

Abstract

- Many organisations have strategies to acquire tools and software systems to increase the efficiency of their project professionals and the effectiveness of their Project Management procedures. The Market is full of solutions that promise benefits and cost saving through the application of cloud hosted, fully integrated, globally deployed, enterprise wide software. But, how do you persuade the Senior Executives in your organisation to invest in these solutions?
- QinetiQ has been making investments in Global Project Management Systems (GPMS) and has learnt valuable lessons. These lessons have been identified throughout the project lifecycle. The case study is tool agnostic, and will help you to avoid the same pitfalls, while potentially accelerating your Project Controls tool maturity.
- This paper will explore this complex decision space through the journey of developing a Project Control tools strategy, capabilities, engagement with stakeholders, Business Case generation, Governance and Assurance, market surveys, benefits quantification and finally the cost associated with the acquisition and support of Project Control systems.
- Although the case study is from QinetiQ experience, the techniques and business case approach will be applicable to domains beyond the Defence and Security industry.

Lessons learnt for Project Management tool selection and acquisition

Dale Shermon – QinetiQ Fellow

Head of Planning, Monitoring and Controls

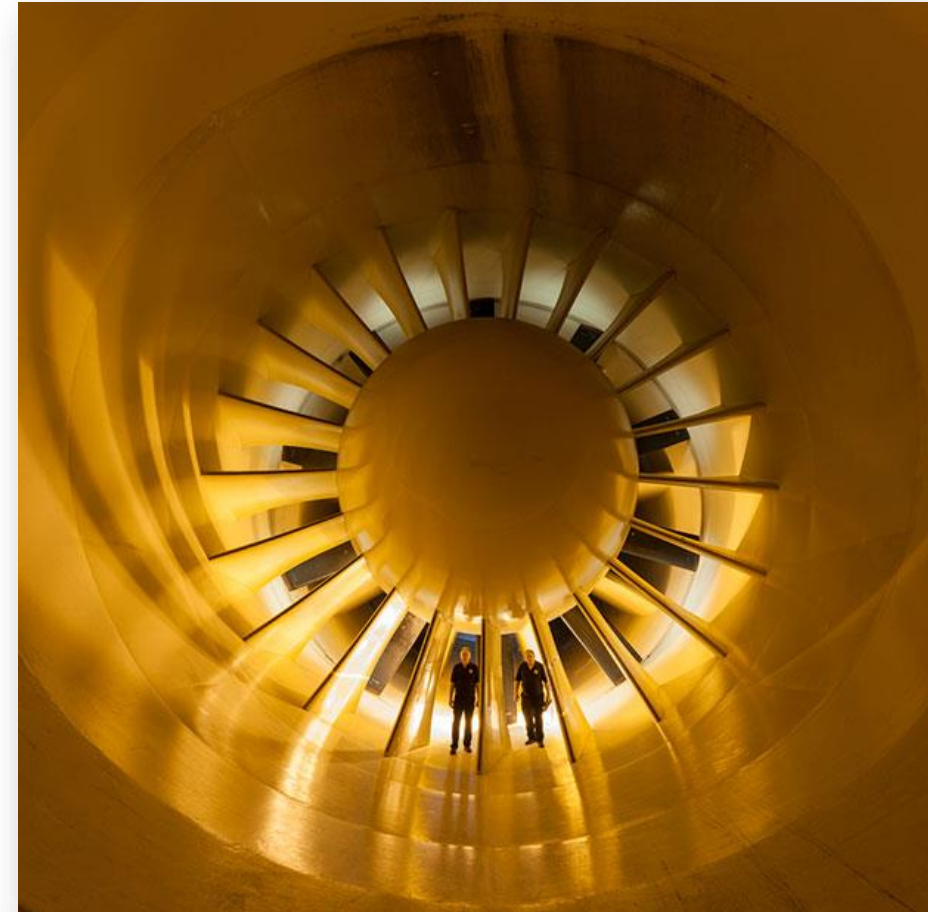
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Agenda

1. Introduction
2. Project Control tools strategy
3. Capabilities
4. Engagement with stakeholders
5. Business Case generation
6. Governance and Assurance
7. Market surveys
8. Cost benefits quantification
9. Summary and Q&A





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

Dale Sherman

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- 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



Lessons learnt for Project Management tool selection and acquisition

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12

COMMERCIAL IN CONFIDENCE

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



85+

locations worldwide

1,300+

patents (including 300+ pending)

We are QinetiQ

£1,278m

FY2021 revenue

6,000+

people with unique science and engineering expertise

16

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

3secs



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

1,850km

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

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The Challenge

- Many organisations have strategies to acquire tools and software systems to increase the efficiency of their project professionals and the effectiveness of their Project Management procedures.
- The Market is full of solutions that promise benefits and cost saving through the application of cloud hosted, fully integrated, globally deployed, enterprise wide software.
- But, **how do you persuade the Senior Executives in your organisation to invest in these solutions?**



2. Project Controls Tools Strategy

Project Controls Strategy

- The **aim** of the strategy is to initiate, justify and support the acquisition of systems necessary to deliver the Project Controls.
- The strategy identified the stakeholder and establish the current and future threats to business delivery.
- Following the identification of tool agnostic capabilities, based upon industry best practice, identify threats that align with the appropriate capabilities.
- The strategy examines
 - the current systems (As-Is) used to satisfy the capabilities, together with their support lifecycle and obsolescence schedule.
 - This leads to the potential systems architecture (To-Be) that will need to be planned, acquired and migrated.
- Finally, this strategy document is **not** a business case for any capabilities or systems, but should be the catalyst for the development of a unified, planned Project Controls System.



What is a Strategy?

- A strategy should not be confused with a plan or schedule.
- A clearly articulated strategy makes planning and prioritisation of initiative quicker and easier.
- Classically, a strategy is the result of asking one integrated set of questions, **what is our vision; where will we operate; how will we succeed; what capabilities need to be in place and what management systems must be instituted?**

Example Vision:

- ‘To deliver world-class Project Controls; to match our world-class science and technology’.

Example single statement of user need:

- ‘All Businesses and Functions are able to access, utilise, deploy and interrogate identically configured supporting Project Controls systems and reports for their areas of business delivery and responsibility.’

3. Capabilities

Capabilities

Example

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.

Threats

Example

ID	Threat	
1.01	Χυρρεντλν λιμιτεδ αβιλιτν το πiew μωλιπλε προφεχτ πλανσ ιν ονε προγραμμε σχηεδυλε	
1.02	Εξιστινγ λιμιτεδ αβιλιτν το εφφεχτιπελν μαναγε ιντερδεπενδενχιεσ βετωεεν προφεχτσ ιν ονε προγραμμε σχηεδυλε	
1.03	Εξιστινγ ΠΠΜ tool ισ α γρεατ προφεχτ tool βυτ, τηε δεπενδενχιεσ ανδ δε-χονφλιχτινγ οφ τηε προγραμμε	
1.04	Λιμιτεδ οππορτυνιτν το προσιδε τρανσπαρενχιν ανδ ροβυστνεσσ οφ χοντραχτ νεγοτιατιονσ (ινχλυδιγγ ΘΔΧ)	
1.05	Λαχκ οφ προφεσσιοναλ αππροαχη το ρισκ μαναγεμεντ τηατ ουρ χυστομερ εζπεχτσ (ΛΠΠΑ, ΡΓΝΣ)	
2.01	Νοτ βεινγ αβλε το ρρεσολωε προβλεμσ ωιτη Μαφορ Προφεχτσ εαρλν	[3]
2.02	Νοτ ηαπιγγ τηε αβιλιτν το ενσυρε οτηερ Μαφορ Προφεχτσ περφορμ	[3]
2.03	Νοτ ηαπιγγ αν ιντεγρατεδ Ιντερνατιοναλ βυσινεσσ υνιτ αχροσσ Αυστραλια, Χαναδα & Γερμανν	[3]
2.04	Χομπετιτορσ δελιπεριγγ ιπιονεεριγγ ιμισσιον-λεδ ιννοπωατιον ιτηρουγη ιχονιχ χυστομερ-λεδ προφεχτ βεφορε ΘινετιΘ.	[3]
2.05	Αχτιπελν μαναγε χομπανν πορτφολιο το δριπε ηιγηερ μαργιν βυσινεσσ, προδυχτ & σερπιχεσ	[3]
3.01	Ρεπορτινγ: Ινχονσιστεντ αππροαχη αχροσσ τηε προγραμμεσ ιν ρεγαρδ το προφεχτ δελιπεριν, δατα χαπτυρε ανδ περφορμανχε ρεπορτινγ.	[4]
3.02	Δεπενδενχιν λογ: Δεπενδενχιεσ αρε νοτ χονσιστεντλν ιδεντιφιεδ, ρεχορδεδ ανδ τραχκεδ τηρουγη τηε λιφεχπχλε οφ τηε προφεχτ.	[4]
3.03	Ρεσυρχε Μαναγεμεντ: Ρεσυρχε απαιλαβιλιτν ωασ α κεπ χονχηερν αχροσσ αλλ προγραμμεσ ραισεδ βν προγραμμε λεαδσ ανδ προφεχτ μαναγερσ.	[4]
3.04	Σχηεδυλε χαπαβιλιτν ανδ φοχυσ: Τηερε ισ νοτ α σχηεδυλε φοχυσ αχροσσ τηε Χαπαβιλιτν Ρεχοπερσ 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 χονσιστενχιν ιν ρεγαρδ το ηωω ρισκ ισ ιδεντιφιεδ ανδ ρεπορτεδ βοτη ατ προφεχτ ανδ προγραμμε λεπελσ	[4]
3.06	Βυδγετ ανδ Χοστ Χοντρολ: Χυρρεντλν προφεχτ χοστσ αρε υπαδατεδ ατ γατεωαιμσ. Τηισ δοεσ νοτ προσιδε α περιοδιχ ΕΑΧ οφ τηε πορτφολιο περφορμανχε αγαινιστ τηε βασελινε βυδγετ ορ δραωδοων αγαινιστ πορτφολιο ρισκσ.	[4]
3.07	Ρεπορτινγ: ρεχογνιτιον βν τηε ΘινετιΘ ΧΡΠ λεαδσ οφ ωηατ ωασ ρεθυριεδ εσπεχιαλλν ιν ρεγαρδ το τηε Προφεχτ Χοντρολσ ανδ ρεπορτινγ.	[4]
4.01	Τηε ΔΠ προχεσσ ισ ηαρδ το φολλω ανδ τηερε αρε νο σπεραρχηιγγ πρινχιπλεσ αβουτ ωηεν το υσε ιτ	[5]
4.02	Τηε ΠΜσ σπενδ α γρεατ δεαλ οφ τιμε τρανσφερριγγ δατα βετωεεν σνστεμσ	[5]
4.03	Τηερε ισ νεεδ φορ φιτ φορ πυρποσε τοολσ αχροσσ προφεχτ μαναγεμεντ	[5]
4.04	Τηερε αρε νο δασηβοαρδσ ορ σιμπλε ωαιμσ οφ υνδερστανδιγγ στατυσ	[5]
5.01	Τηερε δοεσ νοτ αππεαρ το βε αν σπεραλλ προφεχτ δασηβοαρδ	[6]
5.02	Φινανχε λεαδσ προφεχτ χοντρολσ	[6]
5.03	ΓΙΒΣ (ανδ οτηερ δεπελωπμεντ ινιτιατιωεσ ε.γ. ΧΟΜΑΕΑ) αρε α δεπενδενχιν το ΠΠΜ ιμπροωεμεντσ.	[6]
5.04	Προφεχτ χοντρολσ αρε εσσηντιαλλν τηρουγη τηε φινανχε φωνχτιον	[6]
5.05	τηερε ωασ νο ισινγλε περσιον οφ το χονσολιδατε προφεχτσ (ανδ οτηερ ινιτιατιωεσ) δατα ιντο α σινγλε παχτυρε	[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.

Threat capability analysis

Example

ID	Threat	Capability	Integrate P3M reporting capability	Decision Point capability	Cost Estimating capability	Risk Management capability	Resourced Scheduling capability	Lesson learnt repository capability	Schedule assurance capability	Value management capability
1.01			X				X		X	
1.02							X			
1.03			X				X			
1.04					X	X	X			
1.05						X				
2.01			X	X	X	X	X	X	X	X
2.02			X	X	X	X	X	X	X	X
2.03			X	X	X	X	X	X	X	X
2.04			X				X		X	X
2.05			X			X				X
3.01			X	X			X			
3.02			X							
3.03			X				X			
3.04			X				X		X	
3.05			X			X				
3.06			X			X				X
3.07			X							
4.01				X						
4.02			X							X
4.03			X	X	X	X	X	X	X	X
4.04			X							X
5.01			X	X		X		X		X
5.02			X	X			X			X
5.03			X							
5.04			X	X			X			X
5.05			X				X			X

The threat capability analysis considers which threats are countered by which of the capabilities?

As-is Project Control Tools heat map

Table key:

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

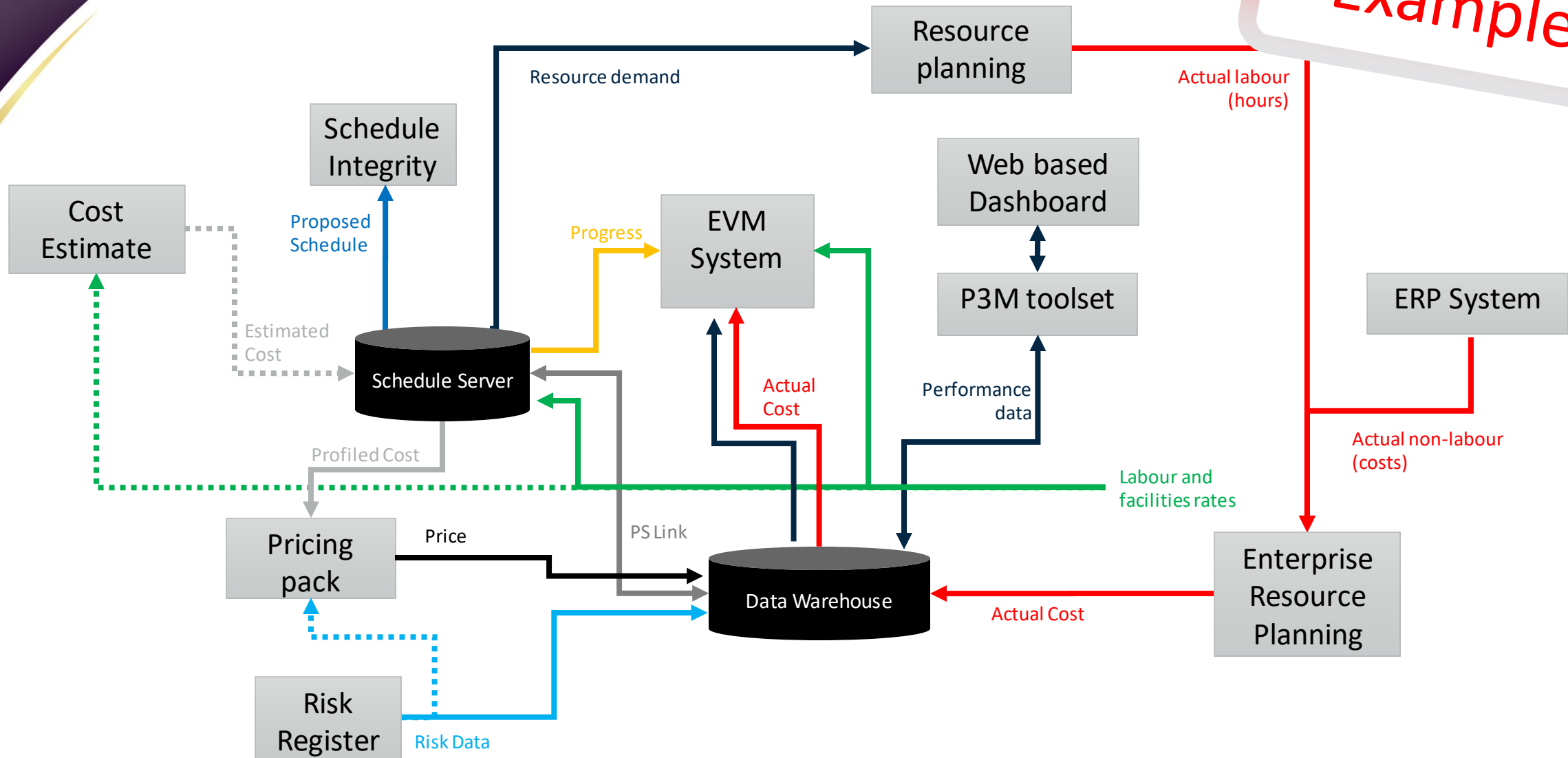
Example

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

To-be data-driven Project Controls

Example

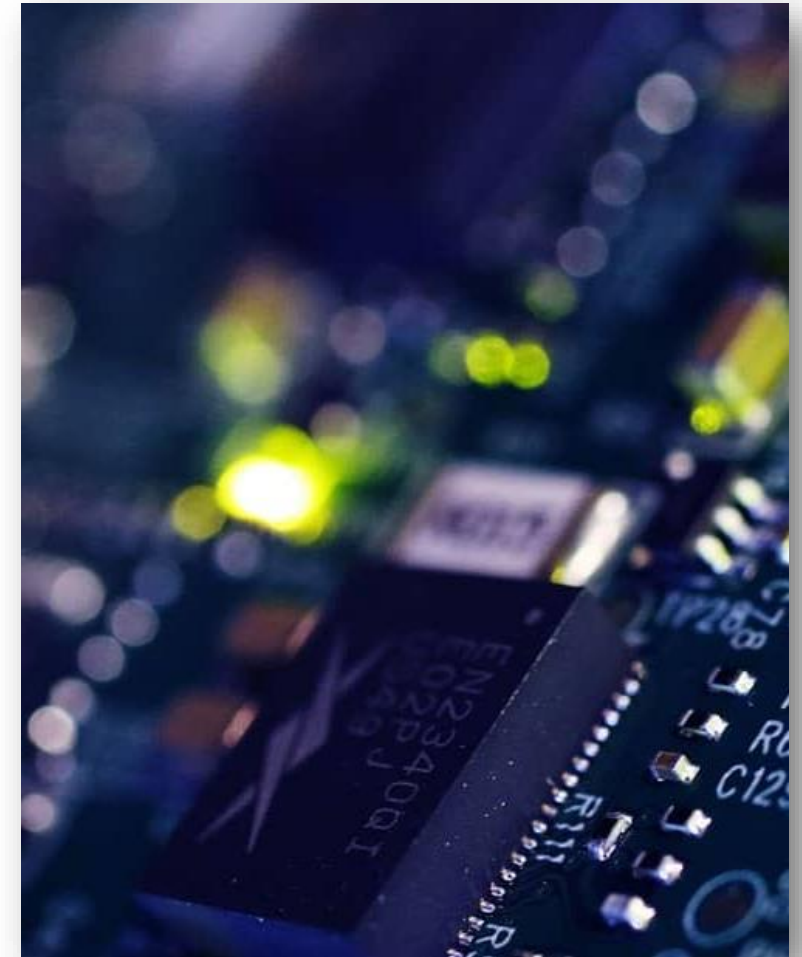


4. Engagement with Stakeholders

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

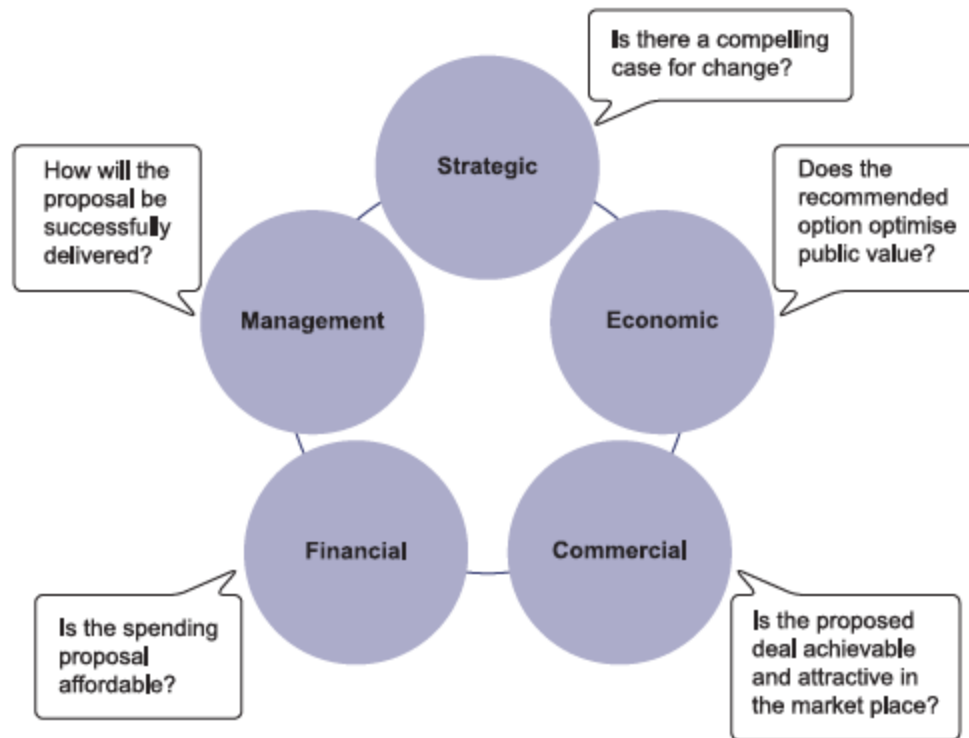
- Sets the agenda and is clear on the meeting purpose and objectives
- Keeps the meeting to time and topic
- Encourages broad participation from working group and introduces third parties where advantageous
- Provides continuity with any parallel programmes of work
- Summarises and agrees actions
- Ensures 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**

5. Business Case Generation

Example business case and contents



Source: APM BoK 7th Ed, Fig 1.3.7

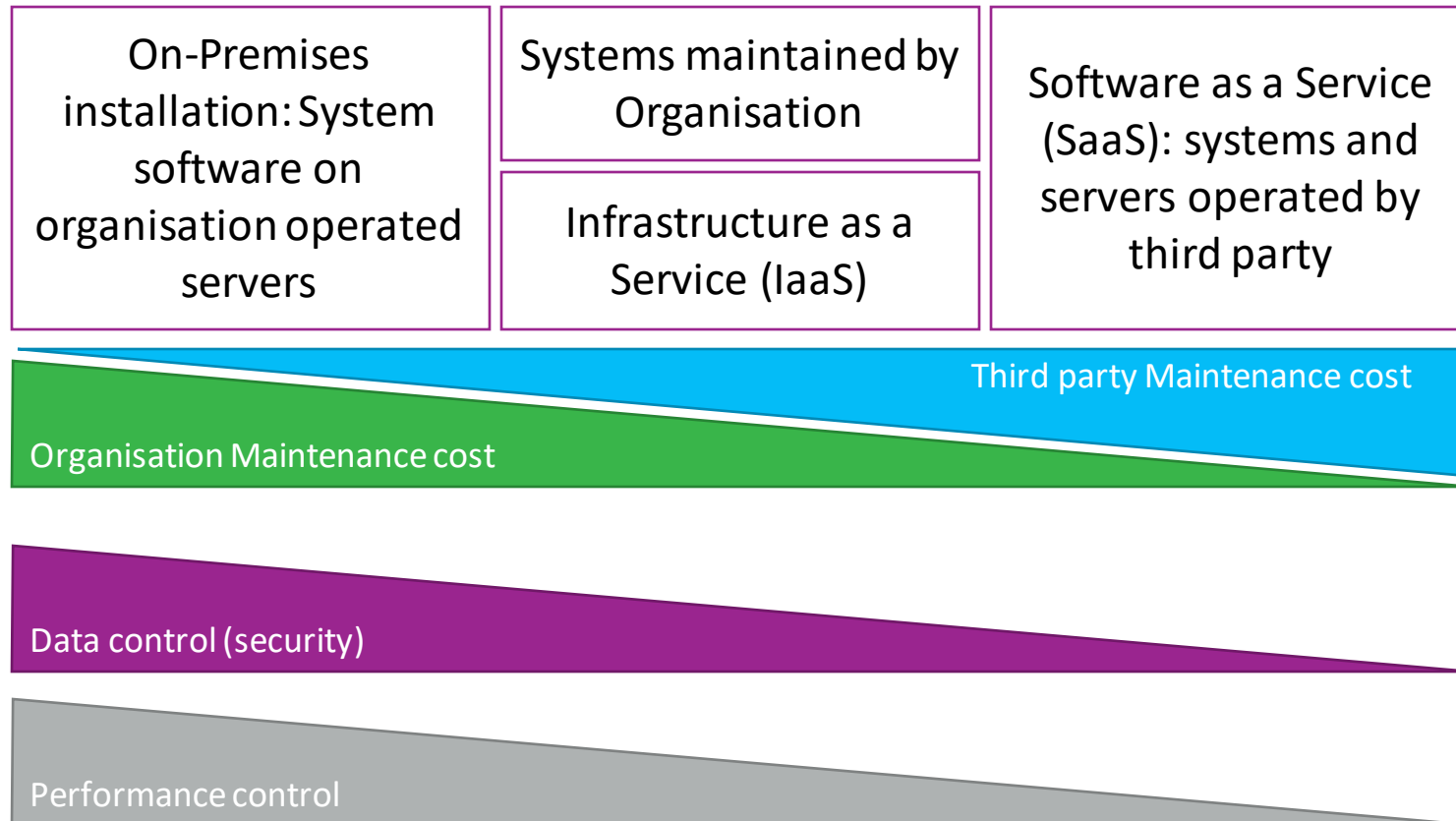
1	Background	5
2	Business Case Scope	7
3	Understanding the Requirement	9
4	Analysis of Alternatives	31
4.1	Introduction	31
4.2	Do nothing	31
4.3	Make / Buy	32
4.4	Capability options	33
4.5	System options	34
4.6	Delivery options	34
4.7	Host options	35
4.8	Integration options	36
4.9	Scaling options	36
4.10	Support options	41
4.11	Migration options	41
4.12	Funding options	42
4.13	Options summary	42
5	Our solution	44
6	Risk management	50
7	Analysis of Benefits	51
8	Investment Appraisal	52
9	Reference	55
A	Outcome of the QLF Pilot	56
B	Outcome of the PoC	58

4.0 Analysis of Alternatives

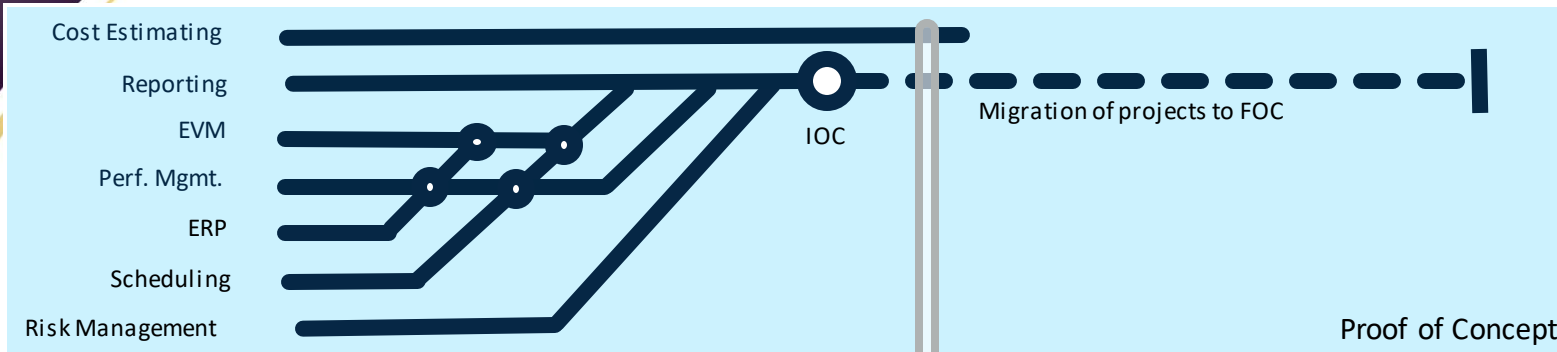
Section	Option	Outcome
4.2	Do nothing	Is doing nothing an option?
4.3	Make / Buy	Would you develop you own software? Integrate systems?
4.4	Capability options	What are the capabilities to be considered? Which capabilities do you need now? Which can wait?
4.5	System options	What are the solutions to your 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

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

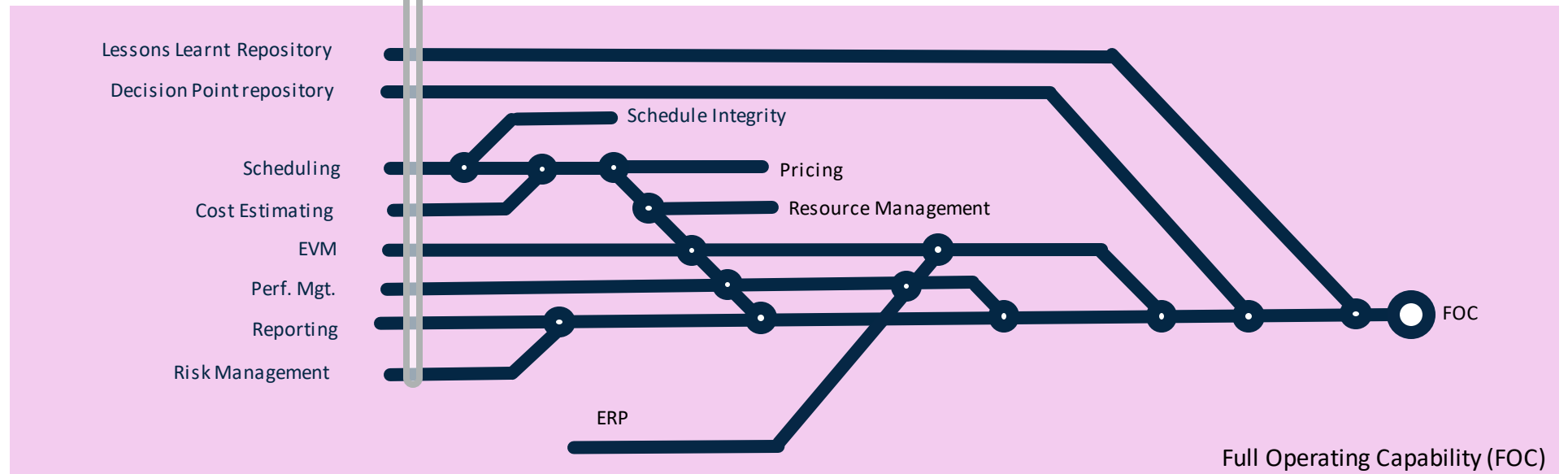


Development TubeMap



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



6. Governance and Assurance

Our Approach: Governance and Assurance wrapper



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

7. Market Survey

Market survey and capability research

Alternatives to Sopheon (Source: sourceforge.net)

1. Odoo – Top performer
2. Wrike – Top performer
3. Craft.io
4. Mission Control – Top performer
5. GoodDay – Top performer
6. Airfocus
7. OneDesk – Top performer
8. Productboard
9. Bugherd
10. NPJ Acceleration Workflow Solution
11. Upchain
12. TouchBase
13. Valspace
14. Aha!
15. Style Arcade
16. ProdPas
17. Quip – Top performer
18. beCPG PLM
19. Hansoft
20. Airtable – Top performer
21. Favro
22. Hive – Top performer
23. IRIS Business Architect
24. Priority Matrix
25. Ruum
26. nTask – Top performer
27. Easy Projects
28. Pendo Feedback
29. SeaTable
30. MeisterTask – Top performer
31. Fieldbook
32. KeyedIn
33. Wizeline
34. Infinity
35. GitPrime
36. Mosaic
37. PPA Software
38. CaseCamp
39. Planio
40. Avion
41. Hutwork
42. GLIDR
43. Experience.com
44. PPAP Software
45. leanGears
46. Targetprocess
47. Product Management Platform

48. leanGears
49. PLPM Executive Command Center
50. Mixpanel – Top performer
51. ProductPlan
52. CaseCamp
53. Planio
54. GLIDR
55. Experience.com
56. Avion
57. LightCat
58. Hutwork
59. Productfolio

Other alternatives (Source: Various)

1. Asana
2. Monday.com
3. Connecteam
4. Trello
5. Smartsheet
6. Jira
7. Process Street
8. Profit.co
9. ClickUp
10. Planisware
11. Basecamp
12. Workfront

1. Odoo

Company: Odoo, Belgium

Website: www.odoo.com

Product synopsis:

Odoo is a fully integrated, customizable, open-source software package designed for small to medium-sized businesses. It is designed to meet the needs of companies, regardless of their size (or budget).

The unbeatable, seamless nature of Odoo helps businesses become more efficient by reducing redundant manual processes, which helps companies save countless hours of labor. Every module is interconnected to provide a fully-integrated experience from app to app, and users can automate many processes that would've otherwise required manual inputs into multiple applications. Odoo keeps all business functions in one place, allowing teams to collaborate with other departments from one unified platform in the most efficient way possible.

Target Audience: Companies of all sizes & budgets

Other capabilities (reporting, Benefits tracking, lessons learnt)

Product literature

User communities (banking, defence, aerospace?)

2. Wrike

Company: Wrike, United States

Website: www.wrike.com

Product synopsis:

Get full visibility and control over your tasks and projects with Wrike. A cloud-based collaboration, work management, and project management software, Wrike is trusted by leading companies like Airbnb and Verizon to help their teams achieve success. Wrike offers world-class features that empower cross-functional, distributed, and growing teams to take their projects from the initial request stage all the way through to tracking project progress and reporting results. From custom dashboards and workflows to team-specific automation, Wrike has everything you need to work your way. No one else offers this level of versatility. Wrike's easy-to-use platform adapts to however your team works best so they can deliver more. Work as one with the most versatile shared collaboration platform for every team, function, and department. Connect your entire organization, share ideas, and produce your best work in one place. Sign up for a free trial and see how Wrike can transform your business goals.

Target Audience: Mid-sized to enterprise organisations

Other capabilities (reporting, Benefits tracking, lessons learnt)

Product literature

User communities:

Example

Market survey down selection

Priority	Weighting
Key	10
Mandatory	5
Priority 1	3
Priority 2	2
Priority 3	1



Compliance Assessment	Relative scoring
Yes	3
Unknown	1
No	0

ID	Candidate solution	Candidate vendor	Score
1	Accolade	Sopheon	555
2	Smartsheet	www.smartsheet.com	471
3	AirTable	www.airtable.com	455
4	Workfront	www.workfront.com	455
5	Asana	www.asana.com	455
6	Monday.com	www.monday.com	455
7	Wrike	www.wrike.com	455
8	Process Street	www.process.st	455
9	Connecteam	www.connecteam.com	455
10	Odoo	www.odoo.com	425



8. Cost benefits quantification

Benefits – Savings: SurveyMonkey

Launch a SurveyMonkey with the stakeholders to determine the potential savings

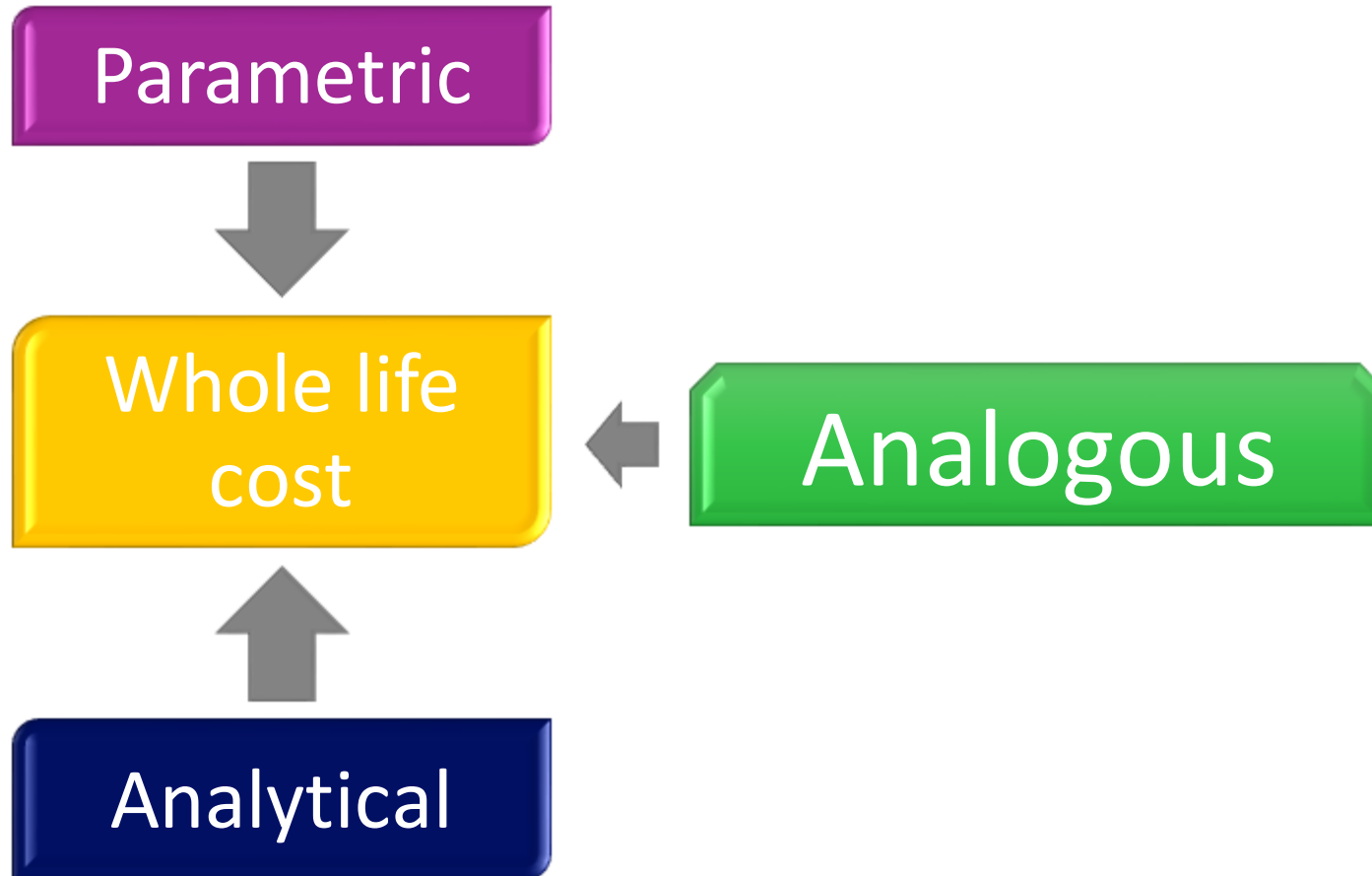
* 9. To support the Business Case, we are gathering information regarding time expended utilising our Project Management systems.

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

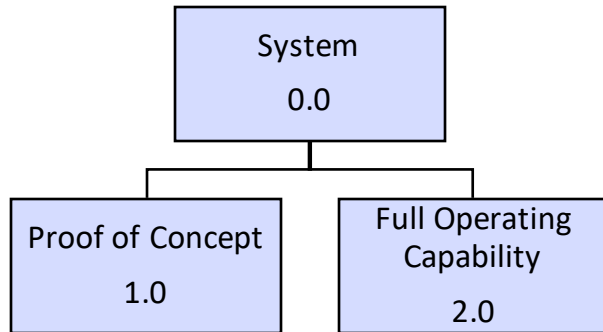
Estimating the whole life cost (WLC)



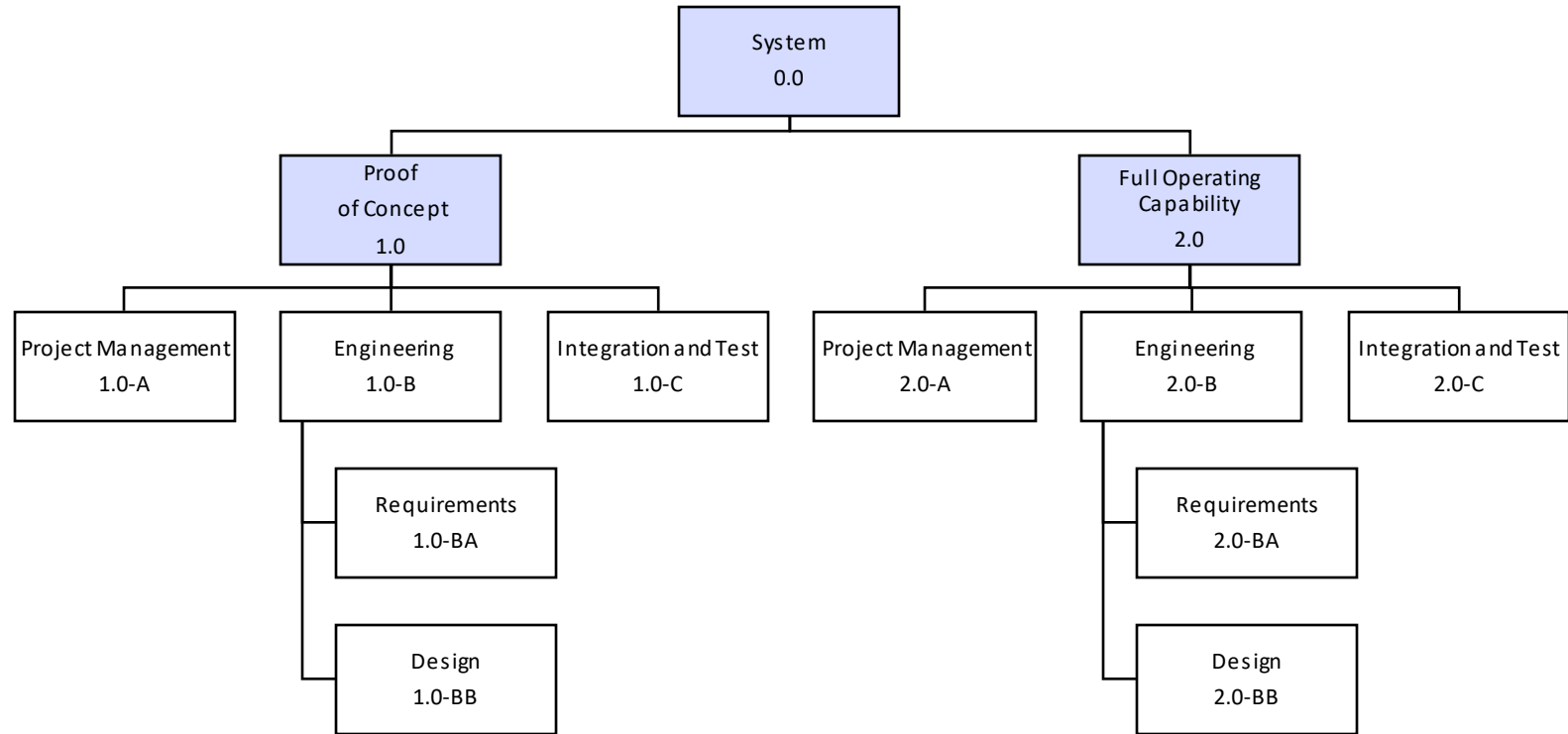
Utilise three estimating methods to gain confidence in the budget request

Bottom-up estimate – analytical Costs

Product Breakdown Structure (PBS)

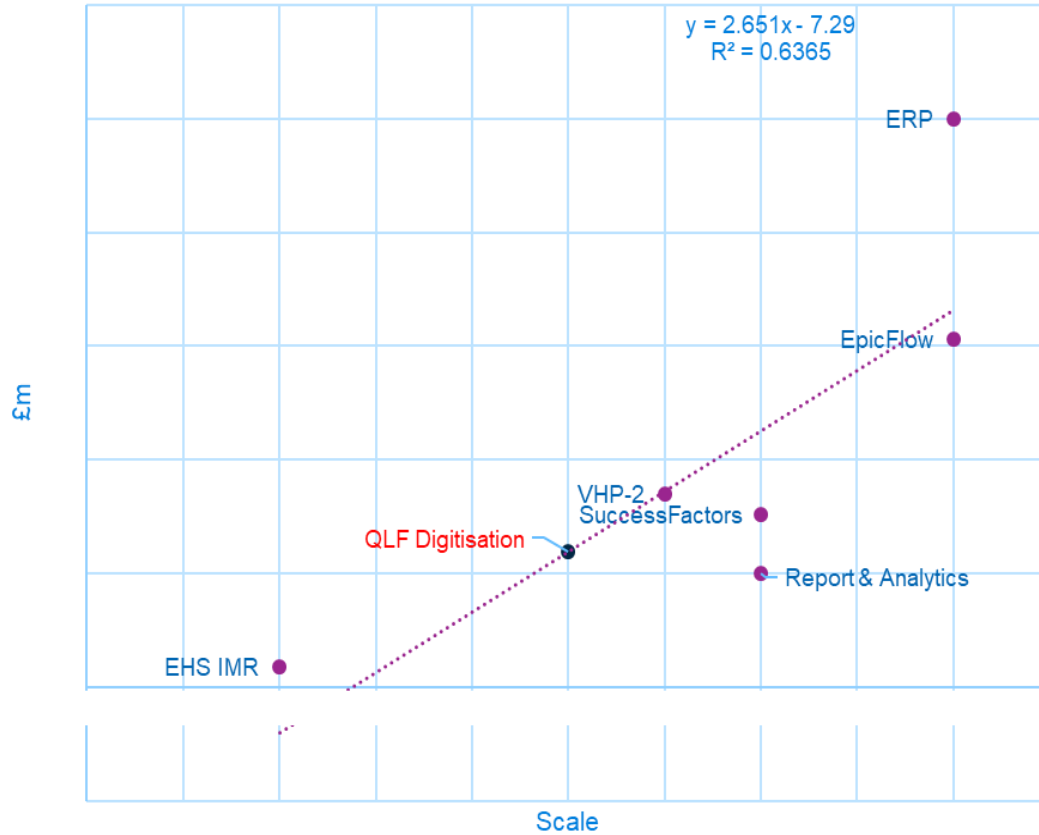


Work Breakdown Structure (WBS)

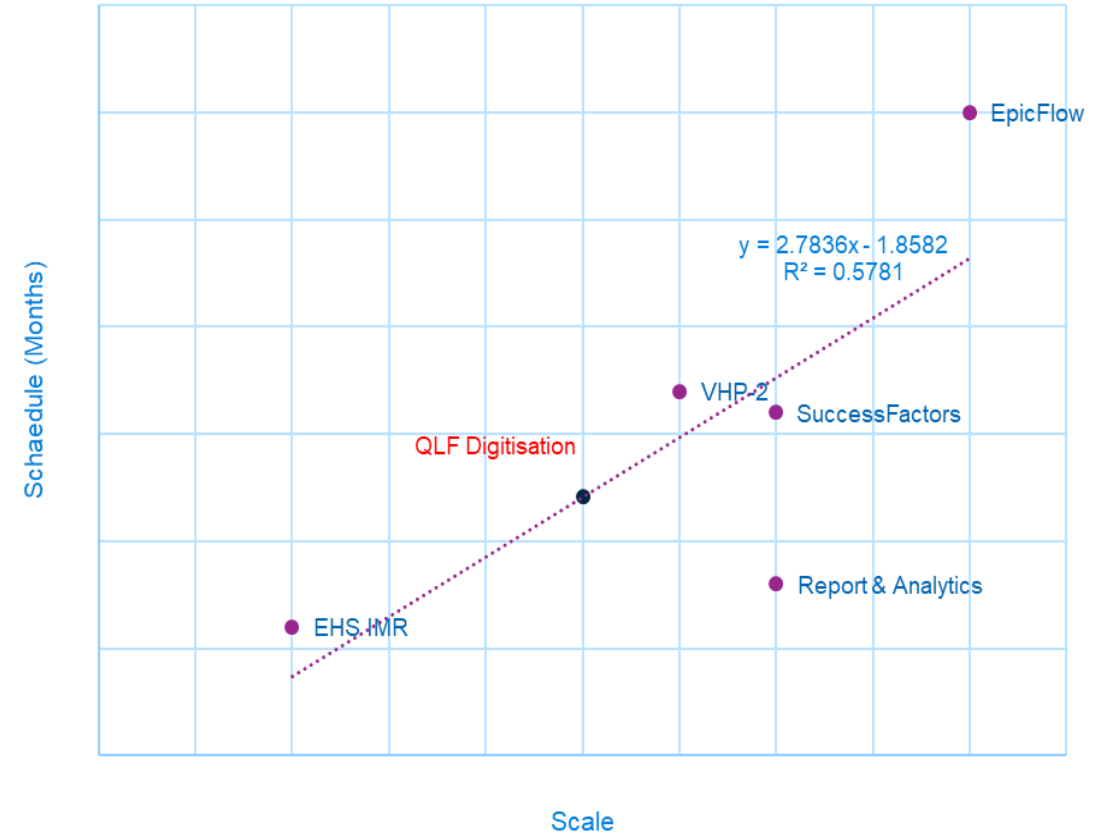


Analogous prediction

Cost

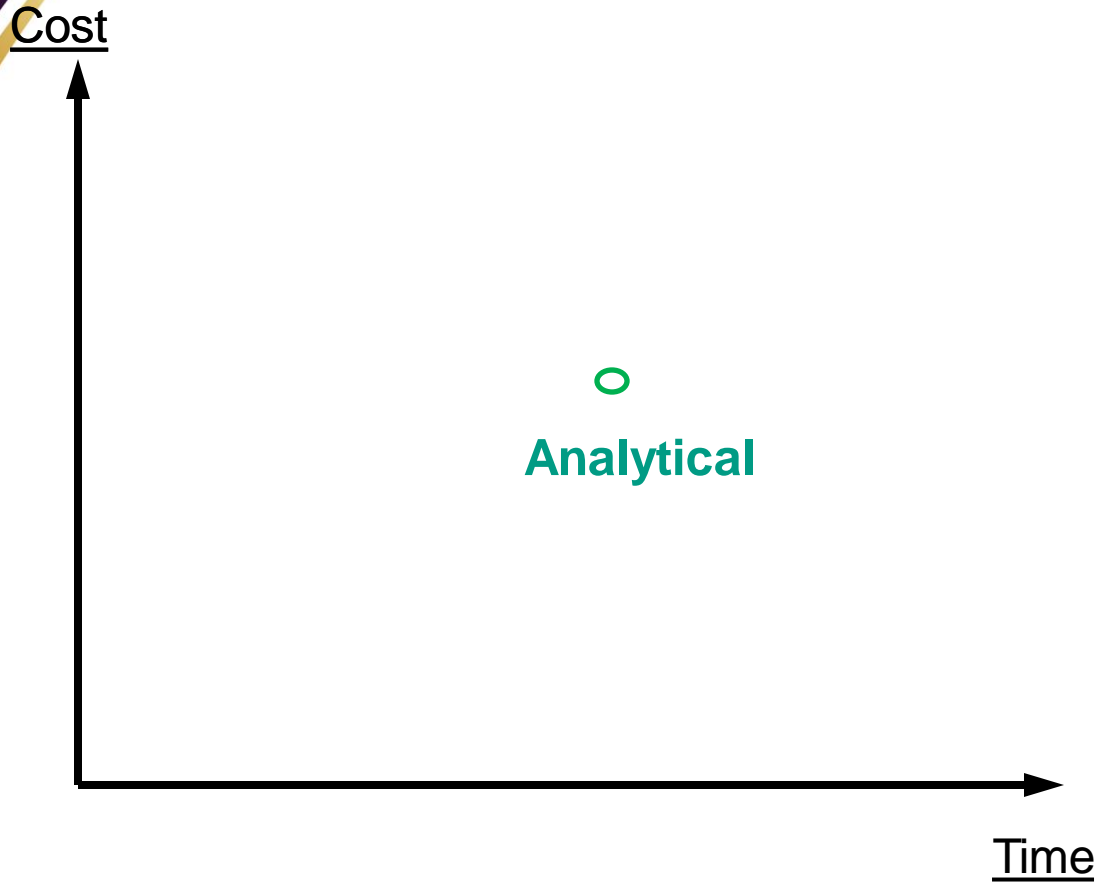


Schedule

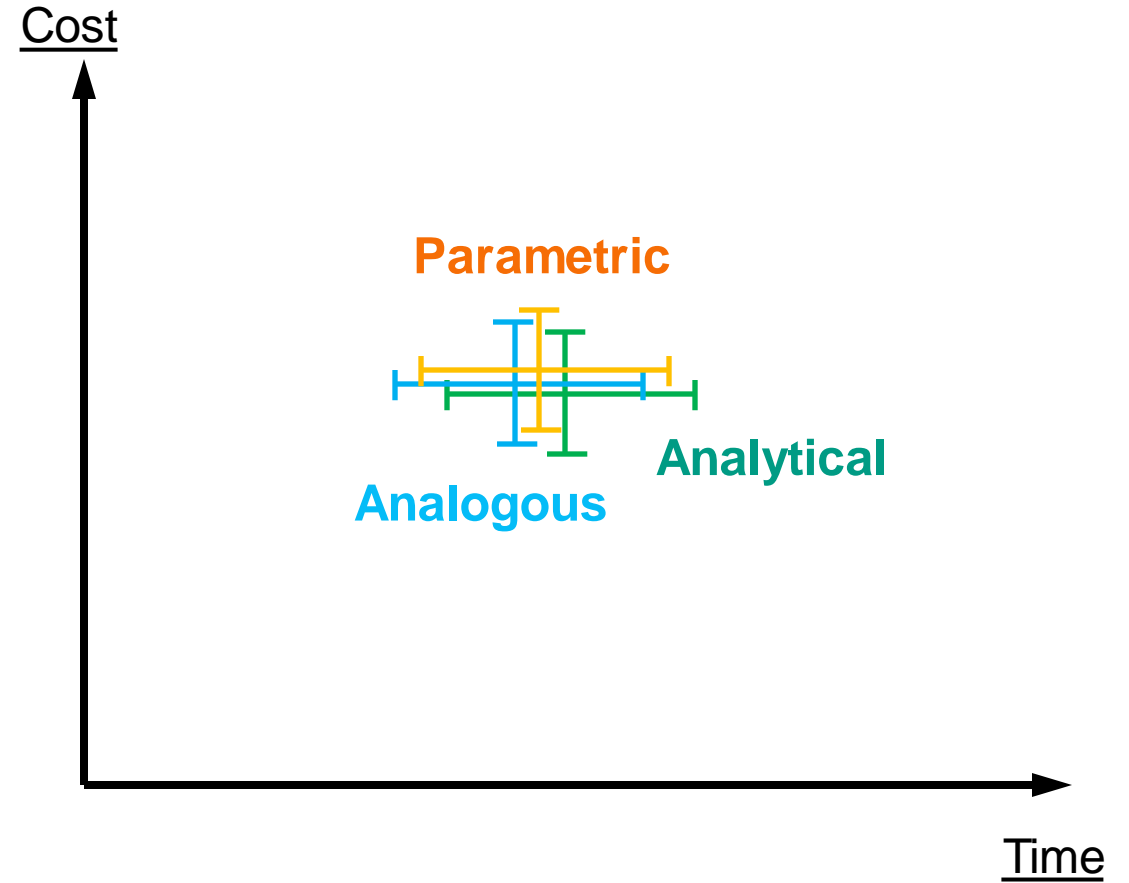


Comparison of cost estimates

Little Confidence



More Confidence



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

Estimate Class	Primary Characteristic	Secondary Characteristic		
	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%

9. Summary

Summary

- Write a **tool agnostic strategy** to cement the case for change.
- Don't get sold on one solution early; establish the capability required and **explore the whole landscape** of options.
- Engage the **stakeholder community** early and maintain the **communication** through the process.
- Produce a **robust business case** and emphasize the options considered; don't leave room for the 'what about' questions. Include:
 - A comprehensive market survey
 - Credible and justified cost benefit analysis
- Deliver through a **gated project process** with opportunities for the delegated authority to question the project and exercise their controls.

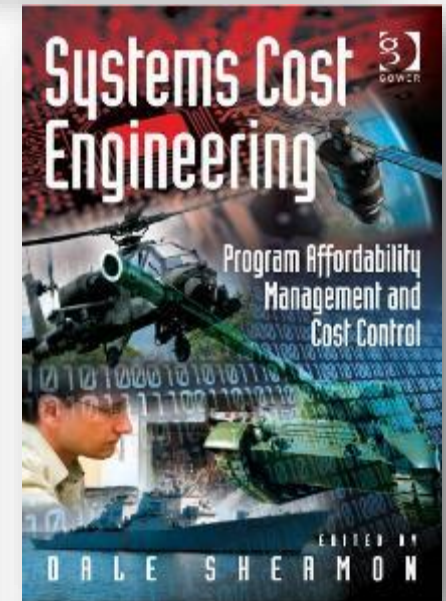
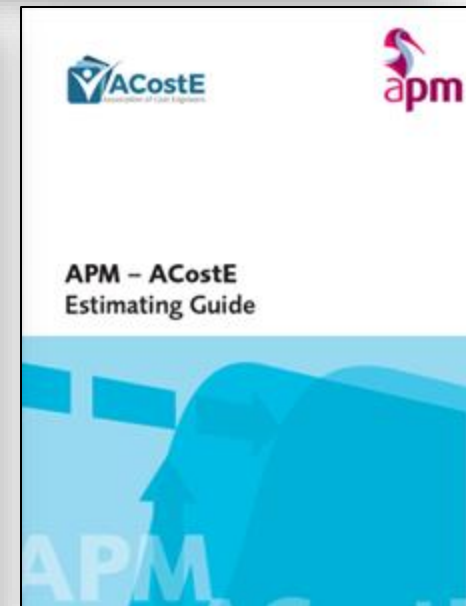
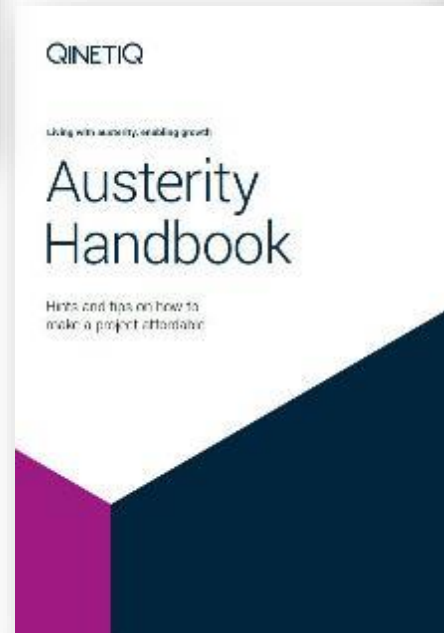
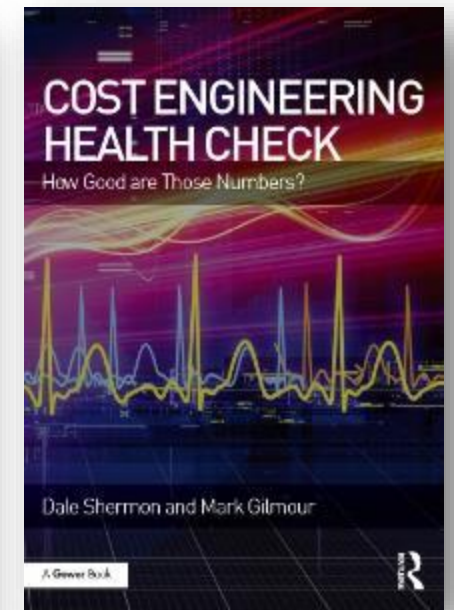
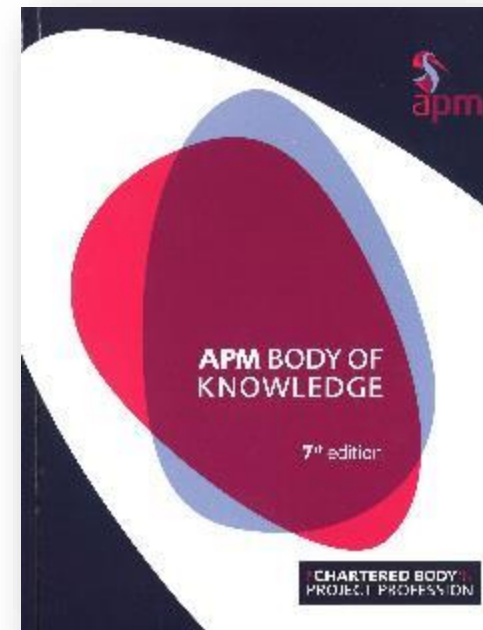
Any questions?

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THANK YOU