

## Project Controls – Continuous Improvement

By Christiaan des Bouvrie\*

Cost overruns in large technical projects is not an extraordinary phenomenon. According to a recent study of McKinsey<sup>1</sup>, no less than 98% of megaprojects suffer cost overruns of more than 30 percent and 77 percent are at least 40 percent late. Poor organization, communication, planning, risk management and data management are among the main causes. Based on these figures and other examples, it is necessary to improve the project controls profession.

### An integrated approach covering the entire project life cycle

A project, and thus project controls, is concerned with more than just the execution phase. It covers the full project life cycle from the initial estimating phase towards measuring the actual cost performance and project completion. In these various activities of project controls, often different departments are involved. Typically, information sharing between these departments is very limited.

However, information sharing is vital to improve the project performance and the project controls discipline. In this paper, the importance of an integrated approach to project controls is explained by creating an analogy with the plan-do-check-act (PDCA) cycle, which is well known in project management.

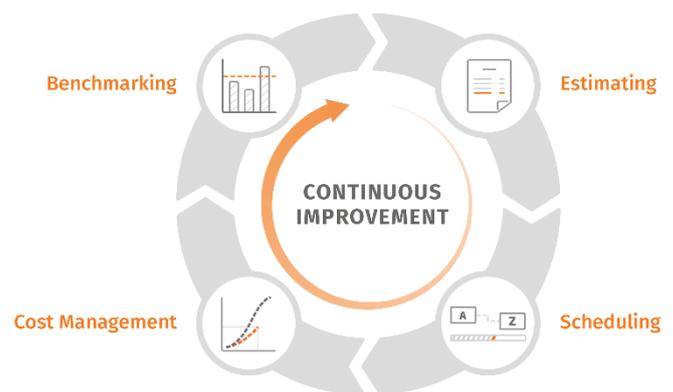


Figure 1 – PDCA for Project Controls

**An integrated approach that covers different disciplines within project controls is also key to move towards a situation of continuous improvement.**

### Estimating depending on the project phase

Any project starts with estimating the expected costs, which is needed to assess the project's feasibility. The ability to properly execute project controls depends on the quality of the budget setting, which is done by the estimating department. Depending on the phase of the project, the available information and the purpose of the estimate, several methodologies can be used. Estimates can be categorized as either high level or detailed. When the project is merely an idea that needs to be evaluated, high level estimating methods such as factor estimating and parametric estimating will suffice. If a project gets approval to move towards the detailed engineering stage, a more detailed cost estimate with increased accuracy will be developed.

### Scheduling - estimating from the scheduling perspective

Often, an estimator starts with the different parts and subparts of a project, so-called objects. He uses quantities in order to establish an accurate estimate.

Another approach is resource-based estimating. This method assumes a resource schedule is available rather than a list of objects, resulting in an estimate from a scheduling perspective. Once detailed project schedules are available, the planning department is able to plan all required resources using calendars and schedules. By adjusting the number of productive hours in a calendar, productivity is taken into account over the duration of the activity. Finally, multiplying those hours by their respective rates results in a cost estimate.

## The link from Estimating to Cost Management

Once a budget estimate is finalized, it forms the basis for cost management. However, most often this estimate is too detailed for efficient controlling since it would become time-consuming micromanagement. So here is where breakdown structures come into play, establishing their worth as a communication channel. Breakdown structures can be used to maintain the link from estimating to controls; it allows a project controller to check, at any time, where certain numbers come from and which assumptions they were based on.

When deviations from planning or budget occur or when a project is faced with scope changes, this link allows you to forecast the effect of such events on the end result of the project. It also provides project management with the necessary tools to take measures.

## Benchmarking to continuously improve on future projects

If everything went well and the project is completed, that's still not the end of it. To complete the project life cycle and to close the loop, you'll have to capture lessons learned and benchmark and analyze the project results in order to continuously improve on future projects.

Key to successful evaluation of a project is the ability to compare the actual result with the estimate with which you started as well as historical information. Thus, a link is required to be set up and maintained between cost estimating and project controls in this phase as well. Often this can be facilitated by a software system that can automatically keep track of all related cost items through a breakdown structure of choice.

## Conclusion

Major cost and schedule overruns within large technical projects are the rules rather than the exceptions. The biggest cause for this phenomenon is that project controls is too often considered as an activity independent from other project phases. In this paper, an integrated approach to project controls is advocated, covering estimating, scheduling, cost management and benchmarking in an analogy with the well-known plan-do-check-act (PDCA) cycle.

Having the right knowledge, procedures and communication is a good starting point. A software solution that integrates the four major disciplines certainly helps in this regard. It won't solve all your issues, but it's an important step towards improving your project controls on a continuous basis.

<sup>1</sup> McKinsey, 2015 – The Construction Productivity Imperative

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Cost Engineering Consultancy provides the leading project cost management software, Cleopatra Enterprise, to organizations worldwide. With more than 20 years of experience in the industry, Cleopatra Enterprise has helped more than 500 companies in 75 countries improve their project performance.

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Figure 2 – Project Controls Software