Research on Construction Projects Cost Management

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Abstract. Since the 18th Communist Party of China (CPC) National Congress, our country has further speeded up the economy and industry structure adjustment and upgrading. It brings so many opportunities and challenges to the construction industry. With the expedite development of the Belt and Road (B&R) strategy, China's internationalization will rise continually. As a result, Chinese local construction companies will face a larger and broader market competition. How to survive in this fierce competition and how to become an international company are the problems that many construction companies have to consider. At present, the management model centered on construction cost management has become an important way for Chinese construction enterprises to improve their competitiveness and move toward internationalization. This paper firstly introduces the current situation of construction projects cost management in China and then analyzes the problems it faces. Finally, this paper gives a strategy about how to optimize construction projects cost management level.

1. The current situation of construction projects cost management in China

With the rapidly fierce competition in the construction market, the commercial space has gradually narrowed and the cost management of construction projects has become more and more difficult. The rapid growth rate of investment in construction projects in China has passed in recent years. At present, the development of the construction market is full of competition. Look at the whole market, it is still healthy and the competition is still ordered. The fierce competition in the market has promoted the prosperity of construction companies. But it also causes many inharmonious phenomena in the construction market. Due to the unequal status of market entities, contractors are often in the dry tree. This phenomenon leads to some irregularities. In addition, the uncontrollable factors of project costs are increasing. For an example, the way of Construction Company to determine the cost of projects mostly based on the experience or complex model to estimate the gross investment quota in the auction phase. However, the cost in the actual process of construction often become unpredictable, which virtually increases the actual cost and leads to the increase of construction projects' operation risk. Figure 1 shows the growth rate of investment in construction projects in China in some years. Table 1 shows the value-added and growth rate of construction projects in some years.
Figure 1. The growth rate of investment in construction projects.

Table 1. The value-added and growth rate of construction projects.

| Years | Value-added | Growth rate |
|-------|-------------|-------------|
| 2011  | 32020       | 9.6%        |
| 2012  | 36896       | 9.8%        |
| 2013  | 40897       | 9.7%        |
| 2014  | 44880       | 6.8%        |
| 2015  | 46627       | 6.6%        |

2. The problems of construction projects cost management in China

2.1. The insufficient of market competition awareness
Large construction companies in China are mostly state-owned enterprises and influenced by planned economic thinking in a long time. It causes many construction company managers not adapt to the drastic change of market economy. The influence also was reflected in the project cost management. Those companies do not clearly define the responsibilities and tasks of their departments, resulting in unclear responsibilities and obligations. Although some construction companies have established rules and regulations, their actual implementations often have a big discount. In this case, it is difficult to effectively integrate every departmental resources. Departments’ managers always consider problems from their own interests but lack overall consciousness.

2.2. Inadequate quality awareness of engineering project
Quality awareness refers to the concepts and values that construction companies must have in the construction process to ensure and improve the project’s quality. In the long run, if a company only increases its investment but ignores the control of building quality, it will inevitably cause a lot of additional cost incidence and eventually increase the cost. Therefore, construction companies must improve the quality consciousness of engineering projects and effectively strengthen the cost management of construction projects.

2.3. Ignoring time management and project control
Construction cost refers to the cost of all measures taken to achieve the limitation of construction period and contract deadline. Accelerating project construction progress, shortening production cycle and putting into production as soon as possible have obvious cost advantage. However, compressing the cost of construction project within a prescribed period is a very complex technique. It not only requires to shorten the construction period and reduce the cost, but also requires to combine a variety of technical means. Otherwise, the blind reduction of construction period and the acceleration of construction progress will increase the manpower, material and financial costs. It will even affect the quality and reliability of construction projects.
2.4. **Unscientific cost management**

Firstly, rational risk prevention scenario is lacked. Generally speaking, in addition to the complexity of construction projects which are easily affected by external environment, there is a huge amount of uncertainty in the project itself. In the face of these uncertainties, project cost management becomes more and more complex. In some projects, there is no expectation and necessary preparation to deal with these changes, which will lead to a substantial increasing in costs. Secondly, information management is inefficiency. The application of computer systems, management software and technical software are not compatible. It is difficult to form an effective system. So quick reflecting to the change of cost is really hard. The construction company cannot take effective measures to cope with the change through this system. Thirdly, the influence of position change is enormous. The poor location of the project will also make the cost management become more difficult and directly affect the cost of the project.

3. **Optimizing the strategy of construction project cost management**

As far as the idea of optimizing the strategy of construction project cost management, Construction Company can begin with four aspects: strengthening cost control, taking advantage of quality management’s superiority, reducing the risk cost of construction projects, and improving employees’ moral consciousness, which can effectively optimize the cost management that can meet the needs of the new era. As show in Figure 2, optimization ideas.

### Figure 2. Talent training ideas.

3.1. **Changing ideology and strengthening cost control**

To solve the problem of low efficiency project cost management, first of all, we need to correctly understand what cost management is. And then we need to implement the project cost accounting system and the project manager responsibility system. The project manager must establish correct consciousness of cost control and realize the important role of cost control in the whole project management. Based on the quality and progress assurance, strict cost accounting can improve economic efficiency. In addition, from the perspective of incentive theory, if cost accounting workers have motivation and goals to work, they must fully consider their welfare status and promotion channels. If accountants are still a part of the whole project department, their work will be limited by their project department as before, thereby it will weaken the influence of cost management. To this end, we must reform the existing system, enrich the accountant's work, formulate strong incentive measures and improve the employees' initiative in project cost management.

3.2. **Bringing quality management’s superiority into full play**

For a construction company, the quality of the product is not so desirable. If it exceeds a reasonable level, the quality level is too high. Bad quality and the quality exceeding a reasonable level both will result in an increasing quality costs. Generally speaking, quality prevention cost is very low at first. As the quality requirements improves, quality also gradually improves. If quality reaches a certain level and demand increases, the cost will increase substantially. Therefore, we need to give full play to the advantages of quality management and control the cost within a reasonable range. For an example, we can increase prevention and scientific inspection cost appropriately to ensure that the construction
quality meets the design requirements. Meanwhile we can minimize the cost of engineering technology within the reasonable range of design.

3.3. Reducing the risk cost of construction projects
First, predict the risk cost accurately. In the process of construction, it is necessary to consider some unforeseeable factors to predict risk cost. The main factors that cause price risk are force majeure, such as earthquake, flood, price increasing on the site, changes in related policies and special construction plans. Without pre-assessing the risks, those factors will cause a huge burden cost. The key to accurately predict the risk cost is to introduce the project construction plan and understand the characteristics of the project. Secondly, strengthen informatization construction. This project must follow the principles of comprehensive and dynamic management. We need to monitor costs and reduce the risk of building costs. But in the process of project implementation, the condition of stochastic cost such as technology changing is very complicated and we need to monitor it dynamically. The informatization level of project management in China is basically on a single business management level. The construction monitoring system is still not widely promoted and implemented. Therefore, the construction of information system should integrate the business system. And then the information between functional departments can be connected. Through this we can realize the joint of network resources and process information timely. It will greatly optimize the cost control of engineering management so that we can realize the dynamic cost management control.

3.4. Improve employees’ sense of responsibility and mission
All systems are ultimately implemented by humans. Therefore, the key to the success of cost management is talent cultivation. Firstly, project managers need to conscientiously study and implement cost management systems and accounting systems. They also need to maintain self-discipline. Secondly, cost accounting must seriously address the problems, such as organizing regular research discussion when there are great changes in the cost of the project. Through this the company can ensure timely and effective control of construction cost, which can avoid unnecessary loss. Thirdly, the company should improve relevant restrictions and incentive mechanisms to make accountants face fewer administrative obstacles when they exercise their power. Fourthly, the company also needs to strengthen the supervision and management. Improve employees’ sense of responsibility through various means and fully arouse the enthusiasm of staff.

4. Conclusion
With the gradual development and improvement of China's market economy, construction enterprises have faced more and more cost pressures under fierce competition. Under the background of current stock market, highlighting the characteristics of its cost management and finding a cost management model combined with its own characteristics both are important magic weapons for every construction company in the new era. Therefore, in the time of the Belt and Road (B&R) strategy, every construction company need to fully reform the cost management mode, advance with the times and better handle these challenges of the international market.

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