Construction and Application Analysis of Construction Project Cost Management Information System Based on Value Perspective

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Abstract: Based on the continuous advancement of China's urbanization process and the progress of the times, China's engineering construction has made great progress. The construction project cost management information system makes use of advanced computer and network technology, which makes it possible to improve the efficiency of construction project cost management. Using advanced computer network information technology can effectively improve the efficiency of construction project cost management. At present, since the design stage plays a key role in the cost control of the whole process of the project, the operator has strengthened the control of the project cost in the design stage in the process of development. This paper explores the problems encountered in the engineering cost information management system, and discusses the steps of how to construct the construction project cost management information system based on the value perspective and the matters needing attention during the promotion.

1. Introduction

The construction project itself has the characteristics of large investment, long investment cycle and one-time investment. With the rapid development of the engineering construction industry and the growing construction industry, the engineering construction field actively promotes the research and application of engineering cost management, so as to comprehensively improve China. Economic benefits of investment and engineering projects [1]. The society is developing in the direction of internationalization. In the construction market, its development must also keep pace with the international speed. Therefore, it is necessary to build a construction project engineering cost management information system that is compatible with the information age [2]. Because of the construction and application of the information management system, it can not only effectively improve the efficiency of the work in the process of construction project cost, but also make full use of information and efficient management [3]. Our country's project cost management information system is in the stage of exploration and development. The immature system needs a long-term development process, which is a severe challenge to our country's construction industry. We must continuously develop science and technology, be good at learning and absorbing foreign advanced experience, and build a Chinese construction project cost management system [4]. Practice shows that in order to realize value in the design process and effectively control the cost in the whole life cycle of the building, a variety of value factors must be comprehensively considered before the design scheme of the project is finalized.

2. Current Situation and Problems of Construction Project Cost Information Management Development

2.1 The function of the information management system is still not perfect

China's information management system is still in a relatively low-level stage. It only collects the data in the web page. The development and utilization of system resources is quite closed. In terms of the quota of engineering cost, this is the indicator system. Lack of a consistent specification and coding sequence [5]. It is a deep understanding of the design objects by the

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architectural designers. After some analysis of the design tasks, environment, and building functions, the building plan shape, body shape and facade treatment, layer number, floor height, opening, depth, Preliminary assumptions in terms of structural form, overall layout, etc. [6]. However, after the reform of the project cost system, the state has changed the cost management of the project, gradually changing from direct management to indirect management. Workers engaged in engineering cost, they need to sort out some comprehensive quality information, did not form a complete detailed list of the amount of processing works, so that the accuracy of project bidding and bidding is affected [7]. In this way, it can be more accurate in the project cost budget, meet its own budget when bidding, and save costs. Select the building materials and structure scheme, determine the location of the building in the site, explain the design intention, analyze the technical feasibility and economic rationality of the design scheme, and put forward the design budget and life cycle cost estimation.

2.2 Slow release and update of certain information

Based on the information websites in some places, there is no effective combination with the local intelligent databases, which leads to the information published in various places cannot be exchanged and can only be seen in time in the local. In the design phase, the whole life cycle cost is analyzed and calculated. The construction cost (construction drawing budget) is calculated according to the construction drawing, quota or mathematical method based on the completed project database, which is relatively accurate. The ability of computer to process information and the ability of cost management information of construction projects are organically combined, and then the accumulated project cost data are analyzed, so as to predict the cost changes and development trends of the project projects in the near future [8]. All aspects of the function are not perfect, lack of a unified and complete data system for data collection and recording, relying solely on web pages, there are serious deficiencies in resource sharing, and the advantages of information sharing on the Internet have not been fully utilized, which has great limitations. Under such circumstances, it is not conducive to the comparison of information in each place, and it is not conducive to the collection and arrangement of information, and it is even more difficult to meet the project cost and the purchase price of materials required for bidding and bidding. Comparison.

2.3 Engineering cost management personnel can not meet the requirements of informationization

As far as the construction project itself is concerned, on the one hand, it has the characteristics of one-piece, and the engineering design is often one-off; on the other hand, its design process involves multiple professions, and the factors affecting the design scheme are also multi-faceted. In particular, the development of the Internet is very fast now, and the preparation of information systems is also advancing toward a professional level. For the process of inputting and processing information data in engineering cost, more and more specialized technicians are needed to complete the process [9]. Information collection is a systematic project of project cost statistics. Its workload is very large. Therefore, it is necessary to improve the information collection channels of project projects so as to effectively collect and screen information. The websites in some areas are not effectively connected with the local databases, the information communication speed is slow, the information lag phenomenon occurs, which seriously affects the information dissemination efficiency, is inconsistent with the establishment purpose of the information management system, and affects the project cost management [10]. People who are engaged in engineering cost work have to bear the heavy responsibility. They lack the corresponding training and study in information technology and are simply not competent for this work, which hinders the development of the information system of engineering cost.

3. Steps of Building Construction Project Cost Management Information System

As far as construction projects are concerned, value engineering is a technical and economic method that systematically analyzes the functions of a certain construction product or construction

labor service system and creates, evaluates and implements the scheme, and reliably realizes the functions required by users with the lowest life cycle cost, thus improving the value of research objects. The project cost management information system is to effectively integrate the computer information system into the project cost management, so that they can carry out an organic integration through the corresponding modules such as information collection, transmission, reprocessing, and then maintenance. It is clear that the information management system is an auxiliary platform for cost management personnel to use engineering technology to manage project cost. The idea is to better serve the staff and help the cost personnel to determine the best cost plan in an efficient way. Balance the conflicts of interest between project stakeholders, reduce the life cycle cost and improve the value of construction projects to meet the needs of project stakeholders.

3.1 Overall design thinking

This system mainly uses the deployment form of centralized development. The main purpose is to establish a unified business management platform with integrated functions for the project management personnel to realize the information network from basic management to business service integration. Value analysis and value engineering can be seen as a method of value management value-added value. They are mainly used in the design and construction stage, while value management is expanding forward and intervening from the concept stage. The precondition of implementing the network management of engineering cost information is to carry out the standardization of information index system and information classification and coding. In module design, we should fully consider the accuracy of information collection and the convenience of human-computer interaction, so as to better serve staff and improve work efficiency.

3.2 Main module design

3.2.1 Information collection and interaction system

The information involved in the project cost management information mainly includes: the quota information of the cost, the price information of the materials, and the qualification ability of the relevant construction unit. Once this information system is built successfully, it will be able to serve various building units. Value management evolves from value analysis and value engineering. It not only solves tactical problems such as design and production of real, specific products or projects, but also solves Abstract and decision-making problems. Management issues at the strategic level. The corresponding project cost management department should summarize, collect, analyze and collect the collected information in a timely manner. In the specific process of identifying project stakeholders, it is necessary to distinguish between the key stakeholders of the project and the stakeholders with relatively small importance. For example, by using this information system, the price information of materials to be purchased can be consulted in advance, the prices of materials in the market can be compared in time, and better materials can be selected. In this case, the completed project is often the ideal project in the minds of designers or constructors, rather than what customers expect. The characteristics of value management are the effective tools to solve these problems.

3.2.2 Establish an early warning system for project management, bidding, cost information screening and bad information

To build such a system, it must be carried out in two steps: The first step is to follow the legal provisions of the state; the second step is to filter the information according to the needs of the construction. The determination of the life cycle cost of the entire project is a step-by-step process that is refined as the design deepens. In the design phase, the design and comparison and optimization of the solution are better realized through the whole life cycle cost, the limit design, and the sustainable design. There are mainly two methods commonly used in engineering cost. Through these two methods, the engineering quantity can be accurately calculated, thus providing accurate data for engineering cost. Targeted interviews and exchanges with stakeholders, combined with the author's practical experience, for the specific process of collecting construction project

planning information, interviews are the most direct and more used methods. From the beginning of the project, the data of the period are processed step by step, and then the results are analyzed and adjusted to establish a perfect project cost management information system.

3.2.3 Building engineering quantity calculation system

In general, the following two calculation methods are often used to calculate the engineering quantity: First, input the corresponding size of some components of the drawing in the computer drawing software, and then use the computer to automatically calculate, how much is the engineering quantity? The optimization of building structure and the coordination and aesthetic problems of building shape are the main issues that should be considered. The design of building maintenance structure will affect the lighting of buildings and the energy consumption of heating and air conditioning, which will directly affect the operating costs. To cultivate the information literacy of engineering cost practitioners is not only to improve the information literacy of engineering cost practitioners, but also to promote the construction project cost management information system smoothly. At the same time, we should pay attention to the improvement of the system database. The database is the guarantee of the effectiveness of the system. Only when the database is updated and perfected in time, the analysis results of the system will be more consistent with the actual situation. The inaccurate results of the too backward database will affect the cost management of the project.

3.3 Information management system for project cost

The whole process of project cost management is more complicated. It is not only necessary to manage both sides of the construction, but also to evaluate the qualification of the cost unit, and also to supervise the entire cost process. In the stage of architectural design, the treatment of construction waste should be carefully planned. Building materials and components that can be reused and recycled should be selected. Therefore, the cost management project management system should include the most basic data input, cost processing system, result output system and database management. It is better to make a detailed and complete implementation plan in advance before making documents and carrying out systematic analysis to collect useful information for subsequent analysis. Generally speaking, designers need to strengthen the analysis and mastery of the building system, and then optimize the selection of construction materials on this basis to promote the effective development of engineering construction. Each module should be applied in combination with other modules, which can not only be independent, but also realize a virtuous cycle of module application.

In terms of cost qualification management. For example, for the construction party, its qualification should be registered and changed; Some cost consulting agencies should also carry out relevant qualification examination and approval, registration and management. The principle of scheme selection is to take the scheme with the lowest cost in the whole life cycle as the optimal scheme, while considering the sustainability and constructability of the scheme. In order to be able to complete the application of the system better in practical work, it is necessary to reach different standards in different module designs. In the actual operation process, it is necessary to identify the individuals or organizations affected by the project and further identify the individuals or organizations that have significant impact on the project. Not only that, but the operator also needs to further identify areas or information that have an impact on the project's composition, such as expert opinions. For the staff engaged in cost construction, regular business training should be carried out, continuing education should be carried out, and the registration, registration and cancellation of subsystems should be inquired, and more connections should be made with the Internet. Therefore, it is necessary to establish a sound and relevant training mechanism, continuously strengthen the information-based knowledge training for existing engineering cost practitioners, and strive to cultivate a group of compound talents who can carry out both engineering cost and information technology. Promote the application and promotion of information management systems.

4. Conclusion

In summary, in the project cost management, the position occupied by the information management of engineering cost is very important. Therefore, establishing the cost management information system of the project is a very urgent task and the ineviTable development of the times. Design is the soul of engineering construction. The control of engineering cost has attracted more and more attention from researchers. The cost control in the design stage plays a guiding and decisive role. It not only brings more accurate cost budget for enterprises, but also promotes the development of construction industry in China. We should recognize the shortcomings of management information system at this stage, and clarify the overall idea and main modules of system construction. This paper mainly analyses the value elements in the design stage of the project, and makes a comprehensive analysis of the steps of forming the value objectives of the project and the realization of the value in the design stage. In the process of value analysis, the value goal of the project is formed. Through the methods and working procedures of value management, value is transformed into design factors. The author believes that with the development and implementation of relevant measures, the project cost control in the design phase of construction projects based on the value perspective in China will surely achieve considerable development.

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