgments on this issue.

Chart 10 (responses of the tenth question)

3. CONSLUSIONS

Problems are part of the operations of all companies from the emergence and through the course of their whole operation. Simple problems are easy and the decisions are taken simply, easily and quickly. In semi-structured and unstructured problems passing the right decision and finding the right solution to a complex and difficult process. Unlike companies that global solutions to these problems have been discovered with the help of systems for decision support, while saving the most expensive resource that time, our Macedonian companies seek help from experts, or people who are experts in the given issue.

The world trend is for companies worldwide to strive to develop their own systems for decision support. Unlike them Macedonian companies do not have such a position on the matter.

Because the process of entering the systems for decision support in Macedonian companies need to speed up or to meet the following conditions:

• To increase awareness of the management teams of the need for support systems for decision making, and rising training teams using these systems

• Because the companies in Macedonia are small companies with small budgets should perceive the use of systems for decision support.

In this context, Macedonian companies should tend to accept the global trends, that dictate rapid development, but only through the fast adaptation of the new states and economy development caused by the opponents, the t changing regulations, openness of economies, the companies in the high economically developed countries penetrate much faster on the markets than those in the not developed countries and developing countries, and change the constellations on the market.

Based on this, the process of implementation of the Decision Support System in the companies in the Republic of Macedonia needs fastening through the fulfillment of the following conditions:

The use of computers and information technology should be present in all the companies, and therefore will the tasks will be performed on a faster and more effective way, that are strategically planned;

The implementation of LAN networks in a large percentage will increase the flow of information in companies and therefore they will have to seek the fastest way possible and in the shortest period of time, to be installed;

The global electronic network, the Internet, should be used in the everyday activities of companies, primarily to keep pace with the innovations offered by the top global corporations and the possibilities of adjusting the domestic economy to global trends and in that percentage as the financial strength of the companies is;

The managers are forced to make and to implement particular decisions by which they will regulate the normal function and implementation of the corrective action at all levels. Hence, emerge the logical necessity of making decisions that are in function of the effective business deciding, in these companies the Decisions Support Systems should be fully implemented. Increasing the awareness of the management teams in the companies for the positive aspects of the Decision Support Systems use, in fact allows permanent training of the employees whose tasks are directly connected to the process of decision making and implementation of the innovative processes, that despite the experience, the experts' opinion is necessary.

Because Macedonian economy's structure is on the side of small and medium-sized companies, where the financial power for innovations and application of new techniques and technologies is at a very low level, the business subjects need to recognize the effects of the Decision Support Systems use. Most of them are available on the Internet, or they can taken from the other companies, and to use them as a model for a Decision support System which will be upgraded with the specific features of the company and will be suitable to meet the needs in making better decisions.

4. REFERENCES

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[3] Kosta S.(2004), "Statistics", Faculty of Economics – Prilep.

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[5] http://benefitof.net/benefits-of-dss/