GLOBAL TRENDS IN KNOWLEDGE MANAGEMENT SYSTEMS OF SCIENTIFIC AND TECHNICAL INTERNATIONAL BUSINESS

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Annotation. The article summarizes the dynamics of the global market for knowledge management software at the enterprise, systematizing the geographical and branch structure of the knowledge management software market in the enterprise. The prevalence of standardized knowledge management platforms has been revealed due to a large number of free options.

Keywords: dynamics, global, market, software, management, knowledge, enterprises, structure, platforms.

Introduction

The rapid development of scientific and technological progress has determined the formation of a new vector of economic development, closely related to the global use of information and communication technologies. Informatization of modern enterprises is marked by an exponentially increasing rate of production, processing, use and exchange of huge amounts of information. As a result, the overall competitiveness of the company depends on the availability and quality of advanced tools application and methods of managing information and communication processes and technologies. In such a dynamic environment, knowledge bases acquire a special role. It is the functioning of knowledge bases that can ensure high efficiency, quality management, as well as access to innovative information and communication technologies. Recent publications on this issue, presented by such scientist as Kavanagh M. J., Johnson R. D.*,* Takeuchi H., Nonaka I. *(Takeuchi, Nonaka, 2004)*, Jin X. *(Jin, et al., 2017).*

The pace of technological innovation in the field of ICT has accelerated significantly, and today the sector is much larger than it was 20 years ago and covers a more diverse number of players than ever before. On the other hand, today this sector includes hardware, software, the Internet, telephony and content, application and support services provided by organizations from corporate giants to garage developers and open source networks. The relevant content and applications are an integral part of the value proposition, and the 'network effect' is decisive - technology only improves performance when many people exchange access. As a result, cooperation has become a key business strategy. Some of the largest and most successful firms have proven themselves as 'leaders' in large 'business ecosystems', in which independent partners, other firms and even users provide content, applications and services, thus enhancing the value of their technology. In such conditions, the generalization of the basic trends, the current state and level of development of knowledge

management solutions at the enterprises are of considerable interest and practical value.

The latest global trends in providing knowledge management at enterprises

The regional analysis of the knowledge management software market is determined in regions such as the Asia-Pacific region, North America, Europe and the rest of the world. North America is one of the leading regions around the world in terms of the market share of knowledge management software because it has huge demand in many sectors, including BFSI, government, pharmacy, and others. The global knowledge management software market is expected to increase to about $ 33 billion by 2023. In general, the dynamics of the global market for knowledge management software is presented on figure 1 *(Knowledge Management Software Market Research Report- Global Forecast 2023)*.
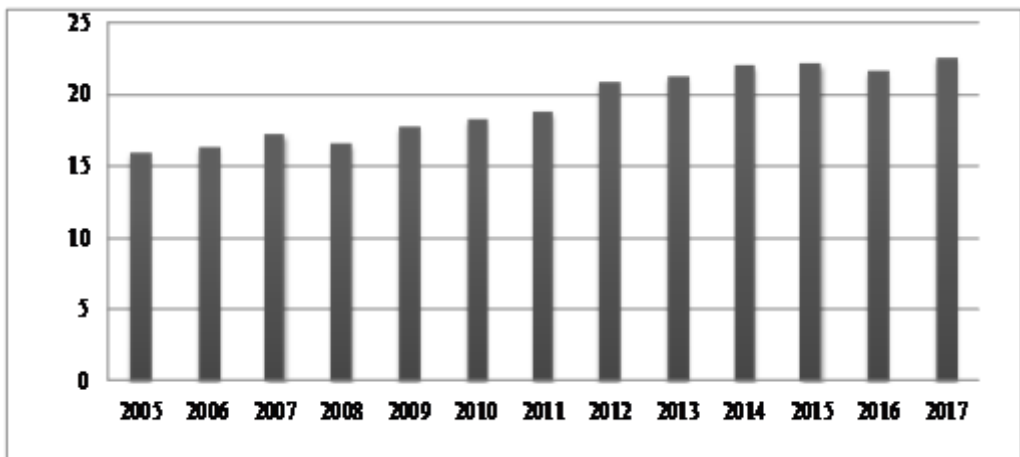

Fig. 1. Dynamics of the global market for knowledge management software in the enterprise for 2005-2017, billion dollars
(Knowledge Management Software Market Research Report-Global Forecast 2023)

As the dynamics of the global knowledge management software market shows, the positive trend is quite stable. First of all, a significant increase in the number of software products in the area of knowledge management at the enterprise is due to the increase in the number of successful projects implemented, which gave significant sustainable benefits to enterprises. At the same time, it is anticipated that in the long run, the corporate resource of the software market will slow down the growth rate, as more and more service companies are beginning to implement their proposals in existing systems, which allowed businesses to abandon autonomous solutions for knowledge management software at the enterprise. The geographic structure of virtual knowledge management platforms today has a rather fragmented form (Fig.2).

As the geographic structure of the knowledge management software market in the enterprise shows, all regions have rather differentiated rates of growth. So, given that emerging markets in the Asia-Pacific region, such as China, Japan and South Korea, are emerging markets, their future development is expected to be the highest in «*Compound*

Annual Growth Rate» within the analyzed regions, since companies are resorting to expand to provide the best solutions for their customers *(U.S. and Worldwide Knowledge Management Market Forecast and Analysis, 2015–2017).*
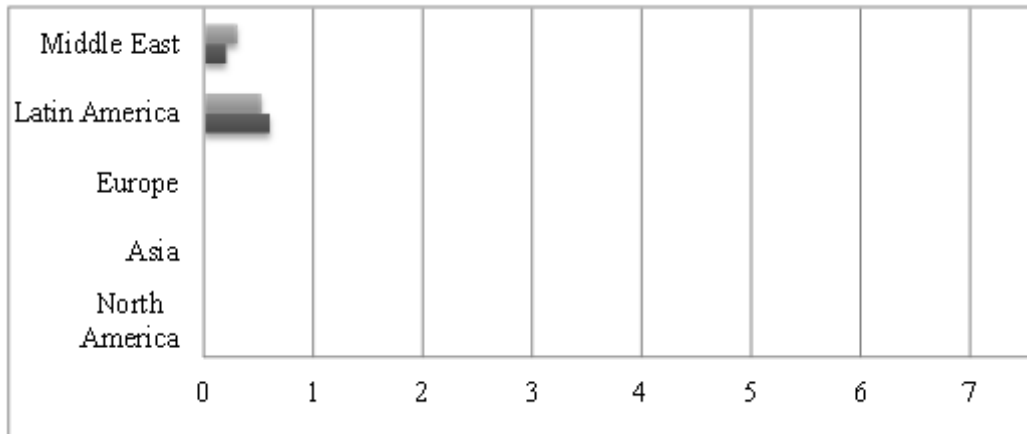

Fig. 2. Geographic structure of the market of knowledge management software at the enterprise, billion dollars
(Knowledge Management Software Market Research Report-Global Forecast 2023)

The Asia-Pacific market for knowledge management systems at the company increases by about 10% per year. Significant activity has been recorded in Taiwan, Korea, Australia and New Zealand today. As a result, a special role belongs to a considerable amount of information. This is very important as a significant part of the business in these regions is connected with *«Hightech»* and requires communication from abroad, and therefore knowledge management systems in the region are more universal. Although many semiconductor manufacturing takes place in Taiwan, offices are often located in the United States. In this regard, it is extremely important that these companies have effective knowledge management platforms. It is in this region, for today, there are the most expensive and wide-profile knowledge management systems. There more than 20% of registered companies launched a knowledge management solution *(Pharma Knowledge Management Software Market Research Report- Global Forecast 2023).* It should be noted that the functional areas in all regions have a rather similar structure: business services, government, education, financial services remain the most popular *(Pharma Knowledge Management Software Market Research Report- Global Forecast 2023).*

At the same time, today, the largest segment of the software market for knowledge management in the enterprise by geographical structure remains the countries of North America, namely the United States of America, this segment of the market accounts for almost 30% of the world market. This is due, above all, to the prevalence of transnational corporations, the country of origin of which is the United States. The second largest segment of the market is the countries of the European Union. Where the regulation of most public services is still the driver for implementing the above systems in this region *(Pharma Knowledge Management Software Market Research Report- Global Forecast 2023).*

The next aspect of the current state and level of development of information systems in corporations is the functional dimensions of the industry structure, which are expressed in

branch drivers. Current drivers for knowledge management software at the enterprise are practical goals aimed at improving business and are expressed in the following elements: maintaining personnel expertise; increasing savings / customer satisfaction; increase in profit / income growth. Special factors for the market development are the provisions for the development and implementation of programs and processes that revolve around people, the culture of the organization. These problems are consistent with the regional ones and include the following: the current culture is not encouraging to be shared; users do not understand the concepts of knowledge management in enterprises and their benefits; enterprises can not measure the financial benefits of using virtual platforms in knowledge management; organization processes are not intended to accommodate knowledge management initiatives; enterprises do not have incentives and rewards for the sharing of knowledge. In our opinion, it is interesting to note that the problems faced by organizations are determined not only by technologies but also by problems of people and processes.

The above aspects determine the following trends that have been identified based on market segmentation *(Pharma Knowledge Management Software Market Research Report-Global Forecast 2023)*: Growth of the interests of the small / medium market as a result of optimizing organizational models; increased demand for business services and activities; interest in a peer-to-peer network (P2P); solutions that include people, process, technology, software, and services; growth of the contribution to knowledge management platform compared to stand-alone solutions; focus on community development and support for formal partnership strategies; the decision to create both vertical and horizontal units / joint ventures (JV); Service Providers (ASPs) as components of the solution to the ability to manage knowledge. In general, the market for knowledge management software has a fairly similar structure according to national profiles. Therefore, in order to systematize the latest demand structure, we will demonstrate the latest structure of the largest national market represented on fig. 3.
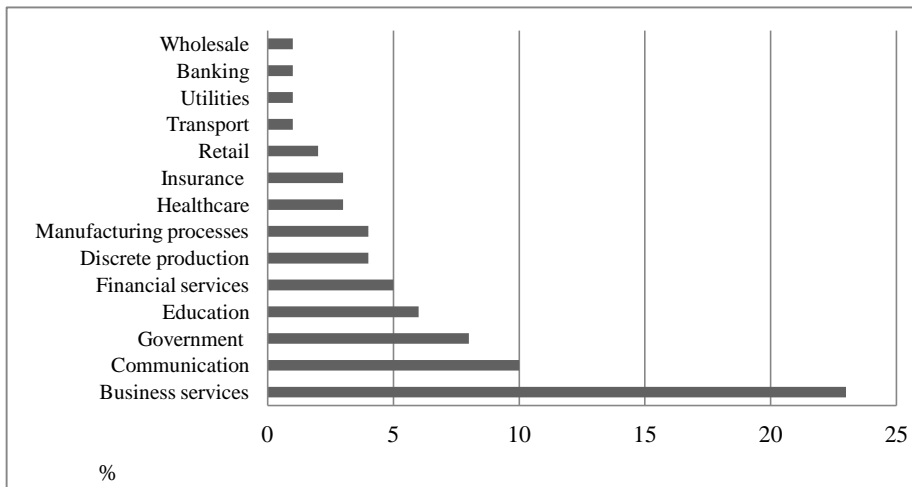

Fig. 3. Sectoral structure of knowledge management software operation in the USA market in 2017 *(compiled using U.S. and Worldwide Knowledge Management Market*

Forecast and Analysis, 2015-2017)

As the structure shows, the largest segment of the market is the exactly platforms and other types of solutions that are designed for business services, which are conditioned by the latest requirements of optimization of business models and competition.

However, according to the structure of subjects, the knowledge management market is heterogeneous. It is divided into two significant sectors. The first sector is specialized solutions, the second is standardized solutions. Most of the world market is standardized solutions. However, specialized solutions are a segment of transnational IT corporations. It should be noted that only such large corporations as *"Oracle", "Microsoft", "IBM"* are able to implement large-scale projects, as the resources and competencies required for the implementation of individualized projects require exclusive competencies. However, the number of such transactions is not large and the bulk of the decisions are fragmented. Namely, as market trends indicate, companies tend to break their needs into smaller ones and satisfy them with standardized solutions.

Formalized knowledge management platforms in the enterprise, perform unified software functions and turn raw data accumulated by the company into useful information. It should also be emphasized that, as in the case of personified knowledge bases in large multinational corporations, formalized knowledge bases have a similar approach by collecting data in the central knowledge base, specifying it and making it easily accessible for search, so that users can independently find the information they need. Such applications help corporations create and maintain a knowledge base, which is essentially a specialized database that can be searched and viewed by clients. This allows customers to find answers to their questions before they contact the support agents. Modern formalized knowledge bases are usually part of the company's Web sites with access to a local network or an extra network. Software packages allow to customize the portal design of customer service to match the brand. Employees can write content for publication in the knowledge base. Then the article can be indexed in popular search engines for easy access. Knowledge bases can also be created for internal use to help employees with features such as document sharing, training, and allowing call support. Self-service employees can interact with other customer relationship management (CRM) programs to optimize the productivity of support agents. It should be emphasized that the daily activities of even small businesses can lead to the generation of a large array of data. If these data remain unorganized, this can lead to losses for the enterprise. Using the software to organize this data, businesses can significantly reduce the time spent by employees to find answers to questions about their work and work with customer requests. Small and medium-sized enterprises, especially in the areas of IT, telecommunications and finance, almost require the use of knowledge bases for survival in the information economy. Small and medium-sized businesses can use them to eliminate cluttered card cabinets and facilitate the transition to a paperless office. Unified knowledge bases also have the potential to optimize learning processes, growing needs, and compete with high fluidity of information. It should be emphasized that the available knowledge management software offers many features. Table 1 show some of the most commonly used functional attributes of knowledge bases.

Almost all customer-focused enterprises can use their data organization to access employees and clients. Among the main advantages of unified software for knowledge management at the enterprise, the following should be recognized: creating self-service portals for clients helps to simplify the workload of support agents. This is a feature of specialized complaint management software; centralizing data for support actors who can find

common problems in one place, which allows them to reduce the time spent on the ticket; centralizing data for sellers, similarly, sales agents can find centralized tactical information for the transformation of potential customers to reduce the time of their sale; Structuring learning that emphasizes the fact that new employees can find answers to the questions they face by studying cases in one convenient place; archiving best practices that emphasizes the know-how of experienced staff that can be saved so that the company does not lose knowledge when they go; easy exchange of documents, as providing employees with centralized, remote access to all vital documents reduces the flood of internal messages that can paralyze the day-to-day business of the company; management support that emphasizes the fact that managers have access to key data online. This allows you to make more informed decisions.

Table 1

General features of software for knowledge management

Parameters	Influence on knowledge management processes
Configuring workflow settings	Workflow settings can optimize content generation, as well as the ability to post emails or other semantic attributes directly in knowledge databases by tracking them to a custom address.
Solutions trees	Many knowledge management systems can help create solutions trees that allow users (employees, clients) to resolve their own problems and increase the productivity of enterprise positioning.
Advanced search and viewing features	The operation of search filters provides the ability to automatically search, search the natural language and search engine indexing parameters. A smart search that matches the keywords for common semantic queries that users search for a knowledge base.
Feedback parameters	the knowledge base must have built-in feedback parameters that allow users to vote for the relevancy and usefulness of semantic constructions, as well as, if necessary, add comments.
RSS-channels	Usually, using RSS 2.0, a brief description of the new information appearing on the site is given and a link to its full version. Internet resource in RSS format is called an RSS channel, RSS tape or RSS feed.
Self-service portals	Self-service portals or web pages for clients and employees - this is the main part of the basis for knowledge bases that can be customized in accordance with the brand and design of the rest of the website's website specifications.

Note: author's development

Along with the above-mentioned advantages, there are some disadvantages of unified knowledge management software systems. Knowledge management tools are often combined with other applications as part of an integrated software package for CRM. Therefore, when an enterprise chooses a unified integrated package, it should be analyzed whether other applications in the package meet the existing needs of the enterprise. If, instead, the enterprise chooses to be autonomous or 'better in its class', then you need to make sure that the system integrates with existing software such as customer service, automation of support services,

and automation solutions for call centers.

Conclusions and suggestions

In the process of analyzing the current state and level of information systems development in corporations on the basis of generalization of the basic trends, the parameters of the newest knowledge management software market were systematized, and the following trends, which form long-term priorities, were identified. First, according to the structure of subjects, the market for knowledge management is catch-all. It is divided into two significant sectors. The first sector is specialized solutions, the second is standardized solutions. Most of the world market is standardized solutions. Specialized solutions are the segment of transnational IT corporations. It should be noted that only large corporations such as "Oracle", "Microsoft", "IBM" are able to implement large-scale projects, as the resources and competencies required for the implementation of individualized projects require exclusive competencies. However, the number of such deals is not large and the bulk of the decisions are fragmented. Namely, as market trends indicate, companies tend to break their needs into smaller ones and satisfy them with standardized solutions. Secondly, as evidenced by the aforementioned provisions, today there is a significant impact of the software market for knowledge management on approaches to positioning enterprises in all regions of the world economy. The demand for knowledge management systems at the enterprise today is highly differentiated according to standardized and personalized solutions. Thus, as a result of author's analysis, it has been discovered that today standardized platforms are more popular not only for medium and small enterprises, but also quite actively used in large enterprises on the basis of defragmentation of complex tasks for a greater number of tasks of lower rank. Also, according to statistical summaries of standardized decisions, each year increases, offering new options, but today there is still a rather controversial definition of the influence of the systems parameters of scientific communications on the indicators of enterprises. Therefore, the direction of subsequent research is precisely the identification of those options and system elements that allow enterprise users virtual knowledge management platforms to increase their capitalization.

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