

# Research on Construction Engineering Management Integrating Multi-Channel Information

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**Abstract:** The integration of information technology and construction engineering management enables computer, communication, automatic control and other information collection and processing technologies to transform and upgrade traditional construction methods, promotes the continuous improvement of construction engineering management technology and construction methods, and improves the efficiency of construction engineering management. The introduction of information technology into construction project management is an important guarantee to promote the modernization, scientific and informatization of construction project management. This article briefly describes the role of the integration of information technology and construction engineering. On this basis, it expounds the feasibility of multi-source information fusion technology in construction management. At the same time, it analyses many problems existing in information technology, and combines corresponding cases. Study the application of information technology in construction project management.

**Keywords:** Construction Engineering, Multi-channel Information

## 1. INTRODUCTION

Information technology is the product of the combination of communication technology and computer technology, which shows a strong advantage in the actual citation process. With the continuous deepening of people's understanding of information technology, countries around the world are strengthening the construction of information technology at the national level. Although my country's information technology construction has achieved certain results, compared with developed countries, due to my country's information technology the construction started late and is still in a relatively backward state. As the most influential factor in the 21st century, information technology is of great significance to the development of social and economic life, especially with the continuous improvement of computer technology and network technology, information technology not only promotes the progress of science and technology, but also changes the Management in the field of construction engineering.

In the context of the ever-changing information technology, construction engineering enterprises must introduce information technology into construction project management if they want to maintain the sustainable and sound development of the enterprise. Multi-source information fusion technology increases the dimension of data information measurement, thereby reducing the performance requirements of a single sensor, and improving the reliability and accuracy of information through fusion processing of information. This technology can analyze and predict the global situation of the detected object, but it also needs to pay attention to its limitations. Most of the data and information provided by various sensors in the multi-source information fusion technology do not appear in one information level, so the analysis and processing become more complicated. This makes the information difficult to ascertain.

The fusion of these uncertain information by multi-source information fusion technology is to some extent an uncertain reasoning process. The key to the implementation of this technology is to be able to use suitable information fusion algorithms to analyze and process complex fusion information. At present, a small number of construction enterprises have

paid attention to and introduced information technology. However, most enterprises do not have a good understanding of the application of information technology. They simply think that information technology is simple operations such as sending emails and surfing the Internet. In fact, the information technology in project management is as follows: real-time monitoring of projects, strengthening of the specification and organization and coordination of project processes, scheduling of resources, forecasting of project changes, actual measurement of project costs, and monitoring of project costs.

However, many companies do not know these, and have many blind spots and misunderstandings. Enterprises have relatively limited understanding of engineering management informatization, and managers will one-sidedly understand the establishment of informatization as the use of computers, so the enterprise just hires some computer technicians to publish some insignificant things such as the company's profile and performance to the enterprise. In the internal website of the website, this kind of one-sided system is not a real information management system, and it is impossible to achieve the final effect. Although some enterprises have a certain understanding of the information system, there are very few enterprises that have really incorporated the establishment of the system into their agenda. Since the establishment of the system requires the collection and integration of a large amount of information, a complete and effective system also requires information accumulation. There are certain requirements, so it is difficult for enterprises to be interested in such projects that are difficult to start and have slow results. Most enterprises give up at the beginning of the establishment of the system.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Analysis of advantages and characteristics of information technology applied in construction engineering management

The advantages of the integration of information technology and construction engineering management are mainly reflected in saving project costs, ensuring project quality,

improving management efficiency, and disclosing information. Among them, the online bidding system using the computer network system can help enterprises save a lot of procurement costs; using the internal financial management system of the enterprise can realize real-time monitoring of the financial and accounting status of the enterprise, saving manpower and financial resources to a large extent.

Under the original management mode, the quality supervision of building construction is done manually, which requires a lot of manpower, and the inspection time is long, and the effect is not obvious. The quality of building construction under the management of computer information technology is monitored in all directions by special testing equipment, which can not only ensure the quality of construction but also improve the efficiency of work. Multi-source information fusion technology has been applied in military, industry, enterprise management and other social fields, and it is very feasible to extend it to the field of construction. In the information age, there is nothing wrong with the emergence of information fusion technology. The gratifying results achieved in major projects in many fields have attracted more and more attention from all countries in the world, and it has become the future development direction of information science.

Construction project management carries out information technology construction, which includes various contents. Most of the current research simplifies the content of information technology to the informatization, digitization and quantification of project management. Generally, it is qualitative and quantitative from here research. The current information technology construction of construction project management mainly includes the following steps: first, the plan of information technology, through the top-down management mode to plan the data as a whole; secondly, the implementation of the plan, which uses the bottom. The first is to report and evaluate the work results and completion status layer by layer; the second is to control, to conduct information technology review and process formulation according to the needs of the enterprise; the last is to improve the plan by summarizing the experience and lessons in the management process, to accumulate knowledge.

At the construction site of the construction project, through the establishment of the computer local area network represented by the project engineering department, the construction unit, the construction department and the survey and design institute, and the establishment of the interconnected wide area network between various departments, it promotes the establishment of various participating units, as well as between the upper and lower units. The transmission and sharing among them can be realized, and the management efficiency can be further improved, which is called the project management information system platform. The application of this platform can combine the controllable resources such as manpower, equipment, materials, funds, and construction period in the project with the construction project management personnel, carry out scientific and in-depth planning and analysis on the progress, quality, and cost of the construction project, and effectively control the project. The project implementation is adjusted and controlled to form the minimum investment and achieve the maximum benefit.

## 2.2 Design of construction project management information technology with multi-channel information

The system is mainly used in architectural design, construction, manufacturing, installation, commissioning, and operation, and it is involved in office, contract, finance, equipment, materials, and planning, etc. It can play a close role in cooperation among various departments of construction engineering enterprises. The integration of information technology and construction project management is a comprehensive work, which needs to involve various links such as enterprise bidding, financial management, and quality supervision.

Information management uses modern computer technology to comprehensively analyze relevant data related to bidding, financial management, quality supervision and other links, and to obtain final treatment opinions. Information technology application and construction project management not only realize the collection and processing of internal information of enterprises, but also can dynamically analyze the external environment of enterprises. The information-based construction project management realizes the comprehensive processing of various information in the management process, and can scientifically, quickly, and accurately provide management solutions for the design, construction and quality inspection of construction projects, and the operating efficiency of enterprises has been greatly improved. Market competitiveness will also be improved accordingly. In the construction process, it is necessary to use existing resources to collect, analyze and organize various construction information of construction projects, and organize safety production management activities according to the results of the analysis.

The prediction of the safety status of each sub-project of construction can use the DS evidence theory algorithm to analyze the data information of people, equipment, environment, management, and other aspects. In the actual safety management process, if there are few sensors, the data information obtained will be correspondingly small. Multi-source information fusion technology uses computer to detect and fuse the information obtained by various sensors, so in construction safety management, it can quickly process complex data information with the help of computer combined with DS evidence theory.

Information technology design for construction project management generally goes through the following links: planning and analysis for material management, contract management, bidding management, expenditure management, office management, information management and other related management in project management, starting from the market point of view. With the headquarters of the construction company as the center, it integrates various cost management such as fund collection, approval audit, business contract, and expense plan to build a complete information management platform for the enterprise, for cost management and data in the construction project management process. Management, material management, safety management, facility management, progress management, quality management, etc. are planned and integrated, and these management levels are integrated into the construction of the enterprise's information technology platform, so that they can better serve the construction of construction projects. Provide the basis and guarantee for enterprises to better carry out the construction of information technology platform.

Human resources are the foundation of enterprise management, and construction project management information construction also requires many talents as the backing. The intensified construction of construction project management informatization urgently develops many compound talents who understand both construction project management and information technology. Enterprises can formulate corresponding policies and adopt various effective forms to carry out relevant training and improve their work. The computer application level of personnel should be cultivated to meet the needs of the development of construction project management information, and relevant information technology development and application teams should be established to meet the needs of construction project management information.

### 3. CONCLUSION

With the rapid development of social economy, the application of information technology in economic life is becoming more and more extensive. The integration of information technology and construction engineering management is a profound change in the management mode of construction engineering enterprises. Although there are a series of problems in my country's information management at this stage, if we continue to explore, of course, there are still many problems in the application of information technology in the field of construction project management. Efforts to make information technology better developed in the construction field, so that construction enterprises can be more scientific and reasonable in project management.

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