

# Research on Cost Control of Construction Project in China

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**Keywords:** Cost control, Cost management, Construction project

**Abstract.** In today's construction industry, cost management is the core competitiveness of the construction company. The competition among the construction companies has turned into the cost competition. This paper first gives the concept of the cost of the construction project, and then gives the principles of the construction project cost control. On this basis, this paper analyzes the control measures of the construction project cost, including Organization measures, technology measures, economic measures and contract measures, to provide some references for relevant researchers.

## Concept of Construction Project Cost

As one of the basic economic concepts, cost is an integral part of commodity value. Cost is the sum of the monetary performance of the resources consumed in the production of a commodity. The cost of construction project refers to the sum of the monetary value of the value of production materials and the value created by the necessary labour. During the construction of the project, including the production of raw materials used in production and production tools. The value of the raw material is transferred to the construction project, and the value of the loss of the production tool is transferred to the construction project. The value of human labour created by the construction workers is also part of the construction project in the form of wages and bonuses. From the definition of the cost of construction projects, we can see clearly, remove all costs beyond the value in the construction process of the means of production and consumption of labour to create value, such as profits, taxes, late fees, loan interest are not part of the construction project cost. According to the different nature of the cost of the construction project and the current construction cost quota, we divide the cost of the construction project into direct cost and indirect cost. Direct cost refers to the cost of the process of the construction of the project, including direct construction costs and measures. Indirect cost refers to the cost of construction preparation, and management. The figure of composition of construction project cost is shown as follows:

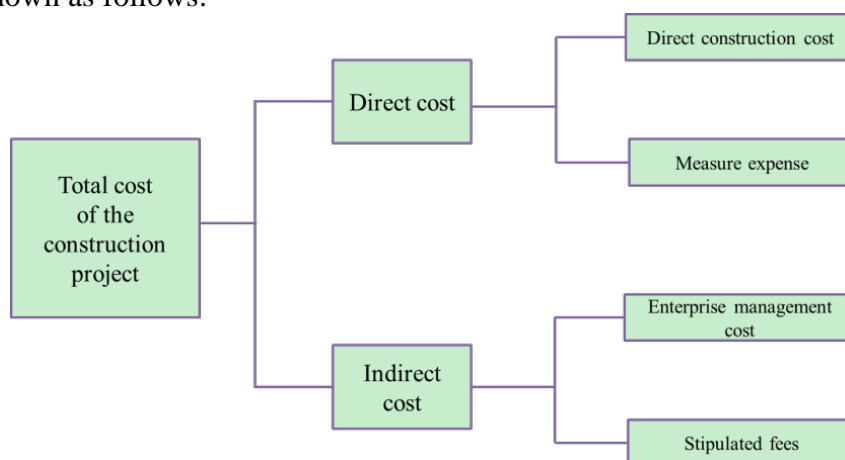


Fig. 1 Composition of Construction Project Cost

## Principles of Cost Control of Construction Project

The content of construction project cost control mainly includes: cost forecast, cost plan, cost control, cost accounting, cost analysis and cost assessment aspects. These six aspects are carried out

according to the design stage, the implementation stage and the evaluation stage. In the design stage of construction, managers need to carry out the construction cost forecast and cost plan, which belongs to the pre-control of construction project cost. Construction of the implementation stage, management personnel need to monitor the real-time control costs and a variety of construction costs for dynamic tracking management, which belongs to the construction project cost control. After the completion of the construction project, the management personnel need to analyze the factors of the construction cost, and summarize and evaluate the cost management. Construction project cost management throughout the whole process of construction projects. With the continuous development of the project, the cost of the construction project is increasing, and the dynamic property is the basic attribute of the construction project cost. Cost management should follow the basic nature of its dynamic, according to the gap between the actual cost and the planned cost to adjust the strategy in time to reduce the actual cost. The dynamic of the project cost requires the cost manager to calculate the cost in time, timely feedback the cost information to keep up with the pace of cost changes. Furthermore, the project cost management of the preparation of a variety of cost planning, consumption plan, the statistics of the consumption and expenditure, must be accurate. The cost of construction projects with the construction of each link is increasing, the cost management of construction projects must follow the principle of process control, analysis of the causes of each link cost changes, take the necessary measures to make the actual cost of each link is not deviate from the link into the plan. On the other hand, interlocking each link in the construction process, there is an effect to reduce a part of project cost may bring an increase in another part of the cost of the project, resulting in the total cost does not fall. This requires that the cost management personnel can stand at a higher level to follow the principles. Only the managers who follow the above principles can do well in the cost management.

### **Management Measures of Construction Project Cost**

**Organization Measures.** One of the problems in the cost management of many construction projects is that the job responsibilities are not clear. Found that the cost of waste is difficult to carry out accountability. The organization measures includes not only the good organization, more emphasis should be placed on their duties, fulfill their duties. The project manager needs to develop specific job responsibilities, clear process arrangements and cost objectives. This will enable each manager, the construction staff to clear what they should reduce costs to make changes, to what extent, to achieve what goals. Clear process arrangement is also the management of each position must be clear. In order to standardize, clarify, cost management measures and the detailed rules for the implementation of the construction project management process, manual work, etc. to transfer files, rather than merely verbal notification; in order to facilitate the understanding and communication, no ambiguity, process design of the above documents as soon as possible to ensure that the operation is simple and smooth, of. Under the guidance of the project manager, the managers of all departments must clear their responsibilities and related process arrangement, establishing cost management responsibility consciousness. In the project cost assessment, the standard personnel give incentives; for failure to complete the standard personnel, according to the rules and regulations. This kind of strict sound reward and punishment system further encourages each employee to understand the post responsibility, earnestly carry out the post work, and actively save the project cost. The cost management of the construction project is divided into three levels, namely: the company management level, the project management level and the position management level. The management level of the company is the direct organizer and leader of the construction project. The project management level is a one-time management team set up for the implementation of the project. The project manager shall be entitled to all the rights and interests of the project personnel, finance and process. At the same time, the project manager must strengthen the cost management, safety management education propaganda work, make all staff to set up the basic idea of intensive construction, truly realize the leadership, full participation. Therefore, the project experience has an important impact on the project management success.

**Technology Measures.** The relationship between time and cost is the relationship that every project manager must carefully consider. The time limit of the construction cost is composed of the measure cost and the delay cost. The cost of the project measure is the cost of the project manager to take measures to make the project within the scope of the contract. In general, the shorter the duration, the lower the cost is. However, the too short construction period may result in a sharp rise in labor costs will lead to higher cost of construction measures. The cost of delay is the cost arising from the claim beyond the time limit for the project. Due to the natural conditions and the number of claims is small, due to their own management and the larger the number of claims. The project manager shall, as far as possible suitable construction scheme, select a reasonable period. The lowest cost has been achieved. For the entire construction project, we need is not completely high-quality engineering, the need is to meet the requirements of the construction contract quality engineering. At any time, the quality of excess will bring the cost of materials, labor costs, construction machinery and other costs rise, bringing the cost increase. Of course, the quality is too low, not up to the contract standard, resulting in the project claims will also lead to increased costs. The project manager needs to select the construction plan according to the contract requirements, so as to achieve the most economical quality level. In accordance with the schedule and quality, determine the construction scheme, each specific link must be strictly control, to achieve the quality standards set in advance, decreased due to rework cost. The project manager should choose the construction plan should not be the most advanced construction plan, but with the construction project contract the most suitable construction scheme, in order to reduce the construction period and improve the quality.

**Economic Measures.** After the signing of the contract between the enterprise and the owner, the labor force should be determined according to the engineering characteristics and construction scope. Labor subcontracting team should generally be determined through bidding. In general, the price should be according to the quota work to facilitate management. In the construction process, it must be strictly in accordance with the contract approved labor subcontracting costs, strict control of expenditure. At the same time in the construction process, to strengthen pre-control management, to prevent the phenomenon of foreign labor contract. Due to the special nature of the construction industry, most of, much of construction projects are involved in open air operations, high-altitude operations, field operations, such as lower security operations. There are also steel bar cutting machine, welding machine, piling machine and other equipment on the construction site, which may lead to injury or even death. The company will generally use the way of safety insurance, insurance for each employee to purchase, making it appear after the accident by the insurance company. Construction enterprises in this way will transfer the risk to the insurance company, reducing the company's construction costs to improve the competitiveness of the company. The punishment is the most cash incentive effects with economic measures. The examination results will be linked to individual performance and project cost management, through the reward to motivate employees, so that employees recognize the cost saving benefits and cost waste harm. However, in some construction enterprises, the project manager to reduce costs, the previous commitment is not implemented. Many of the employees who performed well in cost management did not receive any reward. Only a sound incentive and restraint mechanisms and cash commitment to implement target cost control, to reduce the cost to become conscious behavior of every employee. The use of economic measures is not only the financial sector. It needs to complete the whole company departments to under the leadership of the project manager.

**Contract Measures.** All construction activities are based on the contract, the contract measures in the cost management is particularly important. The contract measures include participation in contract negotiations, amendments to the terms of the contract, the implementation of the contract and the contract in accordance with the claim. Engineering claim is an important part of construction project cost management. At the present stage, the project claim is almost inevitable in all construction projects. In order to improve the competitiveness of the various construction companies, have lowered the tender offer engineering claims today, the project claims have become an important way to improve the company's contract price. Engineering claims throughout the construction process. Evidence of claim is a positive document and material used by the parties to support the

claim or claim. The claim evidence should be true and reliable, and the collection of evidence should be timely and comprehensive. In case of any change of the project, the contract management department under the leadership of the contract management manager shall collect in time to cooperate with the technical department to prevent the loss or damage of the evidence. Only with rich and accurate evidence of claims, in order to do a good job of claims, the use of contract measures to do a good job of cost management. In view of the above situation, deal with claims the project will be arranged for the relevant personnel of the project department, to carry out the claim event awareness, grasp the skills of claim. Contract management departments to the dynamic assessment of the scene, found that the incident should be timely collection of materials. At the same time, the project departments to deal with the business relationship with the owners, the use of modern management tools, record the business owners and the occurrence of the claims of the incident, as evidence. If a dispute arises between the two parties, it can be used as the basis of law. Through the whole process of the construction project, the contract measures mainly occur in the middle and late stage of the project. At the same time, we should pay close attention to the performance of the contract by the project department, and prevent the subcontractors from making use of the contract measures.

## **Conclusion**

Construction project cost management is the core competitiveness of the construction company. Organization measures, technology measures, economic measures and contract measures are important means of cost management. The cost of construction project must be managed by the comprehensive means of the four above measures. The improvement of construction project cost management is a continuous process, which needs further study.

## **References**

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