

## Real Estate Enterprise Project Cost Management Mode

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**Abstract:** Cost is the important indexes of the real estate enterprise cost and comprehensive competitiveness, it involves the face of the more widely and uncertainty is a very strong work, in the process of project implementation will be a lot of unforeseen events, the real estate enterprises only put their core key position, to enhance the comprehensive strength of enterprises, in the industry come to the fore. This paper mainly studies the real estate enterprise project cost management mode. This paper studies the real estate company development project construction cost, and combining the theory and method of cost accounting and cost management using breakdown structure (WBS) technique to analyze its development model and control model of determining the company's real estate development project cost reduction has important theoretical significance and practical value.

### 1. Introduction

Under the background of the rapid development of China's macro economy, the real estate industry continues to grow, and a large number of industrial engineering project construction enterprises spring up like bamboo shoots after rain. With the acceleration of China's urbanization process, individual housing has become a demand, housing prices are rising. For the sake of national economy and people's livelihood, the Chinese government has adopted a large number of macro-control policies on the real estate industry, and the control efforts have been continuously intensified. One of the consequences of the implementation of these policies is that the average profits of the real estate industry are shrinking. The era of huge profits in the real estate industry has passed, for example, gradually returning to the average level of the whole industry. At the same time, with the deepening of China's reform, the requirements for fine management of construction project cost are more and more strict, and it is an inevitable trend to further standardize the cost of real estate development projects [1]. However, as a supplier of the real estate market, real estate development enterprises still have "three super problems" in cost management. Especially at present, the real estate overheating has entered the later stage, and the profit of the real estate has a downward trend, so how to reduce the cost and change the original extensive model is the problem that needs to be solved in the current real estate project development [2]. This widespread investment will continue to be a problem due to the lack of support for existing high sales revenue. However, in order to realize its own profit growth, the real estate industry urgently needs to invest in the development of project cost control and management under the current market environment [3].

Britain is the first country in the world to establish engineering cost related industry association, its engineering cost management has a history of nearly 400 years, in the 17th century appeared the concept of "engineering surveyor". Some scholars have studied 73 indicators related to project cost performance from the perspective of owners, consulting agencies and contractors, identified the five most important factors of project cost management, and found out the key points of project cost estimation and management [4]. Some scholars have also developed the target cost model (TCMd), which not only automatically generates detailed project construction budget, but also effectively improves project performance and design process, while meeting the total cost requirements [5]. Although different countries implement project cost management in different ways, the research direction of project cost is the same. That is to say, while project cost can reflect the actual cost of

the project, scientific and advanced project cost management means are used to reduce the cost to the minimum [6].

This paper mainly analyzes the whole process cost management of real estate construction projects, and studies the new model of real estate project cost management, which is conducive to improving the cost management effect of large real estate construction projects and promoting the sustainable and healthy development of real estate enterprises.

## 2. Project Cost Model of Real Estate Enterprise

### 2.1 Overview of Project Cost

#### (1) Project cost

From the perspective of market transaction, the project cost refers to the construction and installation project cost or the total construction cost formed in the process of project contracting.

From an investor's point of view, the project cost refers to the project's estimated or actual expenditure of the total fixed asset investment cost. From the understanding of the two meanings of the project cost, it is not difficult to see that these two views are from different angles to interpret the essence of the same thing. For investors, project investment is the cost of the project, namely the cost of "purchasing" the project [7-8]. Similarly, project cost is a measure to determine the price and measure the return on investment when the investor "sells" the project as a major supplier to the market.

#### (2) Project cost management

Project cost management refers to the comprehensive use of management, economics and engineering knowledge and skills, project cost analysis, evaluation, accounting and so on.

Corresponding to the concept of project cost, project cost management can also be divided into market transaction Angle (namely the total cost of the construction project) cost management and investor Angle (namely the owner side) project cost management. This paper mainly explains from the perspective of investors.

Engineering cost management is around the specific project, using scientific methods to carry out some cost management. The whole process of engineering construction is composed of different stages, so the content of project cost management in different stages is also different, mainly including the following aspects.

Project proposal and feasibility study stage. Prepare investment estimates, which will be used as the basis for cost control of pre-work after approval. Provide economic evaluation data of different schemes for project decision-making [9].

Engineering design stage. Quota design and optimization design is the important work content of this stage, in the above premise to compile and review the project budget and construction drawing budget. If it is a project invested by the government, the approved budget estimate is the ceiling of the project, which cannot be broken under normal circumstances [10].

Project contracting stage. Carry out bidding plan, prepare bill of quantities, bidding control price or bidding price review until the contract price is determined. The main contents of the cost management of the contracting unit at this stage also include: the review of bidding documents, bid opening, bid evaluation, winning the bid, etc. The main contents of the cost management of the contractor in this stage also include: the determination of bidding strategy and bidding quotation [11].

Management of engineering measurement and payment of engineering funds during construction and completion, dynamic control of engineering costs, strict control of engineering changes and claims, completion of engineering settlement and final accounts audit, etc.

Fixed assets investment and current assets investment are the main content of the current project cost in China. Investment in fixed assets is the project cost, which mainly consists of construction and installation project cost, equipment and instrument purchase cost, other construction costs, reserve funds, interest on loans during construction period, and tax on adjustment of investment direction of fixed assets [12].

## 2.2 Real Estate Construction Project Cost Determination Model

### (1) Project cost determination mode

Every construction project of the real estate company follows the project proposal. From the feasibility study stage, design stage, construction bidding stage, completion settlement and final project delivery stage, all the costs of these stages constitute the cost of the construction project; the calculation process is shown as follows.

$$\alpha = \sum_i^n \alpha_i \quad (1)$$

In the formula,  $\alpha$  is the total cost at different stages of the project, and  $I$  represents different projects. There are differences in the proportion of different stages in different projects in the formula, but the cost of the whole project must be equal to the sum of the cost of all project stages.

The different stages of the construction project are the activities that can be decomposed based on the activity decomposition method, that is, the cost of stage  $I$  should be equal to the sum of the cost of all activities in the stage, that is, as shown in Formula 2:

$$\beta_i = \sum_{j=1}^m \beta_{ij} \quad (2)$$

According to formula 1 and formula 2, the project cost of the whole project can be obtained, which is expressed by  $\varphi$ , that is, the sum of all activities in all stages constitutes the cost of the whole project.

$$\varphi = \sum_{i=1}^n \sum_{j=1}^m \alpha \beta_{ij} \quad (3)$$

In formula 3,  $i = 1, 2, 3, \dots$ . Where  $n$  represents different development stages of a project, and  $j = 1, 2, 3, \dots, m$  represents the JTH activity of the  $i$ th item.

### (2) Construction of control mode

Real estate company's whole process cost management mode since its early stages, to strengthen the control of each link, eliminate does not produce valuable activities, so as to reduce the construction cost of the project, to strengthen the control of people, objects, content, reduce unnecessary resources, avoid the waste of the resource management and configuration, have played an important role for the whole project cost control. The cost of the different stages, work packages and activities of the property company all require resources. And the use of material resources including wear and tear "consumption" and metastatic consumption, and wear and tear "consumption" is divided into two aspects of physical wear and technical wear, so useful to real estate company of construction project cost management is the work package and activity of construction projects management and control methods, eliminate or reduce ineffective and inefficient management, improve the profit space.

The whole process activity control of construction project and the whole process activity control of development project include the control of project activity scale and the control of project activity method. Size control of their activities on the number of all activities of construction projects and the size of the control, ensure that all of the inefficient and invalid activities are reduced or cancelled, by ensuring effective activities to achieve the ratio of real estate companies to implement the whole process cost standard, and then on the basis of the control activities for the whole process of project control. The control of activity method is to use scientific and feasible methods to reduce the consumption of resources and improve the efficiency of activities, that is, to improve the original technical methods of engineering projects to achieve the efficiency of activities. These two works together to achieve cost control for all activities throughout the process.

The second is the real estate company's control of construction project resources, including the logistics control and allocation control of project resources. Resource control in the whole process of construction project is essentially the control of the purchase and use of materials, equipment and

resources in the process of construction project. Logistics control is the logistics link that controls the purchase and distribution of materials, resources and equipment costs. Allocation control is to optimize the allocation of resources. By improving the original mode of resource allocation, scientific and optimal allocation of project resources and materials can be realized.

Finally, the settlement of real estate construction project cost control in the whole process of construction project settlement control does not directly control the cost of the project, but adopt indirect ways from the value of the funds, construction project, the cost of capital means to reduce this kind of indirect control for general enterprise financial cost is not applicable, but it is more practical for the construction projects of real estate enterprises that occupy a lot of funds. Indirect cost control improves the efficiency of project cost management to some extent.

### 3. Application of Project Cost Model Simulation Experiment

#### 3.1 Experimental Methods

The construction cost of the enterprise personnel model in one of two ways, one is the electronic CAD drawings directly imported into the vision bank of graphics software to calculate the amount of modeling, the second is on the vision bank of manual modelling directly, then according to the component summary after practice show the quota quantities, but no matter what kind of modeling method and Revit modeling will be some quantity difference, this difference will directly affect the cost of the project under the two modes (because the calculation of the cost of the project under the two modes is the application of the same labor, materials, machinery prices and fees).

#### 3.2 Experimental Process

First of all, the establishment of real estate project investment decision-making institutions, it is clear that the real estate company construction project opinions, feasibility report must hire experts to evaluate, and then through the cost management committee after discussion to make the final decision, thus changing the original manager one decision of the guiding ideology.

Secondly, determine the project quota design system of real estate projects, and implement the cost quota according to the different operation of the project. If the limit is exceeded, information must be provided and signed by the general manager, director and financial agent.

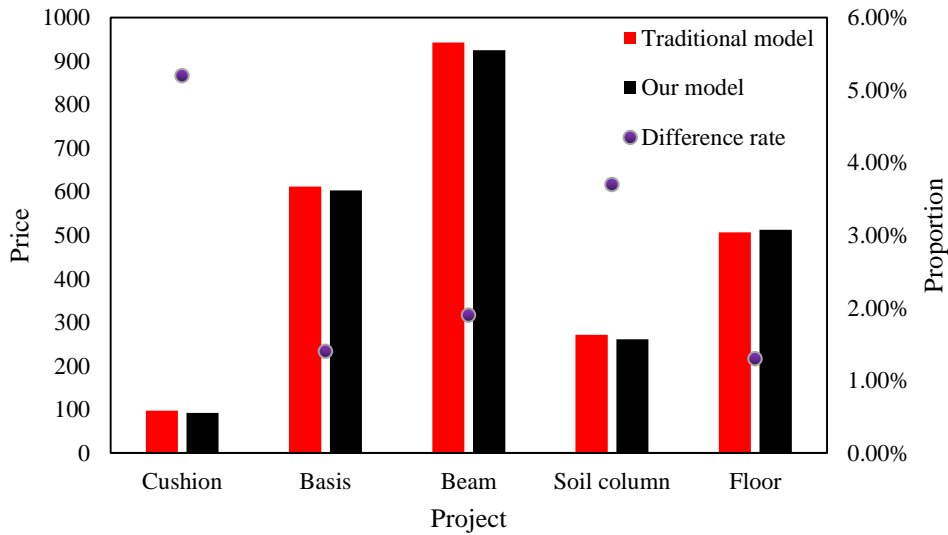
Finally, the whole process cost management system of real estate construction project has been established. It includes engineering statement system, construction site meeting system, construction period management system, investment control system, engineering change negotiation management system and material and equipment management.

### 4. Simulation results

#### 4.1 Concrete Comparison of Different Cost Management Modes

**Table 1.** Comparison of different project cost modes

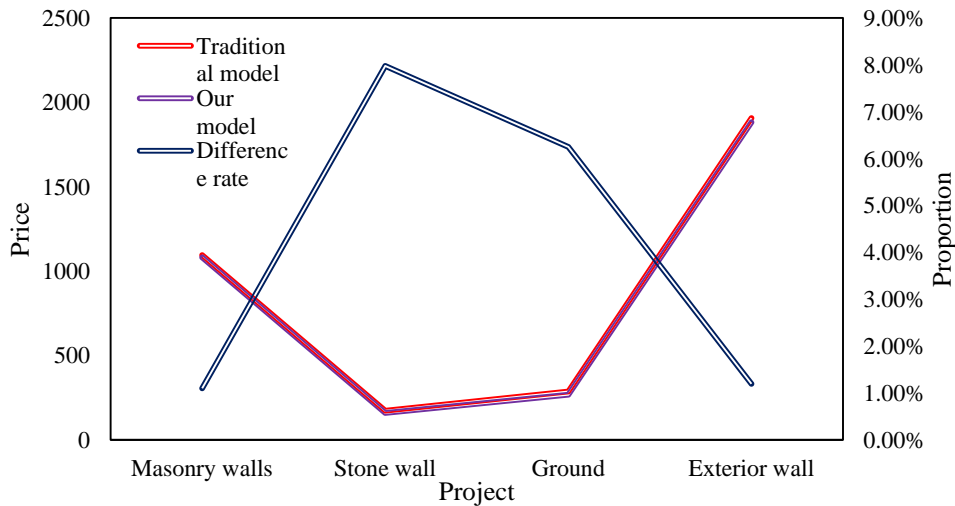
	Cushion	Basis	Beam	Soil column	Floor
Traditional model	97.132	612.03	942.19	271.17	506.42
Our model	92.053	603.17	924.62	261.04	512.78
Difference rate	5.2%	1.4%	1.9%	3.7%	1.3%



**Figure 1.** Comparison of different project cost modes

As shown in Table 1 and Figure 1, in the comparison of concrete projects, the price difference between the traditional project cost management model of concrete cushion and the project cost management model proposed in this paper is 5.2%. In the concrete foundation project, the cost of the management mode proposed in this paper is 1.4% compared with the traditional mode. In concrete beams, the price difference was 1.9%; in concrete columns, the price difference was 3.7%; in the concrete floor, it is the only project whose price is higher than the traditional cost model, with a difference of 1.3%.

**4.2 Wall and Ground Comparison of Different Cost Management Modes**



**Figure 2.** Wall and ground comparison of different cost management modes

As shown in Figure 2, the project cost management mode proposed in this paper is better than the traditional project cost management mode in the cost management control of different walls and floors. Among them, the biggest difference is the stone wall part, the cost difference reached 7.98%.

**5. Conclusions**

With the constant change of the market environment of construction project management, the difficulty of cost management also highlights the complexity. The demands of different interest parties (i.e., construction party, design party, construction party, etc.) are not the same or even opposite, which requires the overall management of the construction unit (all-round, whole-process).

This paper studies the construction cost management mode of China's real estate development project, combines the theory and method of cost accounting and cost management, and analyzes the determination mode and control mode of its development project by means of decomposition structure (WBS) technology. There are still some shortcomings in the research process of this paper. First of all, it is difficult to guarantee the objectivity of the project participants when evaluating the project, so the evaluation results may be different from the reality. Secondly, the evaluation index of cost management is not comprehensive enough and needs to be further improved.

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