

# *Application Status of Engineering Management in the Construction Field*

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**Abstract:** With the development of the real estate industry, the take-off of the construction industry has also caused more and more capital to pour into the construction industry, driving the rapid development of the construction industry, but also causing the construction industry to face great competitive pressure. In order to achieve effective management of construction projects, this article aims to point out the main problems in China's construction management and improve the construction project management system and improve construction technology, which is conducive to improving the operational level and construction quality of construction projects. Currently, there is a lack of effective information communication and coordination mechanisms within the construction units of construction projects, which can lead to slow progress and low efficiency in the construction of construction projects, which will greatly increase the implementation difficulty of construction projects and restrict the improvement of enterprise construction project management level. Thus, it is important to improve the role of construction project management in the construction industry, and it is necessary to figure out the inner problems and strengthen the management of construction projects. The article's main purpose is to focus on the current situation and development reality of construction project management, specific research is conducted on its management and control optimization from the perspective of engineering management, to provide a reference for modern management and optimization of construction projects management.

**Keywords:** construction project, architecture, project management

## 1. Introduction

The management of housing construction projects will have a decisive impact on the overall construction quality of the project and the economic benefits of the company. By establishing and implementing a reasonable and scientific management model, the quality and efficiency of the project can be effectively improved. It may cause major safety hazards and quality defects in the project, and even affect the market reputation of the construction company. Therefore, in the process of management of housing construction projects, making all-round and reasonable innovations to the management model according to our own specific conditions is very important, so as to effectively improve the overall quality of the project and make the implementation of project management more effective.

Based on the current development of China's construction industry, not only are there more and more large-scale projects, but the difficulty of project construction is also increasing. In addition to

requiring continuous innovation and optimization at the technical level, innovation at the management level is often required. In order to better realize the effective management of the entire construction project and minimize the probability of deviation problems. Therefore, project management is very important in the construction industry [1].

In the construction of construction projects, construction project management is an important factor to ensure the orderly progress of various construction operations and is also an effective guarantee for the realization of the core objectives of construction projects. However, affected by many factors, the full potential of the construction engineering management level is restricted to a certain extent. With the improvement of people's living standards, higher requirements are put forward for the living environment, which brings certain pressure and challenges to the construction industry. In order to improve the economic benefits of construction projects, it is necessary to strengthen the management of construction projects. Although the continuous development of my country's construction industry has brought huge economic benefits and jobs, the relevant management system still needs further reform. Based on this, this paper conducts a comprehensive analysis of the main work content and influencing factors of construction project management and puts forward its existing problems and optimization measures.

With the improvement of China's comprehensive national strength, the construction industry has also made certain achievements in development. If the construction project management model does not actively adapt to the times and innovate, it will affect the quality of construction projects. In this case, it will lead to an increase in the construction cost of the project and affect the economic benefits of the construction enterprise. Therefore, in the construction of construction projects, actively innovating the construction management mode, promoting the stable development of the construction industry, and further improving the economic benefits of the construction industry must be organized.

In summary, the purpose of this article is to raise issues in China's engineering management and propose solutions.

## **2. Connotation and Significance of Construction Engineering Management**

According to a great number of definitions of project management, what exactly is project management? The decision-making, organization, command, coordination, and control of the project are referred to as project management. This is done in order to meet the project's goals and efficiently utilize its resources. In general, project management is organized, extensive, and complex [2].

The construction process in terms of the operating system and management system defined by Walker (1996) indicated that the operating system is concerned with the professional and technical tasks such as developing design and full documentation, preparing contract documentation, or building a project, while the management system integrates and controls the work across different stages of the project lifestyle. Project management activities are those that are closely related to management system activities. It follows that rather than executing any of these tasks directly, the task of project management or the function of a project manager is largely to coordinate, integrate, and control a range of operations within the operating system.

If the construction industry wants to gain advantages in the fierce industry competition, high-quality construction project management is very important [3].

The construction industry includes a large range of programs. Each process is interlinked. During the construction process, communication between superiors and subordinates is very important. Excellent program management needs cooperation between superior and subordinate, and those who construct need to have a great understanding of what architects deliver as well.

Unlike other commodities, architecture construction products are fixed and need to be completed at one time [4].

Once quality problems occur in the construction process, it is difficult to restore the original state. Thus, it is essential to monitor building quality throughout the entire process. It must be ensured that all production processes are coordinated under one project. The construction unit will transfer them there once all building processes have been finished. Hence, it is necessary to adhere to the requirements of professional construction workers, scientific construction management, and scientific construction processes in the process of managing building projects. To raise the overall level of construction product quality, construction companies must develop scientific management strategies and choose scientific construction technology in conjunction with the actual circumstances of building projects. Also, a building project's social and economic advantages can be maximized while reducing construction costs by strategically allocating construction workers to ensure progress and quality [5].

In Figure 1, the process of project management is displayed. There are four main steps within one project: Plan, Do, Check, and Action. Each part needs to connect with the following step. The project manager needs to be well considered as well, early preventive measures must be taken, during the project conducting, it is very significant to make medium-term monitoring and post-disposal measures. Meanwhile, some risks and hazards cannot be evaded, when conducting the project, moral hazards, mechanism risks, and station risks need to be considered, and make efforts to avoid unnecessary risks.

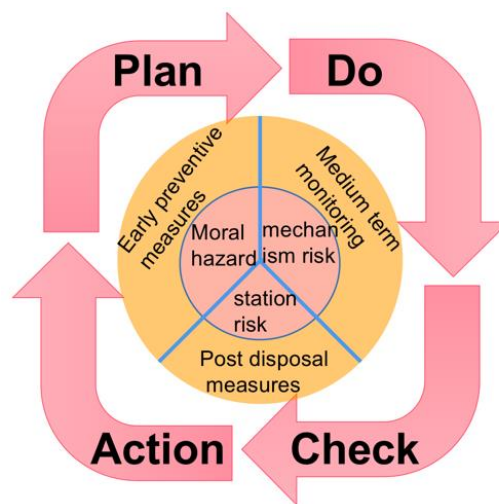


Figure 1: Overall quality control system diagram(Photo credit: original).

### 3. Importance of Construction Project Management

#### 3.1. Reasonable Control of Project Construction Cost

Well-developed project management can control project construction costs. Effective project schedule management can help managers comprehend the project's drawing requirements in advance of the work being done, plan people, material, and financial resources in each link, and optimize resource allocation [6].

Project management can ensure construction work develops smoothly and completely, it ensures the quality and efficiency of the project. Through the scientific planning of the scheme, technology, and required materials in the project, a lot of time and resources are saved and the project construction cost is reduced. The only way to avoid the current safety risks, successfully complete the construction work, prevent the issue of construction period delay, and improve the overall strength and level of the construction is by continuously improving the construction schedule management and ensuring the quality and efficiency of the project.

### **3.2. Guarantee the Completion Time of the Project**

The construction sector can be a complicated one. The building difficulties of the project will greatly increase because each construction region has its own unique qualities and peculiarities. Also, the project's construction is vulnerable to delays due to the impact of weather, geography, and other outside variables. A malfunction in one link will have an adverse effect on the entire project. A construction project is linked and needs interlinked cooperation. Managing each process is very important, each process needs to be under control and make sure it completed within the specified time.

### **3.3. Guarantee Construction Project Quality**

The management of the construction project should first concentrate on the quality management objectives. This is necessary to ensure that the project can have the ideal quality effect, can effectively support the reliable use of subsequent construction projects, and can avoid having an impact on the project's overall construction effect due to quality defects. Appropriate project management can ensure the quality of the final deliverables in a construction project will depend on a wide range of variables, and even a small change could have a significant effect. The management team should adapt the work of each department, improve the management process, and make sure that all construction variables and other factors are completely considered in order to better realize the ideal quality control and create the perfect project quality effect.

## **4. The Current Issue of Construction Project Management**

### **4.1. Lack of Safety Management Awareness**

There is a problem with the construction campaign's poor safety knowledge on a sizable portion of projects. The fundamental cause of this is that they are not as aware as they ought to be of the significance of safe production. In the entire construction project construction process, the work related to safe production cannot be implemented. The safety management activity during the construction stage frequently focuses on surface work and disregards the beneficial function of safety management. The project management team should pay close attention to each construction link's safety risk assessment, identify any existing risk factors, and develop practical preventive actions to counter those risks. In order to detect problems early, correct them, and deal with them decisively, we need to improve the oversight and inspection of the execution of safety measures during the construction process.

### **4.2. Lack of Professional Staff**

The lack of management innovation consciousness of construction project management personnel is a common phenomenon in the whole construction industry. The cognition of professionals needs to be improved. Therefore, in order to effectively operate and develop, construction businesses should emphasize the value of talent, focus on luring in more excellent and qualified candidates, create a perfect talent management innovation mechanism based on their own requirements, and adhere to the concepts of fairness and equity [7].

Personnel are the main factors affecting the development of project management, and construction project management has high requirements for the abilities of personnel. Especially in today's environment, with the increasing complexity of engineering structures and construction technology systems, higher requirements are placed on staff. For this reason, in the process of business development, construction enterprises should clarify the importance of talents, focus on attracting more outstanding and professional talents, and build a perfect talent management innovation mechanism based on the

company's own situation, following the principles of justice and fairness. Strengthen the construction of talent teams, pay attention to the introduction and training of talents, set up a more complete and systematic assessment process in the recruitment process, and conduct comprehensive assessments of the professional quality and personal abilities of personnel so as to fundamentally reduce the impact of personnel factors. Adverse effects of project management in their daily work, construction companies should also provide staff with more learning opportunities, arrange diversified training courses, build a high-quality management team, provide talents with a good development platform and space, and rationally use human resources to contribute to efficient projects. The development of management work can lay a solid foundation and comprehensively improve the overall quality of construction project management.

### **4.3. Outdated Management Ideas, Rigid Management, Low Management Efficiency**

The main basis for building engineering construction is the construction plan, so it is necessary to develop a scientific and reasonable construction plan to ensure the safety and efficiency of construction [8].

At this stage, some construction enterprises in China are still implementing labor management, construction contract management, and other models. In the past, construction enterprises have achieved remarkable management results and created huge economic benefits by adopting the above management mode. However, these management models are obviously out of line with the development of the times, and they cannot meet the current project management needs. The times are progressing, and the management system should keep pace with time. Old ideas, rigid regulations, and poor flexibility in the management process are all areas that need to be improved in project management. The benefits and management role can only be maximized by employing the most effective management mode at the time.

To improve the outdated management practices in contemporary project management, it is important to promote the innovation and development of management technology. The application of high technology has brought more possibilities for innovation. Innovative information technology and digital technology have provided the construction industry with more possibilities for innovative development. The entire construction project promotes the development of innovative technologies, increasing the scale of construction projects. The process of innovation and development, it aids with innovation and development. The innovation of the entire management technology is closely connected with the innovation of construction engineering. The amount of information faced by managers is increasing day by day, and the difficulty of processing this information is also constantly increasing. How to accelerate the pace of innovation in the construction industry so that the use of innovative engineering technology can be directly innovative and developed is the research focus of the engineering team. This also requires our country's engineering management personnel to provide innovative education. Through innovative education, engineering management personnel can master more innovative technologies, which can facilitate the development of construction engineering. They can also propose more engineering innovation methods to promote the development of construction engineering [9].

## **5. Limitations and Future Suggestions**

If construction enterprises want to make advancements in the context of the development of the new era, they must continuously innovate and optimize previous management concepts and management models, choose traditional construction project management models wisely, fully exploit the value of innovation, continuously enhance the construction quality and efficiency of construction projects, and

promote construction enterprises to become part of the interdisciplinary field of construction management [10].

When the construction project management work is implemented, it should be fully integrated with social development and the needs of the public to maximize the regulation and guidance of project management, properly solve the problems in the construction, and ensure the smooth development of the project. Only in this way can the management level of construction projects be raised to a higher level and provide sufficient impetus for the realization of the sustainable development goals of the construction industry.

To achieve the desired management effect, the top management of businesses typically uses a layer-by-layer management approach when issuing management orders. This management approach results in low enterprise management efficiency since it needs to be discussed and authorized at all levels. If construction businesses continue to operate with this management style, they will eventually become disconnected from social advancement and unable to compete more favorably in the market. Hence, China's building industry should adopt a flat management style.

With the improvement of people's living standards, higher requirements are put forward for the living environment, which brings certain pressure and challenges to the construction industry. In order to improve the economic benefits of construction projects, it is necessary to strengthen the management of construction projects. Although the continuous development of China's construction industry has brought huge economic benefits and jobs, the relevant management system still needs further reform [11].

## 6. Conclusion

Engineering management is very important in the construction industry, and it is the most powerful guarantee for design output. If a project is properly managed and has a complete engineering management system, many unnecessary problems can be avoided. Good project management can reduce the construction cost, control the cost to a minimum, and can guarantee the completion time of the project, arrange each link properly, and reduce the time cost. Proper project management can ensure safety issues during construction, avoid some potential safety hazards, and design and arrange each link in advance to ensure that the construction process is safe.

Construction projects often have a long cycle, a large amount of work, and a large amount of money involved. Therefore, the social impact factors on project quality are large, affecting local economic development and affecting the safety of people's lives and property. Therefore, in the process of project management, construction project managers should strictly perform their work responsibilities in accordance with regulations, improve their work capabilities, and optimize management strategies to ensure the high-quality completion of construction projects. It is necessary to establish and improve relevant systems for construction project management, improve safety and responsibility awareness in construction project management, strive to improve the comprehensive quality of construction project management personnel, and strengthen cost control management.

However, there are still many problems in engineering management in China. Lack of awareness of safety hazards, lack of well-trained employees, outdated management policies, and other issues. This paper also proposes improvement schemes for these problems.

In general, during the management of project construction quality, starting with the management system and construction personnel to do a good job in quality control and project management is quite important. Combined with the principle of prevention first, it provides quality assurance for construction projects, provides life and property safety guarantee for users, and improves economic development.

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