

# **Integrated management and optimization of construction project schedule, cost and quality**

**Zhan Xiaran**

Tianhe College of Guangdong Polytechnic Normal University, Guangzhou, 510000, China

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**Abstract:** In the construction project, the progress, cost and quality as the key indicators are not isolated, but the unity of opposites and complement each other. In the construction project management, when determining the management objectives of each indicator, it is necessary to consider the impact of other link objectives, and carry out integrated management and optimization. Based on the relationship between construction project schedule, cost and quality, this paper discusses the comprehensive management and optimization of construction project schedule, cost and quality, and proposes integrated management and optimization measures for construction projects.

## **1. Introduction**

In recent years, with the rapid development of China's economy and urban construction, construction projects have increased year by year, the types of engineering projects have become increasingly diversified, technical difficulties and organizational structures have become increasingly complex, and higher requirements have been placed on the management of construction projects. For construction projects, schedule, cost and quality are the core components, which have an important impact on the completion and efficiency of construction projects. In the construction project, the schedule, cost and quality are closely related. Any problem with any indicator will affect the smooth progress of the construction project. The smooth, timely and timely completion of the real estate project and the completion of the cost and quality need to be given in the perspective of integrated management. Fully guaranteed. However, the progress, cost and quality management of traditional construction projects in China are mostly independent management. There is a lack of understanding of the relationship between schedule, cost and quality in construction projects, and less attention is paid from the comprehensive perspective, resulting in the progress and cost of construction projects. Overall quality management has not been effective.<sup>[1]</sup> Therefore, it is of great practical significance to study the comprehensive management and optimization of construction project schedule, cost and quality.

## **2. The relationship between construction project progress, cost and quality**

In construction projects, schedule, cost and quality are important control objectives. Progress, cost and quality are not only interdependent, but also interact with each other. It is a dialectical unity (see Figure 1 below).

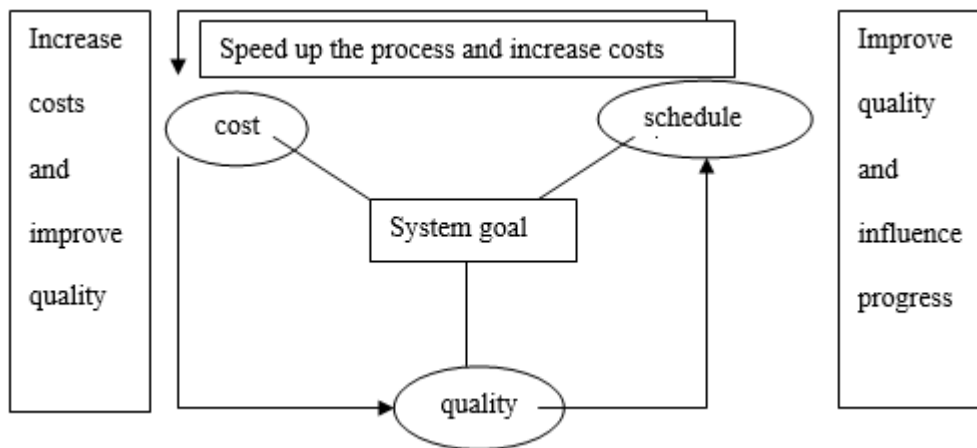


Figure 1 Construction is the relationship between progress, cost and quality in the project

For construction projects, the comprehensive goal is fast progress, low cost and good quality. The completion of this goal is closely related to the three indicators of progress, cost and quality control. The three indicators of progress, cost and quality are also closely related. First of all, the three showed a certain opposite relationship. Building construction projects want to strengthen the construction schedule and quality, which will inevitably promote the increase of cost; if you want to effectively control the cost and effectively control the cost, you need to improve the construction progress, and the construction progress will be improved. The quality of construction projects has a certain degree of impact.<sup>[2]</sup> Progress, cost and quality are complementary in construction projects. Building construction projects want to improve overall efficiency. If construction companies want to improve their core competitiveness, they need to look at the progress of construction projects from a holistic perspective. Cost and quality, comprehensive improvement and comprehensive management optimization.

### 3. The comprehensive management and optimization strategies for the progress, cost and quality of construction projects

For the construction project management, the relationship between schedule, cost and quality requires that it should carry out comprehensive management from the coordinated management of the two aspects of optimal management and benefit, and continuously optimize the integrated management. Specifically, it can be realized from the following aspects. And optimize integrated management.

#### 3.1 Reforming and deepening the internal system of construction enterprises

In the construction project management, to realize the comprehensive management of project schedule, cost and quality, and to improve the project schedule, cost and quality management efficiency as a whole, it is necessary to change and deepen the internal system of the construction enterprise. At present, many construction companies have problems in terms of schedule, cost and quality. In essence, they are still related to internal system problems. Usually, before the construction company implements a project, detailed financial statements will be formulated in advance. Under normal management, the funds invested can support the consumption of the enterprise in all aspects of the construction, and most of the problems beyond the advance payment are common. Related to factors.<sup>[3]</sup> Affected by the insufficient internal management system of the enterprise, many people lack the overall management awareness in their work, and only focus on their own links, so that personal interests are above the whole, only the traditional management system is perfected. In order to make the employees in all aspects of the construction enterprise only have a clear division, and strengthen the comprehensive management from the overall perspective of the relationship between progress, cost and quality, the efficiency of the three indicators can be maximized.

### **3.2 Implementing and implementing the coordinated management of progress, cost and quality**

In the construction project management, based on the relationship between schedule, cost and quality, in order to achieve its integrated management and promote the optimization of its integrated management, we must pay attention to the coordination of the three major indicators, implement and implement the progress, cost and quality. Coordinated management. For the construction project, if quality problems occur during the construction process, the relevant responsible persons should be actively investigated, and the quality problems should be comprehensively summarized and analyzed in depth, and the corresponding remedial measures should be taken.<sup>[4]</sup> At the same time, during the progress of the construction project, the testing and auditing of each link should be strictly carried out. For the hidden dangers, it is necessary to actively listen to the technical opinions and put forward the handling report. After ensuring that the remediation work is completed, the enterprise shall apply on the initiative of the acceptance of each participant to ensure that the inspection and examination are qualified before entering the post-work phase. The progress of the construction project shows a remarkable comprehensive feature, and the content involved is relatively extensive. The coordination of the construction progress management needs to be carried out under the joint efforts of the enterprise and the owner to ensure the completion of the construction task. In the process of progress, it is necessary to comprehensively consider the actual situation, make adjustments and coordination work for different construction departments, and ensure that the construction progress can proceed as expected. In addition, increasing construction cost management and rationally controlling construction costs are also important for building construction projects. Strengthening construction cost management can strictly restrict the state of each production factor.<sup>[5]</sup> From the perspective of form, project project cost management not only includes the immediate coordination management of the department, but also the implementation of the cost plan. The main goal is to ensure the effective implementation of the cost plan. In the process of formulating the construction cost plan, it is necessary to formulate several plans based on the progress and quality of the specific project, and select the best plan under reasonable comparison, while saving the cost of the project as much as possible. Ensure the progress and quality of the construction project.

### **3.3 Constantly innovating the construction process**

Factors that restrict the efficiency of construction project progress, cost and quality integrated management, in addition to the management system, involve the construction process problems. Under the efficient construction process, it can naturally accelerate the project schedule and save costs. Promote the improvement of construction quality. Therefore, in order to improve the comprehensive management efficiency of construction projects in terms of schedule, cost and quality, and to determine the balance between schedule, cost and quality collaborative management, it is also necessary for construction companies to continuously innovate the construction process. The construction unit should consciously innovate the building concept, continuously strengthen its own building technology, realize effective control of cost by strengthening the effective use of resources, and promote the shortening of construction period by strengthening construction means.<sup>[6]</sup> In the construction of construction projects, good cost control can ensure the increase of activity funds in the development process of the enterprise, and then apply more funds to the purchase of raw materials for construction projects. Adopting advanced construction techniques and cooperating with abundant building resources, this two-pronged approach can naturally promote the effective improvement of building quality and meet people's high quality requirements for building construction. For the construction enterprises, the process is the core of their development, and it is also the key to coordinate the project schedule, cost and quality balance management. Only the construction technology can continuously improve the construction process and actively introduce advanced construction technology to ensure the progress and cost of the construction project. And the realization of quality integrated management objectives.

#### 4. Conclusion

Compared with traditional modular management, integrated management finds a balance point in the three stages of construction project schedule, cost and quality, making management more coordinated and strict. This is the outstanding feature of integrated management and its advantages. To help achieve better management results. Construction project management should actively change management ideas, promote comprehensive management of progress, cost and quality through integrated management and optimization, and finally achieve higher requirements and ultimate goals in the management of construction projects.

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