

GLOBAL CONSTRUCTION

LOSS OF CONTROL FROM PROJECT CONTROLS

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OVERVIEW

Companies often invest in major capital construction and engineering projects to create long-term value for the business. This is particularly true in the oil and gas sectors, where the investment may be in an offshore field, with substantial assets such as drilling rigs, production platforms, deep sea dive and construction vessels, pipe-laying vessels, production vessels such as floating production, storage and offloading vessels, subsea pipelines, land-based processing plant and distribution assets, and so on.

In each case, after a final investment decision is made, the project can be executed. Typically, in the oil and gas sectors, this will, among other matters, involve front-end engineering and design, detailed design, procurement, construction, installation, commissioning, operational testing and ramping up, and, ultimately, operation. These projects can be multibillion, U.S. dollar undertakings, and can incorporate highly sophisticated technical solutions with numerous complicated, interrelated, and integrated systems having to work together in aggressive environments, over very long periods of time. Technically and commercially, they are large and complex.

INTRODUCING PROJECT CONTROLS

In order to meet the challenge of delivering such projects, a key management function often instituted is a “project controls system.” There are many definitions of project controls. For the purposes of this article, project controls is the monitoring of key metrics relating to project deliverables, construction resources and productivity, intended to facilitate the project management’s ongoing decision-making and control processes in a consistent, accountable and transparent manner. It usually includes elements such as schedule planning, cost estimating and budgeting, resource planning, procurement planning, and performance measurement.

The project controls function tends to be separate from the contracts department and sometimes separate from the cost engineering department, depending upon an organization’s structures. Project controls focuses on what is physically happening on the project and compares this to what was planned and intended.

This is fine when the project is generally going well and as planned and forecast. However, given that the nature of these projects is generally large with complex construction situations undertaken at numerous work sites around the world, issues are likely to arise. When issues and controversy arise, project controls information can face the intense scrutiny that comes with dispute situations, and can be found wanting or not quite aligned with the disputed subject matter.



In these distressed situations, it is always worth remembering that the main purpose of project controls information is to monitor on a day-to-day basis the key metrics on the project. This does not necessarily lend itself to aligning with every commercial issue or claim that may arise. The project controls information may fully or partially be of assistance, or indeed may not assist at all, depending on the disputed matters. Perhaps certain modified or adjusted metrics can be set up to assist in monitoring and recording specific claims situations.

INTRODUCING COMMERCIAL MANAGEMENT

Commercial management, as its name suggests, is driven by the specific commercial situation obtaining on the project at any one time. As a management function, the intention is for the project commercial management to be fully engaged with procurement, contracts, costs, value schedules, and quality matters, to monitor for potential and actual commercial risks and issues, and to manage them accordingly. This often includes lining up contract correspondence in accordance with contractual provisions to identify, address, develop, or head off specific commercial issues and claims. From this day-to-day commercial management, potential disputes and actual disputes can be articulated, managed, controlled, negotiated, and ultimately settled.

As an example of commercial management, by comparing the actual costs or schedule with the planned scenario and the contractual value or allowance, a potential dispute may be highlighted. To commercially manage that issue, project managers may wish to institute specific records and metrics to ensure that the facts of the matter, as they develop, can be accessed readily. Indeed, by highlighting such specific information, the potential dispute may be managed, minimized, optimized, or averted. It is often the case that commercial management of a situation may rely heavily on the project controls information.

At the other end of the commercial management spectrum, a potential commercial opportunity might arise from a particular interpretation of the provisions of the contract, identifying contractual value-related claims as opposed to claims simply resulting from additional costs. Such interpretation can be used in prospective claims avoidance or claims development. Not least for this reason, commercial management is sometimes said to be the function of pursuing or avoiding the commercial “angle.” As a specific management function, commercial management is generally more prevalent in construction sectors outside of oil and gas, although the competencies involved are often very much applied in the oil and gas sectors without necessarily being given a badge.

PROJECT CONTROLS

As noted earlier, the meaning of project controls differs from organization to organization largely dependent on how an organization manages its major capital projects. There are many definitions of project controls used across various industry sectors. Two examples are noted as follows.

“Project control is a process for controlling the investment of resources in an asset. The project controls plan is considered the communication tool for instituting the project control process.”¹

“Project controls are the data gathering, management, and analytical processes used to predict, understand, and constructively influence the time and cost outcomes of a project or program; through the communication of information in formats that assist effective management and decision-making.”²

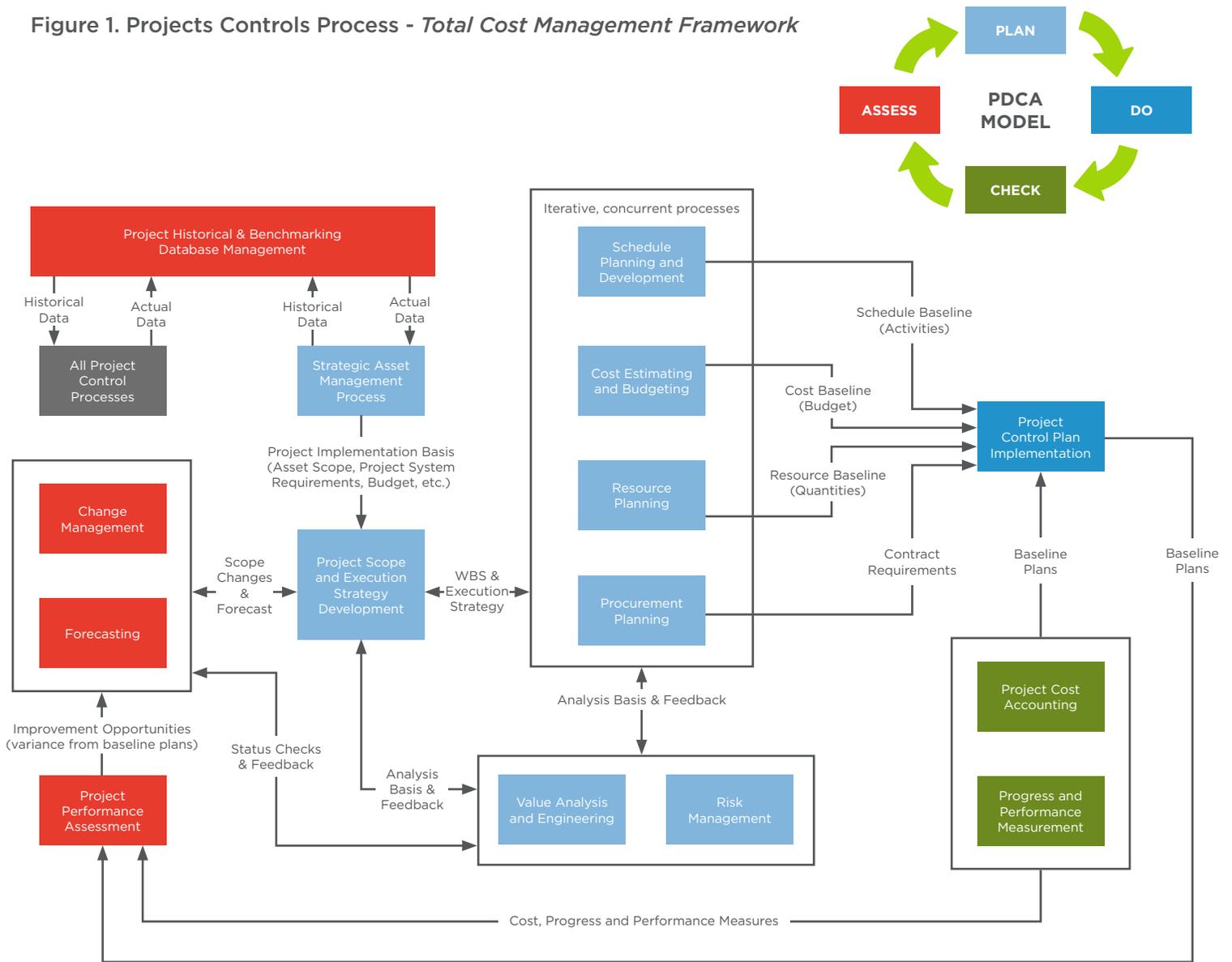
1. AACE International Recommended Practice, No.60R-10, Developing the Project Controls Plan, TCM Framework: 8.1 – TCM Project Control Plan Implementation, Rev. Dec. 21, 2011.

2. “Project Controls: What is it and why is it important?” Projectcontrols.com, 2012.

The Association for the Advancement of Cost Engineering (AACE) provides a high-level flowchart:³

Flowchart from: AACE International Recommended Practice, No.60R-10, Developing the Project Controls Plan, TCM Framework: 8.1 – TCM Project Control Plan Implementation, Rev. Dec. 21, 2011.

Figure 1. Projects Controls Process - Total Cost Management Framework



3. Ibid. Footnote 1.

If undertaken properly, the project controls function is a powerful project management tool. It can provide substantial information about the project, as well as compare historical project data and planned data. The information that may form part of a project controls plan, as set out by the AACE, include the following categories:

1. General requirements (delegation of authority, compliance, revision control, project organization, and the like)
2. Functional applications of project controls (project planning of schedule, scope account development, costs, estimating and budgeting, resources, and procurement)
3. Project performance measurement (cost accounting, progress and performance measurement, forecasting, change management, and project historical data)
4. Systems and data integrity plan
5. Communications plan (meetings, reporting, and filing structures)
6. Project controls deliverables
7. Project controls implementation (review, validation, training, and audits)

If all these processes are in place and managed properly with the necessary resources, then it can be useful to an organization.

In practice, however, this is not always the case or practicable with the project team resource levels.

For example, on a major oil and gas capital project in Australia, the implementation contractors were each working under substantial subcontracts. The contractors provided management with voluminous monthly reports on project controls information (percentages of work complete, personnel numbers, and man-hours at the various locations of the project). Little effort was put into confirming its accuracy because the staff was too busy performing various reporting activities. Consequently, the resource and progress figures were not properly confirmed month by month, and it was not until late in the project that stakeholders realized that the resources were significantly overbudget and the progress was significantly under-achieved. Management was unsure why this had occurred and was surprised.

Upon investigation, they found the project progress percentages were too high and the personnel numbers inaccurate. This problem arose due to the project control systems being improperly applied and managed, resulting in incorrect information being given to management.

Where a project is managed using project controls, a contracts department/function providing contractual management and interpretation services is typically a separate entity from the project controls department and coordination between the two entities is normally a workable approach. Even so, things can still go wrong. For example, on a processing plant construction project, there was a subcontract bill item for a single 12-meter pile. The final actual construction included 150 piles of varying lengths approximately 12 meters long. The 150 piles were simply re-measured using the rate (per meter) for the original 12m pile. The project controls team duly noted this measurable and identifiable increase in scope, and the contract management team could sign off using the existing contract bill rate.

However, no one within these teams looked at the project drawings. If they had, they would have seen that the original pile specification was a single, solid stainless-steel pin encased in concrete (incredibly special and expensive). They would also have seen that the 150 piles actually installed were traditional reinforced concrete piles, with typical reinforced carbon steel cages and run-of-the-mill poured concrete (standard economic specification and nowhere near as expensive as the solid stainless-steel pin specification). That is to say, the actual pile installation was nothing like the original pile specification and much less expensive per meter to produce and install. The result was that the EPC contractor paid several million dollars too much for the 150 piles (as if they were all stainless steel) and the piling subcontractor was paid several times more than the amount he would have been entitled to had the drawings been remeasured properly and the bill rate amended accordingly to reflect the actual (cheaper) work done rather than the originally anticipated (expensive) specification. Although there would always have been an increase in cost from the single special pile to the 150 standard piles, this would be significantly less than going from a single special pile to 150 special piles (which were not installed). This was a failure in applying the project controls systems in adequate detail and a failure in anyone seeing the significantly overstated and overpaid increase in piling costs; 150 special expensive stainless steel piles were paid for but not installed instead of 150 standard economic reinforced concrete piles that were installed.

A further challenge often arises with engineering. There are many examples in the oil and gas sector where the project controls system accurately records the thousands of engineering man-hours and allocates them accurately to the various work and system disciplines. However, the progress of the engineering deliverables is not tracked accurately. Imagine being the project management when you find that the engineering man-hours have reached 90% and all seems fine until it becomes clear that only 50% of the engineering deliverables have actually been achieved and you realize that, consequently, the project schedule is probably unachievable.

A broader potential scenario that can arise with project controls departments is that project controls is a typically direct reporting function to the project management. This can potentially undermine the independence of the project controls team.

By and large, project controls provide powerful management tools and perspectives within a project, but consideration should be given to institute them accurately and to remain alert to specific matters that may not be necessarily highlighted by the general project controls systems.

COMMERCIAL MANAGEMENT

The meaning of commercial management, like project controls, is largely dependent on how an organization manages its major capital projects. There are many uses of the term “commercial management” across various industry sectors.

The Chartered Institution of Civil Engineering Surveyors in the U.K., is a widely acknowledged professional proponent of commercial management. It oversees professional competence in the commercial management aspects of construction. Such competences include:

1. Commercial awareness (return on capital, dispute resolution options, industry structure, contractual matters, precontract competitive tendering, post-contract accounting, financial statements and reporting, commercial risk management)
2. Contractual awareness (general provisions and specific standard contract conditions)
3. Methods of measurement (quantities, measurement, taking off, drawings, bills of quantities, and detailed understanding of different standard methods of measurement)
4. Recognizing, evaluating, and recording change (instructions, variations, contemporary records, causation, consequences and entitlements, recovery process, the importance of records, types, purposes, and quality)
5. Engaging and managing subcontractors (the decision to subcontract, procuring subcontractors, payment, default and dispute, completion and defects)
6. Financial controls, reporting and forecasting (financial reporting, cash flow data, analysis and forecasting, costs and liabilities, allowance and cost reconciliations, and cost and value)
7. Procurement, contract law, duty of care, and dispute resolution (the market, forms of contract, performance and payment, breach and remedy, and external legal influences)

8. Claims delay, disruption, and extension of time and delay damages (periods of completion, causes and effect of delay and disruption, failure to complete on time, prevention, extensions of time provisions and stay of damages, time and money, and legal and contractual basis for recovery)

In addition, a development over the last 20 years has been the advance of commercial management bachelor's degree and master's degree courses.

More generally, the Institute of Commercial Management considers commercial management to be, “The identification and development of business opportunities and the profitable management of projects and contracts, from inception to completion.”⁴

Clearly, there are broad interpretations and understandings of what commercial management means. However, as with the project controls function, if all the commercial management aspects are in place and managed properly, they assist in the overall project management and effective project implementation.

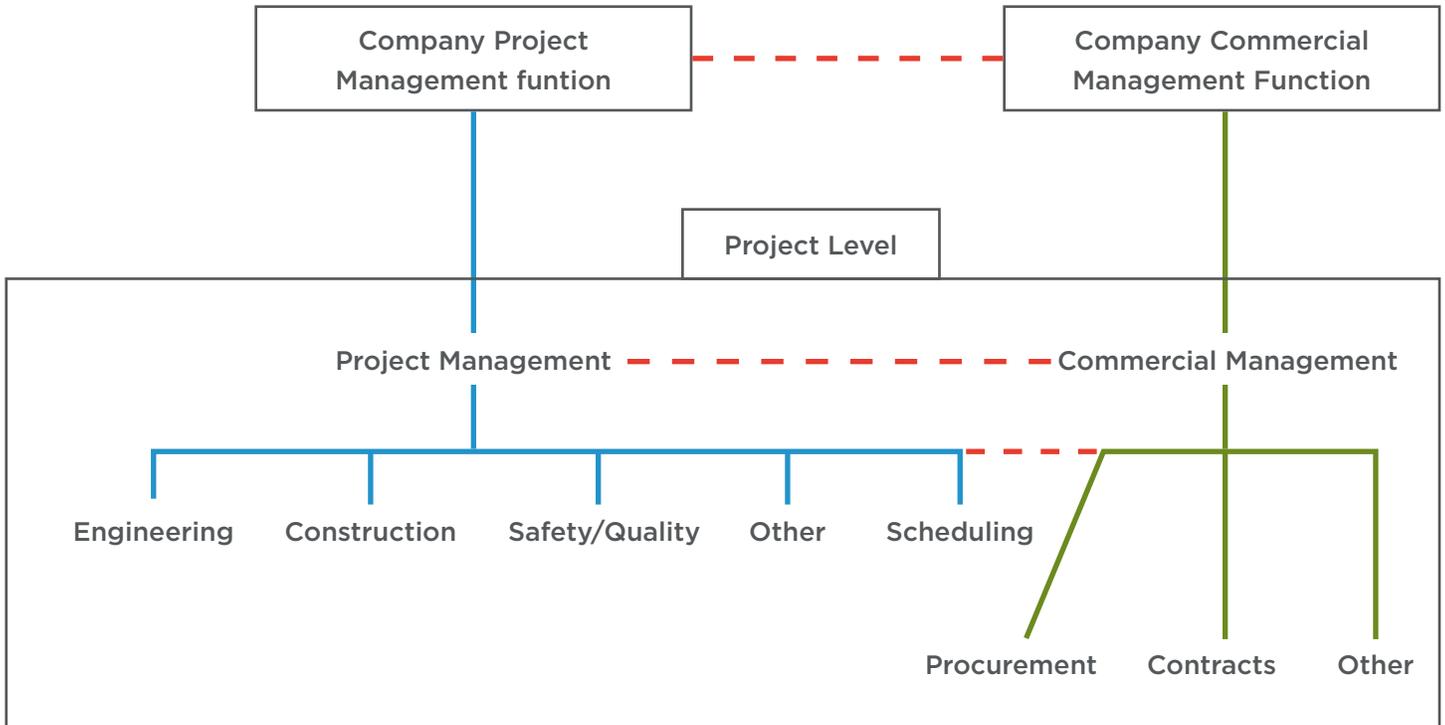
In practice, however, this is not always the case. In one example on a heavy-engineering contract in Australia, the contractor's cost engineer had carefully remeasured all the perimeter fencing around the large site and applied for payment accordingly. However, he had not realized that several thousand meters of the fence had not been delivered or installed because the prevailing physical topography dictated that it was not needed. This was a failing in the commercial management of this project. The delivery and cost information had clearly not been reviewed, nor had the technical requests for information or technical correspondence been consulted.

Similarly, on another process construction project, the earthworks claims had been developed professionally with well-supported cause and effect, and thus there was contractual entitlement. However, the rates used were from unit rates in the contract rather than on costs that were the contractual premise of the claim. The contract unit rates did not reflect the additional costs actually incurred, but were several times inflated above the actual costs. Having agreed this subject to final audit, the commercial management was embarrassed to have to review this claim and reduce its quantum considerably. This was a simple commercial management oversight that led to positive contractor cash flow in the short term, but reduced trust with the client longer term. Had the project controls systems been utilized fully, they would have indicated that the actual costs were much lower than were being claimed.

4. “What is Commercial Management?” Institute of Commercial Management.

On a broader level, in contrast with the typical project controls approach, the commercial management function on a project tends to be a separate line of reporting to the project management, but with an advisory and guidance role to assist the project management in the commercial aspect of the project. I broadly illustrate this as follows:

Figure 2. Generic commercial management provides a separate advisory function (shown by dashes)



The difference with this system, with its separate reporting function to project management, is that although the project management remains firmly in control of all matters relating to the project, the commercial management aspect is kept separate but is carefully coordinated such that the project management can benefit from the commercial management findings. The important difference is that the project management has reduced influence over the scope of the commercial management function.

Commercial management, when properly applied, provides powerful management tools and perspectives within a project. Even when it is accurately implemented, vigilance is required to remain alert to specific matters that may not, on the face of it appear obvious, but are in fact significant. For example, where credible claims categories are developed and accepted between the parties involved, the claimed amounts may be excessive when compared with actual costs or when compared with contractual value, depending upon the basis of the claim.

PROJECT CONTROLS VS. COMMERCIAL MANAGEMENT

In distressed dispute situations, project controls are often relied upon in place of core commercial management and expertise. This does not create difficulties when projects are running well, but once a project becomes distressed, a poorly executed project controls system can be too reactive and generalized.

The answer is in maintaining the right balance to the project team and the proper application of the project controls and associated contract and commercial management.

In comparing the two functions of project controls and commercial management, one may be in danger of missing the essence of both. On a high level, they are different functions. One does not simply replace the other or get applied in place of the other. Both are needed.

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Project controls is a general project-wide data retrieval, comparison, and reporting approach that may not naturally suit itself to every potential claim. However, it will generally, identify where urgent issues are arising and allow the project management time to react, monitor, control, and resolve the issues appropriately.

Commercial management is more about recognizing and managing potential or actual commercial risks and acting to develop or minimize them. The objective is to optimize the commercial performance of the project regardless of the measurement criteria.

In dispute situations, the projects managed with a robust project controls system tend to benefit from an active commercial management procedure to identify and articulate key issues of dispute. Such attention will reduce the chance of issues slipping between gaps and being missed amongst volumes of data.

Conversely, in dispute situations where the projects have been commercially managed, they will benefit from a project controls system being operational. This would help to ensure that claims are adequately supported and key disputed issues have been identified and articulated.

Therefore, in dispute situations, apply project controls and commercial management expertise as necessary to arrive at appropriate levels of claims.

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