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Application of Target Cost Method in Engineering and Construction Enterprises - Take Company A as an Example

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Abstract: Facing the increasingly fierce competition pressure in the construction industry, how to explore the potential of construction enterprises within the limited profit space, break through the bottleneck of cost management and bring into play the competitive advantage of enterprises, the management of target cost method is one of the important ways. After a basic discussion on the target cost method, the article takes the characteristics of engineering construction enterprises and Company A as a specific case to explain the process of determining, decomposing, and controlling the target cost of engineering projects and its effectiveness, to provide a reference for construction enterprises to apply the target cost method.

With the accelerating urbanization process in China, the rapid development of domestic economy, and the rapid development of manufacturing industry, the competition among building construction enterprises has become increasingly intense[1]. On the one hand, the country constantly improves the construction environment and construction quality requirements, which increases the various cost expenditures of engineering projects. On the other hand, the low-price competition from the same level of enterprises further compresses the profit margin. How to ensure the development of construction enterprises in the direction of high quality in this predicament is a major issue currently faced. Making full use of management accounting tools and applying the target cost method to the project management of construction enterprises is one of the effective ways to reduce costs, improve efficiency, and increase benefits for construction enterprises. Under the target cost method, cost expenditure follows the standard, cost responsibility is clearly divided, and rewards and punishments are linked with performance assessment, which can fully enhance the enthusiasm of all staff to participate in cost control and is of great significance to the long-term development of the enterprise[2-3].

1. Target Cost Method for Engineering Projects

From the cost perspective, the target cost is a variety of consumption incurred to achieve a specific economic goal, which has the characteristics of predictability, incentive, and economy. From the target perspective, it is the cost level or index that the enterprise pre-sets to achieve in a

certain period-of-time[4]. The target cost method of engineering projects refers to the comprehensive calculation of the target cost based on the actual situation of the project, based on the bidding documents, contracts, construction plans, and other elements, combined with the internal management level, staff business ability, construction environment, etc., and not based on the simple "target revenue - target profit" backward calculation to determine, from the entire project construction budget It is a management method to achieve the target cost through the cooperation of all departments and the participation of all members, with the target cost as the process control guide in the life cycle from the whole project construction budget. It is an advanced, comprehensive, and effective cost management method that follows the principle of "comprehensive management, dynamic management and combination of authority, responsibility and benefits"[5].

1.1. Application Process

Project target cost management is a subsystem in the project management system of construction enterprises, which mainly includes: cost forecasting, determination, decomposition, control, accounting, analysis, and assessment. Through this system, all elements in the project operate according to certain objectives to ensure that the actual cost can be controlled within the predetermined planned cost range, as shown in Figure 1.

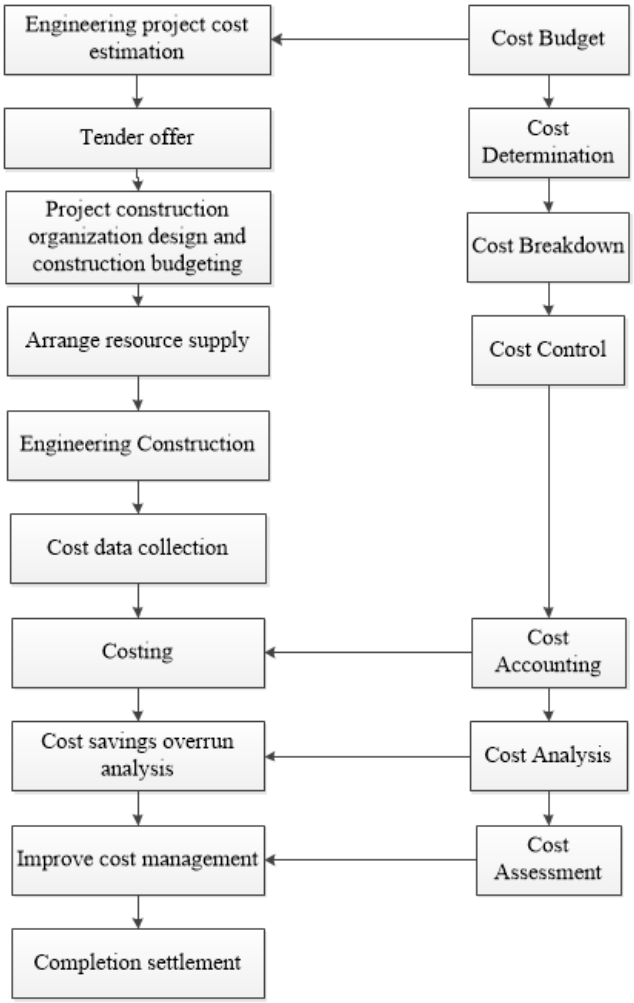

Figure 1: Application process of target cost method for engineering projects.

Target cost forecasting. Through the historical information obtained, we use experience summary, mathematical models, and other methods to forecast the cost, to provide a basis for the project management department to prepare cost plans and make decisions for the operation management[6].

Target cost determination. Based on the cost forecast, the level of consumption of production in the construction process is specified in advance in monetary terms, and then the level of difference between the actual investment amount of the project and the planned cost can be compared.

Target cost decomposition. The determined target cost value is divided into several subgoals according to certain requirements and methods to form an interlinked and mutually constrained target cost system.

Target cost control. Cost control is carried out gradually along with the construction process, by comparing the difference between actual cost and target cost, analyzing the reasons, and seeking countermeasures to reduce or eliminate the difference[7].

Target cost accounting, analysis and assessment. Accounting and analysis can test whether the cost decision is correct and provide the most realistic cost information for the project department, to achieve effective dynamic control of the target cost. Appraisal as the last element, the purpose is to determine the cost responsibility, reward the good, and punish the bad.

1.2. Application Motivation

The target cost method first came from manufacturing enterprises, and construction enterprises also have some characteristics of manufacturing enterprises, which provides feasibility for the application of target cost method in this industry. For engineering projects, individual projects are not standard, the comparability among projects is poor, project costs are affected by many factors such as construction cycle, technical difficulty, geographical environment, etc., and cost control lacks uniform standards, plus most projects are obtained through open bidding, their income can be determined in advance, and the profit earned by the project is directly affected by the high or low project cost[8]. As a profit center, construction enterprises want to enhance their competitive advantages, they must adopt scientific cost management methods in the construction process. The implementation of target cost method can improve the cost control ability of enterprise projects and obtain a new profit growth point.

2. Case Introduction

2.1. Basic Information of the Company

The company A is a comprehensive railroad engineering company with the qualification of railroad construction general contracting enterprise. In 2009, the company passed the National Safety, Quality, Environment and Health Management System certification for the first time, and was awarded "National Contractworthy and Trustworthy AAAA Grade Brand Enterprise".

In recent years, the number of projects undertaken by Company A has been increasing, but the economic benefits have not been highly improved. Although the company has formulated standardized management procedures and cost control processes in project cost control, they are not detailed enough, and the distribution of "rights, responsibilities, and benefits" is not in place, resulting in the lack of cost control awareness among employees, and the processes are virtually useless, and there are certain problems in the bidding, construction and completion settlement of the whole project[9]. Therefore, at present, the company insists on taking the scientific concept of development as the leader, establishes the management idea of market-oriented, safety management as the core, economic benefits for development, consciously applies the target cost method in

engineering projects, mainly controlling beforehand, supplemented by controlling during and afterwards, and strives to reduce the project cost to the lowest, in order to obtain the maximum economic benefits[10].

2.2. Project M Profile

Project M is a coal dedicated line frame bridge project undertaken by the company. The coal special line is a single line non-electrified railroad, and the contract price of the project is 7,608,954 RMB. After the completion of the project, it is of great significance to relieve the traffic pressure of the main and secondary roads in the city and improve the railroad transportation structure.

3. Implementation Process

3.1. Determination of Target Costs

After winning the bid for Project M, the company determined the target total cost of Project B as 5,227,583 RMB according to the process (see Figure 2) based on the cost information reflected in the bid proposal and project planning contents, referring to the cost information of similar projects, and rational optimization of resource allocation based on comprehensive consideration of the overall construction schedule and quality of the project.

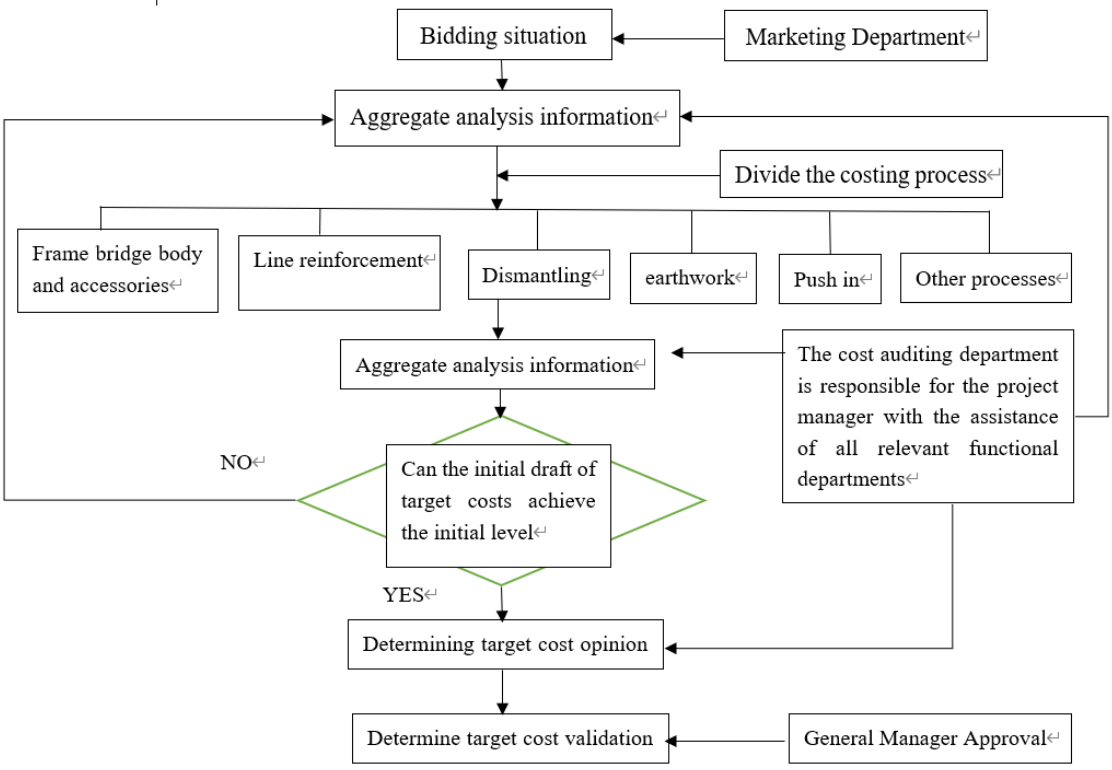

Figure 2: Target cost determination process.

3.2. Breakdown of Target Costs

According to the construction budget and construction organization design, the total target cost is decomposed according to the construction process (see Table 1), and the target cost of the specific process of the project is finally determined.

Table 1: M project target cost breakdown.

Process name	Project content	Unit	Quantity	Labor cost (RMB)	Material cost (RMB)	Machinery cost (RMB)	Other costs (RMB)	Total target cost (RMB)
Frame bridge body and accessories	Steel processing and installation	ton	144.6	118 572	578 400			1 948 754
	Concrete formwork installation and pouring maintenance	M ³	1 633.6	729 015	522 767			
Line reinforcement	Hole pile excavation and concrete pouring	M ³	551.7	335 389	176 552			1 377 996
	Hole pile steel processing and installation	ton	29.1	17,460	116 354			
	Erection and dismantling of beams	Group /month	3/2	157 854		317 650		
	Line grouting	M ³		195 887				
Dismantling	Vertebral berm removal	M ³	375	27 565		37 115		253 874
	Distribution beam back removal	M ³	774	15 543		118 753		
	Hardened road demolition	m ²	118	3 776		22 786		
	Back Pile Breaking	m ²	48.5	2 237		10 776		
	Bridge deck system removal	meters	20	11 216		4 107		
earthwork	Excavation of soil and rock for foundation pits	M ³	8 443	50 658		295 505	8 443	952 037
	Top-in earthwork excavation	M ³	4 432	26 592		155 120	4 432	
	Backfilling earth	M ³	5 340	96 125		328 037	5 340	
Push in	Jacking construction	t/m	25/1 883	127 555		157 860		526 582
	Sliding bed plate and lubrication layer	m ²	557	61 270	179 897			
Other Projects	Four Electricity Relocation	item	1				168 340	168 340

3.3. Cost Control

By analyzing the target cost and actual cost information of the same type of projects, it is found that the reasons for the cost difference are mainly: the waste of the corners during the processing of reinforcement and material, the deviation of the installation size of the formwork, the poor fixation and the large concrete collapse make the dosage increase, and the material use exceeds the consumption; during the jacking construction, in order to ensure that the back and distribution beam is reliable, the actual construction size is larger than the design size, and the construction The amount of concrete and steel reinforcement increased, resulting in the quantity of demolition being greater than the original design quantity, resulting in an increase in labor and machinery costs; the preliminary investigation of the site was not meticulous, and the line reinforcement schedule was seriously delayed, with the labor line maintenance fee, the rental fee of the convenient beam and the comprehensive management fee exceeding the target cost.

Accordingly, during the construction process of Project M, the project department focused on the following aspects of cost control.

(1) Labor and machinery cost control. The construction team optimizes the personnel structure according to the construction plan prepared, and reasonably arranges the personnel to enter and leave the site. Improve the business ability of machinery operators to prevent accidents, make good records of shifts and fuel consumption, and improve the utilization rate of machinery by running external leased equipment at full capacity as far as possible. After the project enters the closing stage, organize the personnel and machinery to leave the site as soon as possible, and the remaining personnel will actively do a good job in handing over the engineering and technical data and handle the completion of the final accounting procedures.

(2) Material cost control. Through the construction budget, to determine the fixed amount of materials required, the maximum consumption of the main materials must be controlled within the budget analysis of the fixed amount required; effective control of material consumption through the limit of the bill of materials, the technical management personnel of the project department according to the construction progress in stages, batches of materials, within the specified period, to complete the planned construction tasks, consumption of materials within the fixed amount. For ground materials and other sporadic materials, adhere to the principle of using how much to buy, how much, so as not to cause a backlog of inventory and losses; establish a sound material ledger, strengthen dynamic management, reasonable stacking of materials, and reduce secondary handling. Strictly follow the system of receiving and issuing materials, carefully inspect and ensure the quality and quantity when entering the site, and issue materials strictly according to the theoretical amount of the project; adopt the lump sum system for some items that are difficult to control, but realize cost control by strengthening approval for such items as business expenses that are not suitable for lump sum.

(3) Quality control. Establish a quality assurance system under the overall responsibility of the project manager, which is based on the instructions of the superior leadership and flexible management for the specific conditions of the project. According to the instructions of the project manager and the internal requirements of the company, the post management formulates the corresponding project cost management system and methods, and finally makes the employees work under the relevant responsibility cost index and be responsible for the cost of their posts; in construction quality management, the technical operation department and the project department should fully communicate with the owner and the supervisor in the construction, strictly follow the contract and construction drawing requirements, and adhere to the " Quality first" and "win with quality" principle to complete the construction.

4. Implementation Effectiveness

4.1. Assessment of Target Cost Completion

Table 2: Comparison of target cost and actual cost of each process in Project M

Cost items		Target Cost	Actual Cost	Actual cost reduction	Actual cost reduction rate
Frame bridge body and ancillary processes	Labor cost	847 587	840 536	7 051	0.83%
	Material Fee	1 101 167	1 087 919	13 248	1.20%
Line reinforcement process	Labor cost	706 590	695 914	10 676	1.50%
	Material Fee	292 906	286 261	6 645	2.30%
	Machinery costs	378 500	363,000	15 500	4.10%
Dismantling process	Labor cost	60 337	58 743	1 594	2.60%
	Machinery costs	193 537	189 612	3 925	2.00%
Earthwork process	Labor cost	173 375	170 465	2 910	1. 70%
	Machinery costs	778 662	776 940	1 722	0.22%
	Labor cost	188 825	185 459	3 366	1.80%
Thrusting process	Material Fee	179 897	173 157	6,740	3.70%
	Machinery costs	157 860	155 762	2 098	1.30%

As shown in Table 2. Through the implementation of various cost control measures, the main processes of the M project have savings in all consumption costs, the total savings of 78,475 RMB, and a reduction rate of 1.5%. The actual cost of the frame bridge body and ancillary processes, line reinforcement processes, and jacking processes is relatively obvious, the actual cost of the frame bridge body and ancillary processes is 20,299 RMB less than the target cost, a reduction rate of 1.04%; the actual cost of line reinforcement processes is 32,821 RMB less than the target cost, a reduction rate of 2.38%; the actual cost of demolition processes is 5,519 RMB less than the target cost, a reduction rate of 2.17%; the actual cost of the earthwork process was 4,632 RMB less than the target cost, with a reduction rate of 0.49%; the actual cost of the jacking process was 12,204 RMB less than the target cost, with a reduction rate of 2.32%. The target cost method has played a role in cost saving in this project.

Table 3: Cost summary

Projects	Contract price	Labor cost (including earth replenishment machinery and grouting)	Material Fee	Machinery costs (crane and easy beam use)	Comprehensive management fee	Taxes and fees	Profits
Target Cost Summary (RMB)	7 608 954	3 275 113	1 573 970	378 500	913 074	532 626	935 671
Actual Cost Summary (RMB)	7 608 954	3 238 771	1 547 337	363,000	908 321	543 788	1 007 737

As can be seen from Table 3, the final profit margin of the project improved by 7.2% after the implementation of the target cost method, which achieved a better performance, and all members of

the project were rewarded for cashing in on the excess profit after completion.

4.2. The Effect of Implementing the Target Cost Method

Applying the target cost method to engineering project management has improved the project cost control ability. By decomposing the target cost and clarifying the project cost responsibility, it makes everyone "have indicators on their heads" and promotes the participation of all staff in cost management; it improves the competitiveness of enterprise bidding. By analyzing the differences between target and actual costs and reasons, the company has a more accurate grasp of the consumption of resources and cost data of engineering projects, which provides a reasonable basis for quotation for undertaking the same type of projects; enhances the performance management level. By combining the target cost control results of employees with their personal performance, it greatly improves the work enthusiasm and cost control awareness and forms a good organizational culture atmosphere.

5. Conclusion and Insight

Target cost management is not only a scientific and systematic cost management method, but also an important business concept. By applying the target cost method to engineering projects, the project profit margin of Company M to Company A was increased by 7.2%, which promoted the change of enterprise management mode and enhanced the market competitiveness.

Through the management practice of this project, the construction unit should pay attention to when applying the target cost method.

(1) Improve the target cost management system. Systems as the basis for strengthening the target cost management, we need to combine the enterprise's own management process and the actual situation of the project to develop, do not be rigid, otherwise it is easy to be formal, can not play a real and effective protection role.

(2) Establish a target cost management information system. By comparing the actual cost with the target cost to grasp the dynamic changes of cost saving, analyze the reasons for the differences, and summarize the lessons learned in time, and actively take measures to improve, to ensure that the actual cost can always be controlled within the forecast range.

(3) Strengthen the talent training mechanism. Construction units need to train composite professionals, the application of the target cost methods to engineering projects requires close cooperation and coordination between financial and construction personnel, to the training of relevant personnel, and to establish the awareness of full cost control.

(4) Sound company performance appraisal system. The appraisal system can enhance the enthusiasm and initiative of the project participants and motivate the employees to work harder to achieve the expected goals. When rewarding based on the assessment results, attention should be paid to the combination of long-term and short-term incentives, so that the rewards and punishments are clear and moderate, to provide a guarantee for the operational effect of the target cost method.

References

[1] Du, H. and Feng, M. (2006) The application of job-based target cost method in supply chain cost control. Construction Economics, 12, 59-62.

[2] Yang, L.M. and Fu, W.Y. (2012) Analysis of problems of target cost method in logistics cost management. Modern Management Science, 09, 22-23+50.

[3] Lin, X.H. and Yi, Y.W. (2020) Application of target cost method in electroplating enterprises. Electroplating and Environmental Protection, 40(04):62-63.

[4] Zhai, J.H. (2021) The practice of target cost management in XY Company. Finance and Accounting, 12, 38-41.
[5] Wu, J. (2021) Practice and innovation of target cost management in S company. Finance and Accounting, 11, 33-36.
[6] Wu, F.M. (2019) Application of target cost method in the project cost management of construction enterprises--Example of the project of CCCC EAC I. Finance and Accounting Monthly, S1, 100-104.
[7] Ren, X.P. (2016) The application practice of target cost management in HL Company. Finance and Accounting Monthly, 16, 74-77.
[8] Qi, J.F. and Zheng, X.J. (2014) Discussion on target cost management of construction enterprises. Friends of Accounting, 28, 10-12.
[9] Yan, Y.H. (2012) The application of target cost management in real estate development projects: Xiamen: Xiamen University.
[10] Wang Xinming. Research on the combination of activity-based costing and target costing based on supply chain [J] China Management Informatization, 2010 (18): 2