

Features of using modern information technologies in management activities

Angela Mottaeva^{1*} and *Bibigul Issayeva*²

¹Financial University Under the Government of the Russian Federation, 49 Leningradsky Prospekt, Moscow, 125167, Russian Federation

²L.N.Gumilyov Eurasian National University, 2 Satpayeva, Astana, 001008, Kazakhstan

Abstract. Nowadays, the development of information systems has brought a number of changes. People are becoming aware of the importance of technology and information. At the same time, the government of many countries is trying in every possible way to support the development of information systems and technologies. Information technologies are part not only of people's daily lives, but also of the management systems of the sectors of the national economy, public administration, security and defense of the country, as well as ensuring the legal order. Such technologies contribute to the automation of numerous processes, which significantly increases productivity. This is caused by the fact that fewer resources are used. As a result, quality improves, efficiency increases, and costs are reduced. Thanks to information technology, it is possible to store more information, which greatly simplifies the process of making managerial decisions.

1 Introduction

One can observe the rapid development of information technology in modern society. Globalization and economic shifts dictated new conditions for innovative development and functioning. One of the main tasks of our time is to form an effective management system in any sphere of life. Digitalization is a tool to increase the effectiveness of corporate, as well as municipal and state administration.

Information technology is a technology that is used to research, plan, understand, develop, test, create, distribute, operate and maintain software, computer systems and personal computers. It is used to process data, knowledge and information, as well as to store, manage, read and transmit information. Information technology also includes cellphones, computers, networks, applications, and other technologies.

In general, for modern society and the current stage of development of the global economy, the characteristic features that appear in [1] are:

- ever-increasing role of information, knowledge and information technologies in municipal, state and corporate governance;

* Corresponding author: author@email.org

- growth of employees who develop new technologies and means of communication, produce information services and goods;
- creation of a global information space that provides free access to information resources.

It should be pointed out that as a result of the functioning of a modern enterprise, the following resources are consumed:

- material;
- labor;
- security resources;
- financial;
- intellectual (informational).

A characteristic feature of all resources, except for the latter, is their one-time (limited) use. Information resources, on the contrary, are not limited and are not subject to physical deterioration. As traditional resources decrease, their price increases. That is why any modern company tries to reduce their consumption, reducing dependence on them.

2 Research methods

The aim of the research is to study the methods and features of using modern information technologies in management activities.

The theoretical and methodological basis of the study was the scientific works of Russian and foreign researchers studying the application of modern information technologies in the process of making managerial decisions. In the process of research, methods of comparison and description, monographic and economic-mathematical methods were applied. During the study, methods of general scientific analysis and comparison, tabular and graphical techniques for visualizing the calculations, methods of induction and deduction were used in the formation of the conclusions of the study.

3 Results and discussion

In general, information resources are a specific amount of information at the disposal of the organization and its employees. They are used to work and make strategic decisions. In addition to the information itself, resources may also include:

- intangible assets: reputation, knowledge, abilities;
- material goods: cash and machines.

All information resources used in the company are designed to support foreign economic and domestic economic activities (see Fig. 1) [2].

Now the use of information and knowledge has become so widespread that we can talk about the development of the information society. Such a society is focused on the production, collection, application and dissemination of information so that it can be used for the development of mankind [3]. In the information society, it all comes down to the creation of knowledge and its use based on the available information.

It is worth pointing out that the global information resources include the elements shown in Fig. 2. At the enterprise, access to most of the information resources is provided by web portals. From the point of view of access to information resources, we can distinguish: e-mail, conferences, forums, websites, web pages, databases and files.

Corporate information resources are understood as a set of acquired, own and supplied from outside data, which are recorded on electronic or paper media (see Fig. 3).

Now information technologies are widely represented by software solutions and web services. Their purpose is to manage the budget and corporate finances. On the Russian

market, the most widespread and in demand system is 1C Enterprise, Budget, Parus, etc., which provide an automated management process [4].

In general, electronic document management solves most of the problems and provides the following [5]:

- coordination of work of all divisions of the company;
- access of the company's management staff to all information;
- simplification and increase of efficiency of work with documents;
- growth of labor productivity of employees by reducing the time spent on creating, searching and processing documents;
- differentiation of access rights to information;
- improving the efficiency of access to information.

The introduction in the spring of 2020 of restrictions on business operations due to the rapidly spreading coronavirus infection (COVID-19) caused a management problem associated with organizing remote access to common databases and the company's workplace network [6-9]. Therefore, various cloud storages, such as Google Drive, Dropbox, etc., have been widely developed. These programs also offer convenient mobile applications that provide access to working documents without a computer.

A real breakthrough in business process management is the emergence of a BPM system (Business Performance Management), which is a concept in which the work of an enterprise develops and builds up as a system of interrelated business processes.

BPM systems have absorbed all the best that is known in the field of information technology. They are, in fact, the pinnacle in this field of activity.

BPM applications are created on the basis of the synthesis of ideas of target management, the theory of reverse calculations, balanced scorecards, business process modeling, budgeting (planning) of companies, analysis and formation of consolidated financial statements.

Among the Russian products that position themselves as a system for supporting knowledge management, the following systems can be distinguished (see Fig. 4) [10].

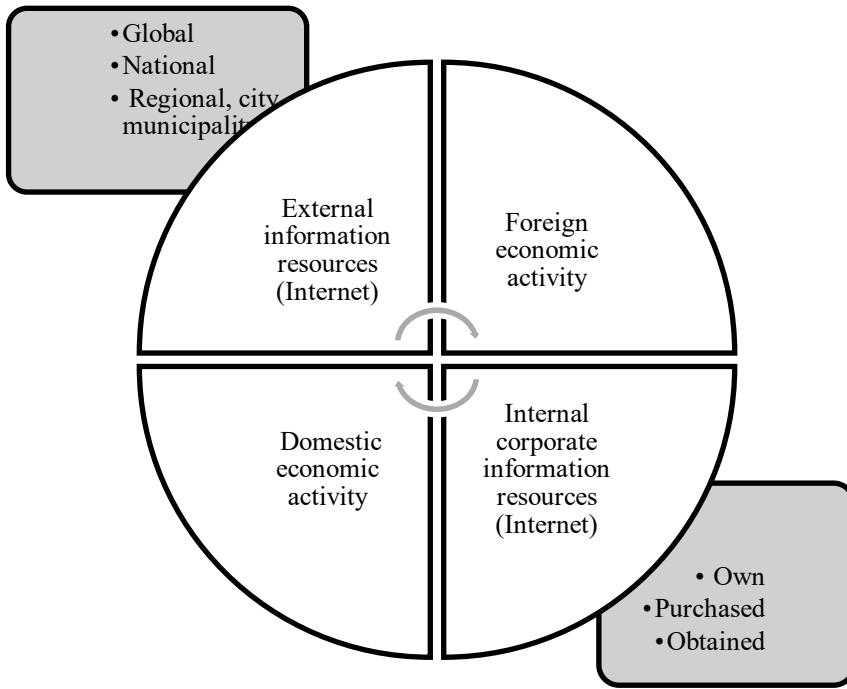


Fig. 1. Classification of information resources of the company.

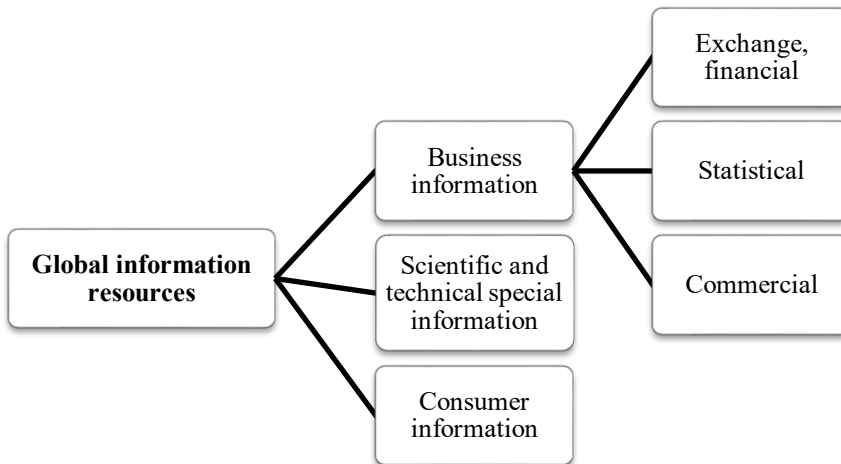


Fig. 2. Structure of global information resources.

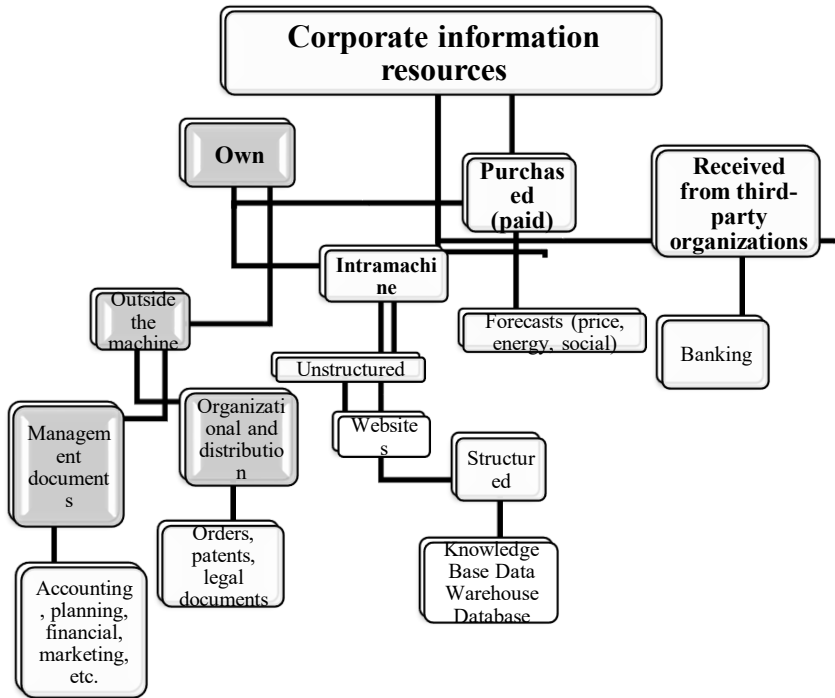


Fig. 3. The structure of information resources of the company.

Modern information technologies are also now widely used in the process of enterprise personnel management. So, various software for automated recruitment is offered. Examples are the following products [11]:

- Mirapolis Recruit – is recruitment automation; FriendWork Recruiter – is recruiting automation;
- Keepteam – online service for recruitment and personnel management;
- Huntflow – consists in automated recruitment.

Such programs search for the required specialists based on the selected criteria, and also transfer information about the selected candidates to various resources. Thanks to such programs, managers significantly reduce the time to search for the necessary specialists. This significantly frees up their time to perform other functions.

Another category of automated software includes programs for automating the selection of personnel. An example is the Finassessment online service, which is a platform for assessing the professional qualities of financial specialists. This service checks specialists using online tests. Similar services are also provided by the Qandidate service [12].

It should be pointed out that in 2005, Tim O'Reilly described the concept of the “evolved World Wide Web”, designating it with the term Web 2.0. Web 2.0 tools support collaboration in knowledge management systems. According to McKinsey's assessment, the main purpose of using Web 2.0 tools in business is to support collaboration in the company (as 75% of the surveyed managers believe) (see Fig. 5) [13].

However, barriers to Web 2.0 in business can be identified (see Fig. 6).

In Russia, the introduction of blogs, wiki and social networks into corporate systems is somewhat slower than in the West. The reasons lie in the worse state of the technical infrastructure.

Nowadays, much of the World Wide Web content is meant to be read, not to be intelligently manipulated by humans through computer programs. The scenario of such software tools is presented in the seminal paper by Semantic Web ideologues Tim Berners-Lee and James Hendler. The totality of information is called an ontology by the authors.

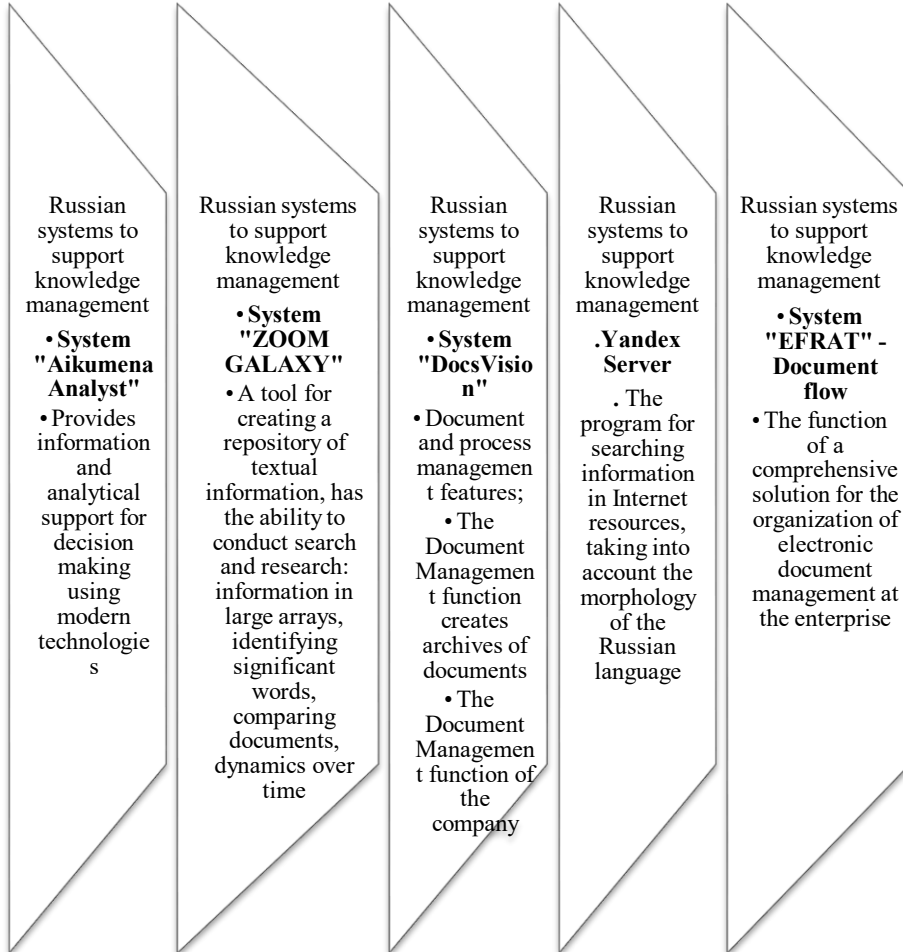


Fig. 4. Russian knowledge management systems.

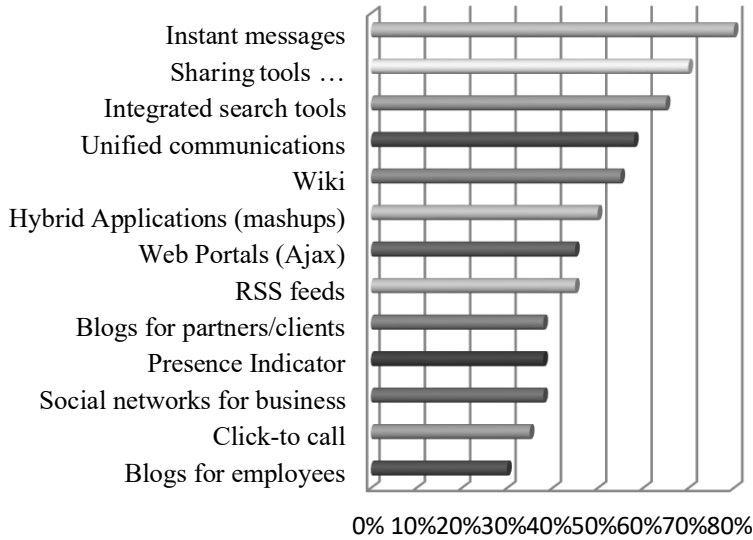


Fig. 5. Impact of using a Web 2.0 tool for business process management.

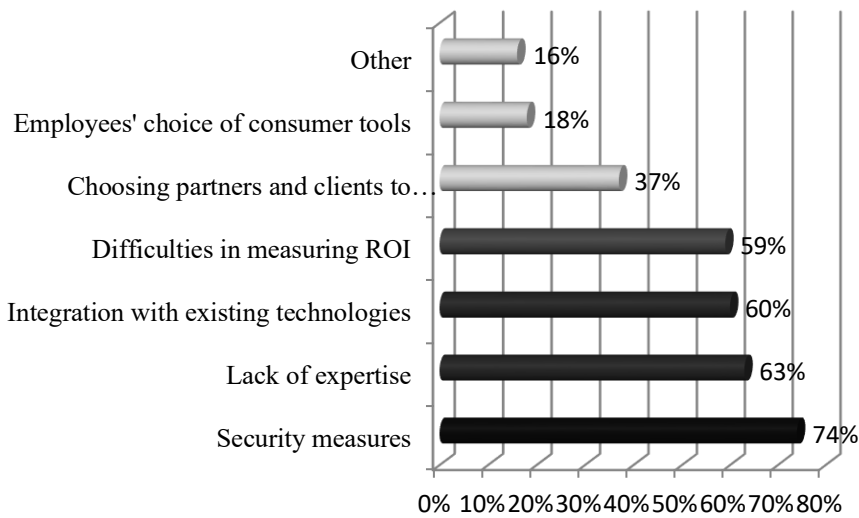


Fig. 6. Factors hindering the use of Web 2.0 in business processes.

Such a data breach can result in significant reputational and financial damage, as well as economic shutdown.

Probably, in the near future, information technology will significantly reduce operational and time costs in the process of corporate governance. The following levels of corporate governance are distinguished according to the degree of human participation in making a management decision: smart management, remote management and AI management.

4 Conclusion

It should be noted that in the last decade Russia has experienced difficulties due to the unstable political and economic situation in the world.

The following measures are necessary to eliminate problems in the use of modern information technologies in management:

- disseminate information about innovative IT solutions and their role in improving management efficiency at the municipal, state and corporate levels;
- support domestic demand for IT solutions;
- provide comprehensive support to domestic developers of information technologies;
- optimize corporate management systems by informatizing business processes.

Thus, information technology is an important management tool at the corporate, municipal and state levels. Thanks to informatization, management processes are optimized, business profitability and its competitiveness in the market increase.

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