

COST MANAGEMENT IN AN IMPERFECT WORLD: BRIDGING THE GAP BETWEEN THEORY AND PRACTICE

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Short Abstract

In a perfect world, everything functions as it should. In the real world of project control, the tale is often less than perfect with numerous obstacles and disappointments. Experienced project cost professionals know what should be done to manage and control costs successfully. Why is there a gap between cost management theory and actual practice? And what measures can be taken to eliminate or at least minimize negative impacts?

Keywords: Project cost control, project setup, project execution

Introduction

Cost engineering and quantity surveying encompass a broad variety of cost management functions focused on providing independent, objective, accurate and reliable capital and operating cost assessments usable for investment funding and project control [1].

The International Cost Engineering Council (ICEC) issued a White Paper outlining the similar and highly overlapping functions of cost engineering and quantity surveying, including a comprehensive list of typical cost functions. It also noted that with such an extensive number of cost functions, not all practitioners in the field perform all of these functions. The main goal is to provide guidance to owners, financiers and contractors [1].

This paper will focus primarily on project cost control and supporting the Project Manager to successfully meet project objectives.

A recent survey confirmed that half of the responding organizations are struggling with their project control functions [2]. Experienced project cost professionals know what should be done to manage and control costs successfully. However, simply knowing what should be done is not enough. This paper will delve into some of the obstacles that often impede the proper setup and execution of project cost control and present measures to eliminate or at least minimize negative impacts.

What is Project Cost Control?

The fact that this question needs to be asked is the first indication of a major impediment to project control effectiveness. Despite being an integral part of project management, there is still some lack of understanding of the whole system of project cost control [3]. There are many people who think of project cost control as merely collecting and reporting costs.

Project control is a key factor in ensuring that business and project objectives are achieved through the provision of accurate and efficient information to support informed decision

making. Management is dependent on timely project control status and forecast information and recommendations to develop and implement timely and effective mitigation [4].

Project control encompasses planning, scheduling and cost control activities. Although this paper focuses on project cost control, many cost items are inextricably linked with planning and scheduling and are assumed to be implicit.

The Project Cost Control Cycle

The basic project cost control cycle comprises the following steps:

1. Develop a baseline
2. Accumulate/collect data
3. Evaluate and analyze findings
4. Forecast
5. Recommend (to support decision making)

These activities are cyclical in nature and are performed repeatedly within each phase of the project life cycle. The major difference between activities in the front-end phases and the execution phase centers around the type of information available and the level of detail appropriate for decision-making support in the particular phase.

Although project cost control is not that difficult to follow in theory, it is a lot more difficult to do in practice [3].

Who Controls Costs?

The other “burning question” is “who controls costs?” Controlling costs is a project team endeavour. The project team members, including engineering, procurement and construction, need to actively control against the baselines. Only the project manager can exercise the authority and control to force compliance to both the budget and associated schedule.

Project cost professionals act as information brokers who must keep their fingers on the pulse of the project. They rely on project stakeholders to understand and fulfill their roles as providers and users of project information. Once the project cost professionals have processed this information, they need to generate meaningful reports and recommendations suited to the various levels of end users and decision makers.

The Project Cost Professional, Et Al

Another factor that contributes to the lack of understanding of project cost control is the wide range of job titles in current use. In addition to the established cost engineer and quantity surveyor terms, the list includes cost manager, cost analyst, business analyst, project coordinator, project cost controller, and cost planner. Titles and job descriptions seem to differ from industry to industry and by type of organization. In this paper, the term “project cost professional” is being used to encompass the functions of controlling project costs.

A 2004 project management article entitled, “Reining in Your Project Controls,” talks about a “powerful new trend sweeping the world of project management” with the separation of duties within the project manager role and the creation of a formal project controller position

[5]. Many of the firms adopting this approach may not realize that they need to educate themselves and re-organize to obtain the benefits of managing by projects.

The task of a project cost professional is certainly easier in organizations with high levels of Project Management Maturity (PMM) where standard project processes are integrated with corporate processes, including the development and maintenance of estimates, budgets and schedules [6]. Even in large contractor companies with high PMM levels, there is a need for continuous vigilance for compliance at an effective level.

The challenge is much greater in owner/operating organizations where the production side dominates the business. Owner capital projects groups offer a service to their “internal clients” and struggle with various degrees of commitment to project management by corporate and operating groups [7].

Project Basics and Initial Set Up

Defining a project is a process of establishing clear objectives, key success criteria and evaluated risks. Initial project set up activities for any project phase are critical in promoting a dialogue between the owner and the contractor that will lead to developing a solid project execution basis. The same scenario applies to in-house owner projects where the capital projects group must establish a dialogue with their “internal clients.”

Results of the FMI/CMAA Fifth Annual Survey of Owners reveal that owners recognize the need to pay attention to getting the “initial conditions” at project start-up right in order to meet their targets for a successful project [8].

Project cost control effectiveness will be impacted by how well the basic project management practices are implemented on the project, including the definition of such items as governance, owner organization and rosters, roles and responsibilities, project execution strategies, reporting and communications.

It is imperative that project controls personnel be involved in these early discussions and planning activities as it would be risky to assume that other project personnel can speak on behalf of project controls. Each owner and each project have unique elements that need to be considered beyond simply repeating “what was done on a past project”.

The following are examples of project cost control items that need to be addressed in order to enable the proper application of project cost control:

Terminology

There is a multitude of interpretations when it comes to project cost control terminology. It is essential to ascertain what people perceive to be their understanding of the following key project cost control terms by asking the right questions. If there are different perceptions, then there is an urgent need to arrive at a mutual agreement for this particular project or these issues will come to haunt the project throughout its life, and even after project completion:

- Baseline budget and forecast (original and current)

Even the simple term “baseline” causes a variety of interpretations. Some call it plan or budget. What constitutes the baseline budget? What changes to the budget are acceptable and who can authorize them? What makes up the forecast? Who is ultimately responsible for deciding what to include in the forecast? What wording will be used on reports for baseline, revised baseline and forecast? This needs to be negotiated and agreed upon or else it will lead to confusion and misinterpretation.

- Estimate classifications and accuracy ranges

The use of AACE International’s cost estimate classification system is an invaluable tool in arriving at a mutual understanding and agreement as to the estimate type to be prepared, including its components, level of detail and range of accuracy [9]. This will stave off potential owner disappointment by clearly defining estimating expectations.

- Types of costs: Incurred costs, committed costs, expended costs

These cost types need to be clearly defined because once systems are set up to capture these costs, then it will be time consuming and expensive to change them. The use of specific examples will help both the owner and contractor confirm if they are on the same page.

- Contingency and allowances

This is an area that seems to be increasingly misunderstood, with owners and contractors grappling over responsibility and control. The whole process needs to be well defined and agreed to, from the initial development of allowances and contingency to their management within the project, including who has the ultimate contingency drawdown authority. It is assumed that the owners have their own management reserve in addition to the project contingency, although there is some confusion about the differences [10].

Estimates

A detailed estimate checklist will help determine if the owner has specific inputs or constraints based on their experience or the particular project (location, legal, environmental, permits, economics, community relations, operations), as well as risk ownership for escalation and currency fluctuations. It is also important to establish what comes under owner costs. Here again, there is a wide range of assumptions that are often made by project participants based on their previous experience or company history. These items must be clarified to enhance project cost control effectiveness.

Owner codes

Owner coding requirements should be defined early while the contractor is setting up systems. If problems arise in mapping to contractor codes, then these must be resolved quickly before values start populating the database. The worst-case scenario would be owner changes to their coding after set up. Unfortunately, recent project experiences point to owners requesting coding structures changes as the project progresses. This leads to the creation of additional offline databases and reports, increasing workloads while impacting data integrity.

Reports

Reports need to be timely, accurate, and meaningful. It is crucial to verify the end use for which information is required, i.e. the decisions it supports, to determine users' needs.

The ultimate aim is to meet owner needs while adhering to basic project cost control principles. Key items to consider are content and level of detail to be communicated, as well as frequency and format. It is important to differentiate between control level details for contractors and summarized project levels for presentations to management and owners.

Another important point is the consistent use of the agreed terminology on all reports. Even though some terms are interchangeable, only the same ones should be used throughout.

Time Pressure

Time pressure illustrates another impediment to bridging the gap between theory and practice. Although project cost professionals know how important it is to achieve a mutual understanding of basic setup items at the outset, they will often back down too early, yielding to the pressure of "getting on" with project execution and issuing project documents.

Communications

Owner feedback systems should be established to ensure an on-going dialogue with owner representatives. The majority (63%) of owners participating in the FMI/CMAA Fifth Annual Survey of Owners rated more effective communication as the top change that "will most significantly contribute to improving the quality of the project delivery process" [8].

Continuous feedback will help identify misunderstandings early enough to defuse potential problem situations. Despite early efforts on project setup activities, it is often only during the actual execution of the project phase that individuals will finally realize the applied meaning of some of the terminology and project processes as different interpretations are flushed out.

The Project Cost Control Cycle in Action

As mentioned earlier, the project cost control cycle is an iterative process throughout the execution of project work, regardless of the project phase. Specific details may change, but not the basic principles.

It is not the intent of this paper to describe how to perform the various steps of project cost control, but rather to highlight areas that should be addressed to help bridge the gap between project cost control theory and successful implementation.

Baseline Development

The first step is to establish a set of reference baselines.

The project cost professional should endeavour to participate in the baseline definition as early as possible to become thoroughly familiar with the assumptions and thus gain a better understanding of the baseline conditions and risks.

Numerous studies have shown that the biggest single project-related problem is lack of locked-in front-end scope definition, resulting in a constant stream of project changes, budget overruns and schedule slippages [7, 11]. It is important to convince organizations that project cost professionals can provide active support in early project phases. A critical task is ensuring that the project team takes ownership of the baseline.

Collection of data

As work progresses, data is collected to measure progress and performance.

“Cost management is not ‘good’ to cost accounting’s being ‘bad’ ” [12] – they both perform different but necessary functions. With recent advances in accounting and ERP systems, there is a veritable flood of “real time” financial data. Often mistaken for or confused with cost control, cost accounting provides a record and history of expenditures but does not by itself manage and control final cost at completion outcomes. Project cost control requires cost commitments and incurred costs (value of work done) at various levels of detail rather than accounting transactions. Accounting accruals only provide a partial picture of the current status. There is often conflict between corporate accounting/IT groups and project groups over what constitutes appropriate information for project control, especially in low-level PMM organizations.

Costs cannot be taken into consideration on a stand-alone basis. Progress information is also collected in terms of material quantities, earned and expended hours. The project cost professional must go beyond computerized report outputs and verify the timeframes and exceptions associated with the information provided.

Analysis of findings

Perform critical analysis by comparing actual status to planned status, and identifying variances as well as their causes.

The key is to focus on items that are most susceptible to impact the project. It is easy to become mired in micromanaging details that have minimal impact. The project cost professional must learn to deflect ad hoc requests for this type of detailed analysis and reassure the project manager or owner that time would be better used analyzing other items.

It is also crucial to capture changes early to quantify and communicate trends to the project team for quick resolution. This includes working with project team members to ensure that they readily recognize change and its impact as early as possible, thus allowing management the opportunity to control cost and schedule drivers before they become serious problems.

Forecasting

Forecast costs at completion and compare to the current reference baseline

It would be simplistic to rely on mathematical formulas to generate meaningful forecasts. Forecasting is the activity that should require the most time and effort. In addition to analyzing current status and approved trends, the project cost professional has to have an ear to ground and fingers on the pulse of the project. Both hard and soft information must be consolidated to generate a realistic picture of the most probable outcome, tempered by sound

judgment and experience. If the end results are not satisfactory, then adjustments to work in progress may be necessary. The plan may even have to be changed.

Risks change with time and completion progress. The available contingency should reflect these changes by readjustments through periodic reassessment and quantification of risk. Occasionally, this could mean an increase in contingency, depending on the circumstances.

Recommendations

Various alternatives are considered if required to bring the project back on track, including budget shifts and adjustment to contingency allocations.

The project cost professional must be able to communicate results and recommendations in a manner that makes it meaningful to the persons responsible for acting on it. The complex analysis data that led to the conclusions can be used as backup material. Recommendations should be geared to the “30 second” rule, i.e. if the reader cannot grasp the intent of the presentation within 30 seconds of reading the page, the message will be lost [13].

Change Management

The major reason for cost overruns and schedule delays on most projects is scope creep [14]. This emphasizes the importance of a structured approach to scope development and value improvement practices to optimize the scope of work before converting it into the project budget baseline and schedule.

Change will inevitably occur due to events that are external to the project. The challenge is to manage change by the early identification of root cause and the anticipated impact. For proposed or requested changes, the project cost professional should aggressively manage these changes by quickly evaluating whether they contribute value to the project or only benefit some of the users.

The Future Needs Project Cost Control Expertise

There are many recent articles decrying “woefully deficient” project control skill sets in most organizations as well as a decline in the number of seasoned professionals leading to concerns around developing the project control expert of the future [11, 15].

Several professional associations have developed competency standards and accreditation standards for cost engineers and quantity surveyors [16]. Owner and contractor organizations need to recognize the importance of project cost control and support it through training, mentoring and other related skill set improvement initiatives [11]. Additionally, there is a need to educate both project teams and corporate groups about the value and use of project cost control as an integral part of project management.

Conclusion

Simple in theory, but difficult to do in practice – that sums up project cost control.

Experienced project cost professionals know how to use the tools and technique, coupled with their inherent capability to forecast and present the project team and management with

realistic recommendations. Many of the factors that are causing a gap between project cost control theory and practice are outside the control of the project cost professional. However, this is not unusual in project management. Being undervalued and misunderstood should spur project cost professionals to proactively embark on an educational campaign.

Project cost control is not performed in a vacuum, sitting in front of a computer. The project cost professional needs to talk to people and obtain information first hand. There are multiple informal and formal opportunities to educate personnel via one-on-one conversations, project review meetings, departmental meetings and teaching in company training programs.

There are also opportunities to volunteer in local sections of professional associations involved with project management, cost management and project controls. These groups have substantial amounts of educational and reference material on line [17].

The onus is on project cost professionals to find their voice and take action.

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