



We are the only chartered membership organisation for the project profession

The *APM Body of Knowledge* is a foundational resource, providing the concepts, functions and activities that make up professional project management.

The seventh edition expands beyond the concepts of time, cost and quality, through projects, programmes and portfolios to embrace project management as integral to the delivery of strategic change.

It seeks to reflect the developing profession, recognising project-based working at all levels, and across all sectors for influencers, decision makers, project professionals and their teams.

Key features:

- A structure that extends from the strategic case for projects to the delivery of benefits.
- Chapters for senior leaders who need to build and shape teams to deliver meaningful change.
- A range of topics including iterative and linear life cycles, personal health and wellbeing, PMOs and other strategic functions.
- Over 200 recommended reading materials, including APM publications, that professionals can use to expand their knowledge.
- A comprehensive glossary of key terminology that run throughout the book, from topic to topic.



“As a foundational resource, written by the profession for the profession, we hope you find the content informative and useful in guiding your endeavours to deliver beneficial change through the management of projects, programmes and portfolios.”

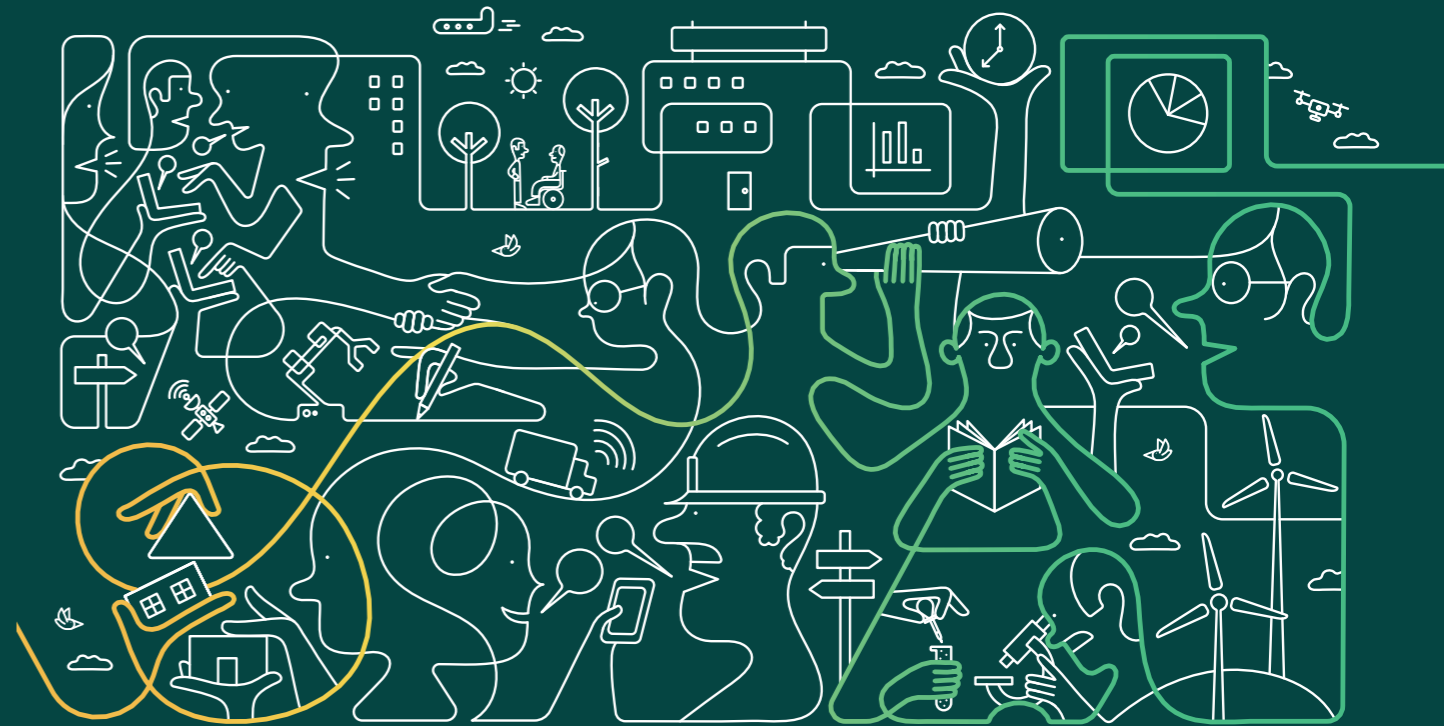
Dr Ruth Murray-Webster,
Editor, APM Body of Knowledge
7th edition



APM Body of Knowledge 7th edition

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7th edition



Because when projects succeed, society benefits



APM Body of Knowledge

7th edition

Association for Project Management

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Introduction

A body of knowledge is a set of concepts, terms and activities that make up a professional domain. The *Association for Project Management Body of Knowledge* has expanded over time to reflect the role of project-based working in achieving objectives for change at strategic and operational levels, involving the development of new or amended products, processes or other capabilities and across private, public and third sectors.

In this seventh edition, we use the term ‘project-based working’ (or the ‘management of projects’) to refer collectively to projects, programmes and portfolios, and we deal with aspects of projects, programmes and portfolios across the text, although acknowledging that not all aspects of project-based working apply to projects, programmes and portfolios equally. We have used the term project professional to refer to anyone working in a defined role within a project, programme or portfolio.

A central tenet of project-based work is the need to balance multiple competing objectives and challenges within a defined set of time, cost and quality constraints in order to achieve beneficial change. This makes the concept of the triple constraint or ‘iron triangle’ as relevant today as when it was first introduced. However, contemporary management by projects is a more developed field than ever before and this gives the organisational leader a wider range of options about how to organise and govern a particular change initiative.

In this version of the *APM Body of Knowledge*, we explicitly acknowledge the ability to choose between multiple forms of life cycle – from one designed to guide the management of deliberate change in a linear fashion to one designed to guide the shaping of emergent change in an incremental, iterative or evolutionary way. Avoiding any simplification of this matter by referring to ‘waterfall vs agile’, we outline the choices that leaders can make and acknowledge the reality that many project-based endeavours now adopt some sort of hybrid linear/iterative life cycle approach.

The *APM Body of Knowledge* is written for anyone interested in understanding more about achieving beneficial change through project-based working, however the structure of this *APM Body of Knowledge* is designed so that each chapter is written with a primary audience in mind.

Chapter 1 Setting Up for Success: Is written primarily for those leaders within organisations who have decisions to make about the role of projects, programmes and portfolios in implementing strategy. Leaders may be in the ‘client’ or investing organisation, or in a supplier organisation that exists to deliver project-based work for clients. The ideas in this chapter apply in both scenarios.

Chapter 2 Preparing for Change: Is written primarily for those people charged with leading any project, programme or portfolio, of any size and complexity. It addresses early life cycle shaping and late life cycle transition into use for projects, programmes and portfolios, as well as matters of assurance, learning and maturity.

Chapter 3 People and Behaviours: Is written for anyone involved in projects, programmes and portfolios. Influencing and engaging stakeholders, forming, building and leading teams, and the generic skills and responsibilities of being a project professional are addressed with the objective of making it clear that all project-based work relies fundamentally on the ability of people to work together.

Chapter 4 Planning and Managing Deployment: Is written primarily for those involved in the end-to-end process of delivering a project, whether a standalone project or one that is part of a programme and/or portfolio, and regardless of the life cycle approach taken. Although the professional domain has expanded, the detailed matters associated with defining outputs, integrated planning and controlling deployment remain.

It is tempting and desirable in a body of knowledge to be definitive about terminology used, and, indeed, the Glossary is provided for this purpose. However, project-based working, as experienced by practitioners, is increasingly performed in a context that is volatile, uncertain, complex and ambiguous. As a result, we feel strongly that it does not serve the profession to oversimplify important aspects of project-based working and, in some cases, we use terms interchangeably, for example:

- Business-as-usual – Operations – Steady state
- Client – Owner – Investing organisation
- Outputs – Deliverables – Products

Unlike other bodies of knowledge or guides to the management of projects, APM chooses not to describe 'how-to' in terms of methods, tools and techniques in the *APM Body of Knowledge*, but rather uses it as a foundational knowledge resource, and a pointer to other sources of information.

Within each of the four chapters, we have three distinct sections and each section contains discrete topics (80 in all). Within each topic, there is a set of carefully curated recommended reading that professionals can use to expand their knowledge and practice. Guides written by APM Specific Interest Groups (SIGs) are included in these recommended reading sections alongside other suggested books and papers.

The *APM Body of Knowledge 7th edition* is the first version of these editions to be published since the award of chartered status. As a foundational resource, written by the profession for the profession, we hope you find the content informative and useful in guiding your endeavours to deliver beneficial change through the management of projects, programmes and portfolios.

1 Setting up for success

This chapter is written primarily for those leaders within organisations who have decisions to make about the role of projects, programmes and portfolios in implementing strategy. We assume that in most situations, there is a choice to be made about how best to structure project-based work in order to achieve unique and specific objectives for change.

The main focus of the chapter is on the available options and the strategic decisions required to underpin and enable beneficial organisational change.

Beneficial change results from the strategic intent, ambitions and needs of an organisation. Organisations operate in increasingly uncertain contexts. They identify strategic priorities and set out to bring about meaningful and beneficial change that is described and realised through a set of benefits that justify the investment. The purpose of the investment therefore is to deliver valuable returns. The investing organisation can use strategic portfolios and programmes, incorporating change activities with business-as-usual, and a variety of project mechanisms to structure and pace the investment.

The required speed of deployment, existing knowledge about the nature of the work that needs to be accomplished and the nature of the potential solution, all play a part in determining the most suitable approach to create and embed the new capabilities, systems and structures. The choice of approach determines the life cycle that will be used to realise and deploy the change. Recognising the strategic nature of change is important in fostering a longer-term approach that is cognisant of the need to adopt the proposed change and realise the intended benefits. An extended perspective as promoted throughout this work is also critical to discharging the responsibility to consider decommissioning and disposal alongside the whole-life costs of assets, and the long-term environmental and social implications of our actions.

Choices and preferences need to be scrutinised and examined. Governance and oversight mechanisms are established to deal with procedural and cultural aspects that need to be in place to improve the effectiveness of the implementation of proposed change initiatives and to underpin the realisation of the strategic investments. Projects, programmes and portfolios need to be compatible with the overarching strategy of the organisation and with the day-to-day operation charged with realising the benefits. A structured approach to change management ensures that beneficial changes are embedded within the organisation's operational approach and closely aligned in order to ensure its long-term successful and impactful realisation.

The chapter is composed of three parts:

- 1.1 Implementing strategy**
- 1.2 Life cycle options and choices**
- 1.3 Establishing governance and oversight**

1.1

Implementing strategy

Organisations operate in a dynamic context, full of uncertainty, novelty and turbulence. Projects, programmes and portfolios are introduced in order to enhance performance, bring about change and enable organisations to adapt, improve and grow. Project-work therefore represents intentional investment in development, enhancement and improvement.

The need for investment emerges from the aspirational plans and an overarching purpose that transpire from the strategic intent of an organisation. Project-work encompasses strategic investments that enable assets, structures, systems, activities and capabilities to be formed, maintained or enhanced so that the organisational plans and ambitions can be realised. In the public sector, this strategic intent may be discussed in terms of policy and policy implementation.

Organisational change is introduced through projects, programmes and portfolios in order to deliver business value. The business value is accrued through the realisation of benefits that result from project-work. Benefits are part of ensuring that investments are made to deliver value to the organisation. This normally applies even when the project is being done by a supplier or contracting organisation, or if the work is needed to maintain current capability or in order to conform to new regulations or directives so that smooth business operations can be allowed to proceed.

The successful deployment of change, the support of new behaviours and the utilisation of new capability, resulting in the realisation of benefits, involves engaging with, promoting and working with diverse communities and groups. To ensure that value is created and sustained, organisations need to consider and address the full investment life cycle ensuring that forecasted benefits materialise.

Delivering strategy is enabled through the use of projects, programmes and portfolios. Portfolios structure investments in line with strategic objectives, whilst balancing, aligning and scrutinising capacity and resources. Programmes combine business-as-usual with projects and steady state activity dictated by strategic priorities. Projects are transient endeavours that bring about change and achieve planned objectives. Together, they combine to deliver the beneficial change required to implement, enable and satisfy the strategic intent of the organisation.

This section will be of particular interest to senior leaders and managers in organisations and to project professionals as it addresses:

- 1.1.1 Organisational environment:** Organisations in context
- 1.1.2 Strategic implementation:** Making strategy happen
- 1.1.3 Organisational change:** Enabling beneficial change
- 1.1.4 Benefits to the organisation:** Putting it all together
- 1.1.5 Structural choices:** Projects, programmes and portfolios

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1.1.2 Strategic implementation

Making strategy happen

'Strategic intent' is a term used to describe the aspirational plans, overarching purpose or the intended direction of travel needed to reach an organisational vision (Figure 1.2.2). Strategic intent provides the basis for the scrutiny of the continuous alignment of the portfolio of project-work against organisational ambition. While the strategic intent describes the alignment between ambition and resources, it can become a constraint on growth. Recognising the inherent uncertainty, as well as the emerging opportunities and threats, is useful to develop a more dynamic basis for balancing evolving ambition with emerging reality.

Strategy implementation, often recognised as the hardest part of the strategy process, is delivered through the execution of strategic projects and programmes and the realisation of their targeted benefits. From an executive perspective, project-work is an essential part of making strategic investment work. The key focus is on the creation of value through projects that will enable meaningful execution of both deliberate and emergent strategies. This implies extending the scope of interest around projects and programmes to incorporate the realisation of benefits that will justify the investment and fulfil the criteria outlined in the business case (see 1.3.7). Life cycles play an important role in ensuring that the intended benefits and value are delivered.

Investment in change is one effective way of implementing strategy. Projects, programmes and portfolios tend to flow out of strategic decisions made by the organisation and can therefore be viewed as strategic investments that enable other activities and capabilities to be developed. This implies that project-work is concerned with the ability to enact the organisational strategy by enabling benefits to be realised so that the intended value can be accrued. Senior leaders within the organisation are able to demonstrate how each project or programme that they fund contributes to the overall strategy. Where projects or programmes cannot be justified or aligned with the organisational strategy, their continued operation and purpose can be questioned. It is worth noting that supplier organisations managing projects for their clients on a commercial basis may have a different strategic justification for conducting commercial work. Project-work may also be needed as an enabler to maintain existing capabilities or assets, ensure compliance with newly introduced legislation or satisfy other professional requirements or business imperatives.

Corporate leaders are accountable for demonstrating profitability and return on investment (ROI), and therefore view project-work as a critical part of delivering that investment and contributing to the overall benefit of the organisation. Portfolios play an important part in maintaining the alignment between project-work and strategic objectives and in enabling the realisation of the benefits that underpin the successful capture of the intended value and securing the return on investment.

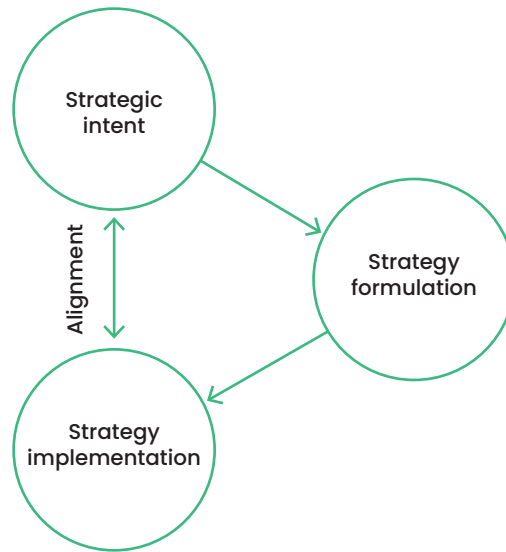


Figure 1.1.2 Hierarchy of strategic intent

Recommended reading

- *Strategic intent* (2005) revisits and updates the original concept of strategic intent established by the same team of authors 16 years previously. In this contribution, the authors compare Western companies to Japanese corporations encouraging a rethinking of strategy and a repositioning of strategic intent.
- *Introduction to Managing Change* (2017), developed by the APM Enabling Change Specific Interest Group, introduces the importance of managing change and sponsoring such efforts. It makes the case for aligning change projects to the organisational business strategy, and supporting the strategy by articulating well-defined benefits.
- *The Evolution of Project Management Practice: From Programmes and Contracts to Benefits and Change* (2018) is an edited volume that makes the case for shifting the focus from the staged delivery of artefacts towards consideration of stakeholders, benefits, value and complexity. The authors offer new perspectives on planning, business cases, benefits, collaboration, sponsorship, strategy execution and overall performance.

2 Preparing for change

This chapter is written primarily for those people charged with leading any project, programme or portfolio, of any size or complexity.

The focus of the chapter is preparing for change, in particular to consider in advance the practices that are important in early life cycle shaping, mid-life cycle assurance, learning and maturity, and late life cycle transition into use – whether leading a standalone project, or a programme or portfolio.

Translating strategic priorities into a justified business case for an investment in planned change leads to decisions about how to shape the particular project, programme or portfolio. Focusing on stakeholder needs and the organisation's appetite for risk, early decisions can be made to inform detailed planning. In particular, procurement strategy and considerations of operational adjustments that may be needed during deployment are important topics to consider early as they will influence the scope of subsequent work.

There are some aspects of project-based working that apply in all circumstances and inform the ability of an organisation to improve their capability to deliver change successfully – project by project. All teams involved in project-based working need to make informed decisions and to provide assurance to different stakeholders. Effective project-based organisations are proficient in creating and using knowledge to continuously improve their practices and enhance their maturity. In organisations where the ability to deliver beneficial change reliably and at scale is important, building effective within-project and cross-project support through a project, programme or portfolio management office (PMO) is critical to success.

Ultimately, the organisational return on investment from project-based working is accomplished when the particular outputs of projects are transformed into organisational outcomes of benefit to stakeholders. The approach adopted for transition of project-based outcomes into use in business-as-usual is closely linked to the chosen life cycle, so many variants are possible. In all cases, the ability of a temporary change team to influence the recipients of change in the permanent organisation so that new processes, products, systems or ways of working are adopted, is paramount. And because projects and programmes are transient endeavours, the managed closure of the work – whether as planned or earlier – is an explicit and crucial part of the work to be done.

The chapter is composed of three parts:

2.1 Shaping the early life cycle

2.2 Assurance, learning and maturity

2.3 Transition into use

2.1

Shaping the early life cycle

Shaping projects, programmes or portfolios during the early life cycle depends on expressed and implied needs of stakeholders and the extent of the willingness of the investing organisation(s) to take risk with innovative product development, ambitious timescales or novel ways of working. There is no 'correct' way but the rigour put into the first steps in setting up the work has value as plans develop and are deployed. Emerging insights into how to manage different complexities effectively in project-based working point to the need for the sponsor and manager/leader to come to a common view on how to approach the work in order to minimise downside risk and be in a position to seize the upside benefits of any emergent change.

In most organisations, a dependence on suppliers of goods or services in the supply chain to support project-based working is a reality. Many corporate members of APM and readers of this body of knowledge will work for organisations whose main product is the provision of project-based services to their clients. Following a strategic review of the market, procurement strategies need to be devised so that the investing organisation can deliver their objectives within the constraints of the supply chain and their in-house organisational capability. Supplier organisations will be more successful when they understand the strategic or tactical benefit to the client.

Business-as-usual work, of course, does not stop while project-based work is being planned and deployed. In circumstances where the project is designed to make changes to an existing operation, sponsors and their colleagues in the business need to make decisions about the best place to manage ongoing work, and how to administer the interfaces between 'change' and 'run' work. Operational adjustments are often needed.

Shaping the early life cycle requires risk-based decisions to be made that represent a trade-off between objectives and risk. This works best when sponsors operate in partnership with the managers tasked with delivering the project, programme or portfolio.

This section will be of particular interest to project, programme and portfolio leaders thinking about early life cycle phases as it addresses:

- 2.1.1 Project shaping:** Setting up projects of all sizes for success
- 2.1.2 Programme shaping:** Setting up programmes to deliver the desired beneficial change
- 2.1.3 Portfolio shaping:** Setting up portfolios to ensure efficient delivery of objectives
- 2.1.4 Procurement strategy:** Matching supply-chain engagement to needs
- 2.1.5 Operational adjustments:** Ensuring operational and project-based work is coordinated

2.1.2 Programme shaping

Setting up programmes to deliver the desired beneficial change

This topic is about programmes that are standalone, or potentially part of a wider portfolio of work. Shaping and funding a change initiative as a programme assumes that there are greater benefits to be achieved through programme management than would be the case if the constituent projects in the programmes were managed independently.

Programmes are groups of related projects and business-as-usual (or steady state) activities that together achieve beneficial change for an organisation. Shaping programmes requires the selection and framing of projects and other work in business-as-usual into a structure where benefits can be delivered incrementally over time.

To shape a programme, the sponsor works with stakeholders as early as possible to establish:

- a clear understanding of the desired future state – typically described as a ‘programme vision’
- how much risk investors are willing to tolerate in achieving their objectives (risk appetite)

This applies whether programmes are standalone or managed as part of strategic portfolios (see 1.1.5 and 2.1.3).

Shaping the programme to accomplish the vision requires the sponsor and programme manager to select and organise projects and other business-as-usual activities into tranches that achieve incremental delivery of benefits. Each tranche is designed to achieve a step change in capability and benefits realisation (Figure 2.1.2). Programme planning is always benefits-led – answering the question ‘What is the best work to do next to deliver outcomes and benefits effectively?’ rather than ‘What would be the best work to do next to deliver outputs/products efficiently?’

A programme deployment approach and life cycle are characteristically iterative (see 1.2.3), to facilitate decisions about the optimal next steps to deliver the vision. In programme governance, the sponsor advises key stakeholders on the deployment of constituent projects within the programme but decision-making is focused on deciding whether the programme as a whole needs to be reshaped based on progress to date with deployment of the work and the attainment of benefits.

Sometimes, governance of projects within programmes is set up independently to programme governance. Where this is the case project sponsors are part of the programme governance structure to ensure a continual focus on programme benefits and the alignment of priorities.

Funding for programmes may be via a single client organisation, or through multiple parties. Where there are multiple investors, the sponsor and programme manager need to stay close to stakeholders to keep the shape of the programme focused on optimal attainment of benefit for all parties.

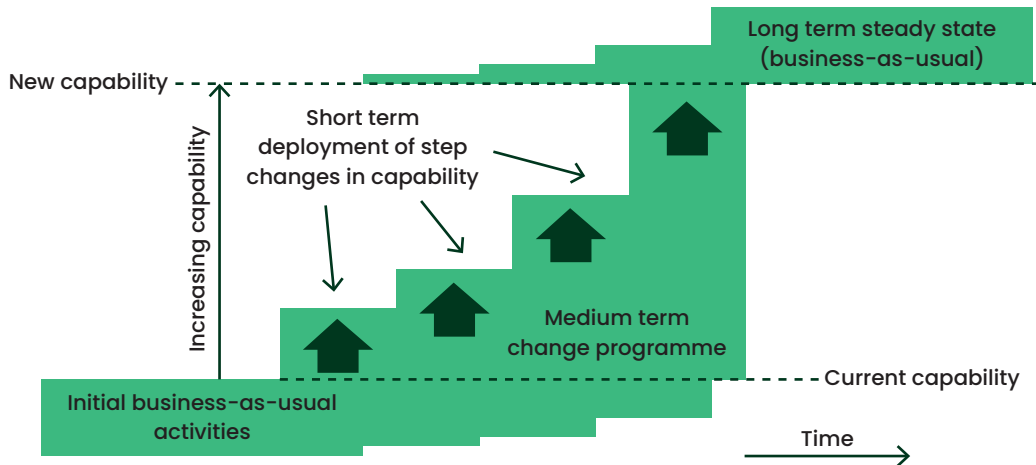


Figure 2.1.2 Increasing organisational capability through programme management

Source: *APM Introduction to Programme Management (2016)*

Recommended reading

- The APM Programme Management Specific Interest Group guide *APM Introduction to Programme Management (2016)* describes a 'definition' phase of a programme and the things that are important to do to set up programmes for success.
- *Program Management (2015)* provides a comprehensive guide to shaping programmes as a link between strategy and projects. It references international standards and guides and provides a practical way to think about the iterative programme life cycle over time.
- *Thinking and Acting as a Great Programme Manager (2008)* provides an in-depth, yet practical way of considering change from a programme rather than a project perspective. It is a very useful tool in the training and development of programme managers.

3 People and behaviours

This chapter is written for anyone involved in projects, programmes and portfolios. Engaging and influencing stakeholders, forming, building and leading teams, and the generic skills and responsibilities of being a project professional are addressed with the objective of making it clear that all project-based work relies fundamentally on the ability of people to work together.

Stakeholders, those individuals or groups who have an interest or role in the project, programme or portfolio, or are impacted by it, cannot by definition be 'managed'. Rather, depending on their stake, and the role that ideally they will play, the people involved in the work, from sponsor to team member, are part of the effort to keep the stakeholder appropriately engaged and influenced to do the right things. This is not easy work and benefits from a facilitative approach rather than assuming that 'command-and-control' approaches will be effective. Conflicts may well arise and the resolution of these, or containment if resolution is not possible, is essential for all involved parties.

Groups of people with a common aim are called a 'team' on the assumption that the people will not only cooperate with each other but also collaborate to innovate and perform. Effective project-based working relies on effective teamwork, often carried out in a context where teams are temporary, multidisciplinary and, occasionally, also geographically dispersed. Leading a group of people so they can become a high-performing team is skilled work and some would argue that it is the most important skill that a project professional needs to develop.

Beyond working with stakeholders and teams, there are other aspects of any role involved in project-based working (from sponsor to team member) that is about managing self and working in a professional manner. There are some generic skills that apply to everyone, including effective communication and the ability to manage ones' own time and workload. Project professionals also operate within frameworks designed to uphold the law and professional standards. Doing this ethically and with a focus on continual professional development is a vital part of working as a professional in any field.

This chapter is composed of three parts:

3.1 Engaging stakeholders

3.2 Leading teams

3.3 Working professionally

3.1

Engaging stakeholders

There is wide agreement that understanding stakeholders — those influential, interested individuals and groups who are affected by projects, programmes or portfolios — is critical work. However, over the past decades, ‘stakeholder management’ has become a frequently used term. The term implies that stakeholder behaviours and actions can, indeed, be managed, i.e. predicted, planned and controlled.

This section challenges the position that stakeholders can be ‘managed’ and suggests the need to think instead about how we understand, engage and influence stakeholders. Identifying and understanding stakeholders is the starting point, but going beyond initial assumptions or generalisations is key, as is understanding stakeholder relationships with each other, as well as with the project, programme or portfolio.

Deeper understanding, including of organisational power and politics, is the basis for effective engagement — an opportunity to build enough of a relationship with stakeholders to influence their perspectives and behaviour.

Influencing stakeholders, usually without any position power, is ongoing work for the project professional. This work is often aided by adopting a facilitative approach. Sometimes, conflict needs to be resolved, or at least managed in order to balance the needs of the project with the needs and expectations of the people involved.

This section, written for anyone involved in project-based working, addresses the following topics:

- 3.1.1 Stakeholders:** Understanding who needs to be engaged and influenced
- 3.1.2 Social context:** Navigating sociopolitical complexity
- 3.1.3 Engagement and influence:** Working with people to build support to achieve intended outcomes
- 3.1.4 Facilitation:** Making it easy to collaborate and solve problems
- 3.1.5 Conflict resolution:** Facilitating win-win solutions where possible.

3.1.2 Social context

Navigating sociopolitical complexity

At its heart, project-based working requires an ability for people to work together to develop solutions and solve problems in a constrained environment. Success factors include the ability to clearly define roles and responsibilities for team members, the creation of a coherent project culture and the influence of the sponsor and other stakeholders who have a common and supportive view of the project.

Sometimes, it is relatively easy to establish these success factors. Often, it is not because there are many complexities to navigate in the organisational context, for example, multiple organisations, differing perceptions of priorities and/or different cultural norms and expectations. On many occasions, the complexity relates directly to people and behaviours and can manifest itself in power struggles, misaligned communication and conflict.

In projects, programmes and portfolios where the relationships between stakeholders and the team are complex, it can be useful to build an understanding of the social system at play, i.e. the network of relationships and how the influences between actors work together as a whole (Figure 3.1.2). Social systems recognise that interconnected entities often produce behaviour that cannot be predicted by analysing the system's parts in isolation. Systems are more than the sum of their parts.

In analysing a social system, the project professional needs to go beyond simple ideas of whether a stakeholder has high or low power, for example, and to understand and influence sources of power. In most situations, project professionals do not have position or hierarchical power with respect to stakeholders and need to influence through their personal characteristics and skills. They require as much information as possible in order to work out how to accomplish this.

Organisational politics is also a factor to understand alliances, explicit and hidden agenda and alignment of personal objectives with project objectives. The consideration of the network of relationships and interests is vital to craft appropriate engagement and communication strategies.

Mapping interests and influences in a social network diagram (alternatively called a soft systems diagram in systems thinking) can be a good way for the team to visualise multiple complex relationships and to make sense of who needs to be engaged and influenced and how. Such a technique can also be really useful to identify people and behaviour-based risks.

Where project-based working is socially and politically complex, some of the traditional ideas of planning and control using a linear life cycle are not so effective because there is a low chance of accurately anticipating what is required and when. Iterative approaches that prioritise collaboration between stakeholders and co-creation of solutions can be far more effective because they balance the need for pace and progress with resolving the uncertainty associated with complex social contexts.

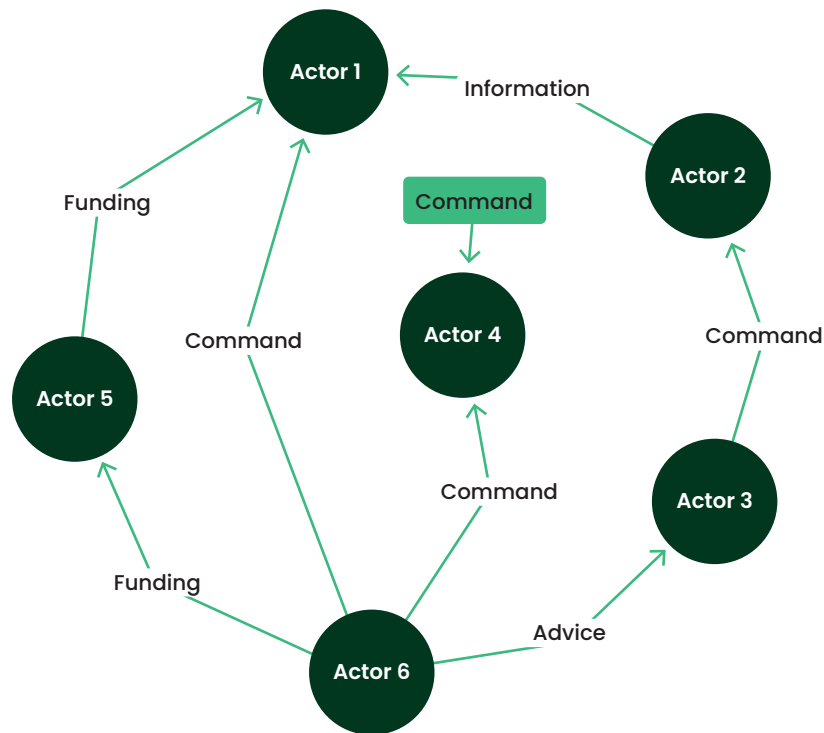


Figure 3.1.2 An example social network diagram

Source: APM/ INCOSEUK ST SIG

Recommended reading

- *Systems Thinking: How is it Used in Project Management?* (2018) is the output of an APM Research Fund project conducted by the APM Systems Thinking Specific Interest Group, in collaboration with University College London. It provides broad information about systems thinking in general (not just about social systems) applied specifically to project-based management.
- *Social Network Analysis* (2017) is a classic text, now in its fourth edition, that helps people involved in analysing social contexts to understand how to map and understand relationships between people and groups.
- *The Hidden Power of Social Networks: Understanding How Work Really Gets Done in Organizations* (2004) introduces a visual framework to help project professionals discover how communication and collaboration works within a social network of relationships. This text includes analysis of a large number of information employee networks in different companies to illustrate how influence can be achieved through non-traditional channels.

4 Planning and managing deployment

This chapter is written primarily for those involved in the end-to-end process of delivering a project, whether a standalone project or one that is part of a programme and/or portfolio, and regardless of the life cycle approach taken.

Although the professional domain has expanded, as described in many parts of the earlier chapters, the detailed matters associated with defining outputs, integrated planning and controlling deployment remain. However, the context for this work is changing, with pressure to respond to an increasing need for agility and flexibility. As a result, many projects adopt iterative rather than linear approaches for at least some part of the life cycle.

Moving from high-level expressions of stakeholder vision or need through to a detailed statement of work for the chosen solution involves a number of steps of refinement: exploring objectives; detailed requirements; success criteria; measurable benefits; best value options; scope definition and acceptance criteria for each element of that scope. This work builds a firm foundation for detailed planning.

Taking forward the definition of outputs into detailed planning requires a focus on multiple areas, and the integration of those areas into the baseline project management plan. Depending on particular project objectives and the life cycle chosen, different approaches to planning time, resources and cost, in the context of risk can be adopted.

Controlling deployment requires a detailed focus on monitoring and reporting as well as a commitment to manage risk, issues and change/variations in a disciplined way. The imperative to provide audit trails for assurance, and the opportunity for individual team members and the wider organisations involved to reflect, learn and improve, is an organisational reality for all who work in a competitive environment.

The chapter is composed of three parts:

4.1 Defining outputs

4.2 Integrated planning

4.3 Controlling deployment

4.1

Defining outputs

Moving from high-level expressions of stakeholder vision or need through to a detailed statement of work for the chosen solution involves a number of steps of refinement exploring success criteria, measurable benefits, detailed objectives and requirements, best value options, scope definition and acceptance criteria for each element of that scope. This work builds a firm foundation for detailed planning.

The linear progression from high-level expressions of need and benefit in an early business case through to the specification of detailed requirements, scope and acceptance criteria is well understood. For many projects, this remains a value-creating process, especially for large-scale, highly technical projects, where rework is expensive and does not justify an iterative approach.

The emergence and growing popularity of iterative approaches requires us to think about defining outputs in a different, more adaptive way. The danger, however, is to assume that the approaches designed to build in agility and flexibility do not require the discipline to define some things clearly, for example benefits that justify the investment or the acceptance criteria for deliverables. Understanding the different options and maintaining a balance are always important.

This section, written for all people working to plan and deliver either standalone projects or projects within programmes and portfolios, addresses the following topics:

- 4.1.1 Success and benefits:** Understanding what success means for different stakeholders
- 4.1.2 Objectives and requirements:** Comprehensive and measurable requirements are critical to project success
- 4.1.3 Options and solutions:** Exploring multiple options until a preferred solution is identified
- 4.1.4 Scope definition:** The translation of requirements into outputs for the chosen solution
- 4.1.5 Quality planning:** Ensuring outputs are delivered in accordance with requirements

4.3.6 Change control

Managing variations and change requests in a controlled way

Change control is the process through which all requests to change the baseline of a project, programme or portfolio are identified, evaluated and approved, rejected or deferred (Figure 4.3.6). Change requests may arise as a result of issues that arise in the management of the work, or from external sources such as new stakeholder requirements, new regulations or changes in the context that result in the original plans being no longer viable.

Managing requests for change effectively is a proven success factor in project management, the alternative being a potential escalation of problems as changes are adopted without analysis of their impact on other parts of the solution or deliverables. It is of particular importance when the project is part of a larger programme or portfolio because the consequential effects of unmanaged change may be far-reaching within the planned change environment and to business-as-usual activities.

Managing change requests in a controlled way enables the sponsor and other stakeholders to:

- understand the implications of variations on the forecasted outcomes of the work
- influence the decision of how to respond in the context of their objectives and appetite for risk

The project professional implements the following steps to control change:

- *Log change request:* A change register (or log) records all changes identified or requested from whatever source and whatever their status.
- *Initial evaluation:* The change is reviewed to consider if it is worthwhile evaluating in detail or should be rejected.
- *Detailed evaluation:* Considering the impact on baseline success criteria, benefits, scope, quality, time, resources, costs, risks, stakeholder engagement or any other criteria important to achieving the business case.
- *Recommendation:* Is made to the sponsor and/or wider governance board to approve, reject or defer the change. The sponsor is accountable for ensuring a decision is made and communicated.
- *Update plans:* If a change is approved, plans are updated to reflect the change.
- *Implement:* The necessary actions and monitor through to completion.

In scenarios where change is implemented without formal authorisation, the project professional adopts a retrospective process. Rather than being seen as unnecessary bureaucracy, this is needed to enable realistic forecasts.

In certain circumstances, it is appropriate to implement a change freeze on a project where no further changes are considered, as to do so would jeopardise the achievement of the project objectives.

It is important to differentiate change control from the wider discipline of change management. Change management is a structured approach to move an organisation from a current state to a future desired state. Project-based working is used to achieve this.

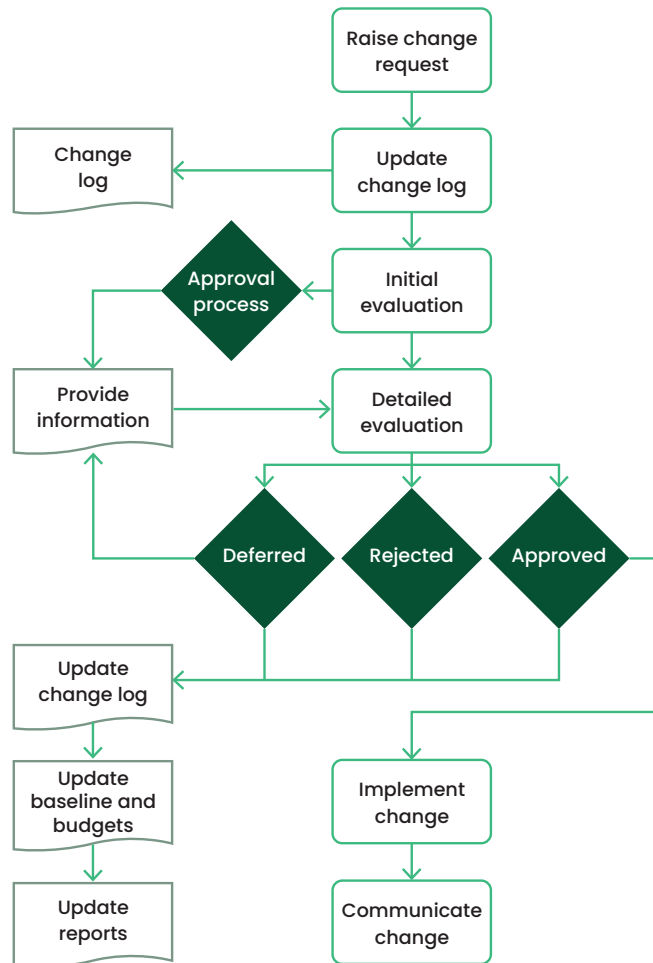


Figure 4.3.6 A change control process

Source: *Planning, Scheduling, Monitoring and Control* (2015)

Change control is a subset of overall change management and it is useful to not mix up the language.

Recommended reading

- APM's Planning, Monitoring and Control Specific Interest Group, *Introduction to Project Controls Guide* (2015), demonstrates how change control fits into the wider suite of project controls.
- APM's Planning, Monitoring and Control Specific Interest Group guide, *Planning, Scheduling, Monitoring and Control* (2015) includes in section 25 a comprehensive guide to a change control process.
- *The Project Workout: The Ultimate Guide to Directing and Managing Business-Led Projects* (2019) dedicates a chapter to the consideration of change control, with a particular emphasis on controlling change, accountabilities for change decisions, change control process and advice regarding the change request form.

Glossary

This glossary is made up of terms used in the seventh edition of the *APM Body of Knowledge* only. Definitions are provided where terms used are unique to the profession, or have a unique meaning in the profession.

Acceptance criteria The requirements and essential conditions that have to be achieved before a deliverable is accepted.

Activity (1). A task, job, operation or process consuming time and possibly other resources. (2). The smallest self-contained unit of work in a project.

Adoption The optional additional phase in a linear life cycle that facilitates the use of project outputs to enable the acceptance and use of benefits.

Agile A family of development methodologies where requirements and solutions are developed iteratively and incrementally throughout the life cycle.

Analogous estimating An estimating technique based on the comparison with, and factoring from, the cost of similar, previous work. Also known as comparative estimating.

Analytical estimating An estimating technique that uses detailed specifications to estimate time and cost for each product or activity. Also known as bottom-up estimating.

Assurance The process of providing confidence to stakeholders that projects, programmes and portfolios will achieve their objectives for beneficial change.

Baseline The reference levels against which a project, programme or portfolio is monitored and controlled.

Benefit A positive and measurable impact of change.

Benefits management The identification, definition, planning, tracking and realisation of benefits.

Benefits realisation The practice of ensuring that benefits are derived from outputs and outcomes.

Bottom-up estimating An estimating technique that uses detailed specifications to estimate time and cost for each product or activity. Also known as analytical estimating.

Breakdown structure A hierarchical structure by which project elements are decomposed. Examples include: cost breakdown structure (CBS), organisational breakdown structure (OBS), product breakdown structure (PBS) and work breakdown structure (WBS).

Buffer A term used in critical chain for the centralised management of schedule contingencies.

Business-as-usual An organisation's normal day-to-day operations. Also referred to as steady-state.

Business case Provides justification for undertaking a project, programme or portfolio. It evaluates the benefit, cost and risk of alternative options and provides a rationale for the preferred solution.

Business information modelling (BIM)

involves the generation and management of digital representations of physical and functional characteristics of buildings and places. Building information models are digital files (often but not always in proprietary formats and containing proprietary data) which can be extracted, exchanged or networked to support decision-making regarding a building or other built asset. Related to configuration management.

Business readiness A continuous concern and activity through the life of a project or programme that seeks to understand attitudes to change and any barriers so that people are ready to accept outputs and adopt new ways of working to realise benefit.

Change control The process through which all requests to change the approved baseline of a project, programme or portfolio are captured, evaluated and then approved, rejected or deferred.

Change freeze A point after which no further changes to scope will be considered.

Change management The overarching approach taken in an organisation to move from the current to a future desirable state using a coordinated and structured approach in collaboration with stakeholders.

Change register (or log) A record of all proposed changes to scope.

Change request A request to obtain formal approval for changes to the approved baseline.

Closure The formal end point of a project, programme or portfolio; either because planned work has been completed or because it has been terminated early.

Communication The process of exchanging information and confirming there is shared understanding.

Communities of practice A type of learning network used within and between organisations to maintain, develop and share knowledge.

Comparative estimating An estimating technique based on the comparison with, and factoring from, the cost of similar, previous work. Also known as analogous estimating.

Complexity Relates to the degree of interaction of all the elements that make up a project, programme or portfolio and is dependent on such factors as the level of uncertainty, interaction between stakeholders and degree of innovation.

Concept The first phase in a linear life cycle that develops an initial idea through initial studies and high-level requirements management and assessment of viability including an outline business case.

Configuration The functional and physical characteristics of a product as defined in its specification and achieved through the deployment of project management plans.

Configuration management Configuration management encompasses the technical and administrative activities concerned with the creation, maintenance, controlled change and quality control of the scope of work.

Conflict resolution The process of identifying and addressing differences that if left unmanaged would affect successful completion of objectives.

Context A collective term for the societal and/or organisational setting of a project, programme or portfolio. Also known as environment.

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