

The Application and Future Development of Innovation Mode in Construction Engineering Management

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Abstract: With the continuous development of China's construction industry in recent years, the competition among construction enterprises has become more and more fierce. If construction enterprises want to further enhance their market competitiveness, they must pay attention to project management. In the process of project management, effective application of some innovative models can better realize the management of construction projects, thereby further improving the management ability and management level of construction enterprises. In the process of building construction, engineering management plays a very important role. Only by further strengthening the project management can the quality and construction period of the construction project be better ensured, and the construction engineering management involves many management elements at the same time. Affected by many factors, it is necessary to pay attention to the application of some innovative models. Therefore, this paper mainly analyzes the application of innovative models in construction engineering management and the future development.

1. Introduction

The traditional construction engineering management model has not been able to adapt well to the current development of the construction industry. Therefore, in order to achieve better results in construction engineering management, it is necessary to strengthen the management of construction engineering, in the process of construction engineering management. Applying some innovative models to further improve the management level of construction engineering, so that the quality of construction engineering can be better guaranteed^[1]. Therefore, it is very important to study the application and development of innovative models in construction engineering management.

2. The application of innovative models in construction engineering management

(1) Meeting the needs of the development of the construction industry

With the continuous improvement of China's socialist market economic system, China's construction industry is facing more opportunities while facing new opportunities. As a pillar industry of China's economic development, the construction industry wants to make it better. The development of the market must further improve the market competitiveness of construction companies. In order to effectively improve their competitiveness in the fierce market competition, construction enterprises must innovate the engineering management model, increase the

technological content and innovative components in the process of engineering management, so that the construction enterprises Technology and equipment can lead in the field, improve their competitiveness, and thus ensure the quality of construction engineering, while reducing the cost of engineering management to meet the needs of the development of the construction industry^[2].

(2) The need to achieve scientific management

In order to better manage building projects, construction companies must rely on innovation in management models, because with the continuous development of China's society and construction industry, people have put forward higher requirements for construction projects. To better meet these people's requirements, we must pay attention to the innovation of the construction engineering management model, and apply the innovative theories, techniques and methods to the construction engineering management practice, so that the productivity of the construction enterprise can be effectively improved. At the same time reduce the cost of production and management of construction enterprises^[3]. Therefore, if a construction enterprise wants to realize the scientific management of construction engineering, it must pay attention to the research and application of the innovation mode of construction engineering management, and innovate the construction engineering management mode according to the actual situation of construction enterprises and construction engineering, so as to effectively realize science. management.

(3) An effective way to achieve optimal resource allocation

By innovating the model of construction engineering management, it is possible to better configure the resources of the construction enterprise^[4]. In the process of building production, various resources are often used, and the allocation of resources largely determines the efficiency of the construction enterprise. Therefore, only the optimal configuration of various resources can be realized through the construction engineering management. All kinds of resources can be fully utilized to effectively improve the efficiency of construction enterprises^[5]. An effective way to achieve optimal resource allocation is to innovate the engineering management model. Only by innovating the traditional engineering management model can the various resources be configured more effectively^[6].

3. Problems in the management of construction projects

(1) Backward management concepts and methods

Many construction companies still use traditional management concepts and management methods in the process of building engineering management. They do not apply some advanced management concepts and methods, which leads to the failure of management concepts and methods. Adapting to the current development of construction engineering management work, it can not meet the needs of construction project construction activities. The traditional management concepts and management methods are used in the same way. In the process of carrying out project management work, it is often impossible to control the various links, and thus it will affect the quality and construction period of the construction project. Therefore, the management concepts and methods are relatively Backwardness is also a problem in the current management of construction projects.

(2) Insufficient supervision

In order to effectively manage construction projects, it is necessary to rely on strong supervision, but in the process of carrying out construction engineering management, the supervision of many links has not been put in place. It is precisely because of the lack of supervision that many details of the project construction process were not discovered in time, which seriously affected the quality of construction engineering. Especially the supervision in the construction process of construction engineering has a very important impact on the quality of construction engineering, so the lack of

supervision is also a serious problem in the current construction engineering management.

4. Application and development of innovative models in construction engineering management

(1) Adjustment and innovation of management concepts

In the process of project management, the project management target system shown in Figure 1 can be established first. Only when a scientific project management target system is established can the project management points be better defined. As far as construction engineering is concerned, the core of management is mainly focused on quality management, construction period management, cost management and safety management. Therefore, construction companies should pay sufficient attention to the management of these four aspects, thus making construction management Work to achieve better results. It is clear that the core content of the project management target system and project management are innovations in management concepts, so it can be seen that the innovation of management concepts is of great significance to the management of construction projects.



Figure 1 Construction project management target system

(2) Innovation in building construction technology management

In the process of building construction, it is often inseparable from the application of building construction technology. Building construction technology has a very important impact on the cost and quality of construction engineering. Therefore, in order to realize the innovation of construction engineering management mode, it must also pay attention to the innovation of the construction technology management mode. With the continuous development of information technology, it has been widely used in many fields. In the process of building construction technology management, information technology can also be applied to realize information management, thereby further improving Quality and efficiency of building construction technology management. Engineering management is a comprehensive and extremely strong work. In the process of managing construction technology, it often involves the management of many other aspects, so it is possible to introduce an advanced technology management system for the information management system. Established to effectively improve the level of construction technology management. At the same time, the combination of information technology to innovate

the construction management technology management system and system, so that the construction technology management system and system can effectively meet the needs of the current construction industry development, thereby further improving the engineering management level of construction enterprises.

(3) Innovation in construction engineering management system

The effective development of construction engineering management needs to rely on the scientific management system. Therefore, in the process of engineering management, we must also pay attention to the innovation of the management system. Only by realizing the innovation of the engineering management system can the construction engineering management work be more effectively carried out. In order to realize the innovation of the project management system, it is necessary to pay attention to three aspects: 1 Innovating personnel management, in the process of carrying out construction engineering management, people are the most active factor, and the quality of construction engineering will also be It has a very important impact. Therefore, construction companies must innovate the mode of personnel management and strengthen the training of employees so that the comprehensive quality of construction personnel and engineering management personnel can be effectively improved, especially the training for first-line construction personnel. To improve their safety awareness, which is more conducive to the development of engineering management. 2 To innovate the management mode of building materials, building materials have a very important impact on the quality and cost of the project. In the process of carrying out construction activities, a large amount of building materials are often used, if these materials are not effectively Management will result in waste of resources, which will increase the cost of construction engineering. Therefore, innovation must also be made in the construction material management system. 3 For the problems existing in the traditional management system, it must also be dealt with to achieve the innovation of the project management system.

(4) Innovating the progress of the project (PERT method)

The project schedule is directly related to the realization of the “three basic objectives” of the project, which is the main basis for project management and the basis for the implementation of other specific plans. When preparing the schedule, the construction company can introduce the most advanced network planning technology, treat the whole project as a unified whole, and then express the whole system through the network diagram. Finally, use the time parameters and the graphical analysis method to make the project progress. The possible situations and data resources are listed in advance, so as to arrange the project plan for the enterprise and promote the goal to complete the decision-making basis. In the process of using network planning technology to arrange the schedule, the enterprise can adjust it according to the needs of the actual situation and the changes of internal and external factors to improve the efficiency of the project.

In PERT, it is assumed that the duration of each work obeys the β distribution, and the three time values are calculated approximately by the three-time estimation method, that is, the shortest, longest, and most likely durations, and the weighted average is used to calculate an expected value as the duration of the work. . When compiling the PERT network plan, introducing risk factors into the PERT, people have to consider how much the possibility of completing the engineering task under the specified time period according to the PERT network plan, that is, the probability of success of the plan, that is, the reliability of the plan. This requires a risk estimate for the project plan.

When drawing a network diagram, the non-positive type must be converted into a positive type, and the three-time estimate is changed into a single time estimate. The calculation formula is:

$$t_i = \frac{a_i + 4c_i + b_i}{6}$$

formula:

t_i is the average duration of work for i ;

a_i is the shortest duration of work for i (also known as optimistic estimation time);

b_i is the longest duration of work for i (also known as pessimistic estimation time);

c_i is the normal duration of work, which can be estimated by the construction quota.

Among them, the duration of the two jobs a_i and b_i is generally estimated by statistical methods.

The three-time estimation method converts non-positive problems into affirmative problems. From the perspective of probability theory, the deviation is still inevitable, but the trend always has obvious reference value. Of course, this does not exclude every estimate. Try to be as accurate as possible.

5. Conclusion

In the process of carrying out construction engineering management, we must pay attention to the innovation of management mode. Only relying on the innovative management mode can better improve the management level of construction engineering, so that the quality of construction engineering can be better guaranteed. Further promote the development of China's construction industry.

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