

# Dynamic management and cost optimization control of construction project cost

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**Abstract:** With the continuous growth of social economy and the continuous development of cities and industries, the construction industry is still on the rise. Today, various raw materials and resources are still lacking, and fierce market competition has led to the development of construction companies. With the improvement of the requirements, how to optimize the dynamic management and cost management of construction cost in the construction process of the construction company is the only way for the construction company to obtain the market trust and approval, and to obtain the maximum profit. On the basis of introducing the dynamic management and cost control optimization of construction project cost, this article has carried on the related research from the aspects of principles, obstacles and steps.

**Keywords:** Construction engineering; cost; dynamic management; cost optimization control

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## 1. Introduction

With the continuous development of the national economy, the ever-increasing demand for material and cultural needs of the people has promoted the development of the domestic construction industry. In all cities, real estate construction is everywhere. In the implementation of construction projects, the cost and quality of construction projects are closely related to the duration of construction. It is the most basic prerequisite for construction projects, and is also an indispensable part of the implementation of construction projects. Whether cost management and cost control are scientific and rational decide whether the efficiency of resource utilization of construction projects can be maximized. In recent years, the cost of domestic construction projects has increased significantly. The cost of building projects is getting higher and higher. This situation will have a great impact on the final construction cost. In the long run, the owners will surely have negative dissatisfaction. Under this background, the construction enterprises must manage the construction cost dynamically, optimize the cost control, make the construction cost in the most reasonable acceptable range, and realize the sustainable development of the construction industry for the owners.

## 2. Overview and present situation of building construction cost dynamic management

The cost of construction projects is a combination of economics, technology, organization contracts, and information management. It refers to the cost of the entire project construction from the start of construction to the entire acceptance process. The dynamic management and control of the cost of large projects should be carried out by speeding up the process of project construction, providing scientific and stable project cost, reducing the impact of cost variability on the quality of the project, and achieving the quality requirements of management and control, coordinate

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the close relationship between construction costs and economic benefits. However, although China's current construction technology, construction methods, and construction materials continue to improve, the method of construction project cost management is fixed. This has caused the contradiction between the old management methods and the ever-changing market economy. In the changing market economy, manpower, material resources, and machine cost are constantly changing, but the level of consumption remains unchanged, and prices remain high. At the same time, the relevant management system is not perfect and the review is not enough. Many construction companies lack internal scientific management methods, which is an obstacle to the development of China's construction industry dynamic management system<sup>[1]</sup>.

### **3. Dynamic management and control of engineering cost**

The use of dynamic management and control methods in the construction project cost management can not only effectively improve work efficiency, but also reduce construction costs. Dynamic management is more flexible. It can coordinate the relationship between quality, progress and cost. In the course of construction, the construction cost may change at any time. Dynamic management can solve this problem well. Compared with the traditional engineering cost, the dynamic management and control cost of the project are more enlightening and more practical. The cost budget for construction projects is not only very technical but also very professional. Doing a good job in construction project cost is a preliminary guarantee for a construction project. It not only maximizes revenue, but also saves investment costs, establish an orderly health market. While ensuring economic benefits, good social benefits can also be achieved. The construction cost runs through all phases of the project and is affected by many factors<sup>[2]</sup>.

### **4. Dynamic management of construction cost**

The fluctuation of building materials, equipment and labor costs is not the whole content of dynamic management and control of construction project cost. Changes in construction design, hidden projects and other dynamic factors have a great influence on the dynamic management and control of construction project cost. Therefore, dynamic management and control must run through the whole construction process, from the initial design stage to the final completion acceptance stage.

#### **4.1 Feasibility study phase of construction project**

In the decision-making stage, we must first conduct a comprehensive assessment of the factors that affect the construction project cost, and conduct dynamic management and control based on the assessment data to develop the best investment feasibility program. After the feasibility study of the project, the overall price of the construction project is determined and the reasonable scale of the project is determined. At the same time, we should also analyze various factors.

#### **4.2 Design phase**

The initial design phase is the phase that has the greatest impact on project costs and is the most important part of the entire design phase. Therefore, in this stage, the design personnel of construction engineering must be fully responsible for the design scheme, and combine the two major elements of construction cost and engineering design, carry out scientific analysis, and finally formulate the optimal design scheme and strictly control the cost of the project. This stage of the technical design phase mainly involves the preparation of basic design and tender documents. According to relevant investigation reports, the impact of technical design on construction project cost accounted for 76%. At the design stage of construction drawings, the scientific design of construction drawings is the premise for effective construction of the construction budget. The bidding quotations, the signing of construction contracts, and the preparation of construction schedules are also important documents for the completion acceptance and settlement of construction projects. Therefore, in the design of construction drawings, designers must conduct scientific analysis of the surrounding environment at the construction site, seriously consider the factors that affect the progress of the project,

and refer to the completed partial data files, taking into account the construction details. Minimize the possibility of cost increase due to missed items, design changes and other reasons<sup>[3]</sup>.

## **5. Defects in dynamic management and cost optimization control of construction cost at present stage**

### **5.1 Lack of management awareness and experience**

At present, in the construction process of some domestic construction projects, there is a phenomenon that construction companies lack management awareness and management experience. Some construction projects blindly undertake the decision-making and design of construction projects, but do not understand and grasp the market situation and trend. Before the completion of the project, there is no actual investigation and understanding of the bidding and construction of the project. Without cost management, each construction process incorporates concepts that lead to cost management failures and useless cost control. The standardization of bidding is seriously inadequate, the cost efficiency is high, the comprehensive measurement of economy and technology even leads to the weakness of the construction process, which seriously affects the overall efficiency and quality of the construction project.

### **5.2 Lack of management mechanisms**

With the continuous changes in the demand of the construction market, in order to facilitate the construction and market demand, the country has successively introduced a series of construction market-related laws and regulations to regulate construction cost management and cost control. However, the facts are often counterproductive. Judging from the current situation, the development of the domestic market economic system is still in its infancy. With the constant fluctuation of construction materials, construction personnel and machinery and equipment costs, the dynamics of the building market will fluctuate greatly, which has brought great difficulties to the cost management and cost control of the construction projects. Once the construction company adopts traditional cost management and cost control methods, companies cannot judge and analyze the actual implementation of the project. Because they can only choose and compare with the contractors who participate in bidding, resulting in frequent problems in cost management and cost control<sup>[4]</sup>.

## **6. The implementation and control of the dynamic management of construction cost**

### **6.1 Strengthening the understanding of the dynamic management of the project cost**

At present, China's construction industry is changing from extensive management mode to dynamic management mode. We should speed up our understanding, pay more attention to the dynamic management of construction cost, formulate relevant laws and regulations, improve the legal system, and improve the management of the mechanism. Actively utilize the project cost dynamic management method, strengthen the internal publicity of the company, carry out management training on a regular basis, disseminate it to every employee, and limit everyone to follow the regulations.

### **6.2 Establishing a management science system**

In order to implement dynamic engineering cost management theory, to improve the economic efficiency and competitiveness of enterprises, modern construction companies should gradually establish an accurate and reasonable project management dynamic system that meets the requirements of national policies. Market changes are carried out according to various project requirements. The management system takes into account various key factors, such as engineering change, labor cost, etc., and can deal with various emergencies. It can be adjusted according to market conditions at any time to achieve a significant improvement in corporate management. At the same time, as the best management system, the dynamic management process not only improves the overall quality of the project, but also

plays a role in overseeing all departments and employees. It also improved cost control from all aspects and details, and achieved the goal of maximizing economic and social benefits<sup>[5]</sup>.

### **6.3 Influence factors of dynamic management of engineering cost**

In order to integrate decision making plan with practical engineering, various factors should be considered in the formulation and improvement of corresponding countermeasures and measures. The enthusiasm of the work not only needs to be improved, but also the dynamic management of the engineering costs and the various changes such as dynamic changes. It can also shorten the project cycle, reduce errors, reduce engineering costs, and provide a reliable foundation for optimizing cost control<sup>[6]</sup>.

### **6.4 Pay attention to the dynamic changes in the design phase of the project cost**

The design stage of a construction project is directly based on project cost. At present, in the design stage, there is a phenomenon of paying attention to project completion settlement and ignoring the budget, resulting in unreasonable fund allocation. Therefore, the dynamic management at the present stage is particularly important. Construction enterprises should strengthen communication, choose the best design solution, and conduct independent review. If they do not meet the requirements, they will be redesigned<sup>[7]</sup>.

### **6.5 Conquering blind spot vulnerability in construction cost construction phase**

The dynamic management of project costs during the construction phase must be seen as the major difficulties that need to be overcome at this stage. Accurate statistics must be made on the market prices of construction materials, and the management methods of the changes should be adjusted in real time, and all costs should be checked and checked to ensure the integrity of the data and the appropriateness of the subsequent inspections. Improve the construction process and gradually establish a good management system.

### **6.6 Settlement inspection system at the completion stage**

As the last stage of project cost dynamic management, completion settlement also plays a vital role. At present, the lack of reliable monitoring mechanism often leads to cost uncertainty and confusion, which often leads to estimation error. Therefore, this stage should be comprehensively considered from several aspects and a scientific analysis of potential influencing factors should be conducted. From theory to reality, achieve optimal control and dynamic management control<sup>[8]</sup>.

## **7. Conclusion**

With the continuous development of China's social economy and the deepening of the reform system, the economic system with Chinese characteristics is being established. This has had a major impact on the Chinese construction industry and has guided the construction industry to a new height. Not only has the two stakeholders involved in construction and construction been formed, but it has also taken a new step in the scientific cost of construction projects and basically determined the degree of construction project cost control and put it into practice.

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