Development of an algorithm for increasing the construction organization efficiency in the context of using production outsourcing

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Abstract. Modern economic conditions faced by the construction organizations in Russia necessitate the use of outsourcing as a technology for transferring certain types of activities or functions of their business to third-party specialized organizations, together with responsibility for the result of the latter. The article proposes an algorithm for increasing the construction organizations efficiency in terms of the production outsourcing use. The main stages are considered as a part of the algorithm, being guided by which it is possible to make a decision about the outsourcing effectiveness in these organizations. The authors believe that the justification of outsourcing advisability should be based on a clear algorithmizing of the decision-making process on the issue under consideration. After determining the approach to the decision on the outsourcing use, the construction organization management should determine what type of outsourcing for the integrity of the business processes transferred to the side is necessary at this stage, conduct an economic and strategic assessment of the outsourcing use and develop the measures to adapt the construction organization organizational structure.

Introduction
The transformational processes taking place in the economy necessitate the search for the new tools to increase the modern enterprises’ competitiveness. One of these tools is outsourcing. The issues of the formation and development of outsourcing in Russia are dealt with by A.A. Kizim, E.V. Kazakovtseva [1], A.A. Kirillova [2], E.E. Koba [3], I.D. Kotlyarov [4], T.F. Kutuzova, O.N. Rudenko [6], L.S. Churkina [7], N.V. Lutskaya [9], N.V. Mandrik [10], V.S. Poleshchuk [11]. The specifics of studying the features of the use of outsourcing in the construction industry, which significantly reduces the circle of researchers to several people are worth noting - I.V. Lineva [8], V.V. Sinyaeva V.E. [12-14], Solovieva, I.S. Lebedev [15].

When making a decision concerning the use of outsourcing, it is necessary to take into account possible risks, which requires the development of a special approach that facilitates the process of developing a managerial decision about an outsourcing partnership. It is necessary to assess the outsourcing implementation effectiveness by increasing the efficiency of the organization’s activities, increasing labor productivity in advance, which will avoid possible problems when introducing production outsourcing into the construction organizations’ activities. This presupposes the implementation of important analytical work to develop a solution to optimize the activities of a
construction organization using production outsourcing, which precedes the stage of analyzing the existing outsourcing cooperation.

**Materials and Methods**
The theoretical and methodological basis of the study was the works of famous Russian scientists, economists and builders, devoted to disclosing the essence and content of outsourcing, its development trends, as well as the works devoted to analyzing the state and development of this management tool potential in the construction sector.

The article uses the methods of systemic, monographic, structural and logical research. Each of the methods will be used based on functionality.

**Results and Discussion**
Construction organizations face a large number of risks that need to be considered when deciding whether to use outsourcing as a tool to improve the construction business efficiency. Consequently, the construction organization management should substantiate in detail the approach to developing a decision on an outsourcing partnership. To make such an informed decision, it is necessary to rely on a set of criteria that will take into account possible risks.

Before making such decisions, it is necessary to act according to a certain algorithm, which is shown in Figure 1.

Initially, it is necessary to assess the own resources available to the construction organization, namely the property complex. Moreover, such an assessment should have a multifaceted nature, expressed in determining the quality level, use efficiency, and the property importance for a construction organization.

Let us consider the main stages of the algorithm presented in Figure 1.

At the first stage, it is necessary to assess the economic efficiency of the production business processes’ implementation in a construction organization. Here it is necessary to take into account the economic analysis seriousness of the organization’s activities. In economic terms, the emphasis should be on profit and profitability indicators. Analysis of these indicators will allow not only to understand how efficiently the construction organization works, but also whether it is possible to outsource a part of the organization’s business processes or not.

At the second stage, the efficiency indicators’ calculation using the fixed assets of the construction organization is carried out. Conducting this analysis will determine the factors that hinder the construction business effectiveness. Initially, it is best to focus on the capital productivity indicators, the deviation from the standard values of which will reveal the presence of a problem situation.

At the third stage, it is necessary to determine the adequacy of the construction organization potential to carry out the measures to improve the use efficiency of the fixed assets involved in the production business processes’ implementation. In our opinion, it is best to use a combination of quantitative and qualitative indicators using the rating determination methodology based on a special test.
Summary assessment of cost-effectiveness of implementation of production business processes in the construction organization

Calculation results meet performance criteria

Decision on analysis of reserves to improve efficiency of construction business

Calculation of performance indicators for fixed assets involved in production business processes

Calculation results meet performance criteria

Consideration of efficiency gains using the OS

Determine the adequacy of capacity to implement measures to improve the efficiency of operating systems involved in the implementation of production business processes

Calculation results meet the criteria of independent work to improve the efficiency of OS use

Decision to involve third parties

Choice of cooperation based on criteria of dependence or independence of strategic decision-making

The results of the analysis meet the criteria for choosing a partnership with a strategic impact on the construction business

Decision to use cooperation with absence strategic impact on the construction business

Choose the type of collaboration based on no dependency on strategic decision-making

Analysis results meet subcontracting criteria

Decision to improve performance of the construction organization using manufacturing outsourcing

Outsourcing Preparation and Implementation Work Block
Figure 1. Algorithm of a methodology for increasing the construction organization efficiency in terms of using production outsourcing

When using this technique, it is necessary to rely on the following indicators [4]:

1) provision of the organization with its own funds;
2) provision of the organization with borrowed funds;
3) sufficiency of the authorized capital of the organization;
4) investment attractiveness of the organization;
5) formation of the basic and working capital of the organization;
6) capital turnover of the organization;
7) liquidity of the organization’s balance sheet;
8) the solvency of the organization;
9) return on assets, equity and sales.

Consequently, the construction organization should have property that, if necessary, should provide it with the possibility of obtaining a loan from the bank. Otherwise, it is possible to talk about the low importance for the construction organization of its property complex, which allows it to reasonably attract partners to increase the business efficiency.

At the fourth stage, it is necessary to choose the cooperation option for the construction organizations, relying on the dependence or independence criterion of strategic decision-making in the interaction process.

When choosing the need for cooperation with other construction organizations, it is necessary to take into account two possible options for the development of the situation in the future:

1) the ability to work, taking into account cooperation ties while maintaining the independence of decision-making of partners in the long term;
2) the ability to work taking into account cooperation ties without maintaining independence in the development of long-term solutions.

At the fifth stage, it is necessary to determine what type of cooperation will be used in making the long-term decisions.

The choice of cooperation based on the absence of dependence in making strategic decisions implies two options for subsequent cooperation within the framework of production outsourcing: it will be either a partnership based on the full responsibility of the outsourcing customer to the subcontracting construction customer, or based on outsourcing with distributed responsibility.

Let us designate the criteria for choosing between outsourcing interaction and subcontracting. Subcontracting in this case can be considered as a means of temporary additional loading or addition of production capacities on a one-time basis, while the operational and production management of the business process remains under the subcontracting customer’s jurisdiction. Distributed responsibility outsourcing implies a strategic decision on the further refusal to independently execute one or another production business process (with the possibility of liquidating the corresponding division and the freed-up property) and transferring it on a contract basis to an outsourcer, together with the authority for operational and production management of this business process. Outsourcing gives an opportunity to redistribute the risk for the final product between the construction organization and the cooperation partner, then the presence of a developed outsourcing market of the required qualifications contributes to the development of a decision on outsourcing cooperation.

So, first of all, the management of a construction organization needs to analyze the market for outsourcing services for the considered production business process’ implementation. The purpose of analyzing the market for outsourcers capable of carrying out the execution of the desired production business process should be reduced to choosing the most appropriate partner. A guideline in choosing an outsourcer can be the results of evaluating the following criteria for a potential outsourcing partner [6]:

1) compliance of the outsourcer’s qualifications with delegated powers;
2) application of new technologies;
3) the period of existence on the market;
4) a positive history of project implementation, the presence of positive customer reviews;
5) the rating of economic sustainability;
6) the cost of the services provided.

The listed criteria should be assessed based on the previously collected information using the method of expert assessments. In this case, the weight of each criterion can be determined by the experts using pairwise comparison. In turn, the most preferable will be the applicant who will eventually have the maximum total score for all criteria.

Thus, the fact of the presence of an outsourcer that meets the requirements of a construction organization, as well as a satisfactory assessment of the external partner’s operational and production management efficiency can become the objective prerequisites for the implementation of outsourcing of a production business process in a construction organization.

At the sixth stage, it is necessary to carry out the work on the preparation and implementation of outsourcing in a construction organization.

After an informed approach to the decision to use outsourcing based on certain criteria, the management of the construction organization should:

1) to determine what type of outsourcing necessary at this stage for the integrity of the business processes transferred to the side (full or partial);
2) to give a reasonable economic and strategic assessment of the outsourcing use;
3) to develop measures to adapt the organizational structure.

In this case, the basis of the listed criteria can be a set of indicators calculated in the process of substantiating a decision on outsourcing. Thus, the assessment of economic efficiency at the stage of implementation of an outsourcing contract in the developed methodology will be an adequate component of the general approach to assessing the feasibility of using outsourcing in the construction organizations’ activities.

Summary
We believe that it is necessary to carry out an examination of the need for both full and partial outsourcing forms implementation. Based on the results obtained, the management is able to draw a conclusion about certain advantages of the outsourcing process.

The conclusion and implementation of an outsourcing contract for a construction customer should be associated with an actual increase in the degree of its sustainability, or at least should guarantee the level that existed before outsourcing, since sustainability is a significant characteristic in the context of the interest of partner companies in the construction activities organizations.

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