

BUSINESS KNOWLEDGE MANAGEMENT: CHALLENGES, THREATS, OPPORTUNITIES

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Abstract

The article shows that the main value of knowledge in business is productive internal exchange of opinions and reasoned decision-making. A distinction between the spheres of using free access and structuring knowledge within the technological approach of knowledge management organization was made. The advantages of free access were highlighted, namely, the autonomy of work processes, ease of implementation and the ability to work in conditions of uncertainty, as well as such disadvantages as the lack of performance indicators and possible reduction in work efficiency. Attention was focused on the fact that despite the increase in productivity and transparency of work processes, there is significant resistance from employees when structuring knowledge. To overcome the limitations of the technological support model, it was proposed to consider the possibility of creating an internal knowledge market that requires the definition of pricing, exchange mechanisms and competition between suppliers. The role of standards, protocols and rules as a deterrent for buyers and sellers in the domestic knowledge market was considered. The broker model in knowledge management was analyzed, which involves active cooperation with suppliers, customers and functional business networks. The analysis of the benefits of knowledge management based on social technologies, namely, the creation of content, a searchable archive, as well as limitations in the form of complexity and duration of the process of transformation was provided.

Keywords: *business knowledge, information technology, decision-making, social value, stakeholder engagement.*

JEL Classification: *M12*

INTRODUCTION

In recent decades, considerable attention has been paid in scientific and practical developments to the issue of knowledge creation and its impact on productivity [7]. The application of the principles of open innovation and effective knowledge management allow progressive enterprises to improve not only their products, but also internal business processes [1]. In this regard, the share of the role of intellectual labor workers in companies is rapidly increasing. Nevertheless, the significant costs of acquiring and mastering digital tools did not lead to a sharp increase in productivity in a multitasking work environment [3]. Since knowledge workers spend half of their time interacting, the key issue for managers is understanding the main problems and limitations in knowledge management [5]. In this regard, within the framework of the study, it is planned to study the essence of knowledge and knowledge management processes in the enterprise, forms of knowledge management, as well as their capabilities and limitations for business.

1. THE ESSENCE OF KNOWLEDGE AND KNOWLEDGE MANAGEMENT

At the beginning of the work, the main task is to determine the object and key concepts of the study. Table 1 shows the results of a comparative analysis of the categories "knowledge" and "information".

Table 1. The difference between knowledge and information

	INFORMATION	KNOWLEDGE
Entity	Input data used for making decisions.	Providing context for human mental activity
Source of competitive advantage	Companies gain a competitive advantage from information by providing the right information to the right managers at the right time.	The competitive advantage of knowledge is achieved through a productive internal exchange of opinions that help employees think differently when making decisions and taking actions.
Shelf life	Relatively short shelf life.	Long shelf life.
Value	Directly informational content, the carrier can be an individual or technological devices.	A unique understanding of public knowledge, the bearer is an individual.
Distribution	It is possible to freely share information about customers, competitors, products, production technologies, and new research throughout the company. At the same time, everyone can use the available information.	Knowledge is transferred only through personal interaction, as the experience of use increases.

Source: built by the authors on the basis of [2]

Based on the comparison, it was determined that the key parameters of knowledge as an object of research are binding to a specific individual who is the carrier, as well as the need for direct interaction and internal exchange. Thus, knowledge management activity is a very specific business process, which various researchers have tried to fully define (see Table 2).

Table 2. Definition of the category "knowledge management"

AUTHOR	DEFINITION
H. Scarborough, J. Swan and J. Preston	Any intentional and systematic process or practice of creating, acquiring, capturing, sharing and using productive knowledge, wherever it resides to enhance learning and performance in organizations.
H. Scheutze	Process of collecting, organizing, classifying and dissemination of information throughout an organization.
F. Gault	The purposeful sharing, using and reusing of knowledge in an organization to enable further knowledge creation and the introduction of new or significantly improved products or processes.
S. Brelade and C. Harman	Acquisition and use of resources to create an environment in which information is accessible to individuals and in which individuals acquire, share and use that information to develop their own knowledge and are encouraged and enabled to apply their own knowledge for the benefit of the organization(s)

Source: [6]

Summarizing the data given in Table 2, knowledge management covers such operations as the creation, exchange, use, storage, dissemination of knowledge. An important role is played by the effective organization of these processes, with the aim of obtaining the greatest result in the form of new knowledge, innovation, and productivity improvement in all its manifestations. The forms of organization of the knowledge management process, their advantages and disadvantages, threats and limitations for the company's activities are considered in the next part of the study.

2. FORMS OF KNOWLEDGE MANAGEMENT ORGANIZATION

Based on the conducted research, such approaches to knowledge management as technological support, knowledge market, brokerage support and social technologies were studied. Strengths and weaknesses, opportunities and limitations in use for the enterprise are defined for each of them.

2.1. Technological support

A form of knowledge management based on the use of technologies involves such approaches to the creation and dissemination of knowledge as free access and structuring of knowledge.

Within the framework of the free access model, knowledge workers define and integrate their own information environments. The activity of employees in this model is considered as too changeable or peculiar to be modeled or structured using a certain process, and the need of personnel for access to information sources is unpredictable. The free access model assumes that employees know what information is available and can find it [3].

The advantages of this approach are:

- autonomy in their work processes and means of using information;
- well suited to work in conditions with a significant level of uncertainty;
- easy to implement, since most knowledge workers know how to use basic productivity tools in the office, and some even have a pretty good command of them;
- the problems of system integration are insignificant, since employees are at the center of the information flow.

The disadvantages of this approach are:

- although employees may know how to use technological tools, they may not have the skills to search, use or share knowledge;
- performance losses can be significant;
- performance indicators are practically non-existent.

When structuring knowledge, the most important element is document management technology, which controls how knowledge workers receive information and work tasks. Supporting technologies include:

- information portals;
- algorithms for automating solutions;
- document management content management systems;
- business process management and monitoring systems;
- collaboration tools [3].

The advantages of this approach are:

- productivity improvement, measured by the performance of key tasks per unit of working time;
- opportunities to redistribute tasks to employees who have the time and experience to complete them;
- workflows become more transparent, it becomes easier to manage them and track improvements;
- facilitating cooperation and coordination of tasks.

The disadvantages of this approach are:

- negative reaction of employees who use this model;
- implementation requires careful design of systems and processes (although these systems can be adapted to complex business processes, such close alignment can become a problem if the business environment or processes change).

The limitations and problems of the characterized knowledge management organization models are solved with the correct selection of tools and adaptation of the techniques used to a specific situation. The formats for optimal use of knowledge structuring and free access are shown in Figure 1.

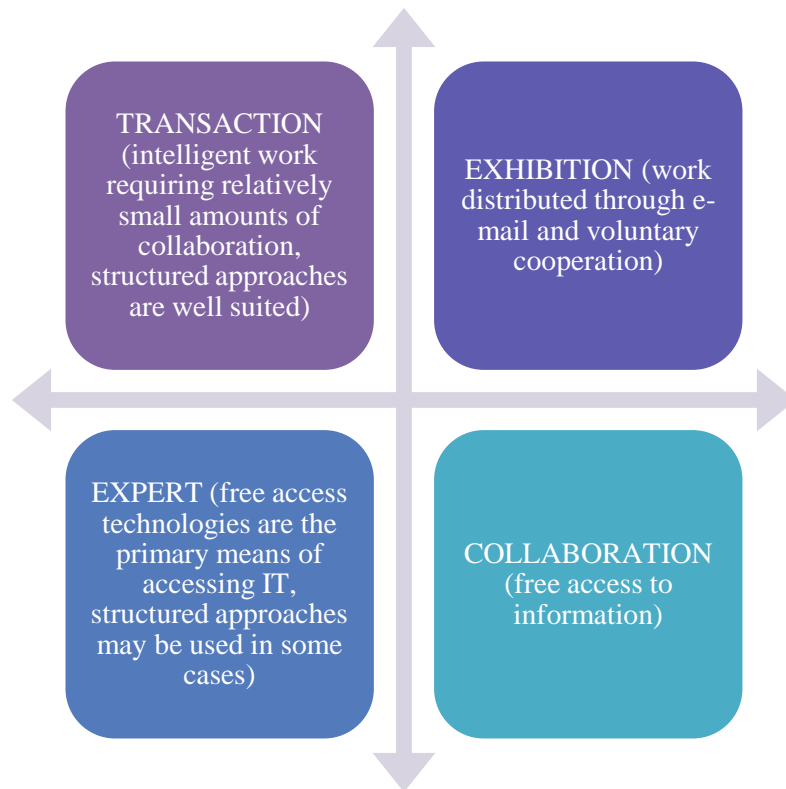


Figure 1. Matrix of approaches of free access and structuring knowledge

Source: [3]

Thus, the structuring of knowledge corresponds to operations involving an insignificant level of internal interaction. Free access is necessary for innovators and representatives of highly qualified professions.

2.2. Knowledge market

Despite the significant increase in productivity, the technological approach has a number of limitations presented in Table 3.

Table 3. Opportunities and limitations of the technological approach to knowledge management

TOOLS	OPPORTUNITIES	LIMITATIONS
Technological solutions (document management systems, shared servers)	Knowledge sharing	A long search in a huge number of outdated, incorrect, complex documents can give only a few valuable, easily accessible information
Internal websites	Spreading top-down messages about cutting-edge approaches or new product features	The knowledge gained in this way is not very valuable for most advanced employees and certainly not for those with the best skills and knowledge
Decentralized technologies	Departments solve their own knowledge problems	The spreading approaches and technological tools have few common protocols or standards and, as a rule, remain useful only for small groups of workers interested in very specialized topics

Source: built by the authors on the basis of [2]

To solve the problems of the technological approach, it is proposed to manage knowledge based on the creation of an internal knowledge market, for which the value lies in the creation of

knowledge and the exchange of knowledge. Traditional markets need valuable objects for trade, prices, exchange mechanisms and competition between suppliers. Often there are also standards, protocols and rules, as well as market intermediaries that help markets work better. What these elements will look like for the knowledge market is presented in Table 4.

Table 4. Elements of the knowledge market: problems and possible solutions

KNOWLEDGE MARKET ELEMENT	PROBLEMS	DECISIONS
A valuable object for trading	From the buyer's point of view, knowledge on the market should be deeper, relevant and easily accessible than alternative products. Almost all content created by most companies, whether it's short internal notes or documents filled with diagrams, needs to be backed up by oral discussion.	A new internal equivalent of a signed article in which the author is motivated to create a high-quality document that is easily accessible to any user. Such an "object of knowledge" allows the "buyer" of knowledge to understand the author's thinking without the need for the parties to communicate with each other.
Pricing	Authors who are suppliers to the market need something that justifies their "costs" or efforts in exchange for creating an object of knowledge. In the internal knowledge markets, the price that authors receive is usually to increase their personal internal reputation.	Buyers will be motivated to enter the market if they believe that they will find valuable knowledge at a price, time and effort that is lower than the search for an expert. A certain degree of attention of colleagues and superiors to the author of knowledge is necessary.
Exchange mechanism	Authors and knowledge seekers enter the market out of mutual personal interests.	Creating a culture in which smart people are expected to make valuable codified contributions to knowledge. Part of this culture is a reward structure in which distinctive performers who contribute to knowledge earn more than their non-contributing counterparts. Protection of individual intellectual property rights: it is those who develop knowledge that should be identified and credited as authors.
Competition	There is a need to invest in technology and personnel to maintain them. The company, and not the buyer seeking knowledge, is responsible for the remuneration of authors.	Knowledge objects should compete for attention at the level of quality and popularity. Companies that provide recognition to those who create knowledge objects of the highest quality (according to experts and senior management) or the most popular (in terms of download volume) ensure that internal authors will be motivated to compete with each other in both dimensions.

KNOWLEDGE MARKET ELEMENT	PROBLEMS	DECISIONS
Set of standards	The transaction costs of the market – the time and effort spent on creating and searching for knowledge - should be acceptable.	Companies need to develop standards, protocols and rules to reduce costs, which act as a deterrent for both buyers and sellers. Standards may include: templates used to define the content included in the knowledge object; taxonomy used to determine how documents are classified. Protocols include: rules defining what types of knowledge will be sold on the market; requirements for documents that qualify as an object of knowledge that can be traded. The rules include internal mechanisms created to strengthen these standards and protocols.
Intermediaries in the market	Authors and knowledge seekers lack knowledge, interest or time to self-regulate and monitor compliance with protocols and standards.	In the knowledge market, intermediaries are needed to apply standards and protocols, as well as to make decisions to ensure compliance with the rules. These people become market insiders who facilitate the work of the market by getting acquainted with its mechanics. One group of market intermediaries consists of knowledge service employees in the market center who monitor compliance with standards. Another group of market intermediaries consists of "knowledge domain owners" who determine what meets the standard as an object of knowledge; they are responsible for stimulating the creation and codification of new content by experts; maintain and remove outdated content and identify any knowledge gaps that need to be filled.

Source: built by the authors on the basis of [3]

Based on the data in Table 4, the main measures to create an internal knowledge market are the development of a system of recognition, evaluation and remuneration of knowledge authors, the creation and maintenance of an internal regulatory framework for the storage and dissemination of knowledge, as well as the introduction of a culture of "value of knowledge carriers".

2.3. Brokerage support

The form of knowledge management, by analogy with brokerage activity, offers companies a wide range of opportunities. This activity can be carried out on the basis of interaction with the following stakeholders:

- Suppliers are not only highly motivated to share ideas to improve processes, but can also be a great source of more radical ideas.
- Customers are often willing to share business process tips because they also benefit.
- Functional business networks are an excellent source of knowledge for companies rebuilding functional processes [1].

A closer look at systemic approaches to knowledge-sharing brokerage offers other companies ways to get more out of open innovation based on the methods presented in Figure 2.

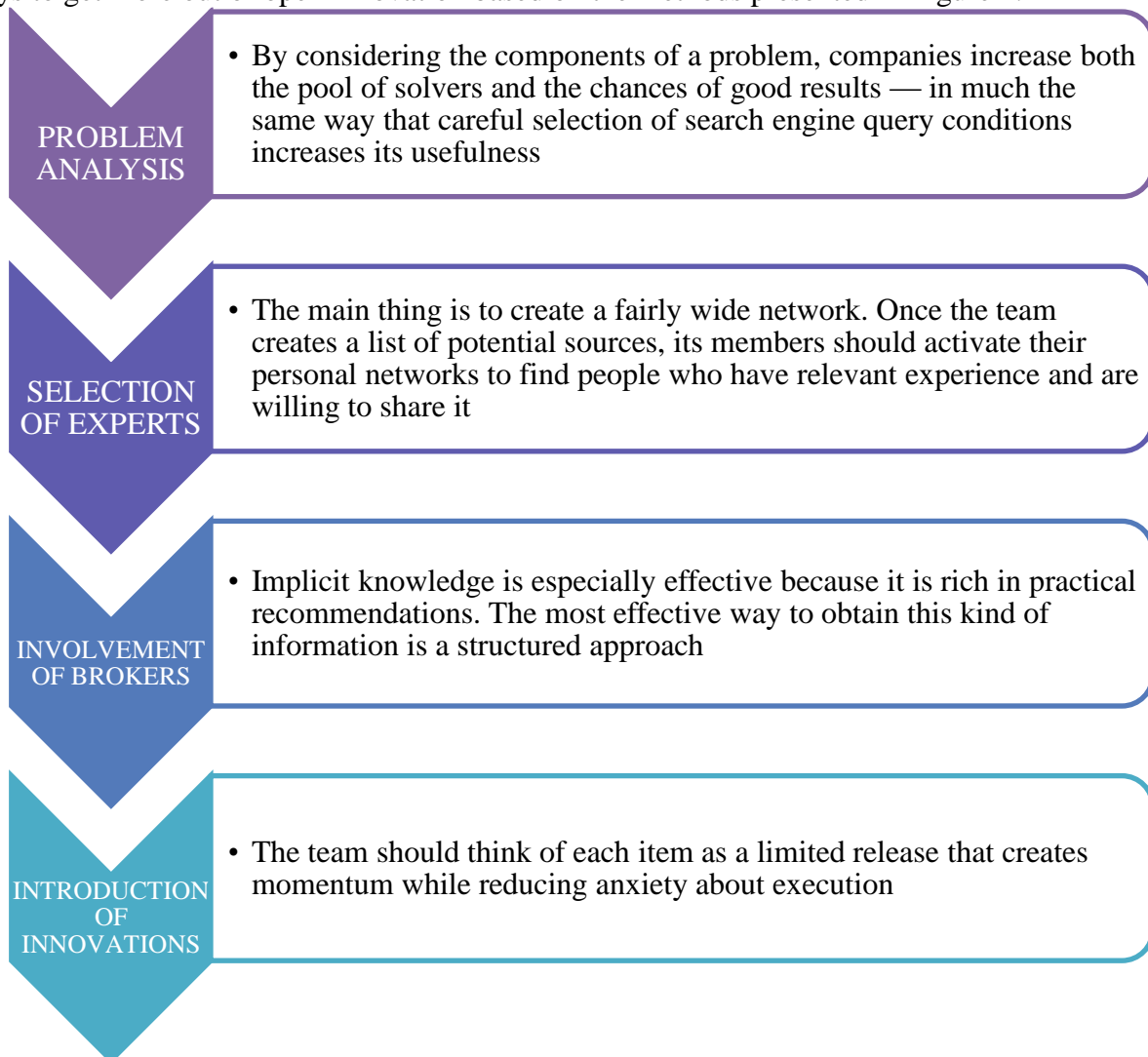


Figure 2. The process of implementing a brokerage approach in knowledge management

Source: built by the authors based on [1]

According to the above scheme, the key steps are the first steps of internal brokerage, namely, the analysis of the problem and the selection of experts.

2.4. Social technologies

Forms of knowledge management in an organization based on social technologies, in addition to communication, knowledge exchange and cooperation, create innovative values in product development, promotion and customer service [4]. The key features of the social technology approach are:

1) Content creation (members of online social groups create content, share it, comment on the content of others, recommend content from other sources). At the same time, communications taking place on social platforms become content.

2) Archive creation (each item posted on the online community site becomes part of a permanent searchable archive).

According to the study, a typical interaction employee spends 13 hours a week - or 28% of his time - writing, reading and answering emails. It takes another 9 hours a day to search for

information. In general, it is estimated that social technologies, if properly implemented, can increase the overall productivity of knowledge workers by 20-25% [4].

3) Online store of knowledge. Over time, it becomes clear who are the experts in a particular field and where specialized information is located in the organization. The disclosure of this information and the involvement of experts not only facilitates the task of an individual knowledge worker, but also enriches the organization. This one can be constantly expanded as community members comment, update and supplement the information available through social technologies.

At the same time, there is a problem of introducing social technologies to improve the efficiency of enterprises - the need to transform organizational structures, processes, practices and culture. The basic principles of social technologies in an organization are the use of these technologies in everyday work processes, the creation of a culture of trust and the promotion of knowledge sharing.

CONCLUSIONS

The competitive advantage of knowledge is achieved through a productive internal exchange of opinions for decision-making. At the same time, knowledge is transmitted mainly through personal interaction.

Knowledge management through information technology is divided into a free access approach and a knowledge structuring approach. The advantages of free access are the autonomy of work processes, ease of implementation and the ability to work in conditions of uncertainty, and the disadvantages are the lack of performance indicators and a possible decrease in work efficiency. When structuring knowledge, productivity increases, work processes become more transparent, nevertheless, significant resistance from employees is high.

Overcoming the limitations of the technological approach based on the creation of an internal knowledge market requires the identification of valuable objects for trade, pricing, exchange mechanisms and competition between suppliers. The main motivation for entering the knowledge market for the buyer is the opportunity to find valuable knowledge in time and effort "cheaper" than the search for an expert. For sellers of the domestic knowledge market, it is necessary to create a culture in which intelligent people will make a valuable codified contribution to knowledge. At the same time, knowledge objects should compete for attention at the level of quality and popularity. It is also important to develop standards, protocols and rules that will act as a deterrent for buyers and sellers.

The brokerage approach in knowledge management involves active cooperation with suppliers, customers and functional business networks, which are an excellent source of knowledge for companies rebuilding functional processes.

The benefits of knowledge management based on social technologies are the creation of content, a searchable archive, as well as an online knowledge store. The limitation in the implementation of this approach is the complexity and duration of the process of transformation of organizational structures, processes, practices and culture.

REFERENCES

1. Billington, C., Davidson, R. (2010) *Using knowledge brokering to improve business processes*. McKinsey Quarterly. Available at: <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/using-knowledge-brokering-to-improve-business-processes>
2. Bryan, L. L. (2004) *Making a market in knowledge*. The McKinsey Quarterly. Available at: <https://www.mckinsey.com/~media/McKinsey/Business%20Functions/Strategy%20and%20Corporate%20Finance/Our%20Insights/Making%20a%20market%20in%20knowledge/Making%20a%20market%20in%20knowledge.pdf>

3. Davenport, T. H. (2011) *Rethinking knowledge work: A strategic approach*. McKinsey Quarterly. Available at: <https://www.semanticscholar.org/paper/Rethinking-knowledge-work%3A-A-strategic-approach-Davenport/89fe088181d8acc72563aaab6172bd157ba54284>
4. Manyika, J., Bughin, J., Sarrazin, H., Chui, M. (2012) *Reaping the rewards of enterprise social*. McKinsey Global Institute. Available at: <https://www.mckinsey.com/mgi/overview/in-the-news/reaping-the-rewards-of-enterprise-social>
5. Matson, E., Prusak, L., (2010) *Boosting the productivity of knowledge workers*. [McKinsey Quarterly](#). Available at: <https://www.mckinsey.com/business-functions/people-and-organizational-performance/our-insights/boosting-the-productivity-of-knowledge-workers>
6. OECD/Statistics Canada (2004), *Measuring Knowledge Management in the Business Sector: First Steps*, Knowledge management, OECD Publishing, Paris, <https://doi.org/10.1787/9789264100282-en>.
7. Oosterlinck, A. (2000) *University/Industry Knowledge Management: A University Perspective*. OECD Publishing. Available at: <https://www.oecd.org/education/innovation-education/2668232.pdf>