

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.

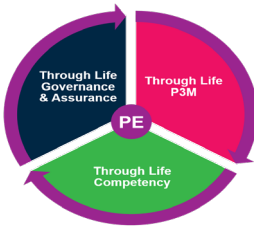
Lessons learned from implementing Project Management in a global enterprise

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Head of P3M Professionalism

SCE2022 Workshop, ESA/ESTEC, The Netherlands

15 to 16 Sept 2022

QINETIQ/EMEA/EO/PUB220805



Mission: to deliver world-class Project Management; to match our world-class science and technology.

Dale Sherman

- QinetiQ Fellow | Group Head of P3M Professionalism
- BA Degree in Technology, Open University
- Chartered Engineer with Institution of Engineering and Technology (IET)
- ACCA Diploma in Accounting and Finance (C Dip (A&F))
- ICEAA Certified Cost Estimator / Analyst with the Parametric Specialism (CCEA-P)
- Ex-Chairman (7 years) 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)
- UK and Europe regional Director, life member of International Cost Estimating and Analysis Association (ICEAA) and recipient of the Frank Freiman award
- Fellow of Association of Project Managers (FAPM)
- Co-author of the 'Association for Project Management (APM) Body of Knowledge (BoK) issue 7'
- Co-author of "Cost Engineering Health Check: How good are those numbers?", 2017, ISBN: 978-1-4724-8407-9
- Contributor to "Aspects of Complexity: Managing Projects in a Complex World", as author of Chapter six "The Impact of Complexity on Project Cost and Schedule Estimates", 2011, ISBN: 978-1-935589-30-3
- Editor and major contributor of "Systems Cost Engineering", July 2009. ISBN: 978-0-566-08861-2

5

5 fundamental mobile phone technologies including Touch Screen and Liquid Crystal Displays (LCD) developed by QinetiQ experts

40

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

50+

including 50+ unmanned vehicles operating in the air, land and sea

12

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

3secs



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

85+

locations worldwide

1,300+

patents (including 300+ pending)

We are QinetiQ

£1,278m

FY2021 revenue

7,000+

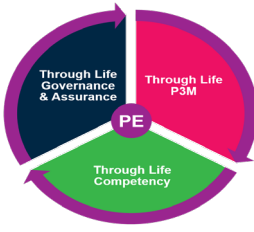
People with unique science and engineering expertise

1,850km

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

16

Our Ocean Basin in Gosport, UK contains enough water to fill 16 Olympic swimming pools



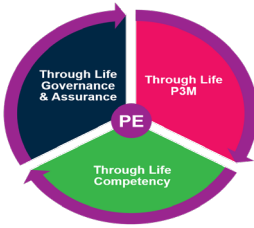
Agenda

-
- 1 Performance Excellence?
 - 2 Project Management versus Project Controls
 - 3 The Challenges
 - 4 The Strategy
 - 5 Lesson learnt
 - 6 Summary
 - 7 Q&A
-

Presentation Objectives:

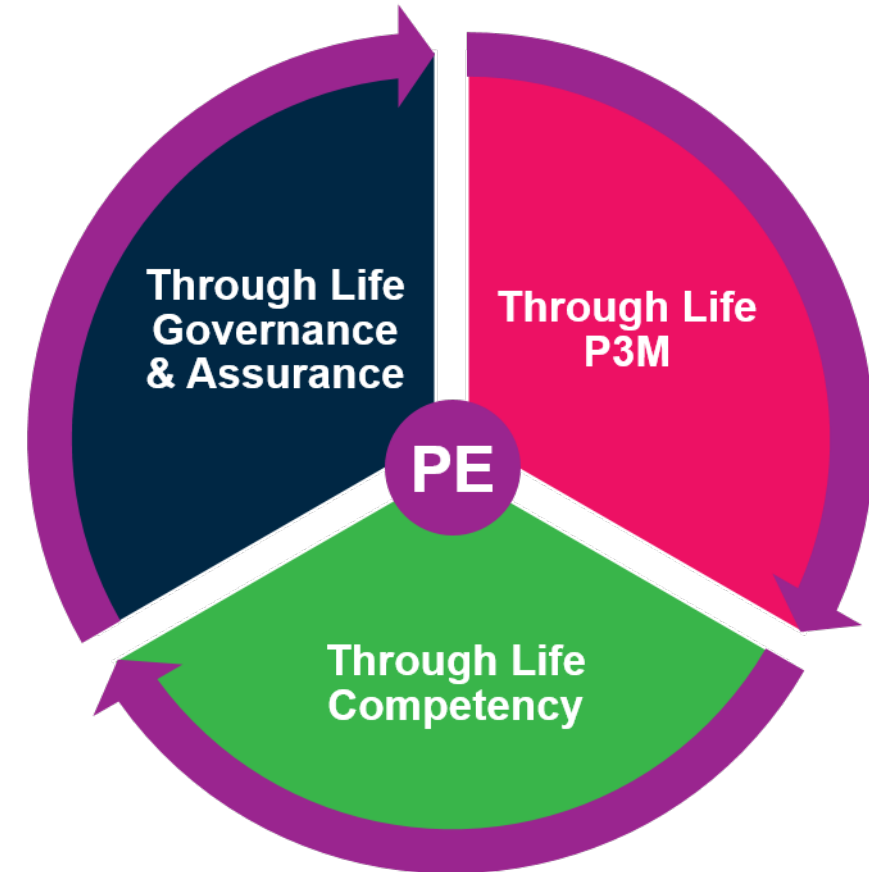
- enlighten you regarding the challenges of a Global Project Controls change program;
- draw on lessons learnt from a global change program;
- help you to accelerate your change program and guide your thoughts.

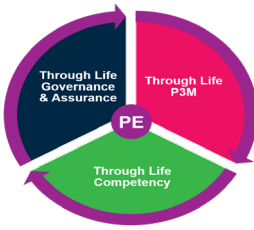
1. Performance Excellence?



Who are we?

- Group Performance Excellence (Grp PE) is the global advisor of:
 - **Through Life P3M** – the tools, procedure and standards for Portfolio, Programme and Project Management (P3M)
 - **Through Life Competency** – the P3M Competency Framework & Career pathway and the P3M License to Operate
 - **Through Life Governance & Assurance** – the Project Lifecycle Framework (PLF) of Decision Points or Gate to assure the P3M community is going to deliver their Benefits.
- We are the partner for our QinetiQ Sectors and Group Functions (Property, IT, Security), helping their staff through effective Communications, state-of-the-art COTS tools, upskilling their people and delivering industry best practice processes.



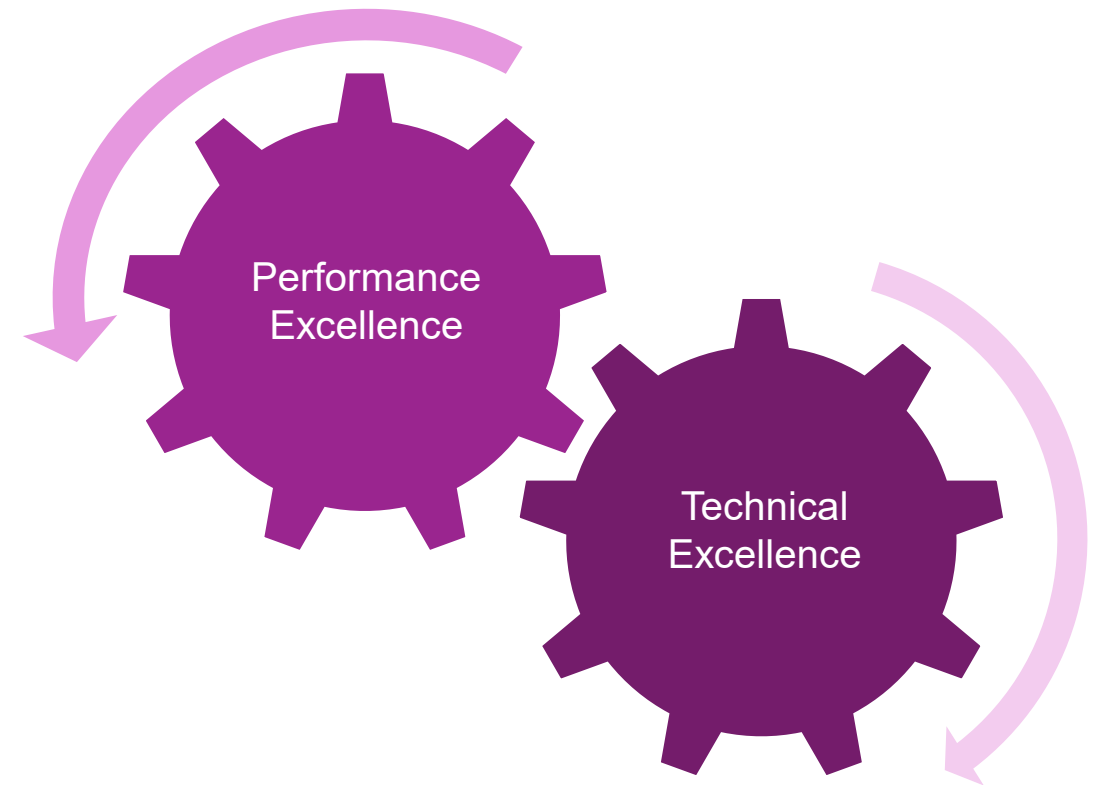


Two sides of the same project!

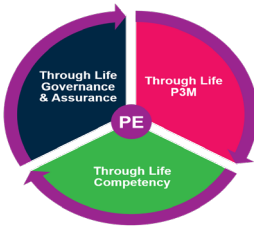
- **Performance Excellence:** our role is to develop efficient and effective processes, systems, assurance and people who have the **delivery capability** to enable the business winning and business delivery teams to meet our customers' needs and improve business performance throughout the business lifecycle.

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.

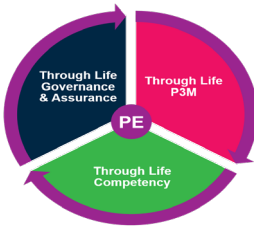


2. Project Management versus Project Controls



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.

**Project Manager
act as the
Pilot of an
aircraft**

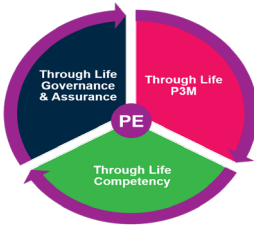


Source: www.yahoo.com/entertainment/

**Project Controller
act as the
Navigators of an
aircraft**



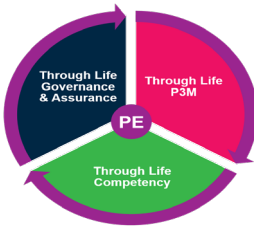
3. The Challenge



The Challenge

- QinetiQ has had **five years of sustained growth**, with a positive outlook for the future. The business is growing globally organically and through acquisitions & mergers.
- QinetiQ is recognised as world-leaders in science and engineering, **our challenge** is to enhance QinetiQ's capability globally in Portfolio, Programme and Project 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.

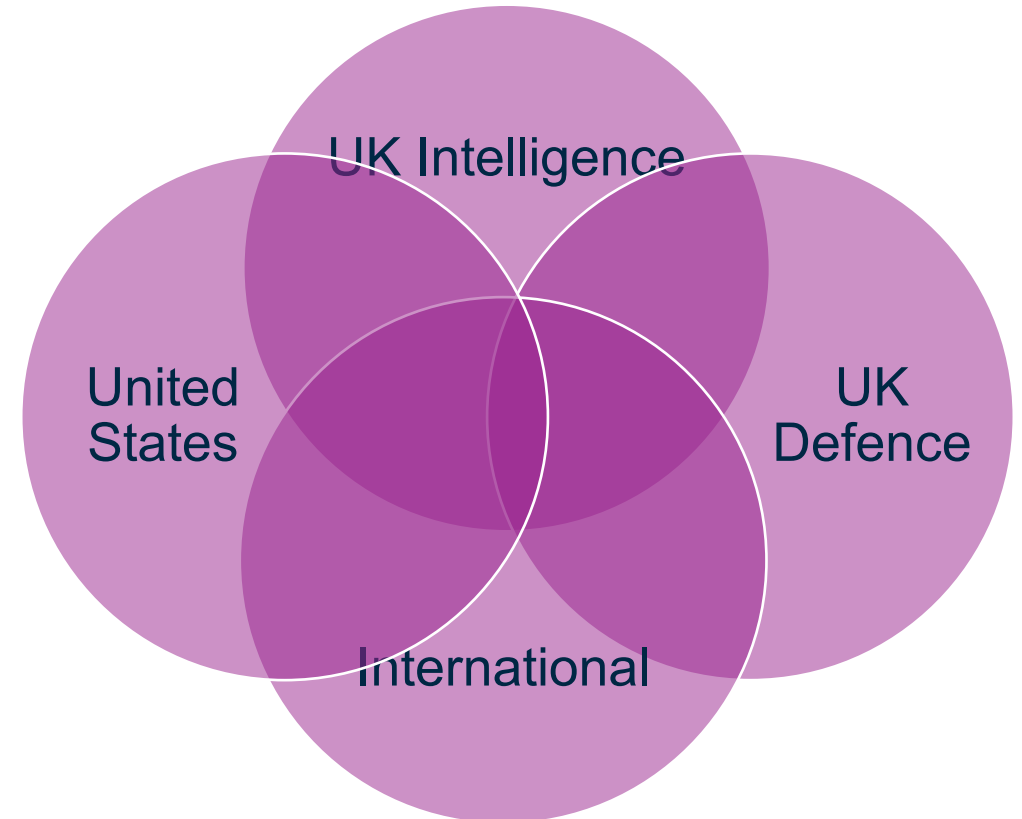




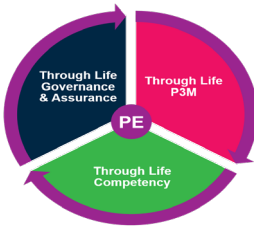
The Challenge

- 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 Sector growth targets** (without increasing P3M by the same ratio) through global team collaboration
- Ensure **consistent and predictable outcomes** globally; reduction in interventions and the need to micro-manage
- Embed a culture of **continuous professional development** (CPD) and improvement globally
- Enhance the **relationships global** with strategic Customers and Partners

One QinetiQ way



4. The Strategy



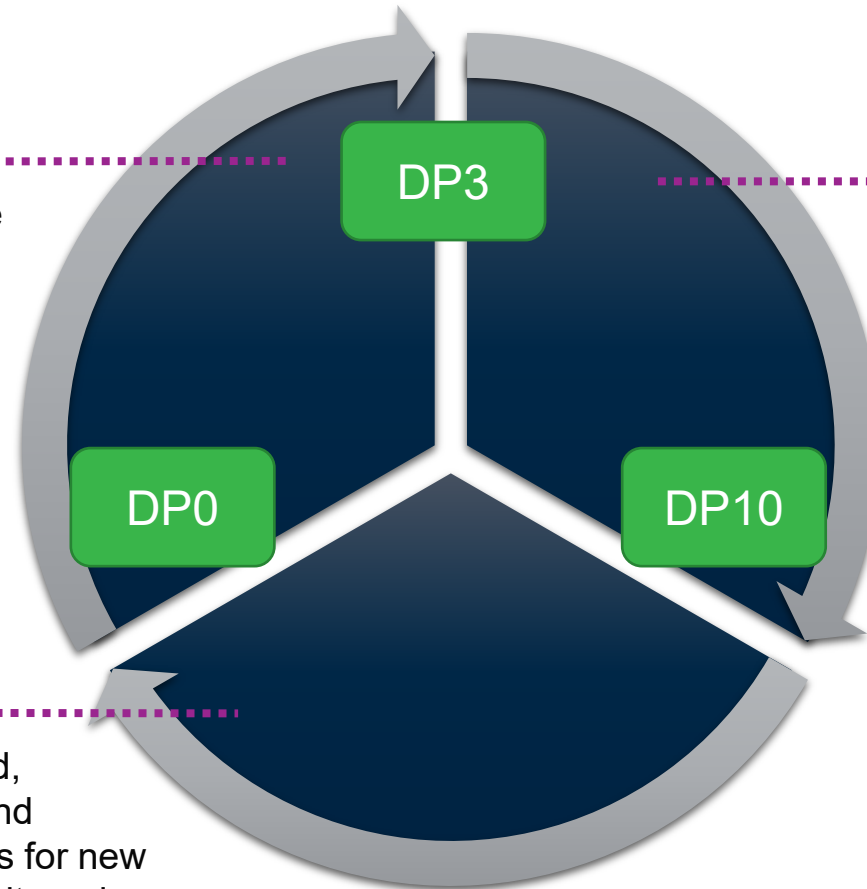
Our Approach: Project life cycle

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.

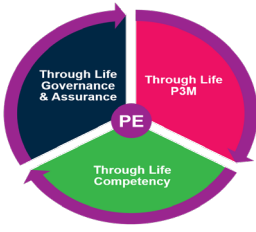
Knowledge Management

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.



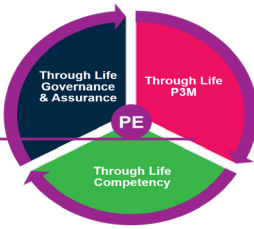
Execution

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.

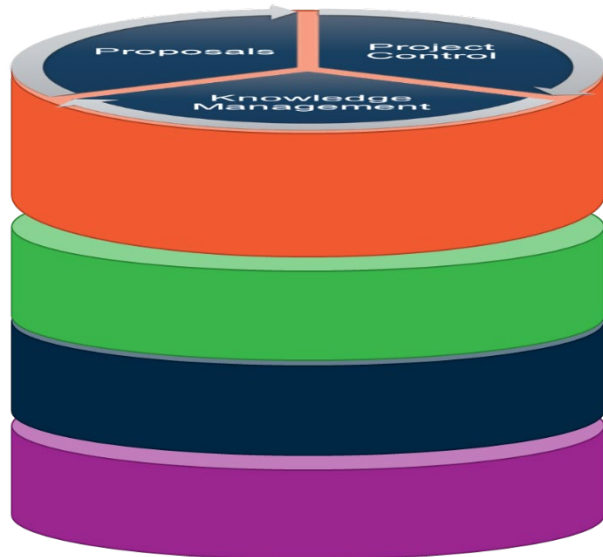


Our Approach: Governance and Assurance wrapper





Overall Strategy



Data

Global P3M Dashboard and report of Projects

Proof of Concept to demonstrate data architecture

Governance & Assurance and **Lessons learned** to close the loop

Tools

Global PM Systems (GPMS) strategy document agreed and implemented.

Generate and seek approval of **business case** for GPMS capabilities.

Acquire **COTS solutions** and support **global rollout** of all GPMS capabilities.

People

Establish **Competency Framework and Career Pathway** for self-assessment

P3M Licence to Operate to establish PM competencies.

Development Plans for Project communities to support CPD.

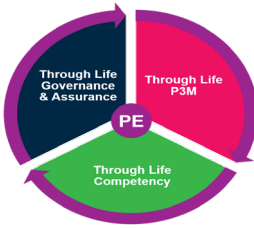
Process

Business Information System with **Global Procedures and Guidance**.

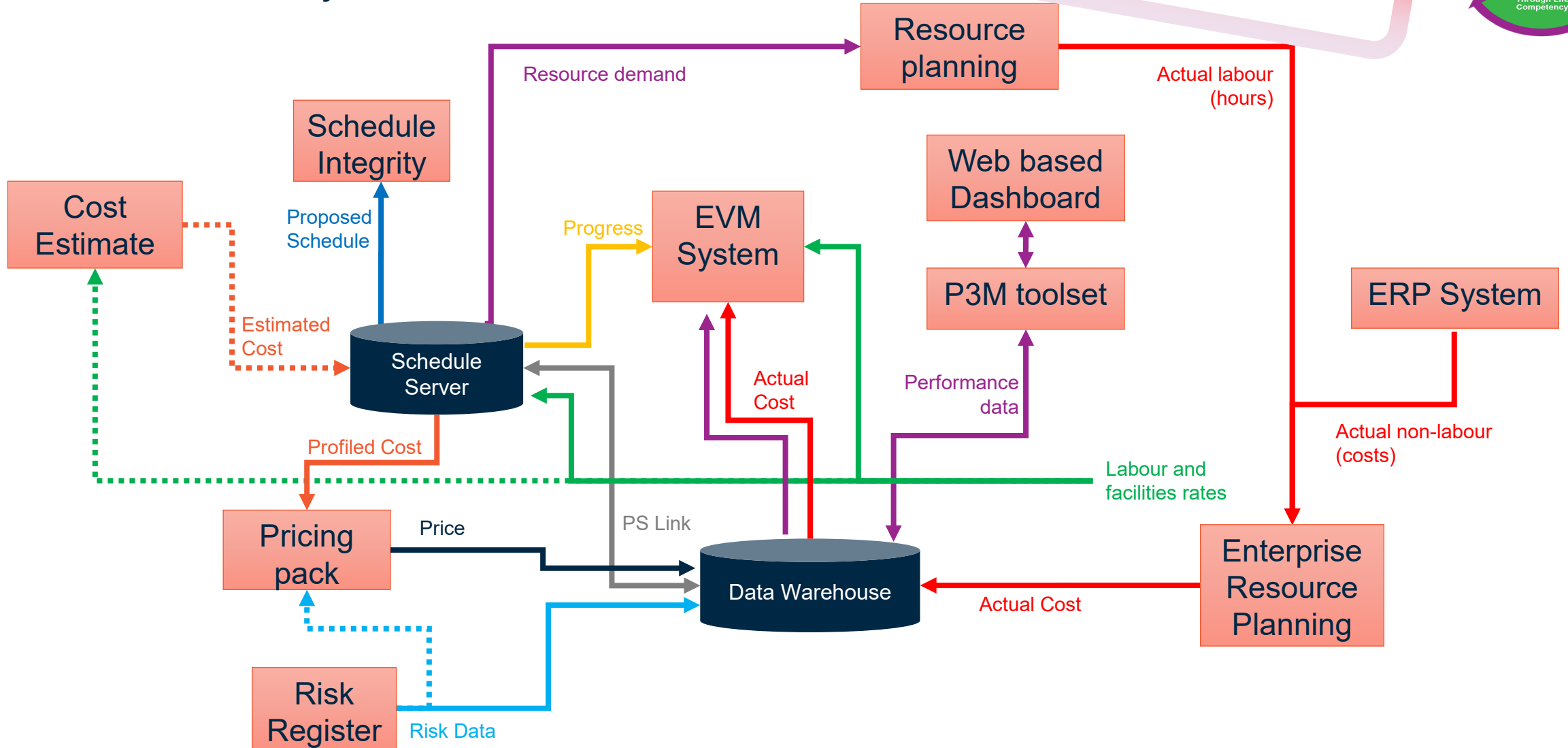
PM Board and **PM Council** to set and agree P3M strategy

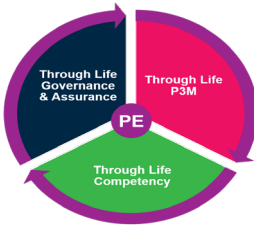
P3M maturity assessment to provide independent guidance.

Example



To-be data-driven Project Controls



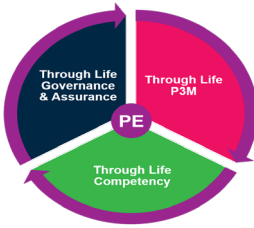

 Example


Capabilities – the Operational Research approach

ID	Capability	Capability statement
1.	Integrate P3M reporting capability	the provision of a P3M toolset and project reporting capability, roll up of project data for programme and business unit levels to ensure that all projects reports to have a consistent look and feel. In addition the 'drill down' into the data for lower trace and analysis.
2.	Decision Point capability	a web enabled visualisation of the Governance Decision Process flow process with guidance for staff to the requisite procedures, instructions, guides, templates and certificates.
3.	Cost Estimating capability	a cost generation and aggregation capability that can be calibrated against historical productivity, provides basis of estimate (BOE) and is compliant with validation & verification industry best practice.
4.	Risk Management capability	a risk log with integrated Monte-Carlo analysis capability. Deploy a risk management capability to provide consistent, timely data to Programme and Project Management staff making decisions
5.	Resourced Scheduling capability	a server based system that provides schedule capability with profiled resource plans utilising a standard rate card
6.	Lesson learnt repository capability	a central repository for technical and delivery artefacts to provide a corporate knowledgebase of lessons learnt
7.	Schedule assurance capability	a schedule quality assessment system with the ability to check the DCMA 14 points maturity assessment
8.	Earned Value Management capability	an earned value systems that is compatible with EIA-748

The capabilities are tool agnostic, they may result in single source acquisition, but the starting point should have no solution.

Example



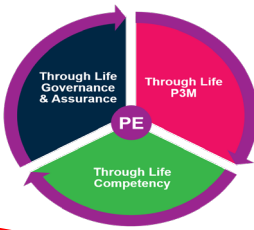
Threats

ID	Threat	Source
1.01	Χυρρεντλν λιμιτεδ αβιλιτν το πιεω μλτιπλε προφεχτ πλανσ ιν ονε προγραμμε σχηεδυλε	[2]
1.02	Εξιστινγ λιμιτεδ αβιλιτν το εφφεχτιπελν μαναγε ιντερδεπενδενχιεσ βετωεεν προφεχτσ ιν ονε προγραμμε σχηεδυλε	[2]
1.03	Εξιστινγ ΠΠΜ τοολ ισ α γρεατ προφεχτ τοολ βυτ, της δεπενδενχιεσ ανδ δε-χονφλιχτινγ οφ της προγραμμε	[2]
1.04	Λιμιτεδ οππορτυνιτν το προπιδε τρανσπαρενχν ανδ ροβυστνεσσ οφ χοντραχτ νεγοτιατιονσ (ινχλυδινγ ΘΔΧ)	[2]
1.05	Λαχκ οφ προφεσσιοναλ αππροαχη το ρισκ μαναγεμεντ τηατ ουρ χυστομερ εξπεχτσ (ΑΤΠΑ, ΡΓΝΣ)	[2]
2.01	Νοτ βεινγ αβλε το □ρεσολπε προβλεμσ ωιτη Μαφορ Προφεχτσ □ εαρλν	[3]
2.02	Νοτ ηαπινγ της αβιλιτν το □ενσυρε οτηερ Μαφορ Προφεχτσ περφορμ□	[3]
2.03	Νοτ ηαπινγ αν □ιντεγρατεδ Ιντερνατιοναλ βυσινεσσ υνιτ αχροσσ Αυστραλια, Χαναδα & Γερμανν□	[3]
2.04	Χομπετιτορσ δελιπερινγ □πιονερινγ □μισσιον-λεδ ιννοπατιον□ τηρουγη ιχονιχ χυστομερ-λεδ προφεχτ□ βεφορε ΘινετιΘ.	[3]
2.05	Αχτιπελν μαναγε χομπαρνν πορτφολιο το δριπε ηιγηερ μαργιν βυσινεσσ; προδυχτσ & σερωιχεσ	[3]
3.01	Ρεπορτινγ: Ινχονσιστεντ αππροαχη αχροσσ της προγραμμεσ ιν ρεγαρδ το προφεχτ δελιπεριν, δατα χαπτυρε ανδ περφορμανχε ρεπορτινγ.	[4]
3.02	Δεπενδενχν λογ: Δεπενδενχιεσ αρε νοτ χονσιστεντλν ιδεντιφιεδ, ρεχορδεδ ανδ τραχκεδ τηρουγη της λιφεχψχλε οφ της προφεχτ.	[4]
3.03	Ρεσουρχε Μαναγεμεντ: Ρεσουρχε απαιλαβιλιτν ωασ α κεψ χονχηερν αχροσσ αλλ προγραμμεσ ραισεδ βψ προγραμμε λεαδσ ανδ προφεχτ μαναγερσ.	[4]
3.04	Σχηεδυλε χαπαβιλιτν ανδ φοχυσ: Τηερε ισ νοτ α σχηεδυλε φοχυσ αχροσσ της Χαπαβιλιτν Ρεχοπερν Πλαν (ΧΡΠ) ωιτη α χονσιστεντ αππροαχη το ΩΒΣ/ΧΒΣ/ΣΡΑ ανδ ρυλεσ οφ χρεδιτ.	[4]
3.05	Ρισκ ανδ οππορτυνιτν μαναγεμεντ: Τηερε νεεδσ το βε χλαριτν ανδ χονσιστενχν ιν ρεγαρδ το ηοω ρισκ ισ ιδεντιφιεδ ανδ ρεπορτεδ βοτη ατ προφεχτ ανδ προγραμμε λεπελσ	[4]
3.06	Βυδγετ ανδ Χοστ Χοντρολ: Χυρρεντλν προφεχτ χοστσ αρε υπδατεδ ατ γατεωαψσ. Τηισ δοεσ νοτ προπιδε α περιοδιχ ΕΑΧ οφ της πορτφολιο περφορμανχε αγαινστ της βασελινε βυδγετ ορ δραωδοων αγαινστ πορτφολιο ρισκσ.	[4]
3.07	Ρεπορτινγ: ρεχογνιτιον βψ της ΘινετιΘ ΧΡΠ λεαδσ οφ ωηατ ωασ ρεθυιρεδ εσπεχιαλλν ιν ρεγαρδ το της Προφεχτ Χοντρολσ ανδ ρεπορτινγ.	[4]
4.01	Τηε ΔΠ προχεσσ ισ ηαρδ το φολλοω ανδ τηερε αρε νο οπεραρχηινγ πρινχιπλεσ αβουτ ωην το υσε ιτ	[5]
4.02	Τηε ΠΜσ σπενδ α γρεατ δεαλ οφ τιμε τρανσφερρινγ δατα βετωεεν σψστεμσ	[5]
4.03	Τηερε ισ νεεδ φορ φιτ φορ πυρποσε τοολσ αχροσσ προφεχτ μαναγεμεντ	[5]
4.04	Τηερε αρε νο δασηβοαρδσ ορ σιμπλε ωαψσ οφ υνδερεστανδινγ στατυσ	[5]
5.01	Τηερε δοεσ νοτ αππεαρ το βε αν οπεραλλ προφεχτ δασηβοαρδ	[6]
5.02	Φινανχε λεαδσ προφεχτ χοντρολσ	[6]
5.03	ΓΙΒΣ (ανδ οτηερ δεπελοπμεντ ινιτιατιωεσ ε.γ. ΧΟΜΑΕΑ) αρε α δεπενδενχν το ΠΠΜ ιμπροπεμεντσ.	[6]
5.04	Προφεχτ χοντρολσ αρε εσσηντιαλλν τηρουγη της φινανχε φυνχτιον	[6]
5.05	τηερε ωασ νο □σινγλε περσιον οφ το χονσολιδατε προφεχτσ (ανδ οτηερ ινιτιατιωεσ) δατα ιντο α σινγλε πιχτυρε	[6]

The threat statements should be sourced from robust references and should be independent from the Project Controls team. Hence there is no bias towards the requirement or potential solution.

Table key:

- Red = No Project Management Capability
- Amber = No Global Project Management capability
- Green = Global Project Management Capability



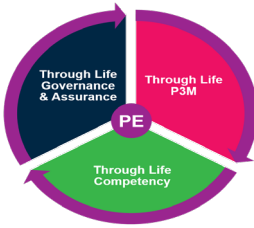
As-is Project Control Tools heat map



ID	Geographic site	United Kingdom	USA (North)	Australia	France	New Zealand	Belgium	Germany
	Capability							
1.	Integrate P3M reporting capability	Amber	Amber	Amber	Amber	Amber	Green	Amber
2.	Decision Point capability	Green	Red	Green	Green	Red	Green	Red
3.	Cost Estimating capability	Amber	Green	Green	Amber	Amber	Amber	Amber
4.	Risk Management capability	Amber	Amber	Amber	Amber	Green	Amber	Amber
5.	Resourced Scheduling capability	Amber	Amber	Amber	Green	Green	Amber	Green
6.	Lesson learnt repository capability	Green	Red	Green	Red	Red	Amber	Green
7.	Schedule assurance capability	Red	Green	Green	Red	Red	Red	Green
8.	Earned value management capability	Red	Green	Red	Red	Green	Red	Red

The heat map supports the identification of potential solutions. It also supports the prioritisation of the capability need

5. Lessons learnt



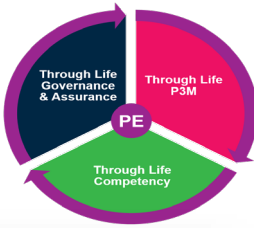
Decision Point Review Schedule

QINETIQ	QinetiQ Lifecycle Framework (QLF) Review Schedule	PMD/FRM/2265/1.0 Page 2 of 3
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Decision Points to be applied and documents to be assessed - all scaling of the QLF to be agreed by Bid Manager / Project Manager and the Delegated Authority											
<i>Decision Points</i>	<i>DP0 Qualification</i>	<i>DP1 Bid / No bid</i>	<i>DP2 Offer Release</i>	<i>DP3 Contract Acceptance</i>	<i>DP4 Project Initiation</i>	<i>DP5 * Solution Concept</i>	<i>DP6 * Solution Readiness</i>	<i>DP7 * Delivery Readiness</i>	<i>DP8 Customer Acceptance</i>	<i>DP9 * Solution or Steady State</i>	<i>DP10 Business Close Out</i>
Dates	11/11/21	15/12/21	Mar 22	Jun 22	Jun 22	TBD	TBD	TBD	Mar 24	■	■
Inputs for Review											
Complexity Model	X	100%									
QLF Review Schedule	x	100%	100%	x	x	x	x	x	x	x	
Resourced Capture plan /Bid plan (PPM16)	x	100%	100%								
Capability ROM Estimate (D&DT)	x										
DP Review Certificate		100%	100%	x	x	x	x	x	x	x	x
Business Case		60%	80%		x						
IAC pack Outline		10%	10%								
Technical Delivery Plan		50%	80%		x	x	x	x	x	x	
Costed/Resourced project schedule (PPM16)		70%	70%		x			x			
Project Management Plan Outline		5%	5%		x	x	x	x	x	x	x
Risk Register		50%	80%		x	x	x	x	x	x	x
Sub-contract Strategy (within PMP)		5%	5%	x	x			x	x	x	
Functional Assurance Certificates			0%	x	x	x	x	x	x	x	

Framework Document Owner: Head of Project Management Governance and Assurance

Plan the Governance activities, make the Stakeholders and Sponsor aware of deadlines.

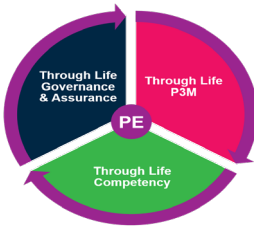


Why engage with stakeholders?

Engagement with stakeholder is an opportunity for them to:

- **Influence** the strategy and delivery priorities
- Inform and influence the business case **requirements** for a System
- Capture thoughts and ideas regarding the **solutions** to the capabilities
- **Test and validate** solutions and determine success criteria
- Ensure **current capability** is not diminished
- Share experiences and **feedback**
- **Review** of solution Procedures, Guidance and Training material
- **Disseminate** knowledge and be Tool champions
- **Avoid issues** following delivery of the solution





Stakeholder Working Group Responsibilities

CHAIR

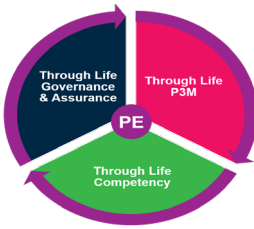
- Sets the agenda and is clear on the meeting purpose and objectives
- Keeps the meeting to time and topic
- Encourages broad participation from working group and introduces third parties where advantageous
- Provides continuity with any parallel programmes of work
- Summarises and agrees actions
- Ensures the group maintains an appropriate cross section of members and continuity
- Presents the community of practice to the Steering Board

IS KIND, RESPECTFUL and OPEN

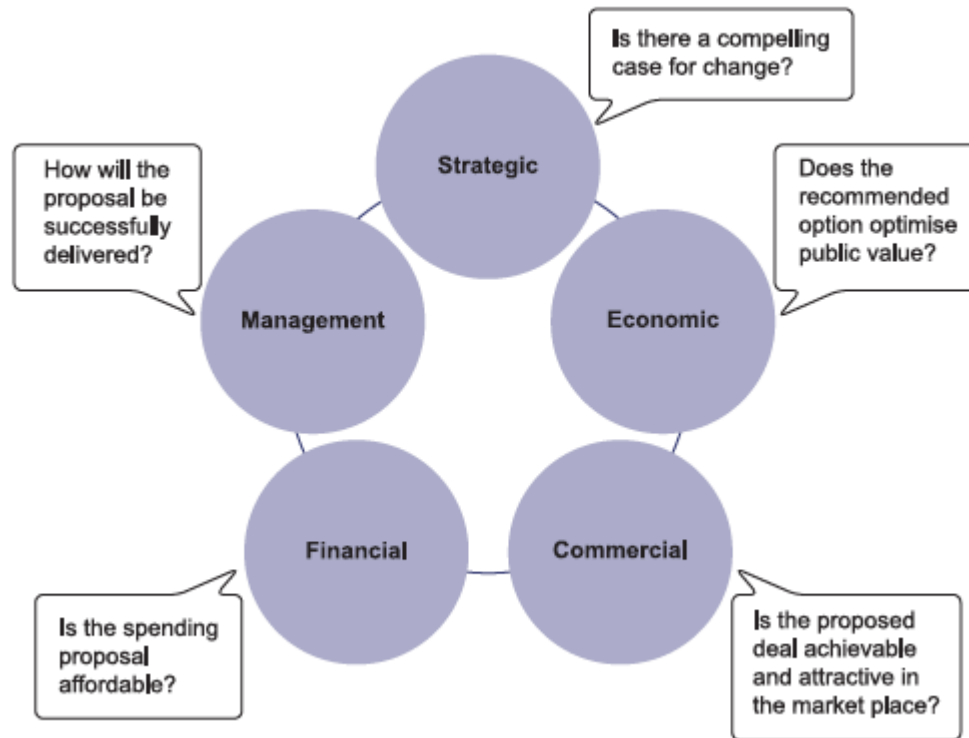
MEMBERS

- Represent the interests of the organisation stakeholders
- Provide constructive input and feedback on processes, guides, reports, training etc.
- Communicate positively to others about the working group and the strategic objectives
- Provide a balanced view on the decisions and outcomes of the community; challenge!
- Support open discussion and debate and encourage fellow members to contribute
- Check that the project and programme function is aligned with the organisational strategy including policy and governance

ARE GENUINE, INVOLVED and SUPPORTIVE

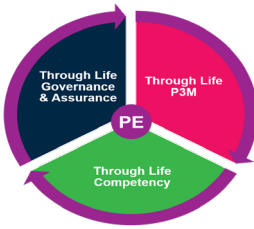


Example business case and contents



Source: APM BoK 7th Ed, Fig 1.3.7

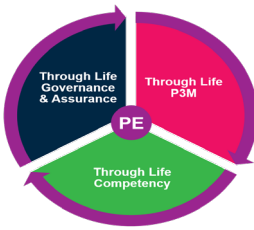
1	Background	5
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Don't leave room for those
'what about' questions

4.0 Analysis of Alternatives

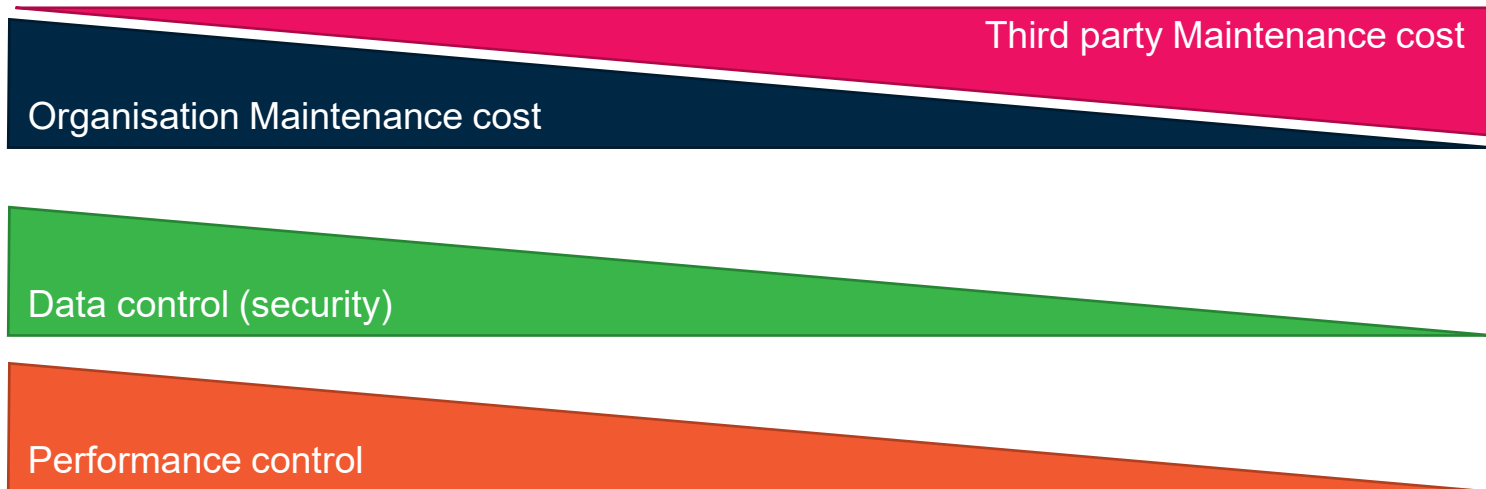
Section	Option	Outcome
4.2	Do nothing	Is doing nothing an option?
4.3	Make / Buy	Would you develop you own software? Integrate systems?
4.4	Capability options	What are the capabilities to be considered? Which capabilities do you need now? Which can wait?
4.5	System options	What are the solutions to your capability needs? What does the market survey tell you?
4.6	Delivery options	Are you going to manage the delivery yourself? Do you need a delivery partner?
4.7	Host options	How are you going to host the system? on premise, cloud?
4.8	Integration options	What is the integration required between systems? Existing systems and new systems?
4.9	Scaling options	How are you going to scale the project? Start on one site and grow site by site?
4.10	Support options	Who is going to support the systems? Training, documentation, help desk?
4.11	Migration options	What will happen to existing data? Will existing system data be cleansed and transferred to new system?
4.12	Funding options	What is the whole life cost? OPEX / CAPEX

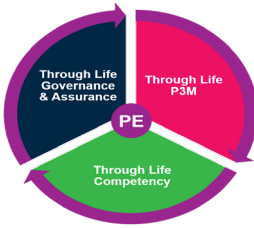


IT Infrastructure hosting options

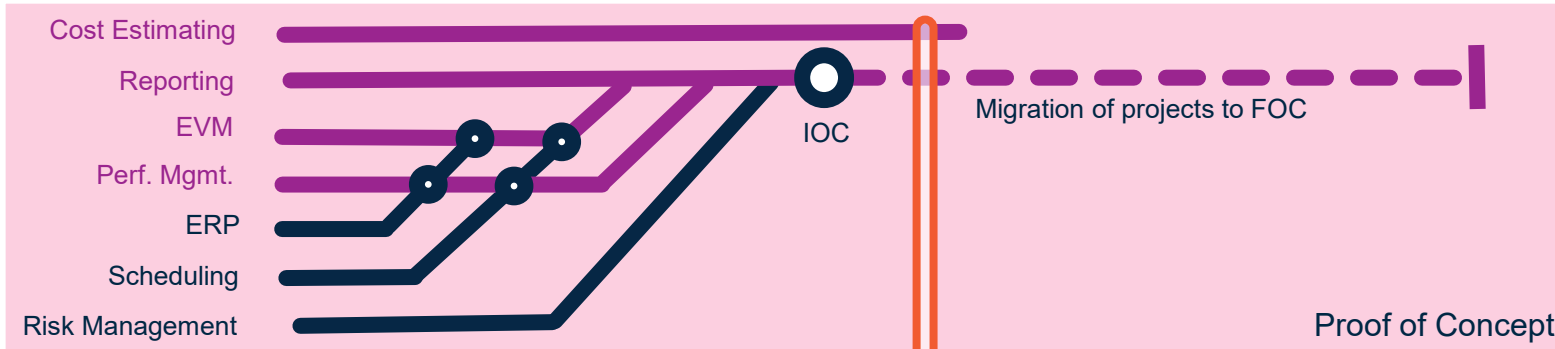
<p>On-Premises installation: System software on organisation operated servers</p>	Systems maintained by Organisation	<p>Software as a Service (SaaS): systems and servers operated by third party</p>
	Infrastructure as a Service (IaaS)	

The options for hosting the systems span from on premise to SaaS. But you need to appreciate the relative merits.



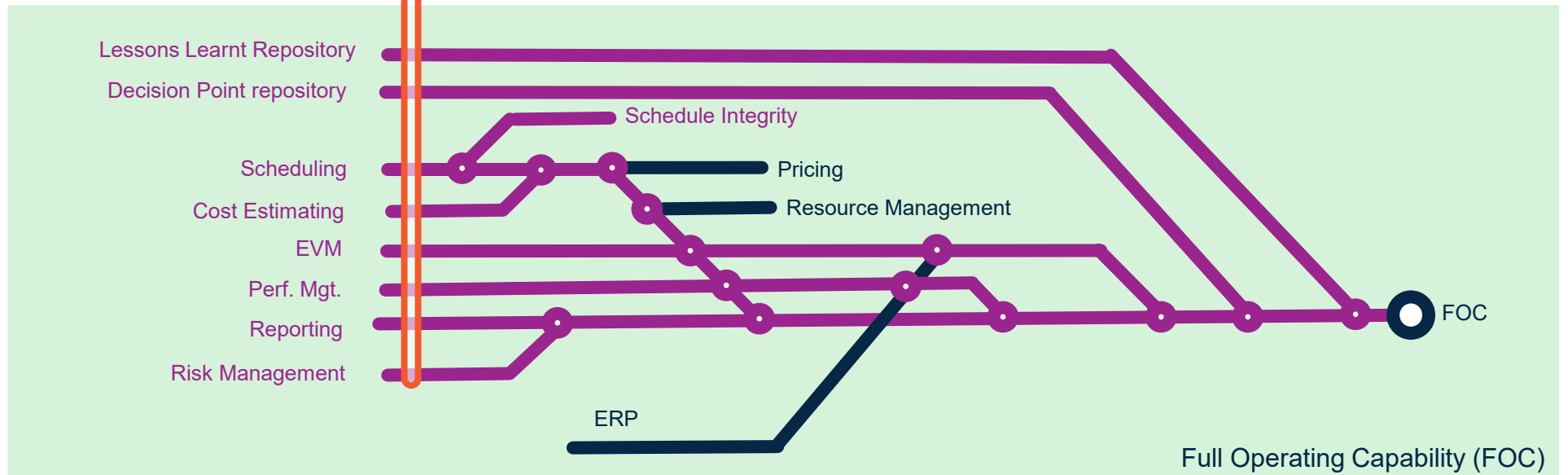


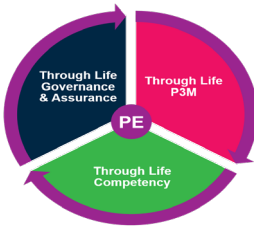
Development TubeMap



Plan the deployment with a prototype, limited capability first to win 'hearts and minds' and prove the capability. Then deploy the full system.

Full Operating Capability (FOC) Business Case





Benefits – Savings: SurveyMonkey

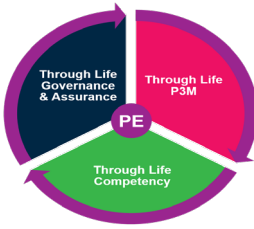
Launch a SurveyMonkey with the stakeholders to determine the potential tangible benefits (savings) and intangible benefits (frustrations)

* 9. To support the Business Case, we are gathering information regarding time expended utilising our Project Management systems.

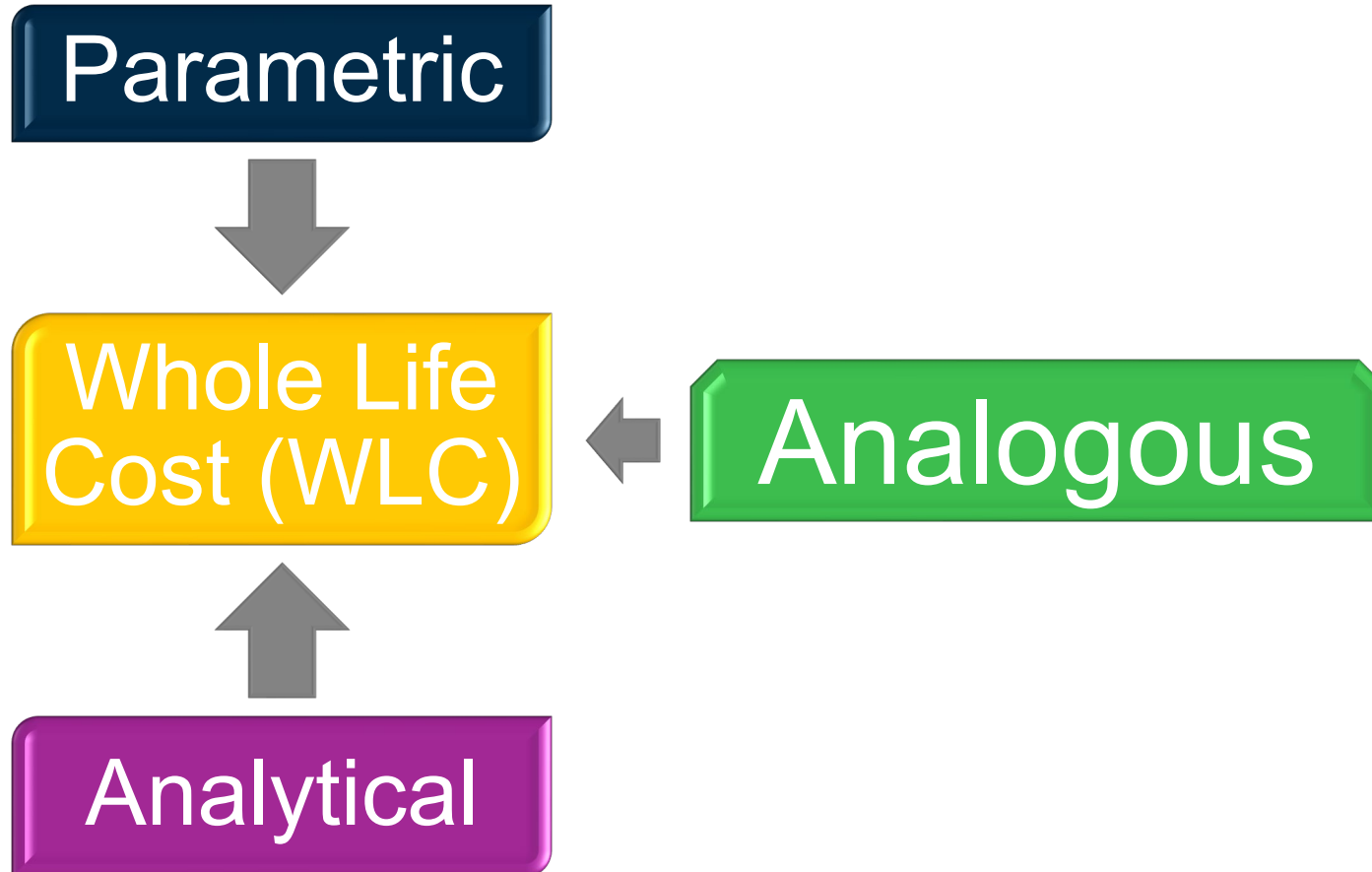
Please consider the activities below and the average time spent in a month/AP and estimate how much time you spend each month:

	Nil	Less than 10 mins	10 to 30 mins	30 to 45 mins	45 to 60 mins	1 to 2 hours	2 to 4 hours	4 to 10 hours	10 to 20 hours
Searching for project documents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chasing Decision Point (DP) approvals, assurance certificates / IAR cert.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training staff where to find project documentation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Answering queries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

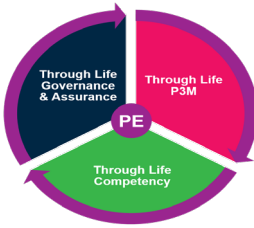
0 of 13 answered



Estimating the whole life cost (WLC)

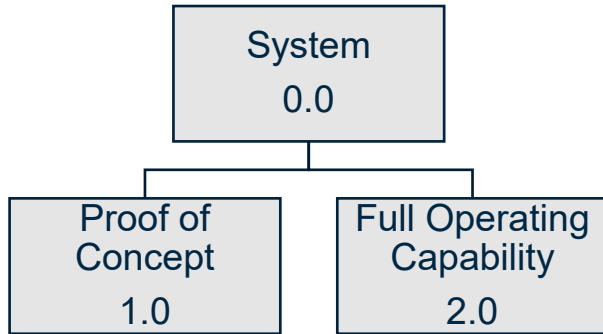


Utilise three estimating methods to gain confidence in the budget request

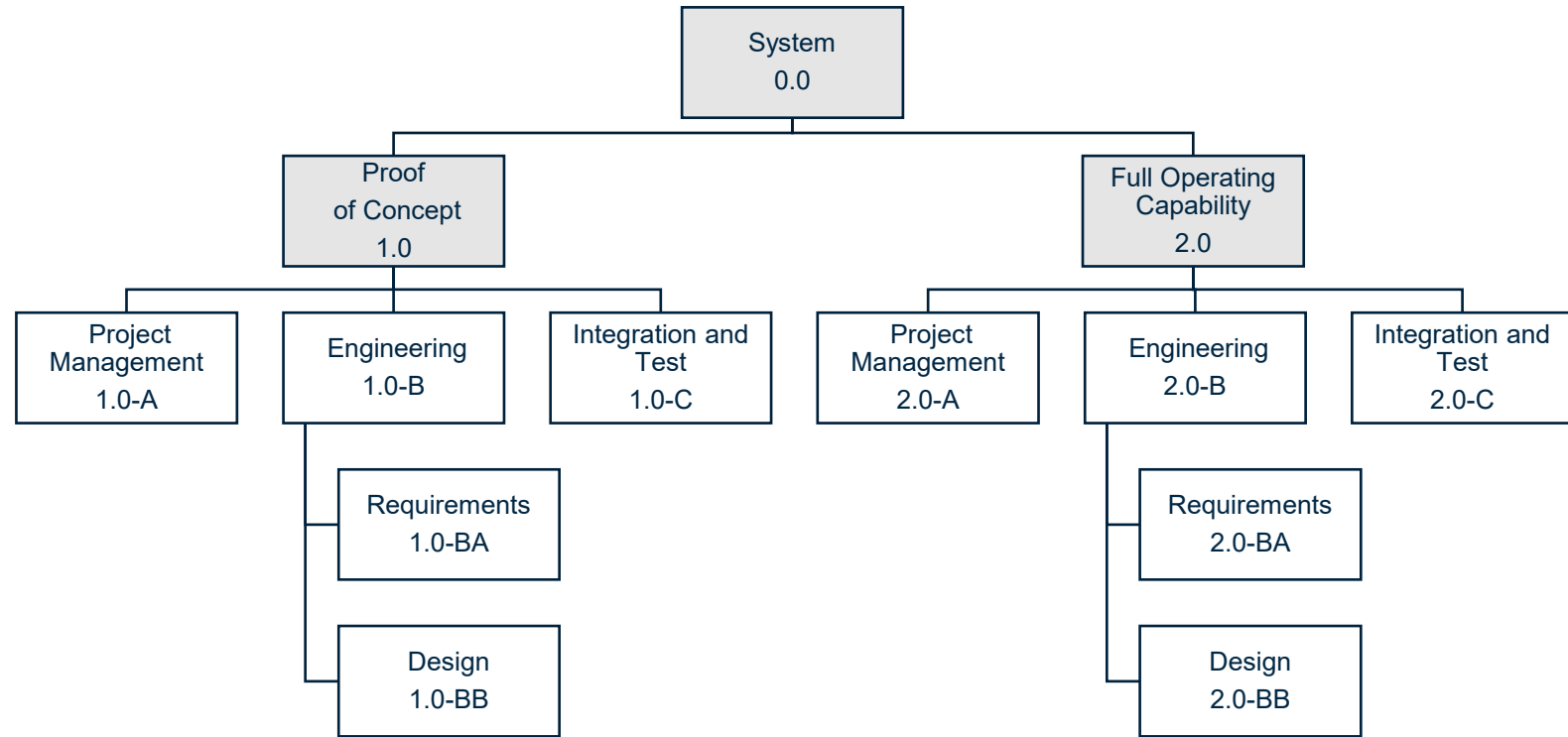


Bottom-up estimate – analytical Costs

Product Breakdown Structure (PBS)

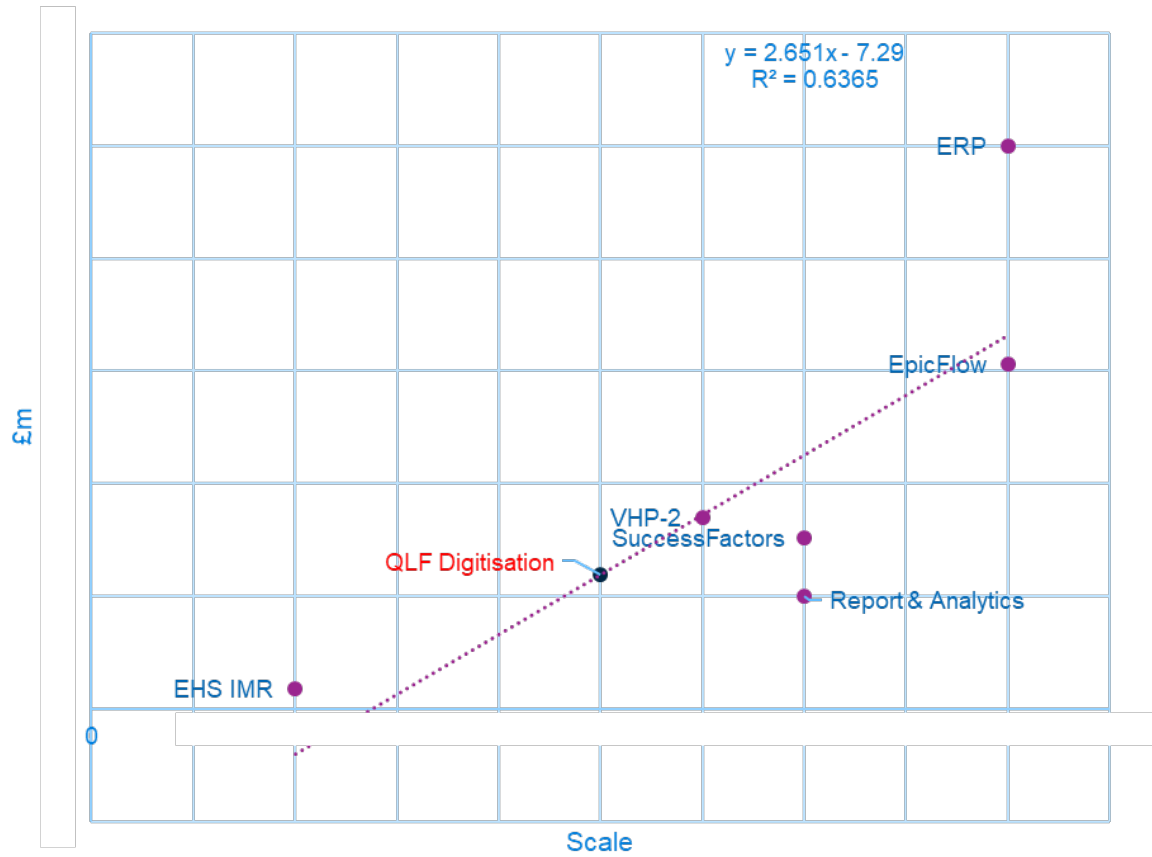


Work Breakdown Structure (WBS)

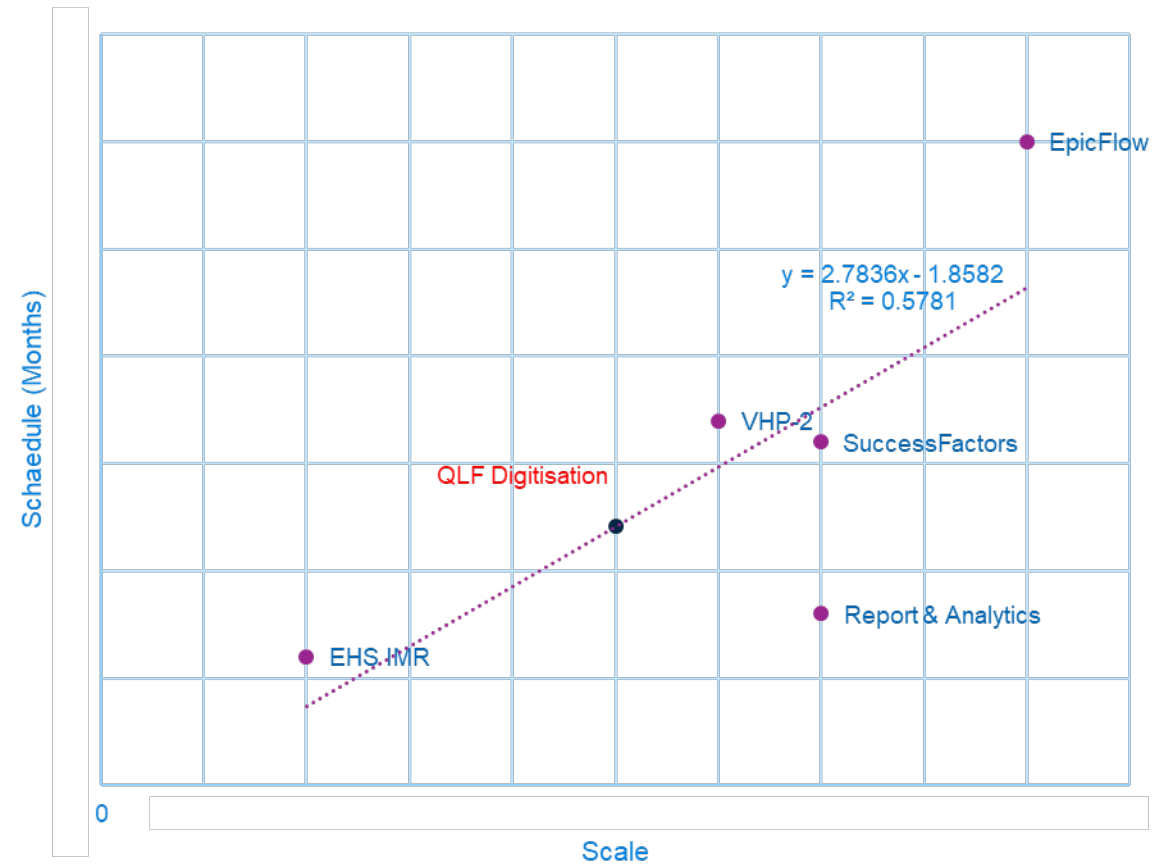


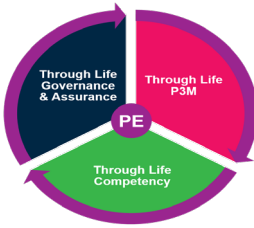
Analogous prediction

Cost



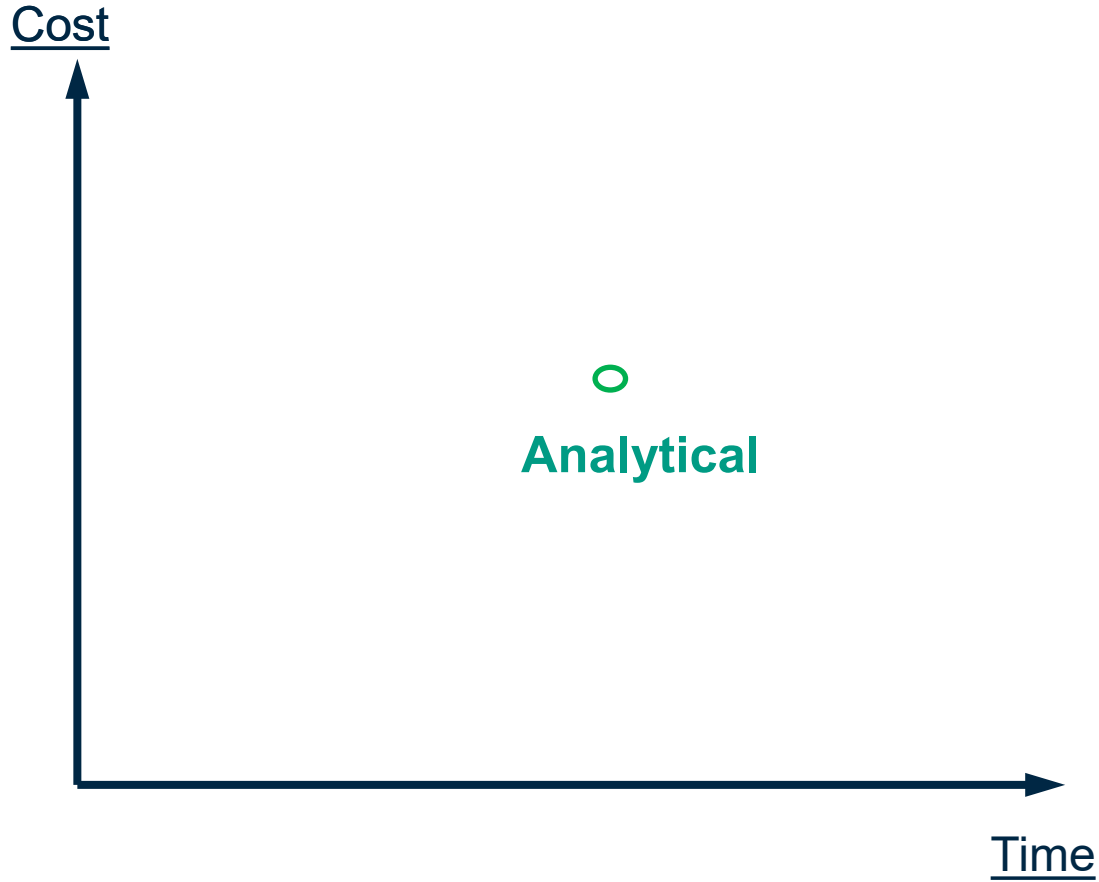
Schedule



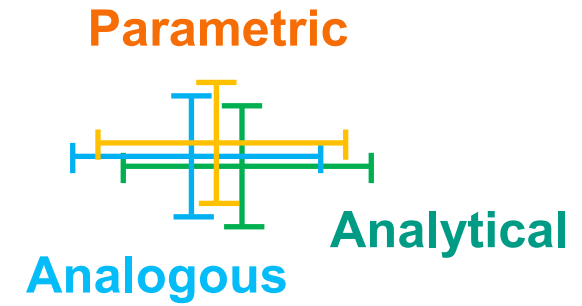


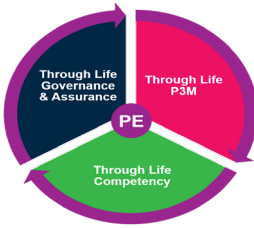
Comparison of cost estimates

Little Confidence



More Confidence

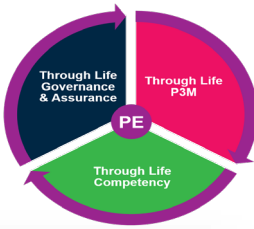




American Association of Cost Engineers (AACE) - Cost Estimate Classification System

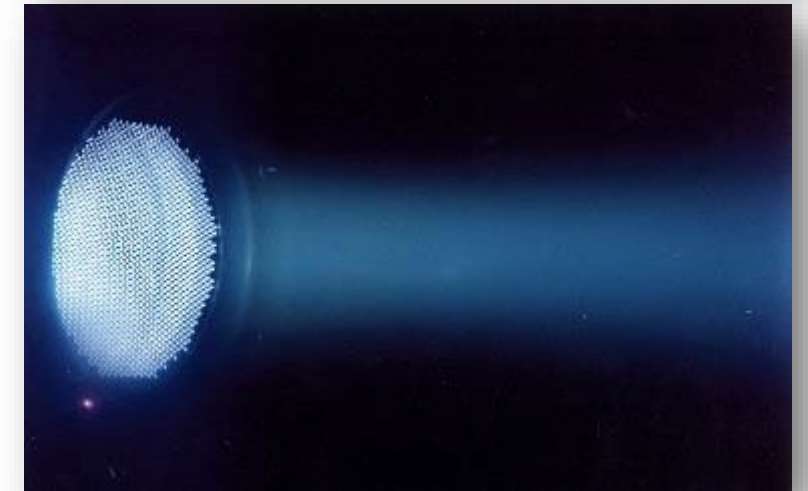
	Primary Characteristic	Secondary Characteristic		
Estimate Class	Degree of Project Definition Expressed as % of complete definition	End Usage Typical purpose of estimate	Methodology Typical estimating method	Expected accuracy range Typical variation in low and high ranges
Class 5	0% to 2%	Concept screening	Capability factored, parametric models, judgement or analogy	L: -20% to -50% H: +30% to +100%
Class 4	1% to 15%	Study or feasibility	Equipment factored or parametric models	L: -15% to -30% H: +20% to +50%
Class 3	10% to 40%	Budget authorisation or control	Semi-detailed unit costs with assembly level line items	L: -10% to -20% H: +10% to +30%
Class 2	30% to 70%	Control or bid / tender	Detailed unit cost with forced detailed take-off	L: - 5% to -15% H: +10% to +20%
Class 1	70% to 100%	Check estimate or bid / tender	Detailed unit cost with detailed take-off	L: -3% to -10% H +3% to +15%

6. Summary



Summary

- This presentation has briefly examined Group Performance Excellence (Grp PE) encapsulating:
 - **Though Life P3M** – the tools, procedure and standards for Portfolio, Programme and Project Management (P3M)
 - **Through Life Competency** – the P3M Competency Framework & Career pathway and the License to Operate
 - **Though Life Governance & Assurance** – the Project Lifecycle Framework of Decision Points or Gate to assure the P3M community is going to deliver their Benefits.
- 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 providing the analytical information necessary to enable the PM to achieve this.
- We reviewed the challenges of a P3M global change program and suggested some steps required to transform data, tools, people and processes.
- This paper is based upon our experience utilising lessons learnt, we hope it will guide your thoughts and help you to accelerate your own change programs.



Thank you!

Any questions?

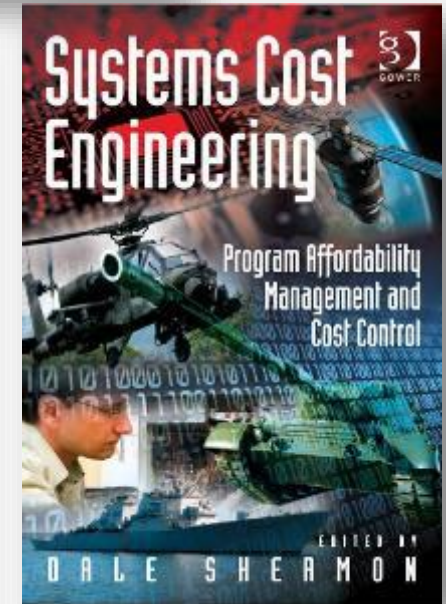
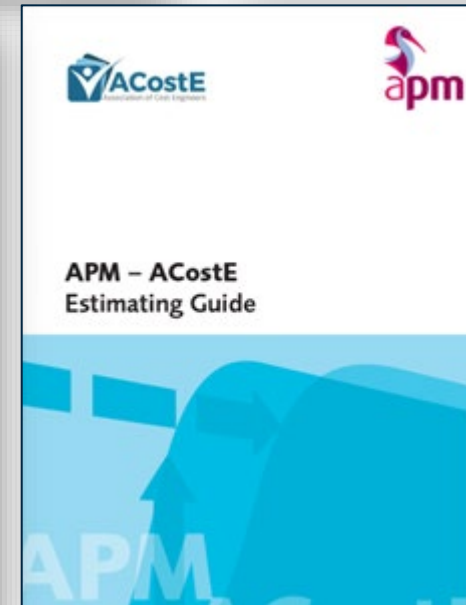
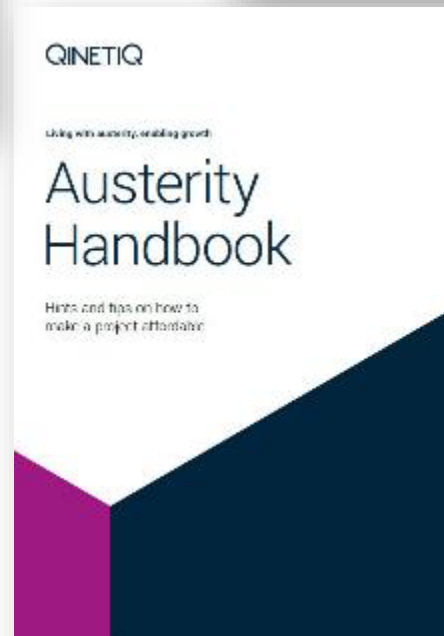
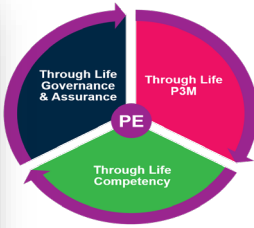
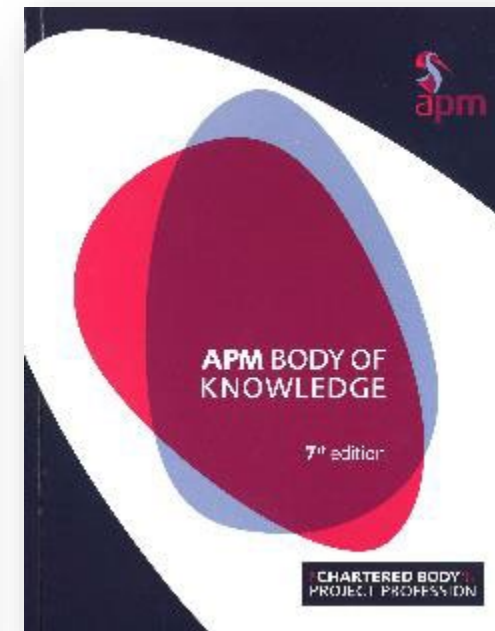
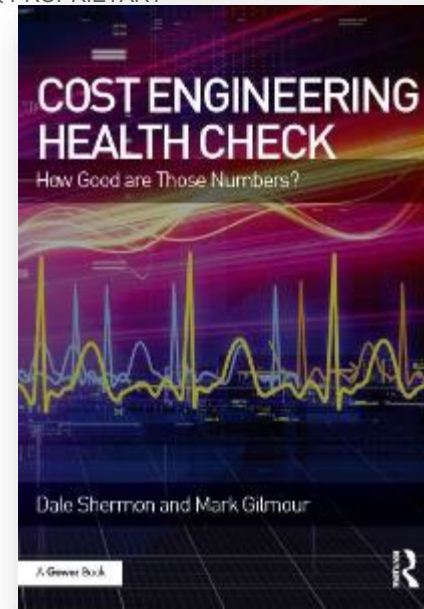
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