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## Basic principles and formation stages of the system of relations between participants of the investment process under risk conditions

The investment process of construction and operation of real estate objects constantly requires taking into account the interests of all its participants and the need to establish stable relationships between them. In the context of the implementation of such processes, various organizational and technological situations arise, when the nature of their functioning and development sharply changes, which determines the shift of interests of each of the sections of the investment process, as well as the directions of their functioning and development in the housing market, taking into account the accumulated experience and potential. This determines the need to form such a system of relationships between participants in the investment process that will ensure minimum risks in the creation of the final product, aimed at stabilizing the entire construction industry and processes, reducing the influence of the external and internal environment. The research methods used in the work are theoretical analysis, empirical study with subsequent generalization and systematization of the obtained data, in addition, the main scientific approaches were used: "dialectical", "systemic", "dynamic", "variant", "balance" and "modelling". The object of the study is the main stages of the investment process, including the stages of pre-design, design, construction and operation, as well as participants in these processes. The procedure for forming a system of relationships between participants in the investment process based on the use of basic investment principles in order to increase the effectiveness of this system in various organizational and technological situations and the influence of various types of risk is considered [1, 2]. The use of various mechanisms in the field of rational forms of organization of material production in the activities of enterprises for their effective management and construction of real estate at the stages of the life cycle will increase the stability and reliability of their work under the influence of risks and uncertainty factors of construction production.

**Keywords:** participants of the investment process, investor, investment strategy, stability, sustainability, reliability, production process, organizational and technological situation, relationship system, risks, stages, factors, life cycle stages



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### INTRODUCTION

The number of participants in the investment process is significant and their functions and interests are diverse, while the customer (investor) is usually the center of the investment process. It determines the interaction with all other elements of the current system and performs the functions of a controller and operator of the entire course of operation and development of the process and project implementation. Numerous uncoordinated actions between participants in the construction process determines the presence of a difficult problem to implement, which leads to a longer project implementation period, an increase in the duration of construction, as well as a deterioration in the quality of work, an increase in various types of costs at the stage of operation of the project. Given this situation, there is a need to adjust methods and approaches in the implementation of construction projects based on the formation of a reliable and sustainable system of relationships between all participants in the investment process. It also requires the allocation of responsibilities during the implementation of projects for various purposes. The need to solve this problem within the framework of the formation of a system of relationships between all participants in the investment process and the rational use of investment principles will create the basis for reliable and sustainable development of construction enterprises and production processes in the construction of real estate, which determines the relevance of this research [3, 4].

### MATERIALS AND METHODS

The research methods used in conducting research are theoretical analysis, empirical study, followed by generalization and systematization of the obtained data. In addition, the main scientific approaches were used: "dialectical", "systemic", "dynamic", "variant", "balance" and "modelling". The object of the analysis is the organizational and technological scheme of the functioning and development of investment processes for the construction of real estate in a risk environment. The basic principles of investment and the stages of forming a system of relationships between participants in investment processes at all stages of the life cycle of the construction of real estate in the housing market are considered. The theoretical and methodological basis of the research is the scientific publications of foreign and domestic scientists and practitioners devoted to the research of the problems of forming a system of relationships between participants in investment processes, the provisions of economic theory and management. Statistical and other information sources, materials characterizing the specifics of production and economic activities of the main participants of the process and their relationships in risk conditions, expert opinions, legislative acts and other regulatory and legal documents in the construction industry formed the empirical basis of the study.

### RESULTS

The system of economic relations finds its manifestation in various aspects of the activities of

► enterprises, which is characterized by deep and superficial, episodic and cyclical, long-term and short-term processes. The main condition for the effective functioning of these processes is the availability of necessary investments, which makes it possible to consider them as a category that has an objective dialectical, systemic character. At the same time, investments include the following main functions that allow construction organizations to develop and function effectively: regulatory, distributive, stimulating, indicative, etc.

The implementation of these functions allows you to control the development of all production processes and develop such regulatory mechanisms, the provision of which guarantees the onset of a stable and balanced state in the investment and construction sector of the complex, and also allows you to give it a stable and rational development based on the growth of the investment potential of enterprises in the region.

The interaction of all participants in investment and construction activities is aimed at obtaining the maximum possible income from the use of tangible and intangible assets. The effectiveness of their activities is conditioned by the need to take into account a number of features necessary to ensure: the timing of construction and the investment cycle; the quality and reliability of facilities under construction; prices of construction projects; innovative construction technologies (through building codes rules and standards); financial technologies (through the financing procedure and liability regime); information technology (through analysis, control and adjustment); organizational technology (through the organization of production and management); legal technology (through the contract system).

The implementation of investment projects involves the interaction of a number of participants — an investor, a developer, a customer, a contractor, a design organization and an operating organization. The difference in the approaches and activities of each of the participants often leads to contradictions between them, which weaken the results of the project, or slow down or block this construction project at any stage.

The investor/developer/customer is not always the same person, which also adds to the number of participants in the process and often negatively affects the timing and quality of the final product.

In addition, with the introduction of bank financing of residential investment projects using escrow accounts, the role of the bank acting as the actual creditor of the investor/developer has increased significantly. In fact, banking organizations have become another participant in the investment process, participating in the selection of design and general contracting organizations and determining the terms of contracts with them. In addition, each of the participants pursues their own goals and interests during the implementation of the investment project, but there is no clear and understandable system of relationships for everyone, each participant sees it in his own way and this often leads to negative consequences up to the suspension of the project.

At the same time, the investor (developer, customer) in this system is the main link that must ensure stable connections between all sections, determine their goals and objectives, create all the necessary conditions for their stable operation in all production processes and phases of the investment cycle. First of all, it affects the investment and information resources of production, on which the entire course of functioning and development of production processes depends, as well as labour resources with their accumulated potential, on which the stability of the internal environment of enterprises depends [5, 6].

The conducted analysis of foreign and domestic experience on this problem has shown that the production and social spheres created on the territory of different regions have a large accumulated potential and large capacities of objects, and the level of investment activity of potential investors in some regions is low, there is a sufficient number of qualified personnel and specialized departments of enterprises for real estate objects.

At the same time, investors should ensure conditions for mobilizing all internal reserves of participants at all stages of the production process based on the formation of a stable and stable system of relationships between them and the development of an effective appropriate investment strategy based on the implementation of the following basic investment principles:

1. The principle of investment efficiency. It is aimed at ensuring that any investment in the process always brings a certain income. At the same time, the subsequent investment of real estate provides less income than the previous investment due to the formation of various types of losses and risks in the process, and vice versa.

2. The principle of "putty". Its essence is determined by the fact that the number of degrees of freedom in the course of making organizational, technological and managerial decisions in the process of investing decreases as part of the implementation of specific options for the construction and investment of real estate. This is due to the need to ensure sustainable and reliable development of processes in the external and internal environment of their functioning.

3. The principle of combining material and monetary valuations. It is reduced to the necessity to take into account in one unified system various indicators and parameters of the activities of enterprises and participants in the investment process when they implement specific tasks (production, economic, social, environmental, etc.). This principle is aimed at ensuring stable relationships between participants in the formation of a reliable system.

4. The principle of adaptation costs. It is aimed at ensuring that the effect of investing in production processes during the construction of real estate comes after a certain period of time, the amount of which depends on the conditions of specific situations of their development and the reliability of the established system of relationships between participants in their construction.

5. The principle of the multiplier. It comes down to the fact that obtaining the effect of investing in the construction industry of the regional complex creates the necessary conditions and causes corresponding effects in other related sectors of the national economy, and vice versa, which affects the creation of a stable system of relationships.

6. "Q-principle". Determines, when choosing a specific investment option for real estate and the activities of enterprises and other participants in the investment process, the most effective conditions for their investment and implementation in this option are determined from among all other alternative options, which also contributes to the formation of stable relationships between all participants.

Based on the above, the activity of the investor (developer, customer) and other participants at all stages of the investment cycle is a rather lengthy and complex process and therefore must be carried out taking into account a certain perspective. The formation of the directions of this activity, taking into account the perspective, is the process of developing an investment strategy [7, 8].

The complexity of this process also lies in the fact that when forming such a strategy and system of relationships, an extensive search and evaluation of all possible options for organizational,

technological and investment solutions that most fully correspond to the goals, image of the company and the tasks of its development is underway. A certain difficulty in forming a strategy also lies in the fact that it is not static, but requires constant periodic adjustments when creating a system, taking into account the influence of environmental factors and the presence of various types of losses and risks in the system.

The formation of the strategy is based on forecasting the housing market situation in the external environment of solutions that most fully correspond to the image of the company and the tasks of its development. The complexity of forming such a strategy also lies in the fact that it is not static, unchangeable, but requires constant periodic adjustment taking into account changing factors of the external and internal environment, which also affects the process of forming a stable and reliable system for all participants in the construction of a real estate object.

The main process of forming a stable system of relationships between participants in the investment process includes several stages:

1. The initial stage of the development of the system and strategy is reduced to determining the general period of its formation.

2. The formation of the main strategic goals by the investor and the establishment of a relationship with all participants in the investment process. The formation of strategic goals should be linked to the stages of the life cycle and the goals of the production and economic activities of companies.

3. The development of effective ways to achieve and implement the strategic goals of production and economic activity is carried out in two main directions: the development of strategic directions of activity; the development of the formation of a system of relationships between participants and investment resources.

4. Development of strategic directions. Investment activity and the formation of options for a system of relationships between participants are based on taking into account the interests of all participants in general throughout the entire development of the investment process and each of them individually. They are carried out by generating the necessary investment resources. The process of forming investment resources is an important component in the system, aimed at ensuring uninterrupted investment activity in the stipulated volumes, the most efficient use of basic production resources in the long term.

5. Development of a strategy for the formation of investment resources and a system of relationships between all participants. This stage of strategy development in the formation of a system of relationships provides for the establishment of a sequence and deadlines for achieving individual goals and strategic objectives. In the process of this specification, external and internal synchronization in time is ensured.

6. Evaluation of the developed strategy for the formation of a system of relationships between participants in production processes.

Thus, the development of an investment strategy in the formation of a system of relationships between participants makes it possible to make effective organizational, technological and managerial decisions related to the functioning of the entire company in the face of changes in external and internal factors determining this development.

The formation of uncertainty and risk factors in the construction system under the influence of the external and internal environment leads to the fact that the production processes of construction and operation of real estate objects significantly deviate in time and space from their normal, stable functioning and development.

There are three known ways to assess the accounting of uncertainties: checking the sustainability of the project; adjusting project parameters and economic standards; a formalized description of uncertainty.

Uncertainty refers to the incompleteness or inaccuracy of information about the conditions for the implementation of an investment project (IP), including the costs and results associated with these conditions. The uncertainty associated with the possibility of adverse situations and consequences during the implementation of the project is characterized by the concept of risk.

When evaluating projects, the following types of uncertainties and investment risks are considered the most significant, namely: the risk associated with instability of economic legislation and the current economic situation, investment conditions and profit use; foreign economic risk (the possibility of restrictions on trade and supplies, border closures, etc.); the risk of adverse socio-economic changes in the country or incompleteness or inaccuracy of information on the dynamics of technical and economic indicators, parameters of new equipment and technology; fluctuations in market conditions, prices, etc.; uncertainty of natural and climatic conditions, the possibility of natural disasters; industrial and technological risk (accidents and equipment failures, manufacturing defects, etc.); uncertainty of the goals, interests and behavior of participants; incompleteness or inaccuracy of information about the financial situation and business reputation of participating enterprises (the possibility of non-payments, bankruptcies, failures of contractual obligations).

When implementing the strategy, it is necessary to accurately identify the conditions and factors of the external and internal environment that have the greatest impact on the functioning, stability, reliability and sustainability of the development of production processes and the formation of a system of relationships between participants in the construction of real estate [9–11].

#### *Factors of the external environment:*

1. *Economic.* One of the main groups of factors influencing the development of production processes and enterprises. Commodity prices, the floating exchange rate of the national currency, the inflation rate and interest rates on loans are important indicators reflecting the state of the national economy.

2. *Political.* Along with economic factors, they have an impressive impact on the development of enterprises. The inflow of investments from foreign investors depends on the current political situation in the country.

3. *Social.* Cultural and demographic factors existing in a country or region often determine the boundary between profitability and unprofitability of construction organizations and other participants in the construction of real estate.

4. *Environmental.* The state is paying more and more attention to the environment, and in this regard, companies in the housing market have to adapt to these changes. The quality and environmental friendliness of building materials, the location of the facilities being built, etc., force companies to pay an important role to ecology in the strategic planning of many developing industries.

5. *Legal.* This group of factors includes the degree of legal regulation of contractual relations, the composition of existing laws and regulations, guarantees for the safety of enterprises, clarity of wording of legal norms, etc. These factors determine the legality of the conclusion and quality of performance of contractual relations, the legality of business transactions, the possibility of resolving disputes and other conflict situations.

► *Factors of the internal environment:*

1. *Technological.* Scientific research has a significant impact on the development of the enterprise, allows to improve technologies, increasing competitiveness. The level of technological development makes it possible to build production business processes rationally, which directly affects the efficiency of enterprises.

2. *Organizational.* A system that allows the rational use of human resources, finances of the organization, equipment, labour items, building areas of the organization, financial and information resources.

3. *Personnel.* The personnel potential of the company's employees, the level and quality of tasks that can be solved by the company's personnel determine its competitiveness in the market and stability.

4. *Management.* Management efficiency provides the basis for the stable development of the real estate construction process and the possibility of creating a stable and reliable balance to take into account the impact of negative environmental influences, the allocation of resources necessary to achieve strategic goals in a short time.

5. *Investment.* Factors showing the degree of investment attractiveness of the business and the implementation of the overall strategy. At the same time, the stability and sustainability of the established system of relationships between participants in the construction and operation of real estate objects, their financial condition increases the likelihood of attracting additional capital for the implementation of construction projects.

The normal mode of functioning of the created system of relationships between all participants in the investment process is characterized by the main criteria of their condition: reliability; stability; sustainability.

These criteria complement each other and do not exist in isolation from each other. In their unity, they form a complex characteristic of the participant's position in the market within the framework of the normal mode of its functioning.

Typical signs of the participants' conditions and development are characterized through a system of quantitative and qualitative indicators. The composition of these indicators should ensure the specifics of the participant's functioning and its focus on identifying emerging cause-and-effect relationships under risk conditions. These include: parameters of the organizational and technological level of construction production, characteristics of business and investment activity, profitability of production, indicators of the organizational structure and management regulations.

The generalized indicator of organizational and technological stability of the system participant's activity in the production processes of construction and operation of real estate objects can be defined as a share according to the following calculation formula:

$$E_{ots} = K \cdot K_{as}(1 - V_{vz}) \leq L_r, \quad (1)$$

where  $K$  is a coefficient that takes into account the reliability of calculations;  $K_{as}$  is the coefficient of a comprehensive assessment of the activity of a participant in the system;  $V_{vz}$  is the coefficient of variation of private estimates of the indicators of economic activity of a participant in the system;  $L_r$  is the required level of risk necessary for the sustainable functioning of participants in the formation of a system of relationships according to options.

## CONCLUSION

Conducting research on this problem allowed us to identify the main scientific and practical approaches that allow us to form a stable and reliable system of relationships between participants

in the process of construction and operation of real estate, as well as to develop appropriate measures and recommendations to increase the use of their potential, which allowed us to formulate and make the following general conclusions and suggestions:

- recommendations have been made on the implementation of the investment strategy of the construction complex;
- conditions and groups of factors of the external and internal environment of the enterprise that influence the activities of all participants in the formation of a stable system of relationships between them are identified;
- stages of formation and selection of a strategy have been developed in order to stabilize and sustainably develop all production processes at the stages of the life cycle of construction and operation of real estate objects, taking into account the ranking of external and internal factors.

The further development of the overall strategy for the formation of a stable and reliable system of relationships between participants has its logical continuation in the analysis of a set of legislative, legal and economic standards that will ensure the effectiveness of construction projects, solve the problems of unfinished construction based on the transition to innovative and technological innovations, digital technologies and more.

At the same time, the state, when developing a long-term strategy for the development of the construction industry, should rely on the needs of all participants in construction activities, from developers to the population purchasing residential premises.

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## Основные принципы и этапы формирования системы взаимоотношений между участниками инвестиционного процесса в условиях риска

Инвестиционный процесс возведения и эксплуатации объектов недвижимости постоянно требует учета интересов всех его участников и необходимости установления устойчивых взаимоотношений между ними. В условиях реализации таких процессов возникают различные организационно-технологические ситуации, когда резко меняется характер их функционирования и развития, что определяет смещение интересов каждого из участников инвестиционного процесса, а также направления их функционирования и развития на рынке жилья с учетом накопленного опыта, потенциала. Это определяет необходимость формирования такой системы взаимоотношений между участниками инвестиционного процесса, которая обеспечит минимальные риски при создании конечной продукции, направленной на стабилизацию всего строительного производства и процессов, снижение влияния внешней и внутренней среды. Методами исследования, применяемыми в работе, являются теоретический анализ, эмпирическое изучение с последующим обобщением и систематизацией полученных данных, кроме того, были использованы основные научные подходы: «диалектический», «системный», «динамический», «вариантный», «балансовый», «моделирование». Объектом исследования являются основные этапы инвестиционного процесса, включающие этапы предпроектной проработки, проектирования, строительства и эксплуатации, а также участники этих процессов. Рассмотрен порядок формирования системы взаимоотношений между участниками инвестиционного процесса на основе использования базовых принципов инвестирования с целью повышения эффективности этой системы в условиях различных организационно-технологических ситуаций и влияния различных видов риска [1, 2]. Применение различных механизмов в области рациональных форм организации материального производства в деятельности предприятий для эффективного их управления и возведения объектов недвижимости на этапах жизненного цикла позволит повысить устойчивость и надежность их работы в условиях влияния рисков и факторов неопределенности строительного производства.

**Ключевые слова:** участники инвестиционного процесса, инвестор, инвестиционная стратегия, стабильность, устойчивость, надежность, производственный процесс, организационно-технологическая ситуация, система взаимоотношений, риски, этапы, факторы, этапы жизненного цикла

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