Abstract

• Project Controls encapsulates the disciplines of scheduling, cost estimating, risk management, earned value management (EVM), reporting and monitoring. While the focus of the Project Manager (PM) is the delivery and execution of a successful project, the role of 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 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 with a two year window. It will explore the best practices adopted and the ways of working with examples and case studies.

• In a health organisation there needs to be a balance of PM experience and PC analysis across your projects. This paper will progress to 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 accelerate your change program and guide your thoughts.
Lessons learned from implementing global Project Controls

Dale Shermon – QinetiQ Fellow
Head of Planning Monitoring and Control

Virtual ICEAA Workshop
17 to 20 May 2021
QINETIQ/EMEA/EO/PUB210327
• UK and Europe regional Director for International Cost Estimating and Analysis Association (ICEAA). ICEAA Certified Cost Estimator / Analyst with the Parametric Specialism (CCEA-P)

• Chartered Engineer with Institution of Engineering and Technology (IET), BA Degree in Technology, Open University, ACCA Diploma in Accounting and Finance (C Dip (A&F))

• Ex-chairman and member of the board of the Society for Cost Analysis and Forecasting (SCAF)

• Council member and Fellow of the Association of Cost Engineers (FACostE)

• Fellow of Association for Project Management (FAPM)


• He was the first European to be awarded the ICEAA Frank Freiman award in 2009 for ‘lifetime contributions to parametric estimating’.

Dale Shermon – QinetiQ Fellow
Head of Planning, Monitoring and Control

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Presented for the ICEAA 2021 Online Workshop - www.iceaaonline.com
5 fundamental mobile phone technologies including Touch Screen and Liquid Crystal Displays (LCD) developed by QinetiQ experts.

12 Empire Test Pilot School students have become astronauts including Major Tim Peake.

85+ locations worldwide

1,300+ patents (including 300+ pending)

Every 3 seconds a Boeing aircraft takes off or lands that has been tested in QinetiQ’s low speed Wind Tunnel.

We are QinetiQ

£833m FY2018 revenue

6,000+ people with unique science and engineering expertise

1,850km of the TARAP pipeline will be protected by OptaSense®.

40 organisations, including the Royal Navy involved in 6 weeks of operations during the Unmanned Warrior Exercise.

40+ unmanned vehicles operating in the air, land and sea.
Agenda

1 Planning, Monitoring and Controls?
2 Project Management versus Project Controls
3 The Challenges
4 The Strategy
5 Lesson learnt
6 Summary
7 Q&A

Presentation Objectives:
• enlighten you regarding the challenges of a Global Project Controls change program;
• draw on lessons learnt from a global change program;
• help you to accelerate your change program and guide your thoughts.
1. Planning, Monitoring and Controls?
Who are we?

- Planning, Monitoring and Controls (PM&C) is the global advisor of Project Control, Risk Management, Cost Estimating, Scheduling and EVM capabilities internally for QinetiQ.

- We are the partner for our QinetiQ Business Units and Group Functions (Property, IT, Security), helping their staff through effective data architectures, state-of-the-art tools, upskilling their people and industry best practice processes.

- Our mission:

  For QinetiQ to deliver **world-class** Project Management; to match our **world-class** science and technology.
Planning, Monitoring and Controls

- Risk Management
- Earned Value
- Document control
- Reporting and Monitoring
- Scheduling
- Cost Estimating
- Supplier Performance review
2. Project Management versus Project Controls
Project Management versus Project Control
(According to our Empire Test Pilot School)

• **Project Managers** are accountable for leading the project, and delivering the project success criteria through effective Team and Customer Management, including achieving Follow on Sales.

• **Project Controllers** are responsible for understanding and tracking variance to plan, looking forward and ensure future plans are on track (risks, constraints, dependencies etc). Ensure future tasks have allocated resource. Document control, Invoicing, assurance of relevant process etc.
Two side of the same!

- **Performance Excellence**: our role is to develop efficient and effective processes, systems, assurance and people who have the capability to enable the business winning and business delivery teams to meet our customers’ needs and improve business performance throughout the business lifecycle.

  equally

- **Technical Excellence**: supports innovation and growth through an uncompromising commitment to excellence in the way we work. We seek to achieve a step change in the effectiveness and maturity of technical capability across the group, assuring right first time delivery, safely, securely, and sustainably.
3. The Challenge
The Challenge

- QinetiQ has had **four years of sustained growth**, with a positive outlook for the future. The business is growing globally 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 & Programme Management.

- We are acting together to raise the Project professional profile; both externally and internally. **Enhancing our maturity** globally across data, tools, people and process.
The Challenge

• 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’

• Support business growth targets (without increasing 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
4. The Strategy
Vision and Mission

VISION
A global project management capability that delivers predictable business performance and outcomes for all our stakeholders.

MISSION
Enable the business units and functions by providing a connected professional project and programme management capability.
Our Approach: Project life cycle

Proposals

Establishing the basis of the work to be completed. Robust scope, realistic schedule, justified resources and understood risks. Confidence of our capacity to deliver, technical experience, commercial model and overall programme context.

Knowledge Management

Corporate memory of work completed, successful projects, cost, schedule and lessons learnt. Templates and metrics for new work with access for those who need it, and shared where appropriate to support lessons learned activities.

Execution

Leadership of the team, managing all stakeholders engagement resulting in the realization of project benefits. Timely review of scope changes, schedule slippage, resource growth and risk events. Tracked, acted upon and communicated.
Our Approach: Underpinning philosophy

Data
Historical and current information easily accessible and structured. Single source of truth.

People
SQEP staff able to interpret and analyse data through tools for company benefit

Tools
Enterprise enabled capability to enable access to programmes and portfolio

Process
Robust standard processes repeatedly Globally applied throughout the company
Our Approach: Governance and Assurance wrapper

Governance and Assurance
Providing all stakeholders with confidence that the projects are adhering to the Operating Framework.
## Overall Strategy

### Data
- As-Is and To-be enterprise **data architectures** for project schedule, cost and progress data
- Implement Model-Office with **Proof of Concept** to demonstrate data architecture
- Feedback and **Lessons learned** to close the loop

### Tools
- **Global PM Systems** (GPMS) strategy document agreed and implemented. Determine capability COTS system options and down selection.
- Generate and seek approval of IOC+ and FOC **business case** for all GPMS capabilities.
- Acquire **COTS solutions** and support DT/IT **global rollout** of all GPMS capabilities. Global training and User Groups established.

### People
- Establish **skills required** in PM&C, Capability WG to determine Training Needs Analysis (TNA)
- **Upskilling** established through training, learning cohorts, mentoring and coaching available to support PM&C community.
- Effective **communication** with PM&C professional through Newsletter, lunch & learn, conferences, roadshows and community sites.

### Process
- Stocktake of Operating Framework, Global **Working Groups** for artefact agreement, approval and Assurance. Governance process in place to assure BAU implementation.
- **Special Interest Groups** for horizon scanning and future research with focus on lessons learned data.
- Coordination and **alignment** across cost, schedule, risk and EVM with Business Winning and PM. P3M maturity assessment.
Data-driven Project Controls

- **P3M toolset**
- **EVMS**
- **Web based Dashboard**
- **P3M toolset**
- **SAP Business Intelligence**
- **PPM Server**
- **Gold pack**
- **Risk Data**
- **Price**
- **Resource demand**
- **Actual labour (hours)**
- **Labour and facilities rates**
- **Actual non-labour (costs)**

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The aim of this strategy is to initiate, justify and support the acquisition of systems necessary to deliver the Project Management elements of our strategy.

The strategy identified the stakeholder and establish the current and future threats to our business delivery.

It identifies tool agnostic capabilities, based upon industry best practice, required to combat the perceived threats:

- 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
Fab newsletter, very informative, thanks very much

Xxx – Senior Programme Manager

This is a great initiative! I think it’s really useful to publicise the detailed work that’s going on in the background (and we had, for example, an excellent debate at this morning’s Scheduling WG).

Xxx – Senior Project Manager

This is great thank you. I’m interested to see the mentoring within the PM community going forward. Great to see an Early Careers intake.

Xxx – Assistant Project Manager
### Community – Lunch & Learn and guest speakers

<table>
<thead>
<tr>
<th>Date</th>
<th>Speaker</th>
<th>Topic</th>
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<tr>
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<td>A D Millington</td>
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<td>A Thorp</td>
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<td>19/11/2020</td>
<td>J Willis</td>
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<td>17/12/2020</td>
<td>S Teal</td>
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<td>11/03/2021</td>
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Process - Stakeholders

- 50+ stakeholders
- Chairs (C) identified
  - Working Groups (WG)
  - Special Interest Groups (SIG)
- Global reach
- All businesses
- IT, Security, Property and Procurement functions
**Process – Stocktake**

- 165+ artefacts
- Leadership (L) identified
- Contributors (x) identified
- Existing Operating Framework identified
- Business PMO artefact prioritised
5. Lessons learnt
Tool Dependencies

GPE Proof of Concept UK REST

GPMS IOC

Migration of UK projects to FOC

Full Operating Capability (FOC) Business Case

Lessons Learnt Repository (MIS)

Decision Point repository (MIS)

Schedule Integrity (TBD)

Scheduling (TBD)

Cost Estimating (TBD)

EVM (TBD)

EVM (Perf. Mgt.)

Reporting (TBD)

Risk Management (TBD)

Global ERP (TBD)

Pricing (Gold-pack)

Resource Management (EpicFlow)

Global deployment on D&D architecture

Cost Estimating (ARES)

Reporting (TPG)

EVM (Cobra)

EVM (Perf. Mgmt.)

ERP (SAP ECC)

Scheduling (PPM2016)

Risk Management (Predict)
Democracy versus Dictator

Assure
- Governance Working Group
- Capability Working Group
- Project Management Working Group

Approve
- (10 days)
  - Artefacts Working Group
  - Lifecycle Working Group
  - Reviews & Reporting Working Group
  - Project Management Working Group

Agree
- (3 months)
  - Special Interest Groups
- Functional Performance Review with Global Leadership Team
- Project Management Council
- Planning, Monitoring and Control WG
- Project Control Working Group
- Risk Management Working Group
- Cost Estimating Working Group
- EVM Working Group
- Schedule Working Group

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Artefacts publication drumbeat

PM&C approval of artefacts with training and communications

Review of PM&C artefact stocktake, prioritisation for publication in the next cycle

Draft artefact storyboarding; WG meeting, core principles, inputs, dependencies, outputs

Functional WG review and approval of storyboard

Draft artefact narrative, review and comment

Global Operating Framework Publication and communications
Central Global repository

**POLICY**
“Defines the objectives and direction for project and programme management, that enables and implementation of the strategy “

**GROUP PROCEDURE**
“Defines a specified way to carry out an activity or process (with defined inputs and outputs) that must be followed to correctly deliver an outcome”

**WORK INSTRUCTION**
“Details how a specific activity (maybe specialised in nature and/or specific to a work area) should be undertaken, with tasks often written in a sequential order/step format”

**GUIDANCE**
“Provides assistance and guidance in understanding or carrying out an activity.”

**FORM / TEMPLATE**
“Designated content that enables information on a work activity to be communicated or recorded - reference to the above content categories, from which the Form/Template has been invoked, should be included”

---

**Key**
- Live on the OF / Wiki
- Approved by PM&C WG
- Agreed by WG
- Drafted
- Planned for this cycle

1 of 8 – Aug 2020
2 of 8 – Nov 2020
3 of 8 – Feb 2021
4 of 8 – May 2021
5 of 8 – Aug 2021
6 of 8 – Nov 2021

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3.2 Cost Estimating Documents

- **Financial Modelling**
  - End-to-end development of QCRA inputs to bids with inputs from estimating, risk and finance modelling.

- **Reporting Procedure**
  - Routine CE reporting requirements & how-to inputs.

- **Parametric Cost Model Generation**
  - Creation of parametric cost models from first principles.

- **Cost Estimating Procedure**
  - Establishing the labour and non-labour resources necessary for successful project delivery.

- **Change Management Procedure**
  - Linked to risk & schedule management procedure.

- **Scheduling Procedure**
  - Establishing the dependency of Activities and timeline for projects.

- **Integrated Baseline Review (IBR)**
  - Establishment of Projects

---

### Policy

- **DP0-2 Process**
  - **DP0-1**
  - **DP1-2**
  - **DP2-3**
- **Cost Estimating Process**

### Estimate Requirements

- **Estimating Maturity Model**

### Estimate Data

- **Estimating Methods**
  - 1PE template
  - 3PE template
  - EDP template
  - Delphi template
  - Ares Prism Guide
  - TruePlanning Guide
- **Basis of Estimate Capture**
  - CER relationships
  - Parametric Model for Acquisition
  - Estimate Scaling Tool
- **Estimating Analysis**
  - DP0-1
- **Estimating Assurance**
  - CE Review Checksheet
  - 1PE worked example
  - 3PE worked example
  - EDP worked example
  - Estimate certificate

### Additional Reference

- Guide to QDCs
- 3PE and Allowable Costs
- QCRA – How to guide

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**Key**
- Live on the OF / Wiki
- Approved by PM&C WG
- Drafted
- Not yet started
- Planned for this cycle

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Artefacts approval process

Artefact Links:

- [Project Controls Procedure PMD/PRD/1083/2.1](#)

Artefact Objective

This Group Procedure covers the whole of the project lifecycle and applies globally to all Businesses and Functions including IT, Property, Security & Procurement and others nominated to deliver or assure Project Controls, and is a reference document for other company staff regarding Project Controls activities.

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<th>Notes</th>
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<td>Finalised</td>
<td>Nil required, there is no change to the existing PC activities, linking to other Functional WG artefacts or existing Operating Framework artefacts.</td>
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<td>Has necessary communication been prepared?</td>
<td>Finalised</td>
<td>Dissemination through the PMO and Newsletter</td>
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Special Interest Groups (SIG)

Periodic analysis of lessons to establish trend. Amendment of training, artefacts and communication to reinforce best practice and reduce poor project performance.

Special Interest Group:
- Research
- Innovation
- New trends
- Competitor best practice

Lesson learned

Decision Point

Continuous improvement

Project review
6. Summary
Summary

• This presentation has briefly examined Planning, Monitoring and Controls (PM&C) 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 to enable the PM to achieve this.

• This presentation reviewed the challenges of a Project Controls global change program and proposed some steps required to transform data, tools, people and processes.

• 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.
Any questions?

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