

Features of the use of intangible resources for the life cycle stages of real estate

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Abstract. Use of intangible resources that can replace the declining volume of material resources for investment and construction activities is a large reserve of economic efficiency. Moreover, in modern conditions, there is a real opportunity to realize the synergetic effects of expanding the scope of use of intangible resources in the construction. As research has shown, in the context of targeted and resource mobility, the project format of interaction between economic entities makes it possible to optimize the resource turnover and the communication potential of development. At the same time, projects cover the sphere of construction production, as well as the sphere of consumption of construction products. Thus, modern trends in the development of demand form a fundamentally new cost structure. The peculiarity of the new structure is that the proportion of intangible development resources is steadily growing.

1 Introduction

The analysis showed that the use of intangible resources that can replace the declining volume of material resources for investment and construction activities is a large reserve of economic efficiency. Moreover, in modern conditions there is a real opportunity to realize the synergetic effects of expanding the scope of use of intangible resources in the construction.

Following the principle of expediency of investment and construction activities, the degree of achievement of the set goals determines the quantitative characteristics of its results, as well as their priorities within the framework of projections of the subject areas of the impact of factors. Thus, the goals, results and priorities of their achievement will determine the structure of the resource base for development, and the composition of the actors that support the implementation of the goals. As analyses have shown, in the context of targeted and resource mobility the project format of interaction between economic entities makes it possible to optimize the resource turnover and the communication potential of development. At the same time, the projects cover the sphere of construction production, as well as the sphere of consumption of the construction products. Resource characteristics include indicators of turnover of tangible and intangible resources, and the subjects of investment and construction activity of the construction market, such as designers,

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contractors, suppliers, as well as enterprises of natural monopolies and public authorities (Figure 1).

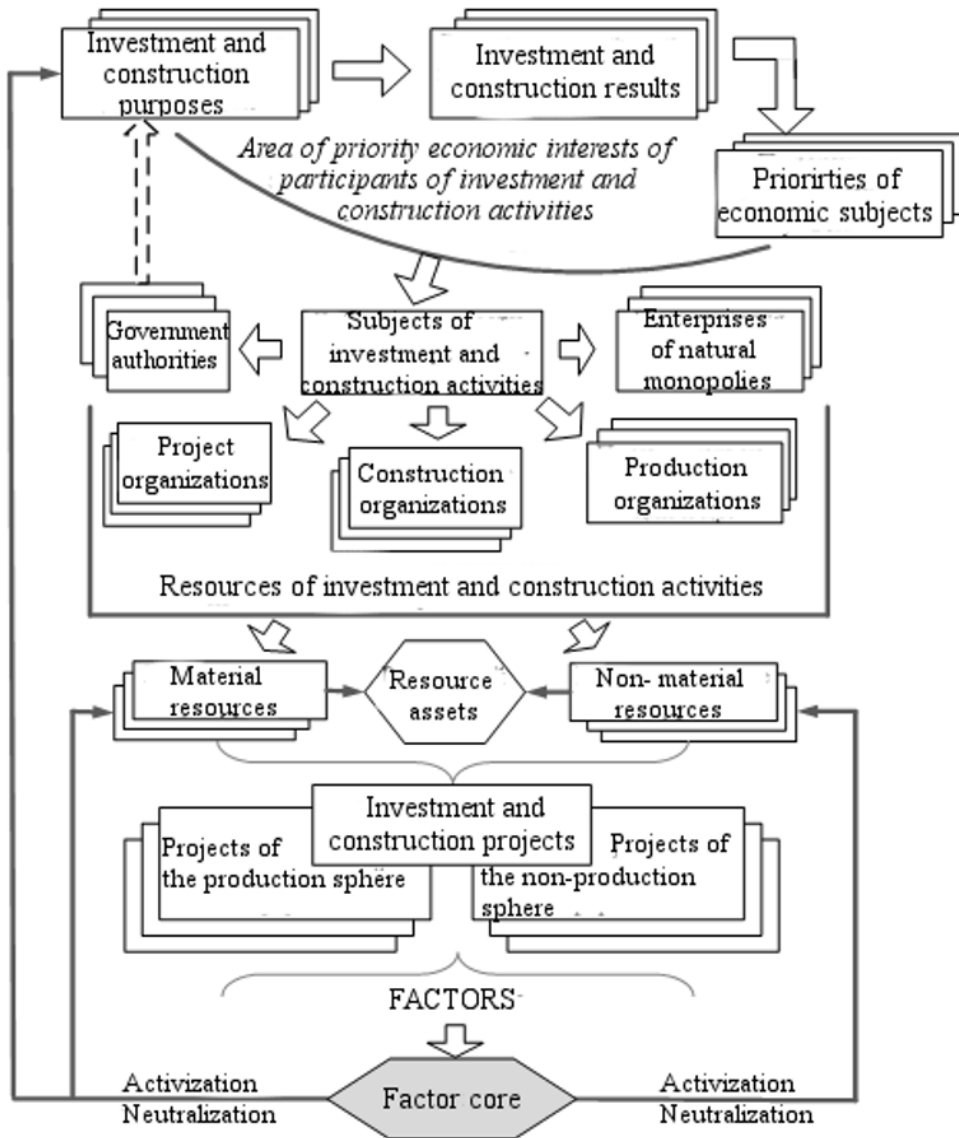


Fig. 1. Resource turnover of the implementation of investment and construction projects within the factor core.

2 Materials and methods

The resource support of investment and construction activities carried out in the project goal-oriented format must clearly correspond to the future functionality and consumer properties of the construction facility. The shape of construction products varies significantly for a variety of reasons, but, perhaps, the main ones, as shown by the analysis of the Irkutsk construction market, are the following:

for the housing sector of real estate:

- 1) shift in consumer preferences towards low-rise housing;
- 2) departure from the large size in favor of functional expediency;
- 3) preference for minimizing operating costs;
- 4) complexity and comfort of the development area;
- 5) presence of the developed public zones;
- 6) ensuring high liquidity in the future;
- 7) multifunctionality of residential real estate, etc.

for commercial real estate:

- 1) multifunctionality and functional mobility;
- 2) resource-saving mode of operation;
- 3) localization in places of the established and increasing demand;
- 4) aesthetic appeal;
- 5) controllability and reconstruction potential, etc.

for industrial real estate:

- 1) functional correspondence;
- 2) resource-saving mode of operation;
- 3) localization in the points of optimal resource supply and marketing of products;
- 4) controllability and reconstruction potential;
- 5) utilization potential and environmental friendliness, etc.

The study of consumer preferences in relation to all types of real estate without exception shows that with complete absence of alternative security for the construction of buildings and structures, as well as for their operational regimes, despite the increased investment tension (including due to the influence of geopolitical factors), all groups of consumers, including those belonging to the production sphere, underline the efficiency of the real estate operation. Of course, this does not reduce the urgency of saving startup costs for design and construction. The study of the reserves of economic efficiency for all stages of the life cycle of the construction facilities [1] has shown that geo-information technologies (GIT) become the main reserve in the modern development context, which can optimize starting costs for construction, construction processes themselves, and operational costs.

At the same time, the ability of GIT to design and provide cost-effective engineering of facilities at all stages of their life cycle at a qualitatively new level allows saving up to 30% of material costs, as evidenced by a number of expert assessments carried out as experimental verification of models of information modeling of construction [1]. In any case, without modern technical equipment and management by operating parameters using software products in the automatic mode, as well as outside the structured information environment and software, it is impossible to design and manage investment and construction activities, and the sustainable development of the industry is impossible in principle. In addition, innovative development, as a reserve for increasing economic efficiency, requires the turnover of intellectual property rights.

3 Results

Thus, modern trends in the development of demand create a fundamentally new cost structure. The peculiarity of the new structure is that the share of intangible development resources is steadily growing. At the same time, some studies [1, 2] have shown that the growth rate of expenditures for intangible resources is significantly lower than the growth rate of the effect obtained from their implementation. Herewith, if we distribute the cumulative effect of using intangible resources on the stages of the life cycle of real estate, in current conditions it hypothetically will have different values (Figure 2).

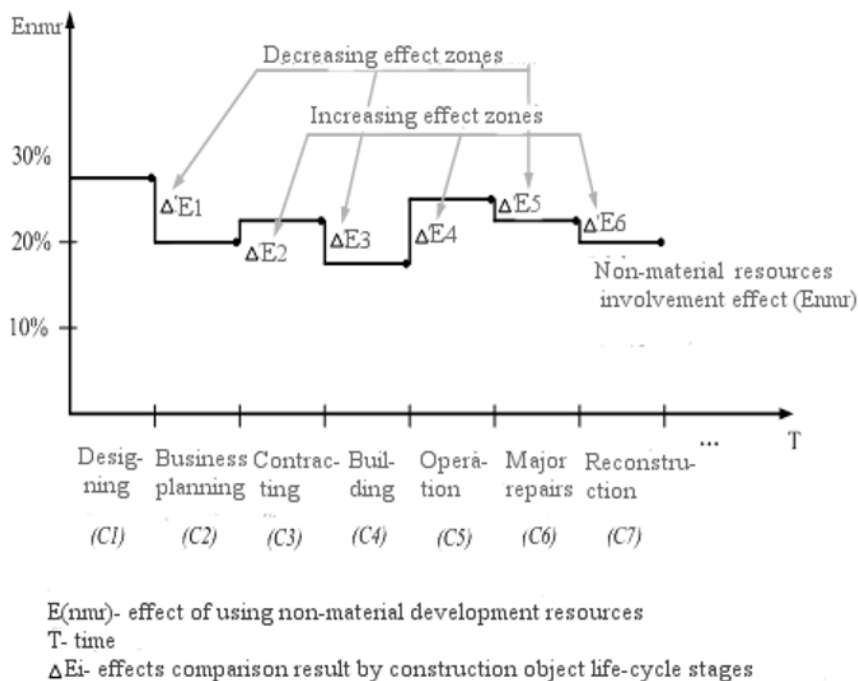


Fig. 2. The growth of costs for intangible resources, depending on the stages of the life cycle of the construction facility.

The purpose of indicating the zones of decreasing and increasing effect on the Figure 2 is to show that at different stages of the life cycle of a construction facility, there is a different potential for the use of intangible resources. According to some experts [1], the maximum is at the design stage. For example, the use of geo-information modeling and resource-based construction pricing method allows identifying up to 30% of the cost savings for design and survey work, at the same time creating a much more accurate basis for business planning and other stages of implementation of construction projects. The cumulative effect of the use of intangible resources, \mathcal{E}_{HMP} , can be presented as follows:

$$\mathcal{E}_{HMP} = \frac{c_1}{3} + \frac{c_2}{3} + \frac{c_3}{3} + \frac{c_4}{3} + \frac{c_5}{3} + \frac{c_6}{3} + \dots + \frac{c_N}{3} \quad (1)$$

In this case, each component of the formula is calculated as:

$$\frac{c_1}{3} = \frac{1}{3}c_1 - \frac{0}{3}c_1 \quad (2)$$

Where:

$3^1_{c_1}$ is the cost of designing in conditions of use of intangible resources (for example, geo-information technologies);

$3^0_{c_1}$ is the costs under the current conditions

Similarly, it can be calculated $\frac{c_2}{3}, \frac{c_3}{3}, \dots, \frac{c_N}{3}$. (3)

4 Discussion

Market monitoring of proposals of intangible resources for the development of investment and construction activities showed the following: [1]

- 1) huge variety of offers, including software, with the dominant position of foreign brands;
- 2) fragmentation and situational use of intangible resources by construction participants;
- 3) existence of persistent misconceptions referring to the use of intangible resources (from pessimistic denial of their potential to exaggerated expectations and hyperbolization of efficiency);
- 4) lack of a uniform pricing policy and focusing on the problems of the construction industry;
- 5) unstructured subject areas of use;
- 6) uncontrollability of the implementation processes;
- 7) unpreparedness of users, etc.

5 Conclusions

It is obvious that the uncontrollability and randomness of the implementation processes objectively deprives the industry of the opportunity to realize the available resource potential.

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