Association for Project Management

Senior Managers' Guide to Project Controls

Making the Case for Investing in Project Controls

Because when projects succeed, society benefits

Senior Managers' Guide to Project Controls

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Finally, thanks to our Co-Chair Keith Haward for his contributions, for volunteering me for this task and for his leadership.

Dale Shermon FAPM, Lead Author
Group Head of P3M Professionalism, QinetiQ

Preface

During my 45-year career in the construction industry, the majority of which was spent in project controls, I was fortunate to work on some inspiring projects both in the Middle East and Europe. I saw how critical project controls were in the construction, rail and nuclear industries. Not all projects were successful, but I realised that I learned more from the difficult projects than from the ones that ran smoothly.

In both the successful and the difficult projects, awareness was critical. The various disciplines of project controls helped to identify and highlight the issues. The project team was then clear about where to focus their attention and energy to resolve the issues.

One example was Hays Galleria, a fast-track fit-out for Lloyds Bank, costing £13m over eight months (equivalent to £50m in 2022). With 15 weeks to completion, it was already eight weeks late! We rescheduled the programme to recover the delay and issued weekly progress updates each Thursday night. First thing on Friday morning, the project manager called a site meeting to see where time could be recovered. Resources were then deployed over the weekend to recover the delay. As a result, the client moved in on programme. Project controls gave us the ability to accelerate and visualise the problems, allowing us to recover the programme.

Although the use of project controls does not guarantee project success, it does give visibility of issues before they become insurmountable. As a senior manager, one is always looking for the issues that may delay or derail the project. As the saying goes, forewarned is forearmed. Project controls enable a manager to be ready to address problems before they cause an issue.

It's possible that you are a senior manager in an industry not applying formal project controls. Or you may be a senior manager in an industry that has relied on project professionals for decades. This guide can help you introduce, improve or innovate in the field of project controls. I wish you every success!

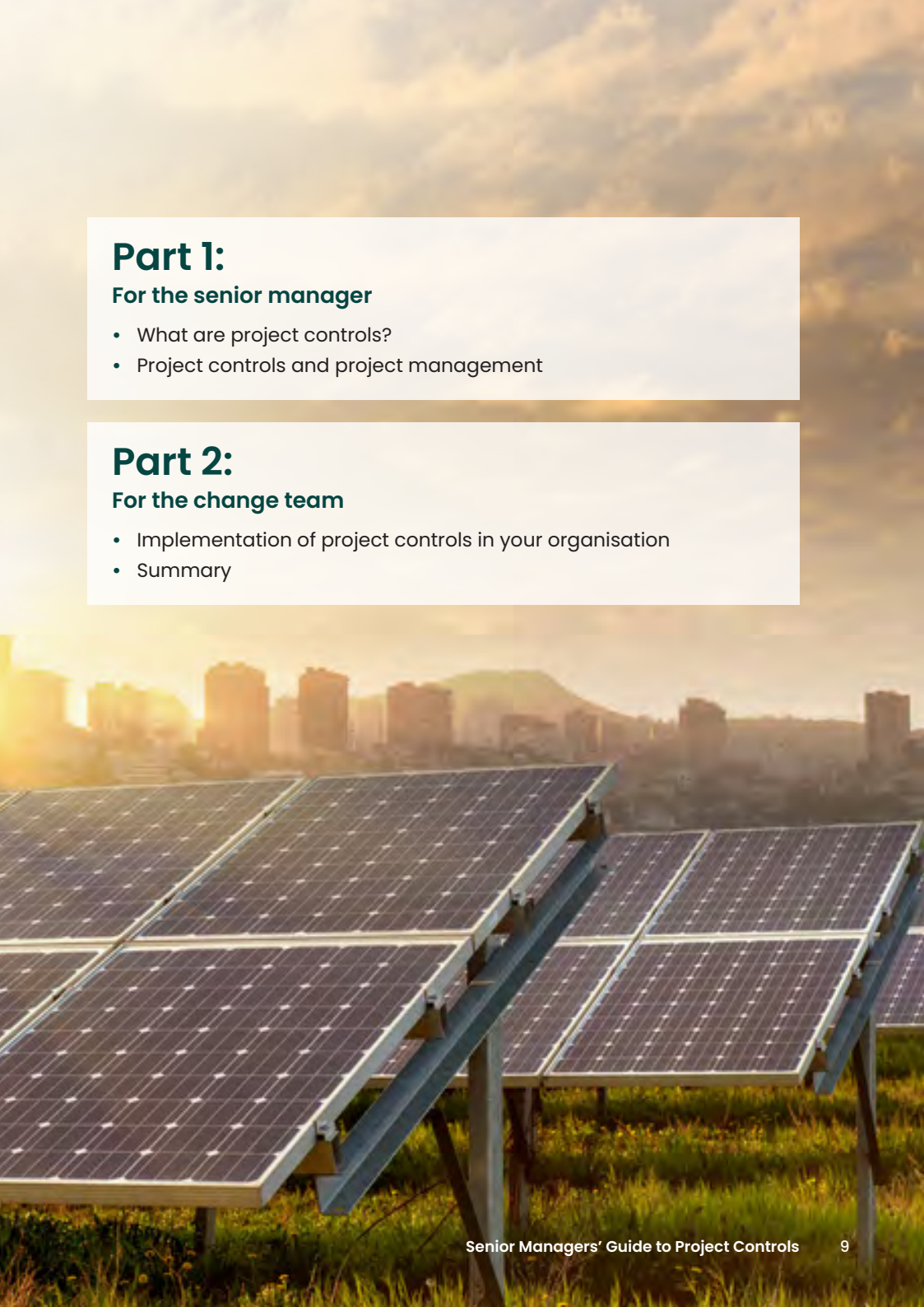
Keith Haward FAPM
Co-Chair, APM Planning, Monitoring and Control Specific Interest Group
Formerly Associate Director, Turner & Townsend

1 Introduction

This *Senior Managers' Guide to Project Controls* demonstrates why executives and managers should invest their time and organisations' resources in project controls.

Part one of this guide is a reference document that focuses on what project controls do, but not how. It recognises that a senior audience is more interested in strategic delivery and good governance than in the details of 'how'. It will refer to all the key project controls areas, which can be studied in more detail in other guides published by APM, for example, *Planning, Scheduling, Monitoring and Control*.

Part two supports the introduction or improvement of project controls within an organisation. This guide will support project controls investments and business cases. We are confident that it will provide credible independent evidence within a business case to support investment in project controls capability.



Part 1:

For the senior manager

- What are project controls?
- Project controls and project management

Part 2:

For the change team

- Implementation of project controls in your organisation
- Summary

Part 1:

For the senior manager

2 What are project controls?

Why should senior managers embrace project controls?

Project controls teams are the people who collect project data and convert it into information and insight. This insight is then a catalyst for action.

Good project controls protect profits, contain costs and assures delivery.

Project controls help you take a structured, formal approach to delivering a project through the project life cycle. It is recognised as the analytical element of project management.

Effective project controls establish data that forms a 'single source of truth' for projects, to track progress and make decisions against. When done correctly, data integrity is assured and datasets are integrated to provide holistic management information.

With effective project controls, you will increase the likelihood of successful outcomes, improving the basis on which projects are launched, identifying and mitigating issues to save time, resource costs and reputation in order to protect profit.

What are the project controls capabilities?

When working with wider functions such as finance and commercial teams, project managers can use the full capabilities of project controls to determine how they will deliver their outputs and check performance through to delivery. The core elements of project controls include:

- managing time
- managing cost
- managing risk (threats and opportunities)
- managing change
- reporting, performance management and decision making
- information management
- associated communications

> **89% of project teams (on projects ranging from £50k to £500m) said that, despite issues, they remain committed to making their projects succeed.**
>
> *(*APM *Conditions for Project Success, 2015)*

The scale of controls should be tailored to the environment, recognising factors such as size of organisation, risk, complexity, contract type, methodology and lifecycle stage. The core principles will still apply; see Appendix A for a list of project controls roles.

The scale and complexity of a project or programme will influence the staffing of project controls. As shown in Figure 1, the project manager may carry out and be responsible for project controls roles in small projects. At the other end of the spectrum, there will be programmes of a magnitude that justify a team of multiple project managers and project controllers, along with specialists such as planners, schedulers and risk managers.

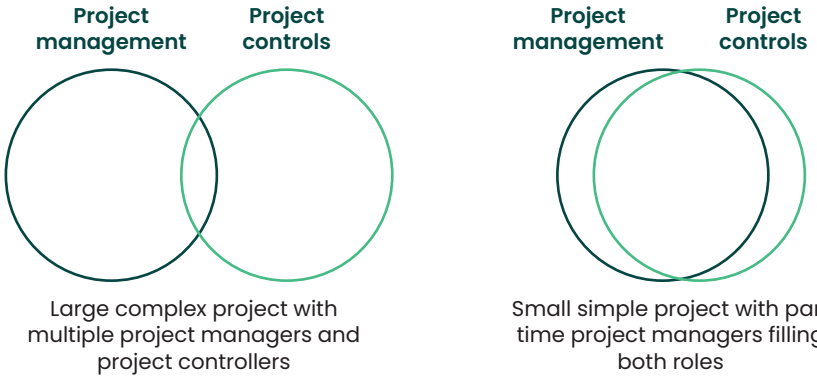


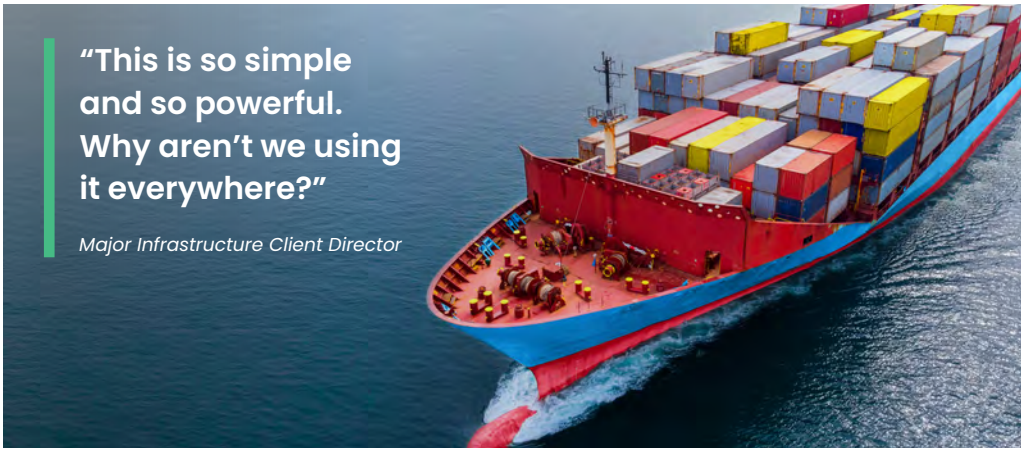
Figure 1: Project controls sizing – the scale and complexity of the project will influence the demarcation of the roles – ©QinetiQ

Projects without controls

The absence of project controls could be compared to driving in the dark without the lights on. In reality, it's all about degrees of application, from approaches that cover the key bases through to more comprehensive systems for managing large complex projects.

Projects fail through poor scope definition, poor execution, poor estimating of cost and schedule, poor performance and cost escalation, resulting in lost profits and reputational damage to the organisation.

Without project controls to monitor the project, there can also be a failure to deliver project benefits to the stakeholders.



How do project controls deliver benefits?

The APM *Conditions for Project Success* report identified 12 factors for successful delivery, which are influenced by project controls. Table 1 highlights the factors and how the project controls can deliver these benefits.

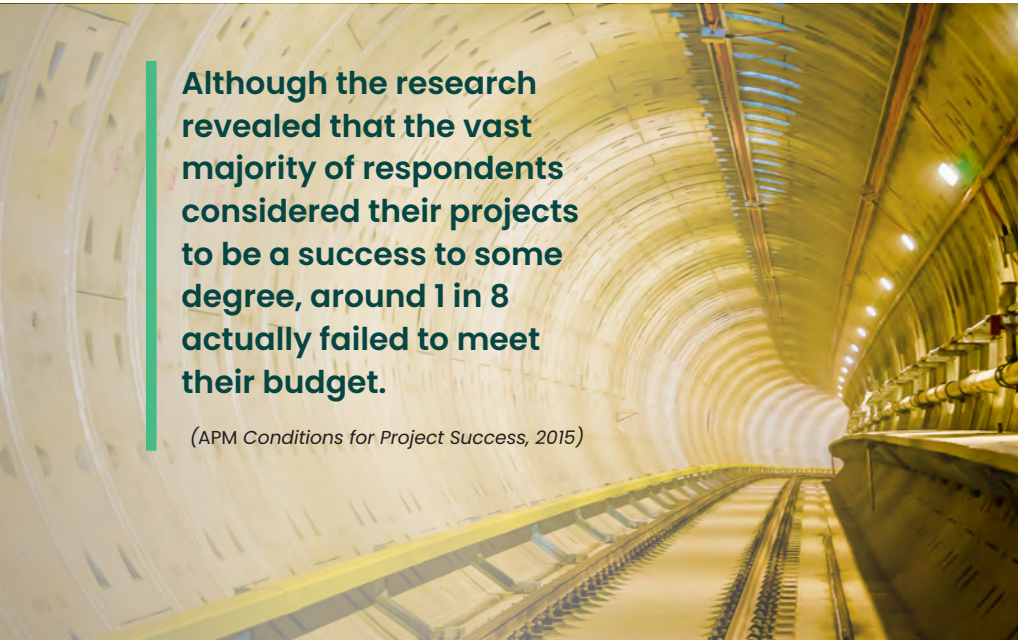
Factors for successful project delivery	Project controls inputs
1. Effective governance: The project has clearly identified leadership, responsibilities, reporting lines and communications between all parties.	Providing clear management information and certainty regarding the schedule, cost and risk position.
2. Goals and objectives: The overall goal of the project is clearly specified and recognised by all stakeholders. It is not in conflict with subsidiary objectives and project leaders have a clear vision of the project outcomes.	Providing assessment of progress towards the project goals, and forecasting the project's benefits and outcomes.
3. Commitment to project success: All parties involved in the project are and remain committed to the project's success. Any lack of commitment is recognised and dealt with, and project leadership inspires commitment in others.	Highlighting areas of under-performance and suggesting recovery actions.
4. Capable sponsors: Sponsors play an active role in the project's life cycle. They assume ultimate responsibility and accountability for the project outcomes.	Providing sponsors with management information and facilitating reviews.
5. Secure funding: The project has a secure funding base. Contingency funding is recognised from the start and budgets are tightly controlled to ensure maximum value is realised.	Supporting the generation of the business case or proposal with justified and credible cost estimates.
6. Project planning and review: Pre-project planning is thorough and considered. There is regular and careful progress monitoring. The project has realistic time schedules, active risk management and a post-project review.	Well thought out project plans with regular monitoring supplies valuable data for monitoring and control.

Factors for successful project delivery	Project controls inputs
7. Supportive organisations: The environment in which the project operates is project friendly. The organisation provides support and resourcing for project activity (including financing) and access to stakeholders.	Facilitating integrated project delivery through dependency management and engagement across the organisation.
8. End users and operators: End users or operators are engaged in the project's design. The project team engages with users who can take on what the project has produced effectively and efficiently.	Coordinating the handover process, including user training and interface.
9. Competent project teams: Project professionals forming a core team are fully competent. Other team members are also fully competent, and the project team engages in positive behaviours which encourage success.	Providing performance management and monitoring team delivery.
10. Aligned supply chain: All direct and indirect suppliers are aware of project needs, schedules and quality standards. Higher and lower tiers of supply chains are coordinated.	Providing supplier integration and performance management.
11. Proven methods and tools: Good practice project management tools, methods and techniques are applied in a way which maintains an effective balance between flexibility and robustness.	Providing the application of APM best practice.
12. Appropriate standards: Quality standards are actively used to drive the quality of outputs. Adherence to other standards is regularly monitored to ensure delivery meets best practice levels.	Assuring compliance with organisational policy, procedures and practices.

Table 1: How project controls can influence the factors for successful project 2015 delivery (Source: *Conditions for Project Success*. Available online at: apm.org.uk/media/1621/conditions-for-project-success_web_final_0.pdf)

The benefits of a mature project controls function are as follows:

- Continuous monitoring through project controls gives the project team and stakeholders insight into their project's performance. This identifies areas of work which are performing well (on time and cost) and any that may need closer scrutiny or may need change to be considered.
- Cost escalations can be reduced through the ability to make timely decisions based on performance data, increased visibility of project financial performance and forecasts, and efficiencies in processes.
- The application of project controls methodologies provides benefits by increased standardisation across an organisation or portfolio, simplifying the process of reviewing project data and providing a like-for-like picture across a range of projects.
  - Project controls staff can efficiently transfer from project to project because they are already familiar with the process.
  - Progress and performance data are easier to analyse, supporting decision making and ensuring information is easy to find.
  - Providing quality information and lessons learned.
- Project controls support the organisation in reducing and controlling scope creep, understanding the impacts of customer-driven change, and providing mechanisms for assuring confidence in project delivery costs/time.



Although the research revealed that the vast majority of respondents considered their projects to be a success to some degree, around 1 in 8 actually failed to meet their budget.

(APM Conditions for Project Success, 2015)

3 Project controls and project management

Project managers need the insight that project controls can deliver. Without project controls, project managers are left to make decisions based on personal judgement. Project controls provide the data that balances any optimism bias. This ensures that senior managers can trust in their project managers' decisions.

When should project managers involve project controls?

Project controls constitute a significant part of the planning and delivery of a project. They should be adopted as early in the life cycle as possible and applied through to closure – and beyond.

Project controls are the data, analytical, reporting and forecasting part of project management, while traditional project management emphasises the softer skills, such as stakeholder management and issue resolution. Both aspects of a project professional's time are essential, as shown in Figure 2.

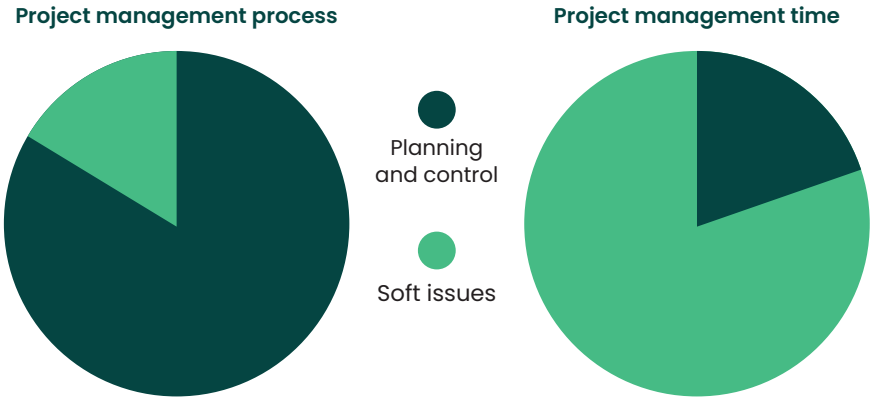


Figure 2: The importance of planning and controls in project management (Source: *Planning, Scheduling, Monitoring and Control guide*)

Table 2 shows how the project controls and project management functions complement each other. See Appendix B for a full list of project management roles.

Discipline	Project controls (Recommending)	Project management (Deciding)
Performance management	Establishing and operating the governance and performance regime needed to enable effective decision making (e.g. data structures, review cycle, review packs, term of reference).	Decision making based upon the information presented.
Schedule analysis	Interrogating project schedules to identify potential risks and issues, and emerging trends that may need addressing. Identifying potential improvement options to address issues and emerging negative trends. Techniques include critical path analysis, schedule risk analysis, dependency analysis and delay analysis.	Gaining situational awareness by working with project controls to understand critical stages within the project and to obtain an accurate idea of whether the project is on time. Making timely decisions on mitigation and recovery options.
Budget and cost controls	Establishing the cost breakdown structure, estimating the budget, establishing a baseline, receiving actual cost information, determining accruals and engaging project team members to forecast remaining costs to assess the project against the cost baseline. Validating payment applications.	Being responsible for the project budget and utilising forecasting information to establish accurate data on project cost performance. Taking mitigating actions to correct or manage variances.

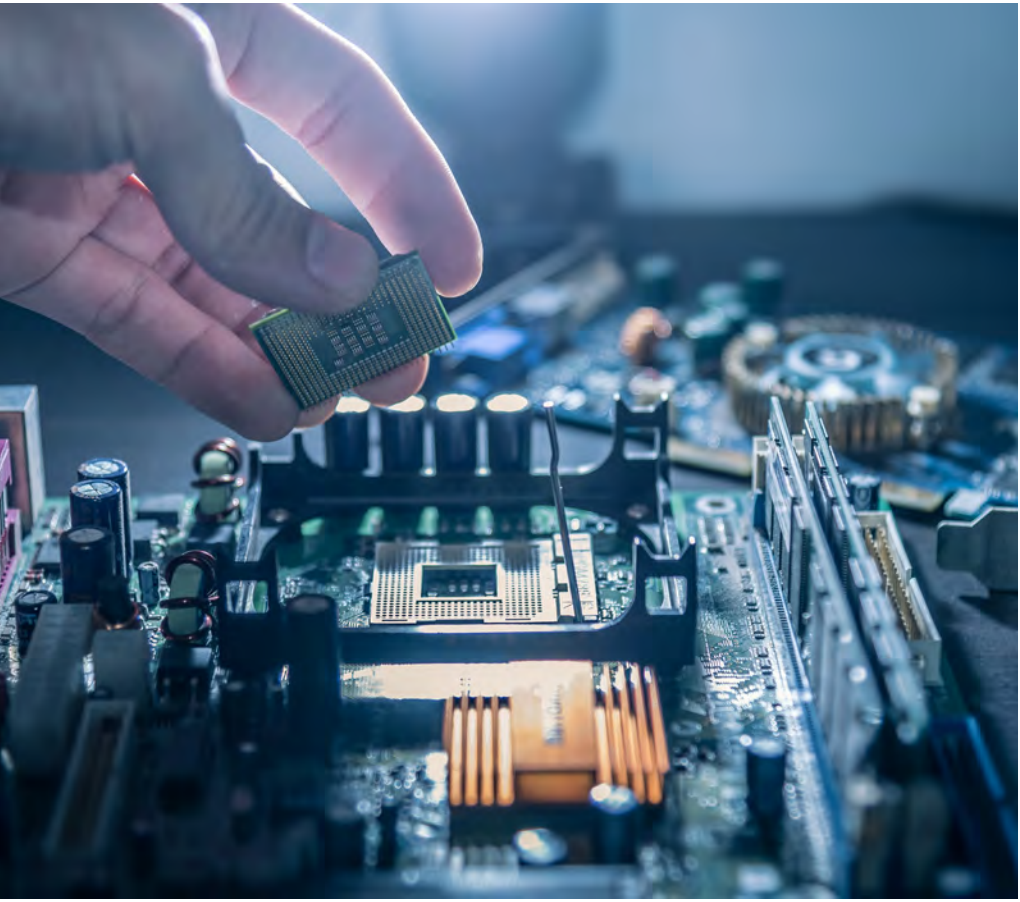
Discipline	Project controls (Recommending)	Project management (Deciding)
Resource analysis	Identifying the resources (e.g. labour, materials, equipment, infrastructure) needed to deliver the project, and understanding when each resource is required. Analysing where there may be shortfalls or over-assignment of resources and identifying potential mitigation strategies to address any issues by optimising the use of resources.	Utilising resourcing information to engage the wider organisation to source the resources needed to deliver the project. Deciding on and implementing any corrective actions to resolve conflicts optimising resources according to the available options (in conjunction with the project controls team).
Risk and issue management	Engaging project team members to identify, assess, quantify and mitigate threats, opportunities and issues.	Utilising risk and issue information to mitigate risks, avoiding/reducing their potential impact on project performance.
Change control	Identifying and assessing the impact of change and monitoring how change is managed across the project. Identifying change trends to understand if they will cause risks or issues within the project. Utilising scenario planning techniques, where relevant, to illustrate different courses of action for team analysis and agreement.	Utilising change information to make informed decisions about what changes to enact. Understanding a change's potential time, cost or quality impact and communicating this before proceeding with the change.
Communications	Using easy-to-understand and accessible formats to communicate plans, budgets and risks, and the performance against them. Providing relevant information to be communicated to stakeholders.	Utilising the communication plan to perform key engagement activities with stakeholders and utilising project controls to understand their effectiveness and whether they need to be changed.

How do project controls benefit project managers?

Project controls bring together a range of project data so that project managers can understand project progress and performance in order to make decisions. Good project controls increase the overall likelihood of projects completing successfully.

Project controls provide an opportunity for project managers to stand back, seek clarity of direction and reflect on the information provided on their project.

Applying project controls provides a clear and robust governance structure to project delivery. It sets clear objectives and can help the project team understand their roles.



Who else benefits?

If project controls need investment, it is helpful to identify who will benefit. Consider the following stakeholders:

Organisation

Project controls:

- allow visibility of data across the enterprise in a standardised manner
- make the need for corrective actions clear
- support project/organisation decision making
- enable future planning based on project forecasting

Shareholders

Effective project controls can protect the organisation's reputation and strategic targets by:

- reducing cost and time overruns in projects
- identifying opportunities for savings and profitability
- managing scope creep

Customers and users

Project controls influence confidence in delivery milestones because there are no cost or schedule surprises. This generates trust and reinforces an organisation's reputation for customer satisfaction.

> **The research revealed that other factors considered as important but less likely to be in place are goals and objectives, and effective governance. 88% of respondents said effective governance was important.**
>
> (APM *Conditions for Project Success, 2015*)

Although the initial set-up of a complete project controls system within an organisation can need resources and time, once the systems are integrated into everyday project delivery, the benefits will be tangible, both on a day-to-day basis and in terms of the overall project outcomes. The implementation need not be a 'big bang' – it is possible to enhance project controls capability incrementally, as shown in Figure 3.

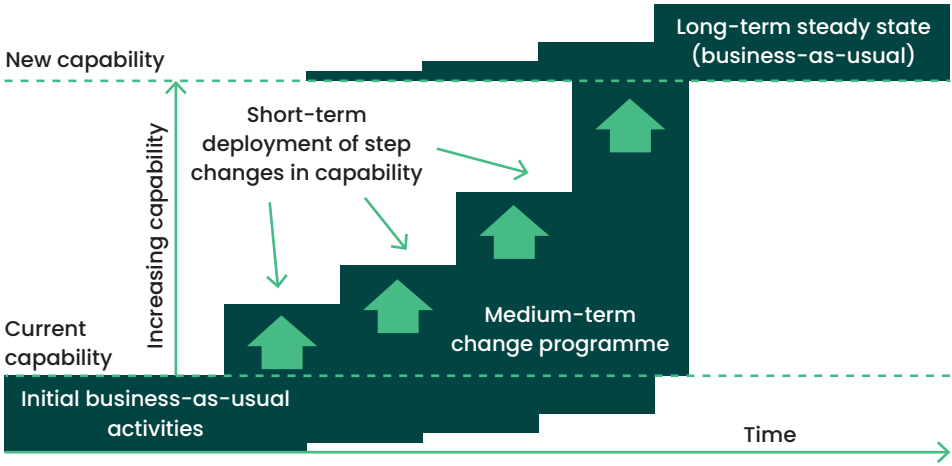


Figure 3: Increasing organisation project controls capability through programme management (Source: *APM Body of Knowledge, 7th edition*)

When do you need project controls?

Project controls enable the project manager to take a strategic view using trusted accurate and timely information. This enables them to focus on their key responsibilities for delivering the project.

Project controls ensure effective governance, because project information is accurately collected and reported to the stakeholders. They support prompt action, particularly when preparing for decision gates within the governance process (see Figure 4).

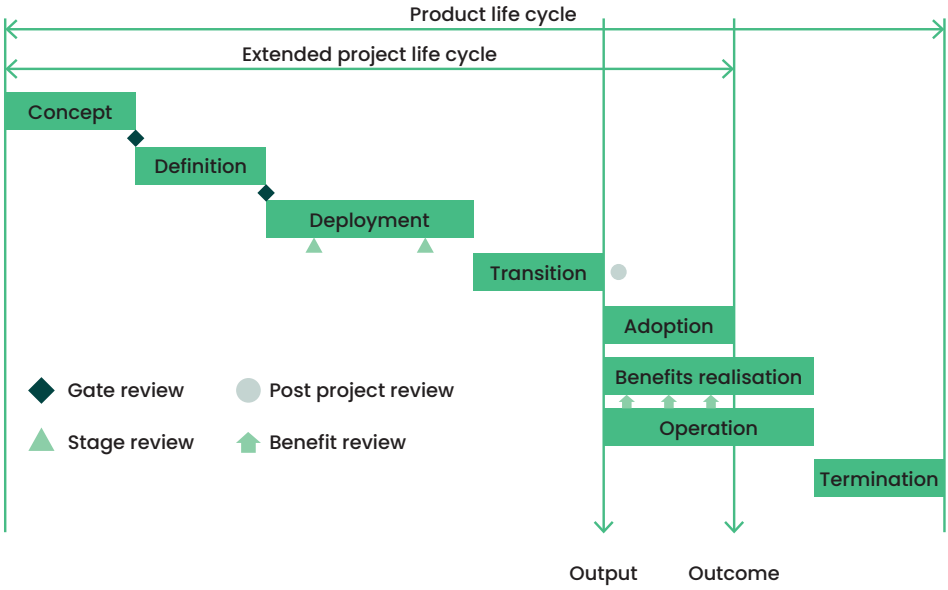


Figure 4: Typical decision gates and other reviews within the project governance process (Source: *APM Body of Knowledge, 7th edition*)

Project controls are utilised from project conception through to project termination. Therefore, project controls are required throughout the project life cycle.

Succession planning

Ultimately, the project controls community can be a source of an organisation's future project managers. Their core analytical skills are valuable and should be deployed at every level of the organisation.

Part 2:

For the change team

4 Implementing project controls in your organisation

This section is intended to support senior managers and their case to introduce new, or improve the performance of existing, project controls within their organisation.

Justifying the case for project controls

To help support the development of the case, you can use the APM Project Controls Maturity Assessment Framework (see References) to establish your current level of maturity. This tool helps you think about what level of maturity you need to achieve and conducts a gap analysis between the current and desired maturity levels to determine how you will implement project controls.

Consider the following to build the case:

- Define the problems and identify the lack of existing capabilities.
- Define the intended outcome and its alignment to strategic objectives.
- Identify a clear motivation for the change to (or introduction of) project controls, which can be communicated to your stakeholders. This should include measuring the project controls maturity and establishing the benefit it will bring. It may be an economic change to enhance profits, make savings or a response to changing technology.
- Understand the reason for the change. For example, has this initiative come from the organisation's board in response to a competitor's actions or a desire to improve?

When resources or new technology are needed, you will probably require a business case to justify and approve the expenditure. The key dimensions of a business case are shown in Figure 5. The benefits, which were described in sections 3.2 and 3.3, can be used to support your case.

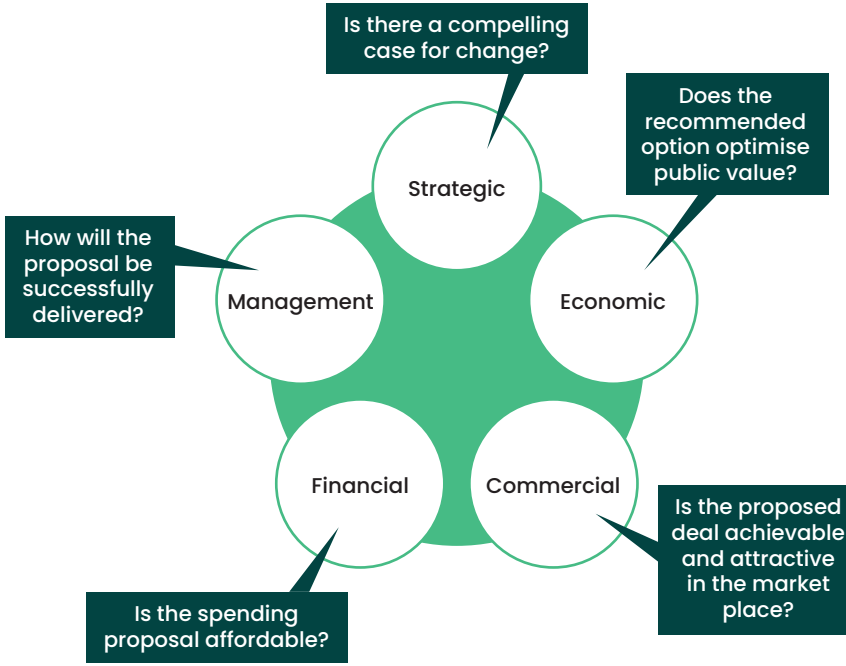


Figure 5: Key dimensions of the business case (Source: *APM Body of Knowledge, 7th edition*)

Planning a project controls change programme

The *APM Body of Knowledge 7th edition* provides a detailed reference for:

- Setting up for success (chapter 1)
- Preparing for change (chapter 2)
- People and behaviours (chapter 3)
- Planning and managing deployment (chapter 4)

(Source: *APM Body of Knowledge 7th edition*)

Implementing or improving project controls will involve a change that impacts people, process and tools. As such, it should be planned and managed as a formal project, as shown in Figure 6.

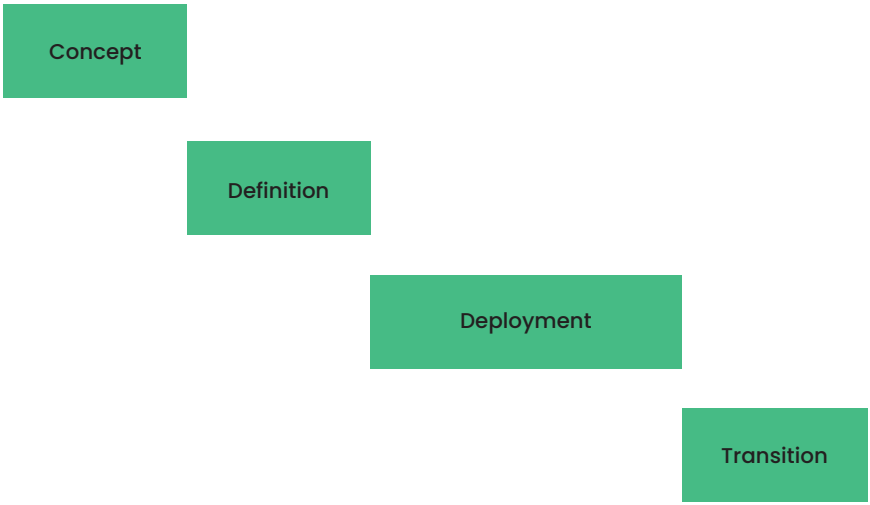


Figure 6: Change project lifecycle – structure your introduction of project controls (Source: *APM Body of Knowledge*)

Creating a roadmap for introducing project controls

As the senior manager, you must act as the sponsor, create the vision and establish the change project's mission statement. The change project team will implement its objectives, strategies and action (see Figure 7 for some examples).

The vision is your aspiration – how you want the project controls team to be seen, internally and externally.

The mission is more tactical – what needs to be done to deliver your vision. Providing senior sponsorship makes it easier to make changes as the team has visible support from the top.

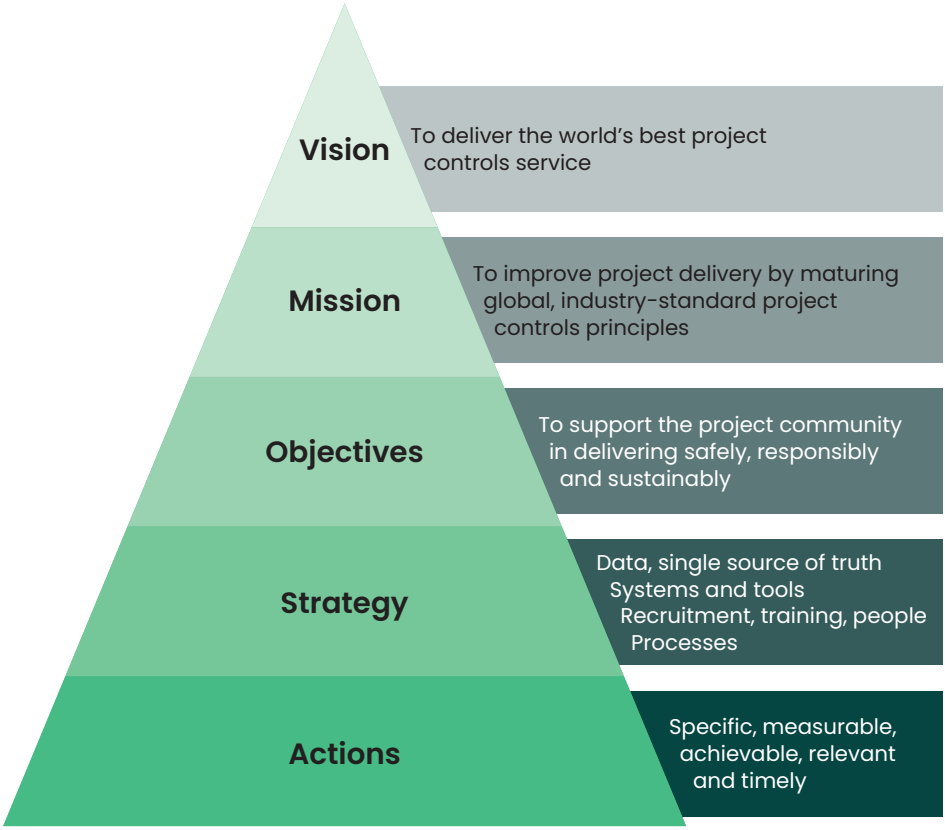


Figure 7: The VMOSA model for strategic planning

Identify any resistance to change, and acknowledge it and engage the resistant people, making a compelling case for the change. Consider using superusers of new technology or systems to train others and spread the word. You could also identify a change network of people who are enthusiastic about the benefit of project controls and who can help build consensus.

If there is a reluctance to change, make available a suggestions box for anonymous comments. Utilise the frequently asked questions (FAQ) format in communications, to include explanations and clarifications. Use meetings effectively to discuss any concerns or anxieties, and negotiate with reluctant staff to help align them to the change. Recognise that opposition may be caused by fear, misunderstanding, lack of knowledge or assumptions, so try to clarify whenever possible.

Collaborating with all elements of the organisation

To be effective and sustainable, project controls need to be fully integrated into your wider organisation processes, including those through which you manage:

- finance
- commercial
- procurement
- wider governance

By engaging the owners of these processes when implementing project controls, you can help ensure that the information through which the organisation is managed is coherent, structured and focuses management action on the areas requiring action.

You need to assign responsibilities and develop commitments to your change project, which includes appointing a change manager. Work with a team to make the project controls changes and consider how you are going to involve your stakeholders, for example by constructing a stakeholder map to identify their strengths. Ensure that they are all involved and active in supporting the changes to project controls.

You will need to empower people who understand project controls, but it is crucial to assess everyone in the team and utilise their strengths.

Introducing one way of conducting project controls

Project controls solutions need to be tailored to the size, scale and complexity of the organisation in which they are being applied. Before putting it into practice, it is key to assess what level of control and oversight you need, recognising the needs of the project, customers and other key stakeholders, and the capacity of the organisation to deliver these requirements.

Once this is understood, you need to establish your ways of working and ensure the organisation is equipped to follow them. It is important to document the overall approach so that you understand how the different components will be delivered, as well as how they will work together. From this, you can:

- establish toolsets that are appropriate to your approach
- develop the skills within your staff to deliver the processes with the tools you have adopted

The outcome should be a consistent approach for controlling project delivery, ensuring appropriate levels of oversight, holding staff to account via performance reviews, and providing a single source of truth that underpins management decisions.

Formalising the approaches you have adopted enables you to apply governance and assurance to confirm that they are being followed, allowing the identification of areas for improvement and continuous learning across the organisation.

Creating a project controls community

To make project controls a self-sustaining function within your organisation, it is important to establish a community that facilitates the sharing of knowledge and best practice across projects and programmes. This can be underpinned by regular communications and interactive events, such as 'lunch and learn' sessions, a community of practice and masterclasses. Formal training and qualifications also help establish the required skillsets.

Consider wider engagement with universities, professional bodies (e.g. APM) and industry partners. This engagement allows your organisation to gain a wider perspective on the application of project controls. It also enables you to gather examples of best practice from the experience of others while also sharing your own knowledge to benefit the wider profession and raise the profile of your organisation.

Establishing a project management office (PMO)

One means of implementing and sustaining project controls is the establishment of a PMO. The PMO can adopt various services and functions depending on the size and complexity of the projects, programmes or portfolio it supports.

The PMO supports the projects or programmes by providing management information that can enable effective decision making. This provides efficiencies and cost savings by sharing experience and resources across projects.

Project controls or the PMO can be utilised at project, programme and/or portfolio levels. Each level provides data and information which supports the organisation. When collated and used at the next level, there are further opportunities to gather data, analyse and gain insight. This allows the development of efficiencies, innovations and the focus on best practice across the enterprise. These, in turn, can substantially improve cash flow, value for money and profit.

Measuring successes

The outcome of this implementation can be measured through the increased maturity against the APM Project Controls Maturity Assessment Framework, which will further identify the focus for continuous improvement activities. Any additional improvement activities must align with your organisation's strategy.

5 Conclusion

We hope that this *Senior Managers' Guide to Project Controls* makes the case for investment. There is more detail in other guides published by APM, for example, the *Planning, Scheduling, Monitoring and Controls* guide.

We have provided a view of the positive value of project controls to an organisation working within the project management discipline.

Project controls provide insight and recommendations that the project manager can rely upon to make evidence-based decisions.

We are confident that this guide will benefit the wider senior manager community in supporting investment in project controls. It also supports the APM mission and charitable aim 'to advance the science, theory and practice of project and programme management for the public benefit'.

> **"Project controls is used extensively on our design team and proving to be an excellent tool to drive delivery"**
>
> *Project Director*

Appendix A: Typical responsibilities of project controls staff

Project controls encompass the people, processes and tools used to plan, manage and mitigate cost and schedule issues and any risk events that may impact a project. Project controls processes and skills are a combination of various sub-disciplines or components:

1 Project controls management
- Coaching and mentoring
- Setting standards
- Allocating resources
- Setting objectives
- Dependency analysis
- Creating work breakdown structures
- Creating cost breakdown structures
- Project control strategy

2 Planning and scheduling
- Developing and managing project schedules
- Coordinating and planning for outages
- Schedule forecasting
- Resourcing
- Integrating a level 2 schedule – programme wide
- Identifying project and programme milestones

3 Estimating
- Compiling project estimates for investment sanctions
- Providing support for contractor bid reviews
- Supporting historical cost collection and data capture
- Estimating significant project changes (where required)
- Developing and maintaining cost book
- Benchmarking within organisation and the wider industry

4 Cost management
- Managing project costs
- Controlling project costs
- Carrying out project and programme trending and trend analysis
- Forecasting project and programme costs
- Supporting fiscal year cost forecasting

5 Earned value analysis and management
- Measuring/reporting progress
- Analysing and calculating performance

6 Change management
- Coordinating change (programme wide)
- Putting in place change controls
- Enabling change board administration

7 Risk
- Ensuring risk assessment, analysis (QRA) and management
- Employing forensic schedule analysis

8 Programme and project reporting
- Producing project status reports
- Producing project review reports
- Producing programme reports
- Producing project close-out reports

9 Information management
- Security
- GDPR
- Configuration and version controls

Appendix B: Typical responsibilities of project management staff

Project management encompasses the people, processes and tools used to plan, manage and mitigate cost and schedule issues and any risk events that may impact a project. Project management processes and skills are a combination of various sub-disciplines or components:

1 Stakeholder engagement
- Stakeholder identification
- Stakeholder analysis
- Communications strategy

2 Requirements and scope management
- Create compliance matrix
- Controlling scope

3 Conflict management
- Win-win solutions
- Assertiveness skills
- Listening skills
- Personal resilience

4 Team management
- Correct behaviours
- Create right culture
- Cascading objectives

5 Benefit management
- Benefits definition, tracking
- Benefits realisation

6 Business case
- Publication and socialising
- Submission and approval

7 Resource management
- Manage resource demands
- Capability management
- Successor identification

8 Leadership
- Mission and vision
- Strategy and direction
- Influence and alignment
- Inspiring and empowerment
- Delegation

9 Contract management
- Contract type
- Terms and conditions
- Procurement law

10 Transition management
- Commissioning
- Handover plan
- Gap analysis
- Adoption

11 Solution development
- Options analysis
- Analysis of alternatives

12 Negotiating and influencing
- Negotiation strategy
- Walk away' position

13 Change management
- Baselining current state
- Scope change
- Desired future state

14 Quality management
- Quality plans
- Acceptance criteria

15 Communications management
- Communications strategy
- Audience analysis

16 Procurement management
- Supply chain
- Tender evaluation
- Vendor selection

17 Governance and assurance
- Gated process
- Independent review

18 Life cycle management
- Life cycle selection (spiral, evolution, linear (waterfall), incremental (agile))
- Project organisation design

References

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