

Research on Quality Management Mode of Construction Project Based on Network Application Concept

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Keywords: Network application, Construction engineering, Project quality management

Abstract: The level of PQM (Project Quality Management) of construction projects is directly related to the quality of construction projects. Good project management of construction projects can organize and coordinate a series of problems in construction, determine quality objectives by quality management, do a good job in quality control, improve quality and enhance management decisions. The limitation of traditional project management is highlighted when the strategic goal of conceptual management is carried out in more complex projects, especially when it is expected to obtain strategic benefits by managing multiple projects. Starting from the stage of construction quality management, this paper introduces the concept of network application, and puts forward the PQM mode of construction engineering based on the concept of network application, combining with the related theories of construction engineering. The research in this paper provides a new research idea for PQM in construction engineering, and can also promote the further application of network application concept in PQM in construction engineering.

1. Introduction

A scientific grasp of the progress of the construction project is conducive to the effective implementation of the construction plan, the scientific organization of the construction personnel, the rational use of the construction technology and mechanical equipment, and ultimately reduce the project construction cost of the building and realize the engineering value [1]. PQM(Project Quality Management) can reflect the level of management technology. Paying attention to PQM, actively operating advanced construction technologies and methods, and adopting new materials and new processes can not only protect the environment and save resources, but also improve the management technology level, ensure the engineering quality and promote the construction enterprises to take the road of sustainable development.

BIM and big data are information products. BIM technology has been successfully applied in project management. Big data has been widely used in search engines, medical services, retail, manufacturing and other fields, but there is little research and practice in quality management of construction projects [2-3]. Applying network technology to PQM of construction projects can realize good cooperation among units, improve work efficiency and reduce management costs.

2. Significance of Pqm in Construction Engineering

The level of PQM in construction projects is directly related to the quality of construction projects. Good construction project management can organize and coordinate a series of problems in construction, determine quality objectives by quality management, do a good job in quality control, improve quality, and enhance management decisions. Grasp key work closely and carry out the supervision and management of the effectiveness of construction projects [4]. Network technology can provide more comprehensive data information for the quality management of construction projects, and quickly identify, check and analyze a large number of data information, extract the most effective key information, and provide scientific data information basis for the quality management of construction projects.

The limitation of traditional project management is highlighted when the strategic goal of conceptual management is carried out in more complex projects, especially when it is expected to obtain strategic benefits by managing multiple projects. The overall comprehensive consideration within the scope of the project set will realize the systematization and rationalization of resource arrangement [5-6]. Due to the unity of objectives, multiple projects may use the same resources at the same time or in different periods, which requires reasonable allocation of resources among different projects from the perspective of overall integration of the project set on the basis of reasonable allocation of resources for a single project. The reason why program management can create value in enterprises and link strategic decision with enterprise income is closely related to the positioning of program management itself.

The implementation of information management of engineering project construction quality can transform and upgrade the traditional engineering project construction technical means and production organization mode, and improve the management level and core competitiveness of engineering industry, especially the construction industry. Informatization will have a wide and profound impact on the construction quality management of engineering projects. Using the advanced management concept contained in the mature management information system to sort out and reform the business process of quality management will effectively promote the optimization of PQM. Make the quality plan more advanced, reasonable and comprehensive according to the experience of existing projects, which is convenient for data analysis and repeated call after the completion of the project.

3. Disadvantages of Traditional Pqm in Architectural Engineering

3.1 The System is Not Sound Enough

The PQM system of construction engineering is not perfect enough and the market access mechanism is not effective enough. The PQM system of construction engineering is not perfect, which is mainly manifested in the fact that the government and enterprises are not divided under the system, the local closed management, the internal supervision system is ineffective, the quality management system is not implemented enough and the operation is not strong. It has seriously affected the archiving function of technical data, and cannot provide accurate technical data for future project reconstruction and expansion, and cannot provide a strong basis for the analysis of the causes of engineering quality and safety accidents, which is not conducive to the effective use of national resources [7]. Problems caused by internal reasons of enterprises. For example, the obstacles caused by the application of traditional construction management methods and the lack of strict management system and mode lead to incomplete data and information collected by network planning method in the application of construction management of construction projects, and it is impossible to conduct high-quality analysis and research.

3.2 Not Targeted Enough

At present, many systems still develop information systems according to the requirements of manual systems, which is bound to constrain their development. Many management processes and details are not easy to be understood and familiar by software developers, and a construction worker with high technical level does not know much about the working process of computers. This has formed a blank area of application software in the field of construction engineering, and also affected the popularization and application of computer technology in construction engineering. Therefore, a construction engineering enterprise with a certain scale must have certain independent software development capabilities [8]. In this way, the use of computers in construction technology will be much smoother, and the scientific and technological content of enterprises will be improved and their competitiveness in the market will be enhanced.

3.3 Weak Awareness of Quality Control

Because there is no reasonable organization for the entry of laborers, the entry time of large-scale equipment will lead to the situation that laborers have nothing to do and equipment has no working face. In addition, it is necessary to complete the construction task within the specified time, and generally pay little attention to the expenses of the project that will increase because of controlling the quality of purchased materials, construction quality and time limit for a project. In order to ensure the quality of purchased materials and construction, engineering construction personnel and technical management personnel will adopt technical measures that are feasible in construction but unreasonable in economy. This method will definitely cause unnecessary expenses [9]. Not paying enough attention to the quality control of purchased materials and construction process, lacking awareness of quality control of purchased materials and construction process, and seriously lacking legal awareness of quality control.

4. Pqm Mode of Construction Engineering Based on Network Application Concept

4.1 Master Design

The PQM information system of building engineering based on network realizes the sharing of quality information of all parties in the construction on the network platform. According to different rights and roles, all parties can consult, fill in, modify, archive and print the shared information, thus realizing the network informationization of PQM.

Through the information sharing platform, the information of all parties involved in the PQM process is integrated into a whole. Weaken the uncertain factors of quality transfer between enterprises, and continuously eliminate the factors affecting quality problems on the basis of ensuring the stability of construction quality. The PQM mode of construction engineering based on the concept of network application is shown in Figure 1.

PQM, a building project with the concept of network application, is to apply the concept of network application to the quality management of green building projects, take the concept of network application as the core, eliminate the quality waste in the production of green building products, and meet the functions of green buildings to the greatest extent.

The list of engineering quality management put forward provides support for the realization of total quality management which focuses on prevention, speaks with data and continuously improves. Based on this platform, while assisting and optimizing the whole process quality management workflow with full participation, it integrates massive and heterogeneous data from all stages, participants and majors to realize information integration, storage, sharing and application, meet the

different needs of all participants for data, and ensure efficient and orderly collaborative work.

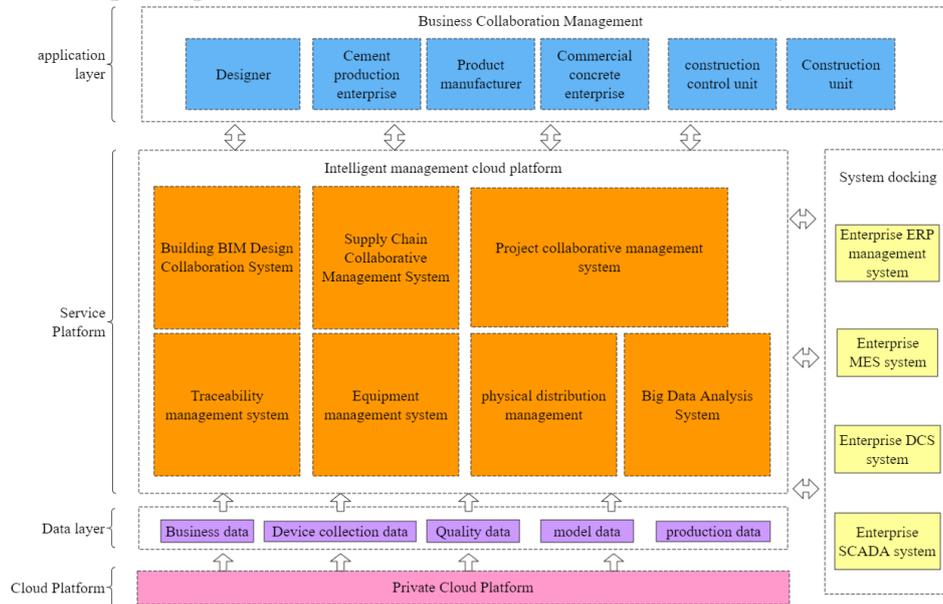


Figure 1: Pqm Mode of Construction Engineering Based on Network Application Concept

4.2 Inner Management

In the process of network application of PQM in construction engineering, in order to facilitate the owners to know the construction trends in time and conduct quality supervision and review in time; In order to facilitate the design unit to implement impromptu dynamic tracking of the design scheme; It is necessary to build a network information sharing platform with construction enterprises as the core [10]. At the same time, the information sharing platform can ensure the effective transmission of construction quality information among all units covered by the quality chain, so that all participating units can find and prevent possible quality problems in time, and communicate with existing problems, so that problems can be dealt with in time.

The information sharing platform should be able to upload construction production information in a timely manner, so as to ensure that the owners, design and construction enterprises, material suppliers and even government departments can obtain relevant information at any time. Strengthen the coordination, communication and cooperation of all parties through the flow of information, while giving priority to prevention, it can also deal with the problems that have occurred in time and reduce losses. As shown in Figure 2, it is a network information sharing platform.

Material suppliers can get the information of materials needed for the project in time and then make preparations; Owners and design units can also dynamically track the quality information of engineering construction and get relevant information feedback in time. When necessary, the owner and design unit can also participate in the improvement of quality, and cooperate with each other to reduce quality loss. The information platform can store the specific information of all kinds of quality problems and commendable construction schemes in the overall process of the project, and provide information support for continuous improvement in the later period.

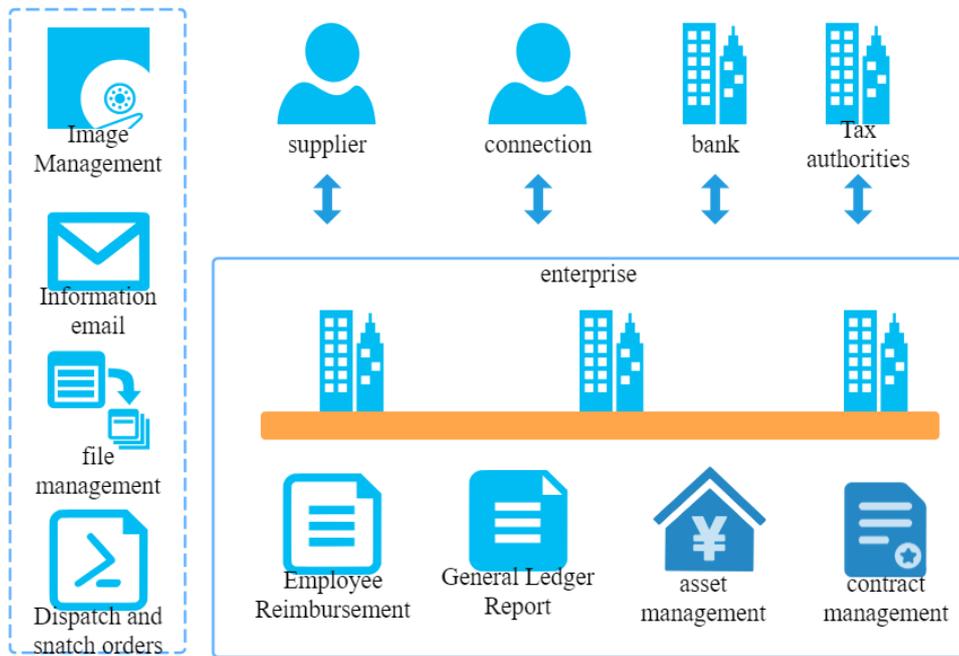


Figure 2: Network Information Sharing Platform

4.3 Whole Process Pqm

The whole life cycle PQM of construction project refers to the whole process of construction project from planning and design to construction, to operation and maintenance until demolition, covering the whole process of quality value of construction project from planning, formation to value transfer, and finally exiting the construction market. The value of BIM technology in PQM of construction projects covers the whole life cycle, aiming at optimizing PQM activities and the relationship between them, thus improving the quality of construction projects. Therefore, from the perspective of the whole process, combined with the results of big data analysis, this paper studies the method of improving PQM efficiency of construction projects by using BIM technology in big data environment.

BIM-based architectural engineering design adopts parametric design based on component objects, which can simulate and analyze architectural performance, improve the rationality and economy of design, and lay the foundation for PQM in construction and operation and maintenance stages. Architectural engineering design includes three stages: scheme design stage, preliminary design stage and construction drawing design stage, and the work of each stage is closely linked. The most certain structural selection; The preliminary design stage is to complete the construction of various professional models in the construction drawing design stage on the basis of the scheme design, and rationally optimize the building space to meet the quality requirements and standards, and meet the needs of the project owner for project functions and the requirements of the construction participants for the constructability of the construction drawings.

The project cycle often lasts for a long time, so it needs to be evaluated regularly to decide whether to continue, redeploy or terminate the implementation of the project. In single project management, once it deviates from the benchmark, it means that it needs to be changed; In project concentration, sudden and unpredictable results are often common phenomena. In order to ensure the realization of strategic objectives, flexibility must be strengthened in management, and the evaluation link and the change link are often complementary. The common method is the periodic meeting system, in which the general manager calls all the project managers and representatives of

functional departments every week to make a meeting report on the progress, budget, risk and quality of each project, and the project managers of each related project can get comprehensive information in time through the meeting.

5. Conclusions

PQM of construction projects can reflect the level of management technology. Paying attention to PQM of construction projects, actively operating advanced construction technologies and methods, and adopting new materials and new processes can not only protect the environment and save resources, but also improve the level of management technology, ensure project quality and promote construction enterprises to take the road of sustainable development. Applying network technology to PQM of construction projects can realize good cooperation among units, improve work efficiency and reduce management costs. PQM of construction engineering should be innovated continuously, so as to enhance the brand effect of construction enterprises, improve the quality of construction products and obtain greater economic and social benefits.

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