



Brief Discussion on Construction Cost Control of Engineering Projects

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Abstract. For construction companies, the control of construction costs during the construction of engineering projects determines whether most companies can well achieve their established profit goals. The lack of a complete cost control system and a sound cost control system is the root cause of the poor construction cost control of construction enterprises, which is also a problem for most enterprises. This article combines the COSO internal control system to conduct a simple analysis of the construction cost of the project from five aspects: control environment, risk assessment, control activities, information and communication, and internal supervision, and proposes some reasonable solutions to the problems.

Keywords: engineering project, construction cost control, COSO internal cost control system.

1 Introduction

For construction companies, it is a difficult goal to reasonably control the construction cost of the project. There are many factors that affect cost management, and the management procedures are complex. Different projects involved and the external construction environment will have an impact on the results of cost management. The ultimate goal of cost management is to make scientific and reasonable arrangements for the company's costs and expenses in the process of project construction, minimize unnecessary waste of expenses and improve construction efficiency. In today's network environment, construction companies generally use comprehensive bidding to select partners. At this time, the significance of cost control is particularly important. Excellent quality is the premise, and quotation is also one of the keys to selection ^[1]. Therefore, in the face of fierce market competition, enterprises must pay attention to cost management and continuously improve their profitability, thus highlighting the most important significance of cost management.

2 COSO Internal Control System

(I) Control of the environment. As the basis of the entire internal control system, the control conditions are also the foundation and engine of the overall internal control system. They are of great significance to the formation of corporate organizational control culture and organizational structure, and also affect employees' understanding of the necessity of control [2].

(II) Risk assessment. With the changing social and economic environment, any business unit will face various risks in the course of its operations. Therefore, it is necessary for enterprises to effectively evaluate and judge the possible risks before the risks come, and to establish an operational risk assessment mechanism to discover, analyze, manage and control the possible risks.

(III) Control of activities. Control activities are policies and procedures that help management make better decisions to ensure the smooth implementation of cost management control measures. The goal of control activities is that all risk control activities and measures determined after risk assessment can be effectively implemented.

(IV) Information and communication (IEC). Whether the employees perform their duties well can be judged from several aspects: whether they can identify and obtain a wealth of information in time, and do a good job of processing internal and external information; whether the processed information is delivered in time to ensure that employees at all levels are informed of the latest news in time; and whether they can use the information to achieve organizational goals well, and to what extent can the organizational goals be completed.

(V) Internal oversight. The process of controlling the construction cost of the project is very cumbersome, but it is very important. Therefore, the management must supervise the internal control process and conduct real-time evaluation of the operation quality of the internal control.

3 Construction of construction cost control system based on COSO internal control framework

3.1 Create a stable construction cost control environment

(I) Optimizing the project organization.

The goal of the company's operation and management is to achieve the overall goal of its planning. Similarly, the ultimate goal of cost control of the project is to achieve its target profit. The purpose of the project organizational structure is to provide an active framework for planning, implementation, control, communication, and monitoring. The degree of perfection of a project's organizational structure will directly affect the final cost control effect of the project. A stable organizational structure first considers the implementation of the work plan, and secondly, it has a clear working level, smooth communication channels, division of responsibilities and rights, and the corresponding system is the basis for building supervision, control and determining the role of each

employee, which provides an effective framework for the smooth progress of project cost control.

(II) Establish a corporate organizational control culture.

A good corporate culture is people-oriented, fair and just to all employees in the company, and advocates mutual cooperation and joint innovation between departments. The organizational control culture of an enterprise is a part that all employees are concerned about. It will directly affect the working attitude of employees to cost control, and also directly determine the implementation effect of project cost control. Adhere to people-oriented, take employees as the main body in the daily business activities of the company, and carry out daily cultural education in daily work to help employees establish a sense of responsibility as soon as possible. Only when employees have a sense of responsibility can they really care about the development of the company. Only when they have a sense of belonging to the company can they think about the company's cost control system and find loopholes, instead of just treating it as a high and irrelevant job, as long as it can be completed on time. Okay, no deep thinking at all.

3.2 Build a construction cost risk prevention system

Through risk prevention technology, the probability of risk occurrence can be reduced to a certain extent, which is an effective method to mitigate risks found in current research. Specifically, the following two aspects can be used to strengthen the prevention of cost risks

(I) Build a risk management system.

To strengthen risk management, investigation and research should be carried out before the start of construction, and then a scientific construction plan and a reasonable cost budget plan should be formulated. Then select all the personnel involved in the project management to improve the project management mechanism. At the same time, risk response plans and specific risk prevention measures must be formulated in advance to avoid risks as much as possible.

(II) Strengthen project organization and management.

Every successful construction project case must have an excellent project management team^[3]. The successful completion of a project is inseparable from the good construction management of managers. On the contrary, if the managers do not pay attention to management during the construction process, or the managers lack the ability to coordinate and manage, then when there is a risk problem in the project, it may not only make the risk not get a good result, but make the situation worse. Therefore, without good project organization and management capabilities, it will also increase the possibility of project risks.

3.3 Strictly control cost control activities

The strict control of cost control in the process of activities is mainly optimized from the following two aspects. The first is to strictly control the cost control process, carefully carry out the cost budget work before the project is carried out, and take all factors that may affect the cost into consideration; The control in the process is mainly to strengthen the management of the three elements that constitute the construction cost, that is, to strengthen the control of the three costs of "human-material-machine". The root cause of the serious deviation of the engineering construction cost caused by the enterprise; After the end of the project, the personnel of all departments need to carry out the necessary after-the-fact summary, analyze the cost expenditure in the process of the construction project, check whether the materials and the use of machinery and equipment are in strict accordance with the provisions, and summarize what aspects can also be improved for cost control. On the other hand, the cost accounting gives up the original traditional cost control method and uses a more scientific cost control method -- earned value method. Earned value analysis is a widely used method in the implementation of engineering projects. Mainly through the comparison of the actual cost and the planned cost of the project, the project construction progress and construction cost are measured in the form of money. By analyzing and predicting the development trend of future cost and schedule, managers can more clearly understand the current implementation situation and future development trend of engineering projects, so as to judge whether the project can achieve the established goals. If the set goal cannot be achieved, effective measures can be taken to control it.

3.4 Improve the construction cost information management system

The management fails to make correct decisions in time due to the fact that employees do not arrange and transmit information in a timely manner. Therefore, the focus of improvement is to cultivate the awareness of the importance of information from the leadership to all grassroots employees, and someone is required to acquire external information to gradually form a perfect management system. The specific operation is as follows. First, an information management department is established in the company, with corresponding information management personnel to be responsible for extensive collection of information, especially for the company's previously completed projects. It is necessary to carefully explore the information that is worthy of reference for future projects. Subsequently, the collected external and internal information of the enterprise is summarized and classified, and a valuable information base is gradually formed. After the formation of the information base, the company should begin to formulate an information management system, and gradually form an effective and complete information management system.

3.5 Ensuring the effectiveness of cost internal oversight

Cost control is a long-term process, and in this long-term process, various departments of the company need to complete the project cost control process, various rules and

regulations and control activities. Therefore, in order to ensure that cost control can be effectively implemented, the control activities during this period must be monitored. When optimizing the project organizational structure, it is proposed to set up a professional supervision and assessment department within the enterprise, and the newly established supervision department must not appear in the process of project cost control, and maintain the independence and objectivity of the supervision department.

4 Measures to strengthen construction cost control in engineering projects

Having a complete cost control system is a prerequisite, but the biggest factor that determines whether the construction cost can be well controlled depends on the implementation of the project and the people involved in the construction cost control of the project. Therefore, in addition to building a good construction cost control system, companies also need to formulate some measures that can restrict personnel behavior to ensure that construction cost control can achieve the greatest effect.

4.1 Improve the cost control ability of project management personnel

The improvement of the core competitiveness of construction enterprises in the market mainly depends on the level of enterprise cost control. Only with a complete cost control system and project management personnel with higher cost control capabilities can construction enterprises gradually form a long-term development mechanism. Managers do not pay enough attention to cost control, and the awareness of cost control is weak, which will cause loopholes in personnel management in the existing cost control system^[4]. Therefore, managers must actively participate in cost control activities and continuously improve their own cost control level and ability. The level of cost control of project managers has a great influence on the level of project construction cost control. Only when the cost control ability of project managers is improved, can they play their due role in the actual project cost control process. Training of project managers is an essential part of the process.

4.2 Strengthen the vocational skills of project grassroots personnel

The use of earned value method to analyze project construction cost control activities not only requires project managers to have a high level of cost control, but also has certain requirements for the ability of project grassroots employees. Generally speaking, the working conditions of construction projects are not particularly good. The company cannot recruit high-quality personnel when recruiting talents. Most of the employees recruited are graduates from ordinary colleges and universities, and some of the employees are students who graduated from vocational and technical schools. If you want to implement the application of earned value method in the construction process, you must first explain the principle of earned value method to employees and how to use it. If the quality level of the grassroots personnel passes the pass, the speed

at which the employees receive knowledge is obviously different when the knowledge is explained.

4.3 Improve the reward and punishment mechanism for construction cost management

To improve the enthusiasm of company employees to actively participate in cost control activities, enterprises need to establish a reasonable incentive mechanism. Giving employees certain rewards can stimulate their enthusiasm to a certain extent. To a certain extent, the incentive mechanism can continuously stimulate the vitality of employee cost control. As long as employees maintain an active participation mentality, the cost control goal of the enterprise can be achieved. Then, based on the value chain management theory, the incentive mechanism established by the enterprise mainly involves two parts: one is monetary incentive. The monetary reward given by the company to the employee can be a short-term salary increase, performance bonus or allowance, or it can be given to the company's shares or options as a long-term reward for the company. Second, non-monetary incentives can be given to employees. In layman's terms, it means that no monetary reward is given. The content of the reward may be replaced by a promotion reward or a reputation reward and a certain degree of control. Monetary rewards can stimulate the enthusiasm of employees more intuitively, and non-monetary rewards can enable employees to achieve a higher level of spiritual satisfaction, feel that they are very important in the enterprise, and will promote employees to work harder and realize self-worth.

4.4 Strengthen the introduction of outstanding talents

For construction enterprises, in addition to the continuous training of internal talents, the recruitment and introduction of foreign talents cannot be left behind. High-end all-round talents should not only have excellent project management capabilities, but also have comparable professional and technical levels in construction. With a long-term development vision that keeps pace with the times, and the use of efficient cost management methods, the level of cost management and control of enterprises is continuously improved, so that the status of enterprises in the market will also rise. In recent years, the country has higher and higher requirements for construction enterprises, and the market share of construction enterprises has been continuously divided by large state-owned construction enterprises. If small and medium-sized enterprises want to compete with them, they must continuously improve their professional and technical level in construction. With a professional management team, strong technical level and advanced scientific management methods to compete for market share, all of which are inseparable from the support of professional talents.

5 Conclusions

In today's environment of strong and fierce market competition, if a construction company can truly control and manage construction costs scientifically, effectively and reasonably, the company's market competitiveness and benefits will be enhanced, and the company will develop better and more stably. In summary, to control the construction cost of engineering projects in the construction industry, we should pay attention to the following aspects. First of all, we must create a stable construction cost control environment. With a good control environment, the follow-up policies and measures of the enterprise can be better carried out. Secondly, it is to control it from the composition of construction cost, that is, the main composition of cost "human-material-machine". Strengthening the control of labor costs, material costs, machinery costs and other costs can significantly improve the control of construction costs^[5]. Finally, because any measures for construction cost control are ultimately implemented by "people", to a large extent, there will be situations where employees do not actively participate in cost control or in the process of cost control, employees use their positions to sell materials, resulting in a certain degree of material cost overspending. Therefore, enterprises must be able to ensure the effectiveness of internal audit supervision when establishing an internal audit department, otherwise the results of cost control will be greatly reduced.

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