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THE STRUCTURE OF INFORMATION ENVIRONMENT OF REAL ESTATE DEVELOPMENT PROJECT

The peculiar properties of construction of information environment of real estate development projects are considered. The objective and procedural structures of this environment are offered and its descriptions are presented.

Keywords: real estate development, projects management, information environment

INTRODUCTION

The formation of market-driven economy in Ukraine awakened to life a lot of initiatives related to entrepreneurs' capital formation and increasing. It is well known that real estate is one of the most profitable and stable spheres of activity. Building, operation, sale or renting out of real estate objects is a profitable business in both developed and developing countries. That is why the considerable interest in Ukraine lately is attracted to the real estate development [1].

Real estate development projects are characterized by complexity and uncertainty, significant dependence on the dynamic environment, including socioeconomic, political, financial, economic, regulatory influence of both the state and competing companies, as well as business partners [1]. They can be not successful without qualitative information. Imperative of present time is to find out scientific ways to manage information in order to create effective systems of real estate development project management.

1. ANALYSIS OF LATEST RESEARCHES AND PUBLICATIONS

Management of development projects has received considerable attention in project management [1-6]. There were developed scientific and methodological tools for project management in the face of uncertainty [7, 8]. Except of this, researches give important place to the issues of information management according to life cycles of projects [9-11]. But there emerges the problem of approaches integration and new methods and information management models developing exactly in development projects.

2. THE UNSOLVED PART OF THE PROBLEM

According to the analysis, the main researches focus on the creation of tools for project management in conditions with complete information or in conditions of uncertainty. But first of all, the specific features of development are not completely taken into account and secondly, these researches are not focused on the problems of information management in development projects, including the creation of relevant information environment for development projects. Thus, there appears the scientific challenge to create methods, models and tools of development projects information environment management systems, which should be suitable for practical implementation in Ukrainian real estate development companies.

3. SCOPE DEFINITION

For effective managing of real estate development projects it is necessary to create scientific and methodological basis of such forms and methods of information environment which could be applied in dynamic environment and conditions of uncertainty, produced by sociopolitical and economic situation in Ukraine, absence of required number of professional project managers, poorly prepared information infrastructure, etc. This will allow establishing of effective development projects management systems to ensure the achievement of rigid requirements of investors to time and cost parameters of the projects and their quality in conditions of uncertainty and dynamic environment. The achievement of such results is possible through the development of original scientifically based organizational forms, methodologies and technics of managing the information environment of real estate development projects. This article proposes new structure of information environment for real estate development projects, which may become the basis for further researches and development of methods to manage this environment.

4. THE MAIN DATA FOR RESEARCH

The peculiarity of Ukrainian real estate development is that most of owners and top managers are in such a hurry to implement a project that they make it without having even minimum of information about the project, with incomplete working documents, with not signed agreements, etc. All this makes significant uncertainty and leads to numerous changes in the project.

The analysis shows that existing models and methods do not allow managing soft component of development projects effectively. This research problem is caused by current lack of information management standards for real estate development projects in the process of real estate objects building in dynamic, unpredictable environment. As a result, the approaches for receiving the information in development projects are oriented to standard methods and models being used in

sphere of informational technologies. The matter is they are not suitable for applying in such complex projects as real estate development projects are, especially when realized in complicated sociopolitical, financial and economic conditions in Ukraine.

To solve this problem it is needed to use new methods of development projects information management - methods which will allow establishing relevant information environment of the project, that in turn can make it possible to manage development project effectively, so that such methods will be used by owners and top managers. In fact, there is a necessity in formation of some superstructure for these technologies in form of development projects information environment management system. To make project management system effective, it is necessary to formalize the process of decision making on all way of information from external environment to managers' understanding of what and when should be done. In addition, the number of system technical problems should be solved [9, 10]. After all, realization of any intention, including optimization of information management processes, has to be considered on all stages of this intention's life cycle. So, taking into account all of this, we could note that there is a large sphere of activities on optimizing development management processes through the improvement of project information management processes.

Traditionally, information management in development companies and projects is a process based on knowledge of specialists in information technologies, but not specialists who understand needs of a project - project managers. This makes more difficult and longer the processes of creation of project management systems and leads to losses in projects. This could be explained by following reasons:
1. Project leaders, who are professional project managers, are busy with their "own" projects, but not with problems of management of project information environment. They are managing formation of project products, but not creation of management system, based on up-to-date and full information about project.
2. The lack of professional experience in information management in projects.
3. Not full, not correct, not in time achievement of information from different sources.

On the other hand, existing of specified sources of information in development projects allows standardizing of approaches to information environment management. To make this we need to decline traditional scheme of realization of information technologies, as complex of methods and tools of transformation from information resource type to type of information product, but to consider questions of information environment management of development project as management of both objects and processes [10]. So it is proposed to use 4-levels model of information environment of development project. These are levels of knowledge, information product, and information resource and information environment. By developing detailed model of information environment it is possible to answer the question - which system of management of informative environment it is needed for development company, to formulate criteria, aims and structure of such a system and to develop rational processes of filling of this environment. Let it be:

1. $I^o = \{i_1^o, i_2^o, \ldots, i_{n_o}^o, \ldots\}$ - information environment of development project. This is information stored in different sources which are owned by organizations and people, related to project. It could be different regulatory and institutional documents, requirements of regulatory and implementing bodies, archives, internet environment and so on. We will consider this multitude open, because limits of this environment could not be set.

2. $I^r = \{i_1^r, i_2^r, \ldots, i_{n_r}^r\}$ - information resource of development project. There are standards, design estimate and engineering documentation, institutional decisions, technics and so on. Origin of information resource is information environment of development company and knowledge of specialists, who are forming information resource, and also professional activity of specialists and managers of project parties, directed on formation of necessary information for development project.

3. $I^п = \{i_1^п, i_2^п, \ldots, i_{n_п}^п\}$ - information product of development project (information is used in the process of decision making by managers and specialists). The source of information product is information resource of development company and knowledge of specialists, who are forming information product.

4. $I^3 = \{i_1^3, i_2^3, \ldots, i_{n_3}^3\}$ - knowledge of managers and specialists, related to professional activity in sphere of development project management. Sources of knowledge are process of training of managers and specialists (their studies), experience, received in this and other projects, information product of a project.

Development of information environment is possible only in case of permanent realizing different procedures of information transformation from type of information environment to type of information resource, from type of information resource to type of information product and finally from type of information product to knowledge of specialists and managers. Let us make following notations:

1. F_o^r - procedures of information environment transformation to information resource of development project.

2. $F_r^п$ - procedures of transformation of information resource to information product.

3. $F_п^3$ - procedures of transformation of information product to knowledge.

All the procedures of transformation of information are the elements of system of management of development project information environment:

$F = F_o^r \cup F_r^п \cup F_п^3$ - procedures of management of information environment of development project (PMIE DP).

Now it can be written this way: $S = I^o \cup I^r \cup I^п \cup I^3 \cup F_o^r \cup F_r^п \cup F_п^3$ - informative environment of development project, in which transformations are realized as following:

$$I^o \xrightarrow{F_o^r} I^п$$
$$I^r \xrightarrow{F_r^п} I^п$$
$$I^п \xrightarrow{F_п^3} I^3$$

Now it is necessary from the position of methodology of project management for each type of information transformation (information procedures) of development projects to create technological standard of information environment management. From this point of view for successful activity on home market each development company should create systems of information environment management, which are characterized by:

In terms of organization component:

- Effective management of information transformation technology;
- Participating of competent specialists;
- Existing system of permanent training and control of professional level of project team members;
- Using world experience of project management;
- Centralization in functions of information management in the projects - center (office) of project management.

Centers (offices) of project management should become the main chain in information environment management of development projects.

In terms of functional component:

- Standard of management of development projects information environment;
- Permanent improving of the processes of development projects information management;
- System of documents flow management, which will allow providing necessary information to managers and project specialists.

In terms of technological component MSPM:

- Information technology of management of development project information environment;
- System of information support of development projects, which will allow to choose from functional environment and both in full volume and in-time to show information about realized actions on projects in information environment;
- Systems of informative communications in developer projects, which make it possible to do and to perfect formalizing informational change between participants of project management.

Realization of given functions is laid on system of management of development projects information environment and will provide creation of projects management system in the process of realization of investment projects of development company.

CONCLUSIONS AND OPPORTUNITIES OF FUTURE RESEARCHES

There was formulated task of increasing development effectiveness based on formation development projects information environment management methods, models and structures oriented on Ukrainian conditions. Also it was shown that existing situation in development needs creation of projects management systems, able to use in-time and effectively information resource in all processes of man-

agement. New approaches, new views, new methods of information environment management are needed, such methods, which could be effectively used according to requirements, presently demanded to development. This article proposes such an approach.

There were pointed out the main directions of development, composition and modern theoretical and methodological conceptions of creation of information environment management systems for development projects. The next step of research is passing to creation of models, methods, standards and technologies of information environment management. This will be the topic of the further author's researches.

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STRUKTURA ŚRODOWISKA INFORMACYJNEGO PROJEKTU DEWELOPERSKIEGO

W artykule rozpatrzono specyfikę tworzenia środowiska informacyjnego w trakcie powstawania projektu deweloperskiego. Zaproponowano i scharakteryzowano składniki tego środowiska.

Słowa kluczowe: deweloperstwo, zarządzanie projektem, środowisko informacyjne