

Innovative Method of Analysis of Actual Cost of Work in Progress

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Abstract. The article focuses on the basic theory and practical aspects of improving the strategic management in terms of enhancing the quality of a technological process: these aspects have been proven experimentally by their introduction in company operations. The authors have worked out some proposals aimed at selecting an optimal supplier for building companies as well as the algorithm for the analysis and optimization of a construction company basing on scientific and practical research and the experimental data obtained in the experiment

1. Introduction

The cost of work in progress is recognized on the balance of general contractor performing this production, in particular the construction, at the end of the reporting period. For example, construction industry, we can most clearly see the real issues of analysis and evaluation of the effectiveness of the valuation of work in progress and taking into account losses associated with this process.

This cost includes all costs of a general contractor for a specific project construction, reconstruction, modernization and overhaul. The actual cost of production of unfinished construction general contractor and the actual cost of construction on accepted and paid for by the customer-developer of the volume of construction and installation works at the end of the reporting period, in most cases, different. As a rule, the general contractor costs exceed the cost of the customer-builder at the end of the reporting period, especially when stopping the construction of a particular object. The reasons for stopping the construction can be a variety of factors - from a lack of funding opportunities to continue building on the part of the customer-builder and the real possibility of the construction and installation works general contractor, as well as groups of external factors [1,2].

The aim of this study was to provide an efficient method for analyzing the actual cost of work in progress. To do this, the following tasks have been solved by the authors:

- Theoretical basis of this method;
- Confirm its functionality and validity by experiment.

2. An analysis of some publications, most relevant to the subject of research

This problem has been well studied and discussed in the literature. Many publications, to some extent, concerns the analysis and valuation of work in progress in construction. However, it proposed in this paper the concept in its ideological form meaningful and practical presentation has not been published. Ideological and substantial side concept intersects with a number of scientific papers, for example, in



the article O.A. Pobegaylov "Investing in the unstable economic system,"[3] noted the dependence of costs on uncompleted works on the objective and subjective negative factors. The article O.A. Pobegaylov and O.V. Klyuchnikova " Rationalization of Strategic Management Principles as a Tool to Improve a Construction Company Services " [4] states that the absence of a mechanism for implementing management strategies hinders the adoption of effective and timely management decisions, which leads to inefficient spending of funds, including at the stage of a work in progress. Assessment of the actual cost of construction depends on the construction of production management strategy, and - increasingly - the production as a whole, as noted in V.V. scientific monograph V.V. Kostyuchenko [5] "System organization and management of construction." The difficulties associated with objective analysis says the monograph David Hussey [6] "Strategic Management. From theory to implementation". Consolidation of ideas leading researchers in the field of production management is one of the objectives of this study

3. Typology of obsolescence and physical deterioration of the property

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4. The study of the problem of suspension of construction

In general contractor and subcontractors work in progress - cost of unfinished work performed under the contract construction contracts, which are collected in the registration of objects section, including paid or accepted for payment works carried out by involved organizations on the construction contract for the period from the beginning of the performance of the contract the construction until its completion. Completion involves the final settlement of the completed construction projects and the transfer of its customer-developer [7].

Features of accounting work in progress at the contractor is able to take account of work in progress as part of the cost of individual structural elements executed or stages of work before delivery to the customer of the construction as a whole.

Construction company performing homogeneous specific types of work or carrying out the construction of the same type (standard) objects with a short term contract enforcement can keep a record of the method of storage costs over time by type of work and the cost centers [8].

In the customer-builder in construction in progress are recorded accepted for payment or paid for contract work performed by contractors completed construction sites prior to their commissioning and delivery of the investor as well as the date of stopping construction.

Stopping the progress of construction work can have a short-term or long-term. The short stop are actions to suspend work for up to six months. If the work has been stopped for a period of 6 months and then, this project is considered a long-term stop [9].

If there was a stop parties, it is important to establish the presence of prospects for the resumption of work in the future. Conservation work is done by developers in order to preserve the opportunity to continue the work on the construction of new buildings. Rules of conservation facility under construction are stated in paragraph 4 of Article 52 of the Town Planning Code of the Russian Federation.

Under conservation facility under construction in accordance with the norms mean a set of measures designed to ensure the safety of the result of work for an indefinite period in a stop construction. Typically, conservation work is carried out for a fee on demand works.

Currently, by Rosstat approved form № KS-17 "Act on the suspension of construction" for registration of preservation of assets under construction [10].

The lack of investment in the construction project - this is one of the most frequent reasons for stopping the construction work. Complications with the search for new financial resources, usually associated with:

- Termination of financing from banks, credit institutions and other borrowers;
- False or unfair financial policy, which is selected by the customer-developer in the conduct of affairs of the company;
- Low level of sales, the results (works and services);
- Low indicator of inflows from sales income;
- Essential unpredictable rising costs of the project;
- Negative developer image, which was formed as a result of the negative reviews, the large number of legal disputes with investors and unscrupulous developers, allowing for all kinds of violations of terms and conditions.

If the validity of documents of title to land is terminated, the developer is obliged to stop the construction. That is why maintaining the territorial development plot provided a construction company on a leasehold basis, entails certain legal risks.

The landlord may at any time apply for early termination of the lease of the land area. Such a decision it may take in case of violation of obligations the tenant to pay the rent or other significant non-compliance with terms of the contract. In this situation, to continue building legally impossible, as long as the tenant will not restore their rights to the construction site, where the building is erected [11].

Building permit acts as the main document regulating the possibility of the person to carry out the construction work. If the action of such an instrument as the building permit has ceased, the developer loses its rights for the construction of an apartment building [12].

Termination of a building permit obtained by the developer may occur as a result of:

- Loss of right builder to build up on the land;
- Expiration validity of a building permit in the absence of the fact of the renewal of the authorization by the developer.

If the developer is not entitled to carry out construction work, implementing them, it can be brought to administrative responsibility, which is a common practice in the world community. In this case the legislator regulates the possibility of a risk of recognition of the construction of unauthorized construction. Loss contractors tolerances SRO to perform work affecting the safety of the construction project, entails the need to find another contractor or waiting until the current contractor will enter into a new SRO and get new approvals. Resuming work on the construction of an apartment building only after the contractor will receive the appropriate clearance to perform work affecting the safety of the object building. Among main type of violation should be called the failure of the general contractor of construction time. In the event of disruption of construction time buildings developer need to adjust the terms of construction, or to conclude a contract with a new General Contractor. Proses selection of a suitable candidate, to discuss terms of the deal and execution works contract may take several months. At this time the developer will have no choice but to stop building. Everything of the above reasons entails the impossibility of resuming the construction works. The developer carrying obligations to investors, can not name the exact deadline object. Accordance with applicable law, the

investor cannot interfere with the business activities of the builder. The only thing that can be done in such a situation, the customer-builder - is the fixation of fact stop the construction and application of the appropriate authorities [4]. Investor, has concluded a contract with the builder, may clarify whether the necessary actions for building permits. Monitoring of litigation developer recommended using Internet resurs. Investoru advised to read all information sources telling about the construction of and the reasons for his stop. It should assess the extent of the prospects construction projects and find the approximate deadline of a facility property. Contractors real should be included in the contract conditions associated with a significant stop construction, which will allow him to terminate the contract and return all the investments. If such a clause in the contract will not appear, then the investor will need to wait for the expiration of the term of performance of the obligation to transfer the premises [13,14]. These conditions are in a situation where the developer does not agree to return the invested in the construction project money the customer-builder and cancel the contract voluntarily [15]. Po agreement (contract) at the customer-builder has a number of obligations that they are often violated:

1. The Customer-builder does not gets permission to enter the facility construction in the operation of the respective organ.
2. Customer not transmitting unit of construction: the building site, buildings, premises and dr.
3. Customer is not the original design documentation, does not coordinate project
4. Customer is not equipment and supplies production work, when the contract this obligation
5. Customer it does not pay an advance or completed stages of construction works on directing acts performed works CS-2 and CS-3.

5. Development of managerial decisions and the course of the experiment

For the analysis and evaluation of the cost of construction works and the forecast in stopping the construction is proposed to calculate the following parameters:

1. Coefficient development general contractor estimated project cost is calculated as the ratio of the volume of work performed by the estimated cost of the general contractor, according to CS-2 and CS-3 to the estimated cost for the consolidated cost estimates (K_1).
2. Coefficient actual costs of the customer-builder on the estimated value of the object is defined as the ratio of the cost of works and services, including the costs of general engineering preparation of the facility (up to 15% of the value on the consolidated budget calculations) customer-developer to the estimated cost consolidated cost estimates ($K_2 \geq 1$).
3. Coefficient payment by the customer, the developer received from the general contractor of works, according to the form KS-3 is calculated as the ratio of paid customer-developer of the scope of work for COP-3 to the volume of work performed by the estimated cost of the main contractor in accordance with CS-2 and CS-3 ($K_3 \leq 1$) [16,17].
4. The coefficient of the actual costs of the developer of the customer to the estimated value of the object is defined as the ratio of the actual costs of the general contractor on the executed volume of works, according to the form of the COP-3 to the estimated cost for the consolidated cost estimates ($K_4 > 1$).

6. The results of the analysis of the implementation of the enterprise

In 2013 - 2016 years in the company of construction of "construct" was implemented method for analyzing the cost of construction works [18]. The aim of the implementation was the practical confirmation of theoretical conclusions of the proposed method [19,20]. Prediction WIP costs made by the proposed method showed the coincidence of 0.8 to actual costs of the enterprise caused by analyzed factor. It is important to note that the coincidence of prognostic and evidence occurred in the conditions of permanent economic crisis and the total production of falling when uncertainty factors most strongly affect the economic efficiency of production and the level of costs. Data analysis were reevaluated and the other companies within the industry - LLC "SK-Don", is also experiencing a significant impact of the economic crisis and uncertainties. There prognostic indicator of coincidence

and factual analysis of the data was equal to 0.7-0.75. Thus was confirmed experimentally the effectiveness of this method of analysis and valuation of work in progress.

7. Conclusions

The experiment showed that the use of the proposed indicators analysis and valuation of construction works contribute to a correct evaluation of the results and a decrease arising from this control situations between the customer, developer and general contractor construction company. The proposed method of analysis allows a greater certainty to forecast curtailed construction, in the early stages to identify the problem areas of the production process to minimize possible costs.

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