Research on cost control of real estate project based on contract planning and information system

Yaqi Zhang\textsuperscript{1}

\textsuperscript{1}\textsuperscript{*}School of Tianjin University of Technology, Tianjing, China

*Corresponding author e-mail: 592269335@qq.com

Abstract. China's real estate project cost control has entered the stage of refinement and modernization. Under the environment of promoting information construction industry in the whole country, it is urgent to build a real estate enterprise information system through effective combination of Internet + project cost control. This paper studies the project cost control system based on contract planning and information system, through the construction of the system and analysis of its application to further study the mechanism of contract planning and information system.

1. Introduction

With the development of civil engineering industry, the quantity and quality of real estate development projects are increasing. Strengthening cost control can not only save and control the project investment cost, but also increase the economic and social benefits of the enterprise. At present, there are still enterprises in cost control, which is not cost control but cost accounting based on contract planning, so that the profit and loss of the project can only be known after the completion of the project. At the same time, in terms of information management, many real estate companies are using information system to manage the cost, but only to achieve the partial function of information system. Therefore, how to effectively use the contract planning and information system to integrate the cost control of real estate project is worth studying.

2. Overview of contract planning

2.1. Definition of contract planning

Contract planning can be divided into broad sense and narrow sense. In a narrow sense, contract planning refers to the estimation of all contracts and expense scope and amount that will occur in the whole process of the project after the target cost of the project is determined. Contract planning in a broad sense refers to the fundamental and directional planning of the whole project construction before the implementation of the project to form the overall concept and basic framework of the contract structure of the whole project \cite{1}. The contract planning here refers to the generalized contract planning.

2.2. Contents of real estate project contract planning management

As the key point of cost management of real estate project, contract planning is an important means to realize the landing of rights and responsibilities and cost control. Some scholars divide the content of contract planning management into four parts \cite{2}: management mode, influencing factors, template sorting and application principles, as shown in Figure 1.
3. Construction of real estate project cost management system based on contract planning

3.1. Contents and principles of contract planning template preparation

The contract planning template shall specify key elements such as contract name, contract amount, contract scope, contract quantity and contract responsibility [3]. As the template elements reflect an enterprise's thought of control over contract planning, in addition to the above elements, the template of a benchmark real estate enterprise also defines the bidding mode, contract awarding method, price method and relevant responsible departments. For the growing real estate enterprises lacking relevant experience in contract planning, the formulation of contract planning template can be considered from the perspectives of rationality, operability and Follow the principle of "focus on large and release small, gradual optimization".

3.2. The determination of contract planning management mode

When using the contract planning method to control the cost, it is necessary to clarify the corresponding relationship between the contract planning and the purpose of the college. Firstly, it is necessary to clarify the management mode of contract planning, which can be divided into three modes: cost-oriented mode, contract-oriented mode, or cost-oriented mode and contract-oriented mode.

To sum up, the above three modes have their own advantages and disadvantages and applicable enterprises. As shown in table 1, real estate enterprises can choose the corresponding contract planning management mode according to their own management level.

| Contract planning model | Applicable enterprise | advantages | Disadvantages and difficulties |
|-------------------------|-----------------------|------------|--------------------------------|
| Cost account oriented   | Enterprises whose cost is mainly based on accounting management system | Contract planning is simple | Cross-cost related to a number of subjects, must be clear in advance cost attribution rules |
| Contract oriented       | Enterprises with overall budget control requirements for projects | The information is clear and can be exported with the signing of the corresponding contract | Unknown quantity of contracts, refresh and adjust frequently contract scope unclear, frequent changes in contract planning |
| Account and contract dimensions | With accumulated experience in historical project data | High flexibility in cost control | Cost management experience and professional ability are required |

Table 1. Analysis of contract planning model.
3.3. Analysis of the correspondence between contract planning and cost account

Cost account is the most basic unit of cost management, and contract category is the most basic element of contract planning. If a standardized language format is established between the two, the target cost and contract planning will be able to communicate effectively, forming an organic system, so as to achieve the goal of rapid contract planning optimization, and realize the cost management to the direction of refinement and modernization [4]. The relationship between contract planning and the purpose of the undergraduate program is shown in Figure 2.

![Figure 2. The correspondence between contract planning and cost account.](image)

The figure above takes these factors into account and roughly forms the relationship among control subjects, accounting subjects and contract planning. In practical application, subjects also have different levels of application, according to the degree of thickness, the starting point of management, the name may be control subjects or accounting subjects, so the above three are not very fixed relationship. In the contract planning, it is necessary to make clear which target cost items correspond to the contract planning, so as to implement the target cost and realize the coordination of contract and cost.

3.4. The formation of real estate project cost management system based on contract planning

After the realization of the corresponding relationship between the cost account and the contract template, the target cost and the contract planning can be timely and rapidly collected and decomposed into many contracts according to certain rules, so as to build a cost management system with high efficiency. The system includes that each contract shall be structured according to the following framework. Each contract can be corresponding to the target control line of the original project, so as to dynamically reflect the impact of each contract on the whole project in terms of cost, and timely and effectively control the project cost.
Figure 3. The logical process of cost control in ERP system.

4.2. Realization of contract planning template optimization based on ERP system

Under the traditional mode, the compilation methods of contract planning template usually include benchmarking method and historical project method. Based on the two compilation methods of contract planning template discussed here, the optimization of contract planning template based on ERP system is proposed.

4.2.1. Optimization of contract planning cost under benchmarking method. Real estate enterprises can use target cost management template or benchmark enterprise's contract planning template for reference because of their limited precipitation or because they want to quickly form contract planning. Based on the characteristics of the enterprise and referring to the benchmark enterprise contract planning template, the enterprise template is formed after modification and adjustment.

Led by the cost of operations, in conjunction with the early stage of the project department, engineering department, department and design department according to enterprise target cost benchmarking template, at the beginning of the project to contract, define the scope and quantity of the contract, and in the later to enter the contract planning target cost in ERP system, so as to achieve the ERP with the planning of the contract of joint application.

4.2.2. Optimization of contract planning cost under the historical method. The historical project method is the method that enterprises improve the contract planning according to the contracts of their own historical projects. The improvement mainly includes three aspects: solving the problem of missing items in the contract, realizing the inspection of missing items in the contract and perfecting the contract planning.

After the introduction of ERP, the rebuilt contract planning template includes online and offline parts: In the offline part, the target cost of each subject is determined through calculation, and inter-subject funds are allocated through the planning margin. Online part: The cost personnel input the adjusted cost into the ERP system, and set up the starting percentage and strict starting percentage in the background to prompt the purpose of each department, so as to realize the early warning and strong control of the cost control [6]. If the starting control percentage is reached, the contract can still be
signed, but it needs to be analysed by cost personnel. If the percentage of strict starting control is reached, the ERP system is forbidden to enter the contract. At this point, the cost department shall initiate the examination and approval and get the approval from the leadership. If necessary, the planned contract amount shall be adjusted passively. This does not promote the update of the target cost, to achieve cost control.

5. Conclusion

Through the analysis, research and summary of the construction of real estate project cost management system based on contract planning, this paper expands the theoretical connotation of cost control to a certain extent and enriches the theoretical system of project cost control. On the other hand, it is also hoped that it can provide the theoretical reference for the industry, especially the small and medium-sized real estate enterprises, on the basis of the existing cost business structure, so that real estate enterprises can quickly find a way to adapt to the enterprise's project cost modern management mode, so as to meet the needs of market competition.

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