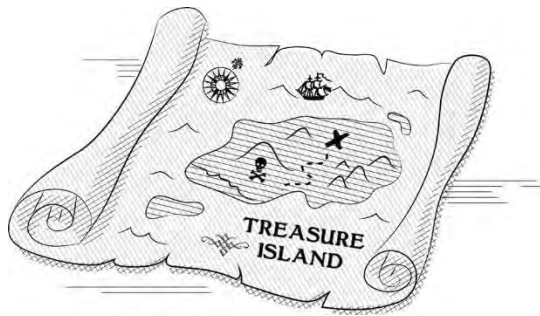JEREMIE AVEROUS

Practical Project Control Manager Handbook

*From Back-Office Manager
To Trusted Project Strategist*

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Chapter 1: Project Control in Large Projects: Coverage and Reach

Introduction

Project Control as a stand-alone discipline is often only formalized on large Projects. On smaller Projects, it is generally the Project Manager himself that effectively performs its duties, which are much lighter because those Projects remain simple.

However depending on the nature of the Project and its contractual setup, it might be useful to appoint a Project Control Manager for smaller Projects in particular if:

- the Project is executed on a reimbursable or detailed rates basis, which require a lot of precise administration,
- When it can be expected that the Project Manager will have to deal with specific complexity e.g. difficult stakeholder management, number of and distance between different Project offices.

In general, except on the smallest Projects it is a good investment to appoint a Project Control position to free up the Project Manager's time, even if it is a shared position at the portfolio level.

Project Control can have a very different scope depending on the organization's history. We will first describe what we consider should be covered or not, then we explain how the position of Project Control Manager fits

in the Project organization, and finally what should be the profile of Project Control Managers.

Project Control Coverage

Based on our experience, Project Control should cover the following disciplines Coverage:

- Cost Control,
- Schedule Management,
- Project Risk Management,
- Main Contract Management (for Contractors),
- Document Management.

Contract management is sometimes considered to be a separate discipline that warrants a senior direct report to the Project Manager. However we believe that Project Control can only deliver its best value when the three dimensions of the famous Project triangle (Cost, Schedule and Scope management) are covered. Main Contract management actually deals with Scope, hence we believe that it should be included in the remit of Project Control. Contract management also includes accountability for proper flow-down from the Main Contract to Purchase Orders and Subcontracts, and review of deviations to these requirements during the procurement process; this has an essential link to Project Schedule and Risk Management.

Document Control as a process typically responds both to Project Control needs (physical progress measurement and scope control) as well as Quality Management needs and depending on the local preferences can be assigned to either function. However, because of the potential consequential effects of lack of performance control during engineering phase, it is recommended that Document Control be in the remit of Project Control to foster proper oversight. This practice has shown to deliver substantial value in EPC Projects.

Project Administration can sometimes be added for convenience to the Project Control scope.

Functions recommended not to be included in Project Control

Procurement is sometimes merged together with Project Control, and the sum is then often called Project Services. This generally happens in organizations that consider procurement to be only a contracting exercise. Experience in Large, Complex Projects Management (or 'EPC' Projects) shows however that there are many additional competencies and processes that are necessary in the field of Procurement (also called Supply Chain Management). They range from strategic sourcing to supplier qualification and post-award management. Therefore we believe that Procurement should be promoted to a function reporting directly to the Project Manager at the same level as Engineering and Construction, and should not be included within the remit of Project Control. Including Procurement activities will also distract the manager in charge from his strategist role, because of the numerous operational constraints associated with the day-to-day management of suppliers and contractors.

Because of the confusion between Accounting and Cost Control as functions (refer to our *Cost Control Handbook*), some organizations tend to merge the Finance/ Accounting functions within Project Control. This is not a good idea because:

- Accounting should serve as an independent line of defence from Cost Control, looking at the Project from another perspective,
- The Project Control Manager would be distracted by numerous financial reporting requirements, bank administrative requests and invoice payment issues,
- Accounting is run more effectively at the legal entity level than on the Project level.

We thus recommend keeping Accounting as a separate corporate function. While there needs to be a strong link with Project Control, it still needs to remain separate.

Project Control Terminology

Project Control is also often called Project Controls or Project Services.

We have chosen to use 'Project Control' in the singular rather than 'Project Controls' because we want to highlight the fact that control overall needs to be exercised on Project execution, and not just the implementation of a series of juxtaposed controls. Control needs to be comprehensive.

'Project Services' is often used when Procurement is part of the scope. It is also sometimes used when just Contract Management is added to Cost, Schedule and Risk. To avoid misunderstandings with organizations that use 'Project Services' in a very broad sense, we have preferred to use 'Project Control' in this handbook.

Project Control in the Project Organization

Project Control Managers are generally not nominated at the feasibility study stage except when it might constitute a Project of its own due to its size and complexity. For Contractors, Project Control Managers' involvement in tenders is often limited to contributions on some aspects of the future Project administration – although deeper involvement could be helpful to prevent future issues during Project execution such as:

- Payment milestones poorly defined or not precise enough (e.g. reference to a large set of deliverables instead of a single deliverable), leading to substantial delays in payment and cash flow consequences,
- Administration clauses too onerous without real added value in particular on reimbursable / re-measurable / rate-based scopes,
- Contract schedule build-up not aligned with the contractual strategy and with low resilience,
- Underestimation of Project Management and Engineering costs – or unrealistic slashing of those costs during the course of negotiations,
- Inadequate requirements to long lead items suppliers in terms of reporting (as those awards tend to be prepared during the feasibility stage itself).

Appendix 1 details some key control points not to be missed at tender/feasibility study stage.

The Project Control Manager role is thus generally focused on actual Project execution from Project Start-Up to Close-Out. Actually, Project Control Managers are often the ones 'shutting off the lights' as they are amongst the last ones to be demobilized from Projects after their final closure.

The Project Control Manager should report directly to the Project Manager, as shown in the following typical organization for Large Projects. In this chart we use the terminology 'Package Managers' to designate those 'Scope Owners' in charge of significant sections of the Project scope. Sometimes these are called 'Project Managers' while the overall Project Manager is called 'Project Director'.
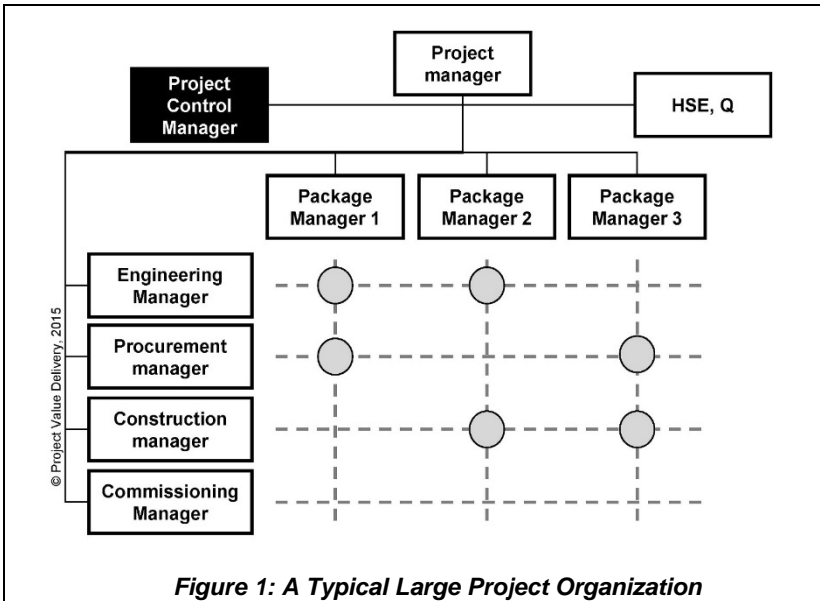
Figure 1: A Typical Large Project Organization

In very large Projects there is a tendency from the managers in charge of separate packages to request for dedicated personnel to cover Cost and Schedule. This is not recommended when there is a single Main Contract or investment:

- Cost and Schedule have a number of components common to the Project that cannot be split by packages, so that an overview is needed,
- Cost Contingencies, Schedule Buffers, revenue can only be managed practically at the Project level,
- It is more efficient to specialize Project Control personnel by type of cost or activity (i.e. by function such as Engineering, Procurement, Construction) than have them cover vertically all activities within a Package,
- Provided a proper breakdown structure is implemented from the beginning of the Project across these disciplines, it is entirely possible to report cost per package and to filter out schedule by package as well, while maintaining the required overall Cost model and Integrated Project Schedule for the entire Project.

The recommended organization is thus to have the Project Control team brought together directly under the Project Control Manager, and not spread in each package.

Even when Project Control personnel (generally Cost or Schedule) is assigned to a fabrication or construction site or to any other site outside the Project office, it is also recommended that they still report functionally to the Project Control Manager even if they may be placed operationally under the Construction Manager, to make sure that reporting is immediate and candid and that relevant control requirements are effectively implemented.

Finally, decisions might be required for the general interest of the Project that might penalize one package and benefit another. An overall shared Project Control Function is thus essential to perform a neutral analysis and support decision making at a Project level by the Project Manager.

Project Control Manager Profile and Career Path

Project Control Manager Career Path

Project Control Managers have widely different origins and career paths. This is due to the fact that this specialty is not formalized in most organizations outside Project execution itself. There is also no 'junior' Project Control position as this position does generally not exist explicitly for small Projects. Hence Project Control Manager is a position that does not have a straightforward career path to develop into.

Project Control Managers have often the following origins:

- An experienced Project Control personnel from either the Cost, Contract or Schedule function that develops to take the overall Project Control role,
- A Project Manager with experience in smaller Projects that takes such position as part of her growth and development to later take Project Management responsibility on larger Projects,
- A Tendering Manager with experience in bidding and closing-out Project contracts commercially.

This list is not limitative and we have observed very successful Project Control Managers with widely different career paths, as long as they fulfil the necessary profile and experience.

Irrespective of their origin, it is important that Project Control managers evolve into the role and avoid staying too much into their specialty of origin. This can sometimes be a drawback when Project Control Managers stem from a specific Project Control function.

Project Control Manager Competency Profile

A Project Control Manager should have the following technical competencies and experience:

- Actual Project experience, so as to be able to appreciate the issues faced during the execution of Projects,
- Sufficient industry experience to understand what in general the drivers of Projects in this particular industry are (this point is extremely important and warrants site visits and high level technical training),
- Sufficient knowledge of the disciplines of Cost, Schedule, Risk and Contract management and how they are interlinked to be able to direct the work of his team. This does not require that he is an expert in all those disciplines, but requires that he understands the main issues and can challenge the specialists as to where the effort should be focused,
- Sufficient understanding of commercial aspects through substantial previous Client exposure, including an understanding of how to account for the Client's mid- to long-term drivers,
- Sufficient understanding of corporate financial reporting aspects and constraints for an effective interface with the Accounting and Finance function,
- Some understanding of business IT systems setup and implementation so as to be able to direct the development and implementation of those systems where they would be missing.

If the candidate does not have all the necessary experience, which often happens for newly promoted Project Control Managers, these technical competencies can be enhanced by training, mentoring and coaching at the start of a Project.

If training is required at the start of the Project, it is essential that the Project Control team is supported by an experienced Project Control Manager or Project Control function to ensure an early set up of the Project Control suite of systems, functions and processes which are

essential for robust and efficient control during execution. In addition, site visits are highly recommended to understand the practicalities of Project execution in the particular industry and context, and understand the particular issues arising from future vendors' manufacturing facilities, worksites and countries.

Complementing technical competencies, softer competencies are also required. They are actually essential for an effective Project Control Manager – technical competency alone will not suffice, because a large part of the role involves creating a communication network to be aware of everything that happens on the Project and detect Weak Signals. He also needs to influence the other functions into contributing to Project Control. The soft competencies that are needed include:

- Good presentation skills so as to be able to:
  - convey a clear image of the Project status and effectively support the Project Manager in reporting and stakeholder management,
  - define and execute visual management strategies regarding dashboards presented to the team,
- Good listening and interpersonal skills to exchange continuously information with the Project team members,
- Good negotiation skills so as to support the Project Manager in contractual negotiations including Change Order and Claims,
- Facilitation skills so as to ensure that the necessary workshops and conversations required to make Project Control successful happen in the most effective manner,
- Sufficient management skills to effectively coordinate the work of his team,
- Experience of exposure to senior management and key external stakeholders, so as to be able to prepare and deliver effective messages.

These competencies, if not present at the onset of a Project, can also be developed using training and coaching.

Project Control in the Organization

The home of Project Control Managers in the organization varies. This population is generally very small and of significant seniority. In addition, except in rare cases, the role of Project Control Manager is only a stepping stone in a career, so that there can be expected to be a substantial turn-over in the population.

The recommended functional reporting line in the organization is to the Director of Projects, either directly or through a functional Director of Project Control depending on the size of the population. This will ensure that the focus of Project Control is on Project execution. It is also consistent with the general career path of Project Control Managers growing into Project Managers. Other functional reporting lines e.g. to Finance, Commercial etc. have drawbacks in that they will tend to put emphasis on a single component of Project Control whereas to be fully effective, Project Control needs to be encompassing in a comprehensive manner all its functions for the benefit of Project's execution.

Summary of Project Control Roles

The Project Control Manager can be seen as the keeper of the Cost – Schedule – Scope triangle. Hence most of his activities will revolve about maintaining control and consistency across these three dimensions, both in terms of Baseline, Actual and Forecast.

In a Project, the main responsibilities of Project Control are the following (they will be developed in the subsequent Chapters):

- Maintaining consistent Project Cost Model and Integrated Project Schedule that reflect accurate actual data and proper forecasts and reflect the latest Project scope as per Contract management activities,
- Determining the minimum contingency reserve amount as per the organization's approved calculation method,

- Maintaining the required conversations about Opportunity and Risk and making sure they are reflected in the updated Project Risk register and associated action plans,
- Producing timely relevant contractual information, notification and correspondence; and in general, managing Contract administration activities and coordinating Change Orders issues,
- Ensuring that internal Management of Change and internal/ external Interface Management activities interface properly with all the relevant Project Control disciplines,
- Coordinating all Project periodic reporting activities (internal to the organization and external to Client and other stakeholders), including both Actual and Forecast in all dimensions,
- Establishing visual dashboards and making sure they are posted and updated continuously in the Project office and/or the Project war-room,
- Organising and managing the Document Control process in conjunction with the Quality function in particular when it comes to the development of as-built data,
- Developing appropriate scenario analysis when relevant to establish the best course of action when the Project is faced with alternatives,
- Developing and proposing a contractual strategy and relevant updates to the Project execution strategy to the Project Manager.

In addition, depending on the Project's organization and relevant other organizational parameters, the Project Control Manager can also assume the following additional roles:

- Managing directly all internal Management of Change and internal/ external Interface Management processes,
- Organizing and managing the Project's administrative support (Project assistants team, travel arrangements, office arrangements etc.),

- Organizing the receipt, review and dispatch of the official Project correspondence, including assignment and tracking of actions,
- Setting-up and managing relevant Project-specific information management systems with a focus on Project Control (excluding specialized software for Engineering or Procurement).

Conclusion

Project Control is an indispensable function in Large Projects. Reporting directly to the Project Manager, it covers a number of control processes that taken together, aim to give an accurate view of the Project's current and forecast situation.

We recommend that Project Control covers Cost Control, Project Risk, Scheduling, Contract and Document Management.

Project Control Manager is a senior position that is often a step in a career: Project Control Managers rarely remain in that position for a large number of Projects. Because of the breadth of competencies required, as they take the role, they often need training or coaching in some areas to be fully effective. This is often underestimated in the midst of the scramble to get a Project started, leading to significant losses in effectiveness that could have easily been prevented. Thus a thorough review of the technical and soft competencies of a newly appointed Project Control Manager is a must, together with supervision and mentoring by more senior personnel that have performed the role in previous Projects.

Chapter 2:
Project Control
Golden Rules

> **The main objective of Project Control is to enable the Project Manager and the Project Sponsor to take decisions derived from an accurate current knowledge and understanding of reality, with the aim to reach a successful Project outcome.**

From this broad objective, a number of Golden Rules describe the basic requirements of Project Control Management.

In all instances, 14 Golden Rules need to be followed when it comes to Project Control.

1. **Accountability:** Covering the entire Project scope, designated 'Scope Owners' take ownership for their Schedule, Cost and Risk (including update, forecast and action-taking). The Project Manager is ultimately accountable for the entire Project. Project Control supports and challenges 'Scope Owners' and raises issues of consistency and consequential impacts of events.

2. **Alignment with clear Project Objectives:** establishing clear detailed Project Objectives is an essential pre-requisite as it will inform the build-up of the Project baseline, monitoring system, and strategies.

3. **Urgency of building Control at Project Start-Up:** Very significant effort has to be devoted at Project start-up to establish a full baseline including breakdown structure, together with efficient data generation, flow, exchange protocols and compilation with the aim to minimize later data crunching efforts and leave sufficient time to analysis.

4. **Maintenance of a consistent and comprehensive Project Model:** Project Control Manager is responsible for the maintenance of a consistent Project Model describing accurately the Actual situation together with a full Forecast reflecting the latest knowledge of the Project Team.

5. **Candid Reflection of Reality:** The Project Model must reflect candidly the reality of the Project progress status and associated re-forecast, however difficult or annoying this reality could be.

6. **Immediacy principle:** It is essential to reflect in the Project Model significant new variances as soon as their occurrence is known (e.g. internal or Client's instruction to proceed), at least in terms of order of magnitude, even if their exact final value has not been fully assessed.

7. **Keep space for Forecasting activities:** successful Project Control minimizes actual data gathering and crunching, and leaves sufficient time to forecasting activities.

8. **Weak Signals and Consequential impacts identification:** as part of its consistency assurance role, the Project Control Manager's key role is to keep abreast of Weak Signals and to detect possible consequential impacts of changes or variances and needs to ensure that they are understood and communicated.

9. **Maintain effective Management of Change and External Interface Management:** those two transverse processes are essential in maintaining control of the Project and the Project Control Manager must ensure that they work effectively, with the appropriate interfaces with the rest of the Project.

10. **Monitor Project team effectiveness and health:** effective teamwork is a prerequisite for Project success. Making sure the Project team demonstrates at all times proper alignment and effectiveness is essential. When needed, the Project Control Manager should foster focused workshops to ensure alignment and commitment.

11. **Challenge data with respect to Reality and implement independent data-check and Project reviews:** always challenge reported data by ensuring an independent check program including visits to sites and independent audits and measures. This should also include external reviews and peer reviews.

12. **Develop relevant Key Indicators and visual dashboards:** constantly develop, update and renew a limited set of both long term and short term indicators to measure performance and inform Project decisions. One of the best ways to foster team alignment is to produce and update visual dashboards posted on the workplace that include relevant key indicators.

13. **Develop and implement a Main Contract strategy:** from a few months into the Project, the Project team should be able to verbalize a clear Main Contract execution strategy, taking into account cultural aspects, and demonstrate that it is subsequently consistently implemented.

14. **Develop and implement a Project Close-Out process from Project start-up onwards:** to ensure effective close-out, a specific process needs to be implemented throughout the Project, from the start-up onwards.

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