Impact of Information Technology Tools on Business Decisions Making in the Organization

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\textbf{Abstract:} Frequent and difficult to predict changes in the business environment require faster and more efficient decision-making, which requires a large amount of information, and their collection and interpretation require modern information technology. Inefficient use of information technology tools often results in inadequate business decisions. This paper aims to determine the contribution of information technology in decision-making in organizations. The subject of research is the analysis of the importance, role and application of IT tools in decision-making. In the research work, desk and field research of companies were used, as well as research methods following previous scientific theories. The authors assume that IT tools are insufficiently and inadequately used in making business decisions. The authors proposed models for establishing optimal information capacities, in accordance with the characteristics and needs of companies.

1. INTRODUCTION

Business decision-making is one of the most important factors in the business of any company or organization. Decisions are made at different levels. Some are at the strategic and some are at the operational level. It is important that they are correct and that they are delivered on time. In today’s turbulent environment, quick reactions to new circumstances are often necessary. In order to make adequate decisions, timely and quality information is needed.

Information technology cannot make decisions for the manager of the organization but allows the manager to have fast and reliable quantitative information about the business in order to make decisions. For example, information technology can be used for “what if” simulations. Electronic spreadsheets can store all known information about, for example, prices and the impact of prices on products. Different price assumptions can be entered in a calculation spreadsheet that “models” different pricing strategies. This is a much faster and cheaper technique, instead of really changing prices to see what happens (Okeke, 2010).

In modern business conditions, it is difficult to make the right decisions without the support of information technologies. Information technology is used in almost all forms of technology, that is, any equipment or technique used by a company, institution or any other organization requires dealing with information. Every company needs information. As society develops, the amount of information necessary for the business is growing. Information is needed for planning, control, decision making, communication, organization and management. This can be achieved through the use of “Management Information Systems (MIS), Electronic Data Processing (EDP), Office Support System, Data Processing System and Decision Support System (DSS)” (Okeke, 2010).

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Some jobs, such as accounting, data processing, modeling, construction, forecasting, business decision making, etc. are inconceivable without the use of modern technologies. This allows companies significant savings and thus better positioning in the market. Modern technologies include a complex network of computers and telecommunications technologies and related software and operating system. In addition to the above, information technology includes the knowledge needed to manage computerized systems.

Several types of information systems are used in business decision-making. Some of them are intended to help managers make decisions by providing them with relevant information and data, and some information systems even make their own decisions, especially when it comes to programmed decisions, that is, where the decision-making process does not change.

2. RESEARCH METHODOLOGY

This paper explains the importance of business decision-making, and information systems, as decision support tools. Different desk researches of companies were used, sorted according to their size, type of activity and decision-making levels. What all companies have in common is that they need IT tools to make quality decisions.

Research hypotheses have been set as follows:
- For making quality business decisions in modern business conditions, it is necessary that companies use adequate information systems and have trained staff to use them.
- Companies that have built an integrated information system to support business decision-making are more competitive in the market.

3. LITERATURE AND PROBLEM STATEMENT

Companies face everyday problems in their business. The application of information technologies in the business of the company contributes to their solution and achievement of the strategic goals of the company. The emphasis in the paper is on the problem of managerial decision-making, as well as on the study of decision support systems.

There are three aspects of decision-making:
- decision making from the aspect of the problem (1),
- decision-making from the aspect of the subject (2), and
- decision-making from the aspect of decision-making methods (3)

(1) When it comes to decision-making from the aspect of problems, there are programmed and unprogrammed decision-making. Programmed decisions are made in situations that have occurred often enough that they can be used to make rules that will apply in the future. This method of decision-making is characteristic of decision-making at lower levels.

Unprogrammed decisions are mostly unstructured and have significant consequences for the organization. They are brought to new problems and in solving complex situations. They are mainly related to strategic decision-making (Daft, 2008).

(2) Decision-making from the aspect of the subject can be group or individual. Individual decision-making is usually simpler and faster, and one person is responsible for the consequences.
In group decision-making, decisions are made by a large number of individuals who work as a group to solve a problem, such as decision-making of the shareholders’ assembly, supervisory board, group of managers, employees, etc. This form of decision-making usually takes longer than individual decision-making.

When it is best to use individually and when group decision-making depends on:
- types of decisions made,
- knowledge and skills of decision-makers,
- the time available to decision-makers, and
- type, i.e. category of the decision-making process (Moorhead & Griffin, 1989)

(3) Decision-making from the aspect of decision-making is a sum of three factors: intuition, judgment and rationality. Accordingly, it can be divided into: intuitive decision-making, judgment-based decision-making and rational decision-making.

As shown in Figure 1, decisions can be (Bulat, 2004):
- Strategic decisions. They are brought by top management and have long-term consequences;
- Tactical decisions. They ensure the implementation of strategic decisions. They are expected to increase the efficiency of the company.
- Operational decisions. They are brought by first level managers. In this way, a basis is created for the realization of obligations and changes initiated by higher levels.

As a rule, operational decisions are made intuitively, tactically based on judgment, and strategic decisions rationally (Mescon, 1985, Weihrich, 1998).

Figure 1 shows the relationship between managerial levels and managerial decisions.

![Figure 1. Managerial decisions by level depending on the character (strategic, tactical and operational)](source: Bulat, 2004)

The modern business environment requires new skills from managers combined with expertise in the field of IT. Such a manager should (Marković Blagojević, M., 2014):
- define the information systems (IS) strategy in the company,
- identify the need for IS to improve the company’s performance,
- select and procure the appropriate IS,
- oversee the development and implementation,
- manage IS to ensure effectiveness in providing quality information to the final user.
4. DECISION SUPPORT SYSTEMS

As a result of theoretical research on organizational decision-making during the early 1960s and as a result of working with computer systems in the mid-1960s of the last century (Power, 2000), the concept of decision support systems emerged.

The components of the decision support system are:
- The data management subsystem consists of the following elements: decision support system databases, data management systems, data directories and queries.
- Model management subsystem, that consists of elements: model databases, model database management systems, model directories and command processors.
- Knowledge management subsystem: Intelligent Decision Support Systems (IDSS), Knowledge-based DSS.
- User, and
- Subsystem - user interface: Represents the way the program (in this case the operating system) communicates with the user. It consists of the following components: user interface management system, natural language translation units, terminals, printers, plotters, etc.

The connection between the listed components of the user interface is presented in Figure 2.

![Figure 2. Subsystem structure - user interface](source: Turban & Aronson, 1998)

5. DISCUSSION

Until the advent of information technology, most organizations did data processing manually, which led to operational inefficiencies and many weaknesses, such as (Okeke, 2010):
- Waste of time,
- Duplicate effort,
- High operating costs,
- High workload of employees,
- Low customer satisfaction,
- Collected information can be easily lost due to the archiving system,
- There is a problem with the interconnection and transfer of information between different departments of the company.
Delays in the introduction of new technologies and staff training reduce the competitiveness of companies. Increasingly fierce market competition has influenced companies to increasingly use information technology (IT) in their business. They are an integral part of business today.

In order to use IT effectively, employees are required to be computer literate. By using IT, many spatial constraints are removed and presence and business in remote parts of the world are allowed.

Although modern technologies are available to companies in recent times, a significant part of companies, especially small and medium-sized ones, do not sufficiently use the possibilities of modern information technologies, which often results in inadequate business decisions. For this reason, awareness of the need to use information systems is growing significantly, and more and more is being invested in information technology, which increases the need for quality management of IT and IT projects.

The use of Decision Support Systems (DSS) has the following advantages (Power, 2000):
1) Increasing the individual efficiency of decision-makers in terms of better data management and shortening the time required to complete the task,
2) Expediency in solving problems,
3) Facilitating mutual communication,
4) Better connection with partners,
5) Promotes learning and exercise,
6) Strengthens control in the organization,
7) Improved quality of services to customers,
8) In conditions of unpredictable changes, it is often necessary to change goals quickly, which requires IT support.

6. CONCLUSION

The development of technology has enabled the development and implementation of modern information systems. The purpose of any information system is to provide information for its use for different purposes. The development of information systems includes certain steps and phases. One of the most important phases is the modeling of the information system and its subsystems, which must be approached in a planned manner.

The components of the decision support system are the data management subsystem, model management subsystem, knowledge management subsystem, user interface subsystem, and user.

According to one classification, the most important subsystems include information subsystem of production, information subsystem of marketing and sales, information subsystem of finance and accounting, information subsystem of human resources. The organization of the business system mainly determines the organization of the information system.

The research of the authors of the paper shows that in the decision-making process, IT tools are not used to a sufficient extent and are often not used adequately. In the decision-making process, managers identify and choose solutions and activities that enable the achievement of desired goals. They usually opt for one of the alternatives.
Great attention is paid to business decisions because the quality of decisions is directly related to business success. Decisions are made daily and at all levels in the company, but the most important are strategic decisions made by top managers. The decision-making process goes through several interrelated steps, i.e. phases.

A prerequisite for making a quality business decision is the possession of adequate information, where the role of IT tools has no alternative. When gathering information, problems are often present, such as information saturation and ranking of the results found. The Internet is becoming the most important source of information.

Research in this paper shows that successful companies pay significant attention to the development of integrated financial systems in order to support the business decision-making process. They have built an integrated information system that they use. In that way, they are better profiled on the market.

Likewise, companies that are competitive in the market invest significant resources in lifelong learning, especially in the development of information literacy. This proves the hypotheses of this paper.

Based on the results of the research, the authors suggest that companies monitor and anticipate changes in the environment and react to them on time and make appropriate decisions. At the same time, it is necessary to introduce integrated information systems that will help them make timely, high-quality and efficient decisions.

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