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Original scientific paper

Vasil POPOVSKI¹⁾
Sanja NIKOLIC²⁾

**THE CRUCIAL FACTORS OF THE KNOWLEDGE
MANAGEMENT IMPLEMENTATION AND EFFECTIVENESS
ON THE TELECOMMUNICATION MARKET IN THE
REPUBLIC OF MACEDONIA**

Abstract

The globalization process emphasizes the need of a new management paradigm that will correspond to the current conditions. Having in mind that the knowledge management is recognized as a strategy that comprehends the most important and relevant issues related to the adaptation of the organization, its survival and its competencies are in conflict with the rapidly changing environment on the open market. The knowledge management implementation and effectiveness in the organization depend on several factors, such as organizational culture, human resource management and information technology.

Therefore, the objective of the paper is to research the influence of the crucial factors of the knowledge management implementation and effectiveness on the telecommunication market in Republic of Macedonia, which is characterized as an open and dynamic market. The research was conducted in 10 companies, on a sample of 100 respondents – employees in these companies. The influence of the organizational culture, human resource management and information technology on the knowledge management implementation and effectiveness was examined.

The results show the importance of the crucial factors in knowledge management implementation and effectiveness and the

¹⁾ PhD, Institute of Economics – Skopje, E-mail: vasil@ek-inst.ukim.edu.mk

²⁾ PhD, MIT University, Faculty of Management – Skopje,
E-mail: sanja.nikolic777@gmail.com

awareness of the managers and employees for the need of constant improvement of knowledge and skills.

Key words: open market, knowledge management, crucial factors, implementation and effectiveness, telecommunication market

JEL Classification: L96; O15; O34

The need of knowledge management as a response at the current conditions on the open market

The process of globalization is characterized through creating and conquering new markets, finding new and cheaper raw materials, decreasing the risk during work, and dominance of the international markets by the multinational companies.

Knowledge management is an interdisciplinary business model which has the knowledge of the organization in its focus. This concept is the embodiment of the processes within the organization that strives towards combining and interaction of data and information, which increases the capacities of the information technologies and human capital.

Knowledge management is a process that should continuously take place within an organization. The objective of this process is not only to manage the knowledge in the organization, but also to create conditions for its creation, distribution and use. Special attention should be given to the creation of the knowledge in the organization, which requires the provision of adequate conditions and ambience.

The process of knowledge management itself can be introduced through six stages:³

- creation of knowledge;
- learning;
- distribution of knowledge;
- transfer of knowledge;
- use of knowledge;
- storage of knowledge.

³ Malhotra Y. (1997) "Knowledge Management in Inquiring Organizations", Proceeding of 2RD Americas Conference of Information System (Philosophy or Information Systems – in Track), Indianapolis, p.56.

When the organization creates a specific knowledge, the next thing that should be done is to share it with the rest of the employees. Sharing or multiplication of the knowledge delivers greater benefit to the organization. More individuals will acquire new knowledge, apply it in the work of the organization, but also, the chances for improving or upgrading knowledge will increase.

The crucial factors of the knowledge management implementation and effectiveness

In order to implement the knowledge management in the organization, it is necessary to create certain conditions. Various authors have studied the relevant factors that influence the development and implementation of the knowledge management in the organization.

According to Davenport and Prusak, crucial factors of the knowledge management implementation are:⁴ knowledge oriented organizational culture, technological and organizational infrastructure, support from top management, relationship with economic values, necessary process orientation, a clear vision and understanding of the language, the meaning of innovation, the required level of knowledge and channels for knowledge transfer.

According to Skyrme, crucial factors that influence the success and the effectiveness of the knowledge management are:⁵ a clear connection between the concept and the business strategy of the organization, knowledge of knowledge (true understanding of the advantages that knowledge brings to the organization), leadership, developed infrastructure of knowledge and an appropriate level of knowledge measurement (measuring the contribution of the knowledge management concept).

The paper will examine the organizational culture, human resource management and information technology as crucial factors of knowledge management implementation and effectiveness.

⁴ Davenport T.H., Prusak L. (2000) "Working Knowledge: How Organizations Manage What They Know", Harvard Business School Press, p.153.

⁵ Skyrme D. (2000) "Developing A Knowledge Strategy", [www.skyrme.com/pubs/knwstrat.htm] (03.01.2013)

A) The organizational culture as a factor of knowledge management implementation and effectiveness

If the organization tends to be able to meet the challenges of the changing environment, it has to be subject of change itself. Implementation of the knowledge management concept in the organization initiates continuous changes in the organization, which can be made only if the organizational culture is changed.⁶

The organizational culture is the basic precondition for successful implementation of the knowledge management. Such organizational culture will take care of its employees or organizational knowledge that they possess.⁷

Characteristics of the knowledge orientated organizational culture are:⁸

- creating conditions for free expression and creativity of the employees;
- evaluating intangible values in the organization;
- teamwork oriented;
- encouraging innovations;
- motivating transfer (sharing) of the knowledge;
- creating a sense of belonging to the organization;
- permanent learning and improvement;
- encouraging personal development;
- creating an appropriate work environment;
- developing knowledge in the organization;
- creation and transfer of knowledge in everyday activity;
- creating conditions for cooperation;
- access of the knowledge to all;
- strong communication channels;
- developing technological structure.

The organizational culture should be aimed at promoting the knowledge, transfer of the knowledge between the experts and other employees, or between employees themselves in the organization.

⁶ Drucker P. (2002) "Upravljanje u novom društvu", Novi Sad, p.213.

⁷ Đorđević – Boljanović J. (2009) „Menadžment znanja“, Data Status, Beograd, p.103.

⁸ Wheatley M.J. (2004) "The Real Work of Knowledge Management, Leading Organizational Learning", Lossey – Bass, A Wiley Imprint, Leader to Leader Institute, San Francisco, p.55–62.

Transfer of the knowledge can be done in the organizational culture with good communication between employees, cooperation and trust.

B) The human resource management as a factor of knowledge management implementation and effectiveness

The human resources management is directly connected to the use of the human capital in the organization. In fact, the purpose of having this kind of managers in the organization is managing with human resources. Peter Drucker said that contemporary employees have to be seen as a capital, not as a labor.⁹ The organization is successful as well as their employees are. The employees are the most creative and innovative part of the organization and they are the main reason for success or failure of the organization. Only highly educated employees, appropriately motivated, with continuous enhancing of new skills and knowledge can respond to the challenges of the new dynamic environment within the open market.

The human resource management and knowledge management are related, and their common feature is the social interaction.

The objective of the human resource management is to answer the current requirements of the open market by appropriate managing the organizational knowledge which could be performed in several ways:¹⁰

- managing the human capital - recognizes the values of the intellectual capital, allows availability and efficiency of human capital;
- facilitating the transfer (movement) of the knowledge - the main focus is learning and developing effective knowledge management strategies and creating an environment that supports creation, transfer and sharing the knowledge;
- building relationships;
- effective displacement of specialists and experts – monitoring changeable environment that requires a combination of different information, processes and organizational design in order to respond to the current situation.

The pressure of the open market and the competition require special knowledge and skills of the employees. If the management desires to have competitive employees in their organization, they have to

⁹ Drucker P. (2005) „Upravljanje u novom društvu“, Novi sad, p.95.

¹⁰ Đorđević – Boljanović J. (2009) „Menadžment znanja“, Data Status, Beograd, p.115.

work to enhance and develop the knowledge and skills of the employees. Professional training is a process of gaining the appropriate qualification needed for executing the particular tasks. It could be orientated in developing the “hard” skills such as working with various technologies, or it could be orientated in developing the “soft” skills such as communication, leadership, management etc.

The professional training can contribute to the effectiveness of the organization in many ways:¹¹

- introducing the employees with the ongoing changes in the legislation related to their work;
- enabling the employees to perform tasks efficiently;
- improving relations and problem solving;
- providing long-term orientation to increase the capabilities of the employees in the organization.

The professional training is considered as a cost to the organization. However, the research has shown that the professional training is necessary in the dynamic environment on the open market. In that purpose, the organizations began to increase their budgets for the professional trainings.¹²

C) The information technology as a factor of knowledge management implementation and effectiveness

Nowadays, the most commonly used words, as in a literature, as well as in everyday speech, is the information technology. The importance of the information technology for the development of the society is immeasurable. Humans developed the technology in order to satisfy their own needs, and by developing the technology they developed the whole society.

Whether it comes to expertise, procedures or equipment, technology is involved in any activity that creates new value. Any activity that creates new value uses a technology which enables combination of the human resources and material inputs to produce an output.

Technology is one of the crucial factors of the knowledge management implementation. Technology facilitates the creation,

¹¹ Mathis R., Jackson J. (2008) “Human resource management” 13th Edition, Thomson South-Western, p.260.

¹² Tyler K. (2005) “Training Revs Up” HR Magazine, April, p.58-63.

transfer and retention of the knowledge in organizations. However, it should not be forgotten that the main holders of knowledge in organization are the human resources, while the technology is only in service of facilitating the knowledge management process. The real value for organizations occurs when the conditions that will enable people to create and share knowledge, are created.

The information technologies can also strengthen the cooperation and communication between the employees in the organization.

The information technologies are only a tool for the knowledge management realization and the process should be based on direct, immediate contact between the employees, not rigorously on reports and databases.¹³

Certain organizations develop software to encourage social interaction in organizations in order to establish the exchange of the knowledge in the organization. Networks, forums involving experts and videoconferencing are just some of the information technologies that are available to managers for knowledge management.

The knowledge management implementation and effectiveness on the telecommunication market in the Republic of Macedonia

In their efforts to accept the paradigms of the developed and successful companies, Macedonian enterprises should not disregard the fact that the modern knowledge based economy and the open market set the knowledge management as a key imperative and the factor of productivity and efficiency.

In order to examine the significance of the crucial factors of knowledge management concept implementation and effectiveness, the research survey is referring to the telecommunication market in the Republic of Macedonia. The telecommunication market is dynamic and the technological changes creates a complex environment.

The research was conducted in 10 companies, to a sample of 100 respondents – employees in these companies. The majority of respondents are between 26 and 36 years old, followed by respondents between 36 and 45 years old with 25%. 7% of the respondents who

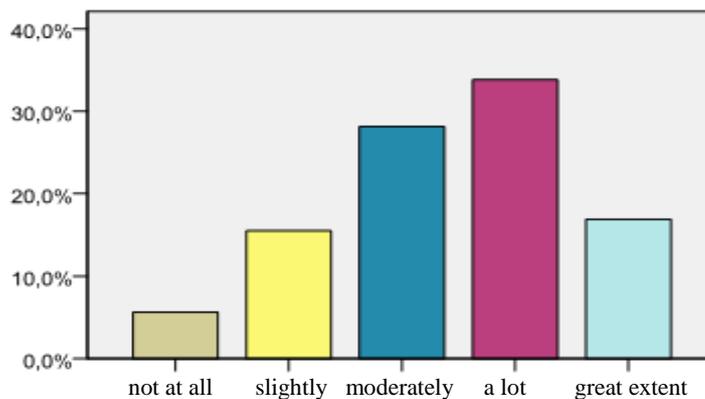
¹³ Egbu O. Ch., Botterill K. "Information Technologies for Knowledge Management: Their Usage and Effectiveness", [<http://www.itcon.org/2002/8/paper.pdf>] (20.01.2013)

answered the questionnaire are 25 years old, and only 3% of the respondents are between 46 and 55 years old, which indicates a relatively young population working in the organizations that are the subject of this research.

Regarding the qualification of the employees, the majority of the respondents are highly educated – 63%, and the percentage of those who have completed their master studies as well, is also high – 30% of the respondents. Only 7% of the respondents have completed their secondary school education.

The survey results indicate that the impact of the process of globalization and the open market has intensified the competition on the telecommunication market in the Republic of Macedonia. The majority of respondents or 51% answered that the globalization has greatly intensified the competition on the open market, while 27% of the respondents answered that the globalization has moderately intensified the competition. Only 7% of the respondents believe that the competition on the open market is not intensified at all. This indicates the fact that the majority of the employees are aware of the changes taking place on the market, as a result of the processes of globalization.

Chart 1: The impact of the globalization on the telecommunication market competition in the Republic of Macedonia

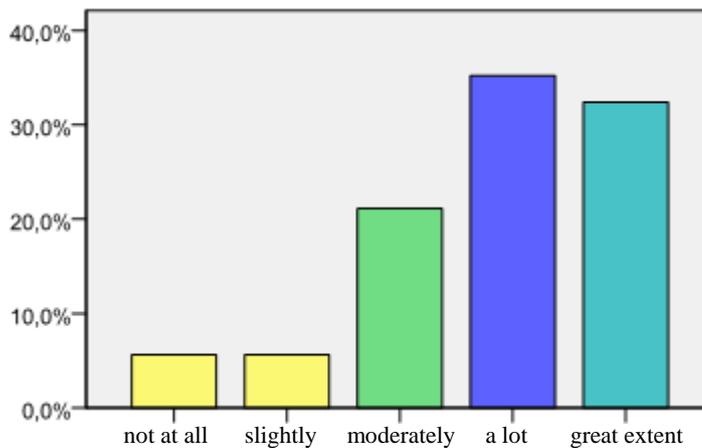


Source: Own research

Regarding the knowledge management as an important factor for acquiring competitive advantage on the telecommunications market in the Republic of Macedonia, two-thirds of the respondents answered that an appropriate knowledge management concept is especially important

for acquiring competitive advantage. 22% of the respondents believe that the knowledge management concept has moderate influences, while 6% of the respondents answered that the influence is insignificant. The results indicate the importance of knowledge management in order to acquire competitive advantage on the telecommunication market in The Republic of Macedonia.

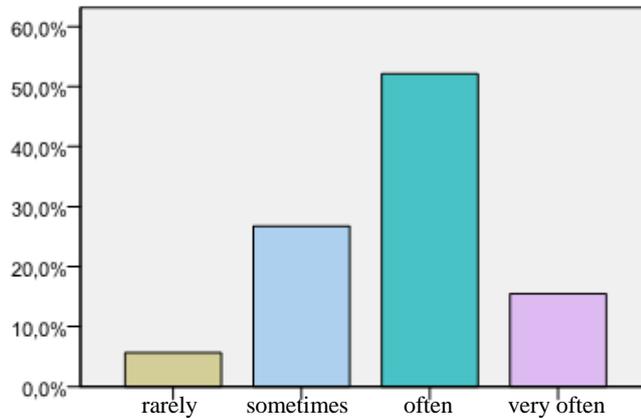
Chart 2: Knowledge management as an important factor for acquiring competitive advantage on the telecommunication market in the Republic of Macedonia



Source: Own research

The implementation of the knowledge management depends on the activities undertaken by human resources managers in the organizations. In this respect, it was researched whether the human resources management undertakes activities in the direction of improvement of the knowledge and professional skills of the employees regarding the dynamic changes on the telecommunication market. The results show that 52% of the respondents believe that the human resources management in their organization “often” undertakes activities for improvement of their knowledge and professional skills, and 15% of the respondents answered “very often”. Only 5% of the respondents answered that the managers “rarely” undertake activities aimed at improvement of the knowledge and the skills of the employees. The majority of the respondents confirmed that the human resources management undertakes activities for the improvement of their knowledge.

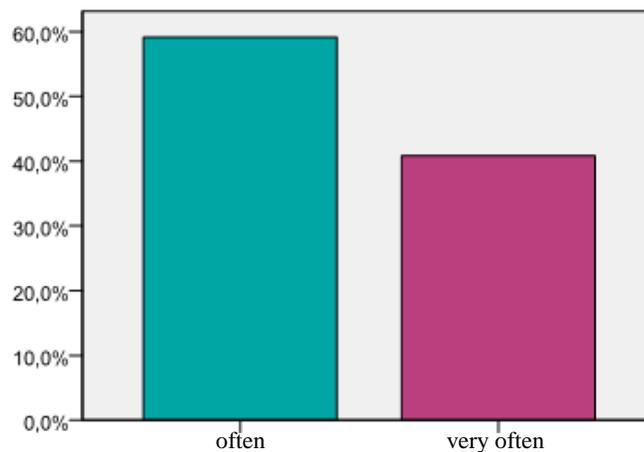
Chart 3: Human resources management and the implementation of the knowledge management



Source: Own research

The employees have been asked if they think that their knowledge and professional skills are appropriate for realization of the tasks. The results show that more than a half of the respondents – 58%, believe that they have an appropriate knowledge and professional skills which are necessary for realization of the tasks. 42% of the respondents answered that they don't have appropriate knowledge and professional skills. This indicates the need for development and improvement of the professional knowledge and skills in the organizations.

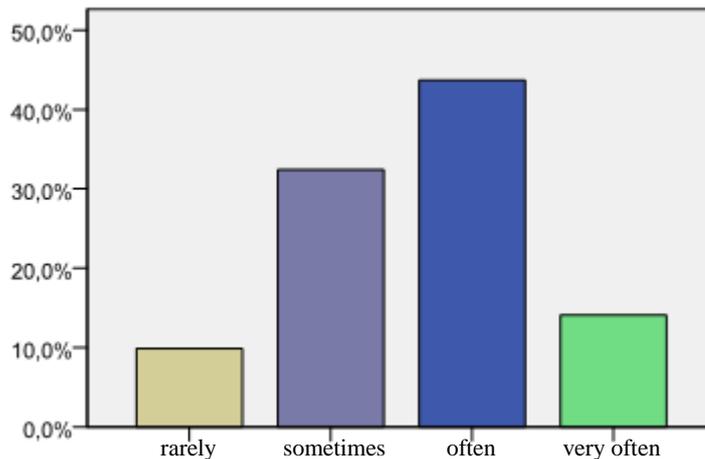
Chart 4: An appropriate knowledge and professional skills necessary for realization of the tasks



Source: Own research

Regarding the attitude of the employees and their need to constantly upgrade and improve their knowledge, as a result of the intensified competition on the telecommunication market, 49% of the respondents answered that “very often” they feel the need to improve the knowledge in their area of work and 34% of the respondents answered “often”. 12% answered “sometimes”, and only 5% of the respondents answered “rarely”. The results show that the majority of the employees are aware of the need to constantly improve and upgrade their personal knowledge, which positively adds to the activities undertaken by managers in this direction.

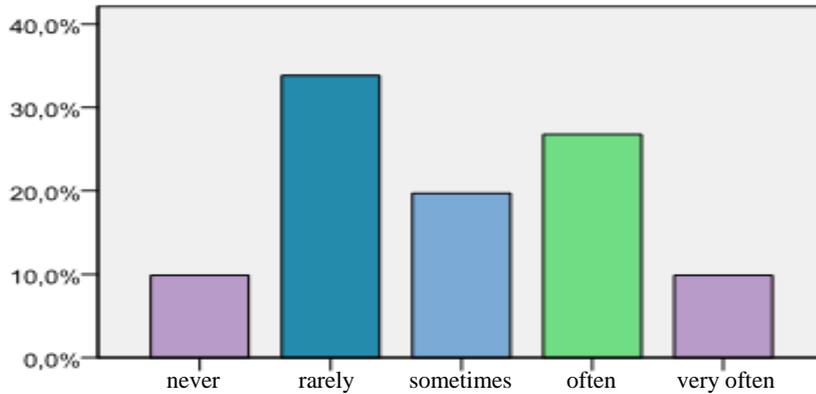
Chart 5: Trainings in purpose of the organizational knowledge improvement



Source: Own research

Due to the conditions imposed by the open market, the interest of the employees to attend training outside the domain of their profession was examined. 26% of the respondents answered that they “often” attend such training and 10% answered “very often”. 20% of the respondents answered “sometimes”, 34% of the respondents answered that they “rarely” attend training outside the domain of their profession and 10% of the respondents answered “never”. This indicates that the employees don’t recognize the need for personal improvement of skills and knowledge outside the domain of their profession.

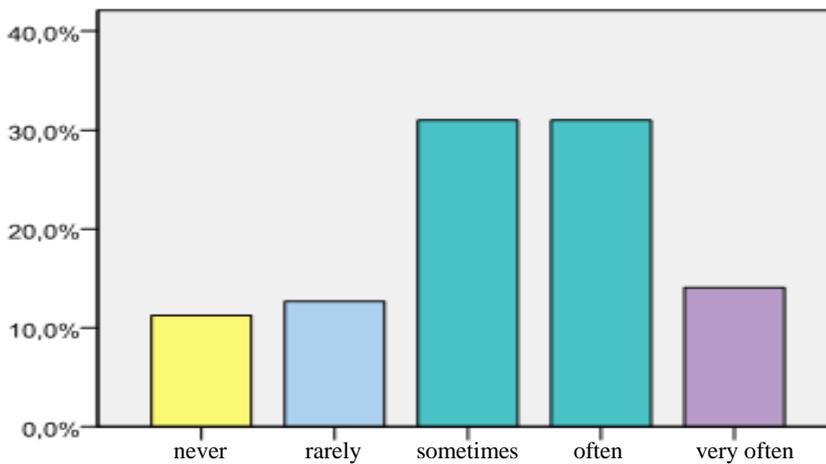
Chart 6: The interest of the employees to attend training outside the domain of their profession



Source: Own research

Regarding the activities undertaken by managers related to the organization of adequate employee training, 15% of the respondents answered that the managers organize training “very often” and 30% answered “often”. 30% answered that managers organize training “sometimes”. This indicates the initiative of the management towards development and improvement of the knowledge and the skills of the employees by appointing them to attend training.

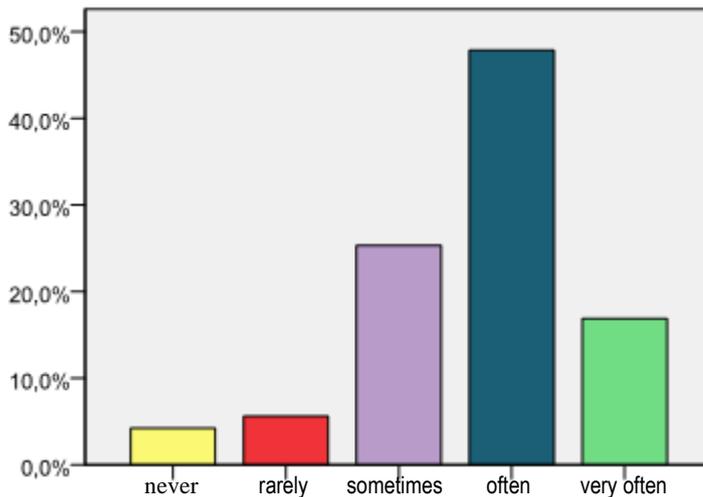
Chart 7: The activities undertaken by managers related to the organization of appropriate trainings



Source: Own research

Considering the organizational culture as a factor of the knowledge management implementation and effectiveness, it's been researched if the organizational culture motivates the employees to upgrade their professional knowledge. Results show that more than a half of respondents – 48% answered “often” and 18% answered “very often”, said that organizational culture motivates them to upgrade their professional knowledge. 25% of respondents answered “sometimes”, 5% answered “rarely” and only 4% of the respondents answered “never”. The results show that most of the employees think that the organizational culture has an influence on motivation to upgrade their professional knowledge.

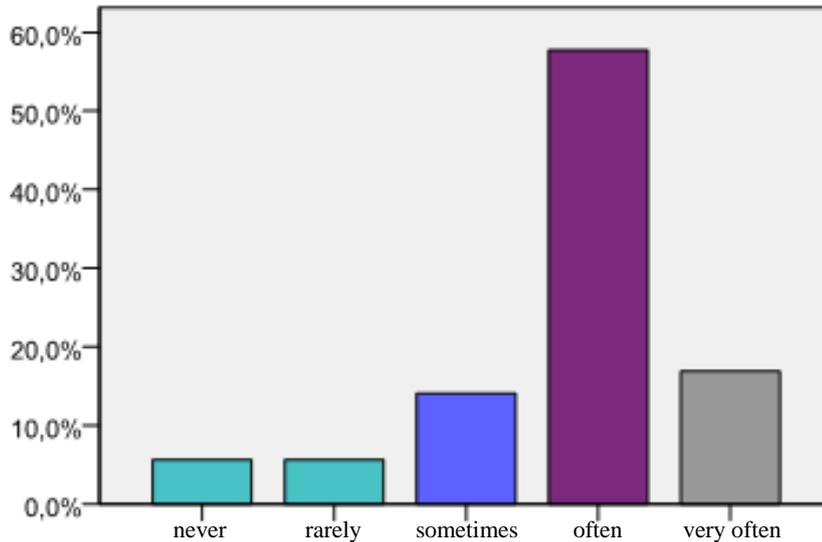
Chart 8: The organizational culture as a motivation factor for employees to upgrade their professional knowledge



Source: Own research

Having in mind the organizational culture, it's been researched whether the organizational culture has influence on the employees to share their knowledge with their colleagues in the organization. According that, even 57% of the respondents answered that the organization culture “often” has influence on them to share their knowledge in the organization and 18% answered “very often”. 15% of the respondents answered “sometimes” and 5% answered “rarely” and “never”.

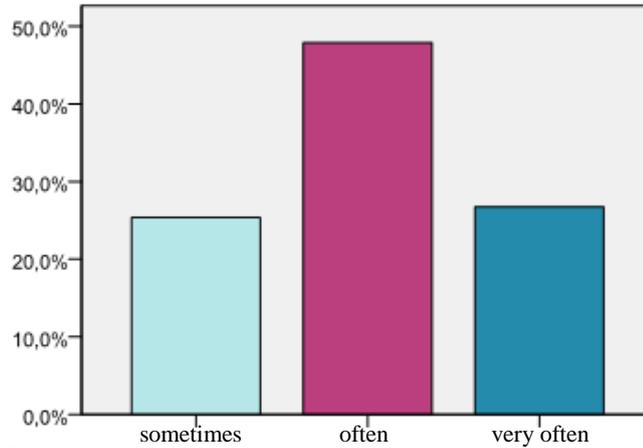
Chart 9: The influence of the organizational culture on the employees to share their knowledge in the organization



Source: Own research

The information technology is considered as one of the crucial factors of the knowledge management implementation and effectiveness. According to that, the most of the respondents – 48% answered that the information technology “often” helps them to improve their knowledge and 27% answered that the information technology “very often” helps in improvement of the professional knowledge. 25% of the respondents answered “sometimes”. It’s interesting that none of the respondents answered “rarely” or “never” which indicates that the respondents (employees) are aware of the importance of the information technology in the implementation and the effectiveness of the knowledge management concept.

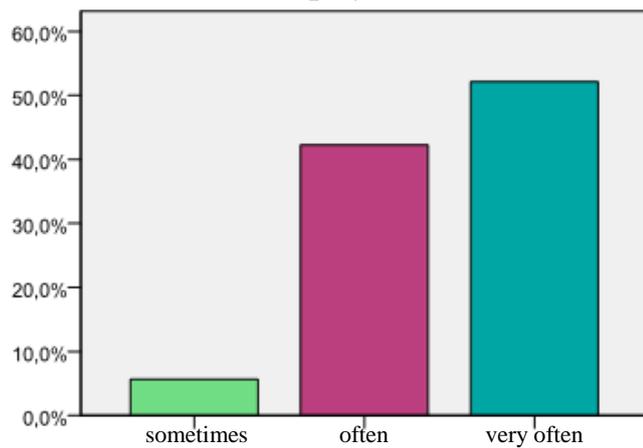
Chart 10: The importance of the information technology in the improvement of the professional knowledge



Source: Own research

The employees were asked if the information technology helps them to be more effective in their jobs. The results show that even 50% of the respondents answered that the information technology “very often” helps them to be more effective, 43% of the respondents answered “often” and only 7% answered “sometimes”. None of the respondents answered that the information technology “rarely” or “never” helps them to be more effective, which indicates the significance of the information technology on the effectiveness of the employees.

Chart 11: The influence of the information technology on the effectiveness of the employees



Source: Own research

The results show that the respondents (employees in the organizations on the telecommunication market in the Republic of Macedonia) are aware of the importance of the knowledge management in the current conditions on the market. That is why managers (human resources managers) undertake activities in order to enhance the professional knowledge of the employees by organizing professional trainings.

To implement the knowledge management, it's important that the organization has appropriate organizational culture. Also the organizational culture influences on the employees to upgrade and to share their knowledge in the organization.

The results from the survey show that the information technology is considered as one of the crucial factors in the implementation and effectiveness of the knowledge management. The employees responded that information technology helps them in improvement of the professional knowledge and influence on their effectiveness.

Conclusion

Considering the changing and unpredictable modern business on the open market and the struggle for conquering competitive advantage, companies are intensely focusing on the knowledge they possess. Developing the necessary knowledge within the organization, requires a focused combination of the knowledge and the abilities of all the participants in the management process – people, technologies and processes.

In this respect, knowledge management is considered to be a strategy which can meet the new conditions on the open market and can make the organization more competitive. The implementation and the effectiveness of this concept depends on several crucial factors such as organizational culture, human resource management and information technology.

The technological changes and the complex environment are extremely important in the telecommunication market. Also the legislation has opened the market and stimulates the competition. Regarding the dynamic changes on the telecommunication market the knowledge management is recognized as a strategy for acquiring competitive advantage. Considering the crucial factors of the knowledge

management implementation and effectiveness, the results show that the use of this concept depends on the activities undertaken by human resources managers in the organizations. Managers have to take activities in order to improve the organizational knowledge and professional skills of the employees.

The employees in these companies are aware of the need to constantly improve and upgrade their knowledge. The results show that the employees are interested in improving their knowledge in the domain of their profession, but they don't recognize the need to upgrade knowledge outside the domain of their profession. Having in mind that, managers should motivate the employees to improve their knowledge and skills outside of their professional specializations.

Also, the knowledge management implementation and effectiveness depend on the organizational culture of the organization. In this respect, organization has to have knowledge orientated organizational culture which will motivate the employees to improve and upgrade their professional knowledge and also to share it with others in the organization.

The results of the research confirm the importance of the information technology as a crucial factor of knowledge management implementation and effectiveness. The respondents said that the information technology helps them to improve, share and retain the professional knowledge.

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