

# Information Technology and Managing Organizational Change

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*Abstract:* In organizational change conditions the application of the information technologies is crucial for their rational management. In the modern business they define significant percentage form the driving mechanism of the market economy. This is because the computers find application in all fields of the industrial production. Therefore they influence significantly the business activity of a number of organizations. As a result of this the later influence their processes as well. With regard to the conducted organizational change this tendency finds approbation in two directions. First, the information technology are a tool to change the business processes in the organization by the adaptation of modern and effective high technology products. Second, through the implementation of the computer technologies in the business the social component of the organization (i.e. the people) is also affected.

*Keywords:* organizations, information technology, organizational change, management, business processes, managerial influence.

## I. INTRODUCTION

Over the past few years the change management as a concept gained rather topical importance. In its aggregate this is relatively new ideology for change and management of the business operations in the modern organizations. In its nature however it could not find tangible practical application without the presence of appropriate instruments for influence on the correspondent processes. This is why as an advanced direction in the area of the corporate management, the change doctrine envelopes a number of directions for the rational realization of the preliminary set targets. In this sense one of the main indicators for the implementation of an effective change policy is related to the integration of advanced information technologies. Their introduction into the business environment of the dynamically developing industrial structures is a main guarantee for achievement of adequate corporate culture. In technological aspect they are expressions of flexible market behavior and competitive adaptive to the continuously changing business regularities. As it could be seen in the business practice of the industrial organizations, the implementation of the information technologies in organizations is a solid prerequisite for the duly and successful change of the business processes.

However, a significant special feature here is that as far as their specificity and way of implementation are concerned, these are two different directions for influence on the business processes. Due to this, it is necessary also to make a difference in their practical purposes. From this point of view the change management is a fundamental reconsidering of the separate business operations (production and business). At the same time the information technologies (their automation) are implemented in order to support their change on one hand and to increase their main indicators on the second. Obviously these two approaches to business processes (operations) change have different level and effect of implementation. Perceiving such accent on the problem, would not be correct or at least not proper to consider them as synonyms or to identify them entirely [1]. Thus due to the lack of clear differentiation of these notions, a bigger part of the projects for business processes change programs ends with failures. This is because a particular part of the senior management of the failed organizations had not considered it actual importance. In other words, the automated management systems are not tools for changing the business processes change, but they are ensuring the necessary support in the conduction of this process.

Therefore the information technologies should not be perceived as an approach for business processes change but as an instrument that is supporting its rational conduction. The managers who are not considering this fact also can not implement the aims regarding the introduced change management. First they believe that the automation is an arsenal of powerful techniques that will resolve their organizational problems complexly, and second that the information technologies are a sole condition for well performed change processes. What should be mentioned here is that the change management requires the introduction of modern information technologies in order to achieve optimal results form the efforts of the people in the organization [2]. On this account however their implementation without preliminary setting of the goals of the changes leads to nothing else but to the lack of adequate strategy for fundamental manage of the processes. In this sense the effect that is achieved is refinement but not a radical change. This is why it is necessary to identify the importance, the mode of systems and the executors of the change of the business processes through the use of modern information technologies.

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II. INFORMATION TECHNOLOGY AND MANAGING ORGANIZATIONAL CHANGE

In the business environment the implementation of the information technologies is considered as a main factor to achieve corporate competitive power. Thus through their integration in the activities of the progressively developing organizations there is a number of prerequisites created for business processes optimization. With this respect the computer technologies and systems are an unchanging tool for structuring of company information in the different aspects of its corporate application. This is why, when implementing the change process, the information technologies gain the following meaning [3,4]:

- the organizations, which perceive deductive in the account of the inductive approach, are not able to implement the change concept;
- the organizations, which do not use the advantages of the information technologies, are predestined to failure;
- the organizations, which do not understand the difference between automation and change of the processes, strive only to refine them, but without changing them fundamentally.

The following more important conclusions could be drawn from the above mentioned. The deductive approaches a typical prerequisite for activities of the traditionally functioning organization. Main rule here is to define the problem and then to look for variant for solving it. On other hand however, the new conventions for business conduction require to apply the inductive on the account of the deductive approach. In this direction it differs from the preceding one by the ways in which the business processes are differentiated. This means that first, it is necessary to define the methods and the tools to solve the problems and then to diagnose the form and the area of its manifestation. In other words, an essential prerequisite for inductive resolution of the issue (problem) are the modern information technologies. In this sense the use of the latter is one of the complex requirements for the effective implementation of the change concept. Otherwise its adaptation is stultified, as the new work stereotype is impeded and conditions for its destructive implementation are created. In this sense the information technologies are a tool that is used for optimization of the current operations. From this point of view they aim to improve the performance of the processes available in the organization by striving to make them more perfect. Perceiving such accent of the problem, the change and the information technologies should be reviewed as two interrelated elements, which aim is to influence the business processes (in their own way) in such way that forms the correspondent consumer value as a result of their redesign.

In business processes formation, which should be structures depending on the purpose f the conducted activities, is gaining increasing importance. In this direction the managers in the organization should receive the relevant

data for the nature of the conducted changes. With this respect it is possible to use a number of information systems, the purpose of their introduction is to optimize the information and communication processes by synthesizing the working operations in a single automated process in order to utilize the available resources. There are different classifications of the information systems that could be found in literature sources [5,6]. In general however the perceived understanding it that they should be differentiated into two main groups – operational and managerial (table 1):

Table 1

OPERATIONAL INFORMATION SYSTEMS	MANAGEMENT INFORMATION SYSTEMS
information systems for transactions processing; information systems for technological processes control; information office systems	management decision support information systems processes strategic management information system; processes expert management information system; processes team management information systems

The operational information systems are directed to automatic management of business processes. Practically, this means that they are designed to ensure the activities, related to the work of the operational units in the organization. As far as the introduced changes is concerned, they exercise positive influence by supporting the daily performance of the working operations.

The transaction processing information systems register, synthesize and range different type of data form the conduction of the correspondent business operations (sales, deliveries, etc.). Moreover they can process data, depending on the changes that have been made in a particular file or database. Therefore in the framework of the correspondent company, the transaction processing systems create number of possibilities fro forming various information products in its internal structure as well as in environment. This is why these systems serve to provide information with regard to the document turnover in the organization (salary slips, accounting and tax invoices, sales receipts, etc.).

Also in the corporate business structures it is necessary to generate information directed to the creation of qualitative and quantitative measure, especially as far as the production (operational) process is concerned. Usually such decisions are called programmed, as they are made on the basis on certain rules and guidelines. In this sense they define the actions that should be taken in the resolution of spontaneously raised or strictly specific problem. This activity includes the systems for technological processes control. This is because the decisions that regulate the production are taken automatically by a computer (automated flow lines, electronic measurement of electrical

devices, etc.). Thus the importance of these systems is brought to monitoring of the physical process in the company. As a result of this fact they accept and process data from the correspondent sensors, and then they transform them for routine processing in the main computer.

The information office systems are intended to accumulated, process, synthesize, store and provide data as electronic office communications. They are aimed to eliminate the traditional methods for manual information processing and the paper base communication. In other words, these are systems for automated information exchange where the data generation, text processing and reproduction is done in accordance with the modern information technologies (text processors, electronic mails, teleconferences, etc.).

The management information systems are developed to counteract to the ineffective use of computers on one hand and to limit the human (managers) errors on the second. In change process conditions this activity gains essential importance because when designing the business processes it is emphasized on the management orientation of information processing. In this sense the main purpose of these information systems is to stimulate the effective management decision making. Due to this reason the reviewed systems are necessary to all types of managers as a result form the growing obscurity of the external environment and the effective control if the inter-organizational processes. Therefore they provide to the managers various and duly information decisions for business processes structuring and support their optimization.

The information systems for management decision support are interactive computer based products. They are set on the basis of technological models for generation of information decision. The latter envelopes specialized databases to provide specific information in organization management area. The purpose is that the information is structured in a way that is useful for the relevant managers. The information is provided by an interactive connection between the manager on one hand and the technological device (computer) on the other. Thus there are corresponded possibilities created for initiating, various information when choosing a variant for making and executing of exactly established management decision. Therefore these systems are designed to contain a rich arsenal of information and to initiate business decisions correspondent to the personal preferences of the one who is modelling them, in an interactive computer based process, leading to a specific decision.

The process strategic management information systems are created to generate and process data necessary for the high management in the organization. They have to provide fast and easy access to the information that is necessary for the effective execution of the corporate strategy. These systems should be designed to meet the needs of their users. In other words, they have to provide the relevant information access to internal and external databases in real

time. With this respect process strategic management information systems should provide real information for the current stat of the business operations. Furthermore, their task is to plan the future changes in organization development and the strategic activities for its management. What is notable in this case is that the information should be timely identified. This means that the high managers need to structure its parameters in advance to match their preferences. In the coming few years the application of these systems will have increasingly tangible influence on the activities of the modern organizations and on the work of their high managers. As a result of this fact the will value the importance of these systems more and more.

The process expert management information systems serve to accumulate data in a particular specific area. In the framework of the organization this system is reviewed as a product for provision of expert information. Thus its structure is established based on two components – knowledge database and software module. They are designed to search for solutions for specific issues and respectively to provide answers. The knowledge database of the expert systems consists of rules and facts. The software modules cover a number of activities for generating and processing of information. Thus the program supports various data by synthesizing and providing it like particular decisions. The conclusions are concretized through identification of activity directions. This is happening by using two methods. The first method compares the rules with the facts. The second justifies the conclusions by analyzing if they are obtained as a result of the application of the rules to the facts. Form this point of view the information systems for expert management are also called knowledge based systems.

The business processes team management systems are implemented on the grounds of integrated program products. They are a modern form of communication. In particular, they are a tool for team work in virtual environment. Therefore they unite the efforts of the people to influence the business processes by using advanced information technologies. On its part, this type of communication connections does not depend from the business, the size of the organization and its headquarters. For a great extend this fact would allow the employees inside and outside the organization to maintain creative contacts among them and to react duly to the correspondent changes in the structure and the content of the used information [7].

The application of the information and communication systems in change management of the business processes would not be possible if thee is no human factor during the conduction of this activity. In this respect the managers and the specialists in information technologies exercise essential influence for their rational execution [8]. This is why it is necessary to review them as a main factor for the structuring of the information exchange in the organization.

The main role of the IT managers in the project for business processes change is to provide relevant conditions for their effectiveness. In this case it is necessary that they



undertake actions for the normal use of information and communication systems. Priority identification in the area of information technologies is an essential component of IT managers, activities. With this respect they have to establish the benefits of their use. Also analysis and evaluation of the software product should be done. When the business processes are redesign the software should not complicate them unnecessarily. In other words the software should not be sophisticatedly set up, but on contrary – the purpose is to ease the work on the introduced changes. In this direction there should be particular test done to identify the economic effectiveness of any program decisions [9]. It is important to identify the real parameters and the result of their adoption. Furthermore it is necessary to create favourable prerequisites and appropriate working climate for effective application of information technologies.

The IT specialists are also one of the factors with high importance as far as the introduced change is concerned. They have direct influence on the development and the application of the software products in the organization. Moreover they contribute to the effective conduction of the operational work in information technologies area. An important question in this direction is if software that corresponds to the change process should be created, or another one, which is bought from a production company, should be used [10]. In both cases the software has to be in line with the requirements of the change. Furthermore it is necessary that it coincides with the organization goals as far as the change of the business processes is concerned.

In the change process managers need more power to control the information resources and processes in organizations, which means [11,12].

- Managers require power to achieve their goals. Even when managers have good ideas they could not realize them without using power.

- Managers need power to reduce the uncertainty or frustration of employees. In this case they use power to create positive attitudes towards work in their staff.

- Managers need power to generate even bigger power. When they have formal power and access to the organization's resources, managers aim at increasing this power. This would result in greater influence on staff and would eventually allow them to use it for a longer period.

- Managers need power to satisfy personal ambitions and achieve personal objectives. Work refers not only the professional interests of managers but also to their ego. This is a natural process of human psychology since individuals always aim at (consciously or not) receiving positive assessment from others, which in turn would lead to good self-assessment.

## VI. CONCLUSION

Over the past few years the information technologies enforced as a main tool for achieving corporate competitive power. The integration of high technology equipment in the activities of the industrial business structures is a main testimonial for the formation of new organizational culture. As far as the introduced change is concerned, it founds an expression in the application of new and advanced approaches for the successful redesign of the business processes. In this sense the information technologies create complex framework for structuring of the working operations and support the people efforts in the process of the introduced change concept. As a result of this, their influence will also grow. This fact is due to the circumstance that the computers in the business are already not only objective fact, they are simply a necessity. Precisely from this point of view the parameters of their application will broaden. They will vary in borders where it will be possible to achieve a number of optimal results.

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