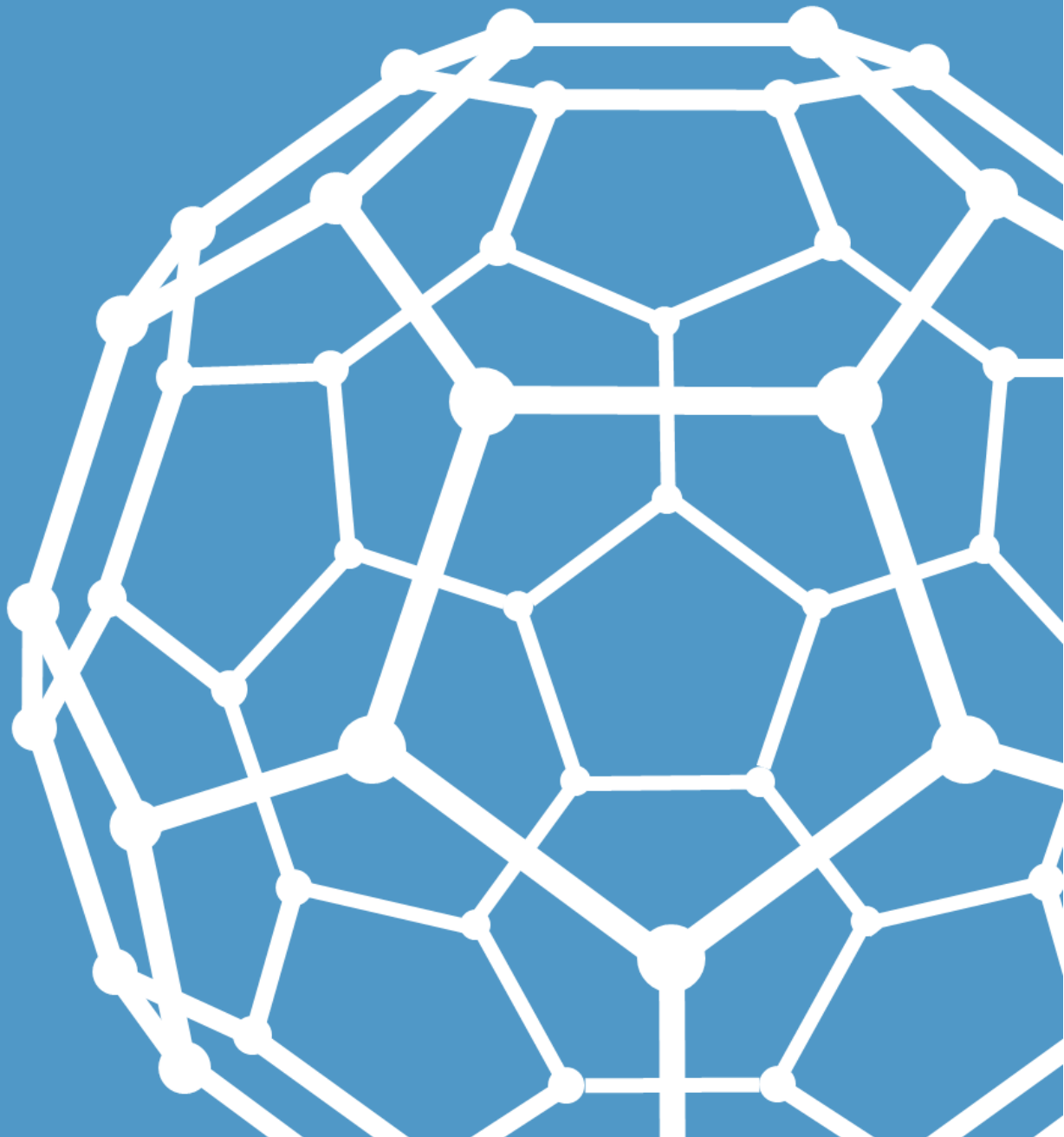# Using the Praxis Framework to implement GovS 002 v2

The Government Functional Standard for project delivery.

Introduction

The functional standard GovS 002 is part of a suite of management standards that promotes consistent and coherent ways of working across government, and provides a stable basis for assurance, risk management and capability improvement.

GovS 002 is a high level document that describes policies and outlines good project delivery practices. The aim of this document is to demonstrate how the more detailed content available in the Praxis Framework:

- supports GovS 002 with complementary detailed content

- provides tools to embed good practice

- enables real time tracking of continuous improvement.

Praxis is a community driven framework. Its continued evolution and improvement depend upon the feedback of users and practitioners. If you have useful stories that will help others or ideas for additional content, please contact us at info@praxisframework.org and be part of the growing Praxis community.

The left hand column in this document contains text from the GovS 002 functional standard. The right hand column contains explanations of how the Praxis Framework provides supporting detail and direct links to that supporting detail on the free Praxis Framework web site.

1   About this government functional standard

1.1   Purpose of this government standard

The purpose of this government functional standard is to set expectations for the direction and management of portfolios, programmes and projects ensuring value for money and the successful and timely delivery of government policy and business objectives.

This standard provides direction and guidance for:

- permanent secretaries, directors general, chief executive officers of arm's length bodies and sponsoring bodies, ensuring an environment exists which promotes delivery success and integrates with their other activities

- senior responsible owners, ensuring the breadth of practices required for successful delivery are used

- owners of departmental methodologies, developing processes and techniques which are consistent in scope across government

- assurance and audit bodies, for testing best practice

- portfolio, programme and project offices, managers, suppliers and their teams introducing the practices

The purpose of Praxis is to provide guidance on all good practices for project, programme and portfolio management in an open, free and community driven way.

It combines the best from many other guides mentioned in the functional standard but in an integrated and consistent way with a single taxonomy and terminology.

Using the Praxis Framework enables owners of departmental methods, assurance and audit bodies, programme and project offices etc. to access free guidance that can be used under a Creative Commons licence which is similar in principle to the Open Government licence.

GovS 002 make numerous references to the APM Body of Knowledge and PRINCE2. Praxis Framework combines both of these into a single framework with consistent structure and terminology.

A range of open models and tools are included to support the implementation of the project delivery practices, including:

- Business Integrated Governance: a model for governance across project delivery and business as usual.

- Team Praxis: an approach that shows how project delivery practices are applied in different ways by people with different personalities.

- Praxis 360: a system that builds organisational maturity in an agile, bottom up way.

1.2   Scope of this standard

This standard applies to portfolios, programmes and projects undertaken within or across government departments and their arm's length bodies:

- ranging from those listed in the Government Major Project Portfolio (GMPP) through to those at local business level

The Praxis Framework applies to all projects, programmes and portfolios. It is not limited to any one sector, industry or type of work.

Praxis provides generic guidance that equally applies to public and private sectors, construction, engineering, IT and business change regardless of delivery methods and techniques.

• whether for digital, infrastructure, transformation, service delivery, military capability, property, regulatory compliance or other purposes	Praxis does not make any specific references to the Government environment. Such references in the delivery standard have no equivalents in Praxis.
• regardless of delivery methodology or technique used	
Other public sector organisations, devolved or local, might find this standard useful.	
Note: an organisation, in the context of government functional standards, is the generic term used to describe a government department, arm's length body, or any other entity that is identified as being within scope of a functional standard.	
The structure of the standard is shown in Figure 1.	

1.3   Government standards references

The following standards are directly necessary for the use of this standard:	Outside the scope of Praxis
• GovS 003, Human resources	
• GovS 005, Digital, data and technology	
• GovS 006, Finance	
• GovS 007, Security	
• GovS 008, Commercial	
• GovS 009, Internal audit	
• GovS 010, Analysis	
• GovS 011, Communication	
A functional standard supports achievement of the outcomes sought by an organisation. It sets expectations for what needs to be done and why relating to the functional work within its scope, in order to achieve those organisational outcomes.	
Note: for expectations relating to management of a function across government, and management of functional standards, see GovS 001, Government functions.	

1 About this standard

2 Principles

3 Context: portfolios, programmes and projects

4 Governance (approvals, assurance and roles)

5 Organisation management

Portfolio management — Governed through a business plan

6 Programme management — Governed through a business case

Project management | Other related work

Work package management — Governed through a work plan

7 Planning and control practices

8 Solution delivery practices

Key to arrows:
Request direction, advice and decisions
Report progress, escalate issues and risks

Provide direction, advice and decisions
Keep appraised of context and risk

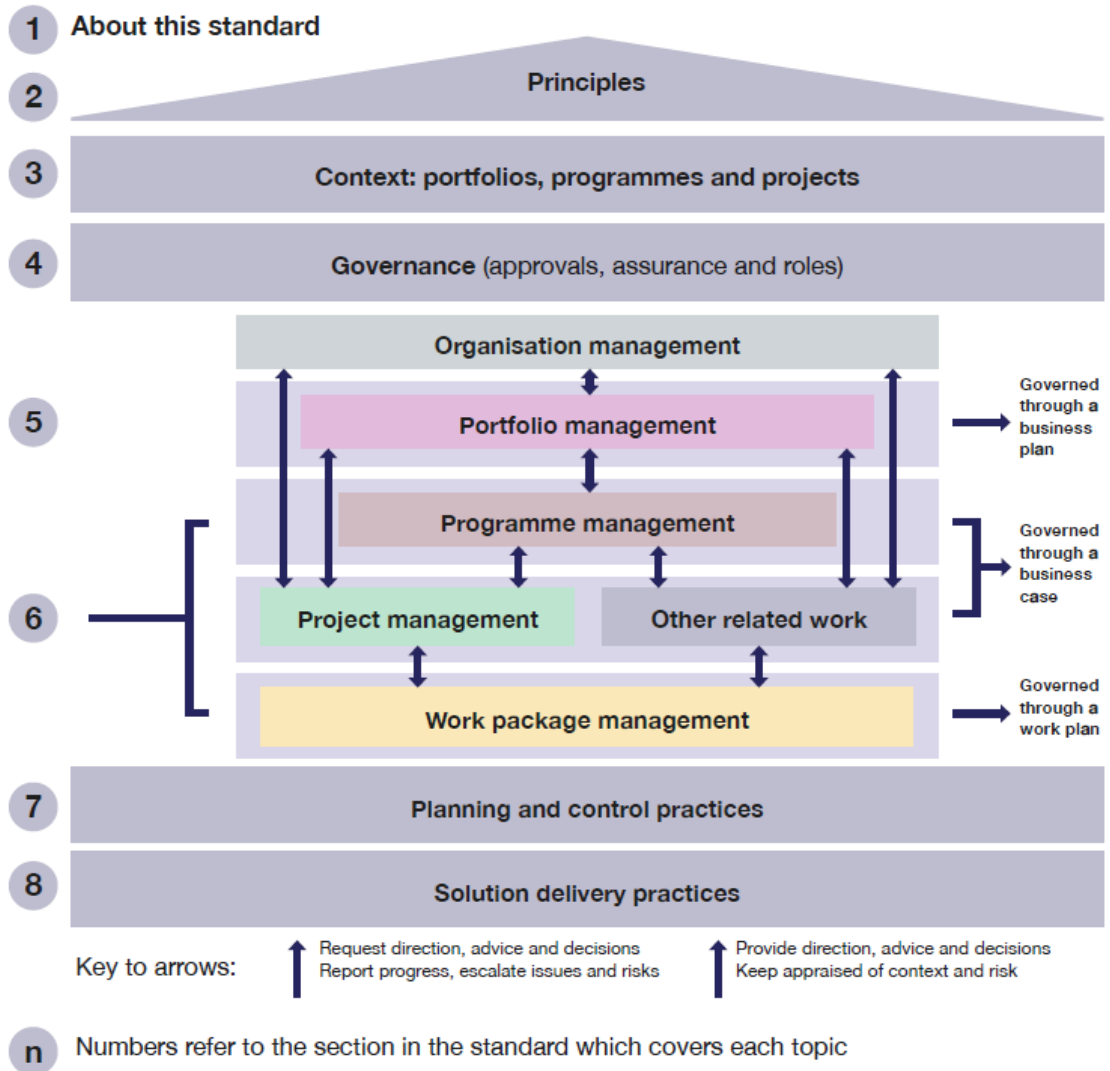**n** Numbers refer to the section in the standard which covers each topic

Figure 1 Structure and scope of this standard

7

2   Principles

Those engaged in project delivery shall ensure:

1. delivery objectives are aligned to government policy and organisational objectives

   Praxis advocates that all projects, programmes and portfolios adhere to organisational strategy.

2. continuing business justification to confirm benefits can be realised and risks managed within the organisation's risk appetite, and that unjustified work is terminated

   Continuous business justification is a central tenet of Praxis though the management of the business case throughout the life cycle and the processes that manage each phase of the life cycle.

3. governance and management frameworks, and controls are proportionate and appropriate to the work and the level of prevailing risk

   The Praxis Framework is hierarchical to allow for different levels of complexity. It can support whatever level of governance is appropriate to the task in hand.

   The on-line 360° checklists also ensure that managers, SROs, sponsors, directors, team members and stakeholders are in agreement as to the effective application of governance.

4. accountabilities and responsibilities are defined, mutually consistent and traceable across all levels of management

   The current version of Praxis does not go into detail on role definitions although it does identify high level responsibilities with the project, programme and portfolio life cycles.

   The competency section provides a library of competencies that can be used in role definitions in accordance with the delivery standard.

   The Business Integrated Governance model provides a framework for governance operation which enables a point of accountability to increase or decrease the level of focus it applies to its objectives, dependent on matters such as the level of risk. It further provides a framework for ongoing adoption of improvement.

5. experience and lessons are captured, shared and used to promote future performance improvement

   The capture of experience in the lessons log and the use of these lessons at the outset of each new project or programme is built into the Praxis process model.

   Future performance improvement is assisted by the use of checklists that also serve as a means of monitoring improvement through the development of organisational capability maturity.

   Praxis's unique approach to promoting performance improvement is explained in the Praxis Pathway document.

6. work is appropriately defined, planned, monitored and controlled, quality is actively managed to maximise the likelihood of success and defined working methodologies are tailored for use accordingly	All elements of Praxis are focused on this goal. Guidance is given on how the framework may be tailored.
7. outcomes and enabling outputs meet the need and are validated by stakeholders	Techniques such as requirements management, solutions development and control used in conjunction with stakeholder management to ensure this happens.
8. work is undertaken in multidisciplinary teams and is assigned to people who have the required capability and capacity	Praxis refers to personal capability as 'competence'. Every function and process has a corresponding competence definition and ensuring that team members are competent is a key attribute in the capability maturity model.
9. the transition of capabilities to operations is planned and programme or project closure managed, with ongoing operational responsibilities agreed and accepted	The benefits management and change management functions and the benefits realisation process combine to ensure that capabilities are transferred. The closure process deals with the hand-over and administrative closure.
10. public service codes of conduct and ethics and those of associated professions are upheld	Praxis addresses the principles of ethics here

3 Context

3.1 Introduction

This section provides essential background information for the use of this functional standard.

Portfolio, programme and project management is an integrated way of meeting the government's ambitions, driving better decisions and increasing the likelihood of successful outcomes.

Collectively, portfolio, programme and project management are referred to in government as **project delivery**.

The term 'project delivery' is a useful collective term for the management of projects, programmes and portfolios. The reason it is necessary to define a collective term is that so much effort has been put into defining three separate domains that are in fact simply points on a spectrum. Praxis treats projects, programmes and portfolios as areas on a spectrum rather than mutually exclusive entities.

This approach is part of the Praxis Delivery Model that also embraces varying degrees of agility.

3.2 Portfolios, programmes and other related work

A **portfolio** comprises part or all of an organisation's investment required to achieve its objectives. Governed through its portfolio (or business) plan, a portfolio comprises **work components**, such as other portfolios, programmes, projects and other related work.

A **programme** is a unique, temporary, flexible organisation created to co-ordinate, direct and oversee the implementation of a set of projects and other related work to deliver outcomes and benefits related to a set of strategic objectives. Programmes can be undertaken in one or more tranches (phases), each of which is structured around distinct step changes in the solution delivered and the resultant benefit realised.

A **project** is a unique, temporary management environment, undertaken in stages, created for the purpose of delivering one or more business products or outcomes.

A project might be standalone within a portfolio or part of a programme.

Praxis describes two types of portfolio: structured and standard.

A structured portfolio is one that co-ordinates projects and programmes that collectively achieve strategic goals.

A standard portfolio is one that is simply a collection of projects and programmes performed by an organisation that are not unified by a business plan. For example, the set of projects performed by a construction contractor for different, unconnected clients.

The governance and management of projects and the governance and management of programmes have many more commonalities than differences.

This is evident from the fact that they are combined in section 6 of the delivery standard.

Praxis echoes this approach by combining project and programme practices throughout the framework.
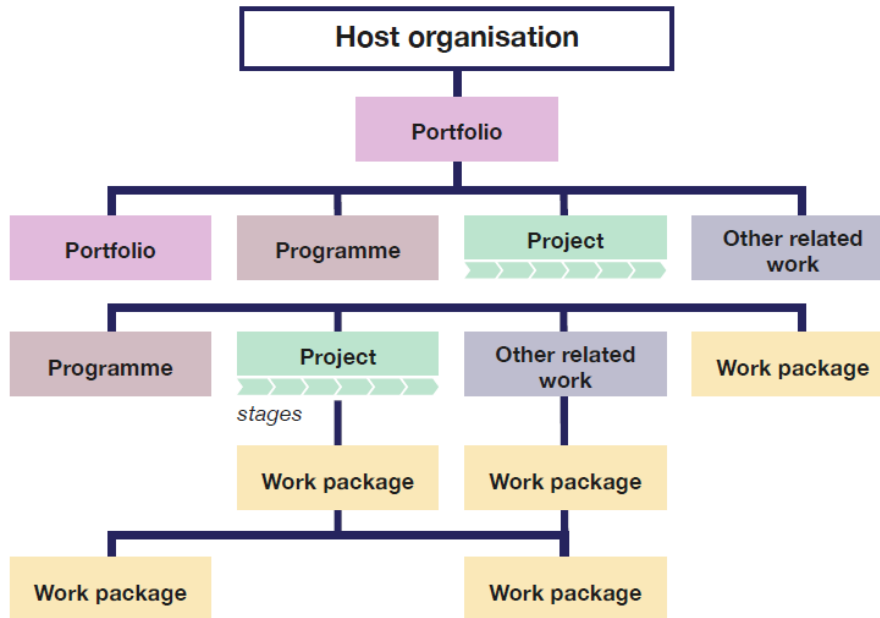
Figure 2 Example of a hierarchy of work components

Other related work, not managed as a programme or a project, might include:

- support services (see 4.4.9), solution architecture, finance and human resources

- ongoing improvement initiatives not run as projects, but using a defined approach, such as agile delivered platform-based upgrades (see Annex E), six sigma and LEAN

- service delivery, business as usual operations

Praxis generally refers to these areas as 'business as usual'.

A **work package** is a set of information relevant to the creation of one or more deliverables or outputs. It comprises a description of the outputs required, work plan and details of any constraints

The management of a work package is covered by the development process.

Figure 2 shows the hierarchical relationship between work components, with each higher-level component comprising the sum of all connected lower-level components.

Work components may cross organisational and departmental boundaries.

Note: the use of the terms 'project' and 'programme' is not always indicative of the formal definitions in this standard; however, the distinction is important when designing a programme or project governance and management framework.

Praxis regards projects and programmes as simply area of a spectrum. While other guides seek to apply closed definitions, Praxis takes a more flexible approach that is described in this article.
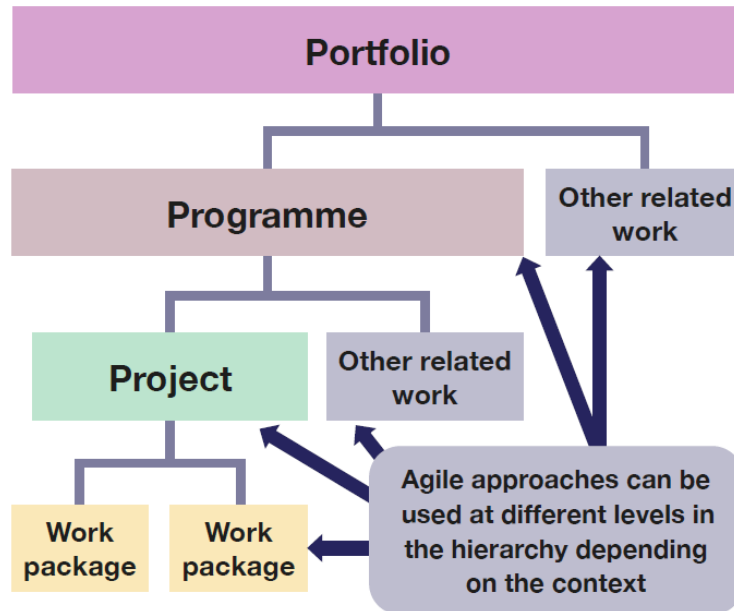
Figure 3 Example showing where agile approaches can be used

3.3   Working with different delivery approaches

This project delivery standard defines a number of practices needed for successful outcomes. It defines the why and the what for each but does not define how work is to be undertaken. For example, 'agile' approaches are needed in many cases but could be used at any point in the project delivery hierarchy (see Figure 1 Structure and scope of this standard Figure 3).

Nor, in the case of a project, does the standard define what the project life cycle stages should be, only that they can be mapped to the reference life cycle.

The project might only include the delivery of outputs when the project is part of a programme, or could include an extended period of operation in other situations.

The delivery approaches and stages need to be defined to suit the outputs and outcomes delivered and the delivery approaches taken. In a project where the work is predominantly agile, the project stages of discovery, alpha, beta, live and retirement meet that requirement.

(see GovS 005, Digital, data and technology). Annex E includes some examples.

Praxis provides the detail behind the practice definitions. It's Method section is equivalent to PRINCE2, MSP and MoP process models.

The Knowledge section is equivalent to bodies of knowledge such as those from the APM and the PMI.

The Praxis approach to combining projects, programmes, portfolios and agility into a single landscape is explained in the Praxis Delivery Model.

The Praxis approach to life cycles encompasses full, contract and extended life cycles. How these relate to other specific life cycles is explained here.

4 Governance

4.1 Governance framework

4.1.1 Overview

Governance comprises prioritising, authorising, directing, empowering and overseeing management, and assuring and reviewing performance.

These areas are mainly covered within the processes that address the project and programme life cycle.

The portfolio management governance process is particularly relevant to governance across multiple projects and programmes.

Broader issues are also covered in the governance section.

The Business Integrated Governance model provides a framework for project, programme and portfolio, and shows how change governance relates to BAU governance.

A core element of the model is the definition of the governance operation by integrating all points of accountability. This principle is applied within project programme and portfolio.

4.1.2 Governance of project delivery across government

A governance and management framework shall be defined and established at government level to monitor project delivery across government, which should include:

- mandatory policies, process, data and other requirements together with associated guidance

- requirements for assurance, tracking and reporting on the government's major projects

- the requirements and provision of expert support and assurance

Note: the IPA Mandate sets out a statement of the Infrastructure and Projects Authority's role and the responsibilities of departments in regard to project delivery.

The specific arrangements for governance within UK government are outside the scope of Praxis.

However, Business Integrated Governance provides a generic model that operates across project delivery and BAU. It includes an integrated operating model and an integrated data model.

The principles in BIG therefore align with the government Shared Services agenda and its goals to harmonise data and processes.

4.1.3 Governance of project delivery in an organisation

The governance and management of project delivery within an organisation should be an integrated part of that organisation's overall governance.

An organisation's governance and management framework shall be:

- defined and established at organisational level which complies with government and departmental policies and directives and with this standard

- referenced from the respective Accounting Officer System Statement

The governance and management framework should include the authority limits, decision making roles and criteria, degree of autonomy, assurance needs, reporting structure, accountabilities and responsibilities together with the appropriate governance and management frameworks, as defined in clause 5.2 for portfolios and clause 6.2 for programmes and projects.

The governance and management framework should be designed to be tailored to reflect the level of prevailing risk, the competence of those individuals involved, and the work required.

In addition to the specific governance references below, Praxis has worked with the Core P3M Data Club to create a model for Business Integrated Governance across an organisation.

This model provides further guidance on integration necessary with the strategic process, BAU management teams, commercial and finance teams.

Guidance on authority limits, decision making roles, degree of authority etc. are highly context sensitive. Praxis does not seek to provide generic guidance on these matters.

Everything in the Praxis Framework is free of copyright restrictions and available for inclusion in a tailored organisational framework.

4.1.4 Governance of major projects

Programmes or projects meeting one or more of the following characteristics shall be referred to the HM Treasury spending team and the Infrastructure and Projects Authority for inclusion in the Government Major Project Portfolio (GMPP):

- above the delegated authority limit for the organisation

- could create pressures leading to a breach in departmental expenditure limits, administration cost limits, or estimates provision

- would entail contractual commitments to significant levels of spending in future years for which plans have not been set

- could set a potentially expensive precedent

Government specific arrangements are outside the scope of the Praxis Framework.

- is novel or contentious, or could cause significant repercussions, posing risks to the public sector

- requires primary legislation or where HM Treasury consent is a statutory requirement

Programmes and projects not meeting the above criteria may be added to the Government Major Project Portfolio with the agreement of the Infrastructure and Projects Authority and HM Treasury spending team.

Government major projects shall be reported through the Government Major Projects Portfolio (see 7.5).

Note: see also Treasury approval process and Treasury assurance frameworks.

4.2 Assurance

4.2.1 Overview

The purpose of assurance is to provide, through a systematic set of actions, confidence to senior leaders and stakeholders that work is controlled and supports safe and successful delivery of policy, strategy and objectives.

4.2.2 Organisational assurance of project delivery

Organisations should have a defined and established approach to project delivery assurance, which should be applied proportionately to the risk and value of the activity, and which is integrated with the organisation's overall assurance framework. Typically, assurance should be on at least three separate and defined levels including:

by, or on behalf of operational management that own and manage risk to ensure appropriate standards are being used by, or on behalf of senior management, independent of operational management to ensure first level of assurance is properly designed, in place, and operating as intended by independent audit, or other impartial body, to provide senior management with an objective opinion on the effectiveness of governance, risk management, and internal controls, including the effectiveness of the first and second levels

In Praxis, assurance is covered by the topic of the same name. Its goals are to:

- review management planning;

- monitor effectiveness of functions and processes;

- give stakeholders confidence that the work is being managed effectively and efficiently.

Internal audits shall be undertaken in accordance with GovS 009, Internal audit.

The requirements of the Orange Book shall be met.

4.2.3   Programme and project assurance

Programmes and projects should have a defined and integrated plan for undertaking assurance and approvals which should be developed with the initiation documentation, regularly reviewed, updated and maintained until closure.

Assurance reviews shall be scheduled prior to significant decisions (such as contractual commitments and gates) to provide decision makers with an assessment of the status and outlook for the work. The time lapse between assurance reviews of the entire programme or project should not be scheduled to exceed one year. Assurance reviews may also be undertaken in response to an issue or to verify delivery.

The work of internal and external assurance providers should be planned to minimise disruption to work, (for example, by combining project and programme reviews as shown in Figure 1 Structure and scope of this standard) avoiding overlaps with other assurance activities and duplication of effort, whilst remaining rigorous and meeting the needs of stakeholders. Where assurance includes formal review activity, the customer for the review should be clearly identified.

Recommendations resulting from the reviews should be documented, agreed and acted on.

Note: the Infrastructure and Projects Authority's Assurance tool kit provides guidance for undertaking assurance reviews.

Praxis does not provide specific guidance on how to conduct assurance. This is covered by the Infrastructure and Projects Authority's Assurance tool kit which provides guidance for undertaking reviews

4.2.4   Assurance of government major projects

For government major projects, the approach to assurance shall be defined in an integrated assurance and approval plan (IAAP) which shall be validated by HM Treasury and the Infrastructure and Projects Authority. HM Treasury does not normally approve a programme or project without a validated integrated assurance and approval plan.

Government specific processes are out of scope for Praxis Framework.

For government major projects, assurance reviews of the entire programme or project shall be undertaken by the Infrastructure and Projects Authority, or as delegated by them.

4.3   Decision making

Decisions relating to project delivery should be made, and approvals and authorisation given, in a timely manner, in accordance with the organisation's governance and management framework. Government policy should be complied with. Decisions should be made by assessing options against defined criteria and in consultation with stakeholders and subject matter experts. Options shall be assessed in accordance with GovS 010, Analysis.

Decisions should relate to, but not be limited to:

- approving vision and strategy
- approving business cases
- approving plans and baselines
- setting risk appetite and tolerance
- initiating a programme or project
- authorising the start of a new project stage, for example, at a gate or decision point (see 6.3) or for a new tranche of a programme
- selecting suppliers
- deciding options for further study
- selecting a solution
- pausing, terminating or closing work

Decisions should be:

- holistic, taking account of the external context, whole life of outputs (such as in life service, disposal) and negative impacts
- communicated to the relevant stakeholders

Decisions may be:

- conditional, with responsibility for fulfilling such conditions defined
- phased to take into account risk (see 6.3)

Approvals and authorisation are built into the Praxis procedures and processes. For example:

- approval of the brief at the end of the identification process
- approval of the definition documentation (including the business case and management plans) at the end of the definition process
- review, assessment and approval of updated documents in the boundaries process
- assessment and authorisation in the change control procedure
- assessment and baselining of requirements in the requirements management procedure

Authorisation is also built in to the delivery process through the application of tolerances and management of issues. The interfaces between the delivery and development processes also build in a level of authorisation (as part of delegation) and approval (in the form of product acceptance through quality control).

Risk appetite is explained in risk context and supplier selection in procurement.

A programme, project or other related work shall be governed through a business case or equivalent document, in accordance with HM Treasury requirements. If a project or other related work is part of a programme, its business case may be included within the programme's business case. A business case should include a cost-benefit analysis and demonstrate strategic, economic, commercial, financial and management justification. The business case shall be prepared and the investment appraised in accordance with GovS 006, Finance.

The business case should be developed over a number of phases and should be updated to reflect changes and reviewed prior to every gate or decision point to justify continuing the work.

The Accounting Officer shall approve government major projects prior to submission to HM Treasury for authorisation. Accounting Officer approval shall be supported by an Accounting Officer Assessment for the outline business case and, when advised by the senior responsible owner, for any subsequent, materially changed business cases.

Note: guidance on investment appraisal, business cases and evaluation is provided in the HMT's Green Book.

Cabinet Office expenditure controls require central government bodies to obtain expenditure approval from Cabinet Office ministers, based on professional advice from relevant functions, before certain expenditure is made or committed.

Organisations should take advice from relevant functional experts in advance of planned expenditure, and comply with expenditure controls guidance.

Note: expenditure control guidance can be found in Managing Public Money and in the annual consolidate budgeting guidance; see GovS 006, Finance.

A document explaining the relationship between Praxis and the 'Five case model' from HM Treasury's 'Better Business Cases' can be downloaded here.

4.4   Roles and responsibilities

4.4.1   Overview

Roles and accountabilities shall be defined in the relevant governance and management framework and assigned to people with appropriate seniority, skills and experience. This should include, but is not limited to, the activities, outputs or outcomes they are

The current version of the Praxis Framework does not contain a detailed section on roles.

The organisation management topic explains the main roles in the project, programme and portfolio environment. The processes in the

responsible for, and the person they are accountable to.	method section describe the responsibilities these roles take on at different points in the life cycle.
Each role holder should act as a role model for the behaviours expected when working on project delivery.	
Note: examples of roles and accountabilities are provided in Annex C.	
Note: the Project Delivery Capability Framework includes the professional standards for a range of project management roles operating at different levels covering both leadership and technical skills.	

4.4.1 Senior officer responsible for project delivery across government

The senior officer responsible for project delivery across government is accountable to the chief operating officer of the civil service for supporting successful project delivery across government, especially for government major projects, including but not limited to:	This is a UK Government specific role that is not referenced in the Praxis Framework.
• setting standards and leading development of government-wide policies, processes, tools and guidance	
• government project delivery assurance	
• providing expert support and advice	
• monitoring government project delivery performance and if necessary, intervening	
• assessing project delivery aspects in Spending Reviews	
• system-wide improvement of project delivery	
• building government project delivery capability	
Note: this role is normally undertaken by the chief executive of the Infrastructure and Projects Authority as defined in the IPA Mandate.	

4.4.3 Accounting Officer

The permanent head of a government department is usually its Principal Accounting Officer. An organisation's Accounting Officer is accountable (via a Principal Accounting Officer where appropriate) to Parliament and the public for the stewardship of public resources, ensuring they are used effectively and to high standards of probity. The Principal Accounting Officer generally appoints the most senior executive in	This is a UK Government specific role that is not referenced in the Praxis Framework.

the arm's length bodies within the department's ambit as an Accounting Officer.

Note: the Accounting Officer is generally the Permanent Secretary or, in an arm's length body, the chief executive officer. See Managing Public Money, Cabinet Office Controls, Assurance framework, Accounting Officer System Statements and Accounting Officer assessments.

4.4.4 Portfolio director

The portfolio director is accountable to a defined higher-level authority for the direction and governance of the portfolio, for optimising the required benefits at an acceptable level of risk. The portfolio director provides leadership and direction and owns the portfolio's vision and strategy. Note: the higher-level authority depends on the context and might be the Accounting Officer, a departmental, arm's length body or executive board or a portfolio board. Note: see Annex C for more detail on this role.	Referred to in Praxis as the Portfolio sponsor.

4.4.5 Portfolio manager

The portfolio manager is accountable to the portfolio director (see 4.4.4) for planning and managing the portfolio as a whole and ensuring its work content is sufficient to meet the portfolio's objectives, including monitoring spend against budget and benefits realisation. The portfolio manager leads and coordinates the effective and efficient operation of portfolio management and ensures the flow of information to decision makers. Note: see Annex C for more detail on this role.	Referred to in Praxis as the Portfolio manager.

4.4.6 Sponsoring body

The sponsoring body acts as the higher- level authority for a programme or project and is accountable to a defined higher-level authority, normally the accounting officer (see 4.4.3). The sponsoring body acts as the driving force for a programme or project providing: • top-level endorsement for the programme's or project's rationale and objectives • direction to the senior responsible owner, addressing escalated risks and issues	The Praxis Framework includes a knowledge topic for sponsorship and a process for sponsorship. Depending upon the scale and complexity of a project, sponsorship may be performed by a group, such as the sponsoring body, or an individual, referred to in UK Government as a senior responsible owner.

- making or referring decisions that are above the senior responsible owner's delegated authority

Note: the make-up of the sponsoring body (person or group) depends on the programme or project's context. For example, for a project within a portfolio, the sponsoring body can be the portfolio manager or director; for a project within a programme, the sponsoring body can be the programme manager.

4.4.7 Senior responsible owner (SRO)

The senior responsible owner is accountable to the sponsoring body (see 4.4.6) for a programme or project meeting its objectives, delivering the required outcomes and realising the required benefits. The senior responsible owner owns the business case and is accountable for governance (see section 4).

The senior responsible owner of a government major project is ultimately accountable to Parliament.

Note: the Infrastructure and Projects Authority's SRO briefing notes provides relevant documentation for senior responsible owners.

Note: see Annex C for more detail on this role.

The Praxis Framework includes a knowledge topic for sponsorship and a process for sponsorship.

Depending upon the scale and complexity of a project, sponsorship may be performed by a group, such as the sponsoring body, or an individual, referred to in UK Government as a senior responsible owner.

4.4.8 Programme/project manager

The programme/project manager is accountable to the senior responsible owner for establishing the governance and management framework and for the day-to-day management of a programme/project, to deliver the outputs and desired outcomes, and realise the required benefits.

Note: the job title of a programme/project manager can reflect the seniority of the person, such as "project director" or "programme director" or the type of work being undertaken, such as in agile delivery.

Note: see Annex C for more detail on this role.

Praxis refers to the PMO at various points. The PMO may be limited to a support function (in which case it would probably be referred to as a PSO) or may be constituted at the top-level authority for project delivery.

It is implicit that this group would be led by a PMO manager or director.

4.4.9 Portfolio, programme and project support office manager

The portfolio, programme and project manager and their respective teams should be supported in the effective and efficient undertaking of their roles. Services provided might include value added delivery support, such as:

- defining processes and methodologies

- undertaking analysis

- operating aspects of governance

- providing consultancy and advice

- undertaking delegated responsibilities

- undertaking administrative functions

Support might be provided by single or multiple physical or virtual structures or offices (permanent and/or temporary), which can be centralised or distributed.

Note: the title of these roles may be chosen to reflect the scope and seniority, such as PMO Director, PMO Manager, Head of PMO or P3O® Director.

Note: see Annex C for an example of a programme or project office manager role.

Praxis refers to the PMO at various points. The PMO may be limited to a support function (in which case it would probably be referred to as a PSO) or may be constituted at the top-level authority for project delivery.

It is implicit that this group would be led by a PMO manager or director.

4.4.10 Other management and team roles

Other management and team roles should be defined to suit the needs of the work required, for example those undertaking specialist roles, or managing the development of specialist outputs.

Examples include roles relating to benefits management, agile delivery, service and operations management, business change, communications and various engineering disciplines.

Note: see Annex C for an example of a work package or team manager.

Praxis refers to many roles within the framework but does not define their responsibilities and accountabilities in detail.

5   Portfolio management

5.1   The purpose of portfolio management

Portfolio management is a coordinated collection of practices and decisions that together enable an effective balance of organisational change and business as usual, whilst remaining within a specified funding envelope and constraints.

Portfolio management shall be an integral part of an organisation's business planning and control activities.

The portfolio director (see 4.4.4) and manager (see 4.4.9) should:

- ensure investment is aligned to the government's policy and departmental vision and strategy

- maximise benefits realised by the portfolio as a whole

- balance the portfolio to cover short-term and long-term objectives

- ensure risks across the portfolio are within the organisation's risk appetite

- optimise the organisation's capability and capacity to ensure the portfolio can be delivered

- ensure those impacted by the portfolio's outcomes can take on the changes

- optimise the use of funds and resources, bearing in mind the associated risks

The concept of the portfolio is central to the Praxis Framework. As well as being the vehicle for co-ordinating projects and programmes, the portfolio is seen at the guardian and promoter of good practice.

Praxis defines two types of portfolio: standard and structured. A standard portfolio is a collection of strategically unconnected projects and programmes (typically performed by a contractor organisation) while a structured portfolio is the sum of projects and programmes required to deliver organisational strategy.

Balancing and optimising the portfolio are key components of the management process in the portfolio process model.

The Praxis Framework website also contains a free tool that enables a Portfolio to be assessed for its Capability Maturity on a project by project and programme by programme basis.

5.2   Portfolio governance and management framework

A portfolio governance and management framework (see 4.1), defining how a portfolio is to be directed and managed, shall be established, maintained, and communicated to appropriate stakeholders. The portfolio's governance and management framework should include, but not be limited to:

- roles and accountabilities, processes, methods, techniques, guidance, templates and tools for governance (see 4) the management practices (see 5.3) and supporting practices (see 7 and 8)

The functions contained in the knowledge section of the Praxis Framework are designed and written to apply across projects, programmes and portfolios. The principles and goals of the functions remain constant but the way the functions are applied vary from projects through to portfolios.

For example, the concept of management plans is just as applicable at portfolio level as it is to project and programme level. It is just the content that will be adapted to show how a portfolio will be directed and managed.

- the planning horizons to be used and how often the plan should be reviewed and updated

- the types of work component to be included in the portfolio, together with criteria to identify them

- criteria and techniques for categorizing, prioritising and selecting the portfolio's work components

- processes for the initiation and management of work components

- how resources and funds are allocated

- a reporting framework

The portfolio's governance and management framework should align to and work with:

- the organisation's governance and management framework and decision-making authorities

- other organisational processes and practices, such as those for strategy and policy development, business planning, finance, performance reporting, capability and capacity management, enterprise risk management, and communications.

A record of the portfolio's work components should be kept up to date, including, for each work component: component type; person responsible; status (for example: proposed, in progress, paused, terminated, completed); the position in the portfolio hierarchy; significant interdependencies between components under different senior responsible owners (see 4.4.7); an indicator denoting whether the component is required to be reported as part of the Government Major Projects Portfolio. Additional data may be included for management, analysis and reporting purposes.

Portfolio management responsibilities may be assigned as each organisation sees fit and should be integrated with those responsible for the organisation's business planning activities. An organisation's overall portfolio may be managed as a set of sub-portfolios.

The organisation's group undertaking portfolio management may provide other services, such as those provided by a programme management office (see 4.4.9), including methods, advice, resourcing, or tools support.

The Business Integrated Governance model shows how portfolio governance relates to project, programme and BAU governance. It is designed to enable alignment of project, programme and portfolio governance with organisational governance, management and decision making.

The management of the portfolio's work components is covered by the co-ordination process. The goals of this process are to:

- consolidate information from the component projects and programmes to understand the portfolio as a whole;

- monitor the performance of the portfolio against its objectives;

- manage the inter-relationships between projects and programmes

References to the Government Major Projects Portfolio and is outside the scope of Praxis.

The use of Praxis Framework as opposed to guides such as Management of Portfolios and ISO21504 is that the structure and terminology is fully compatible with the project and programme parts of the framework. This makes tailoring of the portfolio framework alongside the project and programme frameworks far easier and less expensive.
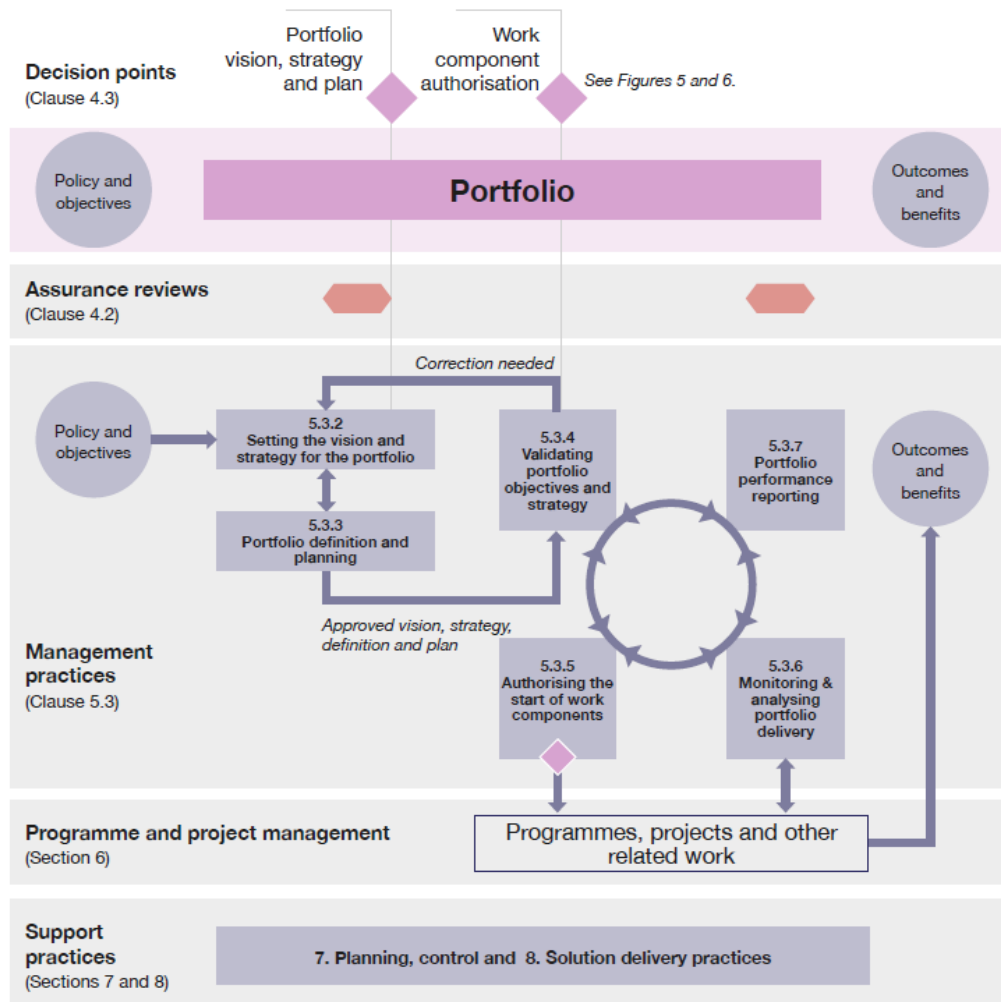
Figure 4 Portfolio management as an ongoing and iterative activity, showing decisions and assurance reviews from section 4 and their relationship to the practices in sections 5, 6, 7 and 8

5.3   Portfolio management practices

5.3.1   Overview

Portfolios form part of the organisation's governance and the delivery of its business plan. Portfolio management is cyclic in nature, enabling the organisation to continuously adapt to the organisation's changing context and environment of the organisation in pursuit of its objectives (see Figure 4).

Practices make up the content of the Knowledge section on the Praxis web site. They are described in a way that applies to projects, programmes and portfolios across the spectrum.

5.3.2   Setting the vision and strategy for the portfolio

A vision should be defined and communicated, stating the overarching aspirations of what is to be achieved in the long-term.

A strategy, describing the objectives and desired delivery outputs and outcomes, shall be

Praxis defines two types of portfolio: standard and structures. A portfolio vision is most appropriate to the structured portfolio and this would be created during the initiation process of the portfolio process model.

defined and communicated to inform future decisions and choices about how the portfolio's objectives are to be delivered. The portfolio strategy should include:

- the organisational objectives and priorities from the business plan which relate to the portfolio

- the portfolio's long-term objectives

- summary information on the benefits and costs

- outcomes and capabilities to be delivered and how these link to the portfolio's objectives and priorities from the business plan

- key success factors and resource and risk information

The portfolio's strategy should set the context for the definition and planning of the portfolio, and inform the criteria for investment decisions and the approval of work components

5.3.3   Portfolio definition and planning

The portfolio, as a whole, should be defined and planned in accordance with the portfolio's governance and management framework (see 5.2), to meet the purposes listed in clause 5.1. The planning horizon should be for a defined period aligned with the organisation's business plan. When planning the portfolio:

- the government's policy and organisational objectives, context and priorities should be understood, together with the current status of the portfolio and its work components

- measures for the successful delivery of outcomes and realisation of benefits should be defined

- potential new work components should be categorised and evaluated, based on their degree of strategic fit, expected benefits, efficient use of funds and risk; the views of stakeholders should be understood and considered

- work components should be prioritised and selected, based on the results of the evaluation, taking into account the performance of existing work components

The initial definition and set up of a portfolio is covered by the initiation process.

Thereafter the definition and planning of component projects and programmes is addressed by the management process and the co-ordination process.

26

- each work component should be traceable to government policy or organisational objectives (see 7.8)

- the plan should be collated with interdependencies identified between components within and outside the portfolio

- once approved, the portfolio plan should be baselined, and any changes approved by the appropriate authority

5.3.4   Validating portfolio objectives and strategy

The portfolio's objectives and strategy should be periodically reviewed to ensure:

- they are still current and affordable

- the right programmes, projects and other related work components are being undertaken

If required, corrective action should be taken to amend the portfolio's vision, objectives and strategy, or adjust the portfolio's scope and content.

This is addressed in the prioritise and balancing activities in the portfolio management process.

5.3.5   Authorising the start of work components

New work components should be identified, defined and authorised (in compliance with an approved authorisation process, see 4.3 on decision making) to start when indicated in the plan or as required by organisational priorities. Before being initiated, the portfolio manager (see 4.4.5) should confirm the aims given in 5.1 are met, an impact assessment of financial, resource or technical capability is available and that the programme or project does not conflict with or duplicate other related work. See clauses 6.4.2 and 6.4.5 on identifying and initiating a programme or project.

When approving the start of a work component, the problem or opportunity should be known, even though the solution and implementation approach might not be known.

The co-ordination process addresses the identification, definition, delivery and closure of projects and programmes withing the portfolio.

5.3.6   Monitoring and analysing portfolio delivery

The portfolio, as a whole, should be monitored and analysed with respect to:

- outcomes achieved, and benefits realised

The processes covering this are the portfolio management and co-ordination processes. They will draw on the project and programme processes together with functions such as benefits management, financial management,

27

- adherence to constraints, including those for cost, benefit and schedule

- delivery of primary outputs

- availability of finance (see 7.10)

- current capacity and capability constraints in the organisation and supply chain (see 7.4)

- current level of portfolio risk, including those related to interdependencies (see 7.6)

- the views and reactions of impacted parties and other stakeholders (see 7.12)

Stakeholders should be monitored and engaged, with new stakeholders identified and existing stakeholders re-evaluated.

New risks and issues should be identified, and existing ones managed. Action should be taken to ensure the portfolio meets its objectives and reflects any constraints.

Existing work components might be identified for amendment, rescheduling or termination. Corrective and preventative actions might trigger the need for new work components, scope changes or termination of work.

stakeholder management and risk management – but applied at the portfolio level.

5.3.7   Portfolio performance reporting

Portfolio performance shall be reported against the portfolio plan, including, but not limited to, finances, benefits, costs, outcomes, milestones and risks. Additional analysis and commentary should explain variances. Reporting should reflect both achievement to date and a forecast for future performance. See also 7.5.

This is a statement of how the practices previously described shall be applied in Government portfolios and is outside the scope of Praxis.

6 Programme and project management

6.1 The purpose of programme and project management

Programme and project management are structured frameworks for defining and undertaking change. They provide a framework for implementing policy and business strategies to enable the government and organisations to achieve outcomes and benefits of strategic importance. Programme and project management includes the planning, delegating, monitoring and control of all aspects of a programme or project and the motivation of those involved to achieve the defined objectives within the defined constraints, such as cost, benefit, schedule, quality, scope, and risk.

Praxis provides a structured framework that includes a process model and set of practices (scope, benefits, risk etc.) that provide the 'how' of project and programme management, which supports the 'why' as explained in the delivery standard.

From the Praxis perspective, the delivery standard provides the 'policy' that is a requirement of level 2 in the capability maturity model.

6.2 Programme and project management framework

A programme and project governance and management framework (see 4.1), defining how a programme or project is to be directed and managed, shall be defined and established. The governance and management framework may change to reflect the phase of the work being undertaken. The governance and management framework should include:

- authority and decision-making roles and rules, including, but not limited to, governance tiers, initiation of new work, prioritisation, assignment of resources and funds, and issue resolution

- roles and accountabilities, processes, methods, techniques, guidance, templates and tools to be used to undertake the practices in this standard

The governance and management framework of jointly sponsored work should be defined to reflect the legitimate interests of the participating organisations.

The programme's or project's governance and management framework should align to and work with:

- the organisation's project delivery governance and management framework (see 4.1.3)

- the portfolio's governance and management framework (see 5.2)

Praxis contains all the components that are needed to support the implementation of a programme and project framework. It also contains a free capability maturity assessment tool that helps with implementing and communicating the framework.

It enables all members of the project or programme organisation, including stakeholders, to develop a common understanding of the framework and confirm that it is working from their perspective.

The Business Integrated Governance model shows how programme and project governance relates to portfolio and BAU governance.

The project and programme elements of Praxis are fully integrated with the portfolio element.

Organisational practices are covered by the knowledge section and each function is described seamlessly through projects to programmes and on to portfolios.

- other organisational processes and practices, such as those for finance, human resource management, performance reporting, capability and capacity management, risk management, and communications

Note: the governance and management framework can be tailored drawing on the government project delivery framework, departmental methodologies or, for major projects, can be specially developed.

The material referenced in this document is all available free of charge on the Praxis Framework web site.

A suggested approach to tailoring is to adapt Praxis Local, which is a free download. It acts as a locally based front end to the detailed content of the web site and can be edited to add in links to departmental specific resources.

6.3 Life cycles

The life cycle provides a phased approach for governing work and underpins the delivery plan, from start to finish. The life cycle shall be defined and should include approval gates/decision points and assurance reviews.

For government major projects the life cycle and its attributes shall be defined in accordance with this standard and the requirements in the government project delivery framework.

A project shall comprise stages, each of which shall be preceded by a gate (decision point) to authorise the start of the next stage and commit resources and funding.

The project life cycle should be defined to suit the circumstances by tailoring and mapping to the reference life cycle shown in Figure 5 and Annex D. The number of gates and stages, types of assurance review and form of the business case should be chosen to ensure governance is appropriate and proportionate to the circumstances, with simpler projects having fewer stages (minimum of two) and more risky projects having more stages. See Figure 5 and Annex D.

Praxis discusses life cycles of different types in the topic of the same name. Approval gates are clearly shown and further described in processes such as identification and definition.

Further explanation can be found in the encyclopaedia entries:

- Governance life cycles

- Development life cycles, and

- Specialist life cycles
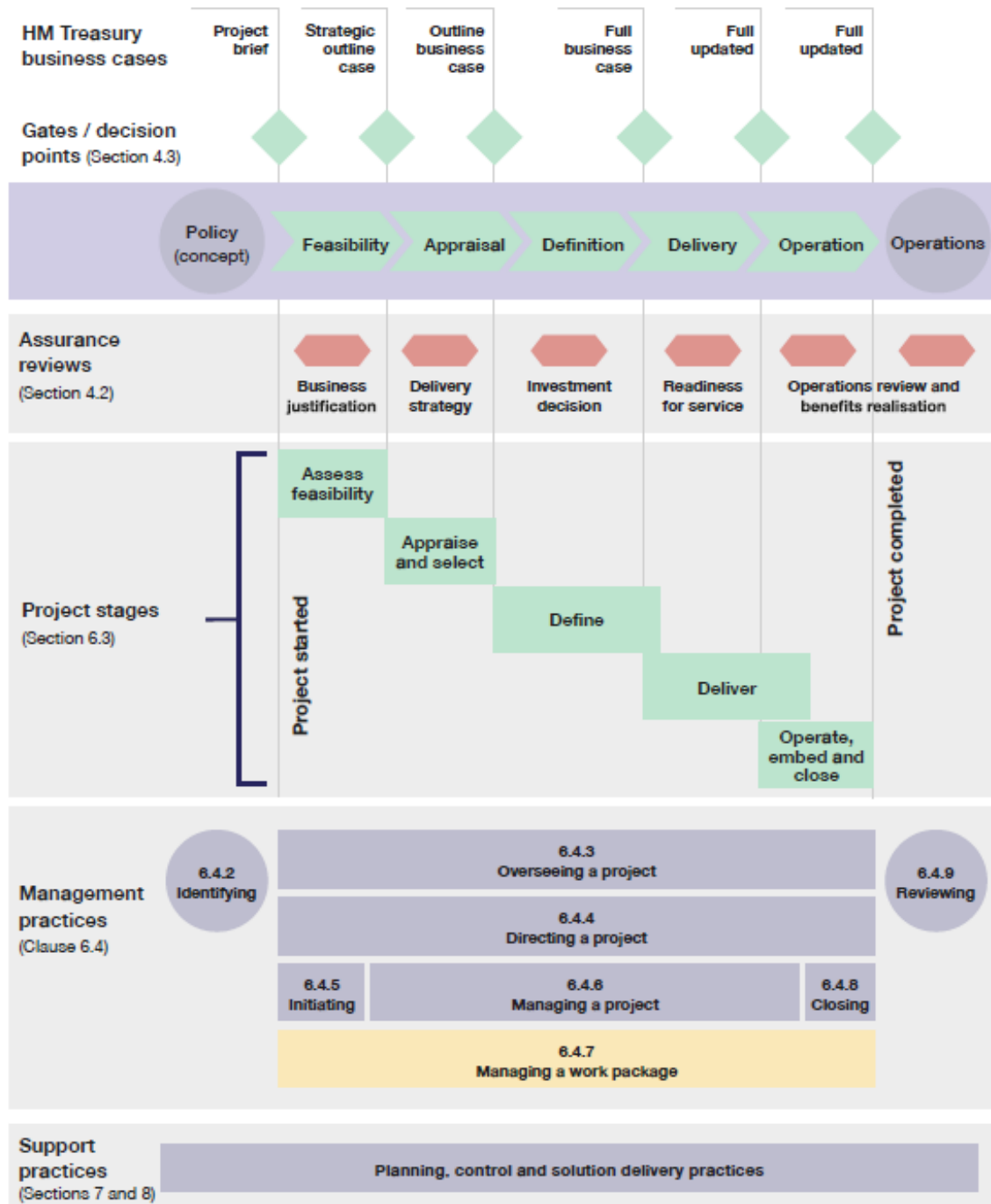
Figure 5 The reference project life cycle with gates, stages and assurance reviews from section 4 and their relationship to the practices in sections 6, 7 and 8
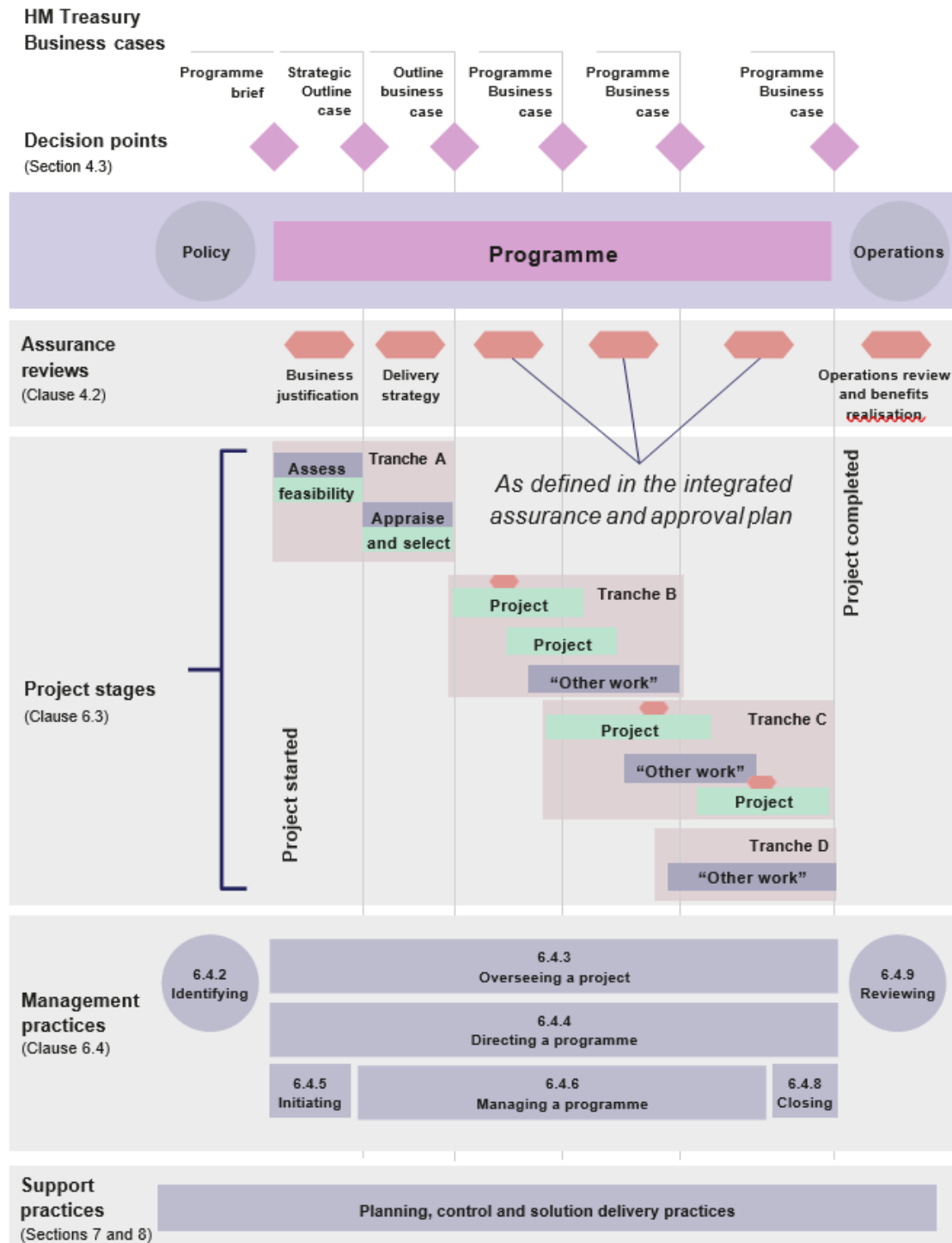
Figure 6 Example programme life cycle, showing tranches, decisions and assurance reviews from section 4 and their relationship to the practices in sections 6, 7 and 8

A programme may be phased in one or more tranches and might cover the whole life of a product, service or system (see Figure 6).

The following shall be defined for each gate or decision point:

- criteria for providing authorisation
- the decision makers
- who should be consulted
- the type of assurance review required prior to the decision (see 4.2)

Criteria should include, but not be limited to the following:

- work aligns with policy and strategy and is still needed
- the business case is acceptable
- risks have been identified and are acceptable or can be mitigated
- the solution is (or is likely to be) acceptable
- there are funds and resources to complete the work and support any outcomes
- there is a plan for the next stage and outline plan for the remainder of the work

A decision might result in approval to proceed, a request for work to be revised, or deferral or termination of the project.

Model project life cycles may be developed for undertaking particular types of project or programme.

Note: Annex D includes a detailed example project life cycle. Annex E includes agile delivery and extended life cycle example.

Note: phases for a project are called stages. Stages can reflect the approach taken, for example, developed using an agile approach, such as discovery, alpha, beta (private); beta (public) or in 'waterfall', such as analysis, design, development, testing, implementation.

Further detail and examples of a project life cycle are included in Annexes D and E.

Note: see Figure 5 for detail for each project in a programme

Praxis uses the term tranche in the same way as GovS 002 but defines stages slightly differently.

The reason for this is that the management practices in figures 5 and 6 are the same and should be related to a common life cycle. Praxis refers to life cycle phases to distinguish them from tranches and stages, which are components of delivery.

The 'management practices' referred to in figures 5 and 6 are called 'processes' in Praxis and are described in the Method section.

The 'support practices' are referred to as functions and are described in the Knowledge section.

These requirements are supported by the decision and approval requirements built into the Praxis process model.

The definition of these acceptance criteria is underpinned by the practices described in:

- business case management;
- solutions development;
- risk management;
- financial management and
- planning.

Gate decisions are triggered by a 'request for authorisation' submitted to the sponsor.

6.4 Programme and project management practices

6.4.1 Overview

The programme and project management practices should be defined in the governance and management framework (see 6.2). Figure 7 shows the relationship between the roles defined in clause 4.4 and the practices in clause 6.4.

In Praxis, these management practices are represented by processes within the method section of the web site. Like the Project Delivery Standard, Praxis uses the same process model for projects and programmes. The underlying goals, principles and practices are the same, it is the level of complexity in which these must be applied that distinguishes between projects and programmes.

Each Praxis process starts with a set of goals. These goals are central to the Praxis Capability Maturity model. The path to effective and efficient project and programme delivery starts with the achievement of these goals.

6.4.2 Identifying - policy

Identifying a programme or project ensures that the policy or other objective for undertaking the work is defined and likely to be realistic before the first phase of work is authorised to start, and funds and resources committed.

The senior responsible owner (see 4.4.7) shall be appointed. Potential team members and subject matter experts should be identified and be involved with policy formulation to ensure the opportunity or need is explored and understood and that deliverability is taken into account.

The Praxis identification process has the following goals:

- develop an outline of the project or programme and assess whether is it likely to be justifiable;

- determine what effort and investment is needed to define the work in detail;

- gain the sponsor's authorisation for the definition phase.

This is covered by the activity 'appoint identification team'.
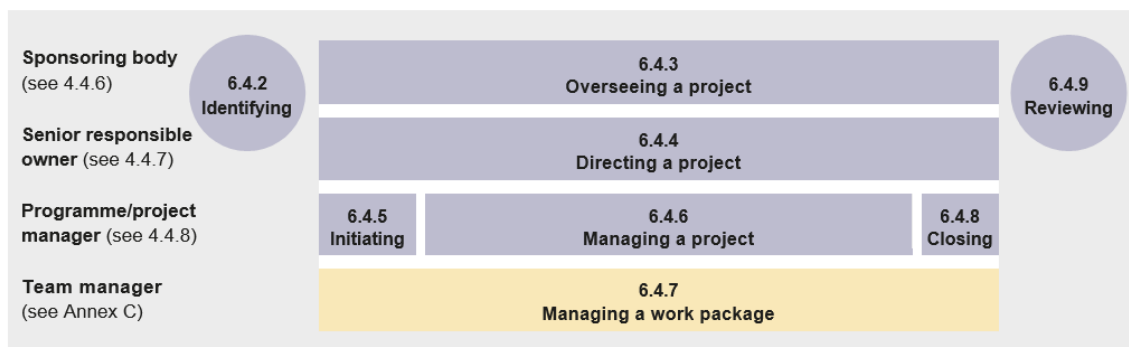
Figure 7 Relationship between the roles and the programme and project management practices

Before a programme or project is submitted for approval, the senior responsible owner should ensure:

- the vision, justification and desired outcomes for the programme or project, together with

These areas are primarily addressed in the 'prepare brief' activity.

Other relevant topics are business case management and assurance.

any strategic assumptions, are documented in a programme or project brief

- policy and decision makers have sought advice from experienced professionals on deliverability and risks

- the appropriate assurance review has been conducted (see 4.2)

If policy and objectives change as the work progresses through the life cycle, the senior responsible owner shall review the impact and consider whether the work is still justified; resultant changes to the programme or project should be controlled (see 7.7).

6.4.3 Overseeing

Overseeing a programme or project ensures the sponsoring body is satisfied that the team is able to achieve the objectives, meet the organisation's needs and stakeholders' expectations, and that risks are at an acceptable level. Oversight can be through:

- involvement in key decisions

- periodic reporting

- independent assurance reviews and audits

- ad hoc escalations and interventions

The sponsoring body (see 4.4.6) should keep the senior responsible owner (see 4.4.7) updated on the wider context, providing guidance and direction, as needed or when requested. The sponsoring body shall enable the senior responsible owner to have sufficient time to carry out their responsibilities effectively.

Oversight is explained in the sponsorship topic and how it is applied over the course of the life cycle is explained in the sponsorship process.

6.4.4 Directing

Directing a programme or project ensures continuing strategic fit and relevance in the prevailing business context.

The senior responsible owner (see 4.4.7) shall ensure the solution fulfils government policy and/or meets the needs of the organisation and represents value for money.

The senior responsible owner shall provide direction and make decisions regarding the future of the programme or project, taking into account changes to the overall political, social, environmental, or technological context and prevailing risk. This should include ensuring the

Praxis refers to the person who owns the business case as the 'sponsor' rather than senior responsible owner. Hence, the topic that addresses the functions the sponsor should perform is called sponsorship and the way these interact with the management processes is simply called the sponsorship process.

The prevailing risk should also be considered in the light of the organisation's risk appetite and risk attitude.

Assessment of the contextual areas is often referred to a PESTLE analysis.

programme or project remains justifiable and assurance reviews and approvals (such as at gates and at closure) are undertaken at the right time and corrective and preventative actions taken, if needed.

The senior responsible owner shall refer decisions above their delegated authority to the sponsoring body (see 4.4.6) or other appropriate decision makers, in accordance with the governance framework (see 4.3).

6.4.5   Initiating

Initiating ensures a programme or project is set up, defined and planned, and that the team is mobilised and understands the opportunity or need to be addressed.

The senior responsible owner (see 4.4.7) shall confirm:

- a real policy, opportunity or business need is being addressed

- communicate the vision, objectives and desired outcomes to key stakeholders, together with strategic assumptions

- set criteria for measuring success

The programme or project manager (see 4.4.8) should mobilise the team and facilities required to undertake the work and define the governance and management framework to be used (see 6.2).

The team should understand the requirements, assumptions, constraints and risk potential, and should investigate different solutions, delivery approaches and implementation options for meeting the opportunity or need (see 8.4 and 8.7).

Options shall be assessed in accordance with GovS 010, Analysis.

A delivery strategy and plan for the work shall be developed, including approaches to be used for specialist work, taking into account lessons learned from previous, relevant work (see 7.2 and 8.8). The initial justification for the programme or project shall be documented in a strategic outline case (or equivalent).

Criteria for determining the successful delivery of outcomes and realisation of benefits should be defined.

In Praxis, this is referred to as the definition process. Its goals are to:

- develop a detailed picture of the project or programme;

- determine whether the work is justified;

- describe governance policies that describe how the work will be managed;

- gain the sponsor's authorisation for the delivery phase.

This activity is covered by the appoint definition team activity, which draws on the following functions:

- Mobilisation.

- Requirements management.

- Solutions development.

- Risk management.

In Praxis the review of lessons learned takes place in the earlier identification process.

Planning takes two forms:

Planning the governance of the project or programme and planning the delivery of the project or programme. The resulting documentation addresses all the criteria required by GovS 002.

Note: the choice of solution might require a discovery stage (agile) or number of investigative stages to be undertaken and the use of specialist techniques such as opportunity framing. See 6.3 life cycle.

6.4.6 Managing

The programme or project manager (see 4.4.8) should ensure the appropriate team (including suppliers) and facilities are in place.

New tranches, stages or work should be planned and reviewed prior to authorisation (see 6.3).

Work packages should be initiated and monitored against the plan or product backlog, risks mitigated, issues addressed, and changes controlled. Lessons should be continually captured and managed (see 8.8).

Outputs should be developed ready for use (see 8.3 to 8.6) and stakeholders' views should continue to be addressed ensuring business changes and new ways of working are being embedded, such that the desired outcomes can be achieved (see 8.7).

Commercial and financial aspects should be addressed (see 7.10 and 7.11).

The continuing justification for the programme or project shall be monitored and business case updated, if appropriate (see 4.3) in a controlled way (see 7.7).

This area is covered by the delivery process, the goals of which are to:

- delegate responsibility for producing deliverables to the appropriate people;
- monitor the performance of the work and track against the delivery plans;
- take action where necessary to keep work in line with plans;
- escalate issues and replan if necessary;
- accept work as it is completed;
- maintain communications with all stakeholders.

Tranches and stages are initiated and concluded using the boundaries process.

Commercial and financial aspects are covered in procurement, contract management and finance management, while continuing justification is handled by business case management.

6.4.7 Managing a work package

Managing a work package ensures the deliverables within the scope of a project or other related work (see 3) are defined and delivered, in order that the outcomes can be achieved, and benefits realised:

- work should be defined, planned and controlled in work packages or sprints (see 7)
- goods and services should be procured and their delivery managed (see 7.11)
- stakeholders' views should be sought, validated and addressed (see 7.12)
- outputs should be developed using methodologies and techniques which are proportionate and appropriate, and the quality verified and outcomes should be validated against the requirements (see 8.6)

This is equivalent to the development process in Praxis. Its goals are to:

- transfer responsibility for a package of work;
- execute the package of work;
- transfer ownership of the finished products.

Relevant functions include:

- Risk management.
- Stakeholder management.
- Change control.

- lessons should be continually captured and managed (see 8.8)

Note: Annex C includes a role description for a person who manages a work package.

6.4.6   Closing

A programme or project shall be closed in a controlled way. Closure can happen when the scope is completed or when work is terminated prematurely:

- delivery of outputs and achievement of outcomes to date should be confirmed

- unfulfilled requirements should be documented together with how they are to be addressed

- responsibilities for ongoing risks, issues, actions and benefit tracking should be handed over to, and accepted by, the appropriate business authority

- documentation and information should be securely archived (see 7.9)

- the team should be reassigned and any temporary facilities demobilised

- contracts, financial and reporting systems reconciled and closed

Termination might occur because the work is no longer needed or viable, or because the risks associated with it have become unacceptably high.

The programme or project manager, with the team and key stakeholders, shall undertake a closure review, which should include an assessment of performance against the plan and the extent to which objectives are being met.

New lessons should be captured and analysed together with those identified during the work, significant learnings should be captured and shared (see 8.8).

Plans for post-closure reviews should be agreed by the senior responsible owner (see 4.4.7).

Stakeholders shall be informed about closure.

The goals of the closure process are to:

- close a project or programme that has delivered all its outputs;

- close a project or programme that is no longer justifiable;

- review the management of the work and learn lessons.

Responsibilities for on-going matters are documented in the follow-on actions report.

The handling of information is covered by information management, communication with interested parties is covered in stakeholder management and de-mobilisation of the project team is addressed in the demobilise activity.

The capture of new lessons learned takes place in the review activity.

Post closure reviews are also addressed in the benefits realisation process.

6.4.7   Reviewing outcomes

Reviewing outcomes determines the degree of the programme's or project's success.

The sponsoring body should ensure a review is undertaken to assess the extent to which benefits realisation and operational performance are meeting, and are likely to continue to meet, the objectives and expectations stated in the business case.

Lessons should be captured and communicated.

A review of outputs and/or outcomes is included in the closure process. This includes a review and formal reporting of lessons learned.

A review of outcomes and/or benefits is included in the benefits realisation process.

Research into 1,300 lessons learned from UK Government indicates that many lessons learned relate simply to good practice not being implemented. Praxis provides checklists that help embed knowledge and demonstrably improve the organisation's capability.

7   Planning and control practices

7.2   Overview

Planning and control support practices ensure work is planned, and corrective and preventative actions taken, to ensure delivery follows the baselined plan.

The planning and control practices should be managed and monitored, throughout the life cycle (see 6.3), using a defined and established approach that is improved through use (see 8.8). Work shall be defined, planned, monitored and controlled.

Managers of work components should be set permissible tolerances within which no escalation is required to the next level of management. Tolerance levels can cover, but not be limited to costs, benefits, schedule, quality, scope, performance, and risk.

The planning and control practices are the responsibility of the relevant manager, for example, portfolio manager for a portfolio, project manager for a project or team manager for a work package. Such practices may be delegated to a support office manager (see 4.4 for role definitions).

Note: guidance can be found in the AXELOS guides. In addition, the APM and PMI bodies of knowledge and British and international standards can be referred to.

Praxis refers to these supporting processes as functions. This is because they are the result of a functional analysis similar to that used to define topics in a Body of Knowledge.

For each topic there is also a capability maturity page with associated checklist. Using these checklists helps embed good practice and develop organisational capability to the level of continuous improvement.

The advantage of Praxis is that is covers the same ground as the AXELOS, APM and PMI® guides but in a single integrated framework with a common structure and single, consistent terminology.

7.2   Planning

7.2.1   Overview

Planning ensures:

- the outputs and outcomes are likely to be delivered within the defined constraints (including, but not limited to costs, benefits, schedule, quality, scope, performance, and risk) to achieve objectives and realise the required benefits

- the necessary funding for the work can be arranged (see 7.10)

Praxis identifies two types of planning, management planning and delivery planning.

Management plans describe how scope, time, cost, resources, risk, etc. will be managed.

Delivery plans describe the work required to deliver the objectives, including schedules, risk registers, funding, communication plans etc.

7.2.2 Plan derivation

The delivery plan should be derived from an agreed delivery strategy, selected from a range of options, which outlines the delivery approach to be used for the solution (see 8.4), phasing of the work, and governance needs, and which takes into account risk and constraints. Options shall be assessed in accordance with GovS 010, Analysis.

Plans may be for direct use or be created as contingency plans to be used in response to known risks.

Planning should be a collaborative activity involving team members advising on the planning of their work.

Planning may be iterative and progressive through the life cycle of a work component, with more detail for the immediate future than for more distant work with increasing confidence as work progresses. Scope may be refined and clarified as work progresses to develop a plan which can be delivered at an acceptable level of risk. A plan should include an indication of the current level of certainty by, for example, using ranges or confidence indicators.

Praxis defines a generic delivery plan that can be applied to scope, schedule, cost, project, programme, stage or tranche.

Delivery plans are consolidated at the beginning of each stage or tranche of work.

7.2.3 Benefit, cost, schedule and resource estimating

Estimates for costs, benefits, schedule and resources should be justifiable through evidence or experience such as reference class forecasting, benchmarking, data analytics, probabilistic simulation, consensus or experience from previous work. Estimating methods should be appropriate to the type and, where relevant, phase of the work being undertaken.

Cost and benefits estimates shall be within the confidence limits defined for the respective business case (see 4.3).

Published cross-government methods for cost and benefits estimation should be used on government major projects to ensure consistency.

Note: See Cost estimating guidance for more information.

Different estimating techniques will be used dependent upon the level of scope information available.

These apply to time, cost and resource estimating.

7.2.4 Plan characteristics

The plan should be based on a hierarchy showing each work component's place in the hierarchy (see Figure 1 Structure and scope of this

The principles of planning are contained in the topic of the same name.

standard). There should be single point accountability for every component and activity. Plans should be viewable at different levels of the hierarchy and show the level of detail appropriate to the needs of those viewing the plan.

Dependencies between work components should be minimised to make each component as self-contained as possible.

Depending on the level of the plan (portfolio, programme, project or work package), a plan should include forecasts of benefits (if applicable), milestones, activities, schedule, cost and resources, with associated assumptions, constraints, critical paths and risk. Dependencies between activities and other work components (such as programmes and projects) should be defined. The plan should include and allow for assurance and decision-making activities (see 4 and 6.3).

Note: a plan can be included in a single document or information source or distributed across a number of sources.

Note: a number of different hierarchies can be used to provide different perspectives on a plan, such as product break down, cost breakdown, epic and user story.

Techniques such as milestones, critical path scheduling and breakdown structures are all explained in the Praxis encyclopaedia.

7.2.5 Baselining the plan

Once approved, plans shall be baselined and progress regularly monitored and analysed. Forecasts should take into account progress to date and prevailing assumptions and risks. Plans should be updated, especially prior to significant decision points, such as at a project's gates (see 6.3). Changes to a baselined plan shall be undertaken in a controlled way (see 7.7).

The baseline plan forms the basis of exception reporting and corrective action in the delivery process.

7.3 Benefits management

Benefits management ensures benefits are realised in practice.

The relevant stakeholders' expectations regarding the benefits to be realised should be understood by the team developing the solution. Benefits should be identified, analysed, defined, planned and tracked and included in the overall plan for the work (see 7.2). Forecasts of benefits should take into account negative impacts resulting in disbenefits. Benefits should be assessed for a number of options before a

The principles of benefits management are covered in the knowledge section. How this and change management fit into the project or programme life cycle is addressed under the benefits realisation process in the method section.

How benefits management should be applied will be set out in a benefits management plan although on smaller projects this may simply be a section of a broader scope management plan.

solution is chosen (see 8.4) and included in a business case (see 4.3), in which potentially conflicting pressures, such as costs, benefits, schedule, quality, scope, performance, and risk are balanced.

Options shall be assessed in accordance with GovS 010, Analysis.
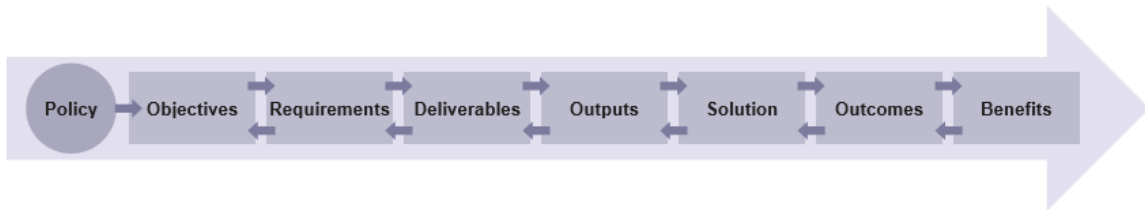
Figure 8 Example of benefits mapping, showing two-way traceability from policy to benefits

Each discrete benefit should be assigned to an owner who has responsibility for forecasting and monitoring it. Benefits

Figure 8 Example of benefits mapping, showing two-way traceability from policy to benefits

should be reassessed throughout the duration of the work as new benefits might emerge as the work progresses and expectations might change.

Benefits trigger points should be included in schedule plans (see 7.2). Once triggered,

actual benefits realisation should be tracked against the plan.

There should be two-way traceability between benefits, outcome, solution, outputs, requirements and objectives (see Figure 8 and 7.8).

Note: benefits mapping might be used to demonstrate traceability.

A benefits map is a form of influence diagram, an example of which is shown here.

7.4   Resource, capacity and capability management

Resource, capacity and capability management balances the supply and demand for appropriate resources (such as skilled people, equipment, material and facilities) to be deployed when needed.

Resources can be sourced from within government, by recruitment or from the supply chain (see 7.11).

A comprehensive view of future resource needs should be developed and maintained, with possible shortfalls identified and addressed.

The resource management topic in Praxis is a high-level topic that is broken down into more detailed topics that cover the acquisition and management of both internal and external resources.

Understanding the capacity and demand for resources is covered by schedule management and, in particular, resource scheduling.

In this context 'capability' can also be referred to as competence. The framework contains a collection of competencies that contains a definition of individual competence in every

43

Resources should be acquired or developed to meet the planned needs.

If insufficient resources are available, work should be re-planned to reflect such constraints. Business continuity measures should be in place in the event of the loss of critical resources.

Resource plans should:

- take into account the development, retention and planned reassignment of people to ensure their skills are retained within government organisations

- be consistent with the organisation's workforce plan

Note: 'appropriate resources' means, for materials, equipment and facilities, the required quantity with the right specification. For people it means the right skills, competences and expertise to undertake the work.

Note: see GovS 003, Human resources on workforce planning.

appropriate topic from the knowledge and method sections.

Individual competence is a vital component of level 2 capability maturity.

7.5   Reporting

Reporting ensures the management team(s) and interested parties are aware of the current status of the work and outlook relative to the baselined plan (see 7.2.57.2), particularly with respect to the likelihood of achieving the objectives.

A reporting framework should be defined and established to meet the needs of the identified report recipients in a timely manner. A report should be factual and realistic, highlighting progress to date, whether the current work scope is likely to be completed to plan, prevailing risks and issues and the decisions or direction required. Appropriate milestones and performance indicators should be included in the report to reflect progress and the achievement of outputs and outcomes and, where appropriate, benefits realisation.

Performance indicators should reflect the delivery method used and degree of confidence in the forecasts (see 7.2.2).

Each report should state the period or date the report is related to and the date on which the report was published, or if live, created. The form of a report should be appropriate and proportionate to the work being reported on and the roles being reported to.

Praxis identifies two categories of report: time driven and event driven.

Time driven progress reports are produced and distributed at regular intervals while event driven progress reports are produced and distributed to coincide with specific events, whenever they may occur.

How these reports should be used will be set out in the control management plan and scheduled in the communications plan.

Different contexts will supplement these with specific types of report ranging from burndown charts (agile), line of balance (construction), milestone slip charts (high level – all forms of delivery).

Note: examples of report types include Gantt, slippage, backlog, visibility and burndown charts.

Government major projects shall be reported annually, with quarterly updates in a format defined by the Infrastructure and Projects Authority and in accordance with the Government's transparency policy.

Note: reporting applies to information flowing within and between portfolio, programme, project and work package teams. Information flow with wider stakeholders is dealt with in 7.13

7.6   Risk and issue management

Risk and issue management ensures objectives are more likely to be achieved, bearing in mind complexity, uncertainty, unexpected events and threats and opportunities from undertaking the work, using the solution, and from the external environment.

Risks and issues should be:

- identified, assigned an owner and assessed, taking into account the impact, likelihood and proximity of the triggering causes

- responded to through exploitation (for opportunities) or mitigating actions (for threats) to eliminate, reduce or avoid consequences or reduce the possibility of occurrence; risks may be accepted

- monitored to resolution and closed when no longer valid

Residual and secondary risks, if any, should be identified and responded to

Risk controls should be reviewed to ensure they are still effective.

Risks should be managed as individual risks and collectively. Contingency should be retained at an appropriate level in the work hierarchy (see Figure 2) and authorised if needed through change control (see 7.7).

Overall risk shall not exceed the organisation's risk appetite and tolerance without authorisation.

Risks might be related to:

- the chance of an event occurring and its potential consequences

Praxis separates risk management from issue management.

Issue management is covered by the escalation procedure in the delivery process.

The application of risk management will be set out in a risk management plan whereas the approach to issue management would be set out in the control management plan (particularly in the section on 'corrective action).

Negative risks are commonly referred to as 'threats' and positive risks are commonly referred to as 'opportunities'.

Praxis follows the APM definition of an issue rather than the PRINCE2 definition and regards an issue as something outside of the manager's authority or delegated tolerances that must be escalated to the sponsor.

Identification, assessment and implementation of responses are all covered by the risk management procedure and documented in the risk register using various qualitative and quantitative techniques explained in the encyclopaedia, such as probability/impact assessment and Monte Carlo analysis.

Praxis distinguishes between 'risk events' and general risk as these are often addressed using different risk techniques.

The processes and procedures within Praxis support this diagram. However, it should be noted that not all issues arise from risk events that happen, and not all change requests are in response to issues that cannot be solved within plan.

- an unknown variable for which assumptions need to be made (for example number of users, inflation) which should be understood, articulated in the business case and, where possible, quantified using cost-benefit analysis

The circumstances under which work will no longer be viable or the solution relevant, should be determined, using techniques such as simulation, contingent scenarios and sensitivity analysis.

Risks and issues which an owner cannot resolve should be escalated or reassigned as necessary. The work component hierarchy (see Figure 2) can be used as a basis for escalating or reassigning risks.

Risk owners may be outside the formal hierarchy but should be responsible to a person in the work component's management structure.

Note: guidance on risk management can be found in the Orange Book and management of risk in government.
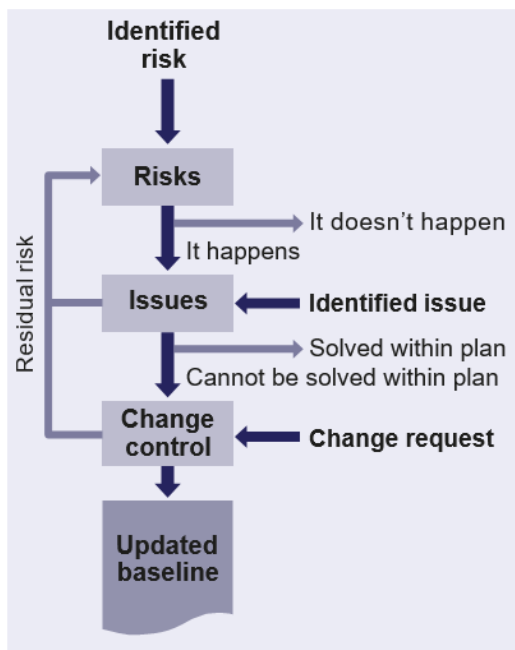
Figure 9 Relationship between risks, issues and changes

Risk appetite and risk attitude are covered with the risk context topic.

To minimise the confusion between these two types of risk, Praxis uses the term 'risk' to refer to unknown variables, general uncertainty and the general principle of risk.

It then uses the term 'risk event' to refer to a specific occurrence and its consequences.

Different risk techniques apply to different types of risk. For instance, Monte Carlo applies to general estimating uncertainty, while probability/impact analysis applies to risk events. Sensitivity analysis can apply to both.

Praxis defines an issue as something that needs to be escalated. If problems arise within agreed tolerances they are treated as a normal component of cybernetic control as applied by the delivery process.

These are specific to government and outside the scope of Praxis.

7.7   Change control

Change control ensures only beneficial or necessary changes to a baseline are implemented. Changes might originate from any stakeholder, including policy makers, executive

Change control is covered by the topic of the same name.

management, end users, suppliers or team members. Alternatively, a change might result from a risk or issue which cannot be resolved. Criteria should be defined to:

- define what aspects of the work should be change controlled

- direct which individuals or groups have the authority to authorise changes (see 4.3)

Change requests should be recorded, identified and defined. The impact of a change should be assessed in terms of impact on the business case, objectives, outcomes, solution and plan. Changes to interrelated deliverables (products or elements of a solution) should be controlled as a group and traceability between elements maintained (see 7.8). Change requests should be accepted, rejected or further direction given (see 4.3).

An implementation plan should be developed, prior to receiving authorisation to implement a change. The decision should be communicated to interested parties. Once a change has been incorporated into the baseline and affected information updated, the change request should be closed.

Its goals are to:

- capture stakeholders' requests to make changes to scope;

- ensure that requests are only approved if viable and achievable;

- integrate changes into the existing scope.

The change control procedure is most commonly triggered by a request to change scope. However, the same procedure is used to manage change requests that relate to any other aspect of the baseline plans (such as budget or timescale changes).

Change requests are recorded in the change log and managed through the change control procedure.

7.8   Traceability management

Traceability management ensures the relationships among the different elements of a solution and the associated management documentation is known, such that, at any point in time:

- change control can be applied effectively (see 7.7)

- the makeup of a solution and parts is defined and reproducible (see 8.4)

The elements to be managed should include those produced by suppliers and internally, tools used during the design, development or manufacturing of a solution, and the management deliverables. Information with respect to traceability should be managed   in accordance with clause 7.9.

Each element should be identified in terms of status and version. There should be two-way traceability from the higher-level to the lower level elements that comprise it as well as among different elements.

The goals of the change control topic in Praxis are to:

- capture stakeholders' requests to make changes to scope;

- ensure that requests are only approved if viable and achievable;

- integrate changes into the existing scope.

Configuration management is covered by the topic of the same name. Its goals are to:

- identify the products that will be treated as configuration items;

- support the assessment of change requests and document the results of change control;

- maintain the validity of the configuration and the accuracy of the configuration management system.

Traceability management should include:

- planning the scope of and managing the relationships between elements, including baseline control

- identifying and understanding the relationships between elements at a given point in time

- reporting to ensure those requiring this information are informed

verifying the accuracy of the records

Note: different sectors might have different names for this practice, such as configuration management, parts management and asset management.

Also relevant to this section is value management, which is briefly explained in the encyclopaedia.

7.9   Information and data management

Information and data management ensures information and its underlying data (physical or electronic) is available and reliable for undertaking work and making decisions.

The information and data which needs to be managed should be identified. This should include data and information relating to the solution and its development, plans, progress assessments, reviews and audits, contracts, reports and communications.

Information should be recorded on receipt, validated as correct, securely stored, distributed to, and retrievable by those who need it.

Note: information and data concerning a solution can be related to requirements, drawings, designs, specifications, building information modelling and digital twins (see section 8).

The framework for managing data, information and its quality should be defined. Business continuity measures should be in place in the event of a disruptive incident (see 7.6).

New sets of information, such as documents, should be reviewed, approved, version controlled and, when no longer required, withdrawn and archived.

The status, security classification and provenance of information and data should be clear.

Where relevant, information and data should be handed over for on-going operational management. When not handed over, information should be retained to meet

This area is covered by the information management topic, the goals of which are to:

- capture data accurately and consistently;

- develop usable information from raw data;

- maintain information securely and accessibly during its useful life;

- support effective decision making and communication.

statutory, contractual and wider business requirements. The integrity of groups of related information should be maintained (see 7.8).

GovS 005, Digital, data and technology shall be complied with, with respect to data handling.

GovS 007, Security shall be complied with, with respect to data and information security.

Note: information management can include web content management, document management, records management, digital asset management, learning management, building information modelling and content systems.

7.10 Finance

Financial management ensures the efficient and effective management of money (funds) to accomplish the objectives of the organisation.

The level of funding needed should:

- be determined, in the short and long term for the portfolio, programme or project including subsequent in-life or running costs.

- be consistent with the respective plans (see 7.2)

- represent value for money

Sources of funding should be identified and secured. The financial governance and management framework should be defined, including financial accountabilities, levels of delegation, approvals and monitoring.

Note: funding sources can include those from grants, estimates, tax, public dividend capital, public borrowing, external borrowing and income generation. See Managing Public Money.

Financial reports should be reliable and provided to decision makers and to managers of work components in a timely manner.

GovS 006, Finance shall be complied with.

The goals of the financial management topic in Praxis are to:

- estimate the cost of achieving the objectives;

- assess the viability of achieving the objectives;

- secure funds and manage their release throughout the life cycle;

- set up and run financial systems;

- monitor and control expenditure.

Sub-topics are investment appraisal, funding and budgeting and cost control.

7.11 Procurement and contract management

Procurement ensures products or services bought as part of resourcing the work or developing the outputs are of the appropriate quality, represent value for money and can be delivered within an acceptable level of risk.

Those leading procurement and contract management activities should have a

Procurement, contract management and mobilisation are components of the resource management topic, which has the goals to:

- determine the best way to resource the work;

comprehensive knowledge and experience of the context, goods or services required and be able to interpret business needs and translate them into contractual requirements.

Note: this expertise is often referred to as 'intelligent client'.

Appropriate contract strategy and procurement packages should be determined, suppliers selected against defined criteria and the contracts formally agreed. There should be two-way traceability between the contract and the appropriate part of the plan (see 7.8). Contracts should be designed to reflect the type and method of delivery and reliability of the supply chain. The scope of contracts should include the documentation and tools required for the operation of the service or product.

Once a contract is agreed, the contractual obligations, including management of dependencies, should be complied with, including timely payments to suppliers.

Supplier performance and quality should be monitored and deliverables and services only accepted after verification against the contractual requirements.

GovS 008, Commercial relating to contract management shall be complied with.

- acquire and mobilise the necessary resources;

- control resources throughout the life cycle;

- demobilise resources at the end of the life cycle;

- finalise all contractual arrangements.

7.12 Stakeholder engagement

Stakeholder engagement ensures the needs and concerns of stakeholders are addressed sufficiently to enable the objectives to be met.

Stakeholders should be identified, and their interests and expectations understood and represented. A plan should be developed defining how to engage them in a co-ordinated and appropriate way. The engagement plan should be implemented, monitored and updated to reflect newly emerging stakeholders and changes in the position of existing stakeholders. Stakeholder attitudes should be assessed, updated and validated throughout the work.

Note: depending on the stakeholders, engagement might done in a number of ways, including face to face contact, meetings, or through collaborative working approaches, such as agile or through communications (see 7.13).

Praxis refers to this area as stakeholder management, within which the final step in the procedure is engagement.

How stakeholder management should be performed is explained in the stakeholder management plan.

The stakeholder management procedure utilises techniques such as stakeholder mapping to document the results of stakeholder identification and assessment.

Based on the assessment, a communication plan will illustrate how stakeholder communications fit in with other delivery plans.

These subjects are addressed in the communication topic.

7.13 Communications

Communications ensure interactions with the stakeholders are effective and likely to contribute to the successful delivery of the work.

Communications should be designed and co-ordinated to ensure the right messages are addressed to the right audience, at the right time and in a way which is acceptable and accessible to the recipients.

Communications should be planned to match the stakeholders' needs and include feedback mechanisms and effectiveness measures. The impact of communications should be assessed and, where appropriate, responded to. The communication plan should be adjusted if needed, to achieve successful change.

GovS 011, Communication shall be complied with.

Note: depending on the stakeholders, engagement might be through press releases, news channels, adverts, posters, social media, web sites, leaflets.

While communications with stakeholders can take many different forms, the underlying principles and objectives of communication are the same.

These are explained in the communication topic.

The stakeholder management plan sets out how communication will be conducted and the communication plans shows the timing of specific communication activities.

8 Solution delivery practices

8.1 Overview

Solution delivery ensures that an appropriate and sustainable solution is developed and enables the achievement of the required objectives.

Solution delivery is the responsibility of the programme or project manager (see 4.4.8), supported by subject matter experts for the respective practices. The solution delivery practices should be managed and monitored, throughout the life cycle (see 6.3), using a defined and established approach that is improved through use (see 8.8).

Praxis addresses these issues in a number of topics described in the following sections.

8.2 Quality management

Quality management ensures outputs are fit for purpose to achieve the objectives.

Quality shall be actively managed to maximise the likelihood of success by determining the degree to which the features and inherent or assigned characteristics of an output or solution (whether product, person, process, service and/or system) meet expectations or stated needs, requirements and specification (see 8.6).

A quality management framework should be defined and established, which is appropriate to the outputs and work required. People should be trained, briefed and competent to undertake the work assigned to them.

The quality management framework should include:

- quality assurance to provide confidence that outputs are likely to match the defined quality criteria

- quality control to monitor and verify compliance with the specified designs and to identify ways to eliminate causes of unsatisfactory performance

Note: the quality of the solution is dependent on the choice of appropriate design and development methodologies. Different approaches are appropriate in different circumstances, for example an iterative, agile delivery approach for digital service (see GovS 005, Digital, data and technology).

The Praxis Framework takes the approach to quality in project management pioneered by ISO10006. It maintains that quality is not a separate subject but something that is inherent in all aspects of project management.

This article explains more about the approach.

In Praxis, quality planning is addressed in the planning topic, quality control in the control topic and quality assurance in the assurance topic.

Quality planning is included in planning, quality control in control and quality assurance in assurance.

8.3 User needs and requirements

Managing requirements ensures the needs of stakeholders are understood and considered throughout the design and development of the solution.

Requirements should be refined, elaborated (for example, as agile epics and user stories) and evolve with the design and development of the solution until a viable solution is defined and approved. Multiple iterations might be needed to fully understand the requirements.

A common understanding of the outcomes for all phases of the solution's life cycle (including during development, in-life and disposal) should be agreed between those requesting the work and those undertaking the work. Requirements must take into account relevant statutory, regulatory and other constraints such as inclusion, health and safety (see 8.10) and sustainability (see 8.11). The requirements should be determined for those affected by the development and use of the outputs and subsequent outcomes, such as the public, end users, operational and maintenance staff, developers, constructors and manufacturers. Requirements should be uniquely identifiable, current, mutually consistent, understandable, unambiguous, prioritised and validated. There should be two-way traceability between the requirements and the elements of the design (see 7.8). Changes to requirements should be aligned to the objectives of the work component, and should be controlled (see 7.7).

The requirements management topic addresses all aspects of the subject. Its goals are to:

- ensure that all relevant stakeholders have the opportunity to express their wants and needs;

- reconcile multiple stakeholder requirements to create a single viable set of objectives;

- achieve stakeholder consensus on a baseline set of requirements.

8.4 Solution design

Solution design ensures the outputs meet the requirements and are likely to achieve the desired outcomes, realise the required benefits and represent value for money.

Design should be in accordance with a defined approach and may be predictive, incremental, iterative, adaptive or hybrid, including agile approaches.

Solution design may evolve as requirements are elaborated and as design and development progress. The solution design (or target operating model) should include the outputs needed to achieve the desired outcomes, including, but not

Solution design is covered as part of the solutions development topic.

be limited to, people, software, equipment, operations and maintenance products,

manufacturing, security, information, organisation design, supply chain, performance characteristics and desired behaviours. The solution should be defined sufficiently to enable its parts to be verified as correct. There should be two-way traceability between the design elements and the plan (see 7.8).

The team undertaking the design should consider a range of solution options (design approaches, design concepts, or preliminary designs) that potentially satisfy the requirements and take into account complexity and value for money.

After analysis a preferred solution should be recommended for implementation.

Options shall be assessed in accordance with GovS 010, Analysis.

The entire solution should be considered with progressive breakdown into its constituent elements, including those undertaken and implemented by suppliers. Interactions between elements and the operating environment should be known and considered.

Note: the breakdown of the solution is also called product breakdown, system element hierarchy and system decomposition.

Note: taking account of the entire solution is often referred to as system-wide or whole-system thinking.

8.5   Solution development and integration

Solution development and integration ensures that the designed solution is built in a defined way such that the elements

comprising the solution work together within the proposed development and operating environments.

A strategy should be developed defining the approach to be taken for sequencing, delivery and integration of the elements of the solution, including any special temporary environments or facilities required.

Working methods and processes should be defined together with how different elements of the designed solution relate (see 7.8) and are integrated such that the solution works as a whole.

Solutions development is covered by the topic of the same name. Its goals are to:

- evaluate baseline requirements and alternative solutions to achieve them;

- select the optimum solution;

- create a specification for the solution.

8.6   Verification against design and validation against need

Verification checks the correctness of a solution (or part of a solution) to confirm that it complies with the specified design.

It should be aimed at detecting faults or failures.

Validation ensures the right problem is being addressed and the solution is likely to fulfil the requirements when operating in its intended environment. Validation should be applied to the solution or a significant part of it and should be aimed at demonstrating stakeholder satisfaction.

Verification and validation should be continuous throughout the life cycle and may be iterative in nature with the requirements, design and solution evolving as work progresses. The methods used for specialist work should include appropriate approaches and planned activities for both verification and validation.

Note: methodologies for verification and validation can include, but are not limited to: prototyping, simulation, inspection, show and tell, analysis, demonstration, test, trials or pilots, and sampling.

In Praxis, verification and validation are part of solutions development and configuration management.

8.7   Management of organisational and societal change

The purpose of managing change is to prepare, equip and support organisations and individuals (for example, users, citizens) to change their approach and, where appropriate, behaviours and to embed the required changes.

Organisational and societal change aspects shall be addressed and planned into the solution design and delivery strategy from the start of the programme or project and throughout the life cycle (see 8.4).

Each programme and stand-alone project should have a vision and target operating model for the future state. The current state of the target groups should be assessed, and appropriate techniques should be used to design and manage the required business or societal changes. The readiness of the target groups to accept the changes should be continually assessed, and progress towards achieving the future state should be tracked.

The change management topic addresses the subject of business change and references many standard works on the subject of change management, which are summarised in the encyclopaedia.

The change required to realise benefits should be identified as part of the benefits management procedure.

Like the delivery standard, Praxis does not regard benefits as being exclusive to programmes. Projects can also deliver benefits in non-complex situations.

Milestones representing the achievement of outcomes should be included in the plan (see 7.2). Once a transformed operating approach has been implemented, it should be monitored to ensure behaviours and practices are sustainable and do not revert

8.8　Learning from experience

Learning from experience helps avoids repeating the same mistakes and helps spread improved practices to benefit current and future work.

At the start of the work, those involved and key stakeholders should identify and apply relevant lessons from previous experience when planning the work. Throughout the life cycle, lessons should be continually captured, evaluated and action should be taken to mitigate delivery risk and facilitate continual improvement of the final outputs and services. Organisation leaders, (including arm's length bodies) and owners of standards, processes, methods, guidance, tools and training, should update their knowledge sources and share learning as appropriate.

Experiences should be captured in a lessons log throughout a project, programme.

As part of the review activity in the closure process, the lessons recorded in the log are reviewed and recommendations made for future improvement.

As part of knowledge management (typically facilitated by the portfolio) the lessons and recommendations should be available in a knowledge base which is then used when previous lessons are reviewed in the identification process.

8.9　Project delivery team induction and training

Induction and training ensure team members are working effectively as soon as practical through being briefed on the context of their work and the required operational procedures.

For programmes and projects, induction should include, but not be limited to, ensuring a briefing on the specific role being undertaken (see 4.4), processes to be followed and specialist training required, as well as providing the necessary facilities and granting appropriate security access.

Organisationally, training should include, but not be limited to, defining a training strategy for project delivery, analysing training needs, defining, developing, and maintaining briefings/ courses, planning, delivering and monitoring training and development events.

Induction and training activities shall comply with GovS 003, Human resources

The principles of learning and development are covered in the topic of the same name.

Research into lessons learned indicate that the biggest problem in project delivery is that the knowledge gained on training courses is not adequately practiced and embedded after courses are completed.

Praxis addresses this in a variety of ways, including the use of checklists and explaining how people with different personality types interpret good practice in different ways. All of this is explained in the Praxis Pathway.

Because Praxis covers both knowledge and method in a single integrated framework, a Praxis certification is the equivalent of an APM certification and PRINCE2 certification combined.

The resource pages form a growing library of material that promotes continuing professional development – all classified according to the structure of the framework so that CPD can be directly relevant to what the reader is doing on their project at any time.

8.10 Health and safety

The purpose of managing health and safety is to ensure the public and those engaged in project delivery, over the whole life of the solution, are not at risk. Health and safety risks should be assessed in order to ensure accidents and threats to health are reduced to an acceptable level. Legislation shall be identified and must be complied with. In particular managers shall ensure: • safety management information is provided • staff are aware of and trained to use safety related equipment • hazards are identified and preventative actions taken • risk assessments are conducted and findings acted on • accidents are reported, recorded, and actions taken to reduce the risk of recurrence Note: Attention is drawn to the Health and Safety at work Act 1974, the Management of Health and Safety at work regulations 1999 and equivalent in other jurisdictions.	This is outside the scope of Praxis

8.11 Environment and sustainability

Sustainability is concerned with meeting the present needs without compromising the environment for future generations. Sustainability requirements should be included in the objectives and scope for the work and documented (see 8.3). Legislation shall be identified and must be complied with. If not already covered in organisation-wide policies and procedures, the management of environment and sustainability should be covered in or referenced from the respective portfolio, programme's or project's governance and management framework. When establishing the sustainability of a solution's outputs and outcomes the assessment should cover the whole life cycle of the solution, including decommissioning or disposal.	This is currently outside the scope of Praxis

A.   References

The project delivery standard lists a number of specific UK Government resources.	The GovS 002 references are not repeated in this document

B.   Glossary

The project delivery standard contains definitions for terms used within the standard.	The Praxis comparative glossary describes over 1,300 common terms in project, programme and portfolio management.
	It includes terminology from all the main guides with comparisons and equivalences.

C.   Example roles and accountabilities

Praxis does not currently define roles and responsibilities beyond the references to generic roles within the knowledge and method section.

The links below are to the main functions and processes in the Praxis Framework that are relevant to the roles as defined by the standard.

Portfolio director

The portfolio director is accountable to a defined higher-level authority for the direction and governance of the portfolio, for optimising the required benefits at an acceptable level of risk. The portfolio director provides leadership and direction and owns the portfolio's vision and strategy, in particular:

- gain relevant management board approval for the portfolio's vision and strategy

- approve the portfolio's plan

- promote a culture focussed on cross organisation, collaborative working which acts in the interests of the organisation as a whole

- ensure the portfolio evolves to reflect changes in the socio-political environment, policy, strategic objectives, business priorities and emergent risks

- funds and resources are allocated where needed and capacity and capability are sufficient to meet the needs

- ensure portfolio management practices are defined, maintained and kept up to date

- secure the investment to implement portfolio management and its support systems, tools and environment

Note: the role may be supplemented by or supported by a portfolio direction group or investment committee, which the portfolio director might chair. Individual aspects of the role might be assigned to different line managers.

The four processes (and their associated competences) that describe the management of a portfolio are the:

- Initiation process

- Governance process

- Management process

- Co-ordination process

The initiation process covers the creation of a portfolio, including securing the initial investment, while the governance process addresses keeping management practices consistent and up to date.

Balancing the portfolio to ensure funds and resources are allocated effectively is covered by the management process and day to day running of the portfolio is covered by the co-ordination process.

The portfolio director will be particularly focussed on the initiation and governance processes.

Functions (and their associated competencies) that are particularly relevant to this role definition include:

- Sponsorship (since the portfolio director is effectively the portfolio sponsor)

- Benefits management

- Change management

- Risk context

Portfolio manager

The portfolio manager is accountable to the portfolio director for planning and managing the portfolio as a whole, ensuring that its work components are sufficient to meet the portfolio's objectives. Responsibilities include monitoring spend against budget, benefits realisation, business change and risk. The portfolio manager coordinates the effective and efficient operation of the portfolio management and ensures the flow of information to decision makers and, in particular:

- drafts the portfolio's strategy in support of the organisation's business plan

- develops and owns the portfolio's plan, including identifying constraints

- prepares the regular reports on the portfolio's performance for stakeholders and decision makers

- ensures the business cases for work components are created on a consistent and reliable basis across the portfolio, using the same assumptions

- ensures investment appraisals are undertaken

- ensures dependencies between components in the portfolio are identified and managed

- leads the development and roll-out for portfolio-level stakeholder management and communications

- keeps the portfolio's governance and management framework up to date, identifying and implementing improvements

Note: the role may be supported by a portfolio progress group or delivery committee, which the portfolio manager may chair. Individual aspects of the role might be assigned to different line managers.

The four processes (and their associated competences) that describe the management of a portfolio are the:

- Initiation process

- Governance process

- Management process

- Co-ordination process

The initiation process covers the creation of a portfolio, including securing the initial investment, while the governance process addresses keeping management practices consistent and up to date.

Balancing the portfolio to ensure funds and resources are allocated effectively is covered by the management process and day to day running of the portfolio is covered by the co-ordination process.

The portfolio manager will be particularly focussed on the management and co-ordination processes.

Every function within the knowledge section of Praxis has a section titles 'projects, programmes and portfolios'. This section describes the evolving approach to each function as complexity increases, always ending with the application of the function in the portfolio environment.

Sponsoring body

The sponsoring body acts as the higher- level authority for a programme or project and is accountable to a defined higher-level authority, normally the accounting officer.

The sponsoring body acts as the driving force for a programme or project:

- assessing initial viability and fit with the organisation's strategic aims and needs prior to initiation

- ensuring that the organisational environment is supportive of the senior responsible owner and team, enabling them to achieve the programme or project's objectives

- overseeing the work to assure it is being directed and managed effectively and is still viable

- taking key decisions or delegating them, as appropriate, depending on risk and impact

- reviewing the outcome from the programme or project, once completed

- overseeing the application of organisational constraints, such as policies and standards

The sponsorship of smaller, less complex projects will usually be conducted by a single person (See Senior responsible owner).

The principles and process of sponsorship remain the same whether performed by an individual or group.

Senior responsible owner (SRO)

The senior responsible owner is accountable to the sponsoring body for a programme or project meeting its objectives, delivering the projected outcomes and realising the required benefits. The senior responsible owner is the owner of the business case and accountable for all aspects of governance. Responsibilities include, but are not limited to:

- defining and communicating the vision and objectives in line with policy or strategic intent

- ensuring a real policy or business need is being addressed

- assuring ongoing viability

- engaging key stakeholders

- providing the team with leadership, decisions and direction

Praxis refers to the SRO as a sponsor. There are references throughout the framework to the sponsor.

Specific topics are:

- Sponsorship and the

- Sponsorship process

- ensuring the delivered solution meets the needs of the business and stakeholders

Note: the role should be supported by a programme board which the senior responsible owner should chair.

Note: for programmes or projects not in the Government Major Projects Portfolio, the senior responsible owner might be called a 'sponsor' or 'executive'.

Programme/project manager

The programme/project manager is accountable to the senior responsible owner for establishing the governance framework and for the day-to-day management of a programme/project, to deliver the outputs and desired outcomes, and realise the required benefits, including, but not limited to:

- ensuring the solution is designed and business case and plans prepared

- defining the approach, accountabilities, work scope and targets for the team

- monitoring, forecasting and reporting overall progress against the plan

- resolving risks and issues and controlling change

- delivering the required outputs and outcomes

- monitoring and managing supplier performance

- engaging and communicating with stakeholders

Note: this role is often referred to as the project director or programme director.

This is the role that manages the project life cycle through the application of the processes.

Every project and programme process and function applies to this role.

Programme/project support office manager

The management team should be supported in the effective and efficient undertaking of their roles. Support might be provided by single or multiple physical or virtual structures or offices (permanent and/or temporary), which can be centralised or distributed. Services provided might include value added delivery support as well as administrative functions such as:

Project and programme offices come in many forms. Some are focused on support (typically called a PSO), while others have a broader governance role (typically called a PMO).

The competencies required to be a project and programme office manager will be dependent upon the scope and constitution of the support/governance organisation.

- providing support to the management practices in sections 4, 5 and 6 of this standard

- providing specialist services on the support practices in section 7 of this standard

- undertaking independent reviews and audits

- developing, procuring, selecting and managing management support tools and systems

- consolidating and analysing reporting

- monitoring resource usage across the organisation

- providing consulting and coaching and advising sponsors and managers

- maintaining standards for recruitment and development of project management staff

- providing training and assessment

Note: often referred to as a programme management office or PMO.

Manager of a work package/team manager

The manager of a work package is accountable to the project manager (or higher-level team manager) for those products and outcomes allocated to them (as defined in a work package) to an appropriate quality, timescale and at an acceptable cost. This includes, but is not limited to:

- ensuring work packages are completed to the required quality, on time and to budget

- contributing to and reviewing significant management documentation

- planning, monitoring, forecasting and reporting overall progress against the plan

- managing the resolution of risks and issues, escalating any they cannot deal with

- controlling changes to their work scope, highlighting any requiring approval

This role will focus on the management of the delivery process using the functions and competencies defined in the management section of the Praxis Framework.

D. The reference project life cycle

This figure shows the typical activities in the reference life cycle, mandated for government major projects and recommended for others, with the gates, stages, assurance reviews and business cases indicated in the appropriate places.
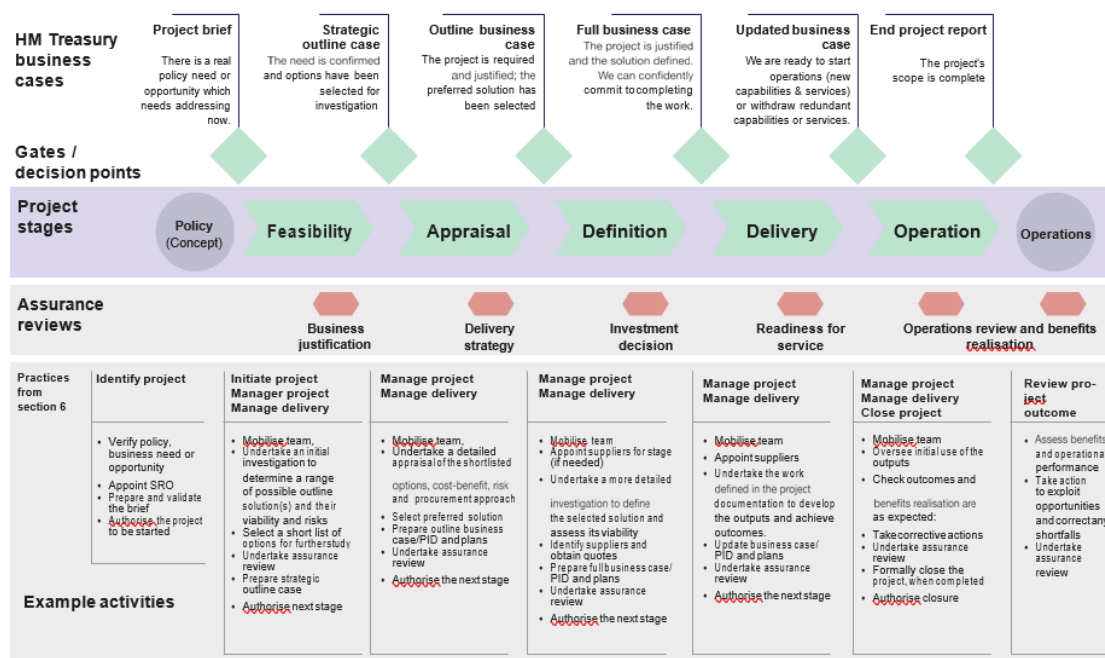
While project and programme life cycles should be tailored to specific contexts, they all follow the same fundamental principles of progressive definition and go/no gates.

In some cases the fundamental phases are merged or (as in the case of the life cycle below) they are subdivided to provide more go/no go control points.

The way that many well-known life cycles follow the same principles despite superficial differences is explained in this article.

D. The reference project life cycle

This figure shows the typical activities in the reference life cycle, mandated for government major projects and recommended for others, with the gates, stages, assurance reviews and business cases indicated in the appropriate places.

HM Treasury business cases	Project brief — There is a real policy need or opportunity which needs addressing now.	Strategic outline case — The need is confirmed and options have been selected for investigation	Outline business case — The project is required and justified; the preferred solution has been selected	Full business case — The project is justified and the solution defined. We can confidently commit to completing the work.	Updated business case — We are ready to start operations (new capabilities & services) or withdraw redundant capabilities or services.	End project report — The project's scope is complete
Gates / decision points	◆	◆	◆	◆	◆	◆
Project stages	Policy (Concept) → Feasibility	Appraisal	Definition	Delivery	Operation	Operations
Assurance reviews	Business justification	Delivery strategy	Investment decision	Readiness for service	Operations review and benefits realisation	

Practices from section 6	Identify project	Initiate project / Manager project / Manage delivery	Manage project / Manage delivery	Manage project / Manage delivery	Manage project / Manage delivery	Manage project / Manage delivery / Close project	Review project outcome
Example activities	• Verify policy, business need or opportunity • Appoint SRO • Prepare and validate the brief • Authorise the project to be started	• Mobilise team, • Undertake an initial investigation to determine a range of possible outline solution(s) and their viability and risks • Select a short list of options for further study • Undertake assurance review • Prepare strategic outline case • Authorise next stage	• Mobilise team, • Undertake a detailed appraisal of the shortlisted options, cost-benefit, risk and procurement approach • Select preferred solution • Prepare outline business case/PID and plans • Undertake assurance review • Authorise the next stage	• Mobilise team • Appoint suppliers for stage (if needed) • Undertake a more detailed investigation to define the selected solution and assess its viability • Identify suppliers and obtain quotes • Prepare full business case/PID and plans • Undertake assurance review • Authorise the next stage	• Mobilise team • Appoint suppliers • Undertake the work defined in the project documentation to develop the outputs and achieve outcomes. • Update business case/PID and plans • Undertake assurance review • Authorise the next stage	• Mobilise team • Oversee initial use of the outputs • Check outcomes and benefits realisation are as expected: • Take corrective actions • Undertake assurance review • Formally close the project, when completed • Authorise closure	• Assess benefits and operational performance • Take action to exploit opportunities and correct any shortfalls • Undertake assurance review

This is an 'example' project life cycle and various life cycles may be used depending upon the context of the work. The comparisons below show how the phases in this example life cycle relate to the generic management processes in the Praxis Framework.

| Project stages	Practices from section 6	Praxis processes
Policy (concept)	Identify project	Identification process
Feasibility	Initiate project	
Appraise and select	Manage project & manage delivery	Definition process
Define	Manage project & manage delivery	
Deliver	Manage project & manage delivery	Delivery process Boundaries process Development process
Operate, embed and close	Manage project, manage delivery & close project	Benefits realisation process Closure process
	Review project outcome	

E.   Examples of life cycles reflecting different needs

This project delivery functional standard states in clause 6.3 that a phased approach is taken but the standard does not define the number of the phases, their names nor how they should be applied in each case. This annex has two examples of how the reference life cycle in Annex D can be tailored to reflect different needs and circumstances.

The extended life cycle

An example life cycle covering the full extent of operations and the disposal of the outputs at the end. The phases could be managed as a project (in stages) or programme (in tranches) depending on the context. This type of life cycle is sometimes called a product life cycle, system life cycle or asset life cycle.

Projects and programmes are delivery vehicles for products and assets. The Praxis approach to the extended (product and asset) life cycle is explained here.
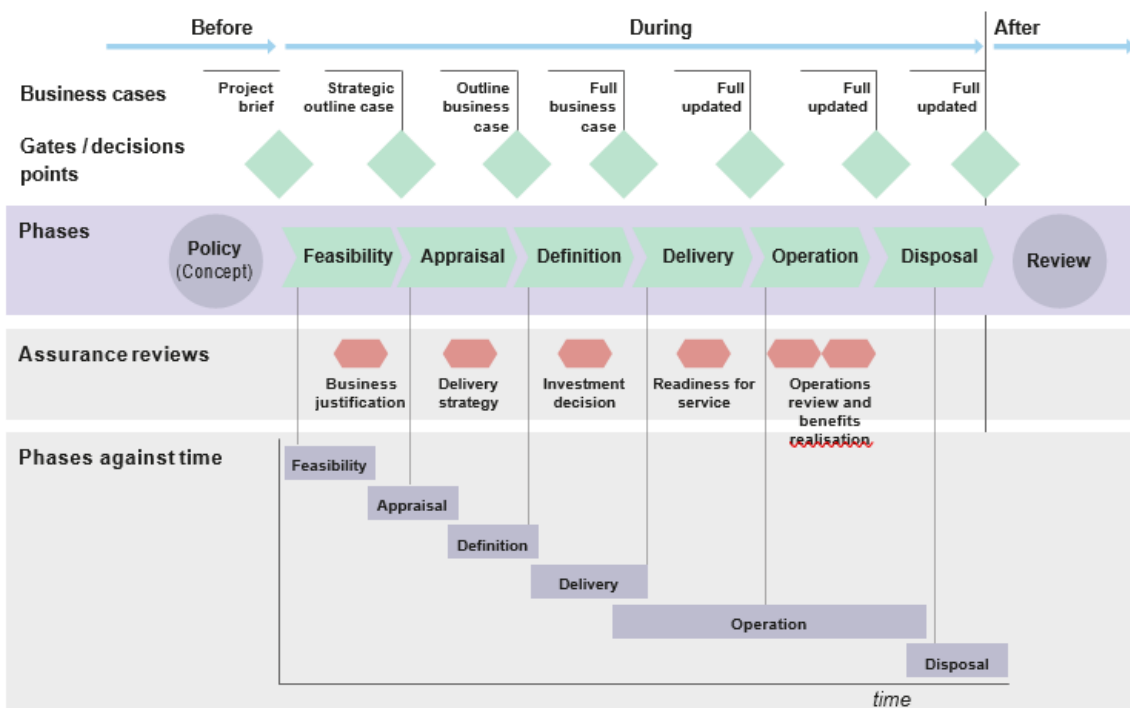
A project life cycle example, based on agile delivery

An example project life cycle for a project which uses an agile approach as the primary delivery methodology. The number and types of business case, assurance reviews and project stages can differ from project to project to reflect the context, nature and complexity of the work and the need for appropriate and proportionate governance.

Praxis version 2 is currently in preparation. The primary element of this is the explicit inclusion of agility as described by the vertical axis of the Praxis Delivery Model.

The beta version of life cycle with agility can be viewed here. It explains how agility applies throughout the life cycle and moves away from the false dichotomy of Agile vs. Waterfall to a more mature and flexible approach.
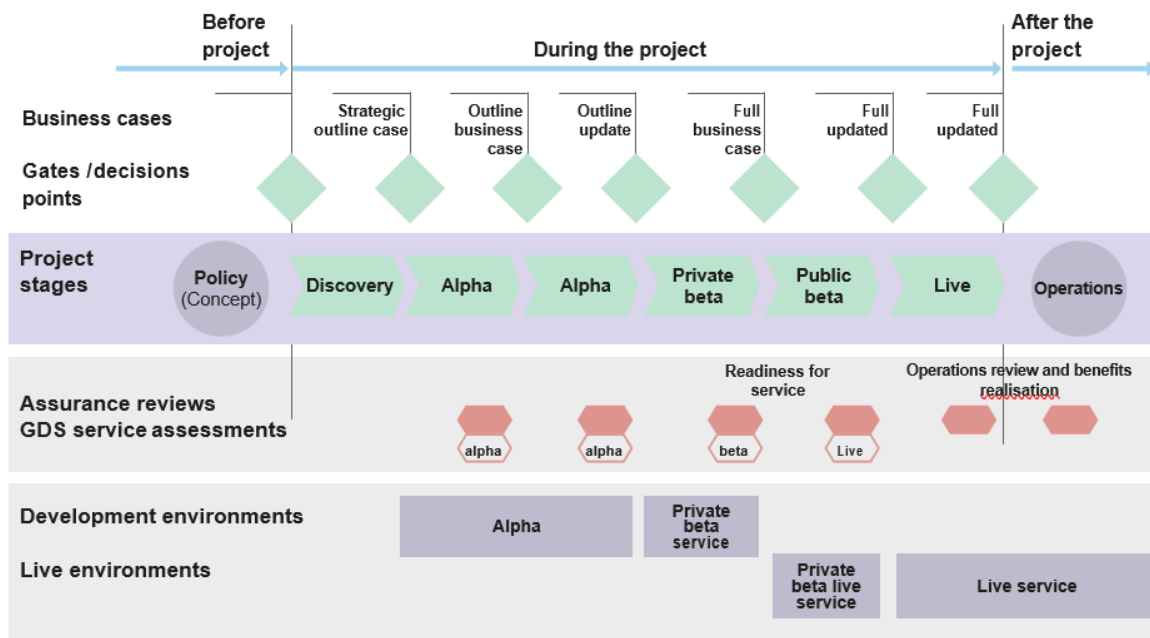
www.praxisframework.org

info@praxisframework.org