Lessons Learned From Implementing Global Project Control
Dale Shermon, QinetiQ Fellow / Head of Planning, Monitoring and Controls

Abstract

Project Controls encapsulates the disciplines of scheduling, cost estimating, risk management, earned value management, reporting and monitoring. While the focus of the Project Manager (PM) is the delivery and execution of a successful project, the role of the Project Controller (PC) is to provide the analytical information necessary to enable the PM to achieve this. While the PM is analogous to the pilot of an aircraft, the PC is the navigator!

This paper will review the challenges of a global Project Controls change program. To enable your Project Control capability to mature, this paper will explain the steps required to transform the necessary data, tools, people and processes. It will draw on lessons learnt from a global change program. It will explore the best practices adopted and the ways of working, with examples and case studies.

In a healthy organisation there needs to be a balance of PM experience and PC analysis across your projects. This paper will review the practical application of Project Controls across an organisation, considering all the disciplines as a means of ensuring projects succeed.

This paper is based upon our experience utilising lessons learnt, this paper will guide your thoughts and help you to accelerate your own change programs.

Keywords: Project Controls, scheduling, risk management, EVM, cost estimating.

Introduction

This paper will consider how Project Controls are being enhanced globally within QinetiQ as the company expands and its international reach grows. This paper will describe the challenges of a global Project Controls change program and explain the steps required to transform the necessary data, tools, people and processes across an international landscape. It will draw upon lessons learnt from a global change program and explore some best practices adopted and the ways of working. The objective is for this paper to help you guide your thoughts and accelerate your change program.

QinetiQ was formed in July 2001, when the UK Ministry of Defence (MOD) split its Defence Evaluation and Research Agency (DERA) in two. The smaller portion of DERA was rebranded...
Dstl (Defence Science & Technology Laboratory) and this remains part of the MOD. The larger part of DERA, including most of the non-nuclear testing and evaluation establishments, was renamed QinetiQ and prepared for privatisation. QinetiQ became a public private partnership in 2002 [1].

As a people-based business, our service offerings account for the majority of sales. In addition our product teams provide technology-based solutions on a global basis including offices in USA, Australia and Canada. Through their technical expertise, know-how and rigorous independent thinking, our engineers and scientists are uniquely placed to help customers meet the challenges that define the modern world. These challenges include affordability and seeking value for money (VfM).

Planning, monitoring and controls

As the Head of Planning, Monitoring and Controls (PM&C) I employ a team of subject matter experts (SME) who provide advice global regarding Project Control, Risk Management, Cost Estimating, Scheduling and earned value management (EVM) capabilities internally for QinetiQ, as shown in Figure 1. The team excel in their specialist fields, they are thought leaders and industry experts.

![Planning, monitoring and controls](image)

We are the partners for our QinetiQ Business Units and Group Functions (such as Property, IT, Security), helping their staff through effective data architectures, state-of-the-art tools, upskilling their people and industry best practice processes. We have a very simple mission: For QinetiQ to deliver world-class Project Management; to match our world-class science and technology.
Project Manager versus Project Controls

A frequent question from our early careers intake is ‘what is the difference between Project Management and Project Controls?’ There are a number of reference that the Association for Project Management (APM) provide, but in essence, Project Managers are accountable for leading the project, and delivering the project successfully through effective Team and Customer Management, including achieving Follow-on Sales. The Project Controllers are responsible for understanding and tracking variance to plan, looking forward to ensure future plans are on track (risks, constraints, dependencies etc.) and that future tasks have allocated resource, document control, invoicing, assurance of relevant process and so forth.

As an analogy from our Empire Test Pilots’ Schools (ETPS) while the Project Manager is the pilot; the Project Control staff are the navigator in an aircraft.

To guide and assure the technical quality of QinetiQ’s output we deploy our Technical Excellence team, see Figure 2, and to guide and assure the project delivery, a complementary team called Performance Excellence is headed by the Group Director for Project and Programme Management. These two teams work in collaboration to maintain our world class reputation.

Figure 2: Two sides of the same project

The Performance Excellence vision is implemented by a top level organizational structure under the Director of Project and Programme Management with three legs of equal standing:

1. Head of Project Management – to provide project leadership and client interface, including Capability Management;
2. Head of Planning, Monitoring and Controls (PM&C) – to provide planning, monitoring and reporting;
3. Head of Governance – to provide assurance of adherence to the procedures and tools.

The Challenge

QinetiQ has had four years of sustained growth, with a positive outlook for the future. The business is growing globally; both organically and though acquisitions, mergers and joint ventures. QinetiQ is recognised as world-leaders in science and engineering, our challenge is to enhance QinetiQ’s capability globally in Project and Programme Management. We are rising to this challenge by collaborating with our colleagues in the Business Units and Group Functions to raise the profile of professional Project Management; both externally and internally. This is leading to the enhancement of our project management maturity globally across data, tools, people and process to enable QinetiQ:

- To be able to deliver more complex projects globally;
- Evolve our Project Management approach for a global organisation;
- Refine our Project Management execution globally following the ‘One QinetiQ Way’ (see Figure 3);
- Support business growth targets (without increasing the size of the PM&C by the same ratio) through global team collaboration;
- Ensure consistent and predictable outcomes globally; reduction in interventions and the need to micro-manage;
- Standardised global training; easier to on-board project professionals;
- Embed a culture of continuous process improvement globally;
- Enhance the relationship with global strategic Customers and Partners.

![Figure 3; One QinetiQ way – QinetiQ Business units working as a team of teams](Presented for the ICEAA 2021 Online Workshop - www.iceaaonline.com)

The Strategy

Our Vision is a ‘global project management capability that delivers predictable business performance and outcomes for all our stakeholders’. This is going to be enacted through our
Mission which is to ‘enable the business units and functions by providing a connected professional project and programme management capability’.

Key to our ‘One QinetiQ way’ is a uniform QinetiQ Lifecycle Framework (QLF). This is our governance framework of Decision Points (DP) that punctuate the project with assurance opportunities. The start is DP0 which initiates our business-winning activities with a proposal to establish the basis of the work to be completed. A robust scope, realistic schedule, justified resources and well-understood risks are critical. Here we are testing our confidence of our capacity to deliver, our technical experience, and the commercial model within the overall programme context.

By DP3 we enter into the execution and delivery activities. At this point we are seeking leadership of the team, managing all stakeholders’ engagement resulting in the realization of project benefits. Here we are testing timely review of scope changes, schedule slippage, resource growth and risk events; tracked, acted upon and communicated.

Our final stage is Knowledge Management which is good practice to learn as QinetiQ grows. Here we are using corporate memory of work completed, successful projects, cost, schedule and lessons learnt. Using templates and metrics to gather data which is periodically analyses for trend to influence our extant processes, instruction and tools. The aim is to strengthen through-life assurance from the perspective of both technical and delivery.

Underpinning this QLF are a number of foundations, as shown in Figure 4, and described in the subsections below.

**Figure 4: PM&C foundations**

<table>
<thead>
<tr>
<th>People</th>
<th>Tools</th>
<th>Data</th>
<th>Process</th>
</tr>
</thead>
</table>

**Data** is defined as information including schedules, resources, project progress, change requests, risk and so forth, for our projects on contract, whilst also extending to information in relation to the programme characteristics of past projects or services we have delivered. Our
data-driven Project Controls are shown at high level in Figure 5. This information needs to be easily accessible and structured which is why we adopt tools.

Figure 5: An example of Data-driven Project Controls

The PM&C team strategy is to:

- Establish the As-Is, and design the To-be, enterprise data architectures for project schedule, cost and progress data with our Data & Digital Transformation (D&DT) team. This strategy will ensure a single source of truth for all project and support the integration of tools.
- Oversee the To-Be data architecture with Proof of Concept(s) to demonstrate the new data architecture. This strategy will assist in the adoption of systems by the functions and business units. Utilising QinetiQ project data will support business adoption beyond the standard sales demonstrations.
- Manage Feedback and Lessons learned to close the loop. This strategy will ensure our systems and artefacts are subjected to continuous improvement through an analysis of LFE data.

**Tools** are defined as the software systems that can help the Project Management Office (PMO) to manage current project data, such as Risk Management, Scheduling, Cost Estimating, Change Control and Earned Value Management (EVM) tools that can be used to monitor the performance of our projects and any deviations from their baseline. These tools need competent staff to convert the data into meaningful information.

The aim of our Global PM System (GPMS) strategy is to initiate, justify and support the acquisition of systems necessary to deliver data driven Project Controls. It identifies tool agnostic capabilities, based upon industry best practice, these include:
• Integrate P3M reporting capability
• Decision Point capability
• Cost Estimating capability
• Risk Management capability
• Resourced Scheduling capability
• Lesson learnt repository capability
• Schedule assurance capability
• Earned value management capability

The PM&C team strategy is to:

• Implement the Global PM Systems (GPMS) strategy document that has been agreed. This strategy will determine the capability of the system required, the commercial off the shelf (COTS) options and their down selection.
• Generate and seek approval of a business case for all GPMS. This strategy will be supported by Data & Digital Transformation (D&DT) to acquire a portfolio of capabilities building on the benefits evidence from a Proof of Concepts, see Figure 6.
• Acquire COTS solutions and support global rollout of all GPMS capabilities. Global training and User Groups established. This strategy will tailor industry standard project tools rather than cutting code.

Our people are recognised as being needed to interpret project data and anticipate the need for opportunity realisation or make decisions on appropriate risk drawdown. They are Suitably Qualified and Experienced Professionals (SQEP) in the project disciplines with the ability and skills to elicit the progress data from finance and project staff. Our project professionals are skilled at tailoring and interpreting our processes for suitability to their current and future projects.

A stakeholder analysis identified over fifty stakeholders for us to engage and influence. Therefore a number of global Working Groups (WG) were established to provide a means for the Business Units and Group Functions to interact, see Figure 7.

The PM&C team strategy is to:

• Conduct a training needs analysis (TNA) to establish the skills our people have and what they need to acquire. This strategy will provide an understanding of what training staff have received against the training required thus providing an annual training budget.
• Establish upskilling activities to support the PM community, such as training, learning cohorts, mentoring and coaching available to support PM community. This strategy will provide Continuous Personal Development (CPD) opportunities for our project professionals.
Establish effective communications with our PM professionals through a Newsletter, Lunch & Learn sessions, PM conferences, Master Classes, Roadshows and intranet Community sites. This strategy will improve the cohesion of the Project professional community.

Finally, **processes** are necessary so that that our project management professionals – across the globe – can conduct planning, monitoring and controls in a rational, repeatable way, ensuring that our projects’ progress is traceable to a project baseline. Details of how to conduct Change Control, Risk Management, Scheduling, EVM and so forth are all necessary. The application of project assurance provides confidence to the business sponsors that the processes are being suitability applied.

Our staff globally have access to an Operating Framework (OF) which is the authoritative source of processes and instructions for everything we do in QinetiQ. When a stocktake was conducted more than 150 artefacts or topics were identified as being required for our project management community, a significant list of deliverables for any project.

The PM&C team strategy is to:

- Maintain a Stocktake of the Operating Framework, Global Working Groups for artefact agreement, approval and Assurance. Governance process in place to assure business as usual (BAU) implementation. This strategy will consolidate the guidance in the Business Units and Group Functions and create a single set of global procedures.
- Establish Special Interest Groups (SIG) for horizon scanning and future research of project delivery with focus beyond QinetiQ’s own Lessons Learned data, see Figure 12. This strategy will inject innovation and new ideas into the BAU ways of working.
- Coordinate and align our approaches across cost, schedule, risk and EVM with Business Winning and PM. This strategy will assure the functional procedures are properly interfaced without duplication or omissions.

**Lessons learnt**

Building a GPMS is a real challenge, but we have been support by our Data & Digital Transformation (D&DT) team. Central to a data driven Project Controls capability is a single source of truth from which project data can be extracted, but this causes dependencies as shown in Figure 6.
Figure 6: System dependencies for the Global PM Systems

We learnt to ‘win the hearts and minds’ of our Business Units and Group Functions through the development and use of a Proof of Concept. This also enabled us to measure the tangible and intangible benefits for these systems for our business case and gave us the opportunity to establish the data architecture which would be required for the global deployment of our GPMS capabilities.

When considering the large number of artefacts that were required, it would have been easy to adopt a dictatorial approach, written them centrally and then mandating their adoption. The issue with this approach is the adoption, if the Business Units and Group Functions are not part of the process of generating the artefacts, they have no ‘skin in the game’. We have therefore learnt to seek volunteers from the Business Units and Group Functions to work in our working groups, see Figure 7. These agree the content of the artefacts and are chaired by the Performance Excellence team. The artefacts are socialised within the Project Management offices (PMO) and Heads of PMO before being offered for ‘rubber stamp’ approval. This is a slower method of artefact generation, but we have learnt that this time is a wise investment, as the subsequent adopting and implementation is smoother.

Figure 7: Global working groups

International Cost Estimating and Analysis Association (ICEAA) 2021
Virtual workshop, 17th to 20th May 2021
UNCLASSIFIED
QinetiQ Proprietary
The WGs draft artefacts for the Operating Framework in a quarterly cycle when the publication window opens to receive new or modified documents. This provides a regular drumbeat of activity, see Figure 8, between the PM&C WG and the Functional WGs. This helps the Business Units and Group Functions to plan their participation in this process, which they manage between their normal duties.

![Figure 8: Global publication drumbeat](image)

The operating framework has a defined hierarchy from policy down to forms and templates, as shown in Figure 9, these are mandated globally across the company and written as principles which means that they can be implemented, regardless of the maturity of the PM systems available.

![Figure 9: Global artefacts](image)

As the working groups have matured and published artefacts on the Operating Framework, the need for new artefacts have emerged. To track and effectively communicate the artefacts being drafted in the working groups, a document tree (Figure 10) has been deployed with a key...
indicating the status of the artefacts and quarter when they are likely to be published. We have learnt that multiple topics in the stocktake are often merged into a single artefact when they are written. Also, that the WGs are more ambitious than is practical and artefact can slip into the next quarter for publication.

Figure 10: Example, artefacts

Lessons were learnt early in our change programme that implementation was important. It’s not enough to write global artefacts and assume that the company will obey. The WG structure was designed to gain approval of the artefacts drafted, agreed, then raised with the PM&C WG for the Heads of the PMOs and Functions to approve, see Figure 11. This approval was only granted if appropriate communication and training material was included to enable them to plan their adoption and implementation.

Figure 11: Gaining global approval

Finally, we have learnt the need for both Special Interest Group (SIG) and lessons learnt, see Figure 12. Our project managers conduct periodic reviews of the projects for which they are accountable. These project reviews include lessons learnt exercises to capture the positive and
negative aspects of the project as it progresses. These lessons are periodically assessed to establish trends to enable our training, artefacts and communication to be modified, thus embedding QinetiQ good practices into our business as usual culture.

However, we also want to learn from outside of QinetiQ. This is the role of our SIGs. Our SIGs are tasked with bringing best practice into the company from outside. They seek new ideas, innovation and research which can be adopted and become business as usual.

![Diagram of Decision Point and Lesson Learned](image)

**Figure 12: Lessons learnt and Special Interest Groups**

**Summary**

This paper has examined planning, monitoring and controls encapsulating the disciplines of Project Controls, Scheduling, Cost Estimating, Risk Management, Earned Value Management (EVM), reporting and monitoring. It has reflected on the role of the Project Manager (PM) in delivering and executing a successful project and the role of Project Controller (PC) in provide the analytical information necessary.

This paper reviewed the challenges of a global Project Controls change program and proposed some steps required to transform data, tools, people and processes. It has drawn on some lessons learnt from our global change programme to enable you to accelerate your experience.
References

[1.] www.QinetiQ.com

[2.] www.APM.org.uk