Implementation of Systems for Knowledge Management in Republic of Macedonia

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Abstract - **Knowledge management is a trend that is increasingly widespread in business circles and small companies as well as in the larger organizational structures. The concept of knowledge management is increasing and becomes the basis for quality and successful functionality of every organization. Organizations that use the potential of human resources as primary resource in dealing with the application of knowledge management have significantly improved the performance with reduced costs and increased quality of products or services. With the application of information technology in knowledge management a decentralization is achieved and therefore it facilitates the expansion of foreign markets.**

The subject of this research will be the systems for knowledge management, their relationship with the organizational learning, and the role of information technology in these systems.

The purpose of this research is to recognize the importance and the benefits of managing knowledge and to perceive the role of information technology in knowledge management in enterprises in Republic of Macedonia, in order to achieve competitive advantage and long-term profitability.

Keywords: **knowledge management, human capital, information technology, competitiveness.**

1. Conceptual framework of knowledge management

Business subjects today operate in a turbulent and unpredictable environment with very strong competition and developed distribution channels and there are products and services more than necessary. To survive in such an environment is not enough to be average but should aim for the top. It involves knowing how to survive in such an environment.

For better performance of an organization, it is necessary to know how to use the knowledge they possess and to know how to manage the same in order to achieve competitive advantage. The dynamic adaptability and the ability of businesses subjects can be considered as a process of development, combining and using knowledge, and the mentioned three processes are closely connected with the management knowledge. Their connection is shown in the following figure: [1]
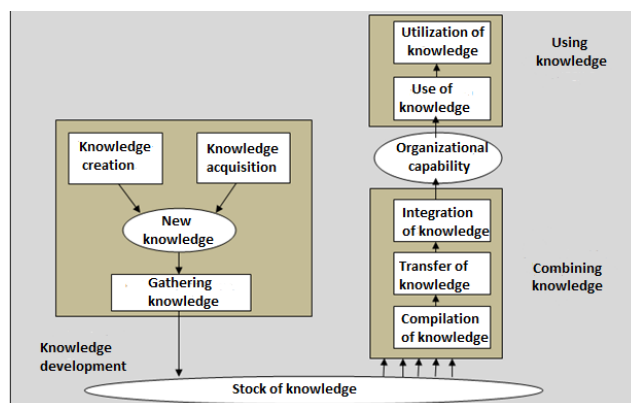

Figure 1. Dynamic ability of organizations with knowledge management

According the fact that the area of knowledge management is a relatively young and the time in which it develops is quite variable, therefore the area of knowledge management is exposed to changes and adjustments in the business environment.

In literature we can find several definitions of knowledge management. Different authors differently define the term knowledge management. Below are some of the most commonly used definitions of knowledge management. "Knowledge management is a series of interconnected activities of the organization and management directed towards strategies for human capital management, i.e. development of knowledge, skills and general competition of the staff, know - how, through education and training, gaining work and professional experience and so on". [2] Knowledge management is identification, creation, storage and transfer of implicit and explicit knowledge between

individuals in order to increase the success of the organization. [3]

Knowledge management is a form that involves setting up systems, processes and culture in order to manage an important resource - knowledge. [4] "The management of knowledge is creating a potential environment in which the organization will result in creation and transmission of knowledge. That environment includes changing the organizational culture, creating a leading vision, motivating employees and so on."[5] The authors are aligned about that the basic purpose of knowledge management is to provide implicit and explicit knowledge, to create conditions for innovation in addition to better quality decision-making. From the goals of knowledge management can be seen the basic tasks of managing knowledge:

- Identification of knowledge that is important for the organization;

- Providing space and working conditions so that the employees among themselves can share knowledge and create new knowledge;

- Collecting, support and manage important information and the best way that others can use that information; and

- Transfer of information, knowledge and best practices for those using that knowledge so they can effectively perform their work.

Knowledge management involves a constant process of renewal of knowledge in the organization and it differs from other approaches, for example, business process reengineering or total quality management. While reengineering is an activity whose main goal is solving a given problem in the shortest possible period of time, the goal of management process is continuous innovation and modification of existing knowledge in order organization to be able to keep pace with the dynamic market environment.

The general goal of knowledge management is to connect those who need knowledge with the sources of knowledge in the organization and coordination of the transfer of knowledge. The specific objective of knowledge management is the process of identifying and analyzing the available knowledge in order to accomplish the set objectives of the organization.

Numerous are the uses of the concept of knowledge management. It was found that management contributes for quick and quality solutions, reduces problems, reduces costs, increases creativity, innovation and reputation of the organization, improves the position of employees and enables proactive approach to people and the entire organization.

2. Life Cycle Of The Process Of Knowledge Management

The process of knowledge management goes through several stages which form their own life cycle or cycle of knowledge management. In literature there are different opinions about the number and content of the phases of the cycle of knowledge. The system of knowledge management contains six steps in its life cycle. The reason is seen in the fact that knowledge over time has improved. The life cycle of the process of knowledge management is presented in the following figure: [6]
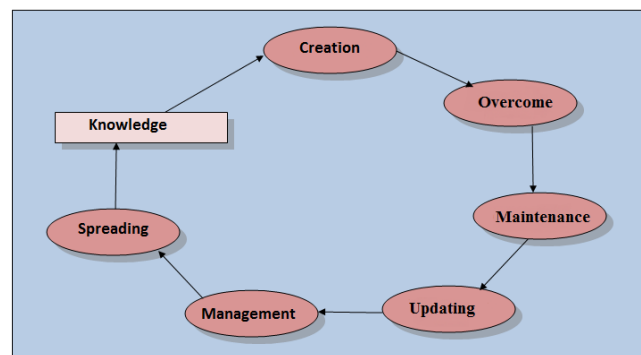

Figure 2. The cycle of knowledge management

Creating knowledge implies the creation of knowledge in the organization by people through a form of organizational learning and through a multitude of resources and technologies of knowledge management.

Getting knowledge is defined as a process in which are conquering thoughts and experiences of experts. [7] The emphasis should be put on winning the implicit knowledge. Implicit knowledge exists in the minds of individuals - experts in the organization. Getting the implicit knowledge and its transformation into a form of knowledge that is explicit and accessible to all, in the right way at the right time is a very complicated process and requires special attention and skills of specialists as well as special way of approach to the problem.

Maintenance of knowledge implies its storage. The storage of knowledge is its structuring and continuous updating. The knowledge must be kept in form of documents and expert systems. This stored knowledge is not only a new corporate memory but also strengthens the relationship between individuals and their sense as an active factor of the new learning. The storage of knowledge in bases of knowledge allows their constant upgrades. [8] In the

environment of global market and increased integration of products and services the uses of the available knowledge are constantly high. Correctly positioned system for storage of knowledge should enable to the employees: clearly defined hierarchy of information, possibility of quick and informative exchange of information and confidential corporate culture.

Updating knowledge means stored useful knowledge in understandable format in a repository of knowledge in the organization so that all employees can have access to it.

Knowledge management means knowledge to be always current, relevant and truthful.

Spreading knowledge means the same to be useful and available for everyone in the organization, at any place and at any time. By spreading knowledge, individuals develop, create and discover new or update old knowledge that complements the system. The objective of modern business is the development of an organizational culture in which knowledge is easily shared between members of the organization through social and electronic networks.

According to some authors as a final stage in the cycle of knowledge management is the *application of knowledge*. The application of knowledge is a key task of the process of knowledge management. When it comes to establishing a system of knowledge management, the organization must introduce changes, learning and innovation.

3. Application of systems for knowledge management in republic of macedonia

The last decade of the last century will be remembered by the sudden development of information technology. The new information systems allow appearance of new management areas i.e. knowledge management.

It is necessary to develop a system for knowledge management in order to use the intellectual capital and the knowledge of the employees.

Guided by the idea that "people know more than they think", there is a problem how to transform that knowledge into a form that can be available to other people. The solution of the problem is reflected in structuring and adaptation of this knowledge so it can be used by others. Structuring knowledge provides efficient and effective problem solving, it facilitates learning, contributes to strategic planning

and decision making. The information technology that enables knowledge management in organizations is represented by the knowledge management systems. Initiatives for the introduction of systems for knowledge management are ranked according to the most important reasons: [9]

- Increasing profitability and incomes (67%);
- Protecting the talent and expertise (54%);
- Improving the services to customers and improving their satisfaction (52%);
- Ensuring the organizational part of the market in battle with competition (44%)
- Shorter time for introducing new products (39%);
- Entry into new market segments (39%);
- Reducing costs (38%);
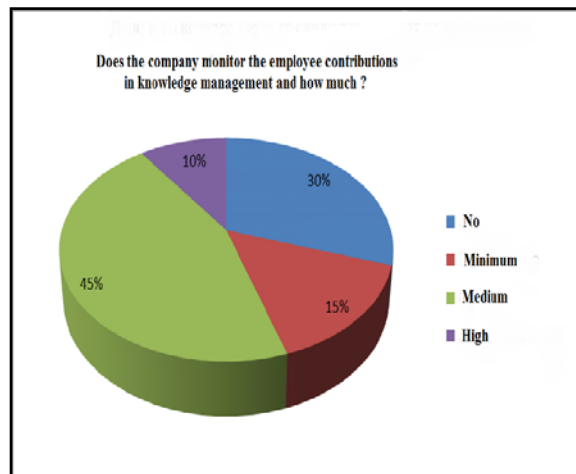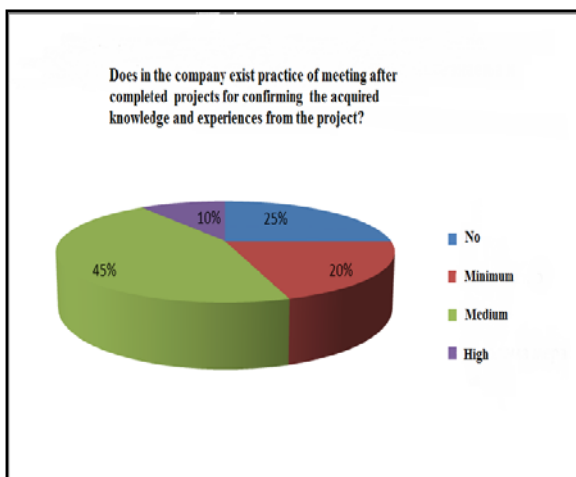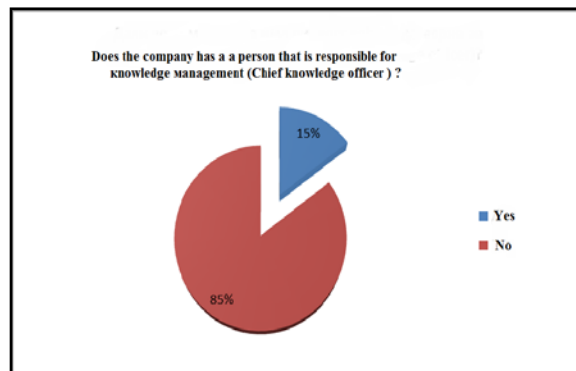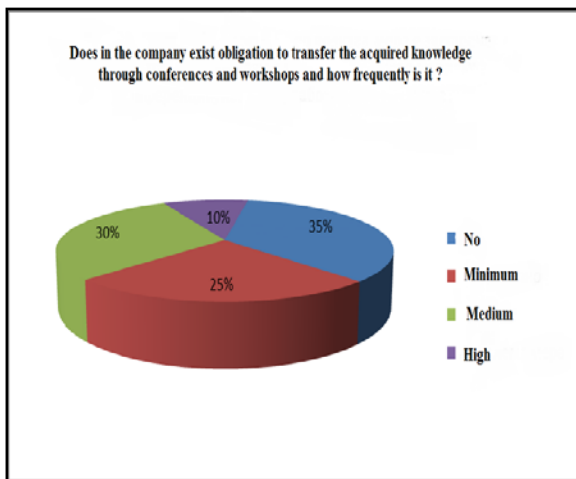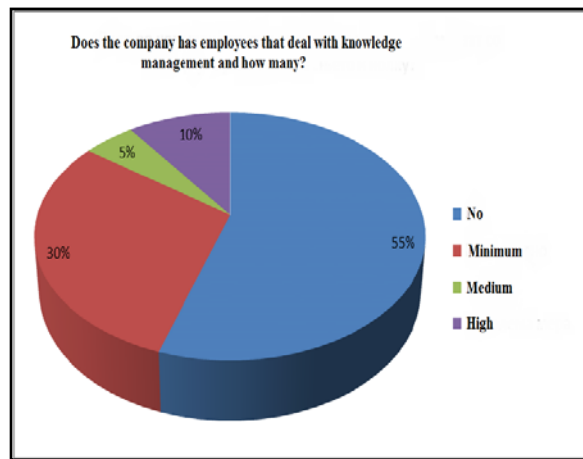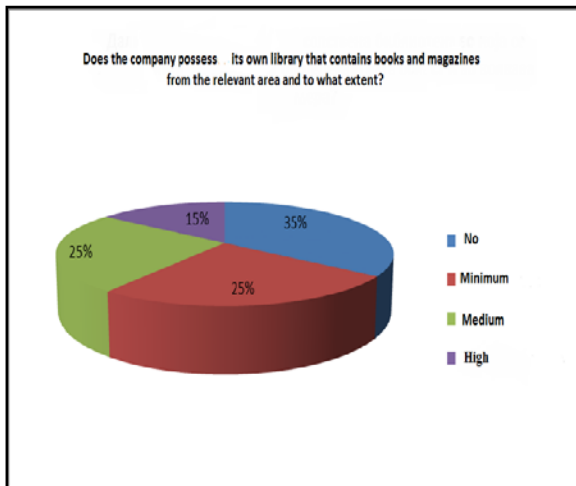- Development of new products and services (35%);

Knowledge management systems support the networks of experts (Knowledge Workers) in creating, constructing, identification, collection, selection, evaluation, organization, linking, structuring, modeling, visualization, distribution, retention, maintenance, refinement, development, access, searching and applying knowledge in support of dynamic organizational learning and organizational effectiveness.

In order to determine the role of information technology in the management of knowledge, in the organizations in Republic of Macedonia was conducted research in form of a survey of Macedonian organizations i.e. companies. The method of research in this case is a structured survey in organizations from Pelagonia statistical region (According to the State Statistical Office of the Republic of Macedonia). Twenty companies from different fields of work represent statistical sample survey. The survey included people of different sex, age, education and position.

According to the data obtained from the survey 35% were women and the remaining 65% were men. Most were aged 31 to 50 years i.e. 12 from 20 respondents. The majority of respondents have a higher level of education i.e. 16 from 20 and with at least secondary education were only two of the respondents. According to their position in the enterprise mostly are at the level of middle management, i.e. 7 respondents, 6 from 20 are at the top management position, 5 have non-manager position in the surveyed companies, while others are at low-level management.

The three main aspects of research are related to: infrastructure, holders of the process of knowledge management and information technology.

In terms of infrastructure the gained results are presented through the following charts:

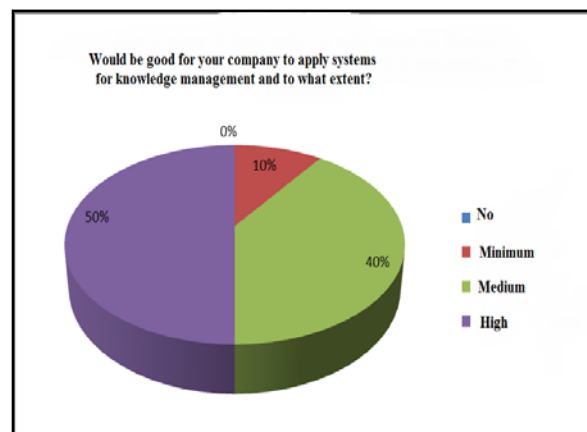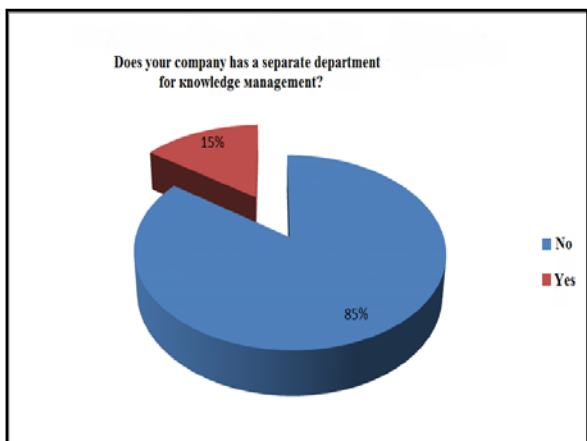Does the company possess its own library that contains books and magazines from the relevant area and to what extent?

- No 35%
- Minimum 25%
- Medium 25%
- High 15%

Does in the company exist obligation to transfer the acquired knowledge through conferences and workshops and how frequently is it?

- No 35%
- Minimum 25%
- Medium 30%
- High 10%

Does in the company exist practice of meeting after completed projects for confirming the acquired knowledge and experiences from the project?

- No 25%
- Minimum 20%
- Medium 45%
- High 10%

In the second part of the research are obtained the following gresults:

Does the company has employees that deal with knowledge management and how many?

- No 55%
- Minimum 30%
- Medium 5%
- High 10%

Does the company has a a person that is responsible for knowledge мanagement (Chief knowledge officer)?

- Yes 15%
- No 85%

Does the company monitor the employee contributions in knowledge management and how much?

- No 30%
- Minimum 15%
- Medium 45%
- High 10%

Do employees in your company get reward for contributing to knowledge management and how much?

- No 30%
- Minimum 25%
- Medium 40%
- High 5%

In the third part of the research, where the emphasis is placed on the role of information technology in knowledge management are obtained the following results:

Do you know about the systems for knowledge management and how much?

25% No
25% Minimum
45% Medium
5% High

Do you have and how much is implemented the strategy of developing the systems for knowledge management?

45% No
35% Minimum
10% Medium
10% High

Do you use systems for knowledge management and how much?

60% No
10% Minimum
20% Medium
10% High

Do you know how much the systems for knowledge management are implemented in the work of the competition?

55% No
30% Minimum
15% Medium
0% High

Do you plan to develop systems for knowledge management?

25% No
30% Minimum
25% Medium
20% High

Do you think your company can apply these systems that support knowledge management and to what extent?

5% No
30% Minimum
35% Medium
30% High

Does your company has a separate department for knowledge management?

15% Yes
85% No

Would be good for your company to apply systems for knowledge management and to what extent?

0% No
10% Minimum
40% Medium
50% High

Will the application of systems of knowledge management contribute to increase the profit in your company and to what extent?

0%
15%
30%
55%

■ No
■ Minimum
■ Medium
■ High

3.1. Results of the performed research

From the research can be drawn the following conclusions:

From the part that relates to infrastructure

- Large is the number of enterprises that do not have their own libraries where can be found the literature concerning the relevant area in which the company operates, and there are very few of those companies that possess huge library knowledge. Also negative is that a minimum number of surveyed enterprises have implemented the practice of sharing knowledge through conferences, congresses and team workshops, and also large is the number of those who have no such practice. But it can be seen that there are a lot of companies where this practice is implemented, but at the minimum level. As positive in the part relating to infrastructure, may be that the most of the surveyed companies at average level implement the practice of sharing new knowledge gained from completed projects.

From the section that relates to the carriers of the process of knowledge management

- Most of the respondents answered that their enterprise does not have any employee who deals with knowledge management, and a minimum number of enterprises have a number of staff dealing with knowledge management. From this are expected the given results from the further questions. Just minimum number of the enterprises have a person who is responsible for knowledge management i.e. Knowledge Chief Officer. In this section we can come to conclusion that most enterprises do not have a separate department for knowledge management and the person that is responsible for knowledge

management is located in the department of management and development, human resources management and production.

Large numbers of companies monitor the contributions of the employees in the management of knowledge, but do not make it widely, and therefore most of the enterprises reward their employees on an average level, that is not enough, and very few enterprises provide great rewards for that contribution.

From the section that relates to the role of information technology in the management of knowledge as a positive indicator can be taken that the majority of respondents know about the systems of knowledge management whether their knowledge is on minimum, medium or high level. The use of systems for knowledge management according to the research is negative part of the respondents. More than half of respondents do not use systems for knowledge management, and minimum number of enterprises have implemented these systems greatly.

According to the plans for the development of systems for knowledge management the opinions are divided. According to the fact that some companies have already implemented such systems it can be concluded that a minimum number of respondents rejected the possibility of developing systems for knowledge management. Negative is that many of the companies have no strategy for the development of systems for knowledge management. Also negatively, in this part of the research, is that more than half of the respondents have no awareness of whether the competition uses systems for knowledge management.

Despite the biggest part that does not use systems for knowledge management, however, it is positive that most feel that they have the opportunity to introduce such systems for knowledge management. Anyway, the enterprises in Republic of Macedonia are aware of the benefits of these systems so consider that it would be good for their work to introduce these systems, and also most of them have positive opinion in terms of the impact of these systems of knowledge management on the growth of the profit of the company.

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