Information and Communication Systems and their Impact on Organizational Change

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Abstract: **The subject of the present article is the information and communication systems and their impact on organizational change. As the execution of organizational change is a top management process, it is necessary to facilitate the work of company top management during the business processes transformation. The main goal is to create proper conditions for fast and adequate taking of management decisions and their effective implementation through the introduction of organizational change.**

Key words: **organizational change, information and communication systems.**

JEL: **M1; M21**

I. INTRODUCTION

Information technologies are gaining increasingly important meaning in the world economic system as they exercise tangible influence on the business organizations. However the changes of high technology nature can not be accomplished if the traditionally organized companies do not reorganize the way they work.

The use of modern information and communication technologies is an objective prerequisite to perform fast changing of ineffective business processes. The organizational changes should be preformed when the conventionally used procedures do not correspond to the strategic goals of the organizations, or when they retard their development.

II. CLASSIFICATION OF INFORMATION AND COMMUNICATION SYSTEMS

From the point of organizational change, information and communication systems are specific information resource, used to achieve the organization goals and its development in short, middle and long term aspect. The classification of the information systems is relatively identical in the literature. Thus in [2,4,6,7] they are calcified in five main groups as follows:

- ✓ operational information systems;
- ✓ management information systems;
- ✓ management decision support systems;
- ✓ expert information systems;
- ✓ integrated information systems.

The first class of operational information systems solves structural problems related to the control and regulation of a precisely identified operational process. These decisions are also called programmed as they are structured on the grounds of particular rules. They define the actions that should be taken when solving a particular problem. Usually this process covers the systems for control of the occurred situation. In this case decisions that regulate the physical process of production are taken automatically by a computer.

Second sub-group is systems serving for computer management of means of production with digital program management. Thanks to them the virtually-cellular production organization is also possible. The management information systems are oriented mainly to the management processing of company information. They are created in order to provide accurate and reliable information to the organizational managers. Thus they are perceived as a main factor to take right management decisions. Due to this reason the information management systems are necessary for the managers from the different hierarchical levels to surmount the negative factors in the business. The organization document turnover systems are also included in this group.

The decision support systems are also created in the favor of the organizational managers. They express the individual approach when solving problems of a complex and comprehensive nature. These systems are designed to create different versions of choice of management decisions. Furthermore, they precise the personal position of the individual, who is taking them in an interactive, computer-based process, which is leading to a specific decision. The systems that are managing the work of the multi-discipline teams are very frequently used in the organizational change as means to support the communication of the different experts who work in a business process.

The expert information systems serve to the organizational managers to take particular management decisions depending on the correspondent expert area. The main components in an expert system are knowledge base,

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database and algorithms to find an expert decision. The algorithms of the expert system are established on the grounds of particular rules of "if/then" type. The knowledge base is formed on the grounds of the information obtained from the expert information and communication systems in a particular area.

The choice of software (computer programs) should consider the following principle [1]:

- cover and process complex information;
- to ensure performance of sorting information by present signs;
- make it possible to obtain samples from the database specifications specified in advance;
- enable displaying the information on screen, paper or magnetic media;
- opportunities in local area network – getting timely information needed for management of geographically remote units.

The design systems have two sub-groups: (*Computer Aided Design – CAD) and (Computer Aided Process Planning – CAPP)*. The integrated information and communication systems are built based on the interrelated information modules.

III. POSSIBILITIES FOR IMPROVING THE EFFECTIVENESS OF INFORMATION AND COMMUNICATION SYSTEMS DURING ORGANIZATIONAL CHANGE

With the growing indefiniteness and level of changes in the today's business environment, the information systems do not always correspond to the strategic goals of the organization. Due to this the top level managers need more effective means to ensure the information resources. This fact is prompted by the circumstance that the organizational change requires following some new rules and standards of behavior when using them.

From this point of view it is possible to apply different approaches for improving the effectiveness of information and communication systems. One of them is the implementation of integrated information and communication systems. These systems are the most developed ones that are supporting the change of organizational business processes. This class of systems integrates fundamentally as well as structurally the organizational information flows. The latter is possible thanks to Business Intelligence principles, including Data Warehouse and OLAP.

These systems are strategic by their nature, because they synthesize the strategic information necessary for the changing and the management of the business processes. They provide timely and fast access of the top managers to the information, which is related to organizational key indicators. In fact, an integrated information and communication system allows identifying the critical factors, from which the effective realization of the organizational change is dependable.

With the design of an integrated information and communication system is possible as well to eliminate some specific problems, which are causing negative effect in organizational change conditions when it is performed. In this view, this strategic class of information and communication systems differs from the others with a number of typical advantages. More essential are [4,5,8]:

- correspondence with the organization strategic goals;
- mentality and interactivity;
- flexibility towards the innovations;
- provision of permanent monitoring of the changes in the organization;
- provision of timely and reliable data for the main organizational indices;
- integration of all significant functions;
- information integration of company structure;
- support of the top management in taking alternative decisions for changing of company business processes, etc.

The mentioned advantages show that the introduction of an interactive information and communication system is vital for the effective implementation of the organizational change. With this view it is created to change the way the organizational information is collected and used. This is why its structure should ensure the top management needs for specific information that could not be précised by the other systems. This feature distinguishes the interactive information and communication system from the other information systems on the grounds of some tangible characteristics. The different levels of applicability of the information and communication systems in business processes change are defined from studies, performed by the authors. Depending on their type and way of application, they are displaying in different correlation for a particular system [3,7,8].

For instance the operation systems interpret various data as a result of the performance of particular transactions (logistics, customer service, etc.). In these systems the transaction processing is brought down to the initiation of traditional information products, meant for internal and external use. In the organizational change it is necessary to design office systems, which accumulate, filter and provide information as online communications.

In the management information systems, the managers of the different organizational departments need reliable information about the activities performed in the area they are in charge. In most cases this information is provided by generating data formed from different transactions. In this sense in the organizational change it is necessary to design an adaptive system for virtual exchange of information. Through it is possible to analyze electronically the business processes, viewed as interrelated business operations, but not as independent data processing jobs.

The management decision support systems provide interactive responses "what if" to the organizational

managers, depending on the specific character of the available information. Thus the different managers require exact information for the problem and as a result they should choose form several possible options. Furthermore, the information should be verified and identified in advance. In the organizational change the managers obtain current information for the correspondent problem by means of the modern information technologies. There is an immediate access to internal and external resources, provided with the help of software products. Different types of animation and diagrams are widely used in this process.

The expert information systems influence the choice of actions to be performed by the managers in the organization. This happens through the use of special methodology, which is aimed to analyze the status of the occurred problem. The conclusion is formed based on certain rules. However, they are not always appropriate. The introduction of organizational change requires designing of an information system, which database should contain accurate data for each situation. Thus the reliable information may contribute to take effective management decisions in indefinite and risky business environment.

IV. CONCLUSIONS

Based on the conducted studies, the performed analysis and the established facts for the applicability of the information and communication systems in the organizational change, the authors are allowed to make a brief review of the achieved results:

- the different types of information systems are classified, as their influence on the organizational activities is also reflected;
- possibilities for improving the effectiveness of information and communication systems during organizational change.

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