

Analysis of Project Management Model, Existing Problems and Frontier Development in China

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Abstract

Project management plays a key role in the development of construction industry and determines the quality of the project. This paper elaborates on the types and characteristics of domestic project management mode, points out the problems existing in the current situation of project management mode in China, and gives the development countermeasures of project management in China in view of these problems, and finally makes a concrete analysis of its development trend.

Keywords

Engineering Project; Management Mode; Development Status; Existing Problems; Development Countermeasures; Development Trend.

1. Introduction

Project management of project construction is a systematic management activity that plans, organizes, controls and coordinates the whole process of project construction effectively according to objective economic laws [1]. In terms of content, it is the management of the whole process of project construction. In terms of nature, project management is the micro - foundation of fixed asset investment management. China began to develop project management in the 1980s, and has tested this working mode in many large and medium-sized projects [2]. Since then, project management resulting in the rapid development of our country has gradually become one of the important works of engineering construction industry. However, China's engineering project management mode still lags behind that of developed countries, and there are many problems in the implementation process, which need to be solved urgently. In this paper, the domestic project management model as a starting point, and combined with the development of China's project management model, existing problems, and the corresponding countermeasures, so as to improve the engineering project management. In the final it analysis the development trend of the engineering project management.

2. China's current construction project management mode

2.1 DBB mode

The Design-Bid-Build mode is the most traditional engineering project management mode. In DBB mode, the owner entrusts the consulting unit to carry out feasibility study and other preliminary work. The design will be carried out after the project evaluation and approval. The construction bidding documents will be prepared at the design stage, and then the contractor will be selected through the bidding. This management mode is the most common in the world, which is adopted by the world bank, the ADB loan project and the project based on the contract conditions of the international association of consulting engineers (FIDIC) [3]. Its most prominent feature is to emphasize that the implementation of the project must follow the design, bidding and construction sequence, and only after the end of one phase can another phase be started.

2.2 DB mode

Specifically, DB mode refers to a mode in which the owner invites several qualified contractors to propose preliminary design and cost estimate at the initial stage of the project, and the winning contractor will be responsible for the design and construction of the project.

2.3 CM mode

The Construction Management mode is also known as the stage development mode or fast track mode. The fast path method is to carry out the scheme design and preliminary design successively in the early stage of the project, and adopt the segmented form to design part, invite bids part and implement part in the construction drawing design, so as to make the project design, invite bids and implement overlap smoothly and shorten the construction period of the project to a great extent.

2.4 PMC mode

The model refers to the engineering project management contractor on behalf of the owner is responsible for everything, the whole process of project and comprehensive management. In particular, the management of engineering including the overall planning, project definition, project bidding, choose the EPC contractor, and the design, procurement, construction, commissioning, etc.. But contractor are not directly involved in the project design, procurement, construction and commissioning stage of the specific work..

2.5 EPC mode

The Engineering-Procurement-Construction model is also referred to as the general contracting model in China. The owner sign an agreement with the contractor with corresponding qualifications, and entrust the contractor to manage the overall construction activities such as survey and design, equipment procurement and construction of the project.

2.6 BOT mode

In this Build-Operate-Transfer mode, the host country's government grants the project concession to the corresponding company through absorbing foreign investment, and the company undertakes the financing and construction of the project. After the completion of the project, the company is responsible for the repayment and operation of the project, and transfers the project to the host country's government at the end of the concession period [4].

3. Development status and existing problems of project management in China

3.1 Development Status

China's construction project management has not been formed for a long time, but it develops rapidly. In the process, a C-PMBOK system, namely China's project management knowledge system, has been formed which is suitable for China's national conditions. Meanwhile, a relevant certification system, namely the international project management professional qualification certification standard, is also established. Therefore, after the issuance of C-PMBOK system and C-NCB qualification certification standards, the construction management in China has become increasingly mature [5]. At the same time, China's construction industry management model also has many shortcomings, making China's current project management model cannot meet the requirements of building internationalization [6].

3.2 Causes of Problems

3.2.1 Limited by ideas and laws

Engineering project management mode has not been widely used, because of the role of traditional concepts, China's engineering project construction focus on the technical level, ignoring the application of management. Emphasis is placed on the ownership status of the owner, and the management effect is achieved through purchasing funds and controlling construction, which directly causes contract disputes and serious economic losses [7]. In addition, although China has formulated and promulgated relevant laws and regulations on engineering project management, due to the late

start of China's engineering project management, the laws and regulations promulgated have not formed a relatively complete system, which is unable to carry out scientific and effective management of engineering construction.

3.2.2 Not enough attention was paid to the feasibility study of the project

The feasibility study of a project refers to the scientific method and reasonable means for the technical and economic analysis and demonstration before the investment decision of an engineering project. It is a scientific method to ensure the best economic effect with the minimum investment cost and to realize the advanced technology, reasonable economy and feasible construction of project technology. It is the basis for the investment decision and design plan of construction projects, as well as the basis for raising funds. However, many investment projects in China do not pay much attention to this aspect at present, and rush to start projects and invest blindly, resulting in a large number of economic losses [8].

3.2.3 Lack of systematic project management mode and high-level professional project management personnel

Domestic engineering project management started relatively late, and most practitioners have access to a small part of the whole system, which can be described as the tip of the iceberg, lacking systematic and advanced project management mode and theoretical basis. Secondly, there is a lack of college training structure to cultivate such talents in China, and there is also a lack of professional books to guide practitioners in their work [9]. Therefore, the lack of cultivation of high-level management talents in this field undoubtedly limits the development of engineering project management.

4. Suggestions for improvement of engineering project management in China

4.1 Gear to international conventions

In order to be in line with international standards, we mainly start from the aspects of contract, engineering, quality, safety and quotation management. Project management in the international mature experience can be used for reference. International rules are very strict for contractors. They have a strict system for qualification management, construction commencement, completion and commissioning, and strict requirements for professional and technical personnel [10]. Facing the fierce competition of global market, only by studying international laws and standards seriously can we integrate into the international market.

4.2 Establish and improve relevant laws and regulations

It is necessary to implement the relevant policies and guidelines of the state and establish and improve laws, regulations and systems for the management of various construction markets. At the same time, government departments should also give full play to and use the means of laws and regulations to cultivate and develop China's construction market system, and ensure that all the activities of construction projects from preliminary planning, survey and design engineering contracting to completion are incorporated into the legal track.

4.3 Improve personnel quality and management level

No matter from the project decision-making, weaving framework construction, or the concrete implementation of management work, it cannot be separated from the participation of people, who is the most important factor in engineering project management [11]. China is in a critical period of market economy development, and needs a large number of excellent talents to support it. From the perspective of the country, only by increasing investment in education and science and technology can more and more excellent talents be cultivated. Construction enterprises should have their own standards for talent reserve. For high-end talents, they should pay attention to the balance and cultivation of talents, so as to give high-end talents sufficient space for development. And Job training and education should be done well for front-line talents and those who just enter the industry, and personnel protection should be done in a targeted way [12].

4.4 Improve the level of computer application

From winning the bid to handing over the project for acceptance, in addition to a high level of construction technology, advanced modern construction management methods should also be adopted to improve the level of enterprise management, which rely on the computer. Practice also proved that the use of computer aided management in construction projects is an effective way to improve the level of management, so that on the one hand we can learn some advanced management experience in construction industry. When problems arise during construction, we can quickly find the corresponding solution in the system. On the other hand, we also can improve the management level of our country's construction industry.

5. 5.Analysis of frontier development of engineering project management in China

Although there is a big gap between China's engineering project management level and that of developed countries, and there are some problems in the process of domestic implementation, with the deepening integration of China's economy into the global market, its development prospects cannot be underestimated. Therefore, this paper believes that the future of China's engineering project management model will develop in the following directions.

5.1 Internationalization trend of project management

With the further acceleration of China's reform and opening up, China's economy is increasingly deeply integrated into the global market. Many projects need international bidding, and the internationalization of project management is forming a trend. Especially after China's entry into WTO, the domestic market is internationalized and the domestic and foreign markets are fully integrated. Facing the increasingly fierce market competition, China's enterprises must be market-oriented, change the business model, enhance the strain capacity, be brave and enterprising, learn to survive in the competition and seek development in the struggle. In addition, international project management associations play a greater role, and international academic exchanges are increasingly frequent. Due to the general rules of project management and the transnational nature of many projects, experts from various countries are discussing the international general system of project management discipline [13].

5.2 Integration trend of project management

China's current engineering construction process is divided into several independent stages, completed by different functional departments or companies. This kind of functional division makes each functional organization only pay attention to the stage of their own responsibility, lack of overall concept, waste of human resources, lack of complete information support, so that the correctness of decision-making, the rationality of design and the effectiveness of supervision are greatly affected. The development of whole-course project management mode is beneficial to promoting enterprises to make correct decisions, ensuring the rationality of design and improving the effectiveness of establishment.

5.3 Information trend of project management

With the gradual expansion of the scope of engineering projects and the rapid development of information technology, batch dynamic information needs to be dealt with in the management of engineering projects, so the old traditional management method can no longer meet the needs of reality. Only by combining project management with information technology effectively can the efficiency of management and project benefit be greatly improved. At present, some enterprises have applied computer network technology in project management and realized management network and virtualization information technology. At the same time, some enterprises also begin to adopt management software to implement advanced management, and also arrange special personnel to study the development and application of management software. Project management will rely more on computer network technology, and information project management has become inevitable.

5.4 The innovation trend of project management

The development of the industry has raised people's requirements for professional technology, and the project management mode is no longer invariable. In the future, only by constantly seeking for new management system and technological progress can construction enterprises obtain higher operating efficiency.

6. Conclusion

In the face of increasingly fierce competition in the construction industry, the whole society has increasingly high requirements on the level of project management. Through the understanding of China's project management model and development status, there are still many problems in China's project management, and there is a big gap with the foreign level. We must be clear about the current problems, grasp the future development trend, actively respond, and put forward better management strategies, so as to ensure more scientific and reasonable management of engineering projects.

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