

Cost Management of Engineering Consulting Project

Jingjing Wang

Caofeidian College of Technology, Tangshan, Hebei, China

Abstract: *Project cost control is an important way for enterprises to reduce costs and increase profits. Engineering consulting projects also need to control project costs to enhance the competitiveness of enterprises to win the market. This paper analyzes the deficiencies of existing consulting project cost management, carries out cost estimation through project work breakdown structure, implements all-staff cost management and strictly controls project cost by applying earned value management, makes project risk early warning possible, and provides reliable basis and reference for managers to make risk decisions.*

Keywords: cost management; Cost estimation; Earned value.

1. INTRODUCTION

The cost consulting service is mainly the crystallization of human thought, but it does not mean that he has no cost. The project cost management process includes resource planning, cost estimation, and cost control. The direct cost in the cost consulting project is the material, capital, and other resources directly consumed in a project, which can be traced and calculated in an economical and intuitive way. Indirect costs include the company's management fees and some fixed assets depreciation expenses.

Many consulting companies do not carry out separate accounting for the cost of engineering consulting projects, nor do they carry out cost estimation before the project implementation, let alone the cost control during the project. Only at the end of the year, the profit obtained by the project undertaken by the cost consulting department in a year and the salary paid by the company to the cost consulting business personnel are counted to calculate the work cost of the cost consulting department in the year, and the work plan and personnel arrangement for the coming year are planned. It is impossible to estimate the cost of different projects, let alone manage the cost.

2. COST ESTIMATION OF THE PROJECT

Cost estimation can provide reference for the project to determine the use plan of funds, and integrate the cost estimation of each part of the project into a comprehensive project budget document, so as to achieve project tracking and cost control. The direct costs in the engineering cost consulting project are mainly the salaries of the cost personnel, the cost of the equipment leased by the project, the cost of software, various subsidies, utilities and so on. The indirect expenses include the company's management fee, depreciation of fixed assets and so on.

Taking a lime kiln project as an example, we can first make a work breakdown structure table for the project, decompose the components of the project according to the deliverables, make a time estimate for the decomposed activities, and form a special project team, assuming the specific staffing is as follows:

The average annual income paid by the company to a project manager is 90,000 yuan, but the company's business saturation rate is 80%, so the project manager's work utilization rate is 80%, that is, business charge working days/wage working days.

Wage cost = annual income/(annual working days * business saturation rate) = 90,000 / (260*80%) = 276 (Yuan/day)

As the technical director of the project, the chief economist earns an annual income of 130,000 yuan

Wage cost = annual income/(annual working days * business saturation rate) = 130,000 / (260*80%) = 400 (Yuan/day)

Four professional cost engineers, one for each major, with an annual income of 80,000 yuan Wage cost = annual income/(annual working days * business saturation rate) = 80,000 / (260*80%) = 246 (Yuan/day)

There are three professional cost clerks, one for each specialty except steel structure, with an annual income of 50,000 yuan

Wage cost = annual income/(annual working days * business saturation rate) = 50000 / (260*80%) = 154 (Yuan/day)

Companies use overhead multipliers to pay reasonable expenses for medical care, transportation, retirement, various subsidies and depreciation of fixed assets. Different positions refer to different overhead multipliers. Further consideration of an employee's day does not 8 hours of full load work, personal activities during work time including personal phone calls, bathroom breaks, smoking, etc. should be multiplied by the personal time multiplier of 1.12.

By dividing their work time by the project schedule, the chief economist and the project manager estimate the cost in terms of

the total time actually spent on the entire project.

3. IMPLEMENT ALL-STAFF COST MANAGEMENT

By estimating the cost of the project, we can intuitively see the cost of each task and roughly the total cost needed. With these basic data, you can implement cost management. By dividing the cost into each task and even the person who performs the work operation, the concept of cost control management by all members of the project team is put forward.

In addition to normal wages and benefits, other parts of the overhead multiplier, such as the wear and tear of work supplies, depreciation of fixed assets, indirect costs such as daily utilities, and personal time multiplier costs are within our control

Inside. In order to truly achieve full staff conscious cost control, not only rely on rules and regulations, but also through the role model, drive project members consciousness, form a corporate culture, is the long-term way.

4. USE EARNED VALUE MANAGEMENT TO STRICTLY CONTROL PROJECT COSTS

Our traditional methods to monitor project performance mainly include cross chart method, table method and S curve method. Only for the project cost or schedule control, has been unable to meet the needs of modern new project management. As a result, earned value management is an increasingly used method for project management monitoring. He measured performance based on "planned value" and then measured "earned value" based on "actual cost" to more accurately evaluate work performance and, more importantly, define "cost bias." Earned value management consists of three basic parameters: planned value PV, actual cost AC and earned value EV. Four evaluation indicators: cost deviation $CV=EV-AC$, schedule deviation $SV=EV-PV$, cost performance indicator $CPI=EV/AC$, schedule performance indicator $SPI=EV/PV$.

It is an important means to dynamically monitor the construction progress to analyze a lime kiln project by means of earned value management and establish a cost-schedule performance early warning system according to the progress deviation and cost deviation generated in the process of analyzing the project. According to the earned value method, it can be divided into six cases: (1) $PV>AC>EV$ schedule is significantly behind, cost overruns, and personnel input is rapidly increased. (2) $AC>PV>EV$ cost overruns seriously and schedule falls behind. Emergency measures should be taken to control cost and improve efficiency. (3) $PV>EV>AC$ schedule is behind, cost saving, can increase the cost to catch up with the schedule. (4) $AC>EV>PV$ cost overruns, and the schedule is controlled by personnel allocation in advance. (5) $EV>AC>PV$ schedule is greatly advanced, cost saving, partial personnel can be extracted, and progress can be slowed down. (6) $EV>PV>AC$ schedule is advanced, cost is greatly saved, part of the lower level personnel can be extracted, and a small number of high-level backbone personnel can be added. Based on the analysis of different performance indicators, appropriate solutions can be found, timely warning can be given to projects with risks, and risk decisions can be taken to truly achieve systematic and dynamic control of project cost, quality and schedule, and provide guarantee for the smooth delivery of projects.

REFERENCES

- [1] Yang Xiaoping, Han Jinwei. Quality control of Project management -- Quality Earned Value [J]. Management Observation, 2009(9):28-30.
- [2] JeffreyK. Bintu,JeffreyK.Pinto, Bintu, et al. Project Management [M]. China Machine Press,2015:24-68.
- [3] Han Jinwei. Research on Quality Control and Dynamics of Project Earned Value Management [D]. University of Science and Technology of China,2010(03):56
- [4] J. Chen, Research on Strengthening the Network Public Opinion Management Ability of Local Governments. The New Orient. 2020(05):38-42.
- [5] J. He, The Influence of Network News and Public Opinion on China' s Government Public Management. Modern Economic Information. 2019(15):459.
- [6] Z. Yu, The Influence of Network Public Opinion on Government Public Management. Journalism & Communication. 2018(24):56-57.
- [7] J. Shangguan, "Triple Positioning" of Network Public Crisis Management-How to Guide Local Governments to Deal with Network Public Opinion Crisis. People' s Tribune. 2018(20):108-109.
- [8] Y. Liu, Research on Government Network Public Opinion Management in Public Emergencies. Central China Normal University, 2017.
- [9] Y. Tan, Discussion on the Management of Government Network Public Opinion in the Era of Micro-blog. China Management Informationization. 2017,20(02):202.
- [10] W. Zhao & Y. Shen, The Influence of Network Public Opinion on China' s Government Public Management. News Front. 2015(14):92-93.