Research on the Correlation between the Project Cost System and the Construction Management Level

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Abstract. With the rapid development of China's economy, all walks of life have also made great progress, especially in the construction industry. However, how to balance the interaction between engineering cost and construction management and how to deal with the relationship between them has become an important issue. This paper first analyzes the concept. Then, this paper analyzes the relationship between project construction management and project cost.

Keywords: The Project Cost System, The Construction Management Level, Correlation

1. Introduction
With the economic globalization, the internationalization of project cost management is becoming a trend, especially after China's accession to the WTO. With the integration of domestic and foreign markets, large-scale foreign-funded enterprises are bound to occupy the domestic market in terms of capital, technology, management, talents, services, etc. But the level of project management in our country is far from the advanced level in the world. At the same time, China’s project cost management system is not fully mature, which limits the improvement of construction enterprise management level. There is still a lot of room to improve the international competitiveness of China's construction enterprises. Construction level directly affects the competition of construction enterprises. However, construction management is the key of construction enterprise management. Good construction management will ensure the smooth implementation of the project, which will ensure the overall quality of the project. Through good construction management, the construction unit can strictly control the project cost. With the rapid development of science and technology, international competition will become increasingly fierce[1]. Therefore, it is of great significance to study the relationship between engineering cost management system and management level, which will improve and perfect the engineering cost system and construction management level in China.

2. Relevant contents

2.1. Importance of project cost
Project cost is the total cost of a certain project construction, which is the sum of one-time cost for a project to form corresponding fixed assets and intangible assets through construction. Investors choose an investment project in order to obtain the expected benefits, which requires a series of investment management activities, such as project evaluation decision-making, design bidding, project bidding, completion acceptance, etc. In the investment management activities, all the expenses paid by the investors form fixed assets and intangible assets, which constitutes the project cost. In this sense, the project cost is the project investment cost. At the same time, the construction project cost is the fixed asset investment of the construction project. Summarizing the project business finance will affect the management cost of construction cost. However, the actual cost of the budget cycle of most construction work is impossible to predict success, so the project cost will evaluate all expenditures in the project cycle, which plays a very important role.

2.2. Importance of project construction management

The main contents of construction management include on-site supervision, measurement, registration, project progress, on-site problem management, etc. Construction management is a flexible and perfect business, which has a very important economic impact on enterprises. Project construction management is determined by many factors and reasons, which has a considerable impact on investors. The level of construction management will directly affect the economic benefits of construction companies. Therefore, if the management level of the construction company is low, it will affect the construction progress and quality of the whole project. Furthermore, this will affect the expenditure of the whole project cost budget. Therefore, in order to get more benefits, it is necessary for investors to strengthen construction management.

3. Correlation between project cost system and project management level

In the current cost management system, the factors of management level are seldom considered. This paper analyzes the correlation between project cost and project cost composition, quality, duration and other aspects, as shown in Figure 1.

3.1. Project cost affects construction management level

The construction period is the most important index. It is a challenge for a contractor to finish the project on time, especially for a complex and large-scale building. Therefore, no matter in the aspect of project cost or construction management, the construction company needs to make full preparation. Investors and construction enterprises should make a long-term project cost system. Because the construction management is a dynamic process, which will be affected by the construction cost. Cost system is unstable, which requires dynamic management of cost system. The construction unit shall do
a good job in the construction management system, which requires the relevant departments to implement comprehensive guidance and supervision. In the process of construction management, there are many important contents, including cost management, quality management, safety management, construction period management and so on. Among them, project cost management is the most core link. The engineering cost not only involves the economic aspect, but also has certain connection with the engineering technology. Therefore, engineering cost is the link of combination of economy and technology. Therefore, the investor should strictly control the project cost, which will ensure the controllability of the project budget\(^5\).

3.2. Project management affects project cost
In the process of project development, construction management has a significant impact on the project cost, which is mainly reflected in the high impact of management on the cost. The investor will ensure the smooth development of the project, which will need to pay attention to the design link. By ensuring that the engineering design scheme and drawings meet the actual requirements, the construction party can predict the project development issues. By making the plan in advance, the construction company can avoid many problems, which will reduce the cost of the project. Therefore, how to ensure the accuracy of prediction has become the main problem.

3.3. Relationship between quality cost and construction management
There are various expenses in quality cost, and there is a certain proportion relationship between them. According to the relevant data, when the failure cost is more than 70% of the total cost, and the prevention cost is less than 10% of the total cost, the focus of construction management will be mainly on quality issues, which requires the construction unit to improve the quality of preventive measures. When the failure cost is close to 50% of the total cost, the construction company should focus on maintaining the existing quality level, which can show that it is close to the ideal cost control point. When the failure cost is less than 40% of the total cost and the identification cost is more than 50% of the total cost, the construction unit needs to focus on consolidating the existing quality level. At the same time, the construction company can reduce the project cost by the following ways, such as reducing the inspection procedure and management process\(^6\). At the same time, according to relevant data, when the cost of prevention increases by 3% - 5%, we can reduce the total cost of quality by 30%. Therefore, there is a close relationship between quality cost and construction management. As shown in Figure 1, with the increase of project quality, the cost of identification and prevention will also increase in the form of geometric curve. At the same time, the failure cost will also be reduced. Therefore, the enterprise management effect is more obvious. The relationship between quality cost and construction management is shown in Figure 2.

3.4. Relationship between construction period cost and project management
In the prediction of project cost, investors need to analyze and study technology, management, economy and other aspects, which will increase the possibility of project completion within the construction period. If the construction period is shortened blindly, it may not speed up the construction progress. Without scientific research and construction progress will greatly increase human, material and financial resources, which will increase the cost of the project. Therefore, the construction period cost will directly affect the management cost of the project. In the project construction management activities, we should determine the construction period according to the specific situation of the project and the reliability of resource supply. The project manager shall make a comprehensive comparison of the construction technology and construction process. Through various resource optimization, the project will achieve resource advantage allocation. In the project management, the project manager should calculate the project cost timely and accurately, which will improve the real-time control of the construction process. By taking comprehensive measures, the project manager can mobilize the enthusiasm of construction personnel and management personnel, which will ensure the realization of the construction period goal. The relationship between duration
and cost is shown in Figure 3.

Figure 2. The relationship between quality cost and construction management

Figure 3. The relationship between duration and cost

4. Conclusion
There is a close relationship between engineering cost and engineering management. In the construction management, through scientific and reasonable project cost, we can lay a foundation for the construction management, which can provide an important basis for the feasibility study of the project. At the same time, the project cost includes many aspects, which requires the investor to carry out systematic analysis on the whole situation. Through the scientific management system, we can determine and constitute the project cost management system, which will give full play to the effectiveness of the project cost management. By studying the correlation between engineering cost and engineering management, we can improve the comprehensive management level of construction units.

References
[1] Yu Feng. On the relationship between engineering cost and engineering construction management [J]. Science and technology innovation and application, 2014, 05 (18): 110-113.
[2] Liu Xiuxiang. Research on the relationship between construction quality and project cost management [J]. China new technology and new products, 2016, 01 (25): 678-679.
[3] Sun Zhiwei. The whole process engineering cost service innovation strategy based on construction management [J]. Shanxi architecture, 2015, 04 (10): 209-231.
[4] Tao Hongbin. On the interaction between project cost and project construction management [J]. Enterprise guide, 2018(19): 83.
[5] Li Qin. On the relationship between construction management and cost control of construction engineering [J]. Construction engineering technology and design, 2018 (31): 270.
[6] Chang Chenguang, Yin Kai. Study on optimization model of construction cost based on resource allocation [J]. Science and technology progress and countermeasures, 2017(11): 110-113.