



Article

Methodological Aspects of Management Accounting in Construction Organizations

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Abstract: The complexity and specificity of construction processes demand an advanced approach to management accounting that ensures financial transparency, cost control, and efficient resource allocation. Traditional accounting models often fall short in addressing the dynamic, project-based, and multi-phase nature of construction activities, especially in the context of digital transformation and sustainability trends. Despite the growing body of research on management accounting, practical implementation in construction organizations remains inconsistent, particularly in integrating cost accounting with life cycle analysis and digital platforms. This study aims to analyze the methodological aspects of management accounting in construction organizations, assess existing practices, and propose an improved accounting framework tailored to industry-specific needs. The findings reveal key shortcomings in current practices, such as limited digital integration, lack of accounting by responsibility centers, and insufficient budgeting coordination. The study proposes aligning cost management with the construction project's life cycle and integrating ERP and BIM technologies for real-time decision-making. It also introduces strategies for risk sensitivity analysis and life cycle costing to improve long-term financial outcomes. The research presents a holistic methodology that incorporates traditional cost accounting methods—such as custom, actual, and normative approaches—with modern digital tools and sustainable construction practices. The proposed model enhances the effectiveness of financial planning, improves internal control, and supports strategic sustainability. It provides construction managers with a comprehensive tool for informed decision-making and optimizing project performance from planning to utilization.

Keywords: Construction Economics, Cost Accounting, Custom Calculation, Actual Cost, Normative Method, Budgeting, Life Cycle

Citation: Rakhmetovna, M. A. Methodological Aspects of Management Accounting in Construction Organizations. Central Asian Journal of Innovations on Tourism Management and Finance 2025, 6(3), 599-606.

Received: 8th Apr 2025
Revised: 11th Apr 2025
Accepted: 18th Apr 2025
Published: 23th Apr 2025



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1. Introduction

Effective management of financial and production resources is becoming especially relevant in the context of growing competition and increasing complexity of projects in the construction sector. Management accounting, as a system for collecting, analyzing, and interpreting information necessary for making management decisions, is becoming a key element of internal control and strategic planning in construction organizations. At the same time, the specifics of construction activity - its project-based nature, long production cycles, high material intensity, and dependence on external factors - determine the need to adapt the management accounting methodology to the specifics of the industry. The purpose of this work is to analyze the methodological aspects of management accounting in construction organizations, to identify current approaches and directions for its improvement.

Literature Review

Issues of management accounting in construction are highlighted in the works of domestic and foreign authors. N.P. Kondrakov, V.E. Kerimov, R. Antoni, D [1]. Horngren emphasize the importance of cost accounting by types of construction work and construction projects, paying attention to cost accounting [2]. Foreign researchers, in particular, Horngren and Anthony, have developed accounting and budgeting concepts for responsibility centers, emphasizing that this is especially relevant in project-oriented areas [3].

According to economist Professor B.A. Khasanov, management accounting is a holistic presentation of information about the costs and results of an enterprise and its structural subdivisions from the point of view of the past, present, and future periods of internal economic accounting [4].

According to B.Y. Makhsudov, management accounting, in addition to accounting methods, includes statistics, economic analysis, and economic-mathematical methods, as well as the most fundamental sections of complex economic analysis [5].

N.B. Abdusalomovaning ta'kidlashicha, boshqaruv hisobi korxonada faoliyati samaradorligini ob'ektiv tahlil qilish uchun shart-sharoitlarni ta'minlash, shuningdek, boshqaruv qarorlarini qabul qilishda barcha manfaatdor tomonlarning xohish-istaklarini hisobga olishni ta'minlash hisoblanadi [6].

It also includes the timely provision of information on expenses incurred and income received for the purpose of making management decisions of the enterprise and its various departments, budgeting of the financial and economic activities of the enterprise in accordance with the accounting policy maintained at the enterprise, analysis of external and internal investment projects, internal control, accounting of expenses in appropriate accounts and application of modern methods of calculating the cost of products, and the formation of transfer prices used in transactions between internal economic units [7].

The analysis of the opinions of the above scientists serves as the basis for the formulation of the following general definition: Management accounting is understood as the process of identifying, measuring, collecting, analyzing, preparing, interpreting and presenting financial and production information, on the basis of which the management of the enterprise makes operational and strategic decisions [8].

In our opinion, this definition fully complies with international standards, and also describes the essence and purpose of accounting for enterprise management [9]. The accounting system data is used for internal management of the company, which is the basis for inclusion in management accounting [10].

It should be noted that modern research is also aimed at implementing management accounting systems based on digital platforms such as BIM [11]. (Building Information Modeling), which allows integrating accounting processes with project management [12]. Despite the large number of works, the problem of adapting theoretical principles to the practical realities of construction organizations remains open, which emphasizes the need for further research [13].

2. Materials and Methods

The methodological basis of the research work is general scientific methods, namely analysis, synthesis, generalization, comparison, induction and deduction [14]. The research is based on the application of systematic and technological approaches to organizational management, which allows considering management accounting as an element of the general management system [15]. Taking into account the specifics of construction activities, an industry-specific approach is also used. The empirical base consists of data from construction organizations, as well as regulatory documents regulating accounting and reporting in construction.

3. Results and Discussion

In many construction enterprises, accounting is limited to calculating the cost of construction objects and analyzing the planned and actual costs, which does not allow to fully use the capabilities of the management accounting system.

As a result of the conducted research, a number of existing problems in organizing management accounting in construction organizations were identified:

1. Insufficient integration with operational and project management. Often, management accounting data is processed separately from construction project plans, which reduces their efficiency and relevance.
2. Accounting is not organized separately by responsibility centers. Many organizations do not carry out accounting based on the responsibility structure (accounting by departments, teams, objects), which makes it difficult to analyze deviations and make quick decisions.
3. The level of use of modern accounting tools in many construction organizations is very low. Digital technologies such as BIM, ERP systems (for example, 1C:ERP or SAP) are mainly used for accounting and logistics, while management accounting is carried out in Excel or even manually.
4. Insufficient qualification of employees in the field of management accounting. Middle managers and specialists are often not trained in management accounting and do not perceive it as a decision support tool.

To solve the above problems, it is necessary to develop a management accounting methodology based on the specifics of the industry.

The organization of effective cost accounting in construction organizations is a key component of achieving financial stability and competitiveness. The correct choice of cost accounting methods directly affects the correctness of the formation of the cost of construction and installation works, as well as the pricing process, which in turn determines the success of the implementation of construction projects. The organization's goals in this area can be divided into several main aspects, such as minimizing costs, increasing the transparency of accounting, compliance with regulatory requirements, and optimizing profits.

The most common method of accounting for the accounting of work performed on a construction site is the cost-to-order calculation method. In this case, a separate order is taken into account as an accounting object. In it, the costs of the order are calculated based on the calculation method for operations from the start of work to its completion. The cost price is the sum of the costs incurred from the start of work to its completion. The cost estimate is drawn up for separate orders until the end of the work.

Depending on the business process and the volume of construction activities, different cost calculation methods can be used. This is the method of accounting for actual costs and standard costs. These methods are widely used mainly in organizing operational accounting.

When accounting for work on a separate project or client, it is advisable to use the actual cost method. This reflects the following costs: the cost of materials; wages of workers; costs of using machinery and equipment; other costs related to a specific project.

When using this method, it is necessary to reflect all business transactions in the documents in a timely manner and take into account the influence of all factors. The actual cost method requires that all costs incurred within each project be reflected.

Another method widely used in construction is the normative method. The essence of this method is to determine the norm of costs based on technical standards before the start of construction on the project. When applying this method, the sequence is followed: forming the norm of all indicators based on the technological map; forming an estimate in accordance with this norm; and identifying deviations between the established norms and

actual indicators. Determining the influencing factors for the identified deviations and assessing their negative or positive impact on the total cost [10].

Budgeting in construction organizations helps to control overall costs, effectively plan activities within each project and predict financial results.

In addition to the above costing methods, construction organizations should determine their sensitivity to risk (propensity, sensitivity) in order to ensure continuous stable operation in the long term (strategic sustainability). When determining this, the risk change should be determined by a risk management strategy in the form of a set of quantitative and qualitative indicators. The construction organization should independently select risk sensitivity indicators and analyze sensitivity to determine the degree of influence of various factors on the final financial result of the construction project or on the activities of the organization as a whole. The analysis requires assessing the impact of both external and internal factors. First of all, it is necessary to determine construction reserves based on the organization of work in the project section and analyze whether construction regulations were followed in organizing work. When assessing the effectiveness of the service, the organization should reflect the real conditions of the business, such as its role in the market, its structure, technical and technological means.

Based on the above considerations, in order to improve the methodological approach to cost accounting, we propose to organize the calculation of the cost of construction services in accordance with the concept of the product life cycle. In this case, when organizing construction work on a life cycle basis, we include information on the periods of engineering research, design, construction (including conservation), operation (including current repairs), modernization, reconstruction, overhaul, demolition of a construction object.

In addition to the above considerations, we also cite the research of Professor N.B. Abdusalomova, who emphasizes that "...the product life cycle includes the following periods: design (creation and feasibility studies of design), service (development of technology, organization and technological regulations for the production of works, service with maintenance), operation (maintenance of the structure, elements and engineering systems of the object in a standard technical condition through repair, modernization and reconstruction), end of the service life cycle."

When organizing the life cycle of construction services, taking into account the characteristics of construction, the sale of the facility, dynamic changes in income and expenses from the provision of services, we propose to implement them in the following sequential stages, depending on the terms of the contract, the type of service, and the conditions in the construction market (Figure 2):

Figure 1 illustrates the sequential stages of the project life cycle as applied within a construction organization. The horizontal axis marks the key phases—Preparation stage, Project stage, Construction phase, and Launch phase—while the vertical axis represents the return on investment as income. Above the axis, the stages of Market implementation, Growth, Growth retardation, and Weakening reflect the economic trajectory and operational dynamics of the project over time.

Each phase encapsulates specific types of work and resource allocation, including financial, material, labor, and informational inputs. The curve illustrates that investment returns begin to rise notably during the construction and launch phases, peaking during the growth stage. However, as projects mature and approach saturation, the return begins to decelerate, entering a phase of retardation and eventually weakening.

Figure 1 underscores the importance of strategic planning and budgeting across each stage to ensure optimal resource use, financial sustainability, and long-term project viability. It also reinforces the need for integrating life cycle costing and risk assessment

into management accounting frameworks to support construction organizations in achieving operational efficiency and competitive advantage.

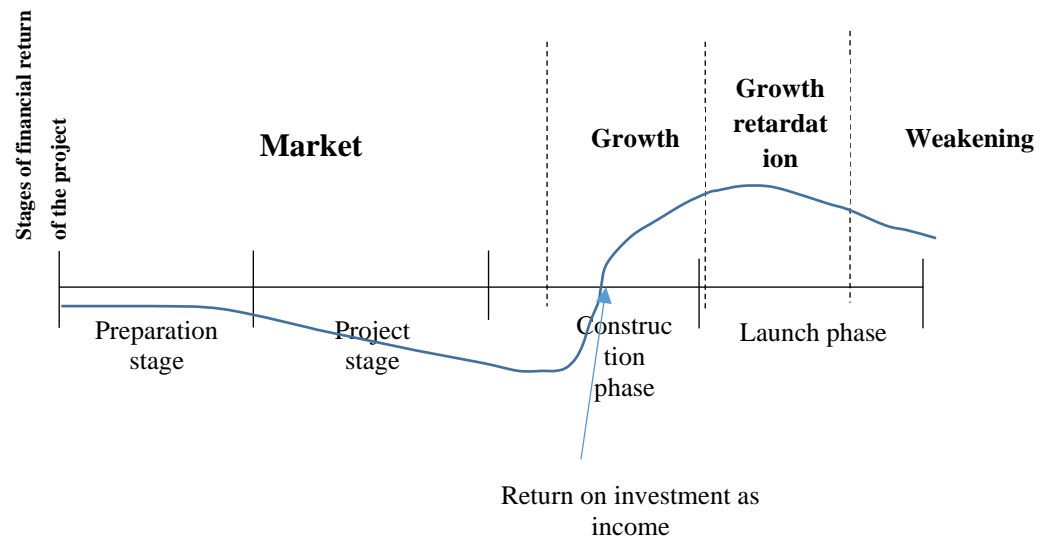


Figure 1. Project Life Cycle Stages in A Construction Organization.

Each of the stages shown in Figure 1 above, in turn, consists of various types of work, which include the provision of the necessary resources (financial, material, labor, information, etc.).

Accordingly, in our opinion, the stages of the life cycle in a construction organization consist of the following sequence: development (research and development); market entry (entry); growth; maturity; decline and exit from the market.

In accordance with our proposal, organizing the product life cycle based on the above stages has the following significance:

1. Improving cost and revenue management. In this case, understanding the stages of the life cycle helps the company to effectively manage its costs and revenues;
2. Helps develop a marketing strategy. This is because each stage requires a separate advertising and pricing strategy;
3. Serves as the basis for the introduction of innovations. In this case, life cycle monitoring helps to identify the need for product updates or new offers in order to remain competitive.

The relevance of the life cycle concept in the preparatory and design stages of housing construction is that at these stages financial planning and preliminary project assessment are carried out. This allows you to determine the possible income and expenses, which allows you to correct the project by eliminating unprofitable elements. If the general contractor's costs are limited only to the project implementation stage, this indicates an incomplete life cycle. The life cycle concept is not applicable to subcontractors, since they have a limited understanding of the project and perform only a small part of the work.

The main task of calculating the life cycle of a construction project is to calculate the total cost of the design solution that provides the lowest cost when calculating the construction cost over the entire life of the building. The final efficiency criterion is determined by the present value of ownership, which is the ratio of total costs to the planned operating life of the facility.

The life cycle calculation of a construction project should be carried out at the feasibility study stage, when it is possible to make changes to the project to reduce the total

cost of the building. The methodology is based on increasing the initial costs of design and construction using energy-efficient and environmentally friendly technologies, which can significantly reduce operating costs during the operation phase, which can amount to up to 75% of the total costs (Figure 2).

Figure 2 visually represents the distribution of total costs across the different stages of a construction project's life cycle. The chart segments the costs into four main phases: Projecting, Construction, Exploitation, and Utilization. According to the data presented:

1. Projecting accounts for 6% of the total life cycle cost,
2. Construction represents 15%,
3. Exploitation dominates with 75%, and
4. Utilization contributes 4% to the overall cost.

Figure 2 underscores that the majority of financial expenditure occurs during the exploitation (operation and maintenance) phase, far outweighing the initial investment during the design and construction stages. This cost structure highlights the critical importance of considering long-term operational expenses when planning and budgeting for construction projects. It also validates the adoption of energy-efficient and sustainable technologies that may increase upfront costs but significantly reduce long-term expenses. The figure supports the article's emphasis on life cycle costing as a strategic management accounting tool for improving financial efficiency and sustainability in construction organizations.

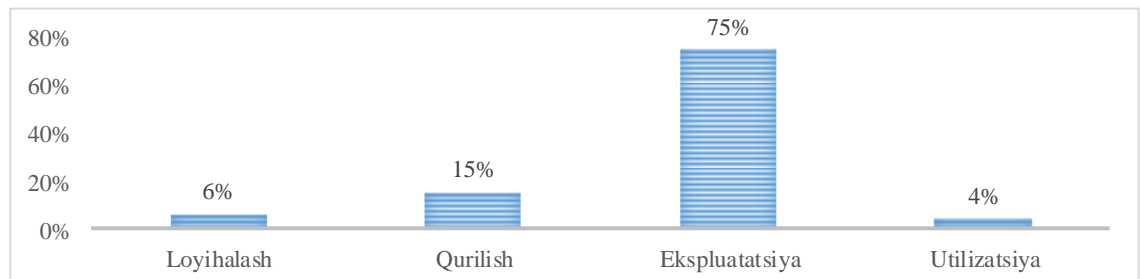


Figure 2. Average Life Cycle Costs Within The Project.

Therefore, even if the cost of building a modern - innovative house is 50% higher than the cost of a standard house, the total cost of owning a modern - innovative house will be 1.5 - 2.5 times lower than the life cycle cost of a standard house. This is due to the use of energy-efficient and environmentally friendly technologies that contribute to reducing the costs of maintenance and consumed utility resources, which helps to reduce the total cost of the building due to the long service life of the building.

The methodology for calculating the life cycle of a building based on practical calculations includes several main stages and approaches for estimating the total costs of designing, constructing, operating and dismantling a building. This methodology is aimed at minimizing the total cost of ownership, taking into account not only the initial costs, but also the costs of long-term operation and maintenance.

The total life cycle cost of a modern - innovative building takes into account:

1. for one-time costs - the energy efficiency coefficient, which takes into account the costs of the energy efficiency class of the building;
2. for recurring costs - the coefficient of environmental sustainability (greenness).

It should be noted that the concept of a modern - innovative energy-efficient residential building includes design solutions and additional engineering systems, as a result of which operating costs are reduced.

In conclusion, budgeting in construction organizations helps to effectively plan and organize financial flows, optimize resource use and reduce the risk of overspending. In the construction process, where projects are often accompanied by complex and lengthy processes, proper budgeting allows the company not only to control costs, but also to predict financial results at each stage of construction.

4. Conclusion

Management accounting in construction organizations is an important management tool that provides management with the necessary information for making informed decisions. The specifics of construction activities require the development of specialized methods of accounting, planning and control of costs, which makes it urgent to study the methodological foundations of management accounting in more depth. The development of technologies and the digitization of the construction business open up new opportunities for improving the accounting system, which should be taken into account when developing methodological approaches. A promising direction for further research is the development of customized accounting models integrated with digital construction project management tools.

It is advisable to implement the following to improve management accounting in construction organizations.

It is necessary to develop and implement an accounting system focused on the structure of the organization: in this case, it is necessary to organize accounting by departments, facilities, teams, project groups. This will allow for more accurate control over budget execution and assessment of the effectiveness of the activities of departments.

Management accounting should be synchronized with calendar and network planning, work schedules and resource management. This allows you to obtain relevant information in real time.

It is recommended to use ERP systems with management accounting modules, as well as implement platforms based on BIM technologies that provide integration of design, construction and cost accounting data.

It is necessary to develop internal management accounting standards, including reporting forms, rules for distributing indirect costs, a procedure for calculating deviations, etc.

Regular training and advanced training courses for managers and accounting specialists will increase their participation and literacy in making management decisions.

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