

**Office of the  
Government Chief Information Officer**

# **Practice Guide to Project Management**

for IT Projects under an Outsourced Environment

[S19]

Version 2.1

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## CONVENTIONS

The following acronyms are used in the text of this document:

ACPC	Administrative Computer Projects Committee
B/D(s)	Bureau(x)/Department(s)
BPR	Business Process Re-engineering
CTB	Central Tender Board
CPER	Contract Performance Evaluation Report
DoJ	Department of Justice
FS	Feasibility Study
GLD	Government Logistics Department
ISSS	Information Systems Strategy Study
IT	Information Technology
IPD	Intellectual Property Department
ITMU	Information Technology Management Unit
OGCIO	Office of the Government Chief Information Officer
PAT	Project Assurance Team
PID	Project Initiation Document
PIDR	Post Implementation Departmental Return
PM	Project Manager
PMP	Project Management Plan
PRINCE	PRojects In Controlled Environments
PSC	Project Steering Committee
PU	Project Progress Update
QPER	Quarterly Performance Evaluation Review
RAE	Resource Allocation Exercise
RFI	Request For Information
RFP	Request For Proposal
RFQ	Request For Quotation
T&Cs	Terms and Conditions

## PREFACE

In early 1990s, the majority of IT projects were managed and delivered in-house. A customised version of PRINCE was introduced into OGCIO (the then ITSD) in 1992 and has been adopted as a project management method.

Since the adoption of the IT outsourcing policy in 1999, outsourcing of IT projects has been taken as the preferred option. There was a need to produce a best practice guide that would cover all phases of the project cycle, from funding application to the assessment of benefits realised, as opposed to the then practice of focusing on the implementation stage only. This Guide is thus prepared to provide a set of comprehensive and consistent practices for managing IT projects outsourced to external service providers. Many aspects of this Guide are also applicable to IT projects which are implemented entirely using inhouse resources.

The Practice Guide to Project Management for IT Projects under an Outsourced Environment ('the Guide') is developed based on international project management best practices including those good practices promulgated by PRINCE which are already practised by Government B/Ds.

With a systematic approach, the effectiveness and efficiency of project management processes are enhanced which in turn enhances project delivery.

### Scope of the Guide

The Guide is applicable to the management of projects with IT activities (in particular, system implementation) outsourced. The target readers of this Guide are:

- Project managers who are responsible for managing IT project delivery
- Project team members who assist project managers to execute project management activities
- Stakeholders who participate in various IT project activities

### Structure of the Guidebook

The Guide is divided into two sections:

- **Section I Project Management Framework** provides an overview of the project management methodology that defines the project management lifecycle, the project management processes as well as the project management organisation that supports the processes.
- **Section II Project Lifecycle** explains in detail the processes and activities to be carried out as well as the outputs to be produced throughout the project lifecycle. It also describes the roles and responsibilities involved in delivering the activities. Project management templates, sample roles, responsibilities and competencies can be found in the appendices.

## How to Use this Guidebook

The Guide is structured in a way that enables readers to identify easily what to do and deliver in each project phase. At the start of each phase, the ultimate purpose of completing the phase is highlighted followed by an overview setting out the objectives and summarising project management processes and activities as well as inputs to and outputs from the processes.

- “What you need to do” – An overall view of the project management processes to achieve the objectives in each phase. Under each process, the project management activities that need to be performed are described in more details, where applicable.
- “What will be delivered” – The outputs from the processes.
- “Who will be involved” – Key roles that are involved in each activity and the involvement.

To facilitate implementation of the processes and activities, key success factors, tools and samples, hints and tips are provided for each activity while activity checklist and control measurements are available at the end of each phase.

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## SECTION I - PROJECT MANAGEMENT FRAMEWORK

This section describes the project management framework, which is specifically designed for the Government for managing outsourced IT projects. It comprises the project management lifecycle and the project organisation.

### 1 The Project Management Lifecycle

The project management lifecycle is depicted in Figure 1. It consists of four phases, namely Initiate, Plan, Execute and Close (illustrated as dark blue boxes) with project control across the whole lifecycle.

Under each project management phase, the major task(s) to be performed by the Government are illustrated as green boxes. A project is triggered by a sound business case and commences with the acquisition of the required budget to proceed with the project (i.e. funding application). When funding is available, the project enters into the Plan phase where a project management plan is developed. The Plan phase can be relatively short, the purpose of which is to identify what and when tasks must be completed, in particular, to produce the project deliverables required. The Execute phase is where the project is expected to produce the project deliverables. For outsourced projects, it is normally the phase where contractors turn up (upon contract award) to complete the project deliverables<sup>1</sup> (illustrated as light blue boxes). The project ends in the Close phase where performance of the project is measured and assessment is made on whether business benefits defined in the business case are achieved.

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<sup>1</sup> A contractor manages the delivery of the required project deliverables for the Government, typically during the implementation of an IT system as part of the Government's project.

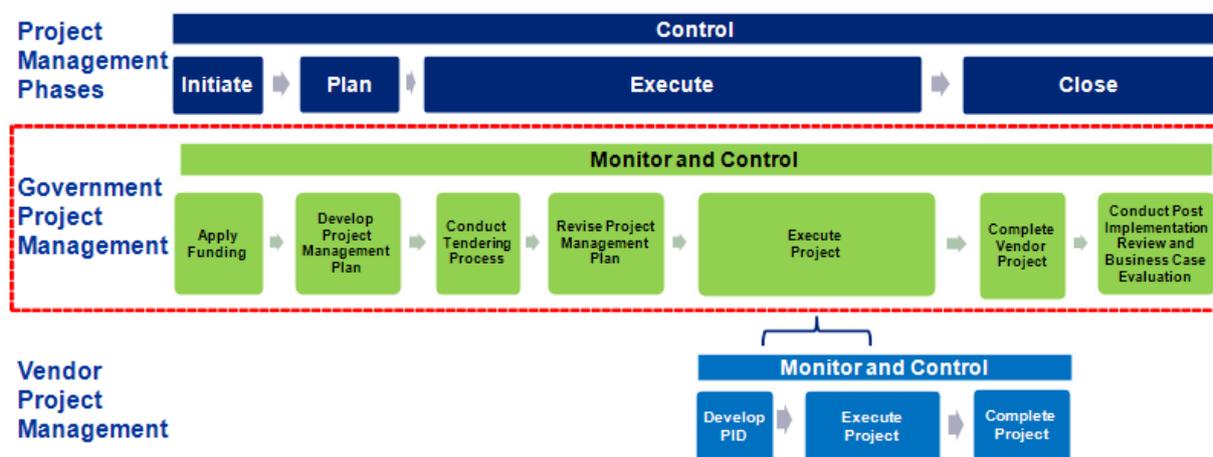


Figure 1 - Project Management Lifecycle

Under the Government project management lifecycle, the project management activities to be performed in each of the project management phases are summarised as follows:

## 1.1 Initiate

The initiation of a project is signified by a sound business case. When a project is created to solve a problem, address a need or deliver benefits, a budget and further management commitment is required. A project manager (referred to as the Internal Project Manager or Internal PM in short) is thus appointed by the Project Owner at the beginning of project initiation. On the one hand, the Internal PM prepares or assists to prepare the funding application for the project and on the other hand, assists the Project Owner (or his/her delegate in the PSC) to identify the necessary resources and team members needed to develop the project results. The Internal PM should be in place throughout the project lifecycle to ensure project success.

## 1.2 Plan

Upon project funding approval, the Internal PM should develop a project management plan (the PMP) that encompasses management of various aspects of the project including organisation, scope, schedule, financial, procurement, communications, risk and issue, quality, logistics, and change. This PMP originates from the funding application and is further developed to pitch at a level sufficient to acquire resources necessary to proceed to the next phase. Subsequent phases of the project work will continue to be planned in greater details as

the project progresses (e.g. system testing and implementation details may not be worked out until later in the Execute phase). At the conclusion of the Plan phase, the business case is revisited based on the planning documents and a decision on whether to proceed to the next phase is made.

### **1.3 Execute**

Activities are conducted to achieve the project objectives in accordance with the PMP developed from the Plan phase. The majority of the resources are expended in this phase and the primary task of the Internal PM is to ensure that resources are available as and when required to execute the tasks as defined in the project schedule. Under the Government context, this phase can broadly be divided into two sub-phases which are the tendering process and the development of required project deliverables through outsourced services. The Internal PM uses the management processes defined in the PMP to manage the project and monitor contractors' work. The Internal PM also assists the Project Owner/the PSC to prepare the project organisation for the implementation of the project deliverables. During the Execute phase, it is important to revisit the business case at project checkpoints to ensure its continual viability and that the project maintains alignment with the business objectives. When the project transits from the tendering sub-phase to the next sub-phase, the Internal PM should refine the PMP in collaboration with the contractor. This ensures, on the one hand, the contractor understands the project objectives, timeline, management processes and plans while on the other hand, aligns the PMP with the project plan of the contractor.

### **1.4 Close**

In the Close phase, the Internal PM assists the Project Owner/PSC to assess the project outcomes to find out if the project objectives have been achieved and whether the project has delivered the business benefits envisaged. Sometimes, it takes time to realise the business benefits from delivery and acceptance of the project deliverables. In this case, the project remains open and the Project Owner, the PSC and the Internal PM should remain onboard until the business case evaluation is completed.

Monitor and control procedures are in place in each of the above phases to ensure that the project is progressing in the right direction. It is managed through processes including change management, risk and issue management, quality management and deliverable acceptance procedures.

The following diagram illustrates the project management processes throughout the project lifecycle.

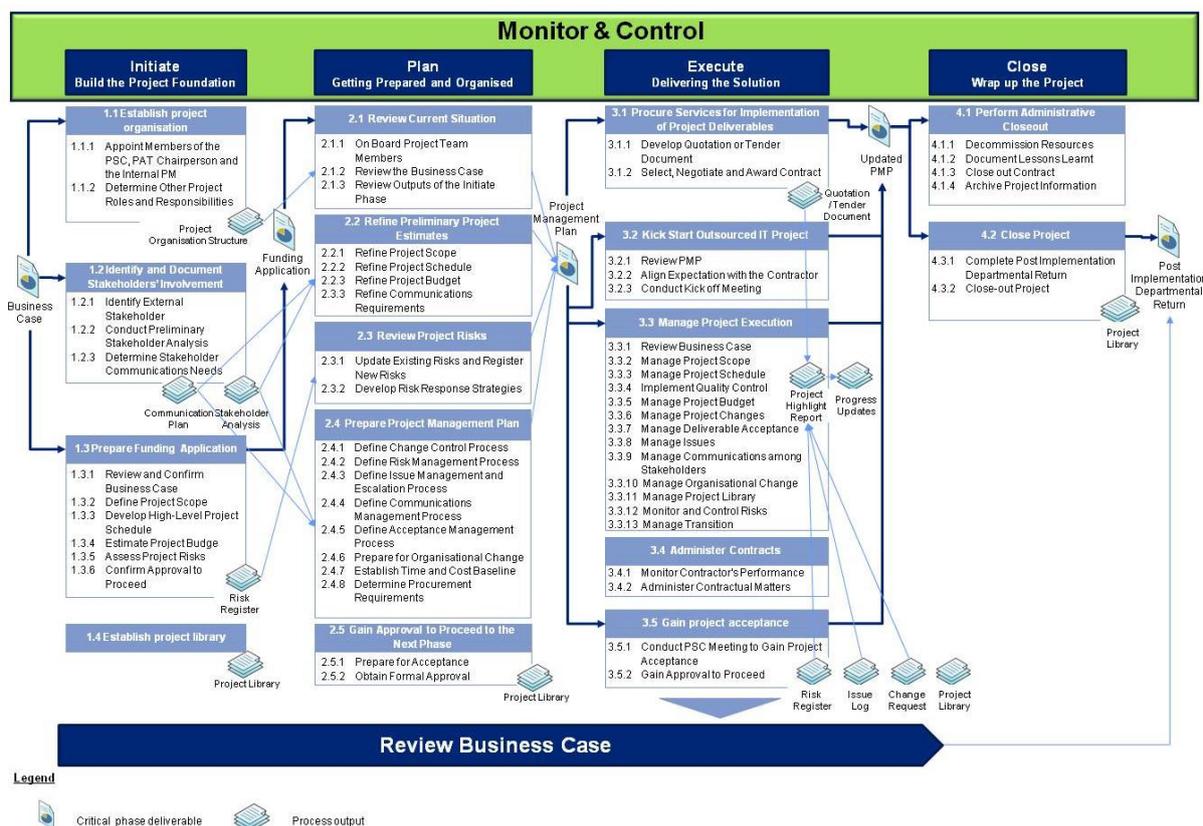


Figure 2 - Project Management Lifecycle Process Map

### Key Success Factors

Apart from good project management practices, the followings are also critical to project success:

- A sound and viable business case.
- An internal PM to follow through the project.
- A dedicated project organisation, from Project Owner, the PSC, the PAT, the Internal PM to team members.

## 2 Project Organisation Structure

### A Good Beginning is Half the Success

The project organisation is an organisational body that champions, manages and executes the project. Members within the project organisation work hand-in-hand to achieve the project objectives. Under an outsourced environment, the project organisation is comprised of members from both internal Government resources and external contractor resources. While the delivery of project deliverables mainly lies in the responsibilities of the contractor, it is essential to have participation of the Project Owner/the PSC and the Internal PM throughout the project lifecycle, from project initiation to project closure. The Project Owner/the PSC champions the project, ensures alignment of the project objectives with the B/D’s overall business strategies and is the ultimate decision-maker for the project. The Internal PM manages the project and monitors the contractor’s work on a day-to-day basis for the Project Owner/the PSC.

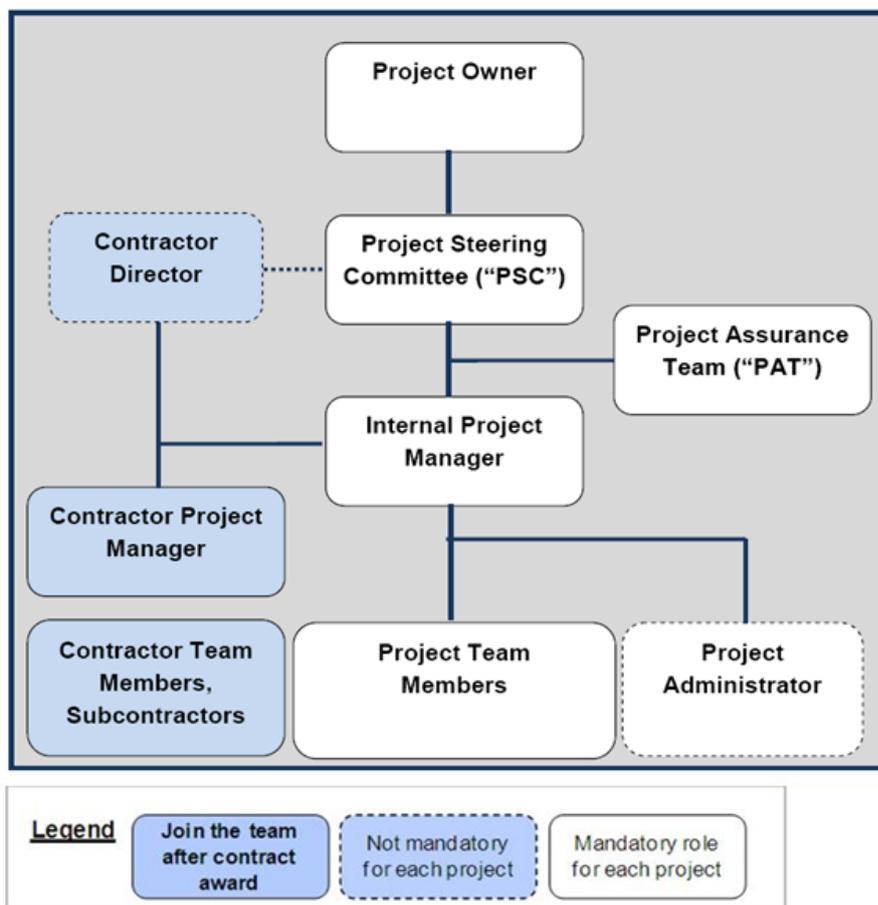


Figure 3 - Project Organisation Structure

## When to Set Up?

Different roles are required at different times throughout the project lifecycle. The project organisation begins to take shape during the Initiate phase where roles involved in preparing the funding application will be identified.

The following table provides an overview of the roles required on projects, when they are involved and decommissioned. The Project Owner and Internal PM can adjust the recommended timing to suit their project needs.

<b>When to involve and decommission?</b>		
<i>Project Role</i>	<i>Phase Involved</i>	<i>Phase Decommissioned</i>
Project Owner	Initiate	Close
Internal PM	Initiate	Close
Project Steering Committee	Initiate	Close
Project Assurance Team - Chairman - Other members	Initiate Plan	Execute Execute
Contractor Project Manager	Execute	Close
Project Team Members	Execute	Execute / Close
Contractor Team Members	Execute	Execute / Close

## What are the Responsibilities?

The responsibilities for each project role within the project organisation are briefly described as follows. For details, please refer to [Appendix A](#).

**Project Owner** – The Project Owner has definite interests in the project outcomes. He/She is the ultimate decision-maker for the project. The Project Owner may participate in the PSC as the Chairman or elect to delegate his/her responsibilities.

**Project Steering Committee (PSC)** – Chaired by the Project Owner or his/her delegate, the PSC is an organisation set-up that represents interests from the business, user and technical perspectives. It is responsible for authorising project expenditures and securing resources for the project. The PSC provides support for the Internal PM, endorses acceptance of project deliverables, gives disposition on change requests and approvals for the project to proceed to the subsequent phase. It assures that the project

remains on course to deliver project deliverables of the required quality to meet the objectives as defined in Business Case.

**Internal Project Manager (Internal PM)** – The Internal PM is the person representing the Government who is responsible for ensuring that the Project Team (both internal and external) completes the project. He/She is accountable for project planning and overseeing project performance and monitoring the contractor in delivering the project deliverables. The Internal PM is also responsible for securing acceptance and approval of project deliverables by the PSC.

**Project Assurance Team (PAT)** – The PSC can elect to delegate its project assurance work to the PAT. As in the case of the PSC, the PAT also consists of three roles representing the business, user and technical interests. In short, its responsibilities are overseeing project progress by monitoring project alignment with business case, managing quality assurance activities, approving change requests as delegated by the PSC and tracking incurred costs and time against budget and timeline.

**Project Team Members** – Project Team Members are Government resources that are assigned to deliver their tasks according to the project schedule. In particular, some project tasks require working with the contractor such as providing inputs (e.g. user requirements), providing feedback (e.g. on system design) or validating/evaluating project deliverables (e.g. by conducting user acceptance test). Some team members may serve as team leaders providing task leadership.

**Project Administrator** – The Project Administrator is an optional role recommended for large-sized projects to off-load the administrative work of the Internal PM.

**Contractor Director** – The Contractor Director is contractor resource. It is an optional role who oversees the commercial contractual agreement that provides services necessary for the project. Typically, this role is of a high-ranking managerial position in the contractor organisation.

**Contractor Project Manager (Contractor PM)** – The Contractor PM is contractor resource who is responsible and accountable for coordinating contractor resources to deliver the project

deliverables at the time specified in the contract or as directed by the Contractor PM.

**Contractor Team Members** – Contractor Team Members are contractor resources who are assigned to complete project tasks as directed by the Contractor PM.



### Hints and Tips

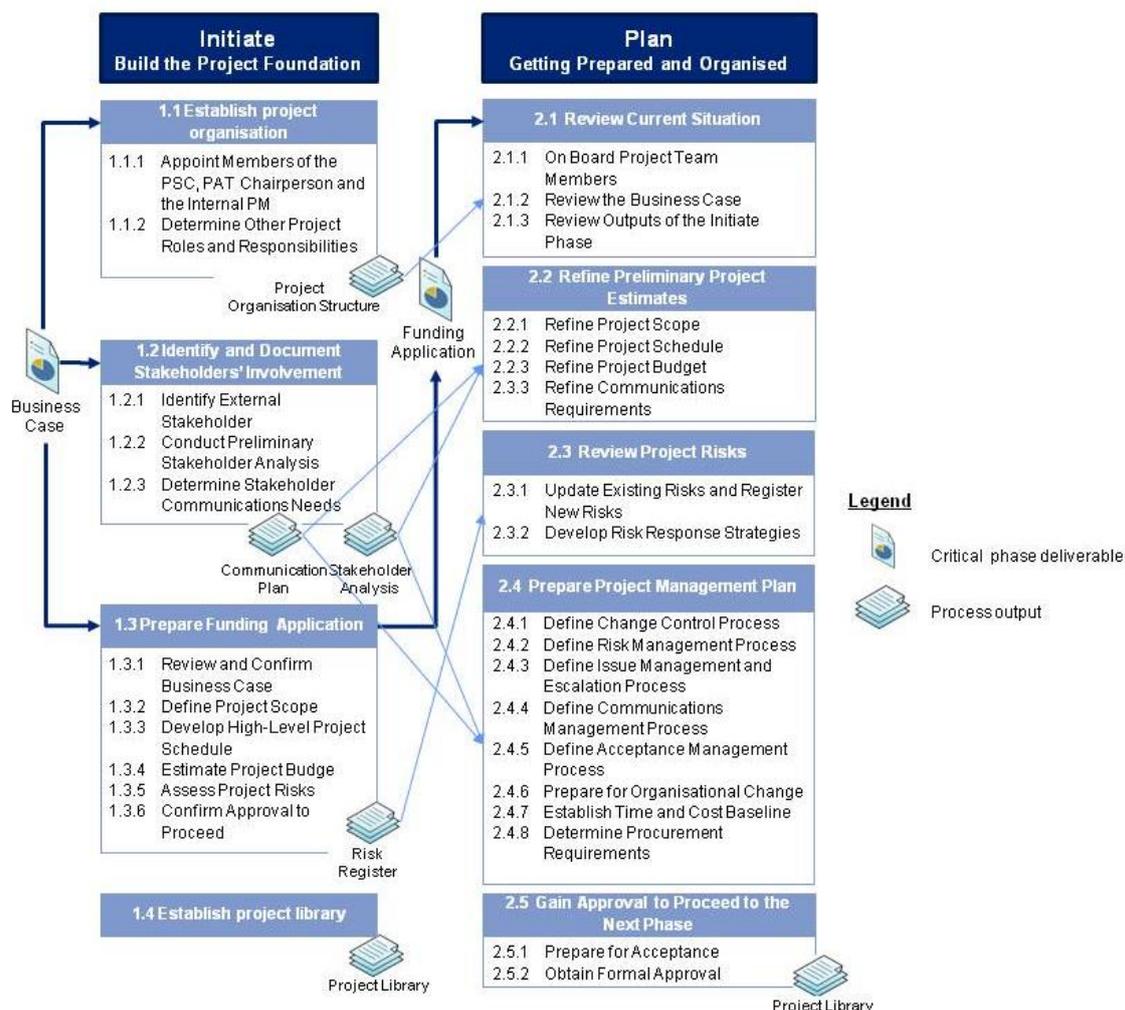
- *In addition to the roles defined above, other parties may be involved throughout the project lifecycle which are not formally part of the project organisation. They may have significant positive or negative influence on the project and hence proper communications and management should be in place. Examples are:*
  - *Other Government Functions: Provide administrative, operational or advisory functions for the project, e.g., GLD, DoJ, etc.*
  - *Other Stakeholders: Individuals or parties who are affected by the project's deliverable(s), service(s) or result(s), e.g., end users, the general public, regulators, professional associations, etc.*

# SECTION II - PROJECT LIFECYCLE

## 1 Initiate Phase

### Building the project foundation

During the Initiate phase, the formal inception of a project takes place. **A project organisation, championed by the Project Owner, is formed** to set clear objectives for the project that align with the business needs as well as balance the demands for scope, time, cost and quality. A list of stakeholders, both internal and external, with roles and responsibilities outlined is produced. The funding application is prepared with **business case and project risks reviewed** to ensure that the project is viable and risks are assessed properly. The ultimate goal of this phase is to prepare and complete the funding application for the project as well as to set the scene for subsequent project phases.



## What you Need to Do?

### 1.1 Establish Project Organisation

A formal project organisation to steer and oversee the project from the outset is essential to project success. The Project Owner, who understands the business case well, provides direction for the project and is the ultimate decision-maker for issues that affect the project scope, cost, timeline and quality. The Project Owner ensures that essential roles are in place to take the lead in setting the foundation of the project as well as to follow through the project.

Who will be involved?	
Role Involved	Key Involvement
Project Owner	<ul style="list-style-type: none"> <li>■ <b>On board</b> the project upon project initialisation</li> <li>■ <b>Appoint members to the Project Steering Committee (PSC)</b></li> <li>■ <b>Appoint a project manager (the Internal PM)</b> to assist funding application preparation and identify resources needed for the project</li> <li>■ <b>Appoint the chairperson of the Project Assurance Team (PAT)</b></li> <li>■ <b>Kick start</b> the project</li> <li>■ <b>Brief</b> the PSC, the PAT chairperson and the Internal PM about the project</li> </ul>
The PSC, PAT Chairperson and Internal PM	<ul style="list-style-type: none"> <li>■ <b>Understand</b> the business case, project background, objectives to achieve and outputs to be delivered</li> </ul>

What will be delivered?	
Tasks	Deliverable
Appoint Members of the PSC, PAT Chairperson and the Internal PM	Project organisation
Determine Other Project Roles and Responsibilities	

#### Key Success Factors

- Project Owner of the project is confirmed.
- The PSC, PAT Chairperson and Internal PM understand and accept the need for the project.
- The Internal PM's experience and competencies commensurate with the size and complexity of the project.



## Tools and Samples

- *RACI model, Appendix C*



## Hints and Tips

- *Conducting a project kick-off meeting is an effective means to formally kick start the project. It is a good opportunity for the Project Owner to discuss his/her vision of the project and to foster mutual understanding of the PSC, PAT and Internal PM.*
- *Historical project library, if applicable, can be referred to for lessons learnt around organisation planning, especially in the areas of defining roles and responsibilities, and competency requirements.*

### 1.1.1 Appoint Members of the PSC, PAT Chairperson and the Internal PM

In this task, the Project Owner appoints the PSC, PAT Chairperson and the Internal PM as they are the key stakeholders for developing (or providing support in developing) the funding application.

It is important to identify suitable candidates to perform these roles as the funding application so developed forms the foundation of the project. In particular, it is beneficial for the Internal PM to possess relevant prior experience in managing other IT projects that commensurate with the size and complexity of the project.

Identification of suitable candidates can take into consideration:

- representation of the candidate in the group;
- general project management competencies;
- additional knowledge and competencies specifically required for the project; and
- availability of the candidate in subsequent project phases.

The Project Owner should ensure that the B/D's expectations and all available project information are effectively conveyed to the PSC, PAT Chairperson and Internal PM. This can be accomplished through project briefing/meeting and distribution of related information.

It is imperative that these key stakeholders get themselves familiar with the project background and related information. It is

also critical to project success that the key stakeholders build the relationship among themselves early in the project lifecycle.



### Tools and Samples

- *Roles, responsibilities and competencies, Appendices A and B*



### Hints and Tips

- *Communications, such as briefing/meeting, for the PSC, PAT Chairperson and Internal PM is essential to enable them to get familiar with the project as soon as possible.*
- *In the event that any of these key stakeholders need to be replaced in subsequent project phases, similar onboarding activities (project briefing/meeting and distribution of project information) should be conducted to ensure knowledge transfer and preservation.*
- *Change of key personnel in a project organisation can be of high risk as it may affect a project's schedule or scope significantly.*

## 1.1.2 Determine Other Project Roles and Responsibilities

In the Initiate phase, the Internal PM should assist the Project Owner/the PSC to determine the remaining project roles including members of the PAT and Project Team Members required to staff the project. At this initial stage, it may not be possible to appoint individuals to take up each of the roles of the Project Team Members. Therefore, at a minimum, individuals who need to provide support in preparing for the funding application or will be involved in early project stages (such as project planning and tender preparation) should be identified.

In identifying the project roles, skill requirements for taking up the roles should be defined. Early planning allows better control and confirmation of resources required to participate in the project. When more project information is available as the project progresses, identification of individuals to fill the project roles can be facilitated.



### Tools and Samples

- *Project Organisation, Appendix D.1.1*
- *Roles, responsibilities and competencies, Appendices A and B*
- *RACI model, Appendix C*



### Hints and Tips

- *When individuals are appointed to project roles, the Internal PM should provide each of them with a project brief and review with them their roles (current and future, if applicable) in the project. This helps to establish a basic understanding of team members' responsibilities.*
- *The RACI model can be enriched to include roles and responsibilities specific to the project.*

## 1.2 Identify and Document Stakeholders' Involvement

In the previous steps, the high-level project organisation is established outlining the roles required to perform subsequent project tasks. This process completes the picture by identifying stakeholders outside the project organisation.

A preliminary analysis on all the identified stakeholders will be conducted to understand their involvement in the project as well as their communication requirements. The information collected will enable the Internal PM to coordinate and plan for project activities, in particular communications activities, despite that the information is known only at a preliminary level.

Who will be involved?	
Role Involved	Key Involvement
Project Owner	<ul style="list-style-type: none"> <li>■ <b>Communicate</b> project direction, related information and key milestones to key stakeholders</li> </ul>
Project Owner, PSC, PAT Chairperson, Internal PM	<ul style="list-style-type: none"> <li>■ <b>Identify stakeholders</b> outside the Project Organisation or the B/D</li> <li>■ <b>Determine external stakeholders' interests</b> in the project, involvement and impact by the project</li> </ul>
Internal PM	<ul style="list-style-type: none"> <li>■ <b>Assist in collecting key stakeholders' expectations and concerns</b> regarding the project scope, schedule and risks</li> <li>■ <b>Document</b> communications requirements</li> <li>■ <b>Determine/Plan</b> communication activities</li> <li>■ <b>Assist in project communications</b></li> </ul>

What will be delivered?	
Tasks	Deliverable
Identify External Stakeholder	Stakeholder register
Conduct Preliminary Stakeholder Analysis	
Determine Stakeholder	Contact List

### Key Success Factors

- Key stakeholders' expectations and concerns regarding the project should be taken into account and addressed as early as possible to reduce the risks that project deliverables are not accepted by these stakeholders.

## 1.2.1 Identify External Stakeholder

External stakeholders refer to all the people outside the Project Organisation as well as outside the B/D who may need to provide inputs at various points of time during the project or are being affected by the project deliverables or outcomes.

Within the context of the Government, external stakeholders may include other government functions (e.g. Department of Justice, Government Logistics Department, Intellectual Property Department), the general public, the legislators, professional associations or the media.



### Tools and Samples

- *Stakeholder Analysis, [Appendix E.3](#)*



### Hints and Tips

- *Social and political factors (e.g., views of industry representatives, professional associations and the general public, etc.), can have significant impact on project scope, timing and communications channels. The Internal PM should have a high level estimation of efforts required to communicate with them, and work closely with other responsible functions to ensure related changes, risks or issues are managed in an appropriate manner.*

## 1.2.2 Conduct Preliminary Stakeholder Analysis

The Internal PM should document relevant information about the internal and external stakeholders identified in earlier tasks even if they do not officially belong to the project organisation. This enables the Internal PM to get prepared for their involvement and plan ahead for the management strategy despite that the

information captured may be at a preliminary level only. The following information should be documented, as far as possible:

- stakeholder's roles in the project
- major expectations for the project
- major concerns for the project
- degree of influence
- degree of impact
- current commitment level in the project
- target commitment level in the project

Furthermore, for key stakeholders who have a high level of commitment or major influence over project success, it is beneficial to collect their expectations and concerns regarding the project scope, schedule and risks at this stage to facilitate development of the funding application.



### Tools and Samples

- *Stakeholder Register, [Appendix D.1.4](#)*



### Hints and Tips

- *It does not matter if the full set of information cannot be collected for each stakeholder. As the project progresses, additional information will be uncovered.*

## 1.2.3 Determine Stakeholder Communications Needs

The information needs vary among different stakeholders. Hence, it is essential to understand their communications requirements, including information to be communicated and the means of dissemination, so that timely and appropriate project information can be provided/received. Also, the Internal PM can base on such requirements to plan communications activities.

Project communication is bi-directional. The Internal PM receives inputs from the stakeholders about their information and communications requirements, determines the best and most cost effective way in which the requirements can be fulfilled. Similarly, the Internal PM provides details to the stakeholders regarding the communications they expect to receive. For the Project Owner, he/she should ensure project direction and related information are effectively communicated to key

stakeholders, the expectations or concerns of whom will have an impact to the project’s scope, schedule and risks which, in turn, affects preparation of funding application.

Starting stakeholder management at the Initiate phase facilitates early acceptance and support for the activities in subsequent phases.



### Tools and Samples

- *Stakeholder Register, Appendix D.1.4.*
- *Contact List, Appendix D.1.4.*
- *Communication Means, Appendix D.1.4.*



### Hints and Tips

- *There may be presence of opposition in Government's projects. The project or the policy that causes the project to exist may subject to scrutiny from the opponents. The Project Owner should be aware of the potential influence of these stakeholders and take proactive measures to manage corresponding risks.*

## 1.3 Prepare Funding Application

The Project Owner elects to make a funding request for a project if the project’s business case provides a compelling case for the project. Therefore, to enable the Project Owner to make the decision, a study to revisit the expected benefits to the B/Ds implementing the project and an analysis of the costs, benefits and risks associated with the proposed solution should be conducted.

Once the viability of the business case is confirmed, the business case will serve as a baseline for developing the funding application as well as for making the decision on whether to continue the project in subsequent phases.

Who will be involved?	
Role Involved	Key Involvement
Project Owner	<ul style="list-style-type: none"> <li>■ <b>Delegate</b> individuals to develop the funding application</li> <li>■ <b>Advise</b> on all aspects regarding the funding application</li> <li>■ <b>Review and endorse</b> the funding application</li> <li>■ <b>Ensure the funding application aligns with</b></li> </ul>

<b>Who will be involved?</b>	
<b>Role Involved</b>	<b>Key Involvement</b>
	<b>the business case</b> <ul style="list-style-type: none"> <li>■ <b>Ensure the funding application is submitted on a timely basis</b></li> </ul>
Internal PM	<ul style="list-style-type: none"> <li>■ <b>Assist</b> in the development of the funding application, as appropriate*</li> <li>■ <b>Ensure the funding application is fully understood</b></li> </ul>

Remarks:

\* Usually, the Project Owner delegates preparation of the funding application to individuals within the B/D. Even if the Internal PM is not responsible for preparing the funding application, he/she should be involved in the process. The Internal PM should fully understand the information in the funding application to enable him/her to manage the project once funding is approved.

<b>What will be delivered?</b>	
<b>Activity</b>	<b>Deliverable</b>
Review and Confirm Business Case	Reviewed business case
Define Project Scope	Funding application
Develop High-Level Project Schedule	Risk register
Estimate Project Budget	
Assess Project Risks	
Confirm Approval to Proceed	

### **Key Success Factors**

- The business case is reviewed and revisited before preparing funding application.
- The funding application is developed using the confirmed business case as basis.
- The Internal PM considers all aspects of the project while conducting risk assessment.
- All assumptions and constraints are documented and assessed.
- Project risks are properly assessed with mitigation measures devised.

#### **1.3.1 Review and Confirm Business Case**

A time delay typically exists between formulation of a project's business case (e.g. during resource allocation exercise (RAE)) and submission of the funding request. As such, the parameters justifying the project may have changed. Therefore, the

business case should be revisited and re-evaluated before the Project Owner makes the go/no-go decision.

Areas to review include:

- Business need/problem
- Proposed solution (the project)
- Anticipated benefits to the B/D
- Alignment with the B/D's business strategies
- Estimate of required resources, costs and timeline
- Constraints, risks and assumptions
- Any other information helpful to decision-making

The Project Owner takes the lead to re-confirm the business case, in consultation with subject matter experts where necessary. Any changes to the initial business case (e.g. developed for the RAE) should be documented. This reviewed business case will continue to form the basis throughout the project for the decision – continue, modify or halt the project.

### 1.3.2 Define Project Scope

The scope statement is a critical document for future planning activities. The business case, in particular the business need/problem and benefits for the B/Ds undertaking the project, provides information necessary for defining the project scope which should include the proposed solution, the project outcomes and deliverables, out-of-scope items/deliverables (where applicable) as well as any constraints identified and assumptions made.

Controlling project scope is a major challenge to project management. Therefore, a clear boundary between what is in scope and what is not will definitely help to manage scope change which may be raised in later project phases. This clear picture is also indispensable for the detailed planning of project activities.

When developing the scope statement, the Project Owner or his/her delegate should ensure that:

- The scope statement aligns with the B/D's business objectives and the business case;

- The level of details is sufficient for estimating project timeline and resource requirements;
- Outcome, not process, is emphasised;
- The scope statement is communicated to key stakeholders to get their buy-in and consensus; and
- Project constraints and assumptions relating to scope, budget, timeline and quality are identified.



### Tools and Samples

- *Scope Statement, Appendix D.1.*



### Hints and Tips

- *Historical project library (e.g. past funding applications of similar projects) can be leveraged as reference for scope statement preparation. Interviews with other project managers who have experience in developing scope statements for similar projects can be helpful as well.*
- *FS, BPR and RFI can be conducted, as appropriate, to provide a better view of project requirements.*
- *People are resistant to change. If the project outcomes will change a B/D's business processes, early communication as well as throughout the project will facilitate acceptance.*
- *When preparing assumptions and constraints, factors such as political environment complexity, integration needs, scale of the project, and alignment with the project objectives should also be taken into consideration based on the risk assessment.*

### 1.3.3 Develop High-Level Project Schedule

A project schedule defines the tasks that need to be accomplished to produce the project deliverables. At this early stage of the project, only preliminary project information is available. As such, the Internal PM often relies on his/her expert judgment to establish a high-level schedule for the project taking into account the constraints and assumptions in relation to project timeline identified during project scope definition. It will also be helpful to consult other project managers, project team members or subject matter experts for information of past projects of similar nature to uncover project activities and dependencies. Nonetheless, key project milestones and a project completion date that aligns with the realisation of anticipated business benefits (defined in the business case) should be determined in consultation with the Project Owner/the

PSC and key stakeholders. The project schedule so developed will be further refined during the Plan stage.

In addition to the project schedule, the Internal PM should produce an initial list of roles, skills and amount of efforts required to complete the project activities. Like the project schedule, this list will be refined in subsequent project phases.

The Internal PM should also document additional assumptions and constraints which have been taken into account to develop the project schedule. Such constraints can be incurred by both internal and external factors such as policy commitments, or public concerns.



### Tools and Samples

- *Work Breakdown Structure (WBS), [Appendix E.1](#).*
- *Project Schedule, [Appendix E.2](#).*



### Hints and Tips

- *Work breakdown structure (WBS) can be used for developing the project schedule. For details, please refer to [Appendix E.1](#).*
- *Inputs considered for timeline development are: feasibility studies, BPR, RFI, stakeholder register, scope statement, external research data, historical project library, risk assessment, political priorities and public policies, and concurrent project priorities.*

## 1.3.4 Estimate Project Budget

In this task, the Internal PM estimates the preliminary budget required to complete the project activities. The Internal PM takes into account the cost information in the business case to develop the budget that includes, in general, the costs of staff, hardware and software equipment, accommodation, services, consumables and others. In the event that outsourced services need to be acquired, the Internal PM should estimate the scope of services to be outsourced and the cost concerned to facilitate the subsequent tendering process. Breakdown of budget by project phases and by year (in the case of a multi-year project) should be derived.

During budget estimation, the Internal PM should take into account existing procurement regulations, guidelines and procedures as they will affect how the resources are to be

acquired. The Internal PM should also take note of project risks that may affect the amount of contingency required and market conditions to cater for possibility of change in costs due to economic environment such as inflation or currency exchange fluctuations. Information from past similar projects provides good references for budget estimation.

As project budget will need to be refined in the Plan phase, the Internal PM should always document the basis of estimation including method of estimation, constraints and assumptions made.



### Tools and Samples

- *Financial Management Plan, Appendix D.1.3.*



### Hints and Tips

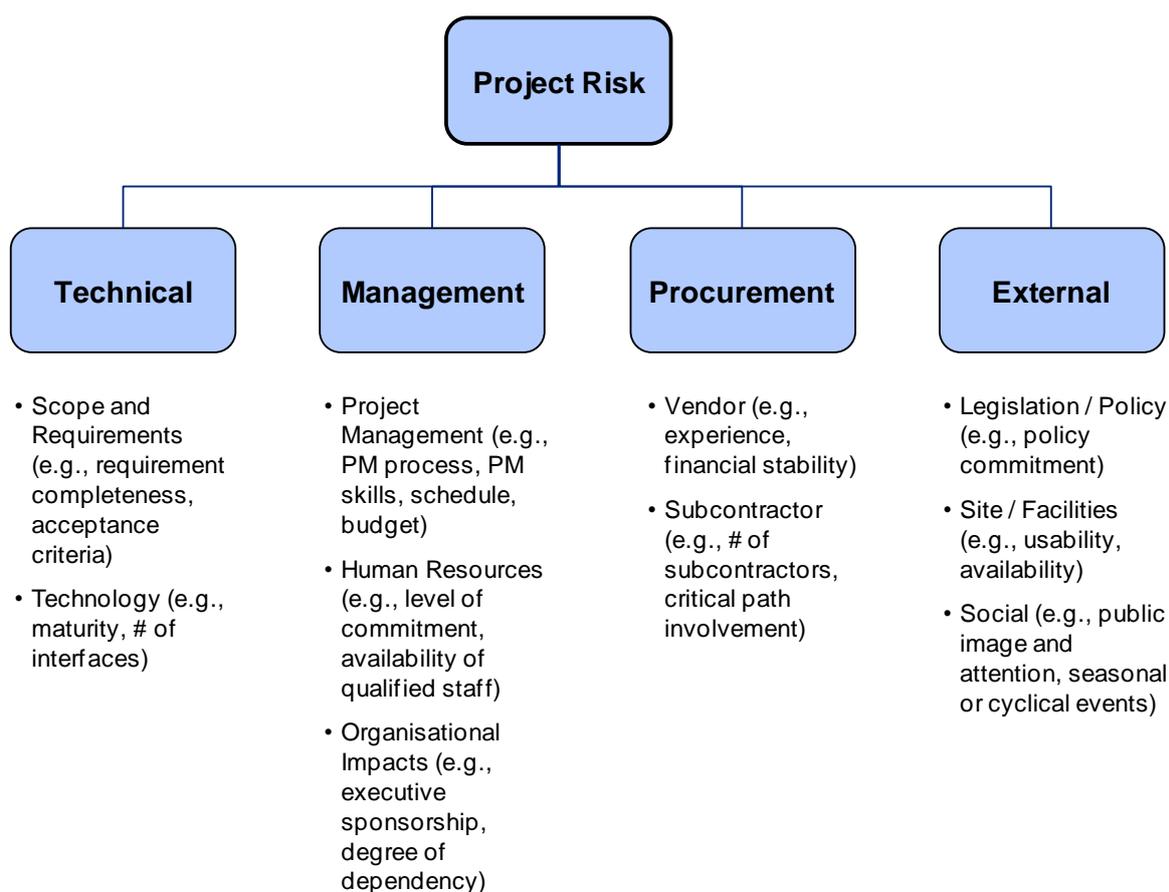
- *FS, BPR and RFI should be leveraged, wherever appropriate, to obtain more information on market and better estimate project budget.*
- *Choice of estimation method depends on the past experiences of the Internal PM and the PSC, availability of information, and also scale and nature of the project. Top-down approach can be adopted when there is adequate expertise.*
- *Project budget is developed by utilising a financial estimation method such as top-down and bottom-up method. In top-down approach, expert advice accompanied by historical information and benchmarking to derive with the greatest possible accuracy cost estimates of projects of similar nature and size is considered. In bottom-up approach, the project is broken down to high-level WBS in order to determine actual resources costs per task and sum up the costs of the component activities of the project.*

## 1.3.5 Assess Project Risks

Risks are events that may or may not happen but if realised, can affect project scope, cost, schedule and/or quality. Thus, risk identification should be performed in the early phase of the project lifecycle to facilitate early planning to mitigate their effects. Risk identification and assessment is continuous throughout the project. New risks are identified, tracked and analysed and existing risks re-evaluated to assess the probability of occurrence and their impact to the project as well as to devise response plans to minimise or eliminate their impact.

The Internal PM should identify risks internal and external to the project. The Project Owner, the PSC, key stakeholders and subject matter experts are good sources of input regarding potential risk areas and possible mitigation measures. FS, BPR, RFI and historical information can be leveraged as well. The Risk Breakdown Structure (RBS) as shown in figure 4 also serves as a basis for risk identification.

At this stage, the Internal PM, at a minimum, records in the Risk Register the risks, the respective owners (party responsible for managing the risk) and for risks of high rating, develop response plans as well. During the Plan phase, these risks will be assessed/re-evaluated for their impacts and probability of occurrence with response plans revisited/devised to mitigate them should they occur. The earlier risks are identified, the greater possibilities that the risks can be mitigated before they actually impact project scope, cost, schedule and quality.



**Figure 4 - Risk Breakdown Structure**



## Tools and Samples

- *Risk Assessment Tool, [Appendix E.4](#).*
- *Risk Register, [Appendix D.5](#).*



## Hints and Tips

- *The risk owner is the person most capable of managing the risk, and is usually the person who is directly responsible for the strategy, activity or function that relates to the risk. As such, this person should possess the knowledge, resources, and authority to deal with the risk. Assigning risk ownership ensures a specific person is responsible and accountable for a particular risk. It is usually impractical and ineffective for risk ownership to be assigned to a body, such as a business unit or committee. Key responsibilities of the role include:*
  - *Responsible for the regular review of the risk*
  - *Responsible for the regular reporting on the risk*
  - *Monitoring of controls*
  - *Implementation of any risk responses*
- *In the Initiate phase when funding is being applied, the detailed criteria (including impact rating, probability rating, consequence and risk response strategies) specific to the project for assessing the risk rating (i.e. high, medium or low) are yet to be determined. The Internal PM can conduct preliminary assessment by (i) using the default criteria provided in the Risk Assessment Tool; or (ii) making references to risks alike in previous projects of similar nature; or (iii) seeking advice from the PSC/PAT/subject matter experts; or (iv) experience. For (ii) to (iv), the criteria for coming up with the five-point scales for impact and probability ratings are ignored but will be re-assessed in the Plan phase when drawing up the Risk Management Plan. If considered necessary, the Internal PM can also update the criteria to suit the project needs in consultation with the PSC before conducting the assessment.*
- *Organise risks identified by area of risk to facilitate subsequent management.*

### 1.3.6 Confirm Approval to Proceed

The purpose of this step is to obtain endorsement from the Project Owner and/or the PSC to submit the funding application for the project. The endorsement of the funding application also signifies the approval of the Project Owner or the PSC to proceed to the next project phase – the Plan phase.

To formalise the process, it is advisable that the Internal PM schedules a PSC meeting to seek acceptance and approval of

the project deliverables produced in this phase, including the funding application, the preliminary project schedule, budget plan and risk register. Approval to submit the funding application and proceed to the next phase should be obtained. Also, the Internal PM should discuss and gain commitment to secure resources for the Plan phase and if necessary, for early Execute phase involving tender preparation. This is because the Plan phase is a relatively short phase and tender preparation will start right after project planning.

## 1.4 Establish a Project Library

The project library is a centralised repository of all relevant project information that can be made available to team members. Setting up a shared workspace enables members of the project to access project documents in an organised manner. It is important not only for storage of project information, but also for knowledge sharing and references for future projects.

Information to be maintained in the project library can be in the form of hardcopy or electronic medium. The library should be organised in a way that enable easy access by team members. For large and complex projects, a Project Administrator offloads the role of the Internal PM to set up and maintain the project library all through the project lifecycle. Yet, control of access to the information in the project library by individual team member remains the accountability and responsibility of the Internal PM.

### Who will be involved?

<i>Role Involved</i>	<i>Key Involvement</i>
Internal PM	<ul style="list-style-type: none"> <li>■ <b>Set up</b> project library or delegate responsibility to Project Administrator</li> <li>■ <b>Load</b> relevant materials to library or delegate responsibility to Project Administrator</li> </ul>
Project Administrator	<ul style="list-style-type: none"> <li>■ <b>Set up</b> project library</li> <li>■ <b>Load</b> relevant materials</li> </ul>

### What will be delivered?

<i>Activity</i>	<i>Deliverable</i>
Establish and maintain project library	Project library

## End of Phase Checklist

### Activity Checklist for Initiate Phase

This checklist helps to ensure that all requirements of the phase are met. When an activity is completed, indicate its completion date. For those activities not completed, describe the reason(s) for not completing and how the objectives of that activity are otherwise being met. Also, report uncompleted activities to the PSC via the project highlight report. The Remarks column can be used to include any additional information that is considered useful.

Activity	Completion Date	Reasons for <i>NOT</i> completing	Remarks
<b>Establish Project Organisation</b>			
Confirm the Project Owner			
Identify and appoint the Internal PM			
Identify and appoint members to the Project Steering Committee (PSC)			
Identify and appoint chairperson of the Project Assurance Team (PAT)			
Conduct kick-off meeting or brief the PSC, the PAT Chairperson and the Internal PM on project background and related information			
Establish preliminary project organisation with remaining roles identified as far as possible			
<b>Identify and Document Stakeholders' Involvement</b>			
Identify external stakeholders			
Outline stakeholders'			

INITIATE PHASE

Activity	Completion Date	Reasons for <i>NOT</i> completing	Remarks
roles and responsibilities			
Analyse stakeholders' expectations and concerns and other areas of interests to the project			
Understand / Document stakeholders' communication needs			
Communicate project information to stakeholders			
<b>Prepare Funding Application</b>			
Appoint staff (or Internal PM) to prepare funding application			
Involve Internal PM in funding application preparation (if he/she is not responsible for the task)			
Review and confirm business case, including assumptions and constraints			
Develop scope statement, including out-of-scope items			
Develop high-level project schedule			
Produce initial list of roles, skills and effort required			
Calculate preliminary project budget estimate			
Identify and document risks			
Confirm approval to proceed			
<b>Establish a Project Library</b>			

Activity	Completion Date	Reasons for <i>NOT</i> completing	Remarks
Set up a centralised repository of all relevant project information with appropriate security control			

## Other Factors Affecting Project Success

The completion of all the activities in a phase only signifies that the basic requirements of that phase have been met. The factors listed in the table below also have an impact to the continued success of the project. The more “No” answers the less ready is the project to proceed to the next phase.

Process	Factor	Yes	No
Establish Project Organisation	The Project Owner is committed to the project.		
	Buy-in from the PSC and the PAT has been gained.		
Identify and Document Stakeholders’ Involvement	The Project Owner, PSC and PAT have acknowledged the interests, expectations and concerns of external stakeholders and prepared to address them in the project.		
Prepare Funding Application	The project scope (including out-of-scope items) has been communicated to key stakeholders and their buy-in and consensus have been gained.		
	Reference has been made to similar projects and/or market research to arrive at a realistic project schedule and budget.		
	Project risks have been reviewed by the Project Owner, PSC and PAT.		

## INITIATE PHASE

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<b>Process</b>	<b>Factor</b>	<b>Yes</b>	<b>No</b>
Establish a Project Library	The project library is clearly structured and access control has been put in place.		
	Project materials have been uploaded / filed.		

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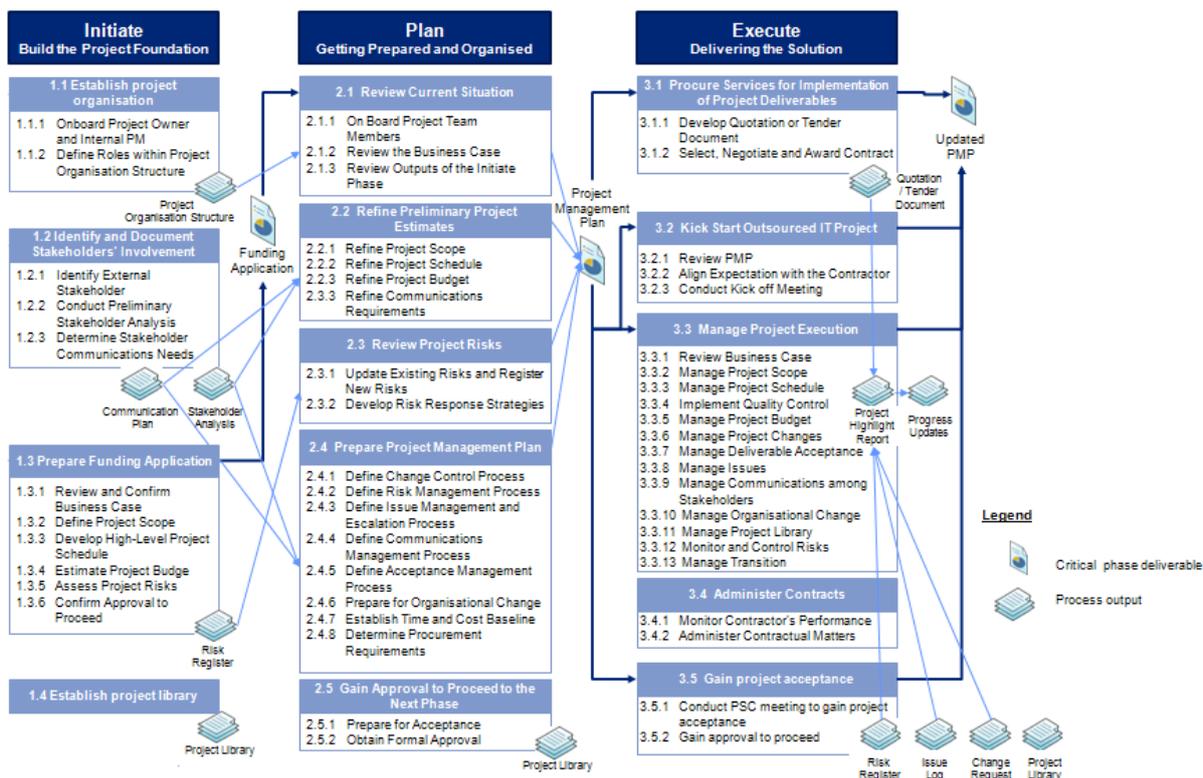
## 2 Plan Phase

### Getting prepared and organised

Upon project funding approval, it is imperative to build upon the preliminary planning work performed in the Initiate phase. The purpose is to have a detailed planning of all the parameters relating to and affecting the project that include cost, scope, schedule, quality and risks.

To start with, the Internal PM, together with the Project Owner/the PSC and key stakeholders, should check the project scope, objectives, outcomes and deliverables against the business case that is reviewed and re-validated. The project schedule and budget are then refined and confirmed and the risk register revisited and updated with responses for all the risks planned. The Internal PM consolidates all the information into a Project Management Plan (the PMP) which is the blueprint for managing the project. Additional project team members who assist the Internal PM to prepare the PMP are brought on board the project at this stage.

The Plan phase is where the Internal PM should get a clear picture of how and when project activities are performed to achieve the required project outcome and benefits. Thus, the Internal PM should seek to uncover and resolve project issues that threaten the project's success. The Internal PM should also maintain close communication with key project stakeholders to collect their feedback and harness their support for the next phase.



## What you Need to Do?

### 2.1 Review Current Situation

Time gaps typically exist from formulation of business case to application for project funding, through to funding approval. Therefore, before commencing project planning, the outputs from the Initiate phase should be reviewed and refined against the latest information available.

Project Team Members are brought into the project to assist in the review process. They will also assist the Internal PM, in later tasks, to consolidate refined outputs of the Initiate phase into the PMP that encompasses, additionally, management procedures and plans for managing and controlling the project to deliver results.

Who will be involved?	
Role Involved	Key Involvement
Project Owner and/or PSC	<ul style="list-style-type: none"> <li>■ Provide for project team members to assist in preparing the PMP</li> <li>■ Review and confirm the business case</li> <li>■ Review and confirm outputs of the Initiate phase</li> </ul>
PAT	<ul style="list-style-type: none"> <li>■ PAT Chairperson to brief PAT members on project background and objectives upon</li> </ul>

	<ul style="list-style-type: none"> <li>onboarding</li> <li>■ <b>Ensure business case is updated</b></li> <li>■ <b>Review and confirm refinements</b> to the outputs of the Initiate phase</li> </ul>
Internal PM	<ul style="list-style-type: none"> <li>■ <b>Brief</b> project team members on project background and objectives upon onboarding</li> <li>■ <b>Review and refine</b> outputs of the Initiate phase</li> <li>■ <b>Ensure alignment</b> with the business case</li> </ul>
Project Team Members	<ul style="list-style-type: none"> <li>■ <b>Assist in refining outputs</b> of the Initiate phase</li> </ul>

What will be delivered?	
Tasks	Deliverables
On Board Project Team Members	Updated Business Case
Review the Business Case	
Review Outputs of the Initiate Phase	

**Key Success Factors**

- The business case continues to support the B/D’s strategic business direction.
- The concept of a Project Team that will work best for the project is established.

### 2.1.1 On Board Project Team Members

At the Initiate phase, key stakeholders (the Project Owner, the PSC and the PAT chairperson) that steer the project are brought on board the project. In this phase, the remaining PAT members that assume the quality assurance roles and additional Project Team Members that assist the Internal PM to prepare for project execution are enlisted.

The PAT Chairperson and the Internal PM should ensure that these new members get familiar with the project background, objectives, the project organisation as well as their roles and responsibilities in the project before starting work. This helps the members to orient themselves towards project goals and contribute themselves quickly to deliver results.

### 2.1.2 Review the Business Case

It should be acknowledged that the business environment

continues to change, such as changes to technologies, operational processes, or B/D's strategic directions. The time gap between formulation of the business case and funding approval calls for a review of the business case. More information about the project should have been known by now enabling refinements to be made. This is to ensure that the business case is still viable and that the proposed solution continues to meet the business need.

As in the Initiate phase, it is crucial to review:

- the business need/problem
- the proposed solution (i.e. the project)
- the anticipated benefits to the B/D
- alignment with the B/D's business strategies
- estimates of required resources, costs and timeline
- constraints, risks and assumptions

While the Internal PM is responsible for updating the business case, the Project Owner or his/her delegate in the PSC is accountable for the review and re-validation. When changes to the business case are required, the changes are documented and proper endorsement sought from the Project Owner/the PSC.



### Hints and Tips

- *While the change management procedures are to be developed in subsequent steps in the Plan phase, changes to the business case must be recorded. The Internal PM should maintain the documentation (whether or not in the change request format) with other change requests when the change management procedures are in place.*
- *Changes to the business case may result in updates to the funding application. The Internal PM should update the funding application accordingly and follow proper procedures to inform relevant authorities.*

### 2.1.3 Review Outputs of the Initiate Phase

Once the business case is confirmed, the current project status and all the deliverables produced so far can be re-examined based on the latest project information. In particular, the following outputs of the Initiate phase need to be reviewed:

- the project objectives and scope;
- the project organisation;
- the stakeholder register and related contact list, communication means and tools;
- the preliminary project schedule;
- the preliminary project budget; and
- the risk register.

The new Project Team Members should participate in the review as their experiences can bring in new/different ideas to the project.

## 2.2 Refine Preliminary Estimates and Findings

In the Initiate phase, due to limited information available, the Internal PM comes up with preliminary estimates/definitions of the project scope, budget, timeline and risks. Upon completion of review of the business case and the various outputs, these preliminary estimates/definitions can be further refined and adjusted to elaborate on the details and to improve accuracy. The project organisation and stakeholder register are also checked to include new roles and stakeholders while at the same time, remove obsolete ones. Communication requirements are updated accordingly.

Who will be involved?	
Role Involved	Key Involvement
Project Owner and/or PSC	<ul style="list-style-type: none"> <li>■ <b>Review and endorse</b> the updated project scope, schedule, budget and risks.</li> </ul>
PAT	<ul style="list-style-type: none"> <li>■ <b>Review</b> the updated project scope, schedule, budget and risks.</li> <li>■ <b>Ensure</b> the updates are in line with the business case</li> <li>■ <b>Return</b> stakeholders' communication needs</li> </ul>
Internal PM	<ul style="list-style-type: none"> <li>■ <b>Update</b> the project scope, schedule, budget and risks with regard to latest project information</li> <li>■ <b>Ensure</b> alignment with the business case</li> <li>■ <b>Update</b> stakeholders' communication needs</li> </ul>
Project Team Members	<ul style="list-style-type: none"> <li>■ <b>Assist</b> in updating the project scope, schedule, budget, risks and stakeholders' communication needs</li> </ul>

What will be delivered?	
Task	Deliverable
Refine Project Scope	Updated project scope

What will be delivered?	
Task	Deliverable
Refine Project Schedule	Updated project schedule
Refine Project Budget	Updated project budget
Refine Communications Requirements	Updated stakeholder register Updated contact list Updated communication means and tools.

**Key Success Factors**

- Project scope is clearly described and agreed upon by the Project Owner, the PSC and other key stakeholders as necessary to avoid conflict and rework in subsequent project phases.
- Risk assessment reflects project risk exposure accurately so that proper risk response strategies can be prepared

### 2.2.1 Refine Project Scope

Scope of work is of the essence in the development of the project budget and schedule. A clearly defined project scope is thus significant to project success, without which scope creep may result or deliverables may need to be reworked.

The scope statement, including in scope and out of scope items/deliverables, as defined in the funding application should be re-confirmed by the Project Owner/the PSC and the key stakeholders. This is achieved by further breaking down the deliverables into smaller and more manageable components to allow the project scope, budget and schedule be more accurately defined. The breakdown can be performed via the work breakdown structure (one should have been initially developed in the Initiate phase) until the work packages are derived. A work package should comprise the level of details that enables:

- definition of what is to be produced and what is not to be produced;
- estimation of time and effort required to complete the component
- estimation of the cost to complete the component

The Internal PM, together with the PAT and key stakeholders, determines the quality requirements (or acceptance criteria) of the deliverables. These requirements may include both internal quality requirements (defined by the users) or external quality requirements such as industry standards or regulatory requirements. Any constraints and assumptions made in the development of the project scope must be reviewed, refined and updated.

It is recommended that the Project Owner, the PSC, the PAT and key stakeholders are involved in making refinements to the project scope. The refined project scope should be mutually agreed among the parties involved and communicated to stakeholders being affected to gain their buy-in.

Changes to the project scope are managed via the change management procedures. The Internal PM documents the required changes in a change request and seeks endorsement from the Project Owner/the PSC.



### Tools and Samples

- *Scope Statement, [Appendix D.1](#).*
- *Work Breakdown Structure (WBS), [Appendix E.1](#).*
- *Change Request Management Plan, [Appendix D.1.8](#).*



### Hints and Tips

- *WBS refers to the breakdown of high-level deliverables into smaller components. The WBS should be broken down to a level that risks impact can be managed with corresponding response strategies. It is important to ensure that the defined work breakdown structure is unambiguous (e.g., the deliverables are measurable and testable) and acceptable to the PSC and the PAT. It serves as the main input for developing tender specifications as well as detailed acceptance criteria in the procurement dimension during the Execute phase.*
- *The scope statement should be described using language and terminologies that can be understood by all stakeholders.*

## 2.2.2 Refine Project Schedule

The refined work breakdown structure created in the previous task can be adopted to refine the project schedule. By referring

to the work packages and the time and effort estimated for their completion, the Internal PM can more accurately determine the project activities required, the time as well as the effort required to complete the activities.

When defining the project activities, apart from activities that directly contribute to the development of the project deliverables (e.g. develop system analysis and design report), quality activities (e.g. deliverable review) must be established to ensure the defined quality requirements are met. Also, project management activities that relate to the continuous monitoring and control of overall project performance (e.g. checkpoint review meeting) and management approvals (e.g. deliverable endorsement and approval to proceed) should be put in place.

Planning for resources requirements and deployment includes arrangements of materials, people, equipment or supplies. The Internal PM can seek advice from subject matter experts or individuals who have experience performing similar work in the past when performing the estimation.

Another source of information can be gained from individuals appointed to take up the project tasks. The Internal PM works with the PSC and the PAT to identify staff qualified for the tasks, as well as the time to get on board and be decommissioned. Staff assignment should take into account the roles, responsibilities, and competencies defined under the organisation plan. It may not be realistic to assign resources to all project tasks, current and future, at this stage. A more manageable approach is to pinpoint staff assignment for project tasks in the coming months, say 3 to 6 months, and to do this in a continuous manner when more information is obtained as the project progresses. Once resources are determined, the PSC/the PAT may assist in managing the confirmation of resources availability and communicating the role assignments.

The Internal PM should account for the skill level of the staff assigned to the tasks, as appropriate, to develop the effort estimates. Where staff to be deployed is unknown, an assumed level of skill can be taken. This will help make the effort estimations more accurate and allow the Internal PM to adjust his/her estimates when the exact skill levels are known.

In addition to staff resources, the Internal PM should plan for other resources such as logistics resources, equipment or supplies. The availability of these resources will have an impact to the project schedule as well.

Some project risks, assumptions and constraints also pose limitations on the availability of resources. For instance, other concurrent projects may limit the resources that can be made available to the project. When such risks, assumptions and constraints exist, the Internal PM should set aside contingencies in the project schedule. A project's related political priorities may also have a direct impact on the amount of resources required. For example, high political priority may imply higher level of resource requirements to ensure that the project is delivered on time. It is important that risks, assumptions and constraints used in the estimation are documented.

Once resources requirements are determined, dependencies among the project activities can be defined. Dependencies dictate activity sequencing and can be categorised into:

- **mandatory dependencies** – dependencies that cannot and will not be changed and are intrinsic to the nature of work being done. For example, installation cannot be performed until the hardware is delivered.
- **discretionary dependencies** – dependencies defined to force activities to be scheduled in a certain way. For example, funding and accommodation must have been secured before acquiring contract staff services.
- **external dependencies** – dependencies outside the control of the Internal PM or the B/D. For example, issue of tender depends on clearance of tender document by the relevant tender board and other government authorities.

The Internal PM considers mandatory, discretionary, and external dependencies of activities when determining sequencing and duration of activities. Nature of an activity, correlation between activities, or the person responsible for carrying out or approving an activity results in different kinds of dependencies.

With the resulting project schedule, the Internal PM identifies the critical path. A critical path is the sequence of tasks that takes the longest amount of time to complete. On the critical path are tasks that can result in delay of the project if any one of the tasks is delayed. In general, a critical path is determined by looking at the different paths that tasks running in parallel undertake and the total time needed to complete the tasks in each of the path.

As the completion of the tasks on the critical path has a direct impact to the project end date, the Internal PM must closely monitor these tasks and assess their impact to the project schedule whenever there are any changes.

The project schedule is often depicted as a project schedule diagram, also known as the Gantt chart. Subsequent changes made to the project timeline need to go through the change control process.



### Tools and Samples

- *Gantt Chart, [Appendix E.2.1](#)*
- *Critical Path Methodology, [Appendix E.2.3](#)*
- *Project Schedule, [Appendix E.2.](#)*
- *Project Organisation, [Appendix D.1.1](#)*
- *Asset Inventory, [Appendix D.8.](#)*



### Hints and Tips

- *For projects that span across multiple years, it is difficult, if not impossible, to breakdown every deliverable into the required level of details that enables detailed planning for both current and future project activities. The Internal PM should aim at providing an estimate for the entire project at a high level while maintaining detailed planning for activities to be performed, say three to six months from now.*
- *Timeline estimation for procurement activities is not required to be too detailed in Plan phase due to uncertainties arising from the procurement process. However, the Internal PM should begin detail planning as soon as possible once more information is available. For instance, when the tender is issued, activities for tender evaluation, contract award and contractor onboard should be planned. The overall project timeline may need to be revised in parallel.*
- *With respect to uncertainties in project duration, the Internal PM may think through **best and worst case scenarios** to develop a realistic estimation on project duration.*
- *Detailed planning of outsourced activities is not required as it is the*

*responsibility of the contractor.*

- *When preparing the timeline, the Internal PM may also consider:*
  - *Historical project timelines – References to timelines of previous projects helps to determine a more accurate level of effort and magnitude of resources required.*
  - *External research data – External market information obtained e.g. through market research or RFI.*
  - *Expert judgment – Expertise of the Internal PM, the PSC, the PAT, or Project Team Members is applied. It also helps to gain buy-in and commitment to the project timeline from these stakeholders*

### 2.2.3 Refine Project Budget

The Internal PM can now refine the project budget estimates derived in the Initiate phase based on the refined project scope and schedule. Budget estimates for all types of resources including staff resources, logistics resources, equipment or supplies must be re-calculated. The Internal PM can refer to the following when performing the re-calculation:

- **Refined Project Schedule** – The refined project schedule is critical input to project budget calculation.
- **Staff Acquisition** – The means by which staff is acquired will have an impact to the project costs e.g. in-house staff versus contract staff. Also, if the means of acquisition is changed, the related acquisition activities in project schedule should be updated or included accordingly. Once staff is identified, the associated costs (or the best estimates) can be used to refine the project budget.
- **Resources Requirements** – Other resources including logistics resources, equipment or supplies required for performing project tasks should be catered for when deriving the budget.
- **Tender Costs** – If outsourced services are to be acquired, a feasibility study or request for information (RFI) exercise will help to derive a more accurate estimate.
- **Other Considerations** – Market conditions or new information relating to the resource pricing that cause cost deviations from the original estimates should be accounted for.

Again, the Internal PM can consult subject matter experts, managers and project team members of past projects of similar nature to solicit input on the actual effort required to perform similar tasks. Any assumptions made and constraints encountered should be documented for future reference.



### Tools and Samples

- *Project Budget, Appendix D.1.3*

## 2.2.4 Refine Communications Requirements

During the Initiate phase, the Internal PM determines preliminarily the communications needs of the stakeholders. As the project progresses, more information needs to be disseminated or events occur which affect stakeholders' communications needs or stakeholders may simply want to change their communications requirements.

The Internal PM, assisted by the Project Administrator or Project Team Members, should review and update the communications needs of stakeholders to ensure that information is distributed to all the target audience, the communications needs can still be fulfilled or are still viable.



### Tools and Samples

- *Contact List, Appendix D.1.4*
- *Communications Means, Appendix D.1.4*

## 2.3 Review Project Risks

Risk assessment is a continuous process – new risks continued to surface and existing risks change. The Internal PM should, in consultation with the PSC and the PAT, review the list of risks when they become more knowledgeable about the project and thus in a better position to predict project risks.

Other planning activities (scope, schedule and budget) will reveal areas of uncertainties and create additional risks. For example, defining project activity dependencies will expose unknown risks and project role assignment will uncover

resources contention when multiple projects are being run concurrently.

As in all other planning activities, experiences from previous projects maintain to be an excellent source of potential risks and associated mitigation measures.

<b>Who will be involved?</b>	
<b>Role Involved</b>	<b>Key Involvement</b>
The PSC/PAT	<ul style="list-style-type: none"> <li>■ <b>Verify</b> project risks.</li> </ul>
Internal PM	<ul style="list-style-type: none"> <li>■ <b>Review and update</b> the project risks</li> <li>■ <b>Ensure risks are identified with mitigation measures planned</b></li> </ul>
Project Team Members	<ul style="list-style-type: none"> <li>■ <b>Assist in updating and documenting</b> the project risks</li> </ul>

<b>What will be delivered?</b>	
<b>Task</b>	<b>Deliverable</b>
Update Existing Risks and Register New Risks	Updated risk register Updated stakeholder register
Develop Risk Response Strategies	

**Key Success Factors**

- Adopt a comprehensive risk assessment approach to uncover risks and minimise their impact. The earlier the risks are identified with mitigation planned, the less impact they will bring about and less costly to cope with, thus improving project success.
- Promote a sense of ownership on proactively identifying and resolving risks before they become an issue will help control project costs. Involvement of senior management in the B/D will help to instil a risk management oriented culture.

### 2.3.1 Update Existing Risks and Register New Risks

Risks documented in the Initiate phase should be re-assessed for their validity. Their likelihood of occurrence, the potential impact to the project and the corresponding response plans are re-evaluated and documented as well. The Internal PM updates the risk register by inspecting outcomes of other planning activities in respect of scope, schedule and budgets. Both internal and external risks should be considered.

For each risk identified, the Internal PM determines the probability of occurrence and the level of impact to the project's cost, schedule, scope and quality. A risk rating of high, medium, low is then derived that signifies the level of attention and priority required to address the risk.



### Tools and Samples

- *Risk Assessment Tool, [Appendix E.4](#)*



### Hints and Tips

- *Solicit input from the Project Owner, the PSC, the PAT and experienced Project Team Members to uncover potential risks. Jointly identifying and updating risks for a project promotes sharing of risk awareness.*

## 2.3.2 Develop Risk Response Strategies

Based on the risk analysis results obtained in the previous step, the Internal PM determines the risk response strategies for each of the identified risks: avoidance, mitigation, transfer and acceptance. Selecting risk response strategies depends on the risk rating, the effort and time to implement the response as well as the risk tolerance that the stakeholders are willing to accept.

The Internal PM should discuss with the corresponding risk owner on the actions necessary to address the risk. Multiple response strategies may be required for risks having multiple impacts. To ensure that the actions are taken forward, the risk owner or the PSC/PAT should specify a party/individual responsible for implementing the actions while the risk owner is responsible for monitoring the results. In view of resource scarcity, attention should be paid to risks of high rating.



### Tools and Samples

- *Risk response strategies derived in accordance with the level of impact and probability of occurrence is illustrated below:*

Risk response strategies selection		Level of Impact				
		Very Low	Low	Medium	High	Very high
Probability of Occurrence	Highly	Accept	Accept/ Mitigate	Mitigate/ Transfer	Mitigate/ Avoid	Mitigate/ Avoid
	Likely	Accept	Accept/ Mitigate	Mitigate/ Transfer	Mitigate/ Avoid	Mitigate/ Avoid
	Could go either way	Accept	Accept/ Mitigate	Mitigate/ Transfer	Mitigate/ Transfer	Mitigate/ Transfer
	Low	Accept	Accept	Accept/ Mitigate	Mitigate/ Transfer	Mitigate/ Transfer
	Little	Accept	Accept	Accept/ Mitigate	Mitigate/ Transfer	Mitigate/ Transfer

Figure 5 - Risk Response Selection Matrix



### Hints and Tips

- Identifying a risk is good but planning a mitigation response is better.
- There are four types of risk response strategies:
  - "Avoidance" refers to the prevention of the risk from turning into an issue by minimising the probability of occurrence. It can be accomplished by changing the process or the resources to attain an objective or sometimes modifying the objective itself to avoid the risk, for example, committing a project team member to review the documents before a deadline to avoid schedule slippage due to unacceptable deliverable quality.
  - "Mitigation" is the reduction of probability and/or impact of the risk such that the potential loss can be reduced. For instance, additional manpower is added to the project to mitigate possibility of schedule slippage.
  - "Transfer" means shifting the liability of risks to a third party whilst the probability and impact of risk are not reduced. For example, an external consultant is hired to perform independent quality assurance on project deliverables.
  - "Acceptance" means the impact of the risk is absorbed since the time, effort and resources required to avoid, mitigate or transfer risk outweigh the impact of the risk. In such situation, the risk impact is usually small.
  - These four types of risk response strategies are not mutually exclusive and a mix of them can be applied to cope with a risk, where appropriate.

## 2.4 Prepare Project Management Plan

The Project Management Plan (PMP) encompasses

comprehensive management processes and plans for project execution constrained by the approved timeframe and funding. In addition to the outcomes of previous steps in this Plan phase, additional project management processes and controls are put in place to form the PMP.

The Internal PM, with assistance from Project Team Members, will compile the PMP.

<b>Who will be involved?</b>	
<b>Role Involved</b>	<b>Key Involvement</b>
The PSC/PAT	<ul style="list-style-type: none"> <li>■ <b>Advise</b> project management processes and controls</li> <li>■ <b>Review and endorse</b> the PMP</li> </ul>
Internal PM	<ul style="list-style-type: none"> <li>■ <b>Prepare and consolidate</b> the PMP</li> </ul>
Project Team Members	<ul style="list-style-type: none"> <li>■ <b>Assist</b> in preparation of the PMP</li> </ul>

<b>What will be delivered?</b>	
<b>Task</b>	<b>Deliverable</b>
Define Change Control Process	The PMP
Define Risk Management Process	
Define Issue Management and Escalation Process	
Define Communications Management Process	
Define Quality Management Process	
Prepare for Organisational Change	
Establish Time and Cost Baseline	
Determine Procurement Requirements	

<b>Key Success Factors</b>
<ul style="list-style-type: none"> <li>■ All stakeholders' views are considered in the plan to gain early project buy-in and to ensure the plan is practical</li> <li>■ The PMP is prepared before start of tendering process to ensure this process is also properly monitored and controlled.</li> </ul>

### 2.4.1 Define Change Control Process

Changes are inevitable throughout the project lifecycle. Any aspect of the project including organisation, cost, schedule,

scope, quality and deliverable is subject to change. It is thus crucial to have an agreed change control process to request, analyse and approve the changes which should include:

- The parties/individuals authorised to request a change.
- The person responsible for reviewing the change request and analysing its impact on cost, schedule, scope and quality. Typically, the Internal PM or the Contractor PM will be responsible depending on the nature of the change. For example, the impact of changing a Project Team Member will be analysed by the Internal PM while the impact of changing user requirements will be analysed by the Contractor PM.
- The authority, the PSC or the PAT, to approve the change request. In general, the approving authority required aligns with the magnitude of impact and/or nature of change. The Internal PM should consult the PSC and the PAT to set out the authority required for approving change requests.
- The time allowed for analysing a change request and seeking approval.
- The process to follow up open change requests.



### Tools and Samples

- *Change Request Form, [Appendix D.2.](#)*
- *Change Request Log, [Appendix D.7.](#)*



### Hints and Tips

- *The Project Owner should be alerted if a change request will result in deviation from the budget as defined in the funding application.*

## 2.4.2 Define Risk Management Process

When a risk is registered, the Internal PM identifies the risk owner in consultation with the PAT and/or the PSC. Then, together with the risk owner, the Internal PM assesses the risk's likelihood of occurrence, its potential impact to the project, the risk responses and the party responsible for taking forward the risk responses. The Internal PM communicates the actions/steps (i.e. the responses) necessary for addressing the risks to the responsible party. The Internal PM also follows up

with the responsible party and the risk owner to ensure that the actions/steps are taken and that results are monitored.

The approach to facilitate the above process (i.e. quantifying risk probability and impact, formulating and approving risk responses as well as reviewing and monitoring risk responses) is defined as the risk management plan, the purpose of which is to establish the rapport required for risk management among the PSC, the PAT, Internal PM, project team and other stakeholders:

- **Likelihood of occurrence and magnitude of impact** – Both criteria are quantified using a five-point scale which literally means very high, high, medium, low and very low. These scales represent the level of risk tolerance for the project. The Internal PM's understanding of the organisation's strategic direction and the priority of the project as considered by its stakeholders (especially the Project Owner, the PSC, the PAT and the users) will help determine the level of risk tolerance.
- **Risk rating and risk response strategy** – The Internal PM establishes a risk assessment matrix (or risk matrix) by plotting likelihood of occurrence against the magnitude of impact. The resultant interaction (or consequence) of likelihood and impact is referred to as the risk rating. Risk rating is classified into high, medium and low. The Internal PM agrees with the PSC and the PAT on the classification of each consequence. Development of the risk response selection matrix, which determines the risk response strategy (avoidance, mitigation, transfer and acceptance) for each consequence, then follows.
- **Risk response authorisation** – The hierarchy for planning the risk response (including the identification of a responsible party), assisting/advising in the planning process and approving the risk response is defined.
- **Risk review, monitoring and reporting** –The Internal PM agrees with the PSC and the PAT on the frequency to review, monitor and report the progress of the risk responses. A good practice is to report the status of the risks regularly via the project highlight report, for instance.



## Tools and Samples

- *Risk Assessment Tool, [Appendix E.4](#).*
- *Risk Register, [Appendix D.5](#)*



## Hints and Tips

- *The Project Owner/the PSC are in the best position to uncover potential risks due to their understanding of the B/D's businesses and the business needs/problems that the project is addressing. The potential risks identified also help the Internal PM in understanding the types of risks that the Project Owner/the PSC considers relevant.*
- *Establish a culture of risk awareness so that risks can be identified, captured and addressed as soon as they arise.*

### 2.4.3 Define Issue Management and Escalation Process

Risks are uncertainties and when they realise, they become issues. Sometimes, issues arise because incidents occur. Similar to risks, issues must be managed or else they can become major problems to a project if not addressed. The Internal PM should define the process for managing issues – capturing, reporting, escalating, tracking and resolving. While the Internal PM is responsible for capturing the issue into the issue log and conducting a preliminary analysis on its impact to cost, schedule, scope and quality, the following should be agreed upon by the PAT, the PSC and/or the Project Owner, as appropriate:

- **Issue prioritisation** – Like project risks, issues are classified into high, medium or low priority. The classification takes into the account the preliminary analysis on the impact to cost, schedule, scope and quality conducted by the Internal PM.
- **Issue tolerance and escalation** – The issue tolerance level defines the reporting hierarchy for escalating the issues according to the level of impact, priority or conditions requiring management attention such as issue cannot be resolved within the agreed timeframe.
- **Issue resolution** – The authority, the Project Owner, the PSC or the PAT, to approve the proposed resolution and identify a person responsible for resolving the issue or getting it resolved.
- **Issue review, monitoring and reporting** – The frequency to review, monitor and report the progress of the issue

resolution. As in issue management, a good practice is to report the status of the issues regularly via the project highlight report, for instance.



### Tools and Samples

- *Issue Log, [Appendix D.6](#)*



### Hints and Tips

- *Like risks, issues should be identified, captured and addressed as soon as they arise to prevent them from evolving into major problems for the project.*

## 2.4.4 Define Communications Management Process

As the project proceeds, communications get more complicated because more information needs to be collected and distributed. To ensure effective and efficient communications with stakeholders, the Internal PM finds out the following from stakeholders:

- Means to collect project information from the stakeholders
- Means to store information collected and access control
- Procedures for disseminating project information including what, how, when and to whom to disseminate

The procedures for disseminating project information should include procedures for handling ad-hoc requests. The procedures should be agreed upon by the PSC or the PAT for ad-hoc requests involving restricted information, that is, the approving authority for such requests should be determined beforehand.

Also, to avoid communications breakdown, procedures should be in place to verify if information has been received by the appropriate parties and is being interpreted correctly. This is particularly important for external stakeholders.



### Tools and Samples

- *Communications Management Plan, [Appendix D.1.4](#)*
- *Stakeholder Analysis, [Appendix E.3](#)*



### Hints and Tips

- *Information comes in various forms (verbal, electronic or hard copy) and from different sources. Information can be formal (e.g. from reports, formal meetings) or informal (e.g. conveyed verbally or via informal gatherings, from newsletters). The Internal PM should be able to differentiate what needs to be collected and disseminated and what does not.*
- *For projects involving multi-departmental communication, specific communication requirements and channels may be considered to fill in communication gaps such as B/D's culture, project team experience and background, etc.*

## 2.4.5 Define Quality Management Process

During project scope refinement, the Internal PM determines the quality requirements (or acceptance criteria) of the project deliverables with the PAT and key stakeholders. Such quality requirements, internal as defined by the users or external including industry standards or regulatory requirements, are documented in detail in the Quality Management Plan. The activities to be conducted for verifying whether a project deliverable meets the acceptance criteria (i.e. quality control activities such as document review or product testing) along with the party responsible for carrying out the verification activities should be defined.

The Internal PM should include verification activities in the project schedule. The time allowed for conducting such activities (including the time allowed for reviewing rework) should be agreed upon by the PAT and the responsible party. Project deliverables are deemed to be complete only when they (including all the reworks) meet the acceptance criteria, in which case formal sign-off by the PSC can be sought.

In addition to the verification activities, activities for monitoring the verification process must be included as well. Such activities are referred to as quality assurance activities and are there to assure that quality control activities are carried out as planned. As in the case of the quality control activities, the party responsible for quality assurance and the time allowed need to be worked out.

There may be occasions for stakeholders external to the project organisation to be involved in quality control and/or assurance activities. Such involvement can be identified during communications planning or uncovered during quality planning. In the latter case, thorough stakeholder analysis for the stakeholders concerned should be conducted.

Furthermore, to avoid situations where deliverables are rejected when they are subject to verification only after they have been fully developed, interim reviews should be incorporated into the project schedule to streamline final acceptance.



### Hints and Tips

- *Deliverable acceptance criteria vary according to the type of deliverable but, in general, the following criteria can be considered:*

#### *Content-wise*

- *Is the deliverable clearly written or presented in that it communicates effectively with its target audience.*
- *Is the deliverable at the appropriate and agreed upon level of detail for its target audience?*
- *Is the deliverable written or presented in a language suitable to its target audience? Does the deliverable require a level of expertise or knowledge from its target audience to understand it? If so, is this clearly explained and specified?*
- *Does the deliverable meet the requirements and criteria of the contract, statement of work (SOW) and/or work breakdown structure (WBS)? Have all mandatory items/sections been included?*
- *Does the deliverable meet the project as well as applicable government and industry standards?*
- *Is the deliverable dependent on or related to another deliverable? If so, is the dependency appropriate and are the deliverables consistent?*
- *Does the deliverable provide recommendations? If so, are the recommendations (technically) sound and (economically) feasible that align with the scope of the project as defined in the contract?*
- *Does the deliverable meet the expectations for its intended use?*
- *Is the source information based on which the deliverable is produced valid and current*

#### *Administrative-wise*

- *Is the deliverable delivered on time in accordance with the project plan?*

- *Has the deliverable adhered to the mandated template or agreed upon format and media?*
- *Is the deliverable traceable to the contract, SOW or WBS requirement that it is associated with?*
- *Is performance metrics used for deliverable review? If so, are the metrics being collected? Do the metrics reveal any negative trends or concerns? Are there reasonable explanations for the negative trends or concerns?*
- *Are the defined quality control activities being carried out to review the deliverables? Are quality assurance activities carried out for verification?*

*Technical-wise*

- *Has the deliverable undergone the testing required in accordance with the test plan?*
- *Has the deliverable undergone the testing and/or verifications procedures required by industry standards/practices and/or government regulations, as appropriate?*
- *It is good practice for the Internal PM to maintain an “acceptance log” to track the status of a deliverable as it goes through iterations of the acceptance process.*

## 2.4.6 Prepare for Organisational Change

The business case and the funding application should have documented the business processes involved and associated problem or improvement areas. If extensive changes to the business processes are required, a BPR exercise will be helpful. Otherwise, the Project Owner/the PSC should take the lead to redesign the processes and ensure that they are aligned with the products of the project (e.g. an IT system or revised workflow).

The people being affected will need to be identified as well. The Internal PM should agree with the PSC and the PAT on specific activities required to prepare them for the changes (e.g. training, development/revision of procedural manuals). Such activities should be incorporated into the project schedule.



### Hints and Tips

- *To prepare for organisational change, the Project Owner/the PSC should determine the impact of the project to the culture or the way the organisation conducts business. If the impact is considered significant, it may be necessary to assess the B/D’s “readiness to change” and develop action plans to increase the readiness and the*

*B/D's ability to adapt to the changes.*

## 2.4.7 Establish Time and Cost Baseline

The Internal PM takes a snapshot at the conclusion of the above planning activities. This snapshot represents the time and cost baseline, against which the performance of the project is measured. The PSC approves the time and cost baseline and once approved, it can only be revised upon approval of change requests. The Internal PM determines whether a project is on track by comparing project progress and actual costs against the baseline. Project performance is reported regularly to the PSC and the PAT via PSC or PAT meeting.



### Tools and Samples

- *Work Plan, Appendix D.1.2*
- *Financial Management Plan, Appendix D.1.3*

## 2.4.8 Determine Procurement Requirements

Procurement planning includes the processes to purchase or acquire products or services from external contractors for the project. The assigned Project Team Members are responsible for handling the procurement activities.

The timeline, resource and budget planning provides input to procurement planning on the goods and services to acquire, the costs required and the time to acquire them. The procurement process further develops the above details to include considerations of how to acquire them, who are the potential contractors, what are terms and conditions and risks.

Through early planning of procurement requirements, the Project Owner and PSC will be able to identify procurement related project risks and determine appropriate response strategies.

All procurements follow the Stores and Procurement Regulations (SPRs). The Internal PM aligns procurement activities with the SPRs and develops the procurement plan:

- **Identify the products and/or services to be procured** – The project scope defines products/services to be procured and the WBS refines them. The Internal PM and the Project

Team Members develop requirement specifications for the products/services to be procured.

- **Identify suitable procurement means** – There are existing contracts (bulk contracts or standing offer agreements (SOAs)) that can be utilised to procure goods and services. These contracts are efficient means to secure the required goods and/ or services since the procurement process involving such contracts is typically short. If the products and services of the project cannot be obtained from these procurement arrangements, the Internal PM should identify the appropriate means for the procurement according to the SPRs.
- **Understand the procurement process** – The SPRs shall be followed in all cases for conducting Government procurement. Existing procurement arrangements may have specific acquisition procedures, which have been aligned with the SPRs, for B/Ds to follow in their acquisitions. In case these procurement arrangements are not utilised, the steps stipulated in the SPRs need to be followed to plan for the procurement activities. The Internal PM also plans for other related project activities including stakeholder management and communications management to cater for the people (e.g. procurement authorities and legal advisors) involved in those activities. The project schedule, stakeholder register and the communications plan are updated accordingly. The Internal PM also registers potential risks to the project and plans for the mitigation measures.
- **Estimate the time to complete the procurement activities** – For project activities that involve external stakeholders, the Internal PM should gain input from recent tendering exercise or from people who have conducted similar activities recently to arrive at a more realistic estimate. The Internal PM should set aside contingencies because some activities are out of control of the procuring B/D (e.g. time for contract negotiation). Moreover, there can be separate/multiple procurements for the required products/services. The Internal PM should refine the project timeline (relating to subsequent project activities) when major milestones are achieved, such as tender document is cleared, tender is issued/closed, tender evaluation is completed, etc.

- **Estimate the time and cost to deliver the products/services to be procured** – The Internal PM should estimate the contract cost as well as the time allowed for the contractor to deliver the products/services taking into account the technologies and skills involved. Once again, data and experiences from previous projects or subject matter experts can provide excellent insight into the time and budget required. The Internal PM may also conduct a RFI exercise or market research to obtain relevant information. The estimate so developed should be realistic and not overly optimistic.
- **Identify potential contractors** – To minimise the situation that an invitation for quotations/proposals needs to be cancelled due to failure to identify capable or interested contractors, it is benefit to conduct a RFI or market research to have an initial idea on the number of potential contractors. The list of potential contractors should include overseas contractors, where applicable, and contractors capable to offer alternative solutions or technologies.
- **Identify members to the tender assessment panel** – The Project Owner/the PSC should appoint members to the quotation/tender assessment panel to carry out the tender evaluation activities. The Internal PM documents the appointments and the corresponding roles and responsibilities in the project organisation.
- **Arrange logistics for tender evaluation** – The Internal PM should plan for the logistics necessary for conducting tender evaluation including a venue and necessary office supplies such as printers, photocopiers, facsimile machines, telephones, stationeries. Sourcing activities should be included in the project schedule and should costs be incurred, such costs should be included in the project budget.
- **Consider specific terms and conditions** – Some contract terms and conditions (T&Cs) are of particular concern to the industry. For example, T&Cs relating to refund, performance bond, contractor's liabilities and intellectual property rights. The Internal PM should obtain the stance of the Project Owner and the PSC on such T&Cs as early as possible so that the project schedule can be updated accordingly, such as

to advance the consultation with relevant authorities or to plan for a longer negotiation process.

- **Determine transition strategy** – The Internal PM should develop the transition strategy, involving the Project Owner and the PSC. The strategy for transitioning the project’s products (e.g. an IT system) to the B/D will determine the risk exposure associated with the strategy chosen e.g. phased implementation or “big bang”. The strategy also affects the approach the products are implemented, individuals deployed to the transition, the appropriate timing for training as well as the resources requirements for on-going support of the products etc.



### Tools and Samples

- Section 6 - Procurement in Workplan, Appendix D.1.2



### Hints and Tips

- *While outsourcing is the preferred option, the Internal PM should have gained consensus from the Project Owner or the PSC on the scope of services to outsource and the procurement means.*

## 2.5 Gain Approval to Proceed to the Next Phase

The completion of the PMP signifies the end of the Plan phase. The Internal PM submits the PMP to the PSC for approval and seeks consent to proceed to the next phase – the Execute phase.

Formal acceptance is recommended. Verbal acceptance should not be taken as formal acceptance. The Internal PM should schedule a meeting to discuss and gain the approval necessary to move on to the next phase.

Who will be involved?	
Role Involved	Key Involvement
The PSC	■ <b>Review, accept and approve</b> the PMP.
The PAT	■ <b>Review and accept</b> the PMP.
Internal PM	■ <b>Prepare acceptance package.</b> ■ <b>Ensure agreement gained</b> from the PSC to proceed to the next phase.
Project Team Members/Project	■ <b>Assist</b> in preparing the acceptance package.

Administrator	
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What will be delivered?	
Task	Deliverable
Prepare for Acceptance	The approved PMP
Obtain Formal Approval	

**Key Success Factors**

- During formulation of the PMP, the Internal PM should keep constant communication with the Project Owner, the PSC and the PAT. This is to avoid surprising them with deliverables that they have not come across before or do not expect to receive.
- To streamline the final review, acceptance and approval process, the Project Owner, the PSC and the PAT should review the interim deliverables or work products of each process (e.g. risk/issue management, change control) upon their completion. Approval of these interim deliverable or work products should also be sought before proceeding to the next process.

### 2.5.1 Prepare for Acceptance

While the PMP is literally “one” plan, it actually comprises several very important (and sometimes complex) documents. The Internal PM should organise the documents into an acceptance package and be prepared to walk through each of the documents during the meeting to ensure that no document is being missed out.

The Internal PM should also ensure that formal acceptance has been obtained from the parties involved in reviewing individual component of the PMP before the meeting. This further streamlines the final approval process by assuring the Project Owner and the PSC that the PMP has been reviewed by responsible parties.



#### Tools and Samples

- *The Project Management Plan (PMP), Appendix D.1*

## 2.5.2 Obtain Formal Approval

The business case may have been revised (during the “Review the Business Case” process) before the PMP is prepared. Before gaining formal approval from the Project Owner and the PSC, the Internal PM should review the changes to the business case during the meeting. This is to enable the Project Owner and the PSC to make their final go or no-go decision.

The Internal PM then presents the acceptance package to seek formal approval. If approval cannot be obtained, the reason for rejection should be documented and followed up by the Internal PM. When the issues with the deliverables are resolved, the updated package is presented again.

The formal acceptance process also serves the purpose for the Internal PM to secure the resources for progressing to the Execute phase. The Internal PM should present clearly the type and amount of resources required and gain the necessary approval. The individuals to take up the roles and responsibilities for carrying out work in the next phase may need to be identified or appointed at the meeting.



### Hints and Tips

- *The Internal PM should realise that termination of a project could happen at any point in time during the project lifecycle. Therefore, he/she should not refrain from approaching the PSC (or the Project Owner) during the course of the project when he/she feels that termination is the best possible solution.*

## End of Phase Checklist

### Activity Checklist for Plan Phase

This checklist helps to ensure that all requirements of the phase are met. When an activity is completed, indicate its completion date. For those activities not completed, describe the reason(s) for not completing and how the objectives of that activity are otherwise being met. Also, report uncompleted activities to the PSC via the project highlight report. The Remarks column can be used to include any additional information that is considered useful.

Activity	Completion Date	Reasons for <i>NOT</i> completing	Remarks
<b>Review Current Situation</b>			
Onboard Project Team Members			
Brief Project Team Members on project background, objectives, project organisation and their roles and responsibilities			
Review the Business Case			
Review deliverables of the Initiate phase			
<b>Refine Preliminary Estimates and Findings</b>			
Reconfirm project scope with Project Owner/the PSC			
Break down high-level deliverables into smaller pieces of work (using Work Breakdown Structure (WBS))			
Define quality requirements (acceptance criteria) for each deliverable			
Project Owner/the PSC approves refined project scope			
Refine project schedule based on detail WBS			
Define dependencies among tasks			
Estimate effort and cost for each task			
Recalculate project budget			
Update stakeholders' communication needs			
<b>Review Project Risks</b>			
Review validity of			

Activity	Completion Date	Reasons for <i>NOT</i> completing	Remarks
existing risks with Project Owner, PSC, PAT and Project Team Members			
Identify and document new risks			
Assess risk rating (high/medium/low) for all risks identified. Risk assessment includes evaluating probability of occurrence as well as impact to the project			
Determine response strategies for all identified risks			
<b>Prepare Project Management Plan</b>			
Define and document change control process			
Define and document risk management process			
Define and document issue management and escalation process			
Define and document communications management process			
Define and document quality management process			
Incorporate activities in project schedule to prepare for organisational change			
Capture time and cost baseline			
Initiate procurement			
<b>Gain Approval to Proceed</b>			
Review individual component of the			

Activity	Completion Date	Reasons for <i>NOT</i> completing	Remarks
project management plan			
Obtain formal approval			

## Other Factors Affecting Project Success

The completion of all the activities in a phase only signifies that the basic requirements of that phase have been met. The factors listed in the table below also have an impact to the continued success of the project. The more “No” answers the less ready is the project to proceed to the next phase.

Process	Factor	Yes	No
Review Current Situation	Supervisors of Project Team Members agreed to release them on the dates the project is expecting them.		
	Project Team Members get familiar with the project background, objectives, the project organisation as well as their roles and responsibilities.		
	Continued viability of business case is confirmed.		
Refine Preliminary Estimates and Findings	Updated project scope, schedule and budget are clearly communicated to key stakeholders and buy-in & consensus gained.		
Review Project Risks	The PSC and PAT agree with the risk prioritisation.		
	Risk owners agree with the risk mitigation measures.		
Prepare Project Management Plan	Stakeholders understand what constitutes a change and agree to the change control mechanism.		
	Stakeholders understand their roles and		

Process	Factor	Yes	No
	responsibilities in the risk management process.		
	Risk owners agree to serve in the capacity (as a risk owner).		
	Stakeholders understand and agree to when an issue is to be escalated.		
	Communication requirements of external stakeholders such as the public, professional associations have been catered for.		
	Stakeholders responsible for acceptance understand and agree to their roles and responsibilities as well as the acceptance criteria.		
	Activities to prepare for organisation change have been reviewed and agreed upon by the PSC, the PAT and the stakeholders.		
	The PSC agrees to the established schedule and cost baseline.		
	The Project Owner/the PSC reviews and confirms the procurement requirements including contract terms and conditions.		
Gain Approval to Proceed	Formal approval (e.g. via PSC meeting) to proceed to next phase is gained.		

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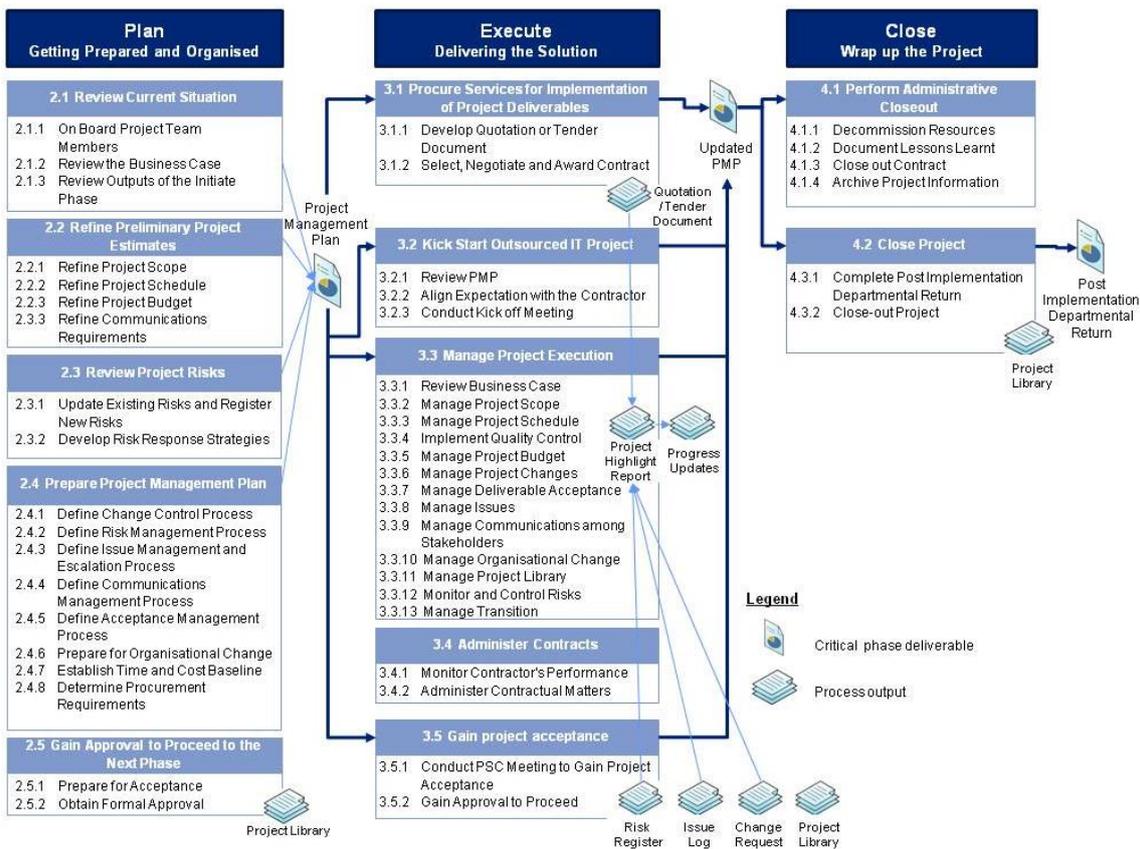
## 3 Execute Phase

### Delivering the solution

The purpose of the Execute phase is to develop the products and services that the project is commissioned to deliver. This phase **utilises the various plans, schedules, procedures and templates as documented in the PMP to manage the delivery of the project products and services.** The Execute phase is typically the longest phase in the project lifecycle during which most of the resources will be expended. It is, therefore, not surprising that unexpected events and situations will arise. The Internal PM **continuously monitors progress, mitigates project risks, resolves issues and manages changes that may impact the delivery of project products and services to achieve intended business benefits.**

The Execute phase is also where the contractor comes in. The Internal PM, assisted by the Project Team Members, works closely with the contractor to ensure the products and services acquired are delivered according to the agreed scope of work, cost, timeline and quality requirements. In other words, the contractor manages the process for developing the products and services and the Internal PM focuses on contractor performance.

The Execute phase ends when the products and services of the project is fully developed, tested, accepted, approved and transited to the B/D.



## What you Need to Do?

### 3.1 Procure Services for Implementation of Project Deliverables

The Execute phase begins with the procurement of services for the delivery of project deliverables. In the Plan phase, the PMP has incorporated activities to perform the procurement exercise to acquire the necessary products and services. The Internal PM, assisted by the Project Team Members, conducts and manages the procurement process in accordance with the PMP.

The activities to be accomplished include collecting detail requirements, creating procurement documents, refining requirements specification, conducting the procurement exercise, evaluating the proposals and awarding the contract.

Who will be involved?	
Role Involved	Key Involvement
Project Owner/the PSC	<ul style="list-style-type: none"> <li>Review and advise development of the quotation or tender document</li> <li>Ensure sufficient resource to conduct procurement activities</li> </ul>

<b>Who will be involved?</b>	
<b>Role Involved</b>	<b>Key Involvement</b>
	<ul style="list-style-type: none"> <li>■ <b>Advise</b> key procurement activities</li> <li>■ <b>Approve</b> quotation/tender evaluation result</li> </ul>
The PAT	<ul style="list-style-type: none"> <li>■ <b>Review and ensure quality of contract / procurement documents</b></li> <li>■ <b>Ensure requirement specification are clear, concise, unambiguous</b> and align with project objectives</li> </ul>
Internal PM	<ul style="list-style-type: none"> <li>■ <b>Coordinate</b> procurement activities</li> <li>■ <b>Consolidate/Prepare contract / procurement documents</b></li> </ul>
Project Team Member	<ul style="list-style-type: none"> <li>■ <b>Assist</b> in preparing contract / procurement documents</li> <li>■ <b>Prepare facilities/templates</b> for quotation/tender evaluation</li> <li>■ <b>Participate</b> in procurement activities, if applicable</li> </ul>

<b>What will be delivered?</b>	
<b>Activity</b>	<b>Output</b>
Develop Quotation or Tender Document	Quotation/Tender Documents
Select, Negotiate and Award Contract	Awarded Contract

### **Key Success Factors**

- Procurement requirements are stated clearly, concisely, consistently and unambiguously to minimise opportunities of misinterpretation.
- Procurement documents align with stakeholders' expectations and project objectives.
- Acceptance criteria of each deliverable are sufficient to be measured, verified and tested to set outsourcing expectations upfront.
- The PSC supports and provides sufficient resources for the procurement process.

#### **3.1.1 Develop Quotation or Tender Document**

The quotation or tender document should contain a clear, comprehensive and concise description of the products and services and the time they are required. The products and services to be acquired have been identified and confirmed in the Plan phase. The implementation time has been estimated as well. In this phase, the Internal PM and the Project Team Members elaborate the details of requirements including, for

instance, functional requirements, operating and performance characteristics and the interfaces with other systems and processes, if any. Adjustments to the implementation timeline are made, where necessary. Such details are to be included in the quotation or tender document.

The quotation or tender document should also contain the T&Cs of the contract. Again, in the previous phase, advice from the Project Owner and the PSC has been sought on specific T&Cs like contractor's liabilities, refund, performance bond, intellectual property rights etc.

The quotation or tender document must also provide other details that bidders must follow to prepare and submit their bids, such as closing date, format of proposals, contacts for enquiries, etc. Details on the evaluation criteria in addition to evaluation and selection procedures must be provided as well.

The Internal PM then submits individual elements of the quotation or tender document for clearance/approval by relevant authorities, such as the relevant tender board, the GLD, the DoJ and the IPD, in accordance with the SPRs and other Government regulations. The Internal PM is responsible for following up with the relevant authorities during the clearance process.

Upon completion, the Internal PM should review the PMP and follow the change control process to update the PMP if necessary. At the same time, the Project Team Members should develop facilities/templates (such as worksheets for calculating the price/technical scores) for use by the quotation/tender assessment panel during evaluation. This will help standardise the records of evaluation and consolidate the evaluation results. The Internal PM should also prepare a brief for the assessment panel to familiarise them with the procurement requirements, the marking scheme, the evaluation procedures, the evaluation facilities/templates, their roles and responsibilities in the evaluation process etc.



### Hints and Tips

- *To achieve a well organised procurement management, it is recommended to have a designated individual (e.g. a Project Team Member) assigned to record bidders' inquiries and communications*

*with the bidders.*

- *Sufficient time should be allocated to develop the contract / procurement documents. Procurement process can be lengthy if procurement requirements are complicated, key stakeholders are not available, or changes to the project scope are required.*
- *To prevent project from getting stuck due to increased stakeholders' expectations, the expectations should be set upfront and proactively communicated to them whenever it is needed.*
- *A good requirement specifications document should:*
  - *state the requirements clearly, concisely, logically and unambiguously (e.g. requirements such as 'the system should be flexible', 'the system should be user-friendly', or 'response times should be fast', can never be verified and should not therefore appear in the requirements specification);*
  - *contain enough information for potential tenderers to make proposals for the methodology they judge best to deliver the requirements and to determine the cost of the products or services they will offer;*
  - *consider performance related requirements when the project is related to system implementation. These requirements should be aligned with the project objectives;*
  - *enable offered products and/or services to be evaluated against defined criteria by examination, trial, test or documentation;*
  - *contain only the necessary essential features or characteristics of the requirement e.g. what is needed over what is wanted;*
  - *encourage the tenderers to provide design approaches to project solutions, identify possible risks, assumptions, constraints and dependencies, where appropriate; and*
  - *include user interface requirements as necessary. It can provide the specific interface-related functionalities and corresponding outcome/output expected from the user interface.*
- *The acceptance criteria should be realistic. Extreme levels of quality requirements, such as zero defects or very short response times for voluminous data may incur high costs and may not be cost justified.*

### 3.1.2 Select, Negotiate and Award Contract

Upon clearance and approval of the quotation/tender document, the procurement process follows. The Internal PM performs the procurement activities as documented in the PMP which should have aligned with the SPRs and other relevant Government regulations. The purpose of the procurement process is to enable the B/D to obtain and evaluate recommended solutions

from potential contractors, among which to select the most favourable (best value for money) proposal.

The Project Team Members or the Project Administrator assist the Internal PM to acquire the resources (including staff resources) necessary for proposal evaluation and make logistics arrangement as defined in the PMP. Any deviation from the plan should be handled immediately and reported/resolved via issue management.

The Internal PM should refine the brief to the tender assessment panel (prepared in the prior task) when information on proposals received is known. The Internal PM should hold a kick-off meeting with the assessment panel before proposal evaluation starts. The brief should be distributed to each of the assessment panel member and the Internal PM assigns roles and responsibilities among the members.

When evaluation completes, the evaluation result is submitted to the relevant authority and where necessary the tender board for approval. At times, contract negotiation may be required after a contractor is selected, in which case it shall be undertaken in accordance with the SPRs. The Select, Negotiate and Award Contract task concludes when the contract is awarded.



### Hints and Tips

- *Typical tendering activities include issue tender document, conduct tender briefing, handle tenderers' queries, receive tender proposals, evaluate tender proposals, conduct contract negotiation and award contract.*
- *Ideally, the requirement specifications are of sufficient details and the contract T&Cs are "reasonably" stipulated in accordance with the project size and complexity to limit negotiation required after a proposal is selected.*

## 3.2 Kick Start Outsourced IT Project

The procurement process is typically lengthy in the Government context. The Internal PM should review the PMP upon contract award and make necessary updates according to the latest progress information.

It is beneficial to have a formal kick-off (e.g. by holding a PSC meeting with the contractor, all key stakeholders and Project Team Members) to review the current project status and to confirm that the original business needs are still being met. Approval of the revised PMP is sought as well.

<b>Who will be involved?</b>	
<b>Role Involved</b>	<b>Key Involvement</b>
Project Owner/the PSC	<ul style="list-style-type: none"> <li>■ <b>Review and endorse</b> revisions to the PMP</li> <li>■ <b>Reassure the need for the project</b> and how it supports the business needs</li> <li>■ <b>Participate in kick-off meeting</b> to orient project direction</li> </ul>
PAT	<ul style="list-style-type: none"> <li>■ <b>Review</b> revisions to the PMP</li> <li>■ <b>Participate in kick-off meeting</b></li> </ul>
Internal PM	<ul style="list-style-type: none"> <li>■ <b>Review and update</b> PMP</li> <li>■ <b>Align contractor expectations</b></li> <li>■ <b>Prepare kick-off meeting</b></li> </ul>
Project Team Member	<ul style="list-style-type: none"> <li>■ <b>Assist</b> in revising the PMP</li> <li>■ <b>Assist</b> in preparation of kick-off meeting</li> </ul>

<b>What will be delivered?</b>	
<b>Activity</b>	<b>Output</b>
Review PMP	Updated PMP Updated Risk Register
Align Expectation with the Contractor	Contractor's project plan
Conduct Kick off Meeting	Kick off Meeting Meeting minutes/notes

### **Key Success Factors**

- Key participants of the kick-off meeting include the Project Owner/the PSC, the PAT, the Internal PM, the contractor, and other key stakeholders with a vested interest in the status of the project.
- The contractor understands completely the project scope, contractual requirements and performance standards.

### 3.2.1 Review PMP

After the contract is awarded, the Internal PM should review the current project status and make the necessary updates to the PMP. The following components of the PMP which were refined and developed in the Plan phase should be reviewed:

- Project scope

- Project organisation
- Time and cost baseline
- Change control process
- Risk register and risk management process
- Issue log and issue management process
- Stakeholder register and communications management process
- Quality management process



### Tools and Samples

- *The Project Management Plan (PMP), [Appendix D.1](#)*

## 3.2.2 Align Expectation with the Contractor

While a contractor is wholly responsible for delivering the products and services, the Internal PM is accountable for monitoring the contractor's performance. Unambiguous and mutual understanding of the contract coupled with good relationship are the keys to successful contractor management.

The Internal PM must ensure that the contractor understands completely its contractual requirements and the performance standards. To achieve this, the Internal PM should ensure that the contractor's project plan aligns with the PMP before kicking start project activities. Particular attention should be paid to project processes, schedule, project requirements and acceptance criteria, communication needs and quality control mechanism. This helps align expectations and establish a positive relationship under which risks and benefits are shared.



### Hints and Tips

- *Contractor should be required, as far as possible, to include in its project plan all the project management processes described in this best practice guide.*

## 3.2.3 Conduct Kick off Meeting

A meeting (e.g. a PSC meeting) to formally kick off the outsourced IT project serves to recapitulate what has been achieved so far and to align understanding of the work to be performed by the contractor.

The Internal PM should provide an overview of the current project status and presents the updates to the PSC. Approval of the updates will be sought along with the change control process. The meeting offers a good opportunity to remind project stakeholders the management processes to follow throughout the Execute phase. It also offers a good opportunity for the Project Owner/the PSC to reassure the need for the project and how it supports the business needs.

### 3.3 Manage Project Execution

The business environment is not static. A change in the business environment may have an impact on the project. At the same time, the execution/outcome of project tasks may have an impact on the project itself. Therefore, both the business case and the project need to be closely monitored.

In essence, monitoring of the business case (the change of which will have a direct impact on the project scope, cost, schedule and quality) should be performed in parallel with the monitoring of the project. The tasks below are to be performed concurrently and repeatedly throughout the Execute phase.

<b>Who will be involved?</b>	
<b><i>Role Involved</i></b>	<b><i>Key Involvement</i></b>
Project Owner/PSC	<ul style="list-style-type: none"> <li>■ <b>Attend PSC meetings</b></li> <li>■ <b>Review</b> project highlight reports</li> <li>■ <b>Ensure project progress aligns with business case</b></li> <li>■ <b>Determine any corrective actions</b> required to improve project performance</li> <li>■ <b>Endorse project deliverables</b> that meet acceptance criteria</li> <li>■ <b>Endorse payment</b> to contractor</li> </ul>
PAT	<ul style="list-style-type: none"> <li>■ <b>Attend PAT meetings</b></li> <li>■ <b>Review</b> highlight reports</li> <li>■ <b>Ensure project progress aligns with business case</b></li> <li>■ <b>Determine any corrective actions</b> required to improve project performance</li> <li>■ <b>Review project deliverables</b></li> <li>■ <b>Delegate</b> responsible reviewer for each defined acceptance criterion</li> </ul>
Internal PM	<ul style="list-style-type: none"> <li>■ <b>Onboard internal and contractor resources</b></li> <li>■ <b>Review contractor's project plan</b> to ensure alignment with the PMP</li> <li>■ <b>Coordinate and participate in PSC and PAT</b></li> </ul>

<b>Who will be involved?</b>	
<b>Role Involved</b>	<b>Key Involvement</b>
	<p>meetings</p> <ul style="list-style-type: none"> <li>■ <b>Prepare and present</b> project highlight reports</li> <li>■ <b>Ensure project resources are sufficient</b></li> <li>■ <b>Determine and execute corrective actions</b> required to improve project performance</li> <li>■ <b>Monitor and update the PMP</b></li> <li>■ <b>Review project deliverables</b></li> <li>■ <b>Coordinate payments</b> made to contractor</li> <li>■ <b>Review status reports</b> submitted by contractor</li> <li>■ <b>Ensure deliverables are completed</b> by following proper quality control activities</li> </ul>
Contractor PM	<ul style="list-style-type: none"> <li>■ <b>Submit and align contractor's project plan with the PMP</b></li> <li>■ <b>Monitor</b> work of contractor project team</li> <li>■ <b>Ensure deliverables are completed</b> by following proper quality control activities</li> <li>■ <b>Submit status reports</b> to the Internal PM</li> <li>■ <b>Participate in PSC/PAT meetings</b>, if required</li> <li>■ <b>Ensure project resources are sufficient</b></li> <li>■ <b>Determine and execute corrective actions</b> to improve project performance</li> </ul>
Project Team Member	<ul style="list-style-type: none"> <li>■ <b>Provide updates</b> of development progress of project deliverables</li> <li>■ <b>Perform project tasks</b> as described in the PMP</li> </ul>
Project Administrator	<ul style="list-style-type: none"> <li>■ <b>Administer</b> project tasks and deliverables completion progress</li> <li>■ <b>Record project expenses</b></li> <li>■ <b>Maintain asset inventory</b> records</li> </ul> <p>(To be taken up by Project Team Member if this role is not present)</p>

<b>What will be delivered?</b>	
<b>Activity</b>	<b>Output</b>
Review Business Case	Project Deliverables
Manage Project Scope	Updated Issues Log
Manage Project Schedule	Updated Risk Register
Implement Quality Control	Updated PMP
Manage Project Budget	Updated Business Case
Manage Project Changes	Updated Project Library
Manage Deliverable Acceptance	
Manage Issues	
Manage Communications among Stakeholders	
Manage Organisational Change	
Manage Project Library	
Monitor and Control Risks	
Manage Transition	

### Key Success Factors

- The contractor's plan is in line with the PMP at all times.
- The Internal PM and Contractor PM work closely together as a team to continuously monitor the project performance.
- For deliverables requiring long development cycle, interim reviews will streamline final acceptance.

#### 3.3.1 Review Business Case

The business case is a critical document based on which the PSC makes its decision at periodic project reviews to continue, modify or terminate the project. The business case should be monitored on a continuous basis.

In particular, whenever there is a significant change to the project or the business function, it should be reviewed and re-validated. The Internal PM should note that there exist factors affecting the project that are outside his/her control (e.g. new priorities within the B/D that are in direct conflict with the project). In this connection, the review should be conducted together with the Project Owner and/or the PSC. The Internal PM will assess the impact of the change on the project around scope, costs, schedule and budget. A cost-benefit analysis is conducted to facilitate the Project Owner/the PSC to make the go or no-go decision.

Any change to the business case should be made by means of a change request and endorsed by the Project Owner through the change control process.



#### Hints and Tips

- *When the costs to implement a project outweigh the benefits it delivers, it should be terminated. Realistically, this could happen any time during the life of a project. For example, when there is a policy change and the benefits expected to be delivered are no longer valid.*

#### 3.3.2 Manage Project Scope

The project scope refined in the previous phase should have defined clearly the deliverables to produce (and not to produce i.e. the out-of-scope items) during the Execute phase. Any

change to the project scope, no matter significant or not, should be managed according to the change control process to ensure that potential impacts are assessed and that all parties concerned agree to the change.

As part of scope management, the Internal PM ensures that the contractor delivers and only delivers what is required by the project as documented in the project scope. Any deviation is to be handled via the change control process. Sometimes, there is disagreement with the contractor regarding whether a requirement constitutes a change despite effort spent to carefully document what is in-scope and out-of-scope.

When conflicts occur, the Internal PM should discuss with the contractor their differences of opinion and reach a compromise. If a compromise cannot be reached, the issue should be escalated to the PSC following the issue management process. In case the issue cannot be resolved and leads to a contract dispute, it may be necessary to resort to execution of relevant contract clauses such as arbitration, dispute handling or termination.

When it is agreed that a scope change has occurred, the Contractor PM, in consultation with the Internal PM, should assess the impact of the change on cost, schedule and quality. Approval is then obtained according to the change control process. A change is implemented only when approval is sought.

Throughout the Execute phase, continuous communication among the PSC, the Internal PM and the Contractor PM is essential to scope management.



### Hints and Tips

- *It is crucial that the change control process is followed even when the impact of a scope change is minimal. This is to ensure that all changes are documented formally and undergo impact analysis. This also helps stakeholders to get accustomed to the way changes are managed and to understand their roles in the change control process.*
- *Lessons learnt from scope management should be documented for future reference by the current project or other projects.*

### 3.3.3 Manage Project Schedule

A schedule baseline has been established in the Plan phase. This baseline will be used as a cornerstone to determine if the project is on track.

The Internal PM collects project progress information from stakeholders, including the Contractor PM and the Project Team Members, via communications activities defined in the PMP. To monitor closely the contractor's performance, the Internal PM should hold regular status update meetings with the contractor and be vigilant when reviewing task progresses. The status update meeting is effective in discussing and collecting progress information from the contractor.

Using the progress information consolidated, the Internal PM tracks work done against the tasks in the project schedule, particularly the tasks on the critical path. The remaining time to complete a task is compared to the estimated time and the difference is updated to the project schedule. The Internal PM refers to the updated project schedule to review the project status.

Apart from progress information, the project schedule may be updated as a result of approved change requests (through the change control process). In that case, a new baseline schedule will be produced and subsequent updates will be made to this new baseline.



#### Hints and Tips

- *The Internal PM should update the project schedule regularly as frequent updates can help identify potential problems. Small slippages of individual tasks may combine to create a significant impact to other dependent tasks.*
- *When reviewing the project status, questions to ask include:*
  - *Is the project on track?*
  - *Are there any risks/issues?*
  - *Which tasks are taking more/less time than estimated?*
  - *How much time has been spent and how much left?*
  - *Which tasks are late? Any subsequent tasks being affected?*
  - *What is the next deliverable to produce and when?*
- *Each version of the project schedule and baseline schedule should be archived for future references.*

### 3.3.4 Implement Quality Control

Quality control not only monitors the quality of deliverables, it involves monitoring various aspects of the project as defined in the PMP to ensure that the project complies with the quality standards (e.g. quality procedures, industry standards, government regulations).

Quality control should be performed throughout the project and the ultimate accountability lies in the Internal PM to ensure that the project deliverables meet the level of quality required and that quality assurance activities are being followed as planned.

Project schedule and cost baselines are two primary yardsticks for measuring whether a project is meeting the quality standards. Missed project milestones, over-/under-spending are warnings of project health issues. If the project timeline or budget is not on track, the Internal PM should review the situation and follow up according to the risk/issue management process.



#### Hints and Tips

- *Quality checklists can be used to ensure that quality elements are not overlooked while a project deliverable is being developed.*
- *It is far more cost effective to have quality built into day-to-day activities rather than find a problem after a process has been completed.*
- *The end user is the ultimate judge of the quality of a product. Get the end user involved, as far as possible, in the quality control activities.*

### 3.3.5 Manage Project Budget

It is the responsibility of the Internal PM to ensure that the project is completed within the allocated and approved budget. It is also his/her responsibility to ensure that payment milestones are met to avoid over-/under-spending. Therefore, the Internal PM should update the project schedule and analyse the financial impact regularly. Only by monitoring the financial performance of a project can the Internal PM keep track of the project budget.

To manage a project's budget, the Internal PM keeps a close watch on all the costs associated with the project including staff cost, contract cost, equipment, materials and supplies etc. The Internal PM then tracks actual costs against estimates and watches out for any variances. Sometimes, one variance offsets another. For example, the staff cost freed up by a task which finishes early can offset the additional staff cost consumed by a task that finishes late. Thus, the Internal PM should identify the causes of variance for individual tasks to uncover risks and put forward mitigation measures as appropriate.

The Internal PM should be on the alert for cost-related issues as well. For instance, a direct outcome of a scope change is its impact on the project budget. The Internal PM should be aware of such issues as they arise and handle them immediately via the issue management process. All changes to the project budget need to be controlled and managed via the change control process.



### Hints and Tips

- *The following parameters serve to help the Internal PM determine a project's budget performance:*
  - *Original Approved Budget – the original approved budget*
  - *Total Cost of Approved Changes – the total cost of approved changes as a result of change control*
  - *Current Approved Budget – the sum of Original Approved Budget and the Total Cost of Approved Changes*
  - *Cost to Date – the expenditure to date*
  - *Estimate to Complete – the estimated cost to complete the remaining tasks*
  - *Forecast Total – the sum of Cost to Date and Estimate to Complete*
  - *Cost Variance – the difference between Forecast Total and Current Approved Budget*
- *The above parameters should be known by task, phase, resource and deliverable and the Internal PM should prepare to communicate the information during the PAT and PSC meetings.*

### 3.3.6 Manage Project Changes

In the Plan phase, a formal change control process is put in place and agreed by the PSC, the PAT and other stakeholders. The Execute phase is typically the longest phase in a project lifecycle. It is also in this phase that actual work is done to

deliver the required products and services. Hence, the majority of changes are expected to occur in the phase.

Occasionally, a change is simply informational which means that the project scope, cost, schedule and quality will not be affected. An example of such a change is the change of contact information of a stakeholder. For these cases, the Internal PM do not need to execute the formal change control process but rather the change can be followed through other management processes. In the example, the management process involved is communications management.

For other cases, the Internal PM should handle changes immediately and ensure that the change control process is executed. The earlier a change request is handled, the more effectively it can be managed and the less negative impact it will have on the project.

The change process is initiated upon receipt of a completed change request form submitted by an authorised requester. The party responsible for the review analyses the request and estimates the time and effort required to complete the request. The reviewer then makes the recommendation to accept or reject the request.

The Internal PM further analyses the recommendation. The overall impact of the change on the project scope, cost, schedule and quality is determined before approval from the appropriate authority (the PAT or the PSC) is sought.

All change requests, no matter accepted or rejected, must be recorded. For those rejected requests, the reason for rejection must be captured and documented.

Only those accepted will be implemented and the PMP will be updated incorporating the approved time and effort to implement the change resulting in new schedule and cost baselines. If new deliverables are to be produced, the project scope needs to be updated.



### Hints and Tips

- *A change should never be implemented before it is approved, no*

*matter the reason.*

### 3.3.7 Manage Deliverable Acceptance

Under an outsourced project environment, payment milestones are typically signified by the acceptance of deliverables. The quality management process defined in the Plan phase must be followed to verify the deliverables.

The acceptance process begins when the contractor presents a deliverable for verification and approval. The Internal PM gets on board Project Team Members and other stakeholders responsible for conducting the verification activities according to the project timeline. These people are designated reviewers to examine the deliverables and recommend whether a deliverable should be accepted or not.

The quality reviewers conduct the verifications following the procedures (e.g. document review or testing) described in the quality management process. For complex verifications such as user acceptance testing, a Team Leader may need to be appointed to manage and lead the testing process for each business function, for instance. The Team Leader guides his/her members to design test scenarios or cases and conduct the testing. The Team Leader ensures that thorough testing is conducted and that failed test cases and the reasons of failure are captured. The Internal PM ensures that the contractors are informed of rejected deliverables and correctives actions are defined.

For project deliverables that involve a lengthy development process, like the implementation of an IT system, it is recommended to conduct interim reviews so that adjustments can be made to the deliverables before they are fully developed.

In addition to monitoring the verification results, it is also the responsibility of the Internal PM to monitor the process as well as the time spent in carrying out the verification activities. The Internal PM should be aware of the number of times the acceptance process is repeated for a deliverable. He/She should also be alert of delays in the verification process. Repeated acceptance and serious delay are warning signs of project delay. The Internal PM should analyse the situation and

escalate as appropriate in accordance with the risk / issue management and escalation process.

The Internal PM submits a deliverable for PSC's endorsement only when a deliverable meets the acceptance criteria documented in the quality management process.



### Hints and Tips

- *The Internal PM can maintain a deliverable acceptance log to keep track of the number of acceptance iterations and the time spent.*
- *It is far more cost effective to conduct interim reviews rather than a final verification after a deliverable has been developed – either a problem will become too big to handle or there will be too many problems to handle. In either case, more resources will need to be deployed to deliver additional reviews and rectify the problems.*

### 3.3.8 Manage Issues

Issues are events (usually problems) that occur as a project progresses. The issue management and escalation process defined in the Plan phase documents how issues are captured, tracked, prioritised and escalated for resolution.

Issues, unlike change requests, may not affect immediately a project's scope, cost, schedule and quality that warrant the need for a change control. However, if left unattended or unresolved, they are likely to have an impact. Therefore, it is vital for the Internal PM to execute the issue management and escalation procedures once an issue is identified.

The Project Owner/the PSC should inspire an environment that encourages the reporting of issues as soon as they arise. The Internal PM captures a project issue in the issue log, estimates its potential impact on the project and prioritises among all outstanding issues.

Issues of the highest priority should be addressed first. Escalation is exercised if appropriate resources are not available to implement an issue resolution or there are disputes regarding an issue on the issue log.

Progress on issue resolution should be captured in the issue log to facilitate tracking. For issues resolved, the resolutions and the closure date should be documented as well.



### Hints and Tips

- *Issues resolved are valuable sources of lessons learnt. Therefore, closed issues should not be deleted from the issue log but can be kept separately from open issues (e.g. in a separate file, folder or section in the issue log) for easy reference.*

## 3.3.9 Manage Communications among Stakeholders

Communications requirements of stakeholders are refined in the Plan phase. During project execution, information is collected from or disseminated to appropriate stakeholders at the appropriate time accordingly.

As the project proceeds, events may occur that affect the stakeholders' communications needs. The Internal PM and the Project Team Members must observe for updates to the communications requirements to avoid communications breakdown that endangers a project's success.

Communications are bi-directional. Clear, unambiguous and complete information is key to communication effectiveness. On the other hand, the receiver confirms that information received is correct and complete and that it is understood.

While the frequency of communication has been specified in the communications needs of individual stakeholders, there are times that the frequency may need to be altered depending on the current state of the project. For example, when the project deadline is drawing close and the project is under tight schedule to complete the deliverables, the Internal PM may need to monitor the project more closely by collecting progress information more frequently.



### Hints and Tips

- *The PSC meeting remains the most effective way to communicate project status to the PSC. A regularly-scheduled PSC meeting is a good opportunity to have focused, dedicated time with the PSC to*

*communicate the project status and plan ways to proactively resolve issues.*

### 3.3.10 Manage Organisational Change

In the Plan phase, the PSC, the PAT and the Internal PM together have identified the people in the organisation who will be affected by the project deliverables and have included in the project schedule activities to prepare them for the changes (e.g. training, development/revision of procedural manuals).

As the project deliverables are being produced in the Execute phase, the impact of the project deliverables on the organisation must be re-evaluated. Adjustments are then made to the planned activities where necessary.

Sometimes, specific changes must be effectuated before the delivery of the project's final products (set up new business functions, new job descriptions etc.). In other words, the project is dependent on those changes. The PSC and the PAT must be aware of the status of such changes and keep the Internal PM informed of the progress information, in particular, issues and risks arising from the implementation of those changes that may have an impact to the project's scope, cost, schedule and quality. The Internal PM, in turn, must proactively collect status information of those changes and be aware of anticipated timing of events to enable himself/herself to make timely response.



#### **Hints and Tips**

- *“People” is one of the crucial elements impacting a project's success. Changes in job duties, staff reductions or increases and any other changes to a B/D's organisation structure, including timing of events, must be clearly communicated well before such changes take place so as to give them ample time to prepare for the changes.*

### 3.3.11 Manage Project Library

As documents are collected and produced during the Execution phase, the Internal PM (or the Project Administrator) should file the documents in the appropriate location in the project library. The project library holds historical information about the project, from initiation through closure. It should be used as a repository of reference materials and lessons learnt. It should therefore be

made available to Project Team Members but with proper access rights.

At a minimum, the following items should be maintained current:

- Project schedule
- Project highlight reports
- Project financials and payment records
- Change request log
- Issue log
- Contractor progress reports
- Risk register
- Communications records
- Meeting notes, results and/or actions



### Hints and Tips

- *While the project library contains all project records, some of the information is of restricted or higher level of classification. Thus, the Internal PM should be careful when assigning the access controls.*

### 3.3.12 Monitor and Control Risks

Risks are potential future events that, if occur, can adversely affect a project's scope, cost, schedule and/or quality. The Internal PM captures risks as they are identified, determines their impact on the project and plans for corresponding mitigation measures.

During the course of project execution, risk probabilities may change, level of impact may be different or the date of impact may be sooner or later as compared to the original estimates. Thus, the Internal PM must regularly review the risks on the risk register to re-evaluate the probability, impact and the response plan. This is particularly important for those risks with impact dates drawing close. The Internal PM also continuously keeps a lookout for additional risks.

When a risk occurs as expected, the Internal PM should reconfirm if the response plan is still effective or else it should be modified. However, risks occurring become issues and should transit to the issue log. In that case, the issue management and escalation process takes over.



### Tools and Samples

- *Risk Register, [Appendix D.5](#)*
- *Risk Management Plan, [Appendix D.1.5](#)*



### Hints and Tips

- *The Internal PM should involve the Project Team Members in identifying new risks. This is because various team members can contribute to risk identification through their own expertise.*

## 3.3.13 Manage Transition

During formulation of procurement requirements in the Plan phase, the Internal PM establishes a transition strategy involving the Project Owner and the PSC. In the Execute phase, the Internal PM develops a transition plan based on the strategy. The transition plan includes activities required to prepare the B/D to use the project deliverables, along with the activities to prepare the B/D to support them. Some of these activities should have been incorporated into the project schedule.

Transition management considers:

- Monitoring and ensuring timely completion of facilities to accommodate the people and the project's products, such as office space, site preparation, equipment, hardware and software etc.
- Coordinating and ensuring timely completion of acceptance testing such as user acceptance test, system integration test, system interface test, load test, security risk assessment etc.
- Coordinating activities to prepare the B/D for the project's deliverables such as training and orientation on the use of the deliverables.
- Managing roll-out of the project's deliverables such as "big bang" implementation or phased implementation.
- Coordinating with organisation change activities to ensure completion of such activities before roll-out of project deliverables such as change of job specifications
- Managing production of necessary documentation such as user manuals, system manuals, operations manuals etc.

In short, the Internal PM must ensure completion of the required transition activities and to inform the Project Owner/the PSC in the event of discrepancies.



### Hints and Tips

- *For projects involving external stakeholders such as the public, professional associations etc., the Internal PM should ensure participation of the external stakeholders in the transition activities as appropriate.*

## 3.4 Administer Contracts

An important element of an outsourced project is the involvement of contractors in the development of project deliverables. Contract administration begins immediately after contract award and the ultimate goal is to have project deliverables developed as agreed in the contract.

It is the responsibility of the Internal PM to ensure that the contractor understands its contractual obligations in respect of scope of work, delivery timeline, project requirements, quality standards and acceptance criteria. During project execution, the Internal PM monitors the contractor's performance and verifies that the project deliverables produced are completed, tested, accepted and approved.

Who will be involved?	
Role Involved	Key Involvement
PSC	■ <b>Resolve and escalate contractual issues and disputes</b>
PAT	■ <b>Delegate responsible reviewer</b> for each defined acceptance criteria
Internal PM	■ <b>Escalate contractual issues</b>

What will be delivered?	
Activity	Output
Monitor Contractor's Performance	Project status
Administer Contractual Matters	Contractual dispute (if unavoidable)

### Key Success Factors

- Both Government Project Team and contractor are proactive in resolving issues, if any, before they become contractual disputes.

#### 3.4.1 Monitor Contractor's Performance

While the contractor is typically responsible for delivering a project's key deliverables (e.g. an IT system), the Internal PM holds the ultimate accountability of the project's success. It is, therefore, imperative for the Internal PM to monitor closely the contractor's performance to ensure that the project deliverables are produced at the agreed time and of the required quality.

The Internal PM should hold regularly scheduled meetings with the contractor to review the project status, discuss accomplishments and communicate issues and concerns. Interim reviews of deliverables produced should be scheduled to provide feedback before they are fully developed.

Key activities for managing the contractor's work include:

- **Align project plans** – On contract commencement, the Internal PM should ensure that the project plan developed by Contractor PM aligns with the PMP. The Internal PM should ensure that the project management processes (such as the change control process, risk management process etc.) have been incorporated into the contractor's project plan.
- **Verify quality of project deliverables** – The Internal PM ensures that all project deliverables are completed, reviewed/tested and accepted by the PAT before seeking the PSC's approval. The Internal PM also confirms that quality control activities are completed by the contractor before the deliverables are submitted for review/testing. For example, the Internal PM can review the test cases and test results before proceeding to user acceptance test.
- **Review contractor's project status** – Status reporting is useful for communicating the performance of a project. The Contractor PM should be requested to provide regular progress reports to the Internal PM. The progress reports

should document actual work accomplished, upcoming tasks to be completed and include estimates of effort required to complete outstanding tasks. The progress reports should also report risks anticipated and issues encountered.

The Internal PM should hold regular meetings with the Contractor PM to go through the progress reports. The frequency of the status meeting may change depending on the current state of the project. A project approaching deadline or a project with a lot of issues justifies more frequent status meetings. This ensures that the Internal PM is kept up-to-date on contractor's progress and proper corrective actions are carried out if required.



### Hints and Tips

- *Contractor performance measures not only the timeliness and quality that deliverables are produced, other contractual obligations should be measured as well. For example, high staff turnover rate is an indicator of poor performance.*

## 3.4.2 Administer Contractual Matters

Contract administration refers to the management of contract execution according to contract T&Cs. It is essential that both the B/D and the contractor understand and observe its contractual obligations. It is also essential that both parties understand the scope of work as defined in the contract.

Any contractual related issues (which include issues identified by the contractor) should be resolved quickly before they pose an impact on the project's progress. It is for the project's best interests that a compromise between the B/D and the contractor can be reached and that a mutually agreed resolution can be derived.



### Hints and Tips

- *In some cases, contract termination is not the only way to handle contract disputes, arbitration/mediation are other alternative options.*

### 3.5 Gain Project Acceptance

The purpose of the Gain Project Acceptance task is to formally signify the acceptance and approval of project deliverables produced in the Execute phase. It also signifies that the project deliverables have been successfully transitioned from the contractor to the B/D and the project can proceed to the next phase – the Close phase.

Who will be involved?	
Role Involved	Key Involvement
The PSC	<ul style="list-style-type: none"> <li>■ Approve acceptance of project deliverables</li> <li>■ Approve project to proceed to the Close phase</li> </ul>
The PAT	<ul style="list-style-type: none"> <li>■ Recommend acceptance of project deliverables</li> </ul>
Internal PM	<ul style="list-style-type: none"> <li>■ Confirm completion and acceptance of project deliverables</li> <li>■ Prepare formal acceptance and approval of project deliverables</li> <li>■ Prepare project for proceeding to Close phase</li> </ul>
Project Administrator	<ul style="list-style-type: none"> <li>■ Document and update project library</li> </ul>

What will be delivered?	
Activity	Output
Conduct PSC Meeting to Gain Project Acceptance	Project Acceptance
Gain Approval to Proceed	

#### Key Success Factors

- Formal acceptance and approval of project deliverables must be gained before proceeding to the Close phase to avoid potential disputes of project status.
- Project deliverables should not be transitioned to the B/D (i.e. to the production environment) before formal acceptance and approval is gained to avoid potential contractual disputes, in particular, disputes regarding payments.

### 3.5.1 Conduct PSC Meeting to Gain Project Acceptance

When the project deliverables have been fully completed, tested and accepted by the PAT and the responsible Project Team Members, a PSC meeting is held to formally approve the deliverables. The Internal PM conducts a final review on the project schedule, risk register and issue log to ensure that:

- The project schedule is up-to-date for all completed project activities.
- Risks affecting the development of project deliverables are closed.
- Issues affecting the development of project deliverables have been resolved.

The Internal PM presents the final project highlight report and reports any outstanding issues or action items at the PSC meeting. The Internal PM ensures that resources to follow up with the outstanding issues or action items are approved and secured by the PSC.

### 3.5.2 Gain Approval to Proceed

In addition to approval of project deliverables, approval by the PSC to proceed to the Close phase is also essential. The approval is required to formally acknowledge that contractor resources (for the implementation of project deliverables) and other logistics resources can be decommissioned. The approval also signifies the assessment of project results to evaluate whether business benefits anticipated can be realised.

## End of Phase Checklist

### Activity Checklist for Execute Phase

This checklist helps to ensure that all requirements of the phase are met. When an activity is completed, indicate its completion date. For those activities not completed, describe the reason(s) for not completing and how the objectives of that activity are otherwise being met. Also, report uncompleted activities to the PSC via the project highlight report. The

Remarks column can be used to include any additional information that is considered useful.

Activity	Completion Date	Reasons for <i>NOT</i> completing	Remarks
<b>Procure Services for Implementation of Project Deliverables</b>			
Develop quotation/tender document			
Clear tender document by relevant authorities			
Issue invitation for quotation/tender			
Evaluate proposals			
Select contractor			
Conduct contract negotiation, if necessary			
Award contract			
<b>Kick Start Outsourced IT Project</b>			
Review components of the PMP			
Meet with contractor to align mutual understanding of contractual requirements and performance standards			
Conduct kick-off meeting and seek approval on refined PMP			
Update project library			
<b>Manage Project Execution</b>			
Review business case as needed			
Update and analyse the project schedule regularly and as needed			
Conduct interim review of deliverables, as appropriate			
Implement quality checklists, as needed			

EXECUTE PHASE

Activity	Completion Date	Reasons for <i>NOT</i> completing	Remarks
Verify (final) deliverables			
Gain acceptance and approval of deliverables			
Manage budget by monitoring financial performance regularly and as needed			
Execute change control process as needed			
Review probability of occurrence, impact and response plans for existing risks with the PSC/PAT, Project Team Members and risk owners			
Capture new risks and conduct necessary assessments and response planning			
Execute and monitor response plans, as required			
Identify and resolve issues, escalate where necessary			
Provide timely communications to stakeholders as required			
Review progress with Contractor PM regularly and as needed			
Prepare project highlight report regularly			
Conduct PSC/PAT meetings regularly and as needed			
Manage changes to Project Team Members			

## EXECUTE PHASE

Activity	Completion Date	Reasons for <i>NOT</i> completing	Remarks
Manage organisational changes			
Conduct transition activities for preparing B/Ds to use the project deliverables			
Update project library			
<b>Administer Contracts</b>			
Review progress, including verifying quality of project deliverables, with Contractor PM regularly and as needed			
Identify and resolve performance issues, escalate where necessary			
Identify and resolve contractual issues, escalate where necessary and before they evolve into disputes			
Escalate contractual disputes			
<b>Gain Project Acceptance</b>			
Resolve any issues			
Prepare project highlight report (final)			
Conduct PSC meeting			
Gain formal project acceptance			

## Other Factors Affecting Project Success

The completion of all the activities in a phase only signifies that the basic requirements of that phase have been met. The factors listed in the table below also have an impact to the continued success of the project.

## EXECUTE PHASE

The more “No” answers the less ready is the project to proceed to the next phase.

Process	Factor	Yes	No
Procure Services for Implementation of Project Deliverables	The quotation or tender document provides a clear, comprehensive and concise description of the products and services and the time they are required. Out-of-scope items/deliverables are described as well.		
Kick Start Outsourced IT Project	The contractor understands clearly the contractual requirements and the performance standards.		
	The Project Owner, the PSC, the PAT and stakeholders have aligned understanding of the work to be performed by the contractor.		
Manage Project Execution	The PMP is closely monitored and updated.		
	All changes to the project’s scope, cost, schedule and quality have been approved before they are effectuated		
	All deliverables are reviewed and accepted by the reviewers before they are approved.		
	Acceptance of deliverables follows the quality management process.		
	Project issues are captured in the issue log and controlled/handled.		
	Communications are executed as required. Feedback from stakeholders on information received collected.		
	The B/D is well-prepared for		

EXECUTE PHASE

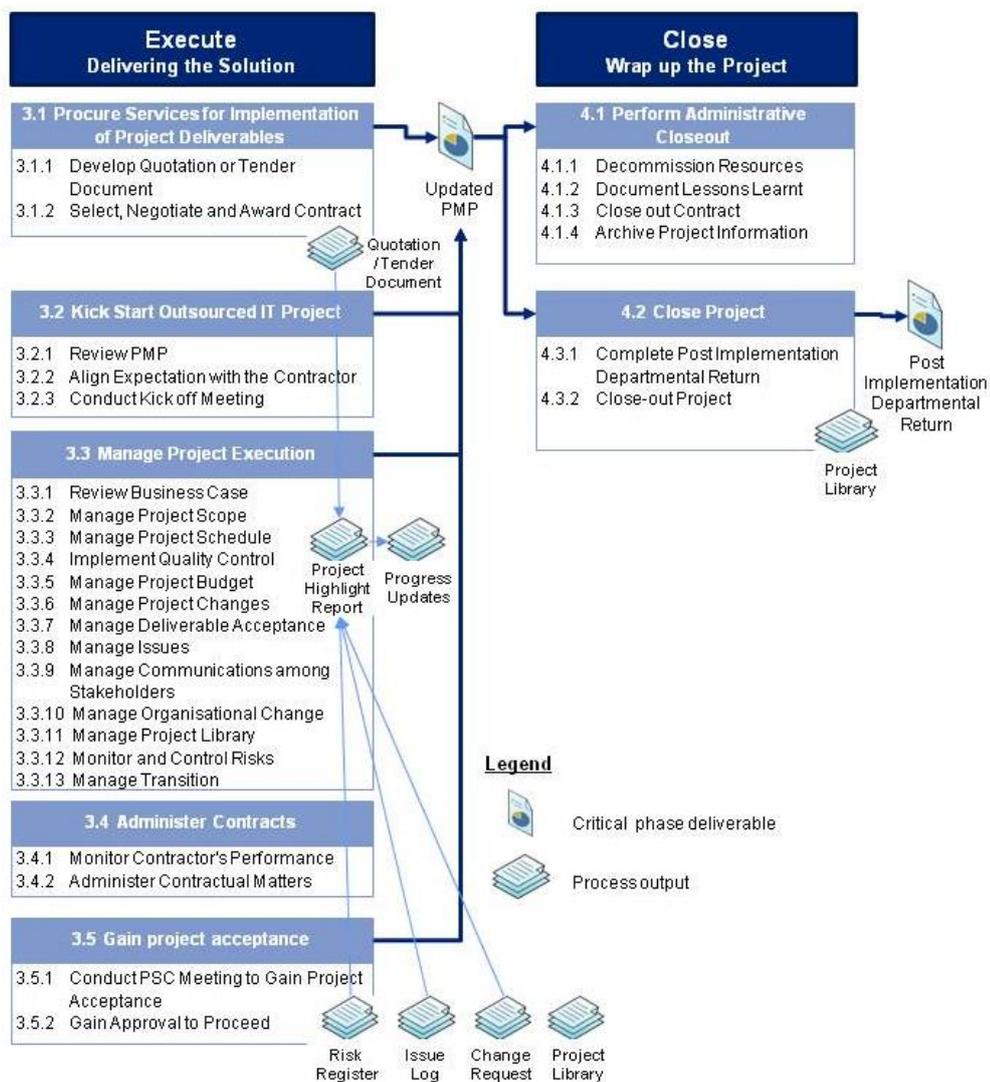
Process	Factor	Yes	No
	the project's product(s).		
	Lessons learnt are captured for future reference.		
Administer Contracts	No outstanding contractual issues affecting contract closure.		
Gain project acceptance	Formal acceptance (e.g. via PSC meeting) is gained.		

## 4 Close Phase

### Wrap up the Project

The purpose of Close phase is to close each contract (or part of a contract) applicable to the project and to **assess** the project for **business benefits realised and lessons learnt**.

The Close phase begins with administrative closeout activities that include decommissioning of resources, closing out contracts, documenting lessons learnt, capturing project metrics and archiving project information. Completion of post implementation departmental return then follows where the Internal PM assists the Project Owner to evaluate whether the project has achieved the intended benefits as documented in the funding application.



## What you Need to Do?

### 4.1 Perform Administrative Closeout

The purpose of administrative closeout is to perform those administrative procedures required to formally complete the project or contractual obligations. Administrative closeout involves decommissioning of resources including contractor and logistics resources, contract closure, identification of lessons learnt and archiving project information.

Who will be involved?	
Role Involved	Key Involvement
Internal PM	<ul style="list-style-type: none"> <li>■ Develop and execute decommission schedule</li> <li>■ Roll-off project staff</li> <li>■ Verify asset inventory</li> <li>■ Close contracts</li> <li>■ Document lessons learnt</li> <li>■ Ensure project information is archived</li> </ul>
Contractor PM	<ul style="list-style-type: none"> <li>■ Execute staff decommission schedule</li> </ul>
Project Team Member	<ul style="list-style-type: none"> <li>■ Transfer knowledge to next responsible party</li> </ul>
Project Administrator	<ul style="list-style-type: none"> <li>■ Return or dispose logistics resources</li> <li>■ Update asset inventory</li> <li>■ Archive project information</li> </ul>

What will be delivered?	
Activity	Output
Decommission Resources	Decommissioned project team Updated asset inventory Updated Project Plan
Document Lessons Learnt	Lesson Learnt
Close out Contract	
Archive Project Information	Updated Project Library

#### Key Success Factors

- All necessary tasks are completed before project staff is rolled-off the project.
- Project knowledge is documented and transferred to the next responsible party to minimise disruption of resource decommissioning.

#### 4.1.1 Decommission Resources

This process involves decommissioning of project staff resources and logistics resources. The activities related to project staff decommissioning are:

- **Develop staff decommissioning schedule** – The Internal PM prepares a detailed decommission schedule with internal Project Team Members and the Contractor PM. It is important to ensure that all project activities are executed and accepted before rolling-off staff.
- **Transfer knowledge** – The Project Team Members should transfer the project knowledge to the next responsible party before being rolled-off. It can be in the form of documentation, sharing or training. Related information should be uploaded to the project library.
- **Roll-off project staff** – Project staff is rolled-off as planned.

The activities related to logistics decommissioning are:

- **Develop logistics decommissioning schedule** – Like staff decommissioning, a schedule for decommissioning of logistics resources is developed. The schedule ensures smooth transition of logistics resources to their owner or the next responsible party.
- **Update asset inventory** – Assets are returned to the owner or properly disposed of. Take stock the remaining assets and update inventory accordingly.



### Hints and Tips

- *All parties, including internal and contractor resources, should be informed of the roll-off schedule as soon as possible to reduce staffing conflicts.*
- *Contingency time can be allocated to manage unexpected staff or logistics resource requirements during project closing phase, e.g., additional needs to provide post-implementation assistance to operational staff.*

## 4.1.2 Document Lessons Learnt

Lessons learnt are valuable asset of an organisation in that they can be applied to future projects. Upon project closure, the Internal PM collects feedback from the Project Team Members, the contractor and other key stakeholders. The feedback is then analysed to identify lessons learnt (or best practices) for reference by future projects. Ideally, feedback is collected through formal channels such as a written survey.

The Internal PM should note the timing to collect feedback as staff resources (internal and external) will be decommissioned in the Close phase. Also, the lessons learnt (and best practices) should be stored in centralised repository for easy access and retrieval by managers of future projects.



### Tools and Samples

- *Lesson Learnt, Appendix D.4*

## 4.1.3 Close out Contract

Contract closeout is an important aspect of contract administration. It begins when the products and services have been delivered as agreed in the contract. The Internal PM and the PAT conducts a status meeting with the Contractor PM to review and confirm that the contract can be closed. Recommendation for contract close-out is submitted to the PSC for endorsement at the PSC meeting. Upon endorsement of the PSC, final payment can be arranged. Closeout is completed when all administrative actions have been completed, disputes (if any) settled, and final payment made.



### Hints and Tips

- *For some contracts, maintenance services also form part of the services to be acquired. It follows that the contract cannot be closed even though the project deliverables have been delivered. As such, contract close-out here refers to the closeout of the part of the contract applicable to Execute phase only and final payment refers to the final payment for implementation of project deliverables.*
- *For complex deliverables such as implementation of an IT system, acceptance should be endorsed when the acceptance tests are*

*successfully completed and the contractor fulfils the "Ready for Use" requirements. In case there are minor problems that do not affect the deliverable from being "Ready for Use", a "Deficiency List" type of arrangement can be considered to follow up on the minor problems with the contractor after the acceptance. Settlement of payment should not be hindered by minor problems that do not affect the "Ready for Use" of the System and these minor problems can be handled during the warranty/maintenance period.*

#### 4.1.4 Archive Project Information

Project materials are uploaded to the project library throughout the project lifecycle. The project library serves as an audit trail of project events. As such, it should be a collection of all project-related materials, documents produced, decisions made, issues raised and other critical correspondences. When the project is to be officially closed, the Internal PM should examine the project library to ensure all project-related materials and records are kept:

- Project supporting documentation including the business case, the funding application, the contract
- Project management documents, including the PMP, the risk register, the issue log, change requests, project schedule/budget baselines etc.
- Project deliverable review and acceptance records
- Project highlight reports
- Meeting minutes
- Payment records
- Other correspondences, including memos, letters, emails etc., that provides a trace of the decision-making process

## 4.2 Close Project

Project closeout ends with the completion of the Post Implementation Departmental Return (PIDR) or the Post Implementation Review if so requested by the Administrative Computer Projects Committee (ACPC).

<b>Who will be involved?</b>	
<b><i>Role Involved</i></b>	<b><i>Key Involvement</i></b>
Project Owner/the PSC	<ul style="list-style-type: none"> <li>■ <b>Approve post implementation departmental return</b></li> <li>■ <b>Approve post implementation review, if necessary</b></li> </ul>

Internal PM	<ul style="list-style-type: none"> <li>■ <b>Complete post implementation departmental return</b></li> <li>■ <b>Complete post implementation review, if necessary</b></li> </ul>
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### What will be delivered?

Activity	Output
Complete Post Implementation Departmental Return	PIDR PIR if required
Close-out Project	

### Key Success Factors

- The Project Owner, the PSC and the Internal PM remain onboard to be involved with the post implementation review.
- Change of business environment is taken into consideration during business case evaluation.

#### 4.2.1 Complete Post Implementation Departmental Return

Within six months (or a point of time agreed by the ACPC) after the live run of the project, the Internal PM assists the Project Owner/the PSC to complete a PIDR. The purpose is to evaluate the achievements of the project to ensure that the intended objectives are attained in a timely and cost-effective way.

When completing the PIDR, the Internal PM reviews the project from the perspective of:

- achievements of the project in respect of specifications of major functions, business process re-engineering (BPR) if applicable, project benefits, compliance with Government standards and the conditions of endorsement and approval; and
- performance of project management in utilisation of funds and staff resources as well as adhesion to implementation milestones.

The Internal PM may be requested by the ACPC to conduct a post implementation review (PIR) if critical project deficiencies are observed in the PIDR, such as:

- the agreed specifications of major functions (functional requirements) have not been met;

- there has been a substantial delay or slippage in the progress of implementation; and
- there has been a substantial deviation from the agreed cost-benefit figures.

As part of the post implementation departmental return, the Internal PM would need to assess whether the project has delivered the business benefits envisaged. This information should be fed back to the Project Owner and the PSC, especially when anticipated benefits fail to be delivered. Sometimes, it takes time to realise the business benefits upon delivery and acceptance of project deliverables. If this is the case, the project will need to remain open. As a result, the Project Owner, the PSC and Internal PM should remain onboard until the evaluation is completed, however minimal their involvement in the project remains.



### Tools and Samples

- *Post Implementation Evaluation Mechanism and Notes for Completing PIDR, e-ACPC System*



### Hints and Tips

- *The PSC should not be disbanded before completion of the PIDR. This is to ensure an accurate assessment of project success. In the event that disbandment is necessary, the PSC should provide an initial assessment on the project achievements and performance to the Internal PM. The subsequent authorisation authority of the PIDR (the Maintenance Committee/Board or Departmental IT Steering Committee (DITSC)) can then focus on assessment of business benefits delivered by the project.*

## 4.2.2 Close-out Project

The project can be closed when the required PIDR (and PIR, if necessary) is completed. The Internal PM archives the PIDR and PIR, if exists, to the project library. It is only at this moment that the PSC and the Internal PM can be disbanded.

## End of Phase Checklist

### Activity Checklist for Close Phase

This checklist helps to ensure that all requirements of the phase are met. When an activity is completed, indicate its completion date. For those activities not completed, describe the reason(s) for not completing and how the objectives of that activity are otherwise being met. Also, report uncompleted activities to the PSC via the project highlight report. The Remarks column can be used to include any additional information that is considered useful.

Activity	Completion Date	Reasons for <i>NOT</i> completing	Remarks
<b>Perform administrative closeout</b>			
Plan staff decommissioning schedule			
Plan logistics resources decommissioning schedule			
Transfer of knowledge by Project Team Members to next responsibility party			
Document lessons learnt			
Decommission staff			
Decommission logistics resources			
Return assets to owner			
Dispose of obsolete assets			
Update asset inventory			
Close out contract, as appropriate			
Archive project information			
<b>Close Project</b>			
Review project achievements and performance of project management			

Activity	Completion Date	Reasons for <i>NOT</i> completing	Remarks
Prepare post implementation departmental return (PIDR), together with Project Owner and the PSC			
Submit PIDR			
Complete post implementation review (PIR), if required, together with Project Owner and the PSC			
Disband PSC			
Close project			

## Other Factors Affecting Project Success

The project has drawn to a close at this stage. Apart from successful implementation of project deliverables, the factors listed in the table below also serve as indicators of project success.

Process	Factor	Yes	No
Perform Administrative Closeout	Stakeholders actively contribute best practices and lessons learnt.		
	Best practices and lessons learnt are meaningful.		
	All project information is uploaded to the project library.		
Close Project	Business benefits are delivered.		

## 5 Glossary

<b>Terminology</b>	<b>Definition</b>
Acceptance Criteria	Those criteria, including performance requirements and essential conditions, which must be met before project deliverables are endorsed.
Acquisition Requisition	A document recording the acquisition requirement, the acquisition specification, the supplier specification, the transmittal to the acquisition authority, and the tracking vehicle for the acquisition.
Asset Inventory	A record that describes the status, version and variant of an asset used in the project, and any details of important relationship between them.
Budget	The approved cost estimate for the project or any work breakdown structure component or any scheduled activity.
Business case	A document used to justify the commitment of resources and investments to a project. It presents the financial logic behind the project.
Business Process Reengineering (BPR)	Studies that aim at fundamental rethinking and radical redesign of key business processes to achieve dramatic and evolutionary improvements in cost, quality and time on the delivery of service.
Change	One of the dimensions of the project management methodology referring to any additions, deletions and/or modifications to the scope and project plan.
Change Management	A practice to control any additions, deletions, and/or modifications to the scope and project plan.
Change Management Plan	A document used to control any additions, deletions, and/or modifications to the scope and project plan.
Change Request	A formal request to change the scope, design, method, or other planned aspects of a project, usually including estimates of the effect to the project cost and schedule. It may arise through changes in the business or issues in the project. The document should be logged, assessed, and approved before a change to the project is made.
Close	The final phase of project management methodology during which all activities across all project dimensions are finalised to close the project.

Communications	One of the dimensions of the project management methodology describing the processes required to ensure timely and appropriate generation, collection, distribution, storage, retrieval and ultimate disposition of project information.
Communications Management Plan	The document that describes the communications needs and expectations for the project; how and in what format information will be communicated; when and where communication will be made; and who is responsible for providing each type of communication. The communication management plan is contained in, or is a subsidiary plan of the project management plan.
Contractor Director	Lead person (not a mandatory role) who oversees the commercial contractual agreement that provides services necessary for the project. The Contractor Director also provides strategic project directions to assign contractor resources and to maintain the relationship at the Project Owner and Executive levels
Contractor Project Manager	Lead person (outsourced individual), or the Internal PM's counterpart, who is responsible for coordinating contractor resources to fill specified roles such as installation, customisation, training, or support, etc. The Contractor PM works closely with the Internal PM and also manages the project management aspects such as project resources, timeline, budget, risks, and issues, specifically within the activities being carried out by outsourced staff.
Control	One of the project phases of the project management methodology, referring to comparing actual performance with planned performance, analysing variances, assessing trends to effect process improvements, evaluating possible alternatives, and recommending appropriate corrective action as needed.
Cost of Quality (COQ)	A concept that lists and measures all costs that may incur over the course of project life cycle. The cost of conformance includes prevention costs (e.g. training, document processes, equipment requirements, time for quality control, etc.), and appraisal costs (e.g. testing, inspections, etc). In general, the cost of non-conformance is usually

	higher, which includes failure costs such as rework, scrap, etc. Hence it is recommended to put emphasis on prevention activities instead of appraisal activities in the quality plan.
Critical Success Factor	Critical Success Factor (CSF) is a business term for an element which is necessary for an organisation or project to achieve its mission. Hence, these criteria must be considered in order to achieve final success of a deliverable.
Deliverable	Any tangible, verifiable outcome or item produced by the project.
Dependencies	Relationships between activities. For example, one activity may be a result of several other “dependent” activities wherefore that activity may not begin until all dependent activities are complete.
DITP	A Departmental IT Plan (DITP) is a medium-term IT Plan, covering a period of normally one to three years depending on the business planning horizon of the B/D. It should take stock of the progress of IT development of the B/D; identify areas where IT can be exploited to improve the overall efficiency, effectiveness and resources utilisation of the B/D; and set out IT requirements of the B/D in stages in the planned period.
DITPP	The Departmental IT Project Portfolio (DITPP) provides updates on the computer systems under implementation, planned for the current RAE and coming 2 to 3 years, as applicable, highlight planned projects involving service transformation and joined-up opportunities.
Execute	One of the project phases of the project management methodology, referring to directing, managing, performing and accomplishing the project work, providing the deliverables, and providing work performance information.
Executive	Senior individual who represent interests from the business side, and is involved in important decision-making such as scope changes, deliverable endorsement, and issues/risks resolution. He/She is also expected to remain cognizant of the overall project progress to ensure business case benefits are achieved.
Feasibility Study	A research on the economic viability of proposed

(FS)	projects and provides a thorough analysis of the business opportunity, including a look at all the possible roadblocks that may stand in the way of the cooperative's success.
Feedback	The return of information about the result of a process or activity—an evaluative response.
Financial	One of the dimensions of the project management methodology describing the processes involved in estimating, budgeting, and controlling costs so that the project can be completed within the approved budget.
Financial Management Plan	A document describing the scope of effort and processes, the communication plan, responsibilities and schedule in controlling the budget.
Financial Workbook	A document used to time and expenses incurred in the project during project execution.
Gantt chart	A time-phased graphic display of activity duration. It is also referred to as a bar chart. Activity duration is shown in the form of horizontal bars.
Highlight report	A project summary reporting prepared by Internal PM submitted to PSC, PAT and key stakeholders containing project status, quality review report, business case realisation status, and high impact risk, issues and change requests.
Historical Project Library	Documents and data on prior projects including project files, records, correspondence, closed contracts, and completed deliverables.
Information Systems Strategy Study (ISSS)	A departmental ISSS is conducted to (i) assess the current ICT requirements of the department, and identify its long-term IT potential with regard to its business and operational strategies; and (ii) recommend a departmental IT strategic plan covering development and implementation over the next five years.
Initiate	One of the project phases of the project management methodology referring to defining and obtaining authorisation to start a project.
Integration	One of the dimensions of the project management methodology, referring to the processes and activities needed to identify, define, combine, unify and coordinate the various processes and project management activities within the project dimensions.

Internal Project Manager	Lead person (Government resource) accountable for project planning and delivery. As the person responsible for meeting the project objective and ensuring project success, the Internal PM is expected to provide oversight and input to project management aspects such as project workplan, budget, quality, risks, and issues, as well as management of contractor resource performance through working closely with the Contractor PM.
Issue	One of the dimensions of the project management methodology describing any problem that is presented to the project team for resolution. It can be a question (that requires clarification) about any aspect of the project (or project-related topic), statement of concern, suggestion, potential change request, problem, barrier to progress, or potential risk.
Issue Log	A record of identified issues relating to an initiative, including their status, history, owner, impact and action taken to mitigate.
Issue Management Plan	A prioritised list of action steps for each issue, based on the issue's strategy.
Key Deliverable	A tangible and/or intangible object necessary in order to obtain project objectives.
Key performance indicator (KPI)	Measurable indicator used to report progress; often chosen to reflect the critical success factors of the project.
Lessons learnt	A summary of what the project team learnt, resulting from both successful and unsuccessful project outcomes. It should be documented at the end of each project.
Logistics	One of the dimensions of the project management methodology describing the activities involved in planning the project environment and coordinating resources to meet project needs.
Logistics Management Plan	A document describing all logistics components needed for a project including facilities, technology, services and accommodation. It includes resources and requirements, available and usable resources, missing or marginal resources, commission plan and decommission plan.
Milestones	A point in time of the project usually used to mark

	a significant point of the project and to highlight reporting dates and/or other key dates throughout a project.
Organisation	One of the dimensions of the project management methodology describing the processes that organise, manage and lead the project team.
Organisation culture	Organisation culture is the workplace environment formulated from the interaction of the employees in the workplace. It is influenced by life experiences, strengths, weaknesses, education, upbringing etc. of the employees
Organisation Plan	A document describing how roles and responsibilities, reporting relationships and staff management will be addressed and structured for the project. It is contained in or is a subsidiary plan of the project management plan.
Organisational Chart	Part of the Organisational Plan which contains a depiction of the project organisation that is arranged to relate work packages to organisational units.
Other functions	Individuals in the administrative or function areas such as human resources, finance, accounting, or procurement who are involved at various points throughout the project lifecycle. However, they are not formally a part of the project organisation
Other stakeholders	Individuals who are within or outside of the Government structure, who are impacted by the project's Deliverable, service, or result. They are also identified as part of the stakeholder register but are not formally a part of the Project Organisation.
PMBOK (Project Management Body Of Knowledge)	An inclusive term that describes the sum of knowledge within the profession of project management. As with other professions, such as law, medicine and accounting, the body of knowledge rests with the practitioners and academics that apply and advance it. The complete project management body of knowledge includes proven traditional practices that are widely applied and innovative practices that are emerging in the profession. The body of knowledge includes both published and unpublished materials.
Post	A PIDR is completed for each project within six

Implementation Departmental Return (PIDR)	months after the live run of the project. The purpose is to evaluate the achievements of IT projects to ensure that Government's investment in the project has attained its intended objectives in a timely and cost-effective way.
PRINCE2 (PProjects IN Controlled Environments)	It is a formal system of methods and techniques for managing a project. PRINCE2 is originally developed by the Central Computer and Telecommunication Agency (CCTA) to provide a standard and open framework for the management of projects.
Procurement	One of the dimensions of the project management methodology, referring to the process of obtaining seller responses, selecting a seller, and awarding a contract.
Procurement Document (Quotation or Tender Document)	The documents utilised in bid and proposal activities, which include the buyer's Invitation for Bid, Invitation for Negotiations, RFI, RFQ, RFP and sellers' response.
Procurement Management Plan	A document containing procurement processes, costs & timeline estimate, terms and conditions considerations, marking scheme, supplier source list and requirement specifications (if any). The plan describes how the procurement processes will be managed from developing procurement documents through contract closure
Project Administrator	Individual who serves a supporting administrative role for the Internal PM to document and maintain project's administrative tasks such as tracking of issues, risks, change requests, logistics, budget, procurement, and project library.
Project Assurance Team (PAT)	A team who is responsible for the assurance of the project in terms of the respective interests of the business, users and technical areas and reviewing the deliverables and recommending the project to PSC for endorsement.
Project Contract	A document that serves as the foundation for the planning, execution, and control of the project and states the purposes and requirements of the project to the business management, project management, and project teams. It should answer the questions; who? what? when? where? how? and why? regarding the project.

Project Initiation Document (PID)	A logical set of documents that bring together the key information needed to start the project on a sound basis and that convey the information to all concerned with the project.
Project Library	Documents and data on the project including project files, records, correspondence, closed contracts, and closed projects.
Project Management Plan (PMP)	A formal, approved document that defines how the project is executed, monitored and controlled. It is used as a live document during the course of the project and is composed of subsidiary management plans from other project dimensions and other planning documents.
Project Owner	The Project Owner is the person who often stands to win or lose the most in terms of the outcome of the project; accepts full authority for the project, accepts accountability for the performance of the project (and who wants to do the project) and provides resources.
Project phase	A group of related project activities that come together with the completion of a specific deliverables at each tollgate.
Project Steering Committee (PSC)	A team of people consisting of Executive, Senior User and Senior Technical. The PSC should support the Project Owner and keep the project aligned with its business goals and objectives. They decide on all actions needed in order to complete the project.
Project Team Members	Government resources that are assigned to complete project tasks and to work with the contractor to provide input to user requirements, users acceptance testing, and deliverables; some team members may also be team leads that specialise in certain knowledge areas and coordinate specific group of users, especially on larger projects. Selected team members also participate as part of the PAT.
Quality	One of the dimensions of the project management methodology referring to the degree to which a set of inherent characteristics fulfils requirements.
Quality Management Plan	The Quality Management Plan describes the activities required to ensure that project deliverables are meeting specifications, meeting quality standards and functioning correctly etc. (the

	quality control activities). It also describes activities to ensure that the quality control activities are applied properly so as to ensure the quality of the developed deliverables (the quality assurance activities). The Quality Management Plan identifies the standards, practices and methods to be adopted for carrying out the quality control and assurance activities.
Quality Review Report	A document to check completed deliverables to see if they meet their quality objectives and whether they are fit for purpose.
Quarterly Project Progress Review (QR)	A document prepared by Controller Officers who are responsible for projects to review the progress of implementation and expenditure of computer projects on a quarterly basis.
RACI	A tool to identify roles and responsibilities in an organisation, including people who are responsible, accountable, be consulted and be informed about an activity in a project.
Request for Information (RFI)	A type of procurement document whereby the buyer requests a potential seller to provide various pieces of information related to a product or service or seller capability.
Request for Proposal (RFP)	A type of procurement document which contains management, technical, and functional specifications sent to the suppliers for their response. See also Request for Quotation (RFQ).
Request for Quotation (RFQ)	Similar to RFP, RFQ is a type of procurement document which contains management, technical, and functional specifications sent to the suppliers for their response. The use of RFP or RFQ in a procurement exercise depends on the value of purchase. For details, please refer to the Stores and Procurement Regulations (SPRs).
Resource Allocation Exercise (RAE)	B/Ds bid for computerisation projects through the annual RAE.
Resource levelling	Any form of schedule network analysis in which scheduling decisions (start and finish dates) are driven by resource constraints (e.g. limited resource availability or difficult-to-manage changes in resources availability levels).
Risk	One of the dimensions of the project management methodology which is the possibility of an event

	occurring that will have a negative impact on the achievement of objectives. Risk is measured in terms of impact and likelihood.
Risk assessment	A process to uncover risks and minimise their impact.
Risk Breakdown Structure (RBS)	A structure which serves as a basis for risk identification.
Risk Management Plan	The document describing how project risk management will be structured and performed on the project. It is contained in or is a subsidiary plan of the project management plan. Information in the risk management plan varies by application area and project size.
Risk plan	Plan for identifying, categorising, prioritising, and quantifying project risks to maximise the results of positive events and minimise the consequences of adverse events.
Risk prioritisation	The ordering of risks according to either a calculated ranking based on their consequence or the strategy determined for each risk.
Risk register	A record of identified risk relating to an initiative, including their status, history, owner, impact and action taken to mitigate.
Risk response plan	A prioritised list of action steps for each risk, based on the risk's response strategy.
Risk Response Selection Matrix	A table for selecting the risk response strategy in accordance with the level of impact and probability of occurrence.
Risk response strategies	Activities to resolve risk which are of four main types: avoidance—actions taken to avoid risk (proactive); mitigation—actions taken to reduce the risk to an acceptable level (proactive or reactive); transfer—actions taken to pass the risk's impact to a third party (proactive); acceptance—decision to tolerate risk, usually because the alternatives are equally undesirable (proactive or reactive).
Schedule	The planned dates for performing schedule activities and for meeting schedules milestones.
Scope	One of the dimensions of the project management methodology stating the requirements specified for the end result. The overall definition of what the project is supposed to accomplish, and a specific description of what the end result should

	be or accomplish.
Scope creep	Adding features and functionality (project scope) without addressing the effects on time, costs and resources, or without customer approval.
Scope statement	Outlines the limitations of a project. "Not in scope" activities can be used in order to further specify what is not included in the project.
Senior Technical	The Senior Technical represents developer(s) or procurers, the resources, which deliver the technical products of the project. The Senior Technical is accountable for ensuring that the products are technically feasible and likely to meet user needs within the constraints of the Business Case. He/She is responsible for committing technical resources.
Senior User	The Senior User represents the users of the system (product). The Senior User is accountable for ensuring that the products meets user needs and falls within the constraints of the Business Case. He/She is also responsible for committing user resources and monitoring products against user requirement.
Stakeholder register	A document that contains a list of person or organisation (e.g. customer, sponsor, performing organisation or the public) that is actively involved in the project, or whose interests may be positively or negatively affected by execution or completion of the project.
Stakeholders	A stakeholder is a person or an organisation with a (legitimate) interest in a given situation, project, action or enterprise. Within project management, a stakeholder is often defined as any person (or organisation) that can be positively or negatively impacted by the success of the project.
Status report	A report on the status of the project, which may include milestones reached, risks and issues identified, and any variances to spending and schedule plans. It describes where the project currently stands. It should be used to control the project and to inform management of project status.
Subject Matter Expert	Individuals who have knowledge or expertise in the specific subject matter area that is part of the project scope. They should be aware of the

	project background, and provide appropriate advisory and insights that align with the overall project objectives. Selected individuals are expected to participate as part of the PAT.
System Analysis and Design (SA&D)	The objective of System Analysis and Design is to investigate and understand the business requirements; to specify and design the new system; and to detail the implementation requirements in terms of cost, effort and time.
User Acceptance Test (UAT)	A step involving a group representing a cross section of end users or user representatives to test an application.
Variance Analysis	A method for resolving the total variance in the set of scope, cost, and schedule variables into specific component variances that is associated with defined factors affecting the scope, cost, and schedule variables.
Vendor	Any person or company that sells goods or services and to which Government IT projects are outsourced.
What-if Scenario Analysis	A tool to assess the feasibility of the project plan under adverse conditions and develop the worst-case scenario planning so that contingency and response plans to overcome or mitigate the impact of unexpected situation can be prepared.
Work Breakdown Structure (WBS)	A deliverable-oriented hierarchical decomposition of the work to be executed by the project team to accomplish the project objectives and create the required deliverables. It organises and defines the total scope of the project.
Work Package	Decompose WBS into the appropriate work package level to obtain a balance between project complexity, risk and Internal PM's need for project planning. Only necessary work packages should be included. For example, the transition package can be broken down into different packages including procedure documentation, end user training, data conversion, installation, and parallel run. It would be difficult for Internal PM to estimate the level of complexity at only "transition" level.
Workplan	One of the dimensions of the project management methodology specifying the resources required and the schedule for the activities of the project. It is contained in, or is a subsidiary plan of the

	project management plan.
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