

BUDGET IN MANAGEMENT ACCOUNTING TO MANAGE EXPENSES OF CONSTRUCTION ENTERPRISES

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Abstract: *Construction budgeting is mandatory and is currently used by enterprises as the primary tool for cost management; however, it remains insufficient for managing all types of costs. Using a comparative case study method, this research explores how budgeting is utilized in cost management within construction enterprises. The study introduces a four-step annual budgeting process based on the Zero-Based Budgeting (ZBB) approach to enhance cost management in these enterprises.*

• Keywords: *budget, management accounting, construction enterprises.*

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1. Introduction

The construction industry is characterized by fixed pricing, which is determined before production begins. This implies that budgeting for cost management in construction enterprises is crucial, as failure to anticipate all cost elements may reduce expected profits. Currently, budgeting is a mandatory requirement for all construction projects.

According to Clause 1, Article 135 of the 2014 Construction Law (amended and supplemented in 2020), the construction project budget represents the necessary costs to execute a construction project, implement bidding packages, and undertake construction activities. These costs are determined based on the quantity of materials calculated from technical designs, detailed construction drawings, work requirements, and construction cost norms and prices. Thus, a construction budget essentially serves as a comprehensive plan covering several technical indicators and production factors.

However, many cost components are not included in construction budgets, such as business management expenses and financial operation costs. Most enterprises use budgetary information primarily for financial accounting purposes, focusing on documentation for final project settlements i.e., accounting for production costs and the cost of goods sold rather than leveraging the budget for managerial accounting (MA) information needs.

By employing a comparative case study method, this research examines how construction enterprises currently utilize budgets in MA practices to control costs. Furthermore, it proposes a budgeting framework tailored to MA functions within these enterprises. The

study contributes to the broader dissemination of MA techniques in general and, more specifically, to the budgeting process for cost management in construction enterprises.

2. Literature review

Budgeting plays a fundamental role in management accounting, particularly in cost control and optimizing organizational efficiency. The evolution of management accounting has witnessed the emergence of various tools and techniques aimed at enhancing cost management capabilities, with budgeting being an indispensable method. In particular, competition in the industrial environment has driven the development of increasingly complex and effective cost management strategies. Key techniques such as standard costing, cost-volume-profit analysis, transfer pricing, variance analysis, and responsibility accounting have been widely applied (Lin et al., 2002).

Within the management accounting system, budgeting serves not only as a financial planning tool but also as a crucial mechanism for monitoring and evaluating performance. Klychova et al. (2014) emphasized that budget efficiency is a key factor enabling organizations to allocate resources appropriately, monitor financial performance, and track operational efficiency. Through budgeting, enterprises can define financial objectives, optimize resource utilization, and measure performance against established criteria. Moreover, this process enables managers to make data-driven decisions, detect variances, and implement corrective measures to ensure effective cost control. However, the role of budgeting extends beyond financial management

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and is closely tied to organizational incentive mechanisms. Aguiar et al. (2012) highlighted the relationship between managerial reward systems and the application of management accounting methods, particularly responsibility control principles. Their study revealed that reward mechanisms influence the use of budgeting, standard costing, and performance evaluation, thereby ensuring managerial accountability within their respective control domains.

In addition to its general role in management accounting, budgeting has been explored in various industry contexts. Pavlatos, O., & Kostakis, H. (2023) highlights the moderating role of cost accounting information quality in the relationship between crises and budget use. Hospitals that have been most affected by the pandemic and have simultaneously better cost accounting information have increased their use of budgets for planning, resource allocation and cost control more than those whose costing system does not provide superior cost data. Whereas Tănase (2021) proposed functional cost analysis to identify the most effective responsibility centers.

Furthermore, recent studies have expanded the scope of budgeting research in relation to performance and strategic management. Chumak (2023) highlighted that budgeting is not merely a cost management tool but also a foundation for effective strategic decision-making. From a socio-theoretical perspective, Nikidehaghani (2023) provided a critical view on how accounting and budgeting techniques shape individuals into economic neoliberal citizens, using the case of Australia's National Disability Insurance Scheme (NDIS) as an example.

Synthesizing these studies, it is evident that budgeting plays a crucial role in management accounting, not only in cost control but also in decision-making, performance improvement, and addressing economic challenges. Additionally, technological factors, industry environments, and managerial incentives significantly impact the effectiveness of budgeting systems. In the context of an increasingly volatile global economy, continued research and refinement of budgeting methods are essential to ensuring financial efficiency and sustainable organizational development.

3. Research methodology

- Qualitative research and deductive reasoning approach: The purpose of deductive reasoning is to analyze logic based on existing theories rather than creating a new theoretical framework.

- Comparative case study method: To gain a deeper understanding of how budgeting in management accounting is used for cost control in construction enterprises within real-world contexts, a comparative case study approach is adopted. Conducting case

studies in three enterprises allows for a comparison, helping to identify differences and similarities.

- Data collection: The cases were selected using purposive sampling, a non-probability technique based on theoretical frameworks and research questions (Ghauri & Gronhaug, 2010). The selection criteria include:

- + Operating in the construction industry.
- + Employing fewer than 300 workers (small and medium-sized enterprises).
- + Having owners or managers directly overseeing daily business operations.
- + Operating within the Northwestern region to ensure consistency in comparisons.

Three companies, labeled A, B, and C, met the above criteria and were contacted via phone to schedule interviews. The interviews were conducted with the owner-managers and lasted between 30 to 45 minutes. A semi-structured questionnaire was used for direct interviews to allow for comparable responses, deeper understanding, further clarification, and richer insights. The interviews were carefully recorded and were conducted in September 2024.

4. Research findings

Case of Company A

The company prepares cost estimates for each construction project and its specific components. This is a mandatory requirement before initiating any construction work. The cost estimates are prepared by technical staff based on the quantity of tasks determined according to the technical design or construction drawings and are calculated using the prevailing price levels at the time of estimation. The standards used in cost estimation are based on the government-issued regulations.

The content of construction project cost estimation is defined in Article 11 of Decree 10/2021/ND-CP, dated February 9, 2021, issued by the Government on Investment Cost Management for Construction Projects. It includes the following cost components: Construction costs, Equipment costs, Project management costs, Consulting costs for construction investment, Other costs, Contingency costs

Essentially, construction cost estimation serves as a preliminary calculation of the project's value before execution. Apart from construction cost estimation, the company does not prepare any other types of cost estimates. All expenses are managed to align as closely as possible with the projected budget. The company typically increases profitability by minimizing costs and accelerating project completion timelines. Below is an example of a construction cost estimate prepared by the company.

Table 1. Construction Cost Estimate for National Highway 12

No.	COST ITEMS	Calculation method	Symbol	Amount
A	Public service cost for disaster recovery and initial traffic assurance			
I	Direct Costs (VL+NC+M)	VL+NC+M	T	702.311.000
1	Material costs (VL)	VL	VL	440.084.891
2	Labor costs (NC)	NC	NC	199.030.495
3	Construction machinery and equipment costs (M)	M	M	63.195.460
II	Indirect Costs		GT	73.040.000
1	General costs	T x 6,2%	C	43.543.282
2	Temporary housing and site management costs	T x 2,2%	NT	15.450.842
3	Costs of unspecified tasks not determined from design	T x 2%	Ck	14.046.220
III	Pre-tax taxable income	(T + GT) x 6%	TL	46.521.060
IV	Traffic safety assurance costs for construction	Chi tiết	ĐBG	20.088.843
	Pre-tax repair costs	T+GT+TL	G	841.960.903
V	Value-added tax (VAT)	G x 8%	GTGT	67.356.872
	Post-tax construction costs	G + GTGT	Gxd	909.318.000
B	PROJECT MANAGEMENT COSTS	G x 2,936% x 0,8	Gqlda	20.369.000
C	CONSTRUCTION CONSULTANCY COSTS	TV1+TV2+TV3	Gtv	83.072.000
1	Survey costs	Bảng tính riêng	TV1	40.243.101
2	Cost of preparing completion documents + cost estimation	G x 1,37% x 1,1	TV2	13.703.422
3	Construction supervision costs	G x 3,203%	TV3	29.125.456
D	OTHER COSTS		Gk	196.000
	Appraisal fee for completion documents + cost estimation	TMDT x 0,019%	K1	196.074
TOTAL		Gxd + Gqlda+Gtv + Gk	Vtm	1.012.955.000

Source: Company A

Case of Company B

Initially, when asked about cost estimation practices, the interviewee from Company B stated that the company did not prepare cost estimates. However, upon further clarification, it was explained that while the company does not prepare annual cost estimates, it does prepare cost estimates for individual construction projects.

Each construction team is treated as a cost and profit center, bearing primary responsibility for managing costs and profits of the projects they handle. Before project execution, the company assigns a profit percentage that each cost and profit center must contribute back to the company. Any additional profits or losses beyond this percentage are solely the responsibility of the respective unit.

The interview revealed that construction projects involve many unforeseen factors, requiring flexibility in execution. As a result, actual costs do not always align with the initial cost estimates. Any major deviations must be reported to the company's leadership for guidance, while smaller variations are handled independently by each cost and profit center. There is no formal threshold to distinguish between "major" and "minor" cost deviations; instead, decisions are based on the subjective judgment of the construction managers responsible for each cost and profit center. Periodic cost management reports are conducted between the cost and profit centers and company leadership.

Additionally, each cost and profit center is responsible for collecting and submitting initial financial documents to the company's headquarters for

accounting purposes. These documents are collected following the accounting department's guidance, closely aligned with construction cost estimates, with the goal of minimizing discrepancies between actual expenses and projected estimates. This approach facilitates final settlements with investors and ensures that the figures are properly recorded in financial reports and accounting records.

From the perspective of overall enterprise management, cost estimates primarily serve as a basis for financial accounting, rather than a tool for cost management to support management accounting (MA). This is because cost management responsibility is largely delegated to the individual construction teams.

However, cost estimates are frequently used as a cost management tool within the cost and profit centers to monitor and regulate production activities. They also serve as a reference for improving future projects, particularly those within the same geographic area. That said, cost control methods primarily rely on technical analysis and operational experience rather than MA tools, due to limited expertise in management accounting.

Case of Company C

Company C follows a similar approach to Company B, in which cost management is primarily delegated to construction teams. However, these teams mainly manage material and direct labor costs, while the company itself prepares and controls cost estimates for expenses incurred at the enterprise-wide level.

For loan interest expenses, the company borrows funds from banks, plans interest payments, and proactively controls borrowing costs. Bank loan funds are allocated to construction teams based on the company's overall financial plan, taking into account factors such as construction progress, cash flow forecasts, and project timelines.

Table 2. Interest Payment Plan

Month	Beginning Balance (VND)	Interest Rate/ Month (%)	Interest Payment (VND)	Principal Payment (VND)	Total Monthly Payment (VND)	Ending Balance (VND)
1	3,000,000,000	0.4167	12,500,000	50,000,000	62,500,000	2,950,000,000
2	2,950,000,000	0.4167	12,291,667	50,000,000	62,291,667	2,900,000,000
3	2,900,000,000	0.4167	12,083,333	50,000,000	62,083,333	2,850,000,000
4	2,850,000,000	0.4167	11,875,000	50,000,000	61,875,000	2,800,000,000
5	2,800,000,000	0.4167	11,666,667	50,000,000	61,666,667	2,750,000,000
...	...	...	...	...	...	...
60	50,000,000	0.4167	208	50,000,000	50,208,333	-

Source: Company C

For construction equipment costs, as the company owns certain machinery that serves multiple projects simultaneously, equipment usage plans are developed based on proposals from construction teams. The allocation and rental of construction machinery from external providers are carefully assessed and centrally controlled at the enterprise level to ensure efficiency.

Unlike Company B, Company C not only prepares construction cost estimates for each project but also

develops annual cost estimates at the enterprise level to maximize cost control. Different cost management strategies are applied depending on the type of cost and management scope. However, these estimates are not regularly monitored or adjusted; they are typically established once at the beginning of the year or before project commencement.

Thus, it can be observed that construction enterprises primarily use construction budgeting as a tool for cost control, financial management, and business growth. This represents one of the earliest control systems implemented in enterprises (Davila & Foster, 2007; Sandino, 2007). However, construction budgets prepared for individual projects differ from annual budgets established at the enterprise level. Depending on the management approach, some enterprises use project budgets to control direct costs, while annual budgets are utilized to manage company-wide expenses.

Currently, construction firms do not establish comprehensive enterprise-wide budgets to control all incurred costs. The segmentation of cost and profit centers appears to be well-suited to the characteristics of construction activities. However, it is necessary to consolidate budgets from different departments and cost centers into an overall enterprise budget to enhance financial control and decision-making.

Step 1: Identifying Departments and Budgeting Scope

In a construction company, the key departments involved in budgeting include:

- Technical & Construction Department: Responsible for estimating construction costs, equipment costs, project management costs, construction investment consulting costs, miscellaneous costs, and contingency costs (all of which are included in the construction budget).

Other departments estimate costs outside the construction budget, specifically:

- Finance & Accounting Department: Estimates management and financial costs.
- Human Resources Department: Estimates salaries, training expenses, and employee benefits.
- Planning Department (Project Management): Estimates administrative, legal, and bidding costs.

These departments can adopt the Zero-Based Budgeting (ZBB) method, which assumes an initial budget of zero for all departments. Based on this assumption, each activity and its necessary expenditures are reviewed and then added to the initial zero budget.

This approach differs from the traditional budgeting process, which relies on the previous year's budget. Instead, every expenditure is reassessed from scratch, focusing on operational efficiency and determining whether each cost item is truly necessary. If required, unreasonable expenses should be reduced.

Suggested Cost Reduction Strategies: Developing an optimized salary and bonus structure to enhance productivity; Utilizing recycled materials and waste, such as used machine oil and old formwork; Optimizing equipment costs by renting infrequently used equipment; Leasing equipment for projects located far from company headquarters to minimize fuel costs.

Step 2: Collecting Budget Estimates from Departments

Each department prepares its own budget estimate based on actual needs. These estimates are structured according to the categories of expenses incurred within the respective department.

Step 3: Consolidating Budget Reports

The budgets are aggregated by major expense categories. During consolidation, it is essential to check for overlapping costs across departments, adjust costs to align with projected total revenue, compare with previous years' budgets to assess reasonableness, propose cost-saving measures if expenses are excessively high.

Step 4: Reviewing & Approving Budget Estimates

The Board of Directors and Finance Department review the budget, ensuring its rationality and feasibility. They also compare it with previous projects to optimize the budget and, if necessary, adjust allocations before final approval.

5. Conclusion

Using qualitative research methods, deductive reasoning, and comparative case study analysis, three construction enterprises were selected for the study. The findings indicate that all firms use construction budgeting for cost management, though with varying scopes and methodologies. Notably, only one company prepares an annual budget.

To enhance the role of budgeting in cost management, a four-step company-wide budgeting approach using the Zero-Based Budgeting (ZBB) method has been proposed.

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