

Knowledge management

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Abstract. The main purpose of the article is to explore the concept of knowledge management (KM). This concept requires reflection of managerial methods, knowledge sharing, and their classification. In the context of the information society, the main resource is information, which is contained of knowledge and skills, which are derived from people's activities, allowing increasing the adaptive capacity of environmental changes, the role of science increases, becoming a decisive factor in the development of the economy and society as a whole. Information potential is becoming the basis for achievements in the field of high technologies, which, with the complex interaction of all structural elements of the organization, can be served as capital. A direct creation of «knowledge management technology» as a set of certain methods, techniques and software aims to ensure the free circulation of knowledge and its generation. One of the important tasks of KM is to determine the necessary knowledge and the format in which to save IT. Another important mission of KM is to create an atmosphere of trust that encourages the sharing of knowledge. Therefore, for understanding the essence of the topic such terms as knowledge management, knowledge, knowledge spiral, knowledge map are to revealed.

Keywords: information, knowledge, knowledge management, innovations, intangible asset

Управление знаниями

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Аннотация. Основной целью данной статьи является исследование концепции управления знаниями (УЗ). Данная концепция требует осмысления методов управления, обмена знаниями и их классификации. В условиях информационного общества основным ресурсом является информация, в которой содержатся знания и умения, полученные в результате деятельности людей, позволяющие повысить адаптационный потенциал к изменениям окружающей среды. Кроме того, возрастает роль науки, которая, в свою очередь, становится решающим фактором развития экономики и общества в целом. Информационный потенциал является основой достижений в области высоких технологий, которые при комплексном взаимодействии всех структурных элементов организации могут выступать в качестве капитала. Непосредственное создание «технологии управления знаниями» как совокупности определенных методов, приемов и программного обеспечения направлено на предоставление свободного обращения знаний и их генерации. Одна из важных задач УЗ – определение необходимых знаний и формата их сохранения. Еще одной важной миссией УЗ является создание атмосферы доверия, способствующей обмену знаниями. Поэтому для понимания сути темы необходимо раскрыть такие термины, как управление знаниями, знание, спираль знаний, карта знаний.

Ключевые слова: информация, знание, управление знаниями, инновации, нематериальный актив

To start reasoning it is necessary to understand the definition of terms that make up the meaning of the concept.

Management is the work of people who are aimed at the organization and coordination of labor activity. Knowledge is the result of the process of cognitive activity. The process of combining specific knowledge and professional skills is the basis of knowledge management.

Thus, knowledge management (KM) is a systematic process of creating, maintaining, distributing and applying the basic elements of intellectual capital, which consists of knowledge, skills, and people experience pro-

duction and intangible assets, including patents, databases, software, trademarks. In modern society intellectual property also known as intellectual capital is more important than the material component since society develops in the spirit of technology, so businesses increase productivity by intensifying production, for example, retraining of personnel or using new advanced technologies in production by reducing expenditures. The process of staff training may consist of the following stages: creating, sharing, structuring and auditing knowledge [1]. The primary aim of KM is to enhance the effective-

ness of company and to exchange knowledge internally.

In order to understand the problem in details it is important to study the history. The idea of knowledge management appeared in the works of E. Toffler, where the main values of a new civilization were knowledge and information.

Later, in the 1970-ies, in the works of V.M. Glushkov, Y.A. Schrader, .S. Gilyarovsky, and H.P. Kozachkova the basics of knowledge management developing started¹.

Now, it is important to note that many organizations are showing increasing interest in knowledge management; thus, various conferences, project works are devoted to the problem studying. Moreover, there is a bright trend of wide dissemination of the idea of knowledge management in all spheres of society, including science and education.

Important concept to grasp is to understand the process of a «knowledge management technology» creation as a set of certain methods, techniques and software and technological tools to ensure the free circulation of knowledge and its generation.

For further reasoning, it is crucial to investigate «the knowledge» in a broad sense. Knowledge is regarded not only as a prerequisite for a successful career, but also as a value in itself. For instance, in the modern economy, the source of competitive advantages is not a profitable market position, but it is a complex knowledge creation process as a way of their placement. And in the focus is not exactly the creation of knowledge, but their movement and sale, more precisely, the benefit to the owner which can be brought from selling or using it. In that case, culture is the most important problem, because it is the human factor that creates or destroys the knowledge management system. Interaction and communication of people is the basis for the exchange of knowledge and skills, thereby interrupting data transfer, knowledge management is disrupted. Such a data cycle is known as a «social capital».

It is significant to understand the classification of knowledge. Modern science defines several classifications of knowledge. After classifications analyzing we selected one of the most successful:

- embodied knowledge, manifested in the skills;

- encoded-encrypted knowledge contained on a variety of media;
- embrained-knowledge, the repository of which is consciousness, for example, the knowledge of consultants;
- embedded-materialized knowledge;
- uncultured - common intelligent models shared by colleagues.

It is equally important to indicate targets of the knowledge management. One of the most important tasks of *knowledge management* is to determine the necessary knowledge and the format to store it. Another important mission of knowledge management is to create an atmosphere of trust that will encourage the spread of knowledge, because it is extremely rare when employees want to distribute them. The internal competition which exists in the company is not the only reason staff refuse to share skills and knowledge. Therefore, it is profitable to consider all types of knowledge and find the ways of unhindered transmission of skills between the staff. In the course of our research we found that tacit knowledge and explicit knowledge are the two main types of knowledge, which are the most interesting and crucial for social capital.

- Tacit knowledge is more intuitive. For example, understanding body language.
- Explicit knowledge is information that can be transmitted and kept, such as mathematical formulas and laws [2].

Theoretical information needs to be combined and applied in order to expand the idea of necessity of KM. The benefits of the knowledge management program applying would outweigh the adverse effects. Improvements can be observed in several ways. In that connection, it is essential to convince workers of the importance of specific skills and knowledge, which can bring profit not only for a certain worker, but for the firm as a whole.

Association with the international partners, exchange of experience and the cultural dialogue can be regarded as a way to new opportunities. Often employees show reluctance, passivity due to resistance to changes and innovations, misunderstanding of the essence of reforms, opportunities, and most importantly – their results. It is unlikely that someone will share what is considered to be the feature or their superiority, so it is very important to create the most favorable conditions for the exchange of knowledge. Content management technologies allow you to capture, organize knowledge in centralized repositories that simplify access

¹Менеджмент знаний // Википедия [Электронный ресурс]. URL: <https://ru.wikipedia.org/wiki/%D0%05.11.2020>.

to information. Organizations must be competitively conscious to successfully implemented system for knowledge management. One of the well-known systems LogicalDOC is an Internet platform, working on the principle of division of the tasks, according to a given criteria. It is a distinct possibility to maintain linkages between companies, to keep up with new upgrade technologies, borrow best practices. In this process imagination, prospect and intelligence come together, and cognitive regression reaches the top. Time forces us to find a replacement for traditional and accustomed knowledge. Customary knowledge, for example, is the information which can be learned from the book. And the up-to-date information as business seminars or public performances are more popular and more productive. Strategy of corporate development should be structured on the basis of systematic training, performance, staff development and all of these steps will lead to overall effectiveness of all employees [3]. Understanding the concept of knowledge management can be reduced to defining its purpose – use, knowledge transmitting and storing to complete challenging tasks with maximum benefit. That mindset will facilitate the process of creating the new knowledge.

Knowledge management consists of the countless list of stages, but we have identified the most important:

- Identification and systematization of knowledge holders;
- Knowledge mapping;
- «Inventory» of information and knowledge;
- Creation of classifiers and software;
- Creation of internal networks for broadcasting information;
- Measurement of intellectual capital.

There is a diversity of approaches to definition the KM as a system, which can be defined by the following features:

- FAQ content;
- Forum or community feature;
- How-to articles and tutorials;
- Education, academies, and training programs;
- Certificates;
- Case studies;
- Webinars [4].

Among this variety you can use familiar tools, such as Microsoft Access and Microsoft Excel, to retrieve and analyze data. To determine the most effective way to work with «corporate memory» or «social capital», you can

install document management applications that can be monitored to determine whether employees are using the most effective methods of work. Many modern companies are making serious efforts to automate knowledge management. Others rely on sharing knowledge in more familiar ways. Choosing the wrong approach or trying to do both at the same time can destroy the business, so the approach to choosing the *knowledge management strategy* is a serious task. All people have intelligence, memory, ability to a certain activity, labor or life experience. Business owners are concerned about how to extract this personal knowledge and turn it into «explicit», codified. Since people are the bearers of knowledge, given that they cannot work in the same company forever, special procedures are needed to make individual knowledge as the property of the organization.

Furthermore, one of the world's leading companies – Gazprom is applying policy which was designed to develop a corporate-wide knowledge and innovation management system. The main resource is the Knowledge Portal, which integrates various tools and formats for storing and sharing information. The resource informs employees about learning and development opportunities, and encourages knowledge sharing [5].

Summarizing all the information from different sources, it is possible to state that knowledge sharing can be accomplished through the following communication procedures:

- Sharing best practices;
- Analysis of flights;
- Structured dialogues;
- Exchange of experience in the exhibition format;
- Create cross-functional teams;
- The diaries of argumentation of the decisions taken;
- Promotion of the informal communication;
- Decision support tools (expert systems, discussion groups).

In the United States, the recognition of a rapidly increasing role of knowledge has led to significant tax incentives for companies which spend more than two percent of their payroll annually on staff training, as well as developing technologies that form the «field of knowledge». Within this framework, employees can share their experience, find and discuss solutions to production, management, market-

ing and other problems. Thus, according to research by Taylor Nelson Sofres, 52 % of American companies have already implemented solutions of this class, compared to 46 % in England and 21 % in France.

In turn, a lack of understanding of the essence of the knowledge management process has led to the fact that this process is interpreted as a mystical, ritual action that allows the company to make a qualitative breakthrough and gain significant competitive advantages, but there is no mysticism here. In order to be successful in the world of modern business with fierce competition from manufacturers and constantly growing customer needs, companies are forced to respond to changes in the external business environment with the highest speed. At the same time, «reaction», according to Bill Gates in the book «Business with the speed of thought», means making accurate and timely management decisions based on objective and timely [6].

It will be possible only if the company creates a kind of «electronic nervous system», through which well-integrated information flows can spread, delivering the right information to the right employees at the right time. «Electronic nervous system» allows person to regularly transform internal business processes in order to adapt business to changes in the external environment that occur due to the development of customer needs and competitive environment.

The one who has knowledge owns everything. The 21st century is the century of post-industrial society, with the wide development of new technologies. Knowledge and information are the main and the most expensive commodity. The development of the country largely depends on the information equipment and technology, which determines the competitiveness in the international arena. It is important to note that in the era high-tech society information has changed its content and structure. Quantitative

and qualitative changes in information, based on computerization and introduction of new information technologies, led to qualitative changes in human society that occurred at the end of the XX century. It should be noted that a reasonable and productive functioning of the system of production and management of knowledge is impossible without a personalized system of knowledge to increase the role of communication, their usefulness and the availability of remuneration as the main incentive in the cognitive process. We would like to note such concepts as

- *The knowledge spiral* is a model for defining explicit and implicit knowledge when creating new, interacting in an organization through four processes of transformation or behaviors.
- *A knowledge map* is a definition of the knowledge and skills needed to sell or develop a solution.
- *A learning organization* is an organization for the creation, transfer and preservation of accumulated knowledge.

To sum up, we would like to focus on the need of knowledge management methodology implementation. Creating unified databases, holding conferences and webinars are all methods, which are implementing this theory. Knowledge management training should be started at the school level. Knowledge or skill is important not only to possess, but also to apply in practice. After all, there is a competition in all areas and high-quality and legal methods have to be used in the fight. So, the turnover of knowledge and proficient usage can be a crucial indicator. It is important to turn a huge amount of knowledge on this topic into an active exploitation. The more people will be interested in this topic, young people, students, and then high-class specialists will be informed about «Knowledge Management», the more profitable relations will become in all spheres.

Библиографический список

1. What is knowledge Management? // Medium [Электронный ресурс]. URL: <https://medium.com/@skywingskochi/what-is-knowledge-management-c356d7af5875> (18.06.2020).
2. What is knowledge management? It's importance and benefits [Электронный ресурс]. URL: <https://www.valamis.com/hub/knowledge-management> (16.06.2020).

3. Knowledge Management system // LogicalDOC [Электронный ресурс]. URL: <https://www.logicaldoc.com/solutions/knowledge-management> (16.06.2020).
4. Knowledge management system: The Ultimate Guide [Электронный ресурс]. URL: <https://www.hubspot.com/knowledge-management-systems> (17.06.2020).
5. Управление знаниями. Развитие кадрового потенциала // Газпром нефть [Электронный

ресурс]. URL: <https://csr2016.gazprom-neft.ru/hr-development/knowledge-management> (17.06.2020).

6. Лучшие решения и готовые примеры построения систем управления знаниями в успешных компаниях // Companion UA [Электронный ресурс]. URL: <https://companion.ua/3116/> (19.06.2020).

7. Управление знаниями. Ассоциация современных профессиональных технологий [Электронный ресурс]. URL: <http://www.itinfo.am/eng/knowledge-management/> (29.12.2018).

8. Портал о корпоративных порталах, консалтинге, созданию внедрению и поддержке

[Электронный ресурс]. URL: <http://corportal.ru/Articles/DataTech/KnowledgeManagement/KnowledgeManagement.aspx> (10.01.2019).

9. Роль знаний и управление знаниями в организации // Studme.org [Электронный ресурс]. URL:

https://studme.org/45653/menedzhment/rol_znaniy_upravleniya_znaniyami_organizatsii (12.01.2019).

10. Роль информации в современном мире, роль библиографии в современном мире // Studbooks.net [Электронный ресурс]. URL: https://studbooks.net/722945/kulturologiya/informatsiya_sovremennom mire (10.01.2019).

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