

MANAGERIAL NOVATIONS IN CONSTRUCTION USING INFORMATION-COMMUNICATION TECHNOLOGIES

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The article analyzes new demands placed on modern business associations of the construction sphere. In conditions of knowledge based economy it is necessary to take into account tendencies of the increasing use of information-communication technologies. The authors of the research found out that the key point in the implementation of effective relationships between business associations members of the construction sphere is the InfoCom-system. Requirements to increase the level of interaction of managing business organizations to implement effective management decision by the management of business associations in the construction sphere under it's material-virtual business environment were identified. These management innovations allow to provide such cooperation with the implementation of a functional relationship to ensure all business enterprise structures within the boundaries of the business associations of the construction sphere on the basis of the use of info-communications and information-communication technologies.

Keywords: material-virtual business environment, InfoCom technologies, InfoCom-system of management, source "knowledge", construction sphere

Currently, the increasing use of information-communication technologies (ICT) in contemporary business associations of construction sphere is of particular relevance. In this regard, the article deals with three issues related to the managerial innovations in terms of material-virtual business environment (MVBE):

1. Tendencies in construction sphere due to the use of ICTs.
2. Features of management association activities of the construction sphere in terms of MVBE.
3. Management innovations with the use of ICTs for management in business associations of the construction sphere (BACS) under MVBE.

An analysis of set goals raises scientific interest and updates solution of tasks, which should help to improve management in construction.

Tendencies in the construction sphere due to the use of information-communication technologies

Today widespread use of ICTs and the Internet in the global socio-economic and organizational-administrative activities of people and organizations have led to the emergence of evolutionary forms of social relationships, the nature of which is peculiar to the emergence of a completely new type of economy.

The emergence of economic organizations in the form of integrated associations, interacting with all stakeholders (community, the state, the world) to implement and achieve common goals, became a convergence of private and government sector with generation of big business to create large-scale projects and achieve benefit of the society and the state.

The study of factors and the nature of relationships in these associations drew such conclusions [1]:

- An objective need for this type of cooperation (association) for the state and for companies has appeared.

- These associations are the organizational form of management, on which basis development is associated with the creation of business structure.

- Integration of subject's resources (investors, private companies, state) leads them to solve common problems of the business alliance to achieve its objectives.

The formation of such business alliances as the BACS caused by changes of the organization's environment where the globalization of markets and the improvement of business methods and technologies have a direct impact on these processes.

The paper [2] identified an innovative mechanism that is required for MVBE for adequate InfoCom-System of management. This mechanism meets modern tendencies and takes into account the requirements of coherence between all industrial and economic actors of the considered business alliance. The advantage of using this mechanism is that it [2, p. 550]:

- contributes to the improvement of the organizational structure (providing innovative mechanism structure of the economy by the introduction of modern management information systems (automation and mechanization) and ICTs, as well as increasing the qualification of experts);

- minimizes or prevents many of risks faced by the economic system;

- stabilizes the activity processes of the integrated subjects;

- adapts quickly integrated structures of generating innovation management processes to processes of implementing such innovations;

- contributes to the sustainability of association's activities in all the scale of appropriate MVBE.

Features of the construction sphere business association's management in terms of material-virtual business environment

Changes in the socio-economic conditions and organizational-managerial processes caused by modern standards take into account the peculiarities of knowledge (network, information) economy forcing organization to go beyond the boundaries of traditional management. Today, the proper use of knowledge with relevant ICTs, InfoCom-means, -systems and -networks is one of the main sources of competitive advantage and sustainable development of economic enterprise structures (EES) under MVBE in construction sphere.

Of course, the involvement of InfoCom-interconnections for effective interaction of all participants united in MVBE's business processes becomes the basis of effective BACS's management performance. All the included EESs must be managed in a new way, with the use of advanced techniques, to improve economic-administrative activity of the socio-economic system (unlike to traditional methods) by applying innovations to the management system based on ICTs.

In modern conditions question of infoCom oriented organizational-managerial innovations is particularly relevant. This implies the effective implementation of management of available adequate and relevant knowledge-based InfoCom relationships in EESs under MVBE. Important aspects of BACS's management innovations are [3, p. 566]:

- Willingness of BACS's employees to shift to a new way of thinking for a successful problem resolution, for the implementation of management and for solution of internal production targets.
- Positive attitude of the company's staff to innovations.
- The willingness and determination of the administrative staff in relation to the upcoming risks and emerging issues for the formation of a new type of organizational culture.
- Willingness of BACS's management to resolve possible conflicts in the relationships of internal and external environment in the formation and development of MVBE's infrastructure.

It is worth noting that the competence of all participants of BACS's business processes is of great importance because a joint economic space with InfoCom-environment through ICTs contributes to the formation and development of the network society and

leads to the pooling of such resources in terms of MVBE as:

- Material.
- Labor.
- Technical.
- Energy.
- Information.

In connection with this search, accumulation, systematization and acquiring of relevant knowledge by each employee in EES from incoming information are prior for resolving arising problems. In turn, the main problem is in the availability of such intangible resources and that, in particular, technical and technological knowledge quickly become obsolete. Hence, knowledge is the most important resource in ordinary use of ICTs and InfoCom-means in business associations. Therefore, transformation (analysis) of existing knowledge and information coming from MVBE forms and generates new knowledge, which is a priority for managers and employees for creating innovations.

It is important to emphasize that one of the main conditions for effective management system operation is competent use of appropriate ICTs to achieve a competitive advantage in the BACS under MVBE. Moreover, new knowledge is acquired in order to overcome the cognitive limitations in the resolution of arising innovation problem (IP), which is necessary for the BACS's managers to mark out.

As a result, managerial innovations in connection with the designated above problem are to ensure implementation of proper interactions by dint of interactions of all EESs within the borders of BACS based on use of ICTs. However, manager's timely revealing of such arising in BACS's business processes IP and making effective management decision should be implemented on the basis of new conceptual management positions in MVBE. The main features of the problem were reported in paper [4].

According to a study [3] on the development of management in construction sphere with the use of ICTs, a key point in the implementation of the result to solve the problem of effective relationships between members of BACS was highlighted. At the same time it was noted that the ability of the EES's staff in purchasing, ordering, and the formation of obtained strategic knowledge in hierarchical order of the relationships between EESs consists of [3, p. 571]:

- 1) InfoCom-Systems with skills and technology of knowledge acquisition and

integration by the all employees of business associations under MVBE;

2) a hierarchical structure where sectors of special knowledge with ratio employee-to-employer in each EES are identified;

3) hierarchy of production processes correlated with the complexity of solution and market value of performing research on this production problem resolving;

4) the level of knowledge accumulated by all employees of InfoCom-integration.

It is worth emphasizing that in paper [3] was also highlighted peculiarity in the search of effective interconnection with the help of knowledge based on the use of ICTs through InfoCom management system to enhance the level of cooperation of EESs in BACS under MVBE for their work in achieving common goals. In our view, these management innovations with the ensuing problem situation or IP must meet such requirements of innovative management and proper actions, assistance and interaction in MVBE as [3, p. 572]:

- The search for new potential relationships in MVBE.
- The search for new BACS's inner resources.
- Revealing of new potential opportunities together with several units or departments.
- Effective management of all BACS's staff considering the use of their knowledge.

All this requires from the person making the decision (PMD) efficiency in the use of integrated knowledge of all BACS and implementation of adopted on the basis of their effective management decisions. Moreover, the management association of EESs under MVBE for purposeful functioning, sustainable development of integrated organizational forms of management, the successful implementation of strategic, tactical and operational management should systematically identify, develop and subsequently apply effective exposure using InfoCom-system at all stages of the goals and solving problems by applying innovative mechanism in the business processes of the construction [4, p. 44]. Therefore, BACS's management accurate knowledge about the structure and composition of it's EESs may in the event of IP involve required employees to various processes. Thereby, individual and collective effectiveness of the EESs improves through the acquisition of advanced knowledge.

In turn, the EES's staff, who assimilate information interpreting it in the relevant knowledge, is endowed with the ability to:

- Retrieve information.

- Identify new challenges in business processes of BACS.

- Regularly reproduce acquired knowledge and, thereby, be the bearers and disseminators of advanced knowledge.

- Learn new solutions and incorporate them into their business processes.

- Apply this knowledge, methods and technologies.

Managerial innovations with the use of information-communication technologies for the management of the business associations of the construction sphere in terms of material-virtual business environment

As our research shows to an increasing degree management of BACS under MVBE with the dynamics of occurring within it's boundaries interactions should structure knowledge about competencies of EESs and their staff to implement effective administrative decision upon a problem situation or IP. It is necessary to take into account the need to implement this in the limits of the formation processes of maintaining and developing the proper organizational culture. Such organizational and cultural environment will systematize administrative procedures to facilitate coordination interactions to resolve problems. Therefore, you should also note the need to motivate employees to acquire knowledge, which depends on the development of organizational culture. Consequently, the ability of BACS's management system to ensure the greatest possible acquisition and operational knowledge transfer between EESs under MVBE is one of the priorities for the high probability successful resolution of ensuing IP.

By acquiring and assimilating knowledge each EES of BACS aspires to perform a time-consuming and expensive business process. Thus, it increases their profitability and makes due contribution to the success of the entire BACS. This is the main motivating incentive for all participants of the BACS.

According to a study [5] for the entire organizational system of BACS proper management with the ability of effective adoption and making administrative decisions in the conditions of EES's influence with the use of ICTs in the corresponding MVBE is required.

As a result of research taking into account hereinbefore explained a number of benefits has been identified, for which the

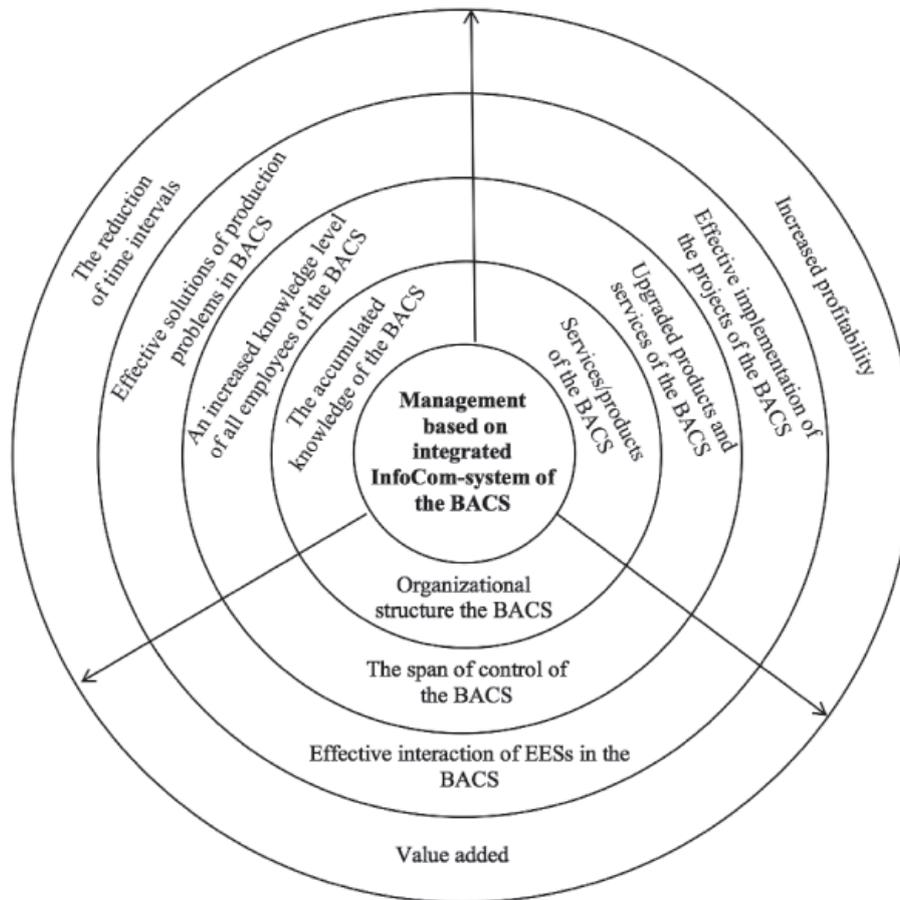


Diagram of components of the result of effective solution of BACS's production problems with the use of InfoCom integrated systems [5, p. 40]

interaction with InfoCom-system takes the following form [5, p. 37]:

- EES performs the production process and in the course of implementation makes the database object proposals for a possible correction;

- EES in real time can watch how the management decision is implementing and to introduce amendments into their production processes according to the results of management influence;

- management by monitoring the performance of work at all stages of the construction by all the participants of the construction site with the help of ICTs allows BACS's management continuously track the use of resources, materials and equipment, as well as the actual weather conditions and other numerous variations and risks.

In conclusion on this publication we note the following.

1. The use of the above stated management practices can help managers of organi-

zations of the construction sphere to restructure its activities in accordance with new requirements to the formation of an effective management system using the capabilities of information and knowledge impact on the participants of the business processes with the use of ICTs. Thus, competent implementation of considered here innovative management actions leads to a qualitative shift in the organizational structure in the form of effective relationships and interactions in the industrial, socio-cultural and economic-administrative BACS's processes. This type of management produces innovative organizational culture [6] based on the effective resolution of BACS's production problems with the use of InfoCom integrated system.

2. Considered innovations of BACS's management take into account InfoCom direction and effective implementation of control functions with adequate and relevant knowledge for realizing targeted interrelated interactions. This forces the modern

business associations to operate in MVBE with appropriate scale-space InfoCom mediated interactions in real-time. In turn, such modern business association as a socio-economic system made up of elements (EESs) realizes all stages of building production process with a strong integrated nature of the partnership through interconnected InfoCom-means and ICTs. At the same time it is possible to integrate intellectual-creative potential and knowledge of the BACS's participants.

3. It is the use of integrated knowledge of all business alliance for the development, adoption and implementation on the basis of their effective management decisions may lead to the improvement of the BACS's quality management system activities with competent use of proper network of relationships in the InfoCom-system.

The result of efficient production through the use of stated knowledge is the appearance of added value by reducing time intervals between stages of production processes [5, p. 39].

In our opinion, such an application of knowledge in making and implementing man-

agement decisions with the use of ICT leads to efficient production processes (Figure).

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