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THE ROLE OF INFORMATION TECHNOLOGIES IN MANAGING DECISION-MAKING

Summary. *The complexity of the tasks to be solved, that have led to the need to introduce new information technologies that will allow for more effective processing of managing decision-making. So the study and evaluation of the importance of information technologies in managing activities is crucial.*

Keywords: Information Technologies, Decision-Making Support Systems, Expert Systems, Automated Expert Evaluation Systems.

Introduction. The launching of information technologies and the use of the modern information systems is recognized as an important factor in the success of entities. It is well known that information technologies bring economic, social and technical effects for the companies⁶. The economic effect is associated with a reduction in decision-making costs. Social effect implies raising the quality of working conditions of people in the entities. The technical effect is characterized by the speed of performing separate operations and procedures, increasing machine and system productivity.

The modern phase of Georgia's economic systems transformation is characterized by global economic transformations, technological development, intensive development of management structures, reforming of economic linkage systems, upgrading of technical and technological bases, unstable management environment of regional and corporate structures. Under such conditions, the organization of right decision-making in corporate and state structures faces significant challenges and its implementation becomes more difficult.

The correctness of the decision depends on how well the events are evaluated. Right decisions are based not on only the manager's discernment, competence and experience, but also on a well-managed decision-making process⁷.

International experience shows that in the companies, which constantly introduce the modern information technologies, the managers can make at least rational decisions in all situations.

Purpose. The purpose of the study is to evaluate the role of information technologies in managing activity and, hence, in decision making processes.

⁶ Chokheli E (2015) Importance of Modern Information Systems in Management. Proceedings of International Scientific Conference: Modern Information Technologies in Economic Globalization, Tbilisi. pp.189

⁷ Chokheli E and Narmania D. 2015, Information Tecnologies In Management And Prospects To Improve Their Use By Georgian Companies . Int J Recent Sci Res, 6(9), pp.6516 (2015).

Results. For years, managers have considered decision-making a “pure art” that could be achieved through many years accumulation of experience, management methods and mistakes. Accordingly, the manager’s personal qualities were not regarded as a quantitative method based on a scientific approach. In today’s changing environment, the manager is “forced” to work flexibly and make decisions according to difficult conditions.

The decision is made on the basis of identifying and selecting alternatives, based on the priorities and values of a decision maker. Decision-making means that there are alternatives that shall be considered, and in that case it is required not only to identify many alternatives but also to choose the one that best suits the company’s goals, objectives, values, etc.

The decision-making process consists of the following stages: identifying problem, identifying demand, setting goals, identifying alternatives, defining criteria, selecting decision-making tools, evaluating criteria of alternatives, monitoring subsequent actions.

Under the conditions of modern management, the organization of effective decision-making is complicated by the growth of possible decision-making alternatives due to the intensive development of technology and communication environment, the automation of organizational processes and the complexity of measures to be implemented. To make an effective managing decision the manager shall have the comprehensive information on the current processes in the organization, on its financial and economic situation. Providing timely information to the manager enables him/her to make timely decisions based on the situation in the organization, implement changes to the company’s current plans, as well as exchange opinions between the management team and the company’s employees. Therefore, managers and employees shall be aware of the concepts of using information technology to be able to make the decisions required for development of the company within their responsibility. Rapid rates of development and dynamic changes in the market environment require accelerated processes of information gathering, processing and transfer, which have conditioned introduction of management information systems for decision makers to facilitate the decision-making process.

The introduction of information technologies into the management system helps decision-makers to accelerate gathering, registering, processing, storage and transfer of actual, timely and accurate information based on the software and hardware resources, which in turn makes planning, implementation, coordination and control mechanisms faster and more flexible. The information technologies supporting development and making management decisions in solution of complex problems are the synthesis of interaction of human and computer calculating resources, where the software performs calculations on the basis of the entered initial data while a human based on these results makes a relevant managing decision. The use of different types of information systems in the management process enables rapid gathering, analyzing and processing of information, with minimal consumption of time and labor. However there is a downside - the introduction and further maintenance of information technology require significant investment.

Depending on the role of management, three types of technology management systems of decision-making and evaluation are identified:

- Decision-making supporting systems,
- Expert systems,
- Automated expert evaluation systems.

Decision-making supporting system - is an interactive computer system designed to provide the information support to a decision maker by using available models and data to develop many alternatives and to make effective management decisions. There are two ways to use it: the optimization, i.e., choosing the best decisions from the existing alternatives by the user’s criteria and the second way is ranking, sorting the decisions according to the priority (from best to worst). Typically, a decision-making supporting system consists of software purchased from a third party or in-house developed software.

Expert systems - is a computer system that simulates person-expert discussion to make decision in any narrow field. Its characteristics are:

- It can replace the manager only partially in a difficult situation
- It uses a knowledge base that includes important statistics and rules - a set of instructions
- It uses logical inference and decision-making procedures.

The information regarding a concrete situation is analyzed as follows: upon request of the decision maker, the system provides situational evaluations, recommendations and advices, which by its quality are fully consistent with the high quality expert evaluation. It should also be noted that expert systems are designed only to assess situations in a narrow, specific direction, which increases their credibility.

Automated expert evaluation systems - is a synthesis of complex automated decision-making technology systems and experts in a particular narrow field. It aims to address structured and complex management problems based on professionally processed and properly used information. These systems also include opportunities for collective evaluation of alternative solutions subject to comparative analysis, and review of expertise results, which include the degree of consistency between the final outcome and the expert opinions.

Conclusion. Involvement of technologies in decision-making is a necessary and inevitable process, driven by large amounts of information and rapid decision-making trends. Information technologies help strengthen the analytical capabilities of a decision maker in process of decision-making and management.

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