

ALI AL KHOURI

# **PROGRAM MANAGEMENT OF TECHNOLOGY ENDEAVOURS**

Lateral Thinking in Large Scale  
Government Program Management



# Program Management of Technology Endeavours

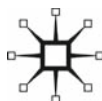
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# **Program Management of Technology Endeavours**

**Lateral Thinking in Large Scale  
Government Program Management**

Ali M. Al-Khoury

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Foreword © Robert Kaplan and David Norton 2015

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# Foreword

We are delighted to write a foreword to this book, *Program Management of Technology Endeavours: Lateral Thinking in Large Scale Government Program Management (PROMOTE)*, written by Ali M. Al-Khouri.

*PROMOTE* offers a 360-degree approach to technology adoption, especially by governmental entities. Governments invariably run large programs that usually encounter schedule delays and budget overruns. This book offers a solution to the problem of late-running and expensive government projects through the deployment of innovative, advanced technologies. *PROMOTE* examines the implementation of major projects by government units, drawing on a specific and powerful example of a successful implementation by the Emirates ID Authority in the UAE.

The chapters include key critical insights from several strategic government initiatives, general management frameworks, reflections, and a review of fundamental lessons learned. The book is pragmatic; it provides in-depth and accessible content that represents a major advance in the practice of program management. It will also serve as the platform for future research into this critical field.

The qualitative research described in *PROMOTE* features a critical examination of government initiatives and uses scientific methods to clarify and determine the relationships, events, and facts. Such research will aid in solving the complex problems of today; it should also provide a basis for future advances in practice and constitute the framework for the perpetual pursuit to make a better world for a nation's people to live and prosper.

Ali M. Al-Khouri is a distinguished academic researcher and practitioner. His analysis in *PROMOTE* provides a unique insight into current developments. Under his leadership, the Emirates ID Authority was inducted into the Palladium Balanced Scorecard Hall of Fame for Strategy Execution, which is a major achievement and proves his ability to transform strategies into results. This book is thus worthy of study by academicians and practitioners alike.

Dr Robert Kaplan and Dr David Norton

# Preface

This book illustrates the standards that the government of the United Arab Emirates (UAE) employs when implementing large programs and projects. While globally many standards may exist across industries, I strongly feel that the unique circumstances in the UAE demand special standards, methods, and practices that closely fit the requirements of large projects and programs.

When we identify a program or a project as 'large' (the term 'super-large' is considered part of 'large' within the context of this book), it is advisable to consider a set of factors that determine the size – specifically, the effort, uncertainty, and complexity involved in delivering the outcome (product, result, or service). Through these factors we can take into account the following: the impact of the project on an organisation's growth, the budget, technologies, geographical conditions, communication, program or project environment, our current knowledge, the size of the application or product, and the number of people and other resources needed, among others. Depending on the performing organisation's abilities, these factors can be categorised as primary or secondary.

In general, the larger the program or project, the harder it is to predict the behaviour of its system. As projects get larger, the number of potential inter-relations and connections between the components (i.e., sub-projects) grows in a non-linear fashion. The result of this dynamic behaviour is that the productivity of the team drops dramatically as the project size increases. Formal, highly disciplined project management techniques are mandatory for large projects. It is an established fact that large programs and projects must have a focused sponsor with high levels of power and authority to ensure their success.

This book is the outcome of my desire to see a more successful use of program and project management practices, especially for large technology endeavours across the government sector. The journey to completion of this book has been challenging, but I have never felt lonely. It feels as though the process began only a few days ago, but a lot of reading, thinking, writing, discussion, frustration, and joy have accompanied the process.

The standards discussed here are based on research that focused on the implementation of IT systems in the public sector, particularly in the

UAE. I spent considerable time a few years ago carrying out a detailed study of the failures and complexities involved in the implementation of large government projects/programs, in particular the experience of the national ID implementation in the UAE. There were other motivating factors to carry out this study. During my two-decade career in the field of IT, I have participated in many government-focused strategic IT initiatives. Almost all the projects that I was involved with faced the challenges of keeping the cost, scope, and schedule constraints in equilibrium.

Usually, large projects/programs like the national ID implementation come with high expectations but low success rates. My study investigated the factors contributing to IT projects' failure through an extensive review of the existing international literature. This was enriched and tested by my involvement with the UAE national ID program, surveys, in-depth interviews with senior managers from other ID card projects, and presentations and participation at many conferences on this topic.

My role in the UAE national ID program, and my involvement from the early stages, provided me with the authority and insights to undertake this task. The larger programs that I executed provided detailed qualitative information on the implementation of national ID programs. Thus, based on the literature, practical experience, observations, and feedback from practitioners, a program and project management methodology named PROMOTE (PROgram and PROject Management Of Technology Endeavours) was developed and tested for planning and implementing large scale programs/projects mainly in the governmental context. The project methodology was initially tested in the UAE and was then rolled out in the three Gulf Co-operation Council (GCC) countries. These experiences have been used as the basis to bring out a comprehensive guide in the form of this book.

The PROMOTE methodology phases were refined several times (and other phases were added) to address the problems identified in various UAE projects/programs based on the project/program management literature and experiences reported at various GCC committee meetings and from other large scale implementations around the world (which I gleaned from conferences and study visits to other countries).

It has been demonstrated that by following a formal structured methodology, governments will have better visibility and control over such large programs. The implementation revealed that the phases and processes of the new methodology supported the overall management, planning, and control of the project activities, promoted

effective communication, improved scope and risk management, and ensured quality deliverables.

I have endeavoured to include the best program and project management practices within the scope of a single book. However, professionals working at various levels across programs and projects should make their own intuitive judgments when applying the practices mentioned in this book to ensure the successful outcome of their programs and projects.

Professionals in both government and private organisations in top, senior, and middle management positions who are involved directly or indirectly in contributing to the success of projects/programs should benefit from this book while adding value to the service provided to their customers.

I recommend reading the whole text to get a detailed overview of the multifaceted challenges, global practices, proposed standards, and solutions that the book contains. However, some chapters are designed to help senior managers focus directly on the areas that they are more closely connected with, such as controlling and monitoring programs and projects.

The opinions expressed in this publication are my own and should not be regarded as reflecting the policy of any government or of the Committee of Ministers or the Council of the UAE.

Dr Ali M. Al-Khouri

# 1

## Introduction

Projects and programs are not alien concepts; nor are the management issues related to these fields of practice. Case studies abound – both successes and failures – each of which comes across as unique, with its own contextual justifications. Many a guide has been developed and many a standard proposed. It comes across as a paradox of sorts that while we define a project as a unique set of activities for achieving a unique goal, we tend to straitjacket the processes for management. This book attempts to view these processes and practices from an insider's perspective. It seeks to provide an insight into how the best practices have been garnered into forming a replicable model that has not only facilitated the implementation of a large national government program with unprecedented success but also helped in building a huge knowledge repository.

### **1.1 Introduction to the book**

I envisage that my prospective readers will have been involved in some project/program playing a specific role as part of their professional experience. As program and project management professionals or stakeholders they will have realised that the orchestration of a project's success depends on effectively applying various processes, practices, controls, and commitment from every individual involved in the project. A project's success cannot be steered unless each process, such as planning, executing, or controlling, is implemented properly. Government projects and programs demand serious commitment from all the people involved, supported by the right program and project management methodologies, along with a set of selected processes and practices for effective outcomes.

There is no magic formula or a silver bullet approach that can guarantee success of a program or project; however, the factors identified in this book and the methods proposed along with effective application of human capital can potentially increase the chances of success.

The world economy of the industrial era, characterised by capital accumulation, has been transformed into an information age economy, where deregulation and the liberalisation policies implemented by governments and international organisations allow capital to flow freely across borders.

In previous decades, the wealth of nations was determined by how efficiently and effectively they organised their industries and businesses to produce goods in the competing markets of the world economy. Now we live in an information age, and their wealth depends on how well they organise and manage the flows of information and knowledge in the global marketplace (Grant, 1991; Drucker, 1988; DTL, 2003; Stiglitz, 1999).

Information and the technology that drives it provide a competitive advantage for organisations that can harness it and respond rapidly to the complex and ever-changing markets of the 21st century (Bhatt and Grover, 2005; Olugbode et al., 2007).

Coming to project management literature, there are a lot of technical handbooks, which concentrate on project management processes on how to run successful projects in different fields (Suikki et al., 2006). The literature includes a wide variety of approaches including the management of information systems development. Longworth (1985) identifies over 300 information systems methodologies. Most come originally from practice (not from the academic community) and have been refined and blended in practice.

In addition, there is literature, which covers the 'theory' of project management, its fundamentals, processes, methods, tools, practical cases, and ideas of success. However, it was noted that the examples in the existing literature are rarely of the size and complexity of implementing large government programs and projects, in particular for technology endeavours; proceeding without understanding and managing the inherent risk in such projects or programs will obviously lead to higher probabilities of failure.

It is important to understand what **Methodology** and **Standard** stand for at this point. Methodology can be referred to as 'A collection of methods, processes and practices that are repeated over and over again'. This means that the same practices are followed on almost every project. A Standard is basically 'A collection of knowledge areas which

are considered good practices within the industry'. A methodology is normally a well-designed framework or documented procedure while a standard is the best practice that has been tested and implemented within the industry. A standard can never ever be a methodology but a methodology can be adopted from a standard.

This book first details globally accepted methodologies, standards, and practices with some recent studies on the large project and program failures along with some key factors that could have led to such results. Then the field of project and program management is briefly explored to highlight the need for a methodological approach towards managing large projects and programs in general, and government projects more specifically within the technology domain. The processes followed, underlying principles, and an overview of the proposed standards are provided subsequently. A synopsis on the implementation of a new methodology in UAE and its value in the national ID program are outlined in the following chapters.

## **1.2 Objective**

The primary objective of this publication is to bring awareness to effectively manage large government programs and projects, especially for the UAE Government by:

- understanding the factors influencing the successful implementation of large technology programs and projects,
- getting exposure to the new methodology PROMOTE proposed for government programs and projects along with understanding its usage in the National ID Program,
- assessing the current available methodologies for managing such projects / programs.

This book intends to provide guidance for the key stakeholders like directors, senior management teams, program sponsors, program managers and project managers, engineers, etc., who want to improve the performance of their programs and projects in order to deliver them successfully. Importantly, it offers detailed insights into large government program management for researchers providing hereto unavailable literature in this domain. The new methodology detailed in the book brings to the fore aspects of program management that are either ignored or taken as granted. The book serves to provide insights on the practical aspects of program management for academia and research scholarship.

### 1.3 What are portfolios, programs, and projects?

It is important to get a quick understanding of the terms Project, Program, and Portfolio before moving to other chapters as they are widely used in this book.

A **Project** is a temporary endeavour of work that is carried out to deliver a product, service or result, which has a definite start date and end date; i.e. a time box. **Project Management** is about ensuring a project's integrity and making efforts (planned, inspective, and adaptive) to balance the scope of work, cost, and time while ensuring the planned quality.

Although many projects may be similar, each project is unique. Project differences may surface owing to the following variables:

- Deliverables,
- stakeholders' influence,
- resources used,
- constraints,
- tailored processes.

Examples of projects include, but are not limited to:

- developing a new product, service, or result;
- managing a change in the structure, process, staffing, or style of an organisation;
- developing or acquiring a new or modified information system (hardware or software);
- conducting a research effort whose outcome will be aptly recorded;
- constructing a building, industrial plant, or infrastructure; and / or
- implementing, improving, or enhancing existing business processes and procedures.

A **Program** is generally a collection of related Projects and other activities aligned with strategic goals. Program management consists of centralised and co-ordinated activities to achieve the goals.

Essentially, **Program Management** is the art and discipline of making decisions about investments towards meeting strategic objectives by allocating and balancing resources, assessing performance and managing risks involved.

A **Portfolio** can contain both programs and projects. Portfolio refers to a collection of projects, programs, sub-portfolios, and operations managed as a group to achieve strategic objectives.



**Portfolio Management** is the centralised orchestration of one or more portfolios, and it includes identifying, prioritising, authorising, managing, and controlling projects, programs, and other related work in an endeavour to obtain specific strategic business objectives of the organisation. Essentially, Portfolio Management is about knowing and using the strengths, weaknesses, opportunities, and threats in the choice of debt against equity, growth against safety, and other trade-offs with the aim to maximise returns while actively managing the associated risks.

A **Project Portfolio** is generally a collection of projects and programs and other work that are grouped together to facilitate the effective management of that work to meet strategic goals. Project portfolio management is generally the centralised management of one or more project portfolios, which includes identifying, prioritising, authorising, directing, and controlling projects, programs, and other work to achieve specific strategic goals.

It is a good practice to conduct opportunity identification and selection, as well as the approval and management of projects, through a project portfolio management system.

### **1.3.1 Relationships among portfolios, programs, and projects in an organisation**

The strategy of an organisation is an action plan to achieve its business goals and objectives. The portfolio is directly connected to the strategic business plan of the organisation.

The strategy determines the portfolio of projects and programs that the organisation is capable of executing. In general, as mentioned above, a portfolio is a set of projects, programs, or combination of both that is managed in a co-ordinated fashion to obtain control and benefits not available from managing them individually.

Portfolio management focuses on making sure that programs and projects are prioritised for resources to serve the organisation's strategy. In simpler terms, a portfolio manager worries about the success of the whole strategy put forth by the organisation rather than the success of a single project.

Therefore, investment decisions are usually made at the portfolio level. Program management focuses on achieving the benefits that would be aligned with the portfolio and hence with the strategic objectives of the organisation. Therefore, a portfolio is a part of the interface between the programs and strategic business objectives of the organisation for which the programs are run.

Individual projects that are either within or outside of a program are still considered part of a portfolio. Although the projects or programs within the portfolio may not necessarily be interdependent or directly related, they are linked to the organisation's strategic plan by means of the organisation's portfolio.

It is also important to note that an operation (on-going work) is different from a project. However, a program can include non-project work. Similarly, a portfolio can also include work that is not included in any of its constituent projects and programs.

The relationship between projects, programs, and portfolios can be seen in the Figure 1.1 below.

A **Project Manager** is the person assigned by the performing organisation to lead the team that is responsible for achieving the project objectives.

A **Program Manager** is an individual within an agency, organisation, or corporation who maintains responsibility for the leadership, conduct, and performance of a program.

#### 1.4 The importance of portfolio, program, and project management

It is important to understand the importance of each of these endeavours that make an organisation successful.

Of these three endeavours, projects are at a lower level. Every project in turn rolls up to support the organisation's strategic business objective. Therefore, ensuring the control of expenses of a project within the



Figure 1.1 Relationship among projects, programs, and portfolios

budget while meeting the expected objectives and managing the triple constraints is very important for any organisation, for the program(s) to be managed with utmost commitment.

In order to understand portfolio, program, and project management, it is important to recognise the similarities and differences among these disciplines. It is also helpful to understand how they relate to Organisational Project Management (OPM). OPM is a strategy execution framework utilising project, program, and portfolio management as well as organisational enabling practices to consistently and predictably deliver organisational strategy producing better performance, better results, and a sustainable competitive advantage.

Portfolio, program, and project management are aligned with or driven by organisational strategies. Conversely, portfolio, program, and project management differ in the way each contributes to the achievement of strategic goals. Portfolio management aligns with organisational strategies by selecting the right programs or projects, prioritising the work, and providing the needed resources, whereas program management harmonises its projects and program components and controls interdependencies in order to realise specified benefits.

Project management develops and implements plans to achieve a specific scope that is driven by the objectives of the program or portfolio it is subjected to, organisational strategies. OPM advances organisational capability by linking project, program, and portfolio management principles and practices with organisational enablers (e.g. structural, cultural, technological, or human resource practices, among others) to support strategic goals. An organisation measures its capabilities, then plans and implements improvements towards the systematic achievement of best practices.

Project management and program management philosophies are widely discussed in the next few chapters. Table 1.1 below shows the comparison of project, program, and portfolio views across several dimensions within an organisation as per PMBOK® Guide 5th edition by the Project Management Institute (PMI, 2013a).

## **1.5 Program and project management practices – Government vs Enterprise**

Independent Project Analysis, Inc. (IPA) has analysed several hundred projects executed by governments and found that average costs are 11% higher and execution schedules are 90% longer than the best-performing projects of similar scope executed in the private sector.

Table 1.1 Comparison of project, program, and portfolio views within an organisation as per PMBOK® Guide, 5th edition, by PMI

<b>Organisational Project Management</b>			
	<b>Projects</b>	<b>Programs</b>	<b>Portfolios</b>
<b>Scope</b>	Projects have defined objectives. Scope is progressively elaborated throughout the project life cycle.	Programs have a larger scope and provide more significant benefits.	Portfolios have an organisational scope that changes with the strategic objectives of the organisation.
<b>Change</b>	Project managers expect change and implement processes to keep change managed and controlled.	Program managers expect change from both inside and outside the program and are prepared to manage it.	Portfolio managers continuously monitor changes in the broader internal and external environment.
<b>Planning</b>	Project managers progressively elaborate high-level information into detailed plans throughout the project life cycle.	Program managers develop the overall program plan and create high-level plans to guide detailed planning at the component level.	Portfolio managers create and maintain necessary processes and communication relative to the aggregate portfolio.
<b>Management</b>	Project managers manage the project team to meet the project objectives.	Program managers manage the program staff and the project managers; they provide vision and overall leadership.	Portfolio managers may manage or co-ordinate portfolio management staff, or program and project staff that may have reporting responsibilities into the aggregate portfolio.
<b>Success</b>	Success is measured by product and project quality, timelines, budget compliance, and degree of customer satisfaction.	Success is measured by the degree to which the program satisfies the needs and benefits for which it was undertaken.	Success is measured in terms of the aggregate investment performance and benefit realisation of the portfolio.
<b>Monitoring</b>	Project managers monitor and control the work of producing the products, services, or results that the project was undertaken to produce.	Program managers monitor the progress of program components to ensure the overall goals, schedules, budget, and benefits of the program will be met.	Portfolio managers monitor strategic changes and aggregate resource allocation, performance results, and risk of the portfolio.

The uncompetitive performance of government-led projects is not surprising, considering that government project organisations lag behind when compared to the private sector as they do not internalise the use of best practices.

The private sector that works in project environments breeds managers (project / program / portfolio managers). The public sector in contrast breeds administrators. Managers most often make decisions that change the way things are. Administrators execute processes defined by others. Rock and air are very different, one is hard and lumpy, and the other isn't. But public sector managers are not bred to change things by being innovative and decisive. They are bred to ensure existing processes are properly administered, which clearly leaves the public sector at a disadvantage when it comes to projects.

Public sector / government project management practices include:

- **Planning:** In public sector projects, planning and decision making inevitably becomes a political activity.
- **Procurement / Contracting Strategy:** There are several prevalent contracting strategies for public sector or government projects. These are:
  - General contractor,
  - Construction management,
  - Multiple primes,
  - Design-build,
  - Turnkey, and
  - Build operate transfer

The public sector organisations are usually traditional in selecting the contracting strategy. Usually their contracting strategy involves a separate designer, a general contractor (responsible for construction only), and a fixed lump-sum contract awarded through competitive bidding.

- **Co-ordination:** Co-ordination is the practice through which an organisation's functional divisions communicate with and understand each other. Effective co-ordination is required throughout the project life cycle for a successful project. For example, an infrastructure project would include
  - co-ordination during the design process,
  - co-ordination during the construction process, and
  - co-ordination after the construction is complete.

In public-sector organisations co-ordination is a mechanism through which the flow of information becomes smooth among different parts of the organisation. This flow of information is vital for the decision making process.

- **Risks:** The public sector or Government involves inherent ambiguities because of the conflicting political interests of the stakeholders. Risks affecting public sector projects can be grouped into the following major categories:
  - a) **Project and Program Related:** These risks include cost and time over runs, poor contract management, contractual disputes, delays of tendering and selection procedures, poor communication between project parties, and no standardised policies and procedures across the projects.
  - b) **Government Related:** These risks consist of inadequate approved project budgets, delays in obtaining permissions, changes in government regulations and laws, lack of project controls, or administrative interference.
  - c) **Client Related:** These risks include inadequate project budgets, poor project briefing, variations in project requirements and specifications, delays in the settlement of contractors' claims, and lack of project control.
  - d) **Design Related:** These risks represent inadequate investigation, delays in design, ambiguities and inconsistencies in design, and design changes.
  - e) **Consultant Related:** These risks include inadequate estimates, financial difficulties, lack of experience, poor management, and difficulty in controlling nominated subcontractors and contractors.
  - f) **Market Related:** These risks include increases in wages, shortages of technical personnel, materials inflation, shortages of materials, and shortages of equipment required.
- **Cost and Schedule Management:** Cost management typically means cost control. This is done in the public sector or government by preparing a budget in detail, by regularly monitoring the expenditures against the budget and by constantly evaluating the amount of work remaining. However, in the public sector sometimes the project managers are forced to carry unrealistically low contingencies in their budget in order to obtain statutory approvals. This approval mechanism itself differs from the private sector in the funding mechanism. Invariably government agencies depend on national budget schemes, and funding thus

comes from the state disbursement agencies. This can cause problems on large projects or on programs with long time horizons.

- Schedules are used for planning the sequence and duration of the work, co-ordinating the actions of multiple participants, and monitoring progress. In addition to this schedules are also used for tracking compliance with legal requirements, managing resources, assigning responsibilities, and communicating with project and program stakeholders.

### 1.5.1 ‘Accidental project managers’ – survey details on public-sector projects

Many individuals find themselves undertaking project management responsibilities with little or no preparation. Referred to as ‘accidental project managers’, they may have no training or experience and may often manage projects from the side of their desks. Researchers Vanessa Darrell, of Western Australia’s Department of Treasury and Finance, and David Baccarini and Peter E.D. Love of Curtin University of Technology in Perth, Australia, were curious to know more about ‘accidental project managers’, particularly in the public sector.

- A survey has been conducted that examined why people were selected for projects: their skills, knowledge and experience; organisational support and the organisational environment in public sector. The questionnaire revealed a high incidence of part-time project managers – 70% of respondents reported that they had other operational responsibilities as well. Respondents identified a range of project types that they had been involved with, such as organisational change, administrative, information technology, policy development, construction, and community initiatives.
- The researchers found that most of the projects in the public sector, with the exception of IT, construction, and installation-based projects, are of non-technical nature. Yet, respondents ranked technical knowledge and general management skills as the fundamental reasons for their selection as a project manager. Availability was also ranked highly, which supports the notion that accidental project managers are chosen because they are in the right place at the right time.
- Low-ranking factors in the accidental project managers’ selection were: project management skills, customer / client relationship, organisational knowledge, and seniority.
- Respondents of this survey also indicated a high level of management support, but most indicated an absence of project management tools, and 83% acknowledged that there was no project management

methodology in place. Only 41% of respondents indicated that their department sees project management as a core competency.

- The researchers say this is a reflection of an organisation that is not fully recognising the critical nature of the project-management function. The relatively high level of management support indicates a willingness or enthusiasm for project management, but the lack of methodologies and tools implies a lack of preparedness and a lack of sound project management foundation from which to achieve successful project outcomes.
- The researchers noticed a surging interest in project management in the public sector, noting that there is a growing need for government departments to become more responsive to change and that they are increasingly recognising that the project is an adaptable form of work organisation. But unlike traditional project-based industries, such as aerospace and construction, which use professional project managers, the public sector has been appointing untrained personnel to manage projects whenever there is an unexpected need for project management.

### **1.5.2 Project management implementation – observations from the government sector**

Given the lack of consistent project / program management implementation in the government, even experienced and well-trained project managers in this sector may often find that senior management and other personnel have a limited understanding of the processes involved. This means that before proper project management systems can be put in place within a governmental agency, methods need to be devised to educate those who will be involved in the projects and encourage them to internalise compatible values and behaviours.

An example is being used here to provide more clarity. If the public sector were charged with creating new commercial enterprises, it would no doubt rise to the challenge many times by commissioning consultants to write such a process. It would then pick senior administrators, call them entrepreneurs, give them the checklist, and create successful new enterprises by the bucket load. It may sound exaggerated, but that is exactly how the public sector has been approaching projects for a long time. A project management process has been written, people are sent on courses to learn the process, and they are then called project managers and are given projects to manage.

Most often it has been observed from the public-sector project management related trainings that are held for project managers, that



these trainings may not efficiently teach what it means to manage and lead rather than to administer. It may not get emphasised that projects require leadership, decisiveness, collaboration (and sometimes unilateral, arbitrary decisions), authoritativeness (and sometimes authoritarianism) to be successful. And so projects may get merely administered, and the administration may pass for management: if the paperwork is in order then the project is being well managed.

In addition, the overall structure of government agencies does not necessarily mirror that of a typical business. Because of this, a project manager may encounter a variety of obstacles – such as difficulty in co-ordinating the efforts of workers in different areas, dealing with lack of accountability throughout the command structure, and coping with an inefficient management system.

Several publications are in vogue on the nature of project management styles in government agencies that depict these scenarios. In 2012, the Project Management Institute (PMI) conducted a study of program management in the US Federal Government. The ultimate goals of this effort were to share the insights gathered and advocate the use of best practices throughout the government.

## **1.6 Project management standards for government technology endeavours**

Research shows that project management methodologies play a critical role in reducing the risk of project failure if applied appropriately (Hunter, 1997). They show that project teams with formal shared methodology tend to be more efficient, resulting in lower cost, controlled schedule, and better able to deal with risks.

No one methodology could be the magic solution for any particular project success, but rather by employing one, an organisation will have a well-defined set of concepts to handle each step in the project (Ives and Olson, 1985; Newman and Sabherwal, 1996; Olle et al., 1991). In fact the existing global literature shows that there is still much work to be done to improve the current project management life cycle, in both standards and product (deliverables) management (Charvat, 2003; Wideman, 2002), which are relevant even today. A McKinsey study of 5,400 large scale IT projects (projects with initial budgets greater than \$15M) finds that the well-known problems with IT project management are persisting (Bloch, Blumberg, and Laartz, 2012; McKinsey) and reports that 17% of large IT projects go so badly that they can threaten the very existence of the company and, on average, large IT projects run

45% over budget and 7% over time, while delivering 56% less value than predicted.

The tragic facts provided in the above-mentioned literature about the rate of ICT project failures raises huge concerns for those in the field. Some more details on technology project / program failures are mentioned below. By and large, the knowledge required to succeed with large scale technology programs and projects is complex and rapidly changing. It is noted that the examples in the existing literature are rarely of the size and complexity of government programs, e.g. implementation of various projects as part of a national ID program. Proceeding without an understanding of how to manage the inherent risk in such projects will lead to higher probabilities of failure.

In line with the above statistics, it is estimated that between 20% and 30% of government IT projects in industrialised countries fall into the total failure category, 30% to 60% fall into the partial failure category, and only a minority fall into the success category (Heeks, 2003).

Researchers argue that government IT project failures are a global phenomenon (Cross, 2002; Gauld, 2006). To explain this, other researchers pointed out that government IT projects, unlike the private sector, face unique challenges as they operate in a different environment (LeFevre, 2006; Schwartz, 2004). Flowers (1996) points out that the delivery of successful IT projects creating value within the government sector is associated with situation-specific constraints when compared to that of the private sector.

Studies indicate that large-scale projects fail three to five times more often than small ones (Charette, 1995). Such failure can impede economic growth and quality of life, and the cost of failure may become catastrophically excessive as societies come to rely on IT systems that are ever larger, more integrated and more expensive (ibid.). Many researchers pointed out that a lot of today's failures are avoidable, and that many projects fail because of foreseeable circumstances. Therefore, organisations need to give careful attention to several factors to avoid failure (Avison and Wood-Harper, 1990; Bentley, 2002; Berkun, 2005; Broder; 1999; Curtis, 1998; Lam, 2003; Radosevich, 1999).

Technology projects worldwide are costing companies billions of dollars more than they budgeted for, and more than half of them do not meet client expectations. META Group estimates that 50% of all new US software projects will go over budget (META Group, 2009). Completing projects on time and within budget is also a great challenge in the surveying and geospatial industry as well.

Among the widely quoted factors contributing to failure is that organisations tend to treat IT projects from purely technological perspectives and not give much attention to other organisational and management issues. Literature shows that technology can contribute as little as 15% to the overall success of projects, whereas the remaining 85% is dependent on bigger organisational issues related to people, data, and management.

## 1.7 Definition and classification of programs and projects – small, medium, and large

An attempt has been made to define and provide classification of programs and projects in this section before proceeding with the remaining chapters of this book.

**Projects:** As a general guideline, a simple approach suggested below (Table 1.2) has been used to classify the project size, time, and cost as per their complexity in this book.

- Small Project: A project can be classified as small if it has less than five work streams.
- Medium Project: A project can be classified as medium if it has 5–10 work streams.
- Large Project: A project can be classified as large if it has more than 10 work streams.

**Programs:** For a program, the program time box and complexity in terms of interdependency of involved projects can also be considered as measuring criteria for the size. Any program with more than one year but less than two years duration could be small, two to three years could

Table 1.2 Size/time/cost complexity classification for projects

	Small Project	Medium/Moderately Complex Project	Large/Highly Complex Project
Size/Time/Cost	Size: 3–4 members Time: < 3 months Cost: < \$250K (Or) Work Stream < 5	Size: 5–10 members Time: 3–6 months Cost: \$250K–\$1M (Or) Work Stream 5–10	Size: > 10 members Time: 6–12 months Cost: > \$1M (Or) Work Stream > 10

*Table 1.3* Size/time/cost complexity classification for programs

	<b>Small Program</b>	<b>Medium/ Moderately Complex Program</b>	<b>Large/Highly Complex Program</b>
<b>Size / Time / Cost</b>	<b>Size:</b> Multiple diverse teams <b>Time:</b> 1–2 years <b>Cost:</b> \$5M–\$10M	<b>Size:</b> Multiple diverse teams <b>Time:</b> 2–3 years <b>Cost:</b> > \$10M	<b>Size:</b> Multiple diverse teams <b>Time:</b> > 3 years <b>Cost:</b> Multiple Millions

be medium, and three years and longer is classified as a large program as mentioned below (Table 1.3).

- **Small Program:** A program can be classified as small if the duration is less than one year.
- **Medium Program:** A program can be classified as medium if the duration is above one year and below three years.
- **Large Program:** A program can be classified as large if the duration is three years or longer.

## 1.8 The structure of this book

This book takes a view on such large scale technology driven programs and underlying projects and submits a structured model for consideration in delivery of successful programs. While comparing different existing standards and project management process guidelines, it identifies the practical gaps and attempts to fill these to form a seamless program delivery model.

Where basic program management fundamentals are discussed, limitations in these are highlighted, leading to better appreciation of the proposed models for successful program delivery.

## 1.9 Conclusion

As highlighted in the introduction, managing projects and programs in enterprises is different from managing those in the government or public sector.

Overall, while there are various program and project management standards, methodologies, and practices; researchers still find a gap

in the results of the projects. As mentioned earlier, this book is an endeavour to bridge that gap. Guidelines about the standards and practices mentioned in this book may be simple to follow by those involved with government projects / programs in the technology domain and also those working with organisations enabling them to work with engaged people at different levels to achieve sustained results.

# 2

## Project Management Philosophy

This chapter details the underlying philosophy, benefits, and processes involved in the global project management standards and practices, the life of a project manager, and the role of a Project Management Office (PMO). Additional focus needed in addressing certain key aspects to overcome failures of large projects is also mentioned. A few methods and tips that can help successful project deliveries, the shift in approach that may be needed to move from project management towards project leadership, is also highlighted.

### 2.1 Project management overview

What is project management most often perceived as?

- It's common sense.
- Just build in a x% cost overrun in the budget.
- Just Do it! We can fix it later.
- It's general management.
- Not enough time, not enough resources.
- We don't have time to plan.
- We have been doing it for years.
- Too long a process to follow.
- Once titled Project Manager, (s)he will do it, doesn't need expertise.
- Murphy doesn't visit here; hence we don't need to add contingency.
- Customers know what they want.
- Planning is an unproductive, bureaucratic waste of time.
- Estimating is an exact science.
- Project managers are mere experts in documentation.
- Just ask for reports!

### **2.1.1 Need for project management**

It has been noted in several studies (highlighted below) that the major reason behind project failures for several decades have been primarily attributed to poor project management (Stepanek, 2005).

#### *2.1.1.1 Surveys and statistics*

- An (Economic Intelligence Unit, 2009) showed that 80% of global executives believed having project management as a core competence helped them remain competitive during the recession.
- A survey by McKinsey (2010) found that nearly 60% of senior executives said building a strong project management discipline is a top-three priority for their companies as they look to the future.
- The third global survey on the current state of project management conducted by PricewaterhouseCoopers LLC (PWC) in 2012 revealed that:
  - As many as 97% of respondents believe project management is critical to business performance and organisational success, and 94% believe project management enables business growth.
  - Since 2008, the percentage of projects that project managers say have met their original goals and business intent has declined by 10% (from 72% in 2008 to 62% in 2012).
- KPMG survey of project management practices in New Zealand (KPMG, 2011) finds some truly startling results:
  - The survey shows that 70% of organisations have suffered at least one project failure in the prior 12 months.
  - Also, 50% of respondents indicated that their project failed to consistently achieve what they set out to achieve.
- It is disturbing to note that another 2013 KPMG-PMI survey (KPMG 2., 2012) on Infrastructure projects indicated that 41% of the 1,053 completed projects over the last 17 years witnessed budget overruns while 82% of them witnessed schedule overruns.
- The ESI International Survey conducted in 2005, (ESI, 2005) for example, revealed many of the factors identified as the major causes of project failure during the life cycle of the project (See Figure 2.1).
- A KPMG-Global IT Project Management Survey (KPMG 2., 2012) conducted in 2012 highlights that:
  - In just a 12 month period, 49% of organisations had suffered a recent project failure.
  - In the same period only 2% of organisations reported that all of their projects achieved the desired benefits.



Figure 2.1 Key challenges and major causes of project failure

Source: ESI International.

- 86% of organisations reported a shortfall of at least 25% of targeted benefits across their portfolio of projects.
- Many organisations fail to measure benefits, so they are unaware of their true status in terms of benefits realisation.
- Another study carried out by META Group (2002) showed that a lack of good project management often leads to failed projects. See also Figure 2.2. The most common reasons for failure referred to project management, project planning, and communication.
- The same factors were present in many other surveys conducted around this subject area (e.g. Cooke-Davies, 2001; Robbins-Gioia Survey, 2001; Standish Group, 2003) and also in many of the critical studies and evaluations of IT projects conducted by researchers in the academic field (e.g. Berg & Karlsen, 2007; Lemon, 2002; Shoniregun, 2004).
- A KPMG survey focusing on IT project management issues that covered Canada’s leading 1,450 public and private sector organisations revealed that project management was rated as the most important area contributing to project failure in cases with both serious budget and schedule overruns as depicted in Table 2.1 (Whittaker, 1999).

This is further confirmed in another KPMG 2013 survey that states only 33% of projects were delivered in budget in 2012.

- *InformationWeek* magazine put it clearly in their August, 1996 issue: ‘The major cause of project failure is not the specifics of what went wrong but rather the lack of procedures, methodology, and standards for managing the project’. (Information Week, 1996) The plight



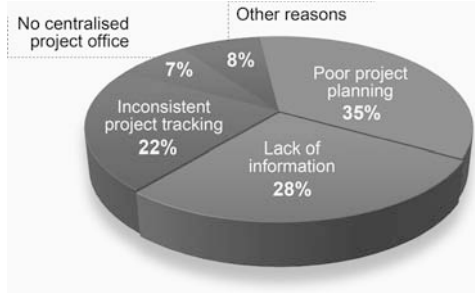


Figure 2.2 META Group study results

Table 2.1 Factors contributing to serious budget and schedule overruns

Ranking	Area of project management contributing to failure
1	Project execution management
2	The project team
3	Risk management
4	Project accountabilities

of project managers in most organisations who are asked to manage projects with no methodology, no procedure, and no process to support them is that they are going to be very challenged to keep their projects under control.

- Crawford (2002) indicates that this is the largest determining factor why projects are failing so miserably across all industries.

### 2.1.2 Why does project management matter?

According to PMI's Pulse of the Profession™ Survey 2012, the annual global survey of project management professionals:

- Leading organisations across sectors and geographic borders have been steadily embracing project management as a way to control spending and improve project results. When the recession began, this practice became even more important. Executives discovered that adhering to project management methods and strategies reduced risks, cut costs, and improved success rates – all vital to surviving the economic crisis.
- With little room for error and fewer resources to rely on, project management expertise and discipline is helping organisations

streamline their delivery process, cut costs, and sidestep risks, enabling them to ride out the recession and implement stronger project management practices for the future. 'Good project management discipline stopped us from spending money on projects that fail', says Ron Kasabian, General Manager at global IT giant Intel, Folsom, California, USA.

### *2.1.2.1 Benefits of Project Management*

As project activity increases with increased economic activity, it is seen that the project failure rates also increase. It is then imperative that a leadership stake be infused heavily into the projects from a management perspective to deliver better results of performance.

The ability to deliver agreed requirements on a project is the key for any organisation to remain competitive in the dynamic and fast-changing environment that characterises our present business world. In view of this scenario, project management has obvious benefits to any organisation handling a project, whether on a large scale or a small scale. Some of these benefits include the following:

- **Efficiency:** There is higher level of efficiency in delivering services given that project management provides a 'roadmap' that is easily followed and ensures that the project is successfully completed by identifying the opportunities for actualising project goals as well as possible risks can enable project managers to set up mitigating strategies at the planning stage.
- **Customer Satisfaction:** Customers will be satisfied only when a project is delivered according to their expectations; meeting a set deadline for the project is of utmost importance to clients. Job quality and cost where they are well balanced always adds to customers' satisfaction and increases the chances of retaining them.
- **Competitive Edge:** Companies that always get the job done according to given specifications and in good time usually have higher ranking on the contractors' list. Such organisations have a competitive edge over their peers. The track record of successful project delivery always turns out as a favourable review / reference for the organisation. An organisation that can manage projects successfully is much more capable of carving out a niche environment within their sector or market. The niche advantage cannot be overemphasised. It makes an organisation stand out among the crowd and gain recognition as a leader in the industry.

- **Growth and Expansion:** Every organisation desires growth; to expand beyond its present boundaries would always require increased human resources, structures, and ability to manage especially large-scale projects. An organisation's ability to manage large-scale projects is a sure testimony of its growth and development; else its size will amount to a dump of human and material resources wasting away without achievements. The ability to manage projects effectively determines the rate of advancement and diversification into new areas of operation.
- **Management Flexibility:** Project management strategies spell out the roles and responsibility of every team member so that there is no duplication of duties; also, when the management system is decentralised and various personnel are assigned, different duties to handle running the project or the organisation become much easier.
- **Clarity of Goal:** Project management processes outline the overall goal of the project and the strategies for achieving them. Knowing the expected outcome of a project gives the team a focus to work with. It gives direction that makes the project run smoother and consequently faster. Goal setting is a key strategy in planning, when a project is focused towards a particular goal, the tendency to waste resources and time in confused endeavours is eliminated. Clear goals are essential for meeting standards expected from the project deliverable. Without this the project deliverables can be anything the team imagines them to be.
- **Capacity Building:** Project management strategies align human resources with their area of highest proficiency and thereby build up the capacity of personnel involved in a project. Specialisation is a key factor in project management, and this is what leads to capacity building as personnel are trained and equipped for higher levels of performance.
- **Risk Assessment and Management:** Every project comes with its set of risks. The ability to assess such risks before they become a real problem is very crucial for the success of any project. Risks are identified at the planning stage of projects, and this makes them easier to manage. The risk management aspect of project management aims at foreseeing problems before they occur, thereby putting the team in a better position to handle such issues.

By implementing fundamental project management strategies, an organisation will remain focused, reach its desired goals and also achieve the said goals within specific schedules and budgets. Project management is

also beneficial to individuals at various levels in organisations; when staff understand their roles and responsibilities and how their work relates to the bigger picture, conflicts are minimised and effective communication increases productivity and enthusiasm.

The KPMG 2013 Survey confirms this. Some 54% of their survey respondents managed to complete 21 projects across their business as compared 98% completing only to 0–5 in 2010, by adopting structured program or project management techniques, albeit with higher project failure rates.

## **2.2 Research in project management**

Project management is viewed in academic literature to promote success (Cooke-Davies, 2002; Cooke-Davies, 2003; Loo, 2002; Milosevica, Inmana and Ozbaya, 2001) in all four dimensions of the Lyytinen and Hirschhiem (1987) model.

Many academics and practitioners distinguish project management as the art of defining the overall management and control processes for the project (Devaux, 1999; Garton and McCulloch, 2005; Stankard, 2002). As such, we define project management methodology as an organisation's approach to control and make decisions on a project during project management.

A number of attempts have been made during the last 50 years to examine and develop frameworks for project management. Attention has shifted from single tools and practices towards holistic and systematic methodologies and frameworks that account for multiple success factors.

Project management methodologies usually represent a collection of good practices and prior knowledge, common agreement or commitment across different stakeholders, and a suitable practice across a majority of projects in the organisation or its unit. They can be more or less systematic, standardised, documented, and formal.

To overcome many of the difficulties identified in the literature, project management has progressively adopted relevant elements of other basic management disciplines, including the ones that have been more recently developed, notably risk management. In this sense, it is an integrative discipline which brings together other management disciplines in a framework. These disciplines include finance, cost control, quality management, human resource management with emphasis on management of teams, communication, risk management, procurement, and logistics and contract management.

### 2.2.1 Project management in practice

Many project management methodologies are in active use today. In a survey study by White (2002), 72% of the 240 companies included in the study reported that they use a project management method or methodology. Also, 54% used their own in-house project management method.

Many organisations rely on project management methodologies that they have developed only for their own use, or modified from publicly available methodologies (White, 2002). The level of detail and the comprehensiveness of methodologies vary.

In general, project management has worked with differing degrees of success, in different industries, different organisations, and on different projects. What is undeniable is that organisations have been much more successful when project management is used than when it was ignored (Devaux, 1999; Ireland, 1991).

Indeed, a project management methodology that takes into account the success and failure factors in the field of IT projects is more likely to increase the success probabilities of the project (Avison and Fitzgerald, 1988; Curtis, 1998; Flynn, 1998).

Several methodologies, frameworks and models have been put forward in the past few years and have been adopted by various organisations. These range from standards and bodies of knowledge (Bentley, 2001; APM, 1996; PMI, 2006) and competence baselines (e.g., IPMA (1999) to more focused methodologies (Hartman and Ashrafi, 2004; Pillai and Tiwari, 1995) that cover information systems and software (Conroy and Soltan, 1997; Metcalfe, 1997). As such, researchers argue that organisations need to carefully assess the methodology based on the organisational requirements and that it is the project size and complexity which necessitates the use of the fitting methodology (Berkun, 2005; Charvat, 2003; Radosevich, 1999; Verrijn-Stuart, 1991; Gilbreath, 1986).

### 2.2.2 Popular project management methodologies and standards

- **PMBOK® Guide** – *A Guide to the Project Management Body of Knowledge*, 5th Edition (2013) from the Project Management Institute (PMI) provides guidelines for managing individual projects and defines project management related concepts across sectors. It also describes the project management life cycle and its related processes, as well as the project life cycle.

- **ISO 21500** – Guidance on Project Management (2012) – can be used by any type of organisation, including public, private, or community organisations for any type of project, irrespective of complexity, size, and duration.
- **PRINCE2** (Projects IN a Controlled Environment) – Is widely used in the UK and European countries. It provides a generic framework for managing projects in both public and private sectors.
- **ISO 10006** – The International Standards for Project Management reflected in ISO 10006 are similar in nature to the PMBOK® Guide from PMI but with less comprehensive coverage of the topics. The ISO 10006 manual gives guidance on the application of quality management in projects.

More details along with the comparisons between various standards and methodologies can be found in the later chapters of this book, prior to that an overview of a project life cycle is provided next.

### 2.3 Typical project life cycle

Processes from the PMBOK® Guide have been widely and well applied to projects. A project life cycle is the series of phases that a project passes through from its initiation to its closure. A project phase is a collection of logically related project activities that culminates in the completion of one or more deliverables. The phases are generally sequential, and their names and numbers are determined by the management and control needs of the organisation(s) involved in the project, the nature of the project itself, and its area of application.

The phases can be broken down by functional or partial objectives, intermediate results or deliverables, specific milestones within the overall scope of work, or financial availability. Phases are generally time bound, with a start and end or control point. However there is no single ideal structure that will apply to all projects. Although industry common practices will often lead to the use of a preferred structure, projects in the same industry or even in the same organisation may have significant variation. Some will have only one phase for management; other projects may warrant two or more distinct phases. See Figure 2.3.

Each of these processes is characterised by specific inputs, tools and techniques, and expected outcome or outputs. The project team determines which process is appropriate for meeting the project objectives. Project management processes ensure the effective flow of the project throughout its existence.

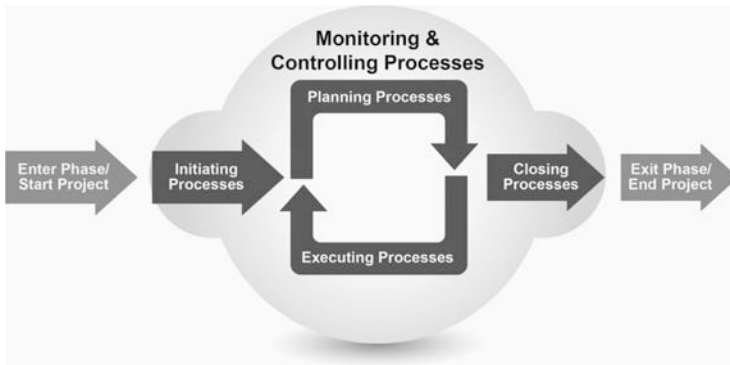


Figure 2.3 Project management process groups and project life cycle, PMBOK® Guide, 5th edition

## 2.4 The life of a project manager

An attempt has been made in this section to get an understanding of how a typical project manager's journey will be during the life cycle of a project. It also covers how one can become a successful project manager.

A project manager is the person assigned by the performing organisation to lead the project team that is responsible for achieving the project objectives. This section describes the role and the life of a project manager working in various project environments.

To make it clear, the role of a project manager is distinct from a functional manager or operations manager. Typically the functional manager is focused on providing management oversight for a functional or a business unit, and an operations manager is responsible for ensuring that business operations are efficient.

Depending on the organisational structure, a project manager may report to a functional manager. In other cases, a project manager may be one of several project managers who report to a program or portfolio manager who is ultimately responsible for enterprise-wide projects. In this type of structure, the project manager works closely with the program or portfolio manager to achieve the project objectives and ensures that the project management plan aligns with the overarching program plan.

The project manager also works closely and in collaboration with other roles, such as a business analysts, quality assurance managers, and subject matter experts.

In general, project managers have the responsibility to satisfy various needs: task needs, team needs, and individual needs, among others. Therefore, project managers can be called ‘general managers’ of the project with the responsibility for:

- organising the people and other resources to support the project objectives, goals, and strategies;
- identifying and using relevant information to manage the project, providing leadership for the project team members; and
- conducting periodic evaluations of the project results and redirecting resources as required to keep the project moving towards its goals and objectives.

Project managers play a critical role in any project, and their planning, controlling communication approaches determine how well they perform and fulfil their duties. KPMG’s 1997 survey of 1,450 IT projects both in public and private sectors revealed that project managers normally fail to address many project management activities that in turn contribute to serious schedule and budget overruns resulting in failed projects, as depicted in Table 2.2 (Whittaker, 1999).

A project manager needs to have the ability to switch between macro and micro views of activities. He or she must be able to focus down on small, significant details, while retaining an understanding of how they fit into the big picture (Lake, 1997).

The project manager has the single most important position on a project and has the overall responsibility for its success. This position comes with tremendous responsibility, accountability, ownership, and authority. Because of the criticality of this role, project managers must be carefully selected, trained, and nurtured to give them every opportunity to be successful.

*Table 2.2* Project manager failure factors

Ranking	Failure factor
1	Risks were not addressed in several areas.
2	The project manager did not have the required skills or expertise.
3	Project progress was not monitored and corrective action was not initiated.
4	The experience, authority and stature of the project manager were inconsistent with the nature, scope and risks of the project.





Figure 2.4 Role of a project manager

To manage the project management processes, a person playing the role of a project manager should be well organised, have great follow-up skills, be process oriented, be able to multi-task, have a logical thought process, be able to determine root causes, have good analytical ability, be a good estimator and budget manager, and have a good self-discipline. Also see Figure 2.4.

Projects create value in the form of improved business processes, are indispensable in the development of new products and services, and make it easier for companies to respond to changes in the environment, competition, and marketplace.

As per the PMBOK® Guide, the project manager's role therefore becomes increasingly strategic. However, understanding and applying the knowledge, tools, and techniques that are recognised as good practice are not sufficient for effective project management. In addition to any area-specific skills and general management proficiencies required for the project, effective project management requires that the project manager possesses the following competencies:

- **Knowledge:** Refers to what the project manager knows about project management.
- **Performance:** Refers to what the project manager is able to do or accomplish while applying his or her project management knowledge.

- **Personal:** Refers to how the project manager behaves when performing the project or related activity. Personal effectiveness encompasses attitude, core personality characteristics, and leadership, which provide the ability to guide the project team while achieving project objectives and balancing the project constraints.

The life of a project manager is not a smooth ride even if he or she happens to be an experienced and certified professional in project management.

It has been observed many times that we plan diligently and launch our projects with the best intentions but we don't follow through during the execution phase with the same level of perseverance that we begin with. Project management is not about executing a perfect project plan. It is about steering a path to a set of goals. Projects live in the real world, and project paths wiggle as they are affected by day-to-day influences.

The role of the project manager is to know the true status of his or her project at every point in time and to make real-time decisions to adjust the project, as it wiggles, to ultimately attain its established cost, schedule, and performance goals.

Projects mostly vary in duration, value, and complexity. On a large or a complex project, the project manager may elect to appoint one or more assistant project managers. The project manager may delegate single or multiple responsibilities, including budget responsibility to an assistant project manager. The project manager may direct the assistant project manager to control all the work performed within the framework of various assigned WBS legs. This includes defining work scope, authorising work, assigning and controlling budgets, and monitoring progress.

To summarise this section, if you are a person playing the role of a project manager, there are certain key challenges highlighted below that may possibly cause havoc in your life, but these can be avoided with few precautions.

- **Undefined Goals and Objectives:** It is not enough that you state your project's goals and objectives. You have to define its scope and limitations to effectively communicate to your project team. Collaborate with stakeholders to determine what is needed to come out of the project, how you are going to do it, when you will need to deliver it, and the specific details that are required. Goals that are not well defined will create confusion and will cloud judgement on problem solving. Make sure everything is properly documented to serve as a reference that you can check from time to time.

- **Lack of Accountability:** If your team members do not take responsibility in their task, it may lead to inadequate results, poor quality, or extended deadlines. As a project manager you have to make your team members realise the value of their work towards the success of the whole project. The project is like a machine that will only work well if all of its parts are functioning properly. Your team members are the small parts of the whole thing.
- **Insufficient Team Skills:** Since the project will employ individuals with different expertise in different fields, the value of team work is of great importance. Tasks will need collaboration of different minds working together in exchanging knowledge and information.
- **Communication Deficit:** This challenge is widely common in project management. This problem creates even bigger challenges. Miscommunication in different levels may be present. The project manager may not be able to communicate clearly the project sponsors' expectations and requirements to the team, leading to insufficient results that will take the team back to square one.
- **Inability to communicate well with your team members' needs:** Inability to understand their concerns will lead to decreased motivation and self-esteem, which could interfere with their tasks. What you need to do as a project manager is to facilitate effective communication by using all avenues. Create a checklist of what needs to be communicated to project participants using reports, presentations, memos, etc. The schedule of disseminating this information should be specified to ensure that continuous communication is reaching the right person at the right time.
- **Unrealistic Timeframes:** This challenge may stem from ineffective planning. The preparation and work involved in planning is extensive in order to create realistic deadlines or milestones in the project. Risk management is utilised to be able to determine the risks that can contribute to the delays in the time frame of the project. As a project manager you can utilise project management software or project planning software to determine the specific time frame that your project needs.

## 2.5 What is a project management office?

In the mid-2000s, there was a major push in organisations to establish project management offices with the goal of instilling the much-needed project management discipline in every department across the enterprise, but especially in IT groups. This trend was partly driven by the

Sarbanes-Oxley Act, but more often by the desire to define and standardise project management practices to facilitate project portfolio management, as well as determine methodologies for repeatable processes.

A Project Management Office (PMO) is a management structure that standardises the project-related governance processes and facilitates the sharing of resources, methodologies, tools, and techniques. The responsibilities of a PMO can range from providing project management support functions to actually being responsible for the direct management of one or more projects.

From an organisational perspective, a project, program, and a portfolio management office can be one of three types:

1. Enterprise PMO (ePMO) – spans multiple departments; integrates processes across business units;
2. Departmental PMO – typically established in Information Technology (IT) departments, but also found in marketing, R&D, and other department-level organisations;
3. Special Purpose PMO – created for a single major project, or a set of projects.

There is also a variety of governance and organisational structures. Some enterprises have PMOs that operate as unique entities within their organisations, while other enterprises have a combination of multiple PMOs that operate independently, are organisationally aligned, or are based on the division of PMO functional responsibilities.

### **2.5.1 What is the purpose of a PMO?**

The basic definition of the PMO in a commercial business or professional enterprise is a permanent organisation tasked with one or more of the following objectives:

- define and maintain the guidelines, policies, processes, templates, and standard documentation around projects;
- encourage and sustain repeatability related to project management;
- provide central, co-ordinated management / oversight into the initiation and strategic planning of projects;
- co-ordinate and develop project management training for continuous organisational improvement;
- offer a broad range of services from budgeting, to product management, to direct leadership, to support functions such as coaching, consulting, and marketing;

- identify and develop customised project management methodology, best practices, and standards for usage in the organisation;
- monitor compliance with project management standards, policies, procedures, and templates by means of project audits;
- co-ordinate communication across projects;
- support the prioritisation of strategic projects to ensure that the organisation is working on initiatives aligned with strategic business goals; and
- manage shared resources across all projects administered by the PMO and provide oversight across the resource pool to support the assignment of resources to the highest prioritised initiatives.

Enterprise PMOs can have an even wider scope of responsibilities that includes all planned work and comprehensive resource management, including operations. It is essential that the role of a PMO be well defined and well understood by everyone in the organisation.

One of the biggest determining factors in the success of a PMO is its relative level in accepted process maturity models (see below). As the PMO matures, its general effectiveness increases accordingly.

1. Level 1 – Most business processes are informal or undefined.
2. Level 2 – Most business processes are defined, but not well adopted.
3. Level 3 – Most business processes are defined, repeatable, and followed.
4. Level 4 – Most business processes are aligned, and performance is measured.
5. Level 5 – Most business processes are optimised and continually improved.

According to *The State of the PMO 2010* (Project Management Solutions Inc, 2010), PMOs help:

- reduce failed projects,
- deliver projects under budget,
- improve productivity,
- deliver projects ahead of schedule, and
- increase cost savings.

Unfortunately, not everyone is clear on the PMO benefits. See below some survey details compiled by Ricki Henry (2011).

- *The Global State of the PMO* (ESI International, 2013) – Its Value, Effectiveness and Role as the Hub of Training: 60% of respon-

ents of the survey reported that the value of their PMO had been questioned.

- 2006 PMI survey (Hobbs, 2006): Only 17% of PMOs have been in existence for more than five years.
- 2007 PMI white paper (Sexton, 2007), (Hobbs, 2006) analysing the current state of play: Almost 50% of survey respondents indicated the existence of their PMO was being, or had recently been, seriously questioned.
- 2010 PM Solutions survey (Project Management Solutions Inc., 2010): It shows 50% of PMOs have been closed in the prior four years.

This disconnect can be caused by a number of factors, from structural problems to inadequate metrics to lack of executive support. To secure the buy-in support needed to survive and thrive, PMOs must be always be aligned with organisational strategy, no matter how often it changes. Companies must also understand that PMOs are not a cure-all for woes.

It is essential that the role of a PMO be well defined and well understood by everyone in the organisation. When a PMO's role is poorly defined, either some jobs won't get done, or there will be duplication of effort. A poorly defined PMO will result in an organisational perception that the PMO is either over-extending its mandate or failing to perform. When this happens, the PMO's effectiveness is severely compromised.

## **2.5.2 Do PMOs and project managers play the same role?**

After having read about the role of PMOs the question that may crop up; is this role similar to that of a Project Manager? Project managers and PMOs pursue different objectives and, as such, are driven by different requirements. All these efforts are aligned with the strategic needs of the organisation. Differences between the role of a project manager and a PMO may include the following:

- The project manager focuses on the specified project objectives while the PMO manages major scope changes, which may be seen as potential opportunities to better achieve business objectives of the enterprise.
- The project manager controls the assigned project resources to best meet project objectives while the PMO optimises the use of shared organisational resources across all projects.

- The project manager manages the constraints (scope, schedule, cost, quality, etc.) of the individual projects while the PMO manages the methodologies, standards, overall risks / opportunities, metrics, and interdependencies among projects at the enterprise level.

There are several types of PMO structures that are being globally used in organisations; each varies in the degree of control and influence it has on projects within a given organisation, such as:

1. **Supportive:** Supportive PMOs provide a consultative role to projects by supplying templates, best practices, training, access to information and lessons learnt from other projects. This type of PMO serves as a project repository. The degree of control provided by the PMO is low.
2. **Controlling:** Controlling PMOs provide support and require compliance through various means. Compliance may involve adopting program and project management frameworks or methodologies; using specific templates, forms, and tools; or conformance to governance. The degree of control provided by the PMO is moderate.
3. **Directive.** Directive PMOs take control of the programs by directly managing the projects within the program. The degree of control provided by the PMO is high.

The PMO integrates data and information from corporate strategic projects and evaluates how higher-level strategic objectives are being fulfilled. The PMO is the natural liaison between the organisation's portfolios, programs, and projects and the corporate measurement systems (e.g. balanced scorecard).

The below-mentioned statistics show an improvement in the utilisation and outcomes of PMOs over the years:

- According to Gartner (2011), organisations that properly implement a PMO will incur half of the project cost and reduce schedule overruns compared with those who do not. Metrics can show the business value the PMO brings to the organisation (e.g. 95% of project KPIs are achieved in 90% of projects), functional performance value (e.g. rework is reduced by 15%), and service level value (e.g. customer satisfaction 90% satisfied or very satisfied). Metrics are essential for getting needed support. They demonstrate progress, value, and productivity.
- According to PMI's 2011 Pulse of the Profession Survey, organisations with an effective PMO report significantly more projects coming in

on time, on budget, and meeting intended goals and business intent compared with those without a PMO.

- According to PMI’s 2013 Pulse of the Profession Survey, the percentage of organisations with PMOs or a similar centralised project management department is increasing. Nearly seven out of ten organisations (69%) have a PMO, up from six out of ten (61%) in 2006, when PMI first began tracking this.

Organisations are increasingly establishing PMOs with enterprise-wide responsibilities, which are growing more rapidly than those that serve a department, region, or division of the organisation. Compared to their department-specific, regional, and divisional peers, enterprise-wide PMOs are more focused on strategic aspects of project management, such as training, portfolio management, establishing metrics, and developing core project management maturity. These findings suggest that as more enterprise-wide PMOs are created, more projects will be aligned with the business goals of the organisation and project management will be executed strategically.

Looking at the recent trends, there may be a need for an advanced PMO setup to be well prepared to meet future demands in dynamic operating environments. Table 2.3 highlights the differences between traditional and next generation PMOs.

Table 2.3 Need for an advanced PMO model

Traditional PMO	Next Generation PMO
• Focus mostly on tactical issues	• Focus on strategic and cultural issues
• Science of project management	• Art and craft of project management
• Emphasis on monitoring and control	• Emphasis on collaboration
• Tools as a ‘map’	• Tools as a ‘compass’
• Internal process focused	• Focus on end products and customers
• ‘Heavy’ methods and practices	• ‘Agile’ methods and practices
• Based on rules	• Based on guiding principles
• Defined, repeatable, optimised practices	• Adaptive and innovative practices
• Focus on efficiency	• Focus on effectiveness and innovation
• Process leadership	• Thought leadership
• Heavy management and governance	• Balanced management, governance and leadership



## 2.6 Project interdependencies

The interdependencies between projects create complexities for the management of project portfolios within organisations. This section attempts to understand and address this factor. In times of uncertainty, this challenge is even greater due to the difficulties in predicting the flow-on effects from changes to projects in the portfolio. Hence, in times of disruptive change, a good understanding of project interdependencies is particularly important, and there is a need for better methods and tools to aid in this understanding. Methods like network mapping and other graphical methods for capturing, displaying, and updating information on dependencies between projects may assist in decision making.

**Project Interdependencies** – a term used in the context when two or more projects are related to each other in one or several ways:

- One project cannot start until the other is finished (or started).
- The same resources are shared between the projects.
- The projects share an overall budget (so if a project has a cost overrun, then the other project will suffer).
- Some deliverables in one project are necessary to start one or more tasks in another (or a few other) project(s).
- There may also be a scope dependency, for example if project A cannot build all of the features needed in building a product then we may have to push some of those features into project B.
- A delay in one project is considered to be a risk in the other; the projects complement each other; that means finishing one project alone is useless, so all the projects have to be finished in order to deliver a product or a service. For example, imagine you are creating a new telecom office service, and you have several projects: creating the sites (towers, equipment, etc.), installing the intelligent network, setting up the Customer Care Department, etc. Obviously the service cannot be launched without having all these projects done.

The interdependencies can be identified very early in the planning process, well before a detailed schedule exists. The following steps may help:

- Interdependencies are often associated with deliverables. Interdependencies should be represented as milestones, particularly in the recipient schedule.
- Clearly define the expected state of the dependency, for example 'draft', 'final', 'signed off', to ensure there is no misunderstanding.

- The producer and recipient need to formalise the agreement; there must be a personal commitment involved.
- Once agreed, change must be controlled, for example deletion, descriptions, baseline date, and so forth.
- Uniquely identify the outgoing dependency in the incoming file; this will help with electronic data exchange.
- Consider whether to actually link via inter-project linking, whether to just pass through forecast, perhaps into another field, or rely on manual updating.
- Include interdependency dates in reporting; focus on any shifts in forecasts since the previous report.

## **2.7 Alignment of projects within overall program benefits**

A project usually exists inside a larger organisation encompassing other activities. In such cases, there are relationships between the project and its environment, business planning, and operations, and thus it is imperative to understand how projects align in the overall program benefits. Pre-project and post-project activities may include activities such as business case development, conducting feasibility studies, and transitioning to operations.

Projects may be organised within programs and project portfolios. Figure 2.5 illustrates these relationships.

While a program is generally a group of related projects and other activities aligned with strategic goals, program management is the centralised co-ordinated management of a program to achieve strategic benefits and objectives.

A program is designed as a temporary flexible organisational structure created to co-ordinate, direct and oversee the implementation of a set of related projects and activities in order to deliver outcomes and benefits related to an organisation's or a government's strategic objectives.

Managing multiple projects as a program allows one to:

- optimise or integrate cost, schedules, effort, and resources;
- deliver incremental benefits;
- resolve issues related to any scope/cost/quality/schedule changes within a shared governance structure;
- mitigate risks that run across components, like contingency planning; and
- deliver integrated or dependent deliverables.

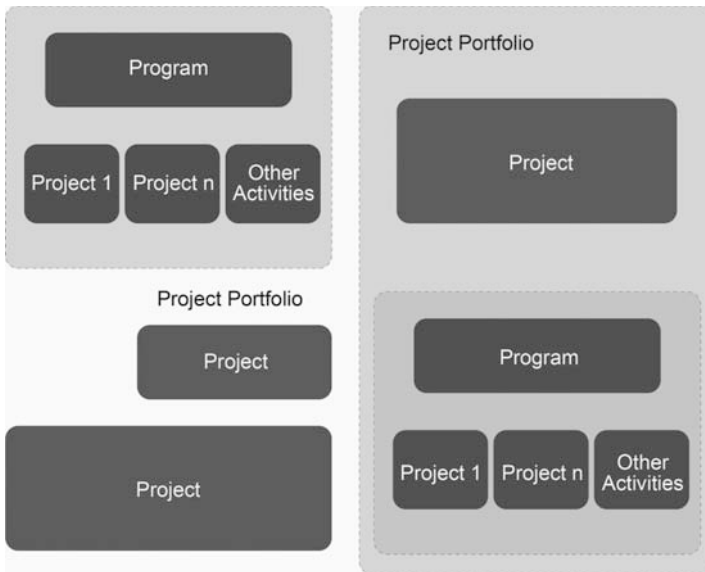


Figure 2.5 Projects, programs and project portfolios, ISO 21500

Programs, like projects, help in achieving organisational goals and objectives, often in the context of a strategic plan. Although a group of projects within a program can have discrete benefits, they often contribute to a common set of benefits.

Some projects are 'simply too large to manage as a single entity', and then you necessarily need to split them up into smaller manageable projects. If the whole is too large for a single project manager to handle, then it follows that a number of project managers are required to take care of the smaller projects. Therefore, smaller projects are required with multiple project managers, all designed to achieve a single long-term objective or benefit for the organisation. In order to control this group and have an overall view, the role of a program manager is required.

What kind of projects can be managed through a program?

- projects with a common outcome that can create collective capability and share the same resources;
- projects that have the same tasks, that serve the same customer or business plan;

- projects where risks can be reduced when managed together; and
- projects that have strategic benefits associated with co-ordinated planning and optimised pacing.

Projects may be interdependent because of the collective capability they deliver, or they may share a common attribute such as a business plan, client, seller, vendor, technology, functionality, or resource.

If the relationship among the projects is determined to be only that of a shared client, seller, technology, or resource, the effort could be managed as a portfolio of projects rather than as a program.

Since a project is a 'temporary endeavour to create a unique product or service', a program does not typically manage operational processes and functions. Thus, if the business goal is to maintain co-operation between marketing and product design or to ensure that the chosen project management methodology is followed on all projects; the solution would not involve setting up a program: both co-operation and adherence are processes that should be supported indefinitely via a staff function like a PMO.

Program management focuses on the project interdependencies and helps to determine the optimal approach for managing them. Actions related to these interdependencies may include:

- resolving resource constraints and / or conflicts that affect multiple projects within the program,
- aligning organisational / strategic direction that affects project and program goals and objectives, and
- resolving issues and change management within a shared governance structure.

An example of a program is a new communications satellite system with projects for design of the satellite and the ground stations, the construction of each, the integration of the system, and the launch of the satellite.

## **2.8 Conclusion**

The world of project management is not static. Fluctuating economies, evolving technologies, and emerging business trends often lead towards new best practices in the profession. Organisations know that it is not necessarily what they do, but how they do it that gives them a competitive advantage. Those that don't stay on top of these changes can easily

be lost in a land of myth and misconception – and that can be bad for businesses.

Following best practices or a particular project management methodology or framework cannot make projects failure proof. To succeed, a successful project needs much more than a cookbook approach, especially when implementing large-scale projects. There are many issues that require management attention, and a comprehension of their possible impact is considered essential to increase the chances of a successful endeavour as detailed in this chapter.

Large projects create tremendous pressure on organisations, which cannot be truly anticipated or understood without experiencing it. With an appropriate set of models to understand and distribute responsibility, an organisation can keep itself in a position of control at the pace large projects must execute. Special measures are required to keep on top of performance innovation to avoid pitfalls that may not be significant individually, but cumulatively create an impact impossible to undo. A PMO has a dedicated management team to keep the projects, and the project management activities of an organisation, on track.

Effective and adaptable project management practices are mandatory for the success of any organisation that wants to deliver value to its customers and meet the expectations of its stakeholders. While the project manager is responsible for the overall outcome of the project, it is important that the successful outcome is the result of the leadership skills that the project manager employs in engaging with the project team members who are responsible for their respective roles and the progress of the project.

# 3

## Program Management Philosophy and the Importance of a PgMO

This chapter details the philosophy of program management as per global standards, showcasing its need and benefits along with highlighting the differences with project management. This chapter also intends to provide the attributes needed to be a successful program manager along with detailing the purpose, importance, and role of a Program Management Office (PgMO).

### 3.1 Program management overview and common misconceptions

Traditional project management products and techniques may not recognise the reality of today's organisational structures and work place priorities, nor do they leverage the potential benefits that accrue from multi-skilled, multi-location teams. Program management is a technique that allows organisations to run multiple related projects concurrently and obtain significant benefits from them as a collection.

Program management concentrates on delivering some or all of the following:

- new capabilities and services,
- business plan,
- strategic objectives,
- change, and
- other initiatives.

It is important to understand exactly what program management is, an often misunderstood or misused term.

Although management of multiple projects under one roof has been around for a long time, **Program Management** has become a more recognised standard for its effectiveness and the consistency it brings to the overall process. The program management function helps in terms of delivering a benefit or generating a synergistic outcome across the organisation; this is especially true when you are managing interdependent projects. Programs deliver, or enable one or more benefits, i.e. measurable improvements resulting from an outcome and perceived as an advantage by one or more stakeholders. Stakeholders are those who are directly or indirectly impacted by the outcome of a project or program.

Before getting into more details on program management standards it is important to identify when it is appropriate to treat an initiative as a program and how and when to define and select a program.

### 3.1.1 Identification and definition of a program

To be worth considering as a program, an initiative must:

- meet a strategic need;
- enable and manage the realisation of benefits;
- require high level leadership and direction;
- involve a range of projects / work streams / activities which together deliver the changes and outcomes required to enable the required benefits; and
- be driven by either:
  - a 'Vision' (e.g. a new policy initiative); or
  - a need for 'Compliance' (e.g. introduce changes to make information systems comply with some new legislation or duty); or
  - an 'Emerging' requirement to bring together for cohesion and/or management efficiency a number of existing projects / work streams /activities.

To treat an initiative as a program there must be justification in terms of the added value gained by introducing a layer of management between portfolio management and project management.

Early in the life of a new initiative the below-mentioned aspects can be considered (but not limited) to determine which approach is appropriate:

- **Alignment with Corporate Strategy:** Is this initiative directly driven by a strategic need – e.g. as identified in a Corporate Plan / Business Plan?
- **Leading Change:** Should this initiative be led at a senior level in order to take a range of stakeholders on what might be a challenging

journey involving many changes to such things as controlling, working practices, attitudes, and behaviours?

- **Envisioning and Communicating a Better Future:** Is there a compelling vision of a better future that the initiative must achieve?
- **Focus on Benefits and the Threats:** Will the outcomes arising from the program result in tangible advantage (or disadvantage) to one or more stakeholders within or beyond your organisation (including the general public and society as a whole)? Will benefits be realised during the life of the initiative?
- **Designing and Delivering Coherent Capability:** Will the required outcomes and benefits be dependent on the creation of many different but related project outputs which must be integrated and implemented successfully into a program?
- **Learning from Experience:** Has your organisation undertaken similar initiatives? Is there anything you could learn from such an experience? Is your management culture such that you will continue to identify lessons during this program?
- **Adding Value:** Will the cost of the additional resources required for managing the initiative as a program be justified in terms of the increase in likelihood of success?

Programs are likely to be:

- Cross-cutting
- Multi-disciplinary
- Multi-location
- Risky
- Involving complex integrations
- Using diversified technologies
- Uncertain, with unpredictable outcomes
- Long duration (spanning years rather than months)
- Influenced by a wide range of interested parties with differing degrees of commitment
- Impacting a wide range of stakeholders some of whom may suffer 'ill-benefits'
- Liable to change direction in the light of experience and external events

Program needs are determined by business objectives, organisational priorities, and the attributes of the particular projects in the program. Some programs will be required to provide on-going ROI justification



and strict financial accountability; others may be focused on schedule and deadlines, and still others on product quality and customer satisfaction. Also a **subprogram** is the term used to explain a program that is managed as part of another program. See Figure 3.1 for understanding program management environments.

In programs, the **Program Manager** who manages the program needs to integrate and control the interdependencies among the components by working in five interrelated and interdependent Program Management Performance Domains: Program Strategy Alignment, Program Benefits Management, Program Stakeholder Engagement, Program Governance, and Program Life Cycle Management.

### 3.1.2 Program management and project management

Since the philosophy of program management is based on the understanding that **the whole is greater than the sum of its parts**, key areas essential in program management have been listed below:

- plan projects;
- organise and optimise resources;
- achieve optimal synergistic results;
- deliver intended benefits;
- build systematic monitoring and audit processing;
- involve stakeholders;



Figure 3.1 Program management environments in organisations

- define customised process;
- identify and manage risks;
- manage issues;
- inculcate knowledge management including collection, dissemination;
- standardise processes for repeatability, scalability, and better metrics collection and utilisation;
- ensure quality; and
- track continually changing environment.

Program management is a way to control project management, which traditionally has focussed on technical delivery. A group of related projects not managed as a program are likely to run off the course and fail to achieve the desired outcome.

Programs may contain projects or sub-projects out of which some probably might have been outsourced to different vendors whereas some are retained by the organisation.

While **Project Management** is more about managing within boundaries of a project and tracking the desired outcomes at the defined milestones, **Program Management** is typically about breaking those very boundaries and managing across the component projects. Program management must enable building solutions using the power of cross-functional teams, be the cohesive force that keeps all the dissimilar and disparate teams together, protect the program from the vagaries of the external environment, and above all, ensure stakeholder delight.

Program management is, however, different from ‘business processes’, which refer to the on-going operations, such as accounting, fleet management, recruiting, office management, procurement, representation, and the likes. Good ‘business processes’ should be applied to operations, often in support of a portfolio of strategy and programs, while good ‘program management’ should be applied to programs. These are distinct, but highly complementary practices. This is reflected in the Program Management Framework depicted above – see Figure 3.2.

The nine knowledge areas similar to project management that support program management are **Scope, Quality, Schedule, Resource, Risk, Procurement, Communications, Financial Management, and Integration Management**; however, the functionalities and boundaries may vary.

Table 3.1 below identifies the differences between program management and project management to provide an additional clarity on how various knowledge areas get addressed.

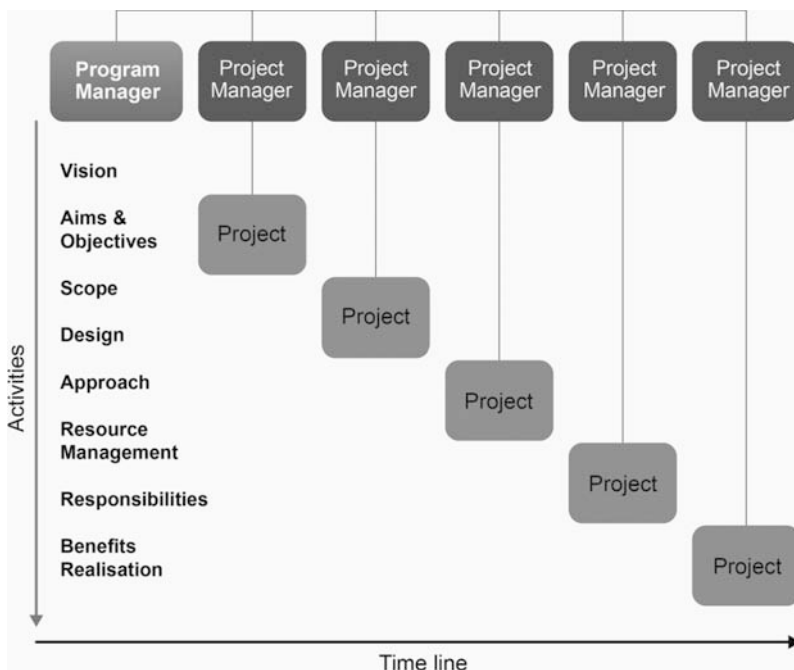


Figure 3.2 Program management framework

Table 3.1 Differences between program management and project management

Program management	Project management
<p><b>Communications management</b> Provides policy direction to project managers. Consolidates information on all projects for executive sponsors and other governance mechanisms.</p>	<p>Provides project performance measurement data to the program manager. Provides project information to project stakeholders.</p>
<p><b>Financial management</b> Prepares, justifies, manages, optimises, and defends program budget. Ensures timely funding of constituent projects.</p>	<p>Develops and submits project budget. Executes project to budget.</p>
<p><b>Technology management</b> Establishes project and product management environment. Establishes and co-ordinates common technology infrastructure components.</p>	<p>Utilises selected methodologies and tools. Establishes configuration management process for the project's technology infrastructure.</p>

(Continued)

Table 3.1 Continued

Program management	Project management
<p><b>Resource management</b> Optimises allocation of resources across all projects in the program.</p>	Makes the most effective use of project team members.
<p><b>Risk management</b> Performs risk planning on program level. Performs risk trade-offs among projects.</p>	Identifies and manages risks to the project. Executes risk response plans for the project.
<p><b>Quality management</b> Establishes a consistent quality management system across the program by imposing tools and techniques for quality planning, quality assurance, and quality control. Reviews program performance against established baselines, identifies significant variances in program results, and recommends corrective actions.</p>	Implements the quality management system on the project, with continuous quality improvement activities conducted as appropriate. Monitors variances in project results and implements corrective actions.
<p><b>Integration</b> Aligns the program and its constituent projects with business strategic plan, goals, and objectives; conducts program planning across project phases and boundaries. Ensures that project results satisfy program objectives; champions the program's success. Assures proper co-ordination and co-operation among multiple projects and with program stakeholders.</p>	Employs chosen project management methodology to manage the project throughout its lifecycle and achieve project objectives. Employs chosen product development methodology to manage the product development lifecycle. Co-ordinates activities of project team members and stakeholders.

### 3.1.3 Some common misconceptions

- **Programs are simply 'large projects':** Though program managers should have mature project management skills to be able to influence the performance of component projects, they are not managing these projects on a day-to-day basis; they are rather resolving inter-project priorities, dependencies, issues, and risks.
- **Good project managers make good program managers:** Not necessarily. Project managers need to focus mostly on the hard objectives of the project – on time, on budget, delivering the scope with required quality. Program managers need to focus on organisational priorities and objectives and may need to alter courses of action such as prioritising, purposeful delaying, or cancelling projects that are on track or not on track, based on a change in the organisation's business strategy.

- **Programs succeed if component projects succeed:** History shows that even when projects are deemed successful, the benefits they were intended to generate do not materialise – which is the purpose of a program. As benefit generation goes beyond the deadline of a project, often a program’s life extends beyond the life of component projects into the realm of business operations.
- **Program management primarily focuses on operations and other administrative control activities:** This is not the intended philosophy of program management. It has to support project teams along with monitoring and auditing progress, align outcomes to program strategy, and work on benefits realisation with effective stakeholder engagement.

### 3.2 Program manager’s role and attributes

It is time to dwell more on the role of a program manager. A **Program Manager** oversees, providing direction and guidance to managers of component projects and operational functions by co-ordinating efforts among them. Essential responsibilities of a program manager are the identification, rationalisation, monitoring and control of the interdependencies among projects; dealing with escalated issues outside the control of each project; and managing the contribution of each project to the consolidated program benefits.

People playing this role need much broader expertise, strategic thinking, and superior capabilities related to governance, risk, and change management than just project management experience.

Whether you are part of a large organisation or a small one, it is important to understand the difference and dependencies between project and program management. In a small organisation – even if it is just a couple people – the company leader is a de facto program manager. It is at this smaller stage that good culture and habits are grown. In a large organisation if you don’t have a solid program management function in place, it is very likely that you are in absolute chaos.

The primary difference between a program manager and a project manager can be summed up in the words – **create and comply**.

Program managers work to ensure that projects within a program are organised and executed in a consistent manner and fulfilled within established standards. The Program Management Office, when present, may have a role in providing information needed to make decisions that guide the program in addition to providing administrative support

in managing schedules, budgets, risks, and the other areas required for the program.

A program manager is responsible for creating the business environment culture which a project manager complies with to execute. A project manager is judged on the triple constraint of time, cost, and scope of the project. A program manager is also judged on these three elements but at a level that is cumulative for all the projects. Thus the role of the program manager is complex; it is multifaceted and can vary from managing multiple projects to managing multiple projects with operational responsibilities, in addition to being accountable for profit or cost targets linked to the business by aligning with internal and external compliances.

Program managers should address a number of issues systematically and effectively during the course of the program, for example, optimising resources among a program's components, evaluating total cost of ownership, and overseeing requirements and configuration management across components.

Program managers are expected to bring some order and clarity to chaotic scenarios. This does not mean they can act with explicit authority. Program managers mostly need to work behind the scenes and not as ones intervening in day-to-day execution of projects. The challenge for program managers lies in establishing authority and control without being seen as a menace. It is about leaving the day-to-day project dilemmas to project managers while maintaining a light but supportive influence on project decisions.

A successful program manager uses knowledge, experience, and leadership effectively to align the program's approach with the organisation's strategy, improve the delivery of program benefits, enhance collaboration with stakeholders and governance boards, and manage the program life cycle. In a nutshell, program managers lead the program management team in:

- establishing program direction,
- identifying interdependencies,
- communicating program requirements,
- tracking progress,
- making decisions,
- identifying and mitigating risks, and
- resolving conflicts and issues.

Program managers work with component (project) managers and often with functional managers to gain support, resolve conflicts, and direct

individual program team members by providing specific work instructions. Leadership is embedded in the program manager's role and prevails throughout the course of the program.

In general, this requires the program manager to exhibit certain core competencies, including the abilities to:

- recognise the dynamic human aspects of each program stakeholder's expectations and manage accordingly;
- manage details while taking a holistic, benefits-focused view of the program;
- leverage a strong working knowledge of the principles and processes of both program and project management;
- accomplish objectives through others which is directly correlated to the strength of the relationships or the relationship capital the program manager has developed;
- interact seamlessly and collaboratively with governance boards and other executive stakeholders;
- establish productive and collaborative relationships with team members and their organisational stakeholders;
- make quick decisions at the appropriate level through the establishment of clear lines of accountability and escalation processes;
- leverage own technical / functional knowledge and experience to provide perspectives that support the understanding and management of program uncertainty, ambiguity, and complexity;
- facilitate program success through the use of exceptionally strong communication skills to interact effectively with various stakeholders – team members, sponsors, customers, vendors, suppliers, consultants, contractors, senior management, and other program stakeholders.

Demonstrating the above capabilities within the context of a particular program or organisation may provide unique challenges. A program that is complex because of technical design issues may require a program manager with an engineering or technical background; a program that is complex because it involves many hundreds or thousands of interconnected activities may require a program manager with extensive background and experience in project management.

Given the often complex and dynamic nature of programs, it is understandable that professional program managers often enter the field from a technical discipline closely related to their programs or from the project management field. Those who enter the field from other disciplines

often find themselves pursuing more formal program management training through professional certification processes.

As a person playing the role of a project manager, leading a project to success provides a feeling of accomplishment. Having been successful at several projects, many project managers could aspire to become a program manager, a likely career move. They should invest in understanding the above-mentioned responsibilities and develop core competencies that are needed to be a successful program manager with a change in the mind set with a future outlook and groom themselves while they are still managing projects.

Table 3.2 illustrates various functionalities that need to be addressed while managing projects and programs by people playing the roles of project managers and program managers.

A program manager needs to have an ingrained sense of organisational mission, must lead and have the presence of a leader, must have a vision and strategy for long-term organisational improvement, must be a relationship builder, and must have the experience and ability to assess people and situations beyond their appearances.

### **3.3 Research in program management**

Relating project management to management of program

In recent years, several initiatives have been taken up by many institutions and organisations in arriving at standards and guidelines in program management, some globally and a few locally including government entities like:

- PMI Program Management Standards
- APM Program Management Qualification
- Managing Successful Programs (MSP)
- Major UK Government Investment
- Program Management Maturity Model

As Thiry (2010) states, 'Program Management has emerged as a methodology that enables organisations to deal with increased ambiguity and complexity and is well suited to reduce ambiguity, an essential preliminary course of action for project management to be effective.'

Processes from *A Guide to the Project Management Body of Knowledge* (PMBOK® Guide) from PMI have been historically well applied to projects. But programs and their respective management teams often



*Table 3.2* Functional differences in managing projects and programs

Function	Projects	Programs
<b>Scope</b>	Projects have narrow and defined objectives with specific deliverables.	Programs have wide scopes that may have to change to meet the benefit expectations of the organisation.
<b>Nature</b>	Tactical in nature focused on execution success of project deliverables.	Strategic in nature, focus is on business success and ensuring work remains feasible from business perspective.
<b>Change</b>	Aligns project deliverables to program goals. Project manager may expect change within the project and also tries to keep change to a minimum.	Aligns execution of multiple projects to business strategy & goals. Program manager has to expect and even embrace change both inside and outside the program.
<b>Success</b>	Success is measured by on budget, on time and the services/products delivered to specification as per project quality.	Success is measured in terms of Return On Investment (ROI), new capabilities and benefit delivery.
<b>Leadership</b>	Leadership style focuses on task delivery and directive in order to meet the success criteria.	Leadership style focuses on managing relationships and conflict resolution. Program managers need to facilitate and manage the political aspects of the stakeholder relationships.
<b>Role</b>	Project managers manage technical/functional resources, specialists, etc.	Program managers manage project managers and the program staff. Program manager integrates efforts, continuously assesses and refines approaches and plans, ensures good communication.
<b>Responsibilities</b>	Project manager is a team player, motivated by knowledge and skills.	Program managers are leaders providing vision and leadership. Program Managers act as the implementation arm of the program sponsor(s) and / or steering committee.
<b>Planning</b>	Project manager manages work within the project plan framework. Project managers conduct detailed planning to manage the delivery of the deliverables thorough out the life cycle of the project.	Program managers create high-level plans providing guidance to projects where detailed plans are created.
<b>Monitoring, Control, and Management</b>	Project managers monitor and control tasks and the work for producing the project's outputs. Vertical management of single function within the project is required to manage a single element of solution	Program managers monitor projects and on-going work through the governance structures. Horizontal management across all the projects involved in the program is required to integrate the project outputs

suffer from a lack of the same processes. The PMBOK® Guide has limited usage when it comes to program management.

Program management teams are frequently thought of as administrative functional units, watchdogs, or auditors. These teams generally are not considered to have the detailed kinds of structures and processes in place as projects do. They are often viewed as managers managing and not producing. *The Standard for Program Management* from PMI (2013) now describes how those assumptions are not the case. It explains programs as having three themes – benefits management, stakeholder engagement, and program governance.

The first two themes are generally easier to achieve and often follow the processes for benefits and stakeholder management in a way similar to how projects manage these processes.

Program governance generally becomes a challenge because of the tendency of separate projects that prefer to govern themselves. They particularly become more difficult to manage when it comes to the knowledge area processes of Human Resource Management, Quality Management, Communications Management and Risk Management. Program organisational structure and governance plays a very important role in ensuring that component projects are not only cleanly defined, they also identify inter-group dependencies and secure commitments to address them.

The UK publication MSP stands for *Managing Successful Programmes* and is a framework of best practice guidance for managing different types of programs. Commissioned and backed by the OGC (Office of Government and Commerce) MSP was developed by the APMG (Association of Project Management Group). MSP is designed to support change within an organisation or in the wider community.

MSP was first released in 1999 in recognition of the need for greater links between an organisation's long-term strategy, objectives and goals, and the projects being undertaken by that organisation. The third version of MSP was released in 2007 and demonstrated a significant advance in the maturity of program management by expanding on the original concepts and introducing new tools and techniques.

Most of the standards and guidelines mentioned in this chapter have been identified from various global sources and primarily from PMI's *The Standard for Program Management*, 3rd edition, and from OGC's MSP.

### **3.3.1 Program management themes**

According to Gartner, '60% of large program initiatives fail to achieve their business objectives. Further, they are delivered late or substantially over budget'.

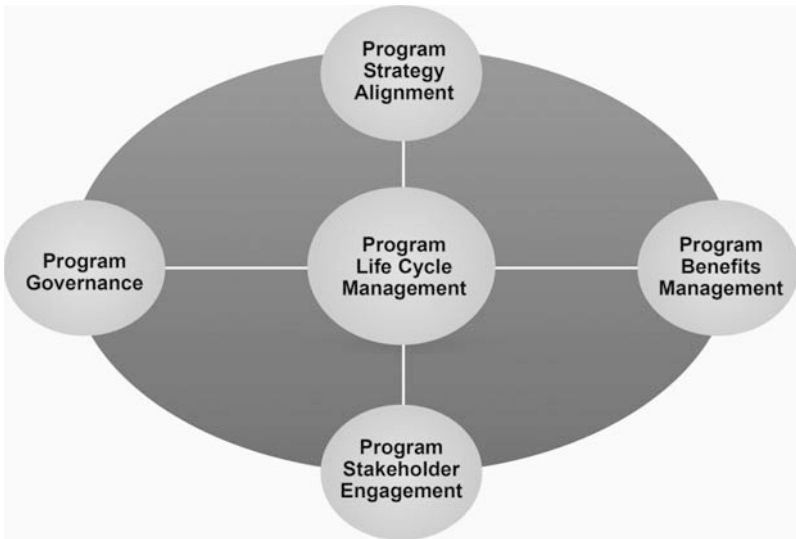


Figure 3.3 Program management themes

Source: *The Standard for Program Management*, 3rd edition, by PMI.

Most of these failures are people-related and can be traced back to:

- underestimating program complexity;
- lack of firm leadership, commitment, and sponsorship;
- poor cross-functional communication;
- lack of integrated planning;
- no defined success metrics;
- poor requirements management;
- lack of broad change management;
- misaligned stakeholder expectations;
- inadequate program management skills; or
- lack of resources.

The broad management themes which are the **key to the success** of a program are listed below, the same are explained further in the next sections. See Figure 3.3.

1. **Program Strategy Alignment:** Identifying opportunities and benefits that achieve the organisation's strategic objectives through program implementation.

2. **Benefits Management:** Defining, creating, maximising, delivering, and sustaining the benefits provided by the program.
3. **Program Stakeholder Engagement:** Capturing and understanding stakeholder needs, desires, and expectations, and analysing the impact of the program on stakeholders, gaining and maintaining stakeholder support, managing stakeholder communication, and mitigating / channelling stakeholder resistance.
4. **Program Governance:** Establishing processes and procedures for maintaining program management oversight and decision-making support for applicable policies and practices throughout the course of the program.

### 3.4 Program strategy alignment

Initiating a program begins by determining the need for a program by the organisation, enterprise, or portfolio, and by validating the program’s expected outcomes as a result of conducting a business case. The next steps include establishing the **Program Plan** and developing an overarching **Program Roadmap** through the application of a program approach across the entire duration of the program.

Environmental assessments are conducted to provide inputs that ensure the business case, program plan, and program roadmap are aligned to the right value based on the environment in which the program will be operating to deliver the expected benefits. Figure 3.4 illustrates the relationship between the program management plan and other strategy-

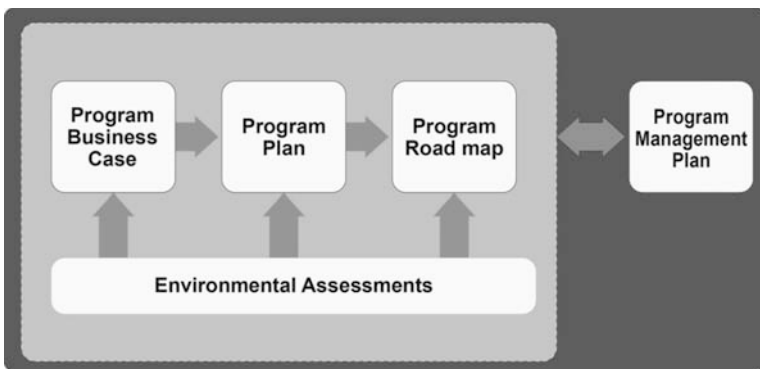


Figure 3.4 Elements of program strategy alignment

Source: *The Standard for Program Management*, 3rd edition, PMI.

related documents. All of these elements become the basis for the development of a comprehensive program management plan that establishes the outline used to achieve the organisational strategy and objectives through program implementation.

The program plan contains many elements, includes many documents, and formally expresses the organisation's concept, vision, mission, and expected benefits produced by the program; it also defines program-specific goals and objectives.

The program roadmap should be both a chronological representation in a graphical form of a program's intended direction as well as a set of documented success criteria for each of the chronological events. It should also establish the relationship between program activities and expected benefits. It depicts key dependencies between major milestones, communicates the linkage between the business strategy and the planned prioritised work, reveals and explains gaps, and provides a high-level view of key milestones and decision points. The program roadmap also summarises key end-point objectives, challenges, and risks and provides a high-level snapshot of the supporting infrastructure and component plans.

It should be noted that while elements of a program roadmap are similar to a project schedule, it is meant to outline major program events for the purpose of planning and the development of more detailed schedules.

To better enable effective governance of the program, the program roadmap can be used to show how components are organised within major stages or blocks; however, it does not include the internal details of the specific components. In a large construction program, for example, these may be stages of construction. In a system development and production program, the program roadmap may depict how the capability is delivered through incremental releases or a series of models.

Within the dimension of an organisation or enterprise, the program is valued based on its contribution to and alignment with the overall strategic goals of the organisation. These goals can vary, for example, from market-oriented goals, to image campaigns, to social and environmental benefits. They include the overall program success of benefit achievement and sustainment in terms of the product or service being delivered. The sample metrics associated with **Strategy Alignment** are:

1. **Social and Environmental Benefits:** Assesses the positive impact on the social and ecological environment within and around the program.

2. **Stakeholder Satisfaction:** Considers the wishes and requirements of the wider set of involved persons other than the program sponsors. It measures to what degree the different groups of stakeholders were satisfied with the result and execution of the program.
3. **Competitive Position:** Describes the program in its competitive environment in terms of a dominating role and the influence that the evaluated program had on improving or sustaining it, as well as any kind of competitive advantage gained through the program.
4. **Reputation:** Measures the influence the program had in helping to establish and maintain a specific desired image of the enterprise to the customers but also the general public perception.

Strategy alignment assesses the consistency of the program, its goals, and the way it is executed using the enterprise or organisation strategy.

Organisation strategy is a result of the strategic planning cycle, where the vision and mission are translated into a strategic plan within the boundaries of the organisational values. Organisations build strategy to define how their vision will be achieved. The strategic plan is subdivided into a set of organisational initiatives that are influenced in part by market dynamics, customer and partner requests, shareholders, government regulations, and competitor plans and actions.

In addition to aligning with organisational strategy, the program is formally authorised by means of the organisation's initiative selection and authorisation process. The goal of linking portfolio management to the organisational strategy is to establish a balanced, operational plan that will help the organisation achieve its goals and balance the use of resources in order to maximise value in executing programs, projects, and other operational activities; see Figure 3.5.

Customer-focused programs are initiated when they complement the organisation's strategic business plan and are accompanied by formal customer authorisation or contractual agreement. Internal programs such as enterprise-wide process improvement programs are undertaken by organisations or operations as a catalyst for change. Once the area to be addressed is understood and the stakeholders are identified with whom communication should be established, a high-level approach or plan, often defined as a program roadmap, is developed. This plan demonstrates that the program manager clearly understands the stimuli that triggered the program, the program objectives, and how the objectives align with the organisation.



Figure 3.5 Strategic and operations processes within an organisation

Source: *The Standard for Program Management*, 3rd edition, PMI.

### 3.5 Program benefits and business value management

**Benefits Management** ensures that the organisation or enterprise will realise and sustain the benefits expected from taking up the program. Benefits can be tangible or intangible, and benefits management should begin in the early phase of a program’s life cycle.

The financial aspect of a program includes the need to conform to internal (and sometimes external) policies and / or regulations for significant expenditure. It also includes the development and use of program-specific procedures for making and reporting expenditures.

Value is what the customer says it is, considers important, and is willing to pay for. In simple applications, the customer states what is required, and the contractor makes it and delivers it, hopefully satisfying or even delighting

the customer. This works well when buying ice cream, but is much more challenging when developing a new, complex technological system.

In large-scale engineering programs (such as government programs), there may be thousands of stakeholders in numerous communities of users, acquisition stakeholders, prime contractor and suppliers throughout the value chain, and other stakeholders, such as politicians, lobbyists, shareholders, banks, etc. Stakeholders promote those aspects of value which are important to them, and are often in conflict with other stakeholder requirements. These factors make the value capture and contract formulation a significant challenge and a costly process.

Yet, value must be defined precisely, or the subsequent program will suffer delays, owing to added costs, frustrations, and, in extreme cases, program closure or failure. It is critical for everyone involved in the process to be focused on capturing the final value proposition with the best of competence, wisdom, experience, and consensus. The value definition must be crystal clear, unambiguous, and complete, representing customer needs during a system lifecycle and allowing effective channels for value clarification without causing requirements creep.

In program management, the term benefit is often used to describe a concept similar to that of value. Benefits in program management are defined as the achievement of explicit objectives and lasting change, specified and approved by customer stakeholders.

The program manager must focus on the following areas in benefits management:

- definition of each benefit and how it is to be realised,
- mapping of benefits to program outcomes,
- metrics and procedure to measure benefits,
- roles and responsibilities for benefits management,
- communication plan for benefits management, and
- transition of the program into on-going operations and benefits sustenance.

Program benefits management interactions through each phase of the program as depicted in Figure 3.6 are:

- Benefits Identification,
- Benefits Analysis and Planning,
- Benefits Delivery,
- Benefits Transition, and
- Benefits Sustainment.



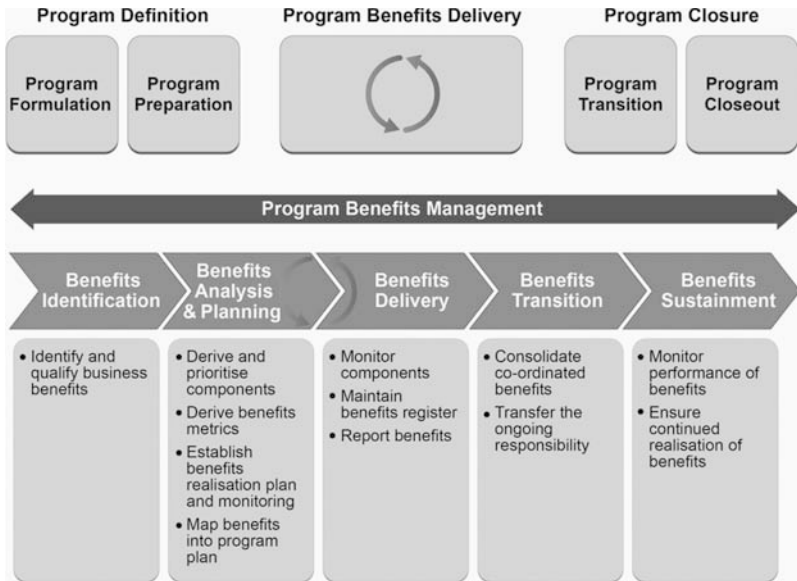


Figure 3.6 Program life cycle and program benefits management

Source: *The Standard for Program Management*, 3rd edition, PMI.

### 3.5.1 Benefits realisation plan

The **Benefits Realisation Plan** formally documents the activities necessary for achieving the program’s planned benefits. It identifies how and when benefits are expected to be delivered to the organisation and specifies mechanisms that should be in place to ensure that the benefits are fully realised over time. The benefits realisation plan is the baseline document that guides the delivery of benefits during the program’s performance. The benefits realisation plan also identifies the associated activities, processes, and systems needed for the change driven by the realisation of benefits; the required changes to existing processes and systems; and how and when the transition to an operational state will occur.

The benefits realisation plan should:

- define each benefit and associated assumptions, and determine how each benefit will be achieved;
- link component project outputs to the planned program outcomes;
- define the metrics (including key performance indicators) and procedures to measure benefits;

- define roles and responsibilities required to manage the benefits;
- define how the resulting benefits and capabilities will be transitioned into an operational state to achieve benefits;
- define how the resulting capabilities will be transitioned to individuals, groups, or organisations responsible for sustaining the benefits; and
- provide a process for determining the extent to which each program benefit is achieved prior to formal program closure.

Projects create deliverables. Programs combine deliverables to create capabilities. The organisation utilises the capabilities and gains benefits.

### 3.5.2 Delivering program benefits

Program managers focus their attention on the delivery of **Program Benefits** and rely on various components within the program to contribute collectively to the achievement of programs' intended outcomes. The program manager actively engages in each of the five performance domains, applying the program management supporting processes and focusing on the outcomes of the program, assessing the contribution of each of the components. In addition, the program manager assesses the overall effort and adjusts as necessary to ensure that the overall program trajectory and the performance of the individual components meet intended benefits. Benefits management helps ensure the benefits achieved during the conduct of the program can be sustained beyond its closure.

## 3.6 Program stakeholder engagement

Stakeholders play a critical role in the success of any program. After all, they are the ones who ultimately decide whether a program is successful or not. Understanding the position stakeholders may take and how they exert their power are key precursors to forging a deep understanding of needs and concerns and ensuring the alignment of perspectives on key objectives.

**Program Stakeholders** are those individuals and organisations whose interests may be affected by the program outcomes, either positively or negatively. Program management is mainly concerned with managing stakeholders, who in the case of an entire program are a larger, more diverse and more complicated group when compared to an individual project. Their interests are different, sometimes contradictory, and their individual impacts – whether big or small, for good or bad – may

Table 3.3 Examples of stakeholders

Internal	External
Program Director	Government Regulatory Agencies
Program Sponsor	Consumer Groups
Program Governance Board	Environmental Groups
Program Office	Customers
Customers	

be significant to the success or failure of the entire program. Key program stakeholders include the CXOs of an organisation, Program Director, Funding Organisation, Performing Organisation, Program Sponsor, Program Manager, Project Managers, Project Team Members, PMO Staff, Program Governance Board, Change Control Board, etc (Table 3.3).

Like risks, stakeholders should be identified, studied, categorised, and tracked. Stakeholders, like risks, may be internal or external to the program and may have positive or negative impact on the outcome of the program. Program and project managers need to be aware of both stakeholders and risks in order to understand and address the changing environments of programs and projects.

Unlike risks, stakeholders cannot be managed – only stakeholder expectations can be managed. In many cases, stakeholders have more influence than the program manager, the program team, and even the program sponsor.

People have a tendency to resist direct management when the relationship is not manager and subordinate. For this reason, most program management literature focuses on the notion of stakeholder engagement rather than stakeholder management.

Program managers are mostly found chasing updates for various stakeholders. Different stakeholders may have conflicting expectations from the same projects. The key challenge here is to align these multiplying demands to the commonly shared vision and criteria for success. Moreover, program managers need to have the instinct for identifying implicit expectations and voicing silent demands while communicating with the stakeholders.

A stakeholder management plan (usually inbuilt in the Program Charter) combined with the communication plan should **deliver accurate consistent and timely information** that reaches all the relevant stakeholders as a part of the communication process to facilitate a clear understanding of the issues and program progress.

Stakeholder engagement at the program level can be challenging because stakeholders view the program benefits as change. People have a tendency to resist change whenever they have not directly requested it, have not participated in creating it, do not understand the necessity for it, or are concerned with the effect of the change on them personally. Thus, the program manager and the program team members need to understand the attitudes and the agendas of each stakeholder throughout the duration of the program.

There are several aspects to stakeholder engagement. A few of the significant aspects are highlighted in this section.

- **Stakeholder Identification:** Key stakeholders should be identified from the very beginning of the program. This will include their role, decision span, requirements, expectations, and input. Then they should be prioritised based on their interest and influence span on the program using an influence grid as shown in Figure 3.7.
- **Stakeholder Mapping:** Relationships of the stakeholders to one another and to the program can be defined and mapped to ensure clarity, boundaries, and extent of the decision. Typical relationship maps will address the owners – organisation, government agencies and authorities, financial and investor groups, and key external stakeholder groups.

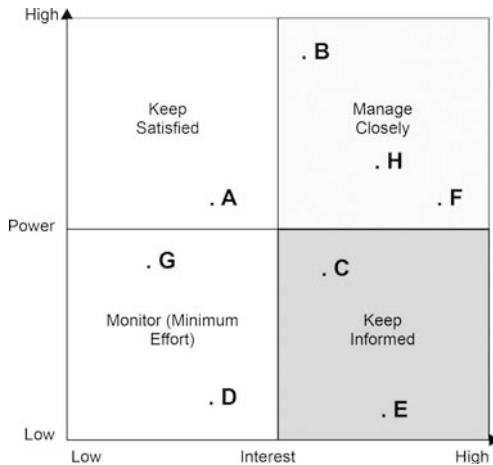


Figure 3.7 Influence grid

- **Stakeholder Issue Tracking:** For each stakeholder, a clear identification of major issues of potential interest is compiled, and a cross program master issues list is constructed.
- **Stakeholder Objectives Tracking:** An initial survey of the objectives that stakeholders are trying to accomplish either by way of program or project outcome or concerns is identified initially by the program manager and refined through the stakeholder engagement process and feedback.
- **Stakeholder Role Definition:** The program management team must identify the level and span of involvement of external and internal stakeholders and communicate the same. The following example is the RAACI structure for categorising the level and span of involvement:
  - **Responsible** refers to a person's span of responsibility to complete the task.
  - **Authority** refers to the level of ownership and span of the larger decisions.
  - **Accountable** refers to having to answer for the task completion according to expectations, including taking praise or blame for the result.
  - **Consulted** refers to ensuring reviews of latest decisions prior to the finalisation.
  - **Informed** refers to ensuring timely communication, although no actions may be required from the person.

To plan and deliver programs successfully, program managers must maintain a comprehensive stakeholders' portfolio to manage and track all of these aspects.

### **3.7 Program governance**

**Program Governance** is the process of developing, communicating, implementing, monitoring, and assuring the policies, procedures, organisation structures, and practices associated with a given program. It results in a framework for efficient and effective decision-making and delivery management focused on achieving program goals in a consistent manner, addressing appropriate risks and stakeholder requirements.

Governance, for a program, is a combination of individuals filling executive and management roles – program oversight functions – organised into structures and policies that define management principles and decision making. This combination is focused upon providing direction

and oversight, which guide the achievement of the required business outcome from the execution of the program effort, and providing data and feedback, which measure the on-going contribution of the program to the required results within the overall business strategy and direction.

There are a number of key elements that may be required for program success. However, at the core is good governance. Even the best of the program managers fail if the governance model does not work. Governance drives alignment amongst key decision makers in an organisation.

For example, it has been heard for decades that many IT programs fail because of ill-defined requirements, (or) poorly managed requirements, (or) poorly articulated scope throughout the life cycle of a program, (or) the actual benefits received vis-a-vis those planned when the program was initiated has a huge disconnect. While this may be true, this is a symptom of a more fundamental underlying cause: the inability of all key stakeholders in a program to be 'on the same page' in defining desired outcomes and approaches to meet those outcomes. Change is inevitable in all IT programs, so achieving such alignment is not a one-time event occurring at the start of a program. Alignment is an on-going process that is critical throughout an investment's strategic planning, design, and development, as well as its implementation – hence, governance must be viewed as a full life-cycle process.

While programs will differ vastly in terms of team size, a number of crucial roles must exist to ensure proper governance as per Figure 3.8.

The concept of governance has multiple dimensions: people, roles, structures, and policies. Overseeing and actively managing a program is a more complex undertaking than project management. Furthermore, programs are dynamic, not static. They must respond to external events and changing conditions. Therefore, an effective governance structure and a set of governance functions must provide the means to identify, assess, and respond to internal and external events and changes by adjusting program components or features. A poor (or non-existent) governance structure will leave the program in a continuously reactive state, constantly struggling to catch up with changing conditions.

To facilitate the design and implementation of effective governance, many organisations prepare documented descriptions of each program's governance structures, roles, policies, procedures, processes, and responsibilities. Such descriptions are summarised in a program governance plan.



Figure 3.8 Example of a program organisation structure

### 3.7.1 Phase-gate reviews

**Phase-gate reviews** assess program progress and outcomes at appropriate times in the program plan to enable governance to approve or ‘gate’ the passage of a program from one significant program phase to another. The program governance plan outlines the planned program phase-gate reviews, the decision criteria or goals that will need to be achieved at the time of the reviews, and their expected timing. Phase-gate reviews also provide an opportunity to assess whether a program is delivering benefits in accordance with the program’s benefits management plan.

### 3.7.2 Periodic ‘health checks’

Phase-gate reviews are not a substitute for periodic program performance reviews, sometimes called ‘health checks’. These reviews, generally held between phase-gate reviews, assess a program’s on-going performance and progress. These reviews, which are generally held between phase-gate reviews, assess a program’s on-going performance and progress towards the realisation and sustainment of benefits – especially when there is an extended time period between scheduled phase-gate reviews. The governance plan should specify governance requirements

for scheduling, content, and assessments (or metrics) to be used during such health checks, as deemed appropriate for each program.

### 3.7.3 Program governance board

Program governance is achieved through the actions of a review and decision-making body that is charged with endorsing or approving recommendations made regarding a program under its authority. This body is often referred to as the **Program Governance Board**.

Program Governance Boards need to provide guidance, decision making, and oversight of one or more programs. The function of the program governance board is not to usurp the authorities of the program manager, but rather to provide a forum by which the program manager can bring key issues and trade-off decisions to an informed, empowered body that has a vested interests in that program's success and views the program manager as a trusted advisor and true subject matter specialist. In most organisations, the program governance board also assumes responsibility for approving each program's approach and plan for how it will pursue program and organisational goals and for authorising the use of resources to support component projects, subprograms, and other programs' work in pursuit of that approach. These approvals occur before program initiation or early in the program definition phase which include program business case and program charter approvals.

While a governance model will be tailored to meet an organisation's specific needs and to properly function within its culture, critical overarching principles must be adhered to for effective enterprise and program governance mentioned below:

- tiers of governance – enterprise, portfolio, and program to be integrated with enterprise-wide processes for strategic planning, program, budgeting, acquisition, and execution;
- distinctly defined relationships between each governance tier with clear, non-redundant roles, responsibilities, and authorities;
- integrated portfolio transition strategies overseen by executives responsible for that portfolio function who are in the best position to identify existing capability gaps, set priorities for investment, and adapt quickly to evolving strategic priorities and business challenges;
- a single, transparent reporting relationship for a program manager to an oversight (program-level) governance board with executives from key stakeholder organisations empowered to make decisions, binding their organisations, and creating a partnership between the business, IT, procurement, finance, etc., while establishing accountability;



- timely decisions for a program in execution at the program governance level, especially as enterprises leverage modular and agile methodologies to drive smaller and more frequent incremental releases;
- escalation rules and paths – from program to portfolio to enterprise – for programs experiencing issues or changes that could affect the function of the portfolio or the enterprise.

### 3.8 Typical program life cycle

To ensure effective program control, the program moves through discrete, overlapping phases. These phases facilitate program governance, enhanced control and co-ordination of program and project resources, and the overall risk management.

Programs, like projects, are defined, their benefits delivered, and closed. The details of those efforts are dependent on the type of program. The program typically begins when funding is approved and when the program manager is assigned. There is often considerable effort expended prior to defining and approving a program. The phases of the program life cycle include (see Figure 3.9):

- **Program Definition:** Program definition activities typically occur as the result of an organisation’s plan to fulfil strategic objectives or achieve a desired state within an organisation’s portfolio. The primary purpose of the program definition phase is to progressively elaborate the strategic objectives to be addressed by the program, define the expected program outcomes, and seek approval for the program.

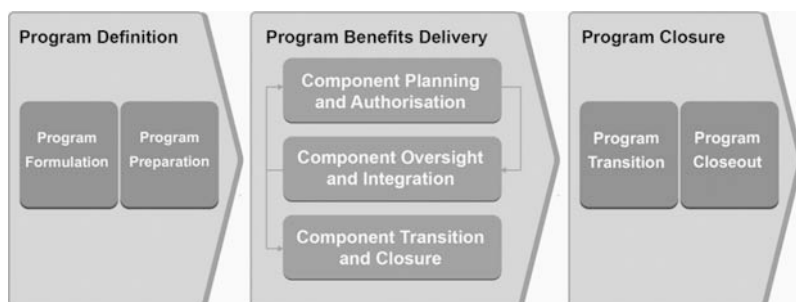


Figure 3.9 Representative program life cycle phases

Source: *The Standard for Program Management*, 3rd edition, by PMI.

- **Program Benefits Delivery:** Throughout this iterative phase, program components are planned, integrated, and managed to facilitate the delivery of the intended program benefits.
- **Program Closure:** The purpose of this phase is to execute a controlled closure of the program.

### **3.9 Common program management challenges and means to overcome them**

While several, if not all, knowledge areas apply to program management and are integrated with support processes, some specific knowledge areas noted below may pose common challenges, as they lend to the overall improvement in program management and specifically in relationship to program governance.

#### **3.9.1 Human resources**

One of the biggest challenges of program management is managing the resources. This challenge is generally related to time management, reporting relationships, and team interaction. Within a program, it is even more complicated when the same individual is required to perform on multiple projects at the same time as a shared resource.

Team interactions are often more challenging. Project teams within programs sometimes tend to silo themselves. They may do this to 'protect their turf' from overall program controls. They also do it to form closer team relationships that are simply easier to manage than relationships that cross over to other project teams. Often, a project team has completely different objectives, products, services, timelines, budgets, and attention than another project team. That often leads to an isolationist stance.

At the program level, it becomes necessary to pay greater attention to the human resource process assets that form the program plan.

#### **3.9.2 Quality**

Project teams, especially when delivering different products or services using different tools, often consider themselves free to ignore program guidelines or rules. In many cases the project teams, especially if composed of vendor third parties, are quite comfortable with their own way of running a project and have no interest in going along with the 'program way'.

Teams that have a history together, either as performing groups within the organisation or as product teams, see themselves as experts in their

own process. While all of this may be true in a way, when viewed from a program perspective, deliverable and process quality can be at stake.

Quality standards, especially when related to project processes and deliverables, need to be highly standardised on programs. Recognising that all projects contribute to the overall benefit expectation of the program, quality standards need to be consistent across projects so that those benefits can be equally delivered. Accurate, frequent, and visible program performance reporting clearly provides value to the organisation. This particular kind of reporting addresses a variety of audiences and requires multiple views to satisfy various stakeholder expectations. The challenge in this complex activity is that the scope of services keeps changing as new stakeholders enter the project scenario; therefore, the program manager has to constantly update metrics that are specific to emerging areas of interest.

### **3.9.3 Communication**

Project communication tends to be centred on team meetings, status reporting, steering committee updates, and occasional newsletters. While that in itself is a typically limiting approach for establishing communication, it is compounded on a program level when multiple projects within the program not only operate that way but exclude other program participants from those processes. This communication is related not simply to stakeholder communication, but program / project communication related to issues, status, and other important aspects.

From a program perspective, communication must be deliberately formalised and recognised as the single source for key messages. A specific resource on the program management team needs to be assigned a communication role. That individual needs to develop the communication plan from a program perspective that focuses on program benefits which includes specific project communication within that plan.

Lastly, regular status reports (weekly, biweekly, monthly, etc.) should be published by each project team using a consistent format and consolidated by the program team for program-wide distribution. This allows team members to quickly get 'up to speed' on the program without having to attend meetings or read through other deliverables.

### **3.9.4 Information**

Managing multiple streams of data to consistently generate meaningful information is a big challenge while monitoring diverse project priorities. Common reporting formats such as templates and forms may often get altered beyond recognition during implementation, rendering

essential data unreadable and open to misinterpretation. The key challenge for a program manager here is translating discrete and seemingly unrelated project data from traditional sources (such as scheduling, budgeting, and effort status) into meaningful business information for stakeholders.

### **3.9.5 Risk**

Program risk can have a high impact across the program, including scheduling, quality of deliverables, and other areas. Scheduling risks typically start during project planning. In many cases, projects within programs often have different start and stop schedules.

This is generally done to reduce the risk of a big bang, to spread out resources more evenly, spread out the program budget over a longer time period, and simply account for the actual length of the individual projects. While this approach makes sense overall, there are risks associated with it that need to be carefully managed. One of the significant risks associated with this approach for an IT program is the integration of cross-over features or cross-project design for interdependent projects.

### **3.9.6 Change and stakeholder alignment**

Large initiatives defined as programs may usually result in organisation-wide change and can be successful only if organisation readiness for the change is confirmed. Emotions of various stakeholders have to be managed as transitions are taken up. Change agents have to be enabled and orientated to align all the stakeholders towards the program vision.

The 'need to avoid' tendency is to assume that organisation change needs to be taken up during later phases of the program. Instead, it should be considered from the ideation phase and is an on-going process to ensure strong commitment of key stakeholders driving the program. For complex IT systems, there may be at least half a dozen stakeholder organisations that must be aligned, to include the strategy organisation, business or mission owner of the system, IT, finance, procurement, security, and privacy. Ensuring all the key stakeholders are involved in key decisions is an essential element to assure genuine alignment.

### **3.9.7 Integration**

Any and all projects that are part of a program can be very successful in and of themselves. Yet, the overall program as a whole can fail. The most recurring reason for this failure is not viewing the program as a project

in itself and not building a strong process for integrating each of the sub-projects within it.

It is very easy to combine multiple projects on a single project schedule, identify the cross-project dependencies, manage that one schedule as a program schedule, and still fail. That is because a program is not simply a set of projects that are combined for a single goal. A program is challenged by the fact that each of the independent projects are generally viewed and managed as just that – as individual.

This ‘individual’ view of projects is a natural phenomenon. Each project manager is accountable for ensuring the deliverable for which he or she has been assigned responsibility. There is often little interest or time spent in worrying about the other projects in the program. That is not because each project manager isn’t conscientious or aware of the other projects. In most cases, it’s simply because program management hasn’t been formalised, documented, and communicated to the project teams sufficiently to allow for each team to understand how they fit into the overall program and the vision and road map of the program.

Program management is a solid, beneficial way for organisations to manage groups of projects. When consistent and integrated processes are applied to each of the projects within a program, risk can be reduced and quality improved that contributes to the overall objectives of the initiative.

### **3.10 Importance of the program management office**

A **Program Management Office** is the organisation responsible for defining and managing the program-related governance processes, procedures, templates, etc., supporting individual program management teams by handling administrative functions centrally or providing dedicated assistance to the program manager(s).

A program management office provides the capabilities to manage a program. Its mission is to deliver the program on schedule and within budget. It is an organisational entity that is structured to apply program management practices. It is accountable directly to senior executive management for achievement of business results of the program. It has a central place to monitor benefits realisation both through projects and other program components, such as operations.

When referring to the organisational structures that facilitate project execution, there is considerable confusion as to what these structures should be called. The terms **Project Management Office** and **Program**

**Management Office** are often used interchangeably, and both are commonly abbreviated as 'PMO', further compounding the confusion. But there is a broad agreement that these two organisational concepts serve different purposes, have different structures, and follow different lifecycles. There are some enterprises that refer Program Management Office as 'PgMO' to indicate one that manages programs within the enterprise and to avoid confusion with the enterprise level Project Management Office which has been popular with the acronym PMO.

For the ease of clarity and to avoid unwanted confusion, the acronym **PgMO** has been used to refer to **Program Management Office** in this book.

### 3.10.1 Do PMOs and PgMOs mean the same?

A **Project Management Office** focuses on supporting a wide range of projects and programs may be at an organisation level, whereas a **Program Management Office** may support just one program or many programs with a common business objective. For example, a PMO is likely to take the role of a training provider for all project managers within the organisation, whereas a PgMO may support the training needs of those engaged say in a single program of work.

Most mature organisations have learned to benefit from each other. For example, most PgMOs may rely on the PMO for the project management standards and tools so that instead of creating new ones it rather focuses on only those specific to the program.

In terms of reporting, there is a distinct overlap between the PMO and the PgMO. Both aggregate and disseminate status information. A PMO delivers this information to all organisational executives and stakeholders, whereas a PgMO delivers the same information only to executives and stakeholders of the particular program they manage. For example, a manufacturing company might have a program to upgrade its financial and inventory systems. The PMO would report the status of this program, as well as all other programs within the company, to the corporate executives, whereas the PgMO would report the status of, say, a single program to the program sponsor.

In smaller organisations, the functions of a program management office may not be delegated to a dedicated 'office' with the responsibility of establishing, say, a 'centre of excellence'. Instead, the responsibilities for maintaining an appropriate level of excellence may be delegated to an individual manager with an exceptional understanding of program management practices, or directly to the individual program managers responsible for oversight of programs.

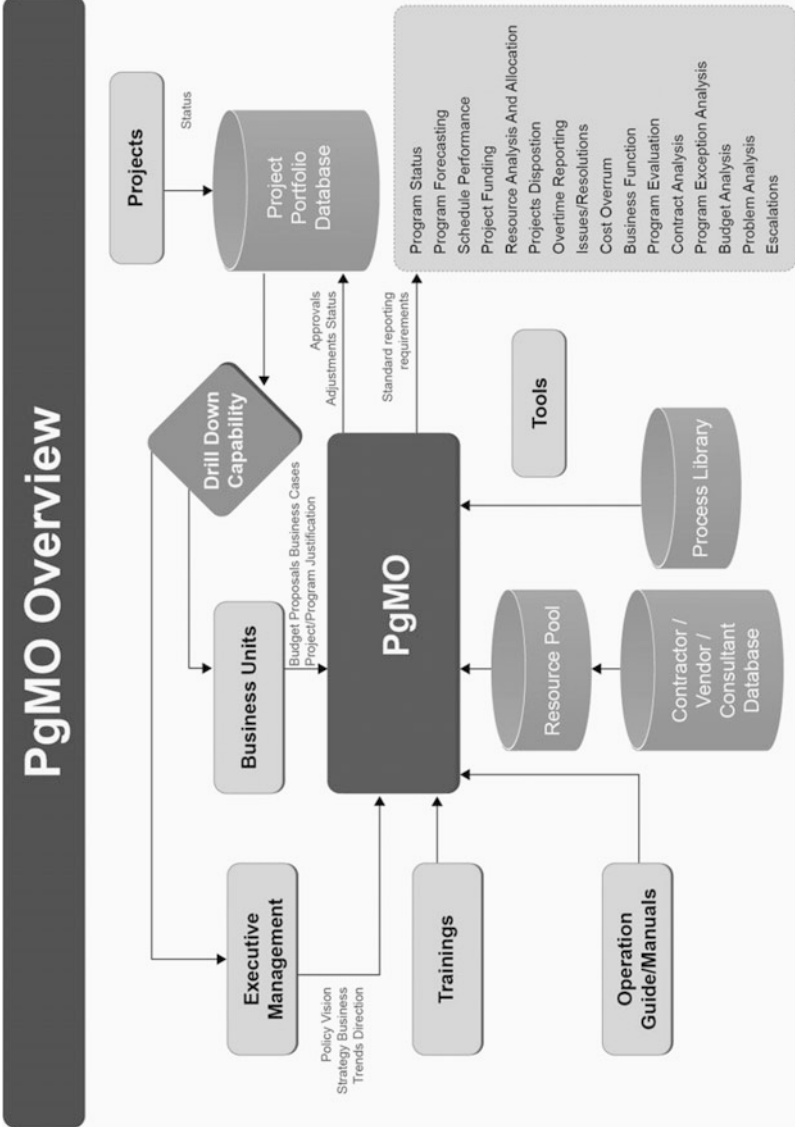


Figure 3.10 Sample PgMO in an organisation

### 3.10.2 Role of a program management office

The role of the **Program Management Office** in an organisation is to:

- maintain **alignment** with business objectives;
- manage 'on-time' and 'within budget' **delivery** of the program;
- inform executive management on program status through **performance metrics**;
- meet or exceed **quality** objectives;
- effectively deploy **resources**;
- gain **productivity** through process management and automation;
- reduce **risk** through planning and effective **strategies**;
- build **awareness** through effective communication;
- make sure that stakeholders have **up-to-date**, accurate information;
- handle cost reduction through efficient, **centralised services**.

A PgMO is staffed by one or more individuals playing a variety of roles, as dictated by the needs of a particular program. The roles that PgMO staff plays are determined by many factors, including the scale of the program, the complexity of the solution, the level of interdependency among projects, and the skills and availability of resources. The PgMO is usually under the jurisdiction of the program manager.

Every program offers its own challenges, and every PgMO will adapt to the needs of its program. For simpler programs, one program manager may be able to play all the roles the program requires. However, high-priority, enterprise-wide endeavours requiring the implementation of dozens of concurrent projects will necessitate a robust PgMO, staffed by specialists in particular disciplines. Regardless of how they are staffed and organised, all PgMOs must provide certain basic functions, and they require a supporting infrastructure to be successful.

Basic roles of PgMO staff are mentioned below:

- **Program Sponsor (Executive Sponsor):** The program sponsor is the senior corporate executive ultimately responsible for the program, for championing the application of organisational resources to the program, and for ensuring program success. This individual works with the executive steering committee, which sets the overall priorities for the program, approves all major strategies, and handles cross-organisational issues. Program sponsorship typically resides not with one person but within a governance board or steering committee



headed by an executive sponsor. This group provides authority on program funding, purpose, and direction.

- **Program Director / Program Manager:** This full-time director / manager owns the day-to-day responsibility for the execution of the program, reports to the executive sponsor, and directs the PgMO staff. The program director is responsible for ensuring that all business objectives of the PgMO are met and that all program guidelines are followed.
- **Program Co-ordinator / PgMO Staff:** These supporting roles can take many forms, including administrative support, maintaining the program repository, executing communications plans, and providing resource co-ordination, etc.
- **Program Advisory Board:** This structure represents managers of the functional areas of the business with which the projects and the program as a whole must interact. It may also include customers, suppliers, or other program stakeholders.

A senior, experienced program manager / director heading the PgMO team is critical, as this individual will work with the program sponsors and executives to set the direction. Attributes needed for this role have already been discussed in detail in the earlier sections of this chapter.

The exact size of the PgMO team will get determined by the number of individual projects governed by the PgMO, as well as the project management maturity of the organisation. Staffing the team with experienced senior resources is recommended to provide flexibility during the start-up and early execution phases of the PgMO. A team of three to five resources is typically required to start up a mid-size PgMO effectively.

A key advantage of a PgMO is that management and reporting activities are not only formalised, but they are also functions within the PgMO organisation. This formalisation is aided by the use of quality, performance, and business metrics to ensure that activities managed by each function are performed effectively and efficiently.

The size and scope of the PgMO will determine how many people support each function. A single team member in a small PgMO may handle several functions, while a small team in a large PgMO may cover the same function.

A PgMO has an internal reporting structure, defined reporting relationships to the performing organisation's management, and defined channels of control with its constituent projects (see Figure 3.11).

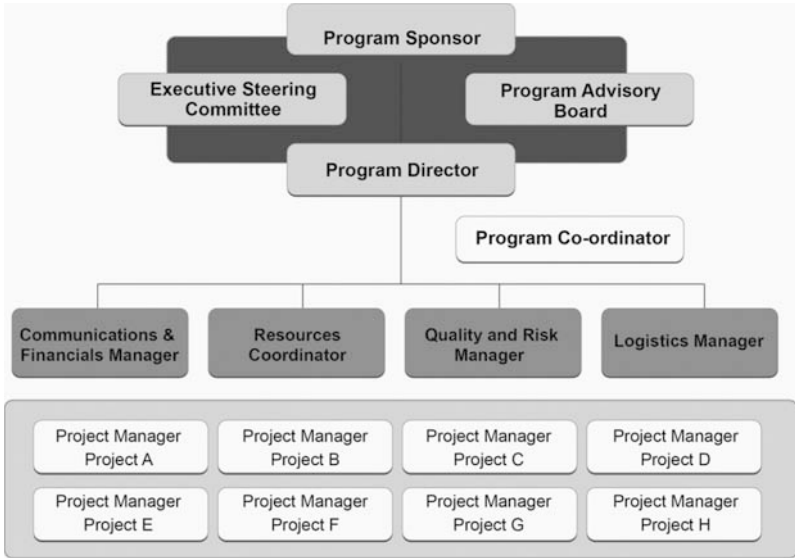


Figure 3.11 Typical PgMO organisation reporting structure

The PgMO successfully addresses many of the typical challenges sampled below that are inherent in managing a series of interdependent projects as part of a program:

- project schedules not adhered to and implementation dates rarely met;
- senior management not having comprehensive insight into project's progress and performance;
- project customers not sufficiently involved in planning, design, and acceptance of product or service;
- disparate and inconsistent communication patterns;
- inadequate control and understanding of actual product and production costs;
- destructive resource contentions;
- lack of repeatable processes guided by best practices;
- unanticipated risk events and inadequate (or missing) contingency plans;
- unexplained changes in project scope, schedule, or budget;
- unacceptable quality of products and processes;
- unproductive or non-existent peer reviews.

### 3.11 Program monitoring and control

A program management office also conducts monitoring and controlling activities that correct problem situations in programs by:

- implementing consistent project / program management and product methodologies;
- establishing (if absent) governance processes and structures for managing changes to the program;
- conducting 'big picture' planning and control activities, including alignment with other strategic initiatives, integration with the governance process, and integration with enterprise resource planning;
- co-ordinating delivery of project information through consistent and standardised data gathering, analysis, and reporting;
- providing continuity and reinforcing commitment among business customers, project teams, and support organisations;
- initiating summary and detail audit and review procedures that identify problem areas and provide drill-down processes to closely monitor risks and issues; and
- increasing project success rates by obtaining executive buy-in and gaining enterprise-wide support for program needs and objectives.

Finding the right balance between rules and flexibility in the standard methodology implementation identified for the program should be the goal of an effective PgMO. The PgMO should provide flexibility in usage of standards for program and project managers and staff.

A PgMO conducts risk audits which are reviews of risk processes that are in place across the program to ensure that risk processes are performing the intended goal.

A PgMO requires measurable status on milestones, percentage completed, and actual versus planned efforts; hence, it needs to ensure that the components follow a standard template permitting easy aggregation of data at the program level. A program status report will show not just progress but also cross-impacts and interdependencies. Various PgMO functions in monitoring and controlling activities of a program are mentioned in Figure 3.12.

**Program Integration** – This core function oversees the integration of the projects that make up the program and provides a comprehensive approach to issue, change, and acceptance management. While each project within the program is responsible for achieving its own objectives, the program integration function is responsible for ensuring that

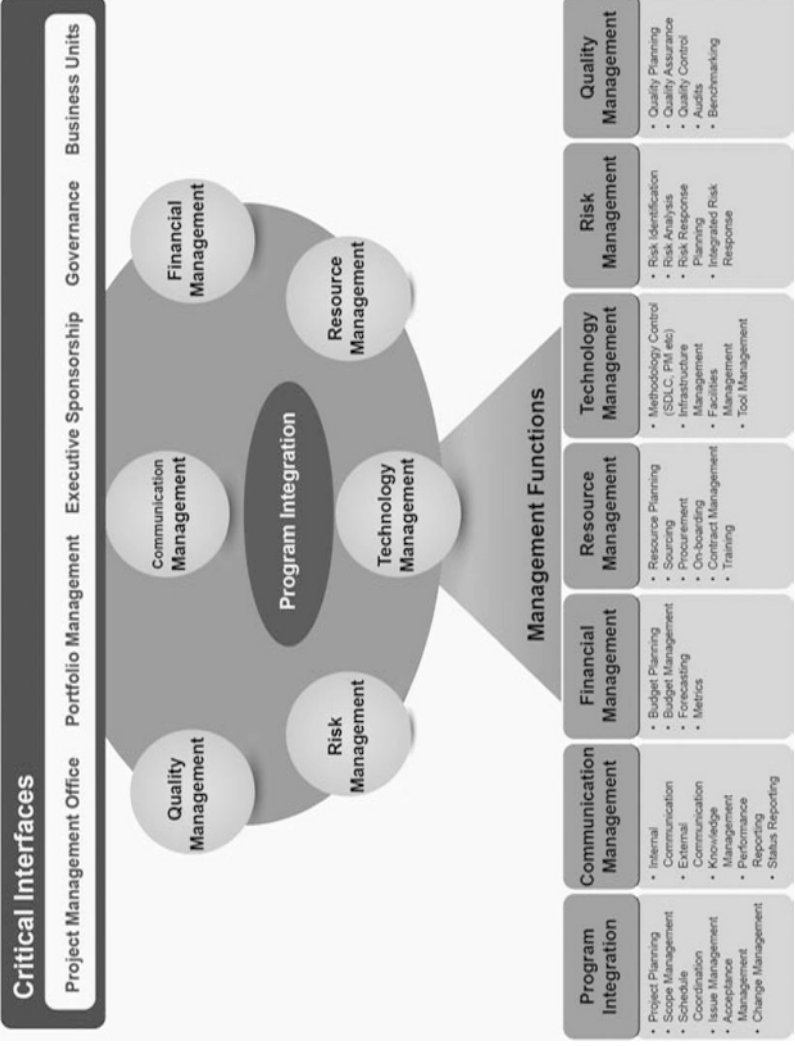


Figure 3.12 Sample PgMO functions

all projects fit within overall program parameters. As the keeper of the master project plan, this function has a handle on all project interconnections and dependencies. It monitors project progress closely and addresses individual project delays before they affect other projects in the program. When problems arise, this function adjusts and rebalances the project plan. In worst-case scenarios, it oversees the implementation of contingency and triage plans.

A properly planned and launched PgMO will achieve the program's overall business objectives, and will also benefit the organisation's people, process, service, product, and technology by establishing improved executive communications, valuable progress reporting, effective tracking mechanisms, and meaningful risk identification and mitigation.

A PgMO thus saves a considerable amount of senior executive time and effort by concentrating on all aspects of program execution, control, and reporting into a single organisation, and it achieves significant productivity gains through efficiencies of scale, standardised processes, effective communications, and continuous improvement activities.

### **3.12 How do PgMOs succeed?**

PgMOs should implement periodic assessments to ensure strength and improvement areas are clearly identified.

Below are some preventive mechanisms that may aid in avoiding failure of programs managed by PgMOs and to make them succeed in their intended purpose.

- Successful PgMOs don't start by dictating and / or reporting and / or controlling and / or tracking standards. They don't issue orders, and they never say: 'You need to do this because management wants it.' If you are in the PgMO, and you force / cajole / bully the teams into filling out paperwork, your colleagues will avoid you in the halls, they will disparage you behind your back, and they won't like you much either!
- Ask not what the project teams can do for the PgMO, but what the PgMO can do for the project teams, and if the PgMO doesn't do anything else in its first six months of existence but help the teams execute better, it will be wildly successful.
- You can worry about putting in the control and reporting and tracking mechanisms later – in fact, those mechanisms should be a natural by-product of a well-managed project, well managed partly because

the (hugely helpful and supportive) PgMO has provided an excellent set of tools, practices, processes, and competencies that make the project teams better. The trick is giving the people who are actually working on the project such tools that work on the ground and in the trenches right from day one. When you do that, the project teams will beat a path to the PgMO door.

- Implement the right control processes: The PgMO should help get updates on individual project plans and progress reports regularly to help aggregate the information at the program level. The impact of any risk, issue, or change within a component project needs to be recognised as early as possible to prevent disruption at the program level. Think of it as a big family; good communication from the very beginning can prevent a lot of problems down the line.
- Identify achievable benefits and requirements: The attainability of program benefits is directly linked to the achievability of the stipulated requirements. For a program to have any chance of success, it is vital that requirements and benefits be:
  - realistic,
  - clearly articulated,
  - understood by all stakeholders,
  - accepted and signed off as viable, and
  - supported by a rigorous change management process.

Benefits management is best led by a change manager who can link outcomes to strategies, events, and assumptions. He or she should also establish agreed-upon benefits-tracking metrics. Without an agreed-upon measurement system in place, disagreements will be inevitable, and the entire program will suffer.

Requirements management is ideally led by a qualified business analyst. This critical role must ensure that the front end of the program and any later projects are consistent with common practices and processes for requirements elicitation and documentation.

- Facilitate effective change management: A program's deliverables will typically impact multiple facets of an organisation, so effective change management is essential. An appointed change manager, as mentioned earlier, will facilitate widespread understanding and acceptance of program goals, solutions, and outcomes. A change manager should:
  - identify the need for change,
  - define compelling vision or 'to-be' state,

- choose a change strategy,
- engage the support of stakeholders,
- assess the organisation's readiness for change, and
- implement change strategy.

Each of these change management activities will, among other things, help provide the basis for an inspiring change vision, facilitate a unity of understanding about exactly what will change within the organisation, help individual employees understand how they can contribute to the end goal, and, finally, garner internal support for the change initiative.

- **Establishing Authority:** A program manager is expected to bring order and clarity to chaotic scenarios. This does not mean they can act as lords of the realm. Instead program managers mostly need to work behind the scenes and cannot afford to be seen as intervening in day-to-day execution of projects. The challenge here is establishing authority without being seen as a menace. It is about leaving the day-to-day project dilemmas to project managers while maintaining a light but supportive influence on project decisions.
- **Effective Performance Measurement:** PgMO staff should generally think about four to eight measurements that define whether or not they are delivering value. These should not be confused with process-oriented key performance indicators, but rather clearly indicate if the PgMO is doing its job. Aligning measurements with organisational strategy can help PgMOs stay on pace with the changing face of business as well as with what executives value the most.
- Merely measuring, say, the numbers of risks and issues is not an effective indicator. The number of issues escalated to the PgMO from the projects could be a useful indicator of either a poor inter-relationship between project managers and the PgMO, or an understanding of risks and issues and inter-dependencies across projects. The PgMO is not designed to micro-manage project risks and issues, but metrics capturing at the program level and the effective management of risks and issues at the project level, as well as those managed by the PgMO, should be considered. When issues arise, having a means to manage, track, and report is important. An advanced PgMO may consider as a metric the percentage of issues with identified root causes and actions to rectify them (and the progress of such actions).
- The measurement plan should include key definitions for collecting and reporting metrics data, including what is meant by

each metric (for example, the operational definition as well as any normalisation / modification required), source of the data, who is responsible for collecting and analysing it, and to whom it must be reported. The communication plan should also detail how the metrics will be delivered to the various stakeholders.

- **Small PgMO Team Size:** A small size forces the team to focus only on the right things that matter the most. Large PgMO teams will start meddling in projects, building too many dashboards and Power Points, inventing obscure training and templates that aren't really needed, talking excessively about 'process' and 'tools', and laboriously extending the time of company efforts into unproductive activities. All PgMOs, no matter how great, will be accused of being bureaucratic. A simple methodology, with easy-to-use deliverables, is the best defence.
- **Integrated Program Planning:** Because of the complexity of programs, program managers must adopt a highly integrated approach to planning to properly reflect deliverable, resource, and external dependencies. To achieve a detailed program definition and execution schedule, a number of vital intermediate steps are needed to ensure reliability and scalability:
  - define and verify scope roll up from projects to program,
  - identify and define all cross-project interfaces, and
  - develop the integrated master schedule.

Integrated planning begins with a program charter – which is more detailed than the business case and provides high-level program scope, objectives, and constraints. The charter provides the foundation for scoping each of the component projects. The program manager should define boundaries for each project as unambiguously as possible to avoid gaps on the one hand and overlaps on the other.

Finally, initiatives to establish or improve the program management office and the organisation's project and program management practices need to be carefully planned as programs of the organisation can change, and as such they will have various needs:

- an astute and experienced program manager to drive them;
- powerful sponsorship;
- a carefully considered change management plan;
- clear understanding about the value to be created, both the intermediate outcomes and the final outcomes which will take longer to achieve. These must be measurable, owned, and reported to



sustain momentum, and help to avoid its demise during regular cost cutting; and

- it is suggested that some of the claims for the benefits in establishing a PgMO or improving project and program management are too simplistic and do not stand the test of time and organisational struggles, re-organisations, and staff turnover.

Failure to do the above will result in what the Harvard Working Paper suggests (Hall, 2013) – the functional experts, including PgMO staff, Project and Program Managers simply become ‘box tickers’ or ‘disconnected technicians’ or even ‘ad hoc advisors’ rather than ‘frame-makers’ who are significant contributors to the organisation’s overall health.

For the best outcomes, PgMOs need to be positioned on a continuum between

- facilitating and
- controlling

When all the projects operate using similar best practices, the overall project success rate increases and project costs decrease. When the PgMO performs its core activities, it improves both the program’s effectiveness and its efficiency in project management, thereby justifying its existence.

### **3.13 Conclusion**

With the increasing acceptance of the need for solid project management practices, there is a growing realisation that groups of related projects, especially when they are separated by organisational or geographic boundaries, similarly benefit from a co-ordinated and deliberate program management approach. Program management is an often-misunderstood term that is frequently confused with portfolio management. Undoubtedly there is a need for program management in today’s complex organisations to help deliver major change or gain significant benefits. Hopefully, this chapter has accordingly provided the required insights.

To leverage maximum benefit from program management it is important to work within a framework in order to bring project management under control. The framework ensures that there is a focus on delivering the vision or strategy as opposed to the technical delivery of individual projects.

In conclusion, program management is a solid, beneficial way for organisations to manage groups of projects. When consistent and integrated processes are applied to each of the projects within a program, risk can be reduced and quality improved that contributes to the overall objectives of the initiative.

A properly planned and launched Program Management Office (PgMO) will achieve the program's overall business objectives and will also benefit the organisation's people, process, product, and technology by establishing improved executive communications, valuable progress reporting, effective tracking mechanisms, and meaningful risk identification and mitigation. PgMOs have different purposes based on their longevity, the characteristics of the organisation and the industry, the maturity of organisational processes, and the scope of power with which they are endowed. Regardless of these dynamics, one of the primary goals of any PgMO should be to ensure benefit realisation on behalf of the organisation. One thing that it needs to be seen by key stakeholders is a value-adding function, rather than as bureaucratic overhead.

# 4

## Overview of Various Project and Program Management Standards

This chapter provides an overview of some popular project management and program management methodologies/standards being used globally and also makes an attempt to compare a few. The comparison is intended to highlight similarities and differences, unique features, and possible limitations. Dependencies and distinctions between the systems development life cycle and the project life cycle have also been explained with regards to technology projects. This chapter concludes with the need for crafting a new methodology called PROMOTE a few years back to aid in handling large UAE government programs/projects.

### **4.1 The project management methodology – the standards jungle**

Looking at the numerous existing methodologies, this book perceives the field of project management methodologies and standards as a jungle with a large and confusing variety of approaches that are in existence globally which may also be unlikely to change in the future due to the continuous developments in IT, IS systems and organisations (Avison and Fitzgerald, 1988).

It has been estimated that over 1,000 brand name methodologies exist world-wide (Jayaranta, 1994). Many of them combine several models into some sort of hybrid methodology using the methods and techniques identified in other methodologies.

Although such methodologies and standards may differ in their recommended techniques, some are usually based on different ‘philosophical’ views, creating more fundamental differences (see also Crain,

1992; Curtis, 1998; Harry, 1997). Some key development efforts in the international level in project management are:

- PRINCE2 (Projects IN a Controlled Environment)
- PMBOK (Project Management Body of Knowledge)
- ISO 10006:1997, Quality management – Guidelines to quality in project management
- V-Modell (German project management method)
- ISEB Project Management Syllabus
- ISO 21500: Guidance on Project Management

How different are methodologies from standards? Standards give industry guidance, whereas Methodologies give practical processes for managing projects. Standards are not methodologies, and vice versa.

One would assume that the issue of a suitable methodology and/or framework would have received much greater attention and research by the academic community. However, there are very few publications that address project management methodologies/frameworks (see for example, Charvat, 2003; Avison and Fitzgerald, 1995), but there is rather more focus on the system development methodologies. The next section provides more details.

## **4.2 Handshake between SDLC and project management for technology projects**

Charvat (2003) found in an analysis of 18 different methodologies (as depicted in Table 4.1) that some focus purely on the technology itself while others focus more on a generic project management approach, and thus organisations need to carefully assess the methodology based on the organisational requirements. He also draws attention to the fact that it is the project size and complexity which necessitates the use of what he calls ‘Light and Heavy methodologies’.

Prior to continuing a detailed discussion on various project management methodologies/standards, it is important to draw a distinction between system development and project management methodologies for technology projects. There are significant differences between the two. The first is that most of system development methodologies are not as broad as project management methodologies.

There is confusion over the difference between a project management methodology and the System Development Life Cycle (SDLC). Some believe that a project management methodology is a subset of the SDLC,

Table 4.1 Various technology development and project management methodologies

Description	Suited to control of:					Project		Comments
	S	Q	T	\$	S Q T \$	Size		
<b>Project Management Frameworks Methodologies</b>								
Rational Unified Process	Y	Y	Y	Y	Y	M, L	1, 2, 3, 4	
PPINCE2	Y	Y	Y	Y	Y	M, L	4	
System Development Life Cycle (SDLC)	Y	Y	N	?	Y	S, M, L	3, 4, 6	
Solutions-based Project Methodology	Y	Y	N	N	Y	S, M	3, 5	
TenStep	Y	Y	Y	N	N	S, M	5	
<b>Technology Development Management Methodologies – The ‘Agile’ Group:</b>								
Extreme Programming (XP)	N	Y	N	N	N	S, M	5	
Scrum	N	Y	N	N	N	S, M	5	
Crystal	N	Y	N	N	N	S, M	5, 7	
Dynamic Sys. Development (DSDM)	Y	Y	Y	?	Y	S, M	5	
Rapid Applications Development (RAD)	Y	Y	Y	?	Y	M, L	5	
Unicycle	Y	Y	Y	Y	Y	S, M, L	4	
Code-and-fix Approach	N	N	N	N	N	S	7	
V-methodology	Y	Y	Y	Y	Y	M, L	4	
Waterfall	Y	Y	Y	Y	Y	M, L	4, 6	
Open Source	N	N	N	N	N	S, M	5	
Spiral	Y	Y	N	N	Y	M, L	5	
Synchronise and Stabilise	Y	Y	N	N	Y	M, L		
Reverse Engineering Development	Y	Y	N	N	Y	M, L	4	
General Publication Methodology	Y	Y	N	?	Y	M	4, 8	
Structured System Analysis & Design	Y	Y	N	N	Y	M, L	4	
Pramis	Y	Y	Y	Y	Y	M, L	4	
Offshore Development	Y	Y	N	N	Y	L	4	
General Drug Development	Y	Y	N	N	Y	L	4	
Classic Building Construction	Y	?	Y	Y	Y	M, L	4	

**Legend:**

S = Scope; Q = Quality; T = Time, & \$ = Cost

1. Y, N, ?: Yes, No, Undetermined
2. S, M, L: Small, Medium, or Large projects management
3. Arguably an IT/software development methodology, i.e. belongs under technology management
4. High management ceremony
5. Low management ceremony
6. Classic ‘waterfall’ sequence
7. Not suited to virtual teams
8. For book and periodical publishing

and some believe the inverse, that the SDLC is a subset of a project management method. The truth lies somewhere in between. In terms of importance to a project, the SDLC and a project management method are co-equals which complement each other. Together they harmonise to form a complete methodology for delivering high-quality products to customers that meet or exceed their expectations.

SDLC provides a framework that describes the activities performed during each phase of a systems development project. The SDLC is about building process, quality, consistency, and product delivery. It is about the realisation of a product's requirements. Products are of a more permanent nature than a project because products continue to exist for a long time even after the project that has delivered it has closed. Therefore, the SDLC's framework provides guidelines for supporting the completed product even during post production (for example see Figure 4.1).

Guidelines include practices for knowledge transfer, training, document turnover, maintenance, and then on-going support. When a product is to be retired, the project management method takes over to sunset the system. It is a full circle in a system's life. The project management method begins with project inception and closes when a product is delivered. When a project is over, the project manager moves onto something new.

Some of the recent research studies have found that most IT projects use system development methodologies that focus on the execution phase but rarely involve much of the initiation and planning phases (for example see Table 4.2).

Figure 4.2 below depicts a selection matrix by Charvat to guide the type of methodology that the technology projects may employ. He

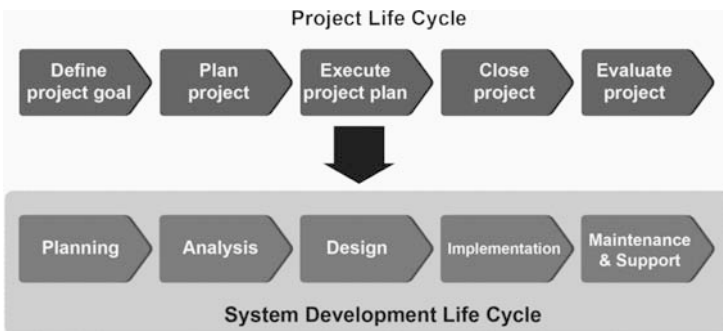


Figure 4.1 Example of SDLC and project life cycle

Table 4.2 Planning phase deliverables in system development and in project management

Initiation deliverables	Planning deliverables
<ul style="list-style-type: none"> <li>• Work statement</li> <li>• Requirements document</li> <li>• Solution documents</li> <li>• Specifications document</li> <li>• Design schedules</li> <li>• Detailed design documents</li> </ul>	<ul style="list-style-type: none"> <li>• Project scope statements</li> <li>• Critical success factors</li> <li>• Work breakthrough structure</li> <li>• Cost benefit analysis</li> <li>• Resource plan</li> <li>• Project schedule</li> <li>• Risk plan</li> <li>• Procurement plan</li> <li>• Quality plan</li> <li>• Communications plan</li> <li>• Configuration budget estimate</li> <li>• Project planning transition checklist</li> </ul>

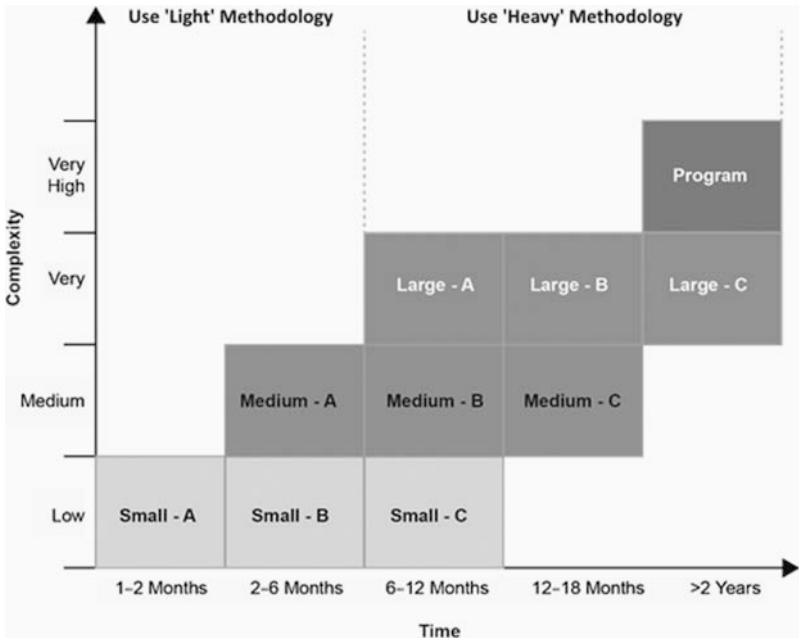


Figure 4.2 Charvat's matrix for selecting light or heavy methodology

further stresses that it is extremely important to get the selection right for the given organisation and the particular project circumstances, as failure to match these correctly may well result in a disaster.

From a practical point of view, there is no one methodology that guarantees success, but rather by employing one, an organisation will have a structured set of concepts to handle each step – from understanding the business requirements to the development of the system – in the project (Avison and Fitzgerald, 1998; Crain, 1992; Curtis, 1998; Harry, 1997; Ives and Olson, 1985; Newman and Sabherwal, 1996; Olle et al., 1991).

Many system development methodologies entirely ignore the closeout phase, which is considered to be one of the extremely critical stages of any given project. Such methodologies reflect different approaches to completing the product deliverables that address specific needs of the product.

### **4.3 Overview of PMBOK, PRINCE2, ISO10006, and ISO21500**

Before comparing various global project management methodologies and standards, a short overview is provided in this section on some popular project management methodologies/standards (PMBOK, PRINCE2, ISO10006, and ISO21500).

#### **4.3.1 PMBOK**

One of the best known project management models is the Project Management Body of Knowledge (PMBOK), which is the standard put forward by the Project Management Institute (PMI). It is widely accepted to be one of the best known project management models (Wideman, 2002).

PMBOK was developed with an aim to create a systematic approach to the study of a project. PMI continues to develop the *Guide to the Project Management Body of Knowledge* (PMBOK) to document the practices, tools, and techniques describing the generally accepted sum of knowledge within the profession of project management. With its substantial membership, PMI, the American founded and now world-wide not-for-profit organisation, has the most globally recognised project management qualifications in the world. The guide has undergone many revisions since the first release in 1996, and the 5th edition – released in 2012 and written in 616 pages – describes the sum of knowledge within the profession of project management required for a project manager to be successful.



PMBOK consists of chapters describing function-based knowledge areas. These knowledge areas are further illustrated with their respective project management processes in the form of inputs, tools and techniques, and outputs.

#### **4.3.2 PRINCE2**

PRINCE is an acronym for **PR**ojects **I**N **C**ontrolled **E**nvironments. It is widely used in both public and private sectors in the UK as a 'de facto' standard for project management and is gaining popularity in many European countries. PRINCE was a UK Government sponsored initiative to improve the quality of UK project management. PRINCE2 was launched in 1996 to provide guidance on all types of project, not just information systems, as the original PRINCE was. PRINCE2, hence, is an enhanced version of the method that was developed to provide a more generic framework for managing projects.

The methodology – written in about 408 pages – is a process-based approach providing an easily tailored and scalable method for the management of all types of projects. Each process is defined with its key inputs and outputs together with the specific objectives that need to be achieved and activities to be carried out.

#### **4.3.3 ISO 10006**

The international standards for project management reflected in ISO 10006 are similar in nature to the PMBOK guide from the Project Management Institute but with less comprehensive coverage of the topics. The ISO 10006 manual gives guidance on the application of quality management in projects.

ISO states its objective to provide guidance on the application of quality management to improve projects, processes, and products. According to the guidelines a significant opportunity exists to apply the 'ISO 10006: Guidelines for Quality Management in Projects', and by following this guideline in the management of projects will add quality to the process of managing the project as well as the quality of the end product, service, or result of the project.

This view is based on the fact that quality is an integral part of good project management. The standard is argued to be applicable to projects of varying complexity, small or large, of short or long duration, in different environments, and irrespective of the kind of product or process involved.

#### **4.3.4 ISO 21500**

Guidance on project management was released by the International Organisation for Standardisation (ISO) in 2012. It can be used by any type of organisation, including public, private, or community organisations, for any type of project, irrespective of complexity, size, and duration, and it outlines some of the processes highlighted in PMBOK. Additional benefits of ISO 21500 include:

- Encourage transfer of knowledge between projects and organisations for improved project delivery.
- Facilitate efficient tendering processes through the use of consistent project management terminology.
- Enable the flexibility of project management employees and their ability to work on international projects.
- Provide universal project management principles and processes.

#### **4.4 Comparison among various project management methodologies and standards**

For the purpose of highlighting the similarities and differences of industry standard tools, and due to the large number of methodologies and frameworks that are available in the market, this comparison exercise is limited to three international standards (1) PMBOK, (2) PRINCE2, and (3) ISO.

The reason behind this choice is that the PMBOK and ISO standards are internationally recognised for being globally relevant, widely accepted, and used (Crawford, 2000; Stanleigh, 2007). PRINCE2, the UK's de-facto project management methodology in both public and private sectors, is viewed as a semi-global standard (Crawford, 2000; Crawford et al., 2007). It is gaining popularity and spreading to different parts of the world, such as the Netherlands, Italy, Australia, Japan, and others (Swart, 2006).

These three standards have also supported the implementation of IT projects widely (see for example: APM Group, 2003; Getronics, 2003; Office of Government Commerce, 2005). Although ISO 10006 is considered to be more of a guiding standard to quality in project management, all three standards are argued to embody essential practices for successful project management (Crawford, 2000; Forman, 1997).

Another important reason for this choice is the initial investigation of the most common standards used by governments world-wide. PMBOK was the most often quoted, PRINCE2 mainly in European countries, and

ISO 10006 was quoted as a comprehensive quality framework to improve both project processes and products in many international conferences. More details are shown below.

#### **4.4.1 Processes**

- The PMBOK Guide (2012) includes around 40 processes within five project management process groups of initiating, planning, controlling, executing, and closing, and all are organised into 10 knowledge areas. Wideman (2002) states that the guide takes the best approach for the purpose of teaching the subject content of each knowledge area, but is not so effective when it comes to providing guidance for running a particular project. It does not address the technical, commercial, or environmental issues although it does refer to them in the starting chapters.
- PRINCE2 is a process-based approach for project management, where each process is defined with its key inputs and outputs together with the specific objectives and activities to be carried out. PRINCE2 recognises project life cycles as having five phases; conception (original needs), feasibility, implementation, operation, and termination; however, of these, PRINCE2 only covers the implementation phase. Furthermore, PRINCE2 focuses on key risk areas only and does not provide focused attention to each knowledge area like PMBOK.
- ISO 10006 identifies seven project management process groupings necessary to produce the project's product. These relate to the project processes: planning, organising, monitoring, controlling, reporting, and taking corrective actions on a continual basis.

The standard indicated that the project process is interrelated to other processes within the organisation and recognises that all work is a process. However, the ISO 10006 project management process groupings do not appear to follow in a logical sequence. While each process needs to be done at various times during the course of managing the project from beginning to end, it is not clear as to the sequence in which the steps are to be taken.

ISO 10006 is not a complete guide to project management, but a set of recommendations around quality in project management processes. Advice pertaining to a project's product related processes, and on the process approach, is covered in ISO 9004. ISO 10006 defines a project as including non-repetitive phases. However, this is not always the case on a project in PMBOK and ISO. At times, phases may be repeated but the end result may be unique.

#### 4.4.2 Senior management and project manager responsibility

- Users of PMBOK find that it has more substantial frameworks for contract management, scope management and other aspects which are arguably less robust in PRINCE2. However, many users of PMBOK find that they are not entirely happy with the way this guide limits decision making solely to project managers, making it difficult for handing over aspects of the management to other parties and senior managers. With PMBOK, the project manager can seemingly become the primary decision maker, planner, problem solver, human resource manager, and so on. ISO 10006 includes that senior management has a critical role to play in overseeing the projects to ensure success. They do this by providing support and approvals. Their understanding of what they need to do to ensure project success is considered central. PMBOK and PRINCE2 do not cover this important aspect of senior management with much emphasis.
- PRINCE2 shares more of the functional and financial authority with senior management, not just the project manager. This has a focus on aiding the project manager to oversee projects on behalf of an organisation's senior management. PRINCE2 provides a single standard approach to the management projects, which is why many government and global organisations prefer this option. It is also favoured because of its ease of use, which makes it easy to learn, even for those with limited experience.
- Another interesting difference is in the responsibilities of the project manager. The PMBOK guide and ISO 10006 assume that the project manager is completely in charge of the entire project with a total business responsibility. In sharp contrast, PRINCE2 recognises the project manager as an individual given authority and responsibility to manage the project on a day-to-day basis to deliver required products within the prescribed range of scope, quality, time, and budget. The authority beyond these limits lies with the project board or steering committee. It is the head of the board or steering committee who has the ultimate responsibility for the project. On the downside, there are users who feel that PRINCE2 misses the importance of 'soft skills' that should be a focus for a project manager.

#### 4.4.3 Focus area

- PRINCE2 is considered as being an implementation methodology rather than a whole project management methodology. The PRINCE2

manual states that ‘most of what in PRINCE2 terms will be stages will be divisions of “implementation” in the product life span.’

- ISO 10006 as per the manual states that the standard is not intended to be a guide to project management but rather to give guidance on how quality issues impact project management. It is comprehended to provide no adequate coverage of fundamental project management elements such as change and communication management.

#### **4.4.4 Stakeholders and customers**

- ISO 10006 and PMBOK emphasise a customer-centric approach to succeeding with projects. PRINCE2 is business case driven.
- PMBOK describes various stakeholders, including all those who may impact or are impacted by the project.

#### **4.4.5 Documentation**

- From a documentation perspective, PRINCE2 and ISO 10006 are viewed to be heavy documentation methodologies. Each process requires the production of many documents which makes them very difficult to manage and maintain. The PMBOK guide encourages the development and use of a project charter to define the required project management and control structure and views it as the single most important reference throughout the life of the project.

#### **4.4.6 People management**

- From the people management perspective, PRINCE2 gives little attention to people management issues; ISO 10006 to some greater extent, PMBOK gives exhaustive attention, as it considers people management to be a knowledge area in itself called project human resources management.

#### **4.4.7 Quality management**

- The definitions that all the methodologies provide for identifying quality standards, although stated differently, are similar. According to the methodologies, all the projects must identify the quality policy and standards that are applicable and how the project management team will implement its quality policy. These standards or procedures are then put into the project plan with a process that can identify

whether or not the team is managing the project in accordance with the quality policy that has been established.

#### **4.4.8 Product realisation**

- Studies on the subject of project life cycle management indicate that there is a room for improvement in both PMBOK and PRINCE2 standards for dealing with the final phase of a project in which the product(s) are transferred into the care, custody, and control of the customer or user (Wideman, 2002). Indeed, the product resulting from the project may be excellent and fully up to specification, but if the final transfer is not handled with appropriate delicacy, the reaction to it may still be negative and the project seen as a failure (ibid).

#### **4.4.9 Supplier relationship**

- The design of the PRINCE2 manual – because of its nature as an implementation methodology – assumes that the methodology is in the hands of the supplier rather than the client organisation. This has a bearing on both the organisation and the details of control. The issues of work co-ordination and responsibility are much more complex with PRINCE2. The PMBOK Guide and ISO 10006 to some extent are designed from the project owner's perspective – as a means of achieving an organisation's strategic goals – rather than from that of a supplier standpoint.
- ISO 10006 describes the need for a mutually beneficial supplier relationship, but PMBOK is not as clear in this area. PRINCE2 does not address this area in the methodology and considers it to be managed separately. PMBOK mentions the need for good contractual agreements, but this is not quite the same.

### **4.5 Overview of various program management standards/frameworks**

There are currently three main program management guides, or standards, published by distinct professional bodies in America, Europe, and Asia. (See Table 4.3.) In the UK and Japanese guides, program management is associated with the management of complex organisational or societal change. The PMI Standard associates program management with the management of multiple projects within the context of a strategic plan, where benefits can be obtained from managing these projects

Table 4.3 Comparison among global project management methodologies, and standards

Criterion			Methodology	
Element	Elements	PMBOK	PRINCE2	ISO 10006
1. Philosophy	Paradigm Objectives Domain Target	Systems PM knowledge base General approach PM profession	Systems Implementation management Execution Large organisations regardless of industries Four phases: project start up, initiation, implementation, and closure	Scientific systems Quality management Planning & Control Projects of varying complexity and size Processes related to strategic, interdependency, scope, time, cost, resource, personnel communication, risk, purchasing
2. Model		Five process groups Initiating, Planning, Executing, Monitoring, Controlling and Closing (IPEMCC) knowledge areas covering the management of: integration, scope, time, cost, quality, HR, communication, procurement, & risk		
3. Techniques and tools		Many conceptual frameworks & > 150 process tools and techniques to address project areas	Product based planning, quality review, change control, configuration management	Process and product based
4. Scope		Project management best practices	Organisation, management and control of projects Phase-based	Quality management principles and practices Process-based
5. Outputs		It is based on each process in the Model	Commercial	Commercial
6. Practice	Background User base	Commercial US international standard De facto global PM standard – Recognised in over 120 countries	De facto standard for project management in the UK	Global standard
7. Product	Players	PM Professionals PMBOK® Project Management Institute, USA. Public domain.	PM Members PRINCE2™ Trade Mark of the Office of Government Commerce. Public domain.	PM ISO International Organisation for Standardisation. Public domain.

together. Each of these publications describes roles, relationships with other processes, program-specific processes, program knowledge areas and other program management components in more or less detail, but where does this leave the executive, sponsor, and user? Michel Thiry highlighted these aspects in his article 'Program Management beyond Standards and Guides', which was published in 2011.

Program management has emerged as a distinct discipline in the late 20th century. It progressively developed as project management was applied to more and more complex projects, to the management of strategic objectives, or the management of multiple interrelated endeavours to produce strategic benefits. It is now generally agreed that programs are a significant undertaking consisting of multiple actions spanning multiple business areas and that they are generally complex. Program management deals in both high ambiguity and uncertainty and requires a high degree of organisational maturity.

Most books and guides on program management have suggested program 'phases' which are simply transpositions of the project perspective. This view can jeopardise the effectiveness of program management and its capability to deliver strategies. Although it is now agreed that the objective of programs is to produce business level benefits by linking the strategy and projects, little management rhetoric has made its way into the program management literature and practice.

Different people working in diverse program management areas have different perceptions about the nature and application of program management globally. Some of the key observations from Alen Stretton, in an article published in 2011 in relation with the comparison of some Program Management standards, are shared below.

There is no generally accepted classification of the diverse application areas in program management. In 2004, Russell Archibald listed 10 primary categories, with some 36 secondary categories and 16 tertiary categories. In 2008, Japan's framework on project and program management, P2M, listed 12 primary types of programs, with roughly 50 secondary case examples. These two listings are broadly comparable, and demonstrate that program management application areas are diverse, more than that generally acknowledged or discussed in any literature.

This diversity of program management application areas is reflected in a corresponding diversity in, and fragmentation of, the literature on program management. Most readers gain the majority of their information on program management from mainstream project management literature, but this is only a small part of the totality of the literature that discusses program management.



There are papers and articles on program management in publications representing more than 24 different disciplines and specific interest areas. Some of these are voluminous, particularly in major application areas such as the US Federal Government's *Program Manager*, the *Acquisition Review Quarterly*, and aerospace's *Aviation Week & Space Technology*.

Others are found in publications of a wide variety of disciplines and avocations, and in journals concerned with the management of engineering, product innovation, facilities, R&D, public administration, bank systems, business finance, computer-related technologies, information technology, underwriting, automotive design and production, government, and others.

What is evident from this summary is that there is no distinctively mainstream literature available on program management that can be adapted as is. The literature is highly diverse and fragmented. Each application area focuses on its own particularities, and there is a little cross-referencing between the application-specific literatures.

Listed below are few popular program management standards/frameworks being used in private and public sectors:

- PMI Program Management Standards,
- APM Program Management Qualification,
- Managing Successful Programs (MSP),
- Major UK Government Investment in Program Management Guidelines, and
- Program Management Maturity Model.

For reasons that are far from clear, discussions on program management in the mainstream international project management literature focuses heavily on organisational change programs. This bias is also evident in two of the most prominent publications on program management.

*The Standard for Program Management*, 3rd edition (PMI, 2012) effectively claims to apply to most programs most of the time, but there are indications that it, too, is primarily concerned with organisational change programs.

In contrast, Japan's P2M 2008 coverage of program management remains biased towards 'huge infrastructure and facilities', although it does claim a wider applicability in its fourth edition- (*A Guidebook of Project & Program Management for Enterprise Innovation- Rev 3*). While references to such major programs and projects are relatively rare in the western project management literature, this magazine is an exception, in that it does give substantial attention to major programs from time to time.

#### 4.5.1 *The Standard for Program Management by PMI*

Processes from the PMBOK® Guide by PMI, USA have been historically well applied to projects. Programs and their respective management teams, on the other hand, often suffer from a lack of the same processes. PMI's, *The Standard for Program Management* defines program management, performance domains, and related concepts; it describes the program management life cycle and outlines related activities and processes.

The 3rd edition (2012) expands, reinforces, and clarifies many of the concepts presented in the previous editions. It explains programs as having three themes – benefits management, stakeholder engagement, and program governance.

It highlights that **Program Management Performance** domains are complementary groupings of related areas of activity, concern, or function that uniquely characterise and differentiate the activities found in one performance domain from the others within the full scope of program management work. Program managers actively carry out work within multiple program management performance domains during all the program management phases. These performance domains are Program Strategy Alignment, Program Benefits Management, Program Stakeholder Engagement, Program Governance, and Program Life Cycle Management.

Programs can be segmented into three broad categories, based on how they are initiated or recognised as per the standard:

1. **Strategic Programs:** Initiated as a result of the organisation's strategic planning process, typically through a portfolio management function (e.g. a new product or service launch or an organisational redesign), these initiatives typically support the organisation's strategic goals and objectives and enable the organisation's vision and mission.
2. **Compliance Programs:** Initiated as a result of legislation, regulations, or contractual obligations (e.g. international banking regulations, fuel emission standards, or data privacy and security requirements), these initiatives are typically not strategic in nature but must be performed by the organisation.
3. **Emergent Programs:** Initiated as a result of the organisation recognising that disparate initiatives are related through a common outcome, capability, strategic objective, or delivery of a collective.

The standard describes how organisational strategy establishes the foundation for program and portfolio management. It provides information

on program management that is generally recognised as a good practice for most programs, most of the time. ‘Generally recognised’ means that the knowledge and practices described are applicable to most programs most of the time, and there is general consensus about their value and usefulness.

‘Good practice’ means that there is general agreement that the application of these activities, skills, tools, and techniques may enhance the chances of success over a wide range of programs. Good practice does not mean the standards and knowledge described should be applied uniformly to all programs; the organisation’s leadership, program manager, and program management team are responsible for determining what is appropriate for any given program.

#### **4.5.2 MSP by OGC**

The widely referenced UK publication MSP stands for Managing Successful Programmes and is a framework of best practice guidance for managing different types of programs. Commissioned and backed by the OGC (Office of Government and Commerce) it was developed by the APMG (Association of Project Management Group).

Managing Successful Programs specifically concerns what it calls ‘transformational change’, as opposed to incremental organisational changes. It claims to be suitable also for political and societal change programs, and for some specification-led programs when appropriately modified, but this claim is not specifically supported in the body of the publication. As MSP is a framework and not a methodology, like PRINCE2, it does not offer detailed processes and activities. Being a framework enables MSP be adaptable, but remain robust enough to cope with the frequent changes in scope and ambiguity typically experienced in today’s programs. This is clearly different to what is required of projects, where a flexible, dynamic scope usually spells disaster. Projects require clarity on scope and control over quality, time, and cost in order to hit and achieve specific targets.

MSP is designed to support change within an organisation or in the wider community. So MSP should be of interest to any organisation which is undertaking change. This includes:

- organisations that are merging, or going through an acquisition;
- government agencies rolling out new legislation;
- organisations developing and launching new products; and
- partnerships that are developing a new facility.

MSP defines program management as ‘the action of carrying out the co-ordinated organisation, direction and implementation of a dossier and transformation activities to achieve outcomes and realise benefits of strategic importance to the business’.

MSP does have its limitations, and the authors themselves realise that MSP cannot be an ‘all things to all people’ program management framework. The MSP guidance manual clearly states that while MSP has great flexibility and requires shaping to the unique features of each program environment and not the other way round, it is however better at delivering certain kinds of programs compared to others. MSP has identified that programs come about through the following ways:

- **Vision-led Programs:** Come into existence to deliver a clearly defined vision created and owned by those at the top of the organisation.
- **Emergent Programs:** Evolve from concurrent unco-ordinated projects that have grown within an organisation, and there is recognition that co-ordination of these projects is necessary to deliver changes and the desired benefits.
- **Compliance:** ‘Must-do’ programs, where the organisation has no choice but to change as a result of external events, such as legislative change.

Furthermore, there are the following additional types of programs:

- **Specification-led Programs:** Deliver changes and benefits to a clear scope or specification. For example, a new transaction processing system for a bank. These types of programs have low levels of ambiguity about what the program is to deliver, but there may be high levels of complexity and risk in the delivery.
- **Business Transformation Programs:** This is where change is more focused on transforming the way the business functions – for example implementing a new service partnership or moving into a new market.
- **Political and Societal Change Programs:** The change is focused on improvements in society, and the level of predictability will be reduced as there will be many uncontrollable external factors at play.

MSP even regards itself as being most useful when employed on vision-led transformational programs where the levels of ambiguity in requirements are high and the risks are substantial, but there is a definite end point. That doesn’t mean to say that it can’t be used on other types of programs. For instance, with specification-based programs,

because the scope is reasonably well defined and adjusted, MSP would be used in a scaled-down form. With respect to political and societal change programs MSP would be a good choice if it was not for the fact that these kinds of programs have a tendency to be 'never-ending' and therefore morph into an expression of 'business-as-usual'/operational management.

Even though MSP has this bias to certain types of programs, from broad research, it is one of the best program management frameworks currently available. It is a great repository of strategies (governance), plans (when to do it), processes, and templates which, combined with the concepts of transformational flow, really can provide program managers with an opportunity to acquire a wide range of knowledge, skills, and tools.

## **4.6 Why do large projects fail?**

Despite all the well-intended standards, well-defined guidelines, and widely acknowledged processes, projects fail. We have seen that project failure rates are rampant across industry domains and government sectors; let us dwell on understanding why large projects often fail to deliver. This is the premise on which this book primarily attempts to provide guidelines on implementation of large projects/programs.

Projects and programs drive change in organisations. When they fail, organisations lose money and market share, and they become less likely to execute their strategies and squander competitive advantage. With stakes this high, projects, programs, and especially the portfolio cannot be left to chance. They need to be managed by skilled, trained professionals in a standardised way throughout an organisation and align with organisational strategy to ensure success.

A Gartner user survey done in 2012 shows that, while large IT projects are more likely to fail than the small IT projects, around half of all the project failures, irrespective of project size, were put down to functionality issues and substantial delays.

### **4.6.1 Key findings of the Gartner survey**

- Runaway budget costs are behind one-quarter of project failures for projects with budgets greater than \$350,000.
- Small is beautiful – or at least small projects are easier to manage and execute. The failure rate of large IT projects with budgets exceeding \$1 million was found to be almost 50% higher than for projects with budgets below \$350,000.

A project is considered to have failed when it does not meet the schedule or budget, and the product or service does not meet the customer requirement. There is no one overriding factor that causes project failure; however, some key factors have been identified as major causes of project failure (Ayodeji, 2008).

A Project Leadership Associates survey of more than 200 CEOs, COOs, and CIOs suggests that there is a high correlation between lack of execution and dissatisfied shareholders. Large projects specifically fail to meet shareholder expectations because they lack many things, such as buy-in within the project team members, project managers who are business owners, clarity of plans, and disciplined meeting management. Ambiguity of roles and responsibilities, team member burnout, change management, and cultural issues also contribute to this shortfall.

#### 4.6.2 Underlying reasons for the failure of large projects

- **Bad idea:** If the project is a bad idea right from the beginning, then it is not going to be successful. This could be because none of the end users want it or because it is ethically wrong and causes a reaction, or any one of lots of such socio-political reasons.
- **Lack of good governance structures:** Often, large projects fall between agencies or between units of agencies, and it is hard to achieve consensus on what each one wants. What often happens is that decisions then get made by committees and there is little accountability. This leaves the teams building the products/systems to figure things out on their own without a clear decision structure, which can lead to inevitable problems.
- **Analysis of business needs, missing or wrong:** Failure to undertake a proper needs analysis results in project failure. Failure to consult those in the front line of delivery, or in receipt of services, is endemic among organisations or governments when they are planning for new policy initiatives or huge changes to the existing systems.
- **Inflexibility in delivery dates:** Complex projects can be very difficult to predict and manage. With the best will in the world it's not always possible to meet deadlines. If there is complete inflexibility in delivery dates for parts in the project or the project overall, then it is likely that either things will be rushed to meet the deadline and will fail in other parts, or that too much effort will be put into meeting the deadlines which may result in cost overruns, quality loss, wrong positioning, etc.

- **Delays:** Any delays caused particularly in agreeing on priorities between conflicting objectives, leading to delay in planning and procurement, may delay the project since multiple teams may be involved in the project execution of large-scale projects with high interdependencies within sub-projects.
- **Unclear or understated objectives:** This is usually the result of poor communications in the project. When the project objectives are not clearly spelt out, it is assumed that every team member has understood it, and the output of the project is bound to be at variance with the stated objectives. It is the responsibility of the project manager to clearly communicate the objectives of the project to the team members and ensure that it is well understood. Quality control on a project actually begins at this stage and progresses throughout the project. Another source of confusion in the project objectives could come from the client's inability to clearly and unambiguously state his/her requirements at the initial stage of the project; this usually leads to variations and scope creep.
- **Lack of top management involvement:** If you happen to be a vendor handling project delivery, it is imperative to get the involvement of the top management of your customer throughout the phases of a project life cycle for better and quicker decision making, approvals, and acceptance of agreed deliverables which may otherwise cause unwanted conflicts and delays.
- **Lack of effective change control mechanism:** Change is inevitable in many projects, but what leads to project failure is the inability to plan ahead for the changes, especially while handling large projects. Changes can occur as a result of variations to project scope or scope creep; this is a situation where the scope of the project grows insidiously and unchecked. Scope creeps may also arise when there is no well-defined Scope of Work by the customer; it is important for the project manager to commit the customer and all the stakeholders in the project to clearly define what the deliverable of the project should be. When this has been done, a change control system should be put in place to regulate any change to the already agreed or verified scope. Change in scope usually has a direct impact on the quality of the project if not balanced with time and cost.
- **Lack of knowledge and skills:** This evidently is the worst culprit in most developing organisations and public sector companies where there is technical knowledge of the project work but with lack of management skills needed to deliver the project to client satisfaction. Most employees lack knowledge of basic project management

processes and the application to the field of their expertise. In such situations, projects are usually executed without any controlled or definite plan for their successful completion on time within budget constraints. Along with this, lack of high-level skills, training or experience in planning, procurement, or implementation also compounds many other problems.

- **Change in priorities:** Government projects for instance have so many problems, because ‘accountability structures’ separate project requirements and goals from the real needs of end-user constituencies, and ‘shifting political priorities, with neither consultation with the users nor consideration of the practicality of the consequent ministerial demands for change’ cause these projects to flame out. It is the churn of ministers and officials that occurs between concept and implementation, and a lack of clarity over roles and responsibilities that brings about failure. Projects that take more than three years to complete are more likely to be cancelled than to succeed, and those with more than 15% staff turnover among key staff are in trouble. Long and large projects are common to government, and few officials are in the post for more than 18 months. It is therefore essential that the government breaks its programs into projects and sub-projects that can be delivered before the officials responsible – let alone ministers and advisers – have moved on.
- **‘All at once’ funding:** In any large-scale project, you are better off getting just enough funds to get to the next major milestone, at which time a mini-post mortem can reveal problems before a lot of expense has been incurred, and the project may be redirected or stopped while it is still inexpensive. With government projects, for instance, it is such a pain to get funding approval that the temptation to get funding all at once is irresistible – what that means, unfortunately, is that projects can get very large and very expensive before anyone has a good hard look at them.
- **Expectation mismatch:** When all the people involved in the project do not agree upon what can be expected, there is a little chance that the project will be successful. For example, in an IT automation project, one person might be expecting a Rolls-Royce, and another person might be expecting a Mini. But what the developer gives them is a Mondeo. In the end none of them will be satisfied.
- **Poor communication:** Poor communication between people involved in the project is similar to the expectation mismatch; unless people are kept up to date with what’s going on, it is likely that they will get pulled in different directions. It can also cause bad feelings



among the project teams, stakeholders, users, management teams, and customers.

- **Failing to budget for ‘clean-up’:** This usually occurs in the implementation part of the project, say, of an IT project, when people suddenly realise that the data they are working with has to be moved from the old system to the new system and that it can’t be done easily. A good 40% of an IT project’s budget could go into just making sure the information in the system is clean, accurate, and representative of what it is supposed to do. The first thing to do is to make sure you have given some thought to the state of your data before you throw the switch on a new system. Even better, try to build successive ‘clean-ups’ into the on-going project – don’t leave it until the very end and get surprised. What some people do to minimise problems is to move the data to an interim ‘holding pen’, then get it straightened up, and only then move it to the new system.

To summarise, the biggest source of a complex and large project failure is due to the lack of leadership, specifically the lack of successfully managing the relationships among groups which have to work together, and keeping everyone’s attention and commitment aligned on the outcome of the overall project. In the absence of leadership, people tend to succumb to the natural tendency to get tunnel vision from focusing on their individual success as a function of doing their part rather than doing whatever it takes to deliver on the promise of the project.

But maybe there is a problem with the definition of success? Is a project that meets all its ‘requirements’, but is immediately ‘discarded after delivery’, a success or failure? Is a project that is over budget, late, and buggy, but immediately has customers clamouring for improvements, a success or failure?

## 4.7 Case studies of a few failed large projects

This section highlights a few popular large project failure case studies that have occurred over the decades.

### 4.7.1 NASA, USA Mars climate orbiter project

In 1999 NASA lost a Mars space probe. The obvious cause was that two teams of scientists working on the project were using different systems of measurement. One was using metric, the other was using imperial. This was the cause that hit the headlines, but it didn’t tell the full story.

An investigation into the failure showed that the navigation software and related software had not been tested as a whole system. In addition, communication and training within the project had been poor.

Other reasons the failure included: no clear success criteria to state how the project outcomes should be measured; the project wasn't funded adequately, and its scope was too large for the money available; communication between the teams working on the project was poor, and the staff was not properly trained in project management.

As a result of this failure they decided that they should focus on smaller, low-risk products that could be incorporated into larger-scale products; this would minimise the risk of failure (Report on Project Management in NASA, Kennedy Space Center).

#### **4.7.2 Heathrow Terminal 5, UK**

One project that was in the news a lot in 2008 was the opening of Heathrow Terminal 5. The terminal was opened by the Queen in March, but on the first day that it went live everything went wrong despite six months of testing with up to 15,000 volunteers.

British Airways (BA) had described the new terminal as being like a natural, logical journey that is so calm you will flow through. It shouldn't take long to get from check-in to departures. Transferring and arriving are just as simple and calm.

Terminal 5 cost £4.3 billion to build and equip. It was an enormous project with 180 IT suppliers and 163 IT systems. It took 400,000 man-hours of programming to develop the complex system. Within hours of the terminal opening, the baggage-handling system broke down and by 4:30 in the afternoon, just 12 hours after it opened, all check-ins had to be suspended. The causes of the problems were very simple, but the effects, both for the passengers and for the prestige of the country, were massive.

There were some technical problems with the baggage handling system, including the fact that bags got jammed because they were not being unloaded fast enough. Also, the system told baggage handlers that planes had taken off, even though they could still be seen on the ground, so the handlers took the luggage back into the terminal instead of loading it onto the waiting planes.

Some staff said that the problems with the baggage system had been discovered during testing in the weeks prior to the terminal's opening but had not been sorted out.

There were also problems with staff finding car parks and getting through security checks. This meant that not enough staff was on duty as

the terminal opened; check-ins could not be opened, and bags were not moved from the conveyor belts fast enough to prevent jams occurring.

What was obvious from this was that staff had not been trained well enough and was not familiar with the systems they were using, even though training had started a year before the terminal opened. In addition, the lack of familiarity with the terminal itself increased the problem as staff could not get to work on time, putting others under stress. Testing had not been carried out properly, though BA and the British Airports Authority (BAA) had been confident that everything would go well. In fact, nearly every major airport opens late and has major operational issues.

The testing that was done was not thorough enough to find all the problems that would occur. As mentioned above, over 15,000 volunteers were used to 'test' the terminal, but it was not tested with all the staff, some of whom had never been in the terminal until the day they started working there. There had never been a dry run using all the staff – only small teams had been used in the testing that did take place. All the bits of the terminal had been tested, but the whole thing had never been tested together – that's why the staff couldn't find the car parks or get through security on time.

So, another large project that did not have adequate testing failed spectacularly on the first day, though it has been sorted out since (Heathrow Terminal 5 Case Study, 2010).

#### **4.7.3 Patient Administration System, Western Australia Department of Health**

The Western Australia Department of Health sought to replace its existing Patient Administration Systems (PAS) with a single integrated solution in 2000. An integrated PAS was planned to be in place by 2009 at an estimated cost of \$52 million. This has since been revised to \$115.4 million with the new PAS unlikely to be operational in metropolitan areas until at least 2014 and 2018 in regional areas (Gilbert Tobin, 2013).

Cause of failure: Business requirements were poorly defined. Even as announced deadlines for system implementation loomed, business requirements were still being collected, leading to moving goal posts. Vendor and contract management was poorly done leading to unsupported systems and on some occasions outdated software licenses increasing the risk of failure.

Another classical reason was inadequately trained staff for managing the contracts and lack of technical skills for managing the system deployment.

#### **4.7.4 HealthSMART – Department of Health (DoH), Victoria, Australia**

Yet another case of a large project failing comes from the Department of Health's ICT initiative of consolidating ICT Systems in Australia. HealthSMART was the ICT project initiated in 2003 as a \$323 million program which was supposed to consolidate ICT services for a complete Health Management System including finance application (support health service systems manage their finances), patient management application (store details and appointments), clinical application (replace paper files), and planning and building of infrastructure.

As per the Gilbert & Tobin report (2013), 'delivery of patient applications were late (but on budget) while only four health services have been able to successfully roll out clinical applications. Project ran 35% over budget and was only partially implemented seven years late. The project is projected to be \$148 million over budget.'

The causes of failure were identified to cut across project processes. The complexity of the project was seen to be underestimated, compounded by lack of skilled staff at the Department of Health. Furthermore poor vendor management led to the vendor failing to provide sufficient staff or staff with sufficient expertise. The planning drivers were apparently more influenced by government funding rather than business needs. Prioritisation of the systems deployment took a populist route to evidence progress rather than go about structured program management. This made milestone achievements rather ad-hoc than synergised with program objectives (Gilbert Tobin, Failed IT Projects.).

#### **4.7.5 Department of Transport shared services, UK**

In 2005, the Department of Transport initiated the grand program for providing shared services (including IT and business services) for the various agencies under the department. The Shared Services Transformation Programme was initiated with a grand vision to save an expected £57 million by building processes and supporting IT systems to be shared by the Driver and Vehicle Licensing Agency and the Driving Standards Agency and to enable sharing of HR, Payroll, etc., as services for many other agencies under its fold.

However, till now, the Department of Transport's shared services didn't save the expected £57 million, but instead racked up £81 million in costs (as at the end of 2008). Currently in 2014, it is being touted to be handed over to Arvato, an independent service provider, to deliver the envisaged services at an additional cost. This new outsourcing contract

is expected to save £400 million, but the full handover to Arvato is yet to take place and is expected to be completed by 2015. Gains are anybody's guess now until we see another report from the Comptroller General.

The National Audit Office observed in its report poor vendor management and unrealistic targets. Quoting from the report: 'Significant changes to the assumptions underpinning initial estimates of costs, inadequate contract management and poor initial implementation of the Programme have meant that the Program as originally envisaged will not achieve value for money. The Programme would, under the terms of the Department's initial financial appraisal, represent a net cost to the Department of £81.1 million up to 2015 and assuming no improvements in the Shared Service Centre's current productivity nor the achievement of target savings in each agency, both of which the Department is actively targeting' (National Audit Office, 2008).

Once again, poor relationship management, poor requirement analysis, and insufficient technical and managerial skills come across as the main causes of failure.

Since 2007, the program has been taken onto a corrective path and has shown considerable progress, yet the full objectives of the program have not been fulfilled till 2014 and the primary goals remain unfulfilled to a large extent.

## **4.8 What can make large projects succeed?**

### **Lessons from failures**

All the cases discussed above are well-known public acknowledgements of failure, despite good intentions and adequate sponsorship backed with strong processes to manage.

The fundamental question associated with a large project success is, what is the level of confidence that they will meet the forecast needs say in 3, 5, 10, or 20 years, given their typical long delivery projects and the paradigm shifts occurring in the society and market place due to the influence of global economic conditions and other megatrends?

An often forgotten key ingredient to major project success is investing in the creation of a high-performance team environment. The essential characteristics are:

- **Clarity:** A clear understanding among all those involved about the common purpose, goals and direction of the project.
- **Culture:** An embedded value system of integrity, trust, support, honesty, and commitment.

- **Alignment:** The interests of all team members should be aligned and focused.
- **People focus:** Many project managers spend a great deal of time on the technical aspects of project management, often overlooking the ‘softer’, people-oriented, issues that can derail a complex project. Although many books – including PMBOK Guide – stress the important of soft skills, the current paradigm of project management is essentially mechanistic. It is also implicitly assumed that human actions, interactions (and consequences thereof) can be objectively observed and then be corrected or controlled.
- **Core project team:** Successful core project teams include no more than four to six individuals who are responsible for making 80% of project decisions; building ‘straw models’ and soliciting input/buy-in from other stakeholders (on issues such as master project timelines); aligning their sub-team leads to the master project timeline; holding sub-teams leads accountable for execution of the master project timeline; and escalating and resolving key project issues that may impede progress.

#### 4.8.1 Some steps that can help large projects to succeed

- **Clear definition of vision:** The project vision and rigorous testing of the assumptions underlying the vision need to be clearly defined along with the project scope, risk, and opportunities. A project delivery plan that matches procurement to project definition and risk, provides clarity in the communication of the project definition, and establishes a framework for high-performance outcomes.
- **Clear expectations:** Everybody involved in the project needs to know exactly what they will get out of the project, what needs to be put into the project, who will be doing what, when it will happen, how much is it going to cost, and so on. These clear expectations about everyone involved matter whether the project is going to be successful or not. A clear statement of requirements is a part of understanding what the expectations are.
- **Define project drivers, constraints, and degrees of freedom:** Every project needs to balance its functionality, staffing, budget, schedule, and quality objectives, defining each of these five project dimensions as either a constraint within which a project must operate, a driver aligned with project success, or a degree of freedom that can be adjusted within some stated bounds to succeed. Finding the deal-breakers up front would help. Constraints (the deal-breakers) are

non-negotiable limits within which the project must be planned and implemented (e.g. no more than \$300,000 total budget, legal team must approve all contract wording, etc.). Constraints won't necessarily hurt your project, but finding out about them half way through the project could defeat the purpose.

- **Define project success criteria:** At the beginning of the project, make sure that the stakeholders share a common understanding of how they will determine whether this project is successful or not. Too often, meeting a predetermined schedule is the only apparent success factor, but there are certainly others. Some examples are increasing market share, reaching a specified sales volume or revenue, achieving specific customer satisfaction measures, retiring a high-maintenance legacy system, and achieving a particular transaction processing volume and correctness.
- **Select partners carefully and respect them:** Research all potential suppliers and vendors much in advance with great rigour and understand the value proposition of each. For example, while X may be very strong technically, if X does bring value to your project with technology strengths that you may not internally have within the organisation, then, X may not be a great partner to work with. And most importantly, respect the partner and the skill set that they bring to the table. Master/servant relationships or attitudes are counter-productive and will only lead to de-motivation and a lack of engagement and collaboration between both parties.
- **Management support:** Support from the senior management is essential if a large -scale project has to succeed. The management has to agree with the project, and they have to support it with financial and personal commitment. A management team often has senior people who may have other priorities, and unless they support a project it is unlikely that they will bring in the time and effort to make it succeed. Strong influence players may not do any value-added hands-on work on a project, but through their influence in the organisation, they can make or break your project. Sometimes, they can play a positive role (e.g. champions, sponsors, and advocates). In other cases, failure of a project manager may be their success. In all cases, it is essential to find who they are and what it will take to make them into strong supporters or, at least, to neutralise their negative impact. Whenever possible, get them involved, ask their advice and keep them informed.
- **Have active project sponsors:** The executives who actively champion to articulate the strategic value of projects and communicate the

intended benefits to stakeholders are critical to the success of large projects. But support from high levels within the organisation must be sincere. As Jeffrey Liker notes in *The Toyota Way*, 'the difference between success and failure is the difference between head nodding and verbal support from the top and getting real action from the top.' A committed leader must provide the resources to keep things moving. This includes top-notch people to work on lean strategies, provide financial support, and accountability for delivering results.

- **Comprehensive planning and contingency buffers:** A well-planned project that has been broken down into all the parts that are needed and all the tasks that are required will make it clear what the critical path is. The critical path shows the deadline that must be met if the project is to be delivered on time. It will also show any dependencies, where one task is dependent upon another task being completed. This makes it clear what resources are needed and when. Clear milestones should be set out at checkpoints for progress on the project. Contingencies should be built in to allow for unexpected problems. Things may never go precisely as you plan on a project; therefore, your budget and schedule should include some contingency buffers at the end of major phases to accommodate the unforeseen. Unfortunately, your senior management or customer may view these buffers as padding, rather than the sensible acknowledgement of reality that they are in. Point to unpleasant surprises on previous such projects as a rationale for your foresight.
- **Skilled experienced project managers and staff:** A successful project needs project managers who can manage the project well. It also needs to have a team that has the right mix of skills to do all the jobs that are needed, especially those who understand how large projects need to be executed.
- **Effective governance:** Make sure that there is a clear set of rules for who is in charge, what results are desired, and how decision-making is going to take place. For example, a project manager would feel a lot more comfortable if the treasury and the other agencies involved in the financial bail-out, etc., were transparent about transactions.
- **Communicate, communicate, communicate:** Use formal communication to get information to everyone. Use informal communication to fill in the gaps. Use project review meetings and steering committee review meetings like a huddle between players in a football game. Set ground rules, document actions, and measure the results of different communication methods.



- **Respect the learning curve:** If you are trying new processes, tools, or technologies for the first time on the project, recognise that you will pay a price in terms of a short-term productivity loss. Don't expect to get the fabulous benefits on the first try, so plan and build extra time into the schedule to account for the inevitable learning curve.
- **Well-defined scope:** This is one of the most important factors in a successful project. The scope of the project shows exactly what will be done and what the boundaries of the project are. It will also show what other systems the project has to communicate with. Many government projects which are subject to 'creep' fail in the end because the scope has not been clearly defined. For example, a system that is designed to hold customer records is being developed. During development, it is decided it will also deal with customer bills that will be dealt over the Internet, etc. The functionality for this has to be built, and this will affect timescales. A better approach is to plan projects as a series of additional functionalities, so that people don't feel they have to get their feature in the first release – think of it like trains leaving a station rather than one big bang.
- **Top-down:** Traditional project approaches start from the bottom up, with work breakdown structures and task-level details that roll into a detailed master project timeline or schedule plans. In the light of various studies, it is suggested that successful large projects start with key top-down anchor dates set forth from the core project team.
- **Re-examine risks and dependencies:** Few projects perform adequate risk management. For large, long-duration projects, it is essential to identify risks after each iteration/phase and re-examine the risk responses, identify new risks, develop risk response plans, identify new project dependencies and interrelationships and develop dependency management plans.
- **Prototyping:** Prototyping is used in developing large IT systems. It shows the user at an early stage what the system will look like and what it will do. If the user does not like what is being shown on the prototype, it can be adapted quickly. This means that lots of feedback can be gathered from the user of the system at an early stage and throughout the development of the project.
- **Political Support:** It is extremely important for large-scale projects, especially in the public domain, to have political support. It is important that the support for the project be garnered cutting across political ideologies. Public support with the political support is critical for this.

## **4.9 Remarkable success stories of large projects**

A few large project success stories presented as case studies in various forums during the recent years are listed below.

### **4.9.1 Large Infrastructure Project Success Story – Delhi Metro Rail, India**

In the recent past, the Delhi Metro project in India has stood tall as a prime example of a project management success story in the public sector. Delhi Metro is a rapid transit system that connects Delhi with its satellite towns. Built and operated by Delhi Metro Rail Corporation Ltd. (DMRC), it is a partnership between the Government of India and the Government of Delhi. Now fully operational and termed an urban miracle, Delhi Metro has proved to be a cost-effective solution for the transportation woes of India's growing metropolises. Urban planners in India across the country now take the Delhi Metro project as a benchmark for successful public sector projects.

#### **Key facts and figures**

- Planning started: 1984
- DMRC set up: 1995; senior bureaucrat Mr Sreedharan appointed as Managing Director
- Construction started: 1998
- First section of Phase I opened: 2002
- Phase I completed: 2006 on budget and almost 3 years ahead of schedule
- Phase I costs: US\$ 2.3 billion
- Phase I key parameters: 189.63 km, 142 stations, daily ridership of 1.7 million, peak hour train frequency 2.5 min

#### **Reasons for its success**

- The right person, a trained and experienced project manager, was appointed.
- The management got total authority to hire people, decide on tenders and manage funds that helped cut delays, fix accountability, and build a sense of ownership.
- Detailed planning of the project, including funds required for entire project, outlined prior to commencement.
- Thorough understanding of the project plan and alignment of stakeholders' vision, creating transparency and a shared focus on results.

#### **4.9.2. Large Information Systems Project Success Story – VOSA Online licensing project, UK**

The Department of Transport uses agencies to control motor licensing in the UK. The Vehicle and Operator Services Agency (VOSA) is one of the agencies. It deals with 120,000 commercial vehicle operators in the UK. In 1988, the goods operator licensing system was computerised in order to create a more efficient system using the available technology. This was before the common use of the Internet.

In 2004 VOSA started its Operator's Online Self-service Licensing project. The system uses the Internet to allow goods vehicle operators direct access to their own licensing records and allows them to input and track applications in real-time. The project also allows the agency to work easily with other agencies that are involved in vehicle licensing. It is a secure system that allows payments by credit or debit cards. Before 2004 the agency as a whole had very little information technology and limited IT skills.

The management started to make changes to the culture because outside influences from the government were making them think about how they could provide joined-up services. This meant that the senior management was committed right from the start and provided the vision for the project. The online licensing project was just one project out of seven that was developed by the agency.

Best Practices that led to success:

Right from the start of the project, outside users were consulted, and they agreed to take part in pilot programs. Also substantial training of staff took place to give them the skills necessary to use the system that was developed. The project team was led by staff who understood the business processes necessary. These worked alongside the technology developers who had the skills necessary to develop this part of the system. Where the agency did not have the necessary skills within their own staff, they outsourced, thereby bringing in the necessary skills.

The scope of the project was well-defined. Although it was ambitious because of the lack of technology skills in the agency, the boundaries of the project were clear, and what the project was aiming to do was very clear.

A well understood methodology called PRINCE2 was used to make sure that rapid development was reliable. Substantial testing took place throughout the development.

Even though the project was a complete success in terms of what it offered, the agency did find that there were challenges in persuading external users who had not been involved in the pilot and other government agencies to use the system. In order to encourage more users to

use the system further projects have been put in place to increase the systems functionality.

#### **4.10 From project management stepping towards project leadership**

Project management is both an art and a science. Although the soft factors of project management are emphasised in some methodologies/standards, there are still unsustainable practices.

On an average, statistics show that about 70% of all the IT-related projects fail to meet their on-time, on-budget objectives to produce the expected business results. Project and Program Management functions have matured in the IT sector when compared to other sectors in the last few decades. In one KPMG survey, 67% of the IT companies who participated said that their existing program/project management function was still in need of improvement. Why?

A number of leading factors for failures in IT projects revealed by the survey are:

- unreasonable project timelines,
- poorly defined requirements,
- poor scope management,
- poor planning, and
- unclear project objectives.

Granted, all the above factors can play a role in the project success. But are they the cause for project failure, or just a symptom of some larger issue?

When experts take a close look at several of those troubled projects, they realise that there appears to be a common link: leadership is missing in action. That is, while the project manager may be focused on what needs to be done and may well know how to do it, he or she may not be acting as a project leader. While experience and certification is a good foundation for knowing what to do, it takes true leadership to drive complex projects to successful conclusions.

There are several areas of projects today which demand strong leadership skills – portfolio management, project management, program management, and project/program management office (PMO) leadership. Many things influence project management today. When you look at projects today compared to 15 or 20 years ago, you can notice a big change.

Traditional project management has always focused on the technical (execution) side of projects. There has been little focus on the people – project performers and stakeholder relationships. The lack of focus on the well-being of the project performers results in the loss of body, mind, heart, and spirit. This causes stress-related ailments. Stakeholders were kept informed of the project changes but were not engaged to understand and develop the details of sustaining the change. Communication meant more telling than listening. In today's knowledge age, the whole person and relationships matter far more.

People matter because they are the most important component for responsiveness and achievement of project goals. Unlike scope, schedule, and other resources, people are best led, not managed. When project performers and stakeholders are aligned and motivated, the project change moves from a proposal to reality. The alignment is accomplished through relationships. Relationships are created and evidenced by conversations/communication. A relationship can be defined by the last five conversations that shaped it; therefore, communication is critical. Relationships matter because a relationship is where commitments are created.

Also the profession of project management is continuing to increase in its complexity. You are called upon to supervise projects that are global in nature. They involve different cultures, nations, and industries. These increasingly complex projects require budgets totalling millions. So it seems as the world literally continues to get smaller and closer, projects will continue to get larger. Your inventory of skills needs to increase as well.

Interestingly, for the first time, leadership has been acknowledged as an important project management skill in the PMBOK Guide 4th edition, albeit in brief.

#### **4.10.1 Leadership definition**

The PMBOK Guide mentions leadership as:

‘establishing direction, aligning people, motivating and inspiring people to overcome political, bureaucratic, and resource barriers’.

and again as:

‘developing a vision and strategy and motivating people to achieve that vision and strategy’.

PMBOK Guide, 5th edition talks at length about leadership aspects and interpersonal skills required for project managers:

Leadership involves focusing the efforts of a group of people toward a common goal and enabling them to work as a team. In general terms, leadership is the ability to get things done through others. Respect and trust, rather than fear and submission, are the key elements of effective leadership. Although important throughout all project phases, effective leadership is critical during the beginning phases of a project when the emphasis is on communicating the vision and motivating and inspiring project participants to achieve high performance.

Throughout the project, the project team leaders are responsible for establishing and maintaining the vision, strategy, and communications; fostering trust and team building; influencing, mentoring and monitoring; and evaluating the performance of the team and the project.– PMBOK® Guide 5th Edition, 2013 (Appendix X3: X3.1–Leadership, pp 513–514)

Some people think that leaders are born as a miracle of nature. However, research indicates that leadership is primarily a set of specified behaviours and skills that distinguish it from the traditional management behaviours of command and control. These behaviours and skills can be performed by anyone willing to learn, adapt, and apply them. But progressing from a project manager to project leader does require examining assumptions, beliefs, and understandings.

There are six simple ways to give proper leadership when you are setting up and leading a project team:

- create an atmosphere of trust,
- build the right team,
- spell everything out for your team upfront,
- monitor, give feedback and appreciate,
- keep communication open, and
- keep the end goal clearly in mind.

#### **4.10.2 Project management and project leadership**

Project management is the practice of using the tools, knowledge, metrics, and techniques needed for initiating, planning, executing, monitoring, controlling, and closing a project. Project leadership appears, therefore, to be a subset of project management. But it would be a mistake to assume that project leadership is secondary to project management.

Project leadership is the only function that occurs throughout the project cycle – making it an extremely critical component of project management, and without its existence project management really can't successfully happen. It is, in many ways, the glue that holds the other functions together. The output from defining, planning, executing, monitoring, controlling, and closing a project depends largely on how well project leadership is exhibited. Without solid leadership, performance of the other functions will be marginal at best.

Industries are replete with examples of projects that had well-defined plans and plenty of financial support, yet achieved less than satisfactory results. Project managers must gain and retain the confidence of myriad players, including the project sponsor, client, team, and senior management. Project leadership, then, means going beyond the mechanics of managing a project, such as building a work breakdown structure, constructing schedules, or managing change. It calls for inspiring all players to accomplish the goals and objectives in a manner that meets or exceeds expectations.

Project leadership doesn't mean being a strategic visionary sitting at the top of your organisation. It is about leading the project team members to achieve their objectives in order to produce successful results.

Project leadership means using your skills, experience, confidence, and good reputation to take charge of the project team, your customer, and sometimes even influencing the senior management in your organisation and drive (not manage) – them towards a successful conclusion. One really can't happen without the other.

Integrity is also the absolute foundation for project leadership. Integrity means never letting your project live a lie. So if your project plan is a house of cards, or your schedule will be indisputably delayed, or if you discover that your product or system will fall flat in the market, you need to have the courage to bring these issues to light proactively. Managing expectations is the key to building integrity.

***'Project leadership without project management leads to chaos.'***

Project management without project leadership may get the project completed, but there's a good chance that the end result wouldn't be a very successful one. If the leadership is lacking, customer satisfaction is likely to be lacking, too. If the leadership is lacking, it is unlikely that the project timeline and budget will stay on track when the project hits bumps – and then they all hit bumps.

***'Leading others is not a substitute for project management.'* –  
Chance Reichel**

Despite the continued focus on the leadership and business skills of project managers in project management competency standards and frameworks, a fatal assumption still prevails in recruitment efforts that only an individual who understands the technical aspects of a particular discipline can successfully run a project to delivery.

A lot of project owners/sponsors focus on selecting such technical experts to lead their projects. For the smaller projects it might be relevant, but on larger projects the key attributes are the relationship-building skills, leadership, and managing people – particularly stakeholders, and an understanding of the business and community needs. Technical people do not always think business. What makes a good technical person achieve in their technical discipline does not always make a good project manager; mostly they tend to focus on technical excellence and overlook time and budgetary constraints and stakeholder issues.

The key leadership characteristics of project managers are:

- role model,
- change agent,
- behavioural analyst,
- communicator, and
- delegator

Project leaders are more than just project managers; they are talented individuals who have mastered the leadership skills necessary to build a high-performing project team, leverage the collective intelligence of the group, manage it through the process of completing a project, and exercise influence without authority to ensure superior results.

Who is more valuable in the long run – a project manager or a project leader? Project managers do fine, but project leaders take it one big step further.

#### **4.11 Why new standards for program and project management?**

Despite several standards and methodologies, program and project management practices face several shortcomings. This is due to the practical gaps in existing methodologies/standards/frameworks. Though one



may argue that the popular project/program management methodologies if viewed on the micro level have many similarities, differences are present in the emphasis of each methodology as detailed in the above sections. Many researchers argue that the standard methodologies and frameworks cannot be applied straight out of the box nor detailed to a level at which they are ready to use as they are aimed at a wide spectrum of projects (Devaux, 1999). However, many researchers and practitioners also observe projects to have common characteristics that can be formalised into a structural process, which should allow a more effective management of such endeavours.

- The PMBOK guide and ISO 10006/21500 standards present a set of knowledge and guidelines relating to the management stages of projects. However, projects could never be successfully managed by following these guidelines alone (Bredillet, 2002). First, neither standard identifies the process of managing a project from the beginning to end in a logical sequence. They may identify the global processes, but not the steps necessary within each one, nor do they identify how to use these guidelines for a small versus a large project.
- Although ISO 10006, for instance, explains how to perform risk assessment or manage a change request, it is not always clear about where each of these processes fit into the overall process of managing the project.
- It is important to recognise some of the fundamental project management challenges and issues identified in the existing methodologies with an attempt to address them as much as possible. During the literature review it was found that a significant number of researchers continuously emphasised the need for organisations to seriously analyse successful, failed, or out-of-control IT projects, and the associated challenges (see for example: Buxbaum, 2004; Callaway, 1999; Chin, 2003; Correia, 2004; Davenport, 1998; Davenport, 2000; Duris, 2002; Fichter, 2003; Grossman, 2003; Hammer and Champy, 1994; Huber, 2003; Keen, 2003; King, 2003; McManus and Wood-Harper, 2003; NZIM, 2003; Royer, 2003; Pollock, 1998; Warchus, 2002; Young, 2003; Zimmer, 1999).

However, it has found different elements leading to project success or failure. These elements were more or less presented in the Standish Group CHAOS 2001 report as shown in Table 4.4.

*Table 4.4* Indicators found among successful, challenged, and failed projects

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<b>Successful projects</b>	<ul style="list-style-type: none"> <li>• User Involvement</li> <li>• Executive Management Support</li> <li>• Clear Statement of Requirements</li> <li>• Proper Planning</li> <li>• Realistic Expectations</li> </ul>
<b>Challenged projects</b>	<ul style="list-style-type: none"> <li>• Lack of User Input</li> <li>• Incomplete Requirements &amp; Specifications</li> <li>• Changing Requirements &amp; Specifications</li> <li>• Lack of Executive Support</li> <li>• Technical Incompetence</li> </ul>
<b>Failed projects</b>	<ul style="list-style-type: none"> <li>• Incomplete Requirements</li> <li>• Lack of User Involvement</li> <li>• Lack of Resources</li> <li>• Unrealistic Expectations</li> <li>• Lack of Executive Support</li> <li>• Changing Requirements &amp; Specifications</li> <li>• Lack of Planning</li> <li>• Didn't Need It Any Longer</li> <li>• Lack of IT Management</li> <li>• Technical Illiteracy</li> </ul>

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Mapping these factors from the Standish report to the existing literature, the most common factors that contribute to project success or failure are:

- management commitment,
- business strategy focus,
- requirements definition,
- complexity management,
- changing targets,
- formal methodology,
- project management,
- planning,
- user involvement, and
- risk management.

As one may note from the above list, usage of a formal methodology is one aspect that contributes to a project success or failure.

- Many very competent project and program practitioners believe that, if the scope and the deadline of a program are not defined from the

start, then it is not a program, but some kind of unruly, complex, political process best dealt with by change managers. While this may be true when dealing with large infrastructure and development programs, which are often subjected to a lot of political influence over time, nothing is further from the truth when program management is used in complex situations like a new product development or an organisational change.

- The essence of the program is to deliver benefits, but benefits are defined at a strategic level and they can only be delivered when the results of the project are implemented into the business through operations; therefore, the program extends into both strategy and operations.
- According to the two most widespread manuals on the subject of programs – the UK's Office of Government Commerce (2007) and the Project Management Institute, PMI (2008), programs deliver benefits of strategic importance and/or are part of a strategic plan. Most recent writings on strategy have demonstrated that, in today's turbulent environment, strategies are constantly in evolution and, by consequence, so are the programs that deliver them. This is not compatible with traditional project management and requires alternative management methods closer to strategy management.
- The Standard for Program Management by PMI (2012), however, may not offer a complete solution to all types of programs, especially while handling large government programs.

#### **4.11.1 Standards for large government projects/programs**

Public sector program management in a political context differs from private sector program management in various important ways (Alison, 1980). We get to see two main differences from a high-level perspective: with regard to policy formulation in the linkage of an administrative (management) cycle and the policy cycle of political decision making. Concerning implementation, the critical difference lies in the ambitious rule-based prerogatives, which significantly augment formal prerequisites to good public sector program management. The emphasis of these differences does not mean that there is a split between commercial business and public program management. It means that there are somewhat more complex demands in the pre-requisites of large-scale program management design and operations.

When it comes to government projects, Philip Virgo, Secretary General of EURIM, a UK political advisory body, has some time back written a

lucid and an insightful article describing the dynamics that cause most government IT projects to tank (Virgo, 2008).

Government projects have so many problems, according to Virgo, because 'accountability structures' separate project requirements and goals from the real needs of end-user constituencies. As he says, 'shifting political priorities, with neither consultation with the users nor consideration of the practicality of the consequent "ministerial" demands for change' cause these projects to flame out. According to him, if the root of government IT failure lies deep in the structure and relationship between political masters and humble IT servants, then spectacular public-sector meltdowns may be here to stay.

Large federal programs also tend to fail in predictable ways at specific, identifiable points in the process. Similarly, successful programs have elements in common that can be replicated. Those are the fundamental findings of William Eggers, global director of Deloitte Services Research Public Sector, borne out by the research he conducted for a new book, *If We Can Get a Man on the Moon: Getting Big Things Done in Government*.

Eggers and his co-author, John O'Leary, explored why some big government initiatives succeed while many others fail. 'There can be a good idea, with an implementable design that works in the real world, that achieves democratic commitment', he says. 'But it has to go through the wormhole, from one world to another. We call it that because one side, that's the political world, the policy people. On the other side is the bureaucracy, the executive branch, and there's this chasm in between. In the private sector that chasm doesn't exist.'

One best way to overcome the above syndrome in government over the years has been through outsourcing. However, it is important to note that in outsourced large technology programs the roles of consulting companies/vendors/experts, etc., has not been detailed in most of the popular global standards and also how they need to be managed effectively in the entire program life cycle and more so in a government or public-sector context.

Senior executives in government rarely concern themselves with the minute details of the project's execution. Therefore, consulting companies/vendors and sometimes individual consultants as experts get hired by government to deal with these details. Typically in government outsourced technology programs the team representing a project/program from the government rarely participates in direct development or delivery.

Most often government or public sector managers are not bred to change or implement the new technology programs by being innovative

and decisive, nor to develop and create new systems in house or to enhance existing systems as per the market trends. They are mostly bred to ensure existing processes are properly administered with the aid of technology. The management personnel from the government hence may be playing a supervisory role in outsourced project/program environments and rarely are part of the system development teams, project management teams, or sometimes even the program management teams; thus, their roles may not exactly align to that of the definition of sponsors, users, team members, project managers, or program managers, etc., as per various existing standards.

An internal survey conducted few years back that has formed a basis for arriving at the need for new project and program management standards for the UAE Government shows that many GCC organisations tasked their IT departments to champion technology projects/programs, with the belief that they have better understanding of such projects. This can be cited as one of the key and most common reasons for systems projects' failure.

IT teams may not understand the business goals and strategy very well, and the political drivers even less. Hence, organisations may get IT systems that are not aligned with the business strategy or political goals. During the subsequent course of interviews following the initial survey, many government officials highlighted the use of consulting companies for large IT projects/programs. They also referred to the use of proprietary methodologies and processes of those consulting companies with the belief that they include proven best practices – as claimed by the consulting companies.

These methodologies have been observed to be generally 'home grown', based on the firm's experience. It was not possible to obtain further detailed information about such methodologies as they were considered to be 'classified information', as stated by many interviewees. So in addition to dealing with several global standards/methodologies in practice, government officials also have to deal with such 'home grown' methodologies.

The fact that there are too many procedures and templates confuses government teams and leads them to develop their own ways of doing things. This again creates more confusion especially since some projects follow different standards of capturing metrics, so consolidating required data and monitoring and controlling the overall program sometimes becomes a humongous task. The desired quality of information to enable the executive management to maintain an overview of the program progress or to understand the potential risks the program or the projects may have been heading towards gets impacted.

Methods and tools employed by the consulting companies/vendors to describe various project processes of their individual projects and the documentation that they may use may sometimes carry jargon which could be difficult to comprehend by the government officials who in turn may hamper the overall communication and co-operation activities.

Hence in outsourced technology environments when there is a tendency for each of the consulting companies/vendors to follow their own methodology/standards for SDLC, project and program management that their parent organisation may usually comply with rather than an integrated methodology that is uniform across programs/projects that the government as a client organisation would have more visibility and control, there arises a need for creating a new common methodology/standard to bring this kind of alignment.

Also there needs to be means to resolve any challenges that may arise when Program Management Office (PgMO) teams for government initiatives also need to be comprised of representatives from consulting companies/vendors/experts, etc., since they handle collective activities in a collaborative model to monitor and control the associated programs. This is still a missing element in most of the existing program management standards which needs to be addressed.

#### **4.11.2 Stakeholder engagement**

While most of the global standards detail about stakeholder management or engagement processes for managing programs/projects, in outsourced environments stakeholder expectation management becomes vital. As multiple and diverse players get involved in large government outsourced programs and they all need to align with the enterprise strategies of the government, expectations management of stakeholders are much more critical since expectations here will be outcome based rather than output based. This also holds since stakeholders, from the general public to government legislators and executives, are demanding that programs be more transparent and more innovative.

#### **4.11.3 Risk management**

Some of the popular project/program management standards detail the identification and management of project and program risks. In addition to the project/program risks, the critical success factors repository, activities on the critical path of the project and program plan, management issues that may transcend individual projects, etc., may also need to be managed more effectively in outsourced environments

enabling diverse stakeholders to monitor program progress in a more focussed manner with high visibility. Enterprise risks that are strategic in nature may often influence the outcome of large programs and needs to be looked at and managed in such scenarios which most global program management standards do not comply to as the focus is only on handling program-level risks. There needs to be a mechanism to address this gap.

Following industry best practices or a particular project/program management methodology or framework cannot make projects/programs failure proof. To succeed, a successful project/program needs much more than a cookbook approach, especially when implementing large-scale projects/programs in the public sector/government. There are many issues highlighted above that require executive management attention, and a comprehension of their possible impact is considered essential to increase the chances of a successful endeavour.

#### **4.12 PROMOTE**

These are some of the major reasons that prompted us to draft a new methodology for implementing 'Large Government Programs and Projects' and provide relevant guidelines especially in the UAE context as already mentioned in Chapter 1.

PROMOTE – **PRO**gram and **PRO**ject Management **O**f **T**echnology Endeavours is expected to fill the observed gaps in global standards and methodologies while providing more practical insights for government, especially in dealing with outsourced technology environments. The overwhelming objective is to provide an improved understanding of stakeholder concerns and to see the problem situation and the requirements from their perspectives.

PROMOTE builds on the project management knowledge embedded primarily in the PMBOK Guide and the ISO 10006 standards. PROMOTE can be termed as a hybrid methodology that combines strengths from the program/project methodologies/standards and systems development methodologies to eliminate their weaknesses.

The PMBOK Guide can be referred to in order to gain understanding of the project management foundations, as well as some of the recommended tools and techniques and processes related to acquisition and procurement planning, contract closeout, and project human resource and communication management.

PROMOTE provides mechanisms to select and manage consulting companies/vendors/experts, etc., for government programs, addresses

enterprise risk management plan dependencies in addition to the program and project risk management activities, and focuses on stakeholder expectations management activities.

### **4.13 Conclusion**

Overall, while there exist various program/project management standards and methodologies globally, a gap can still be found in the adoption of these to specific project or program requirements without tailoring it to an organisation's need or say even to a sector's need. Similarly, managing successful large programs/projects in government and the public sector requires additional focus, uniform standards, and more rigorous monitoring and control mechanisms when they are typically managed in outsourced environments. The PROMOTE methodology detailed in the next chapter has been created to address some of these challenges.



# 5

## Program and Project Management of Technology Endeavours

This chapter details various elements that constitute the new methodology PROMOTE, including the philosophical underpinning, the model, techniques, inputs, scope, outputs, practice, product, and the goal of the methodology. The study of Avison and Fitzgerald's (1988) framework has provided a systematic exploration of various key elements in arriving at this methodology. The roles of program manager and project manager as per PROMOTE have also been highlighted in this chapter.

### 5.1 PROMOTE methodology overview

PROMOTE – PROgram and PROject Management Of Technology Endeavours – has been mainly developed and tested in an attempt to guide and support the implementation of large government technology programs/projects which have notoriously high rates of failure. This methodology was developed after analysis of the worldwide standards and methodologies for Project Management like PMBOK® and PRINCE2®, other program management standards and the existing literature on critical factors for succeeding with large IT projects and programs.

This was blended with my personal experience in project management, especially in the IT projects field, and in particular the UAE ID card and Iris projects plus the feedback from the government officials in various countries that I have visited and the feedback from the many conferences/seminars that I had attended during the last few years where I had also had an opportunity to present papers. As a practitioner, I have attempted to bring out the insights of practical program management and adopted these experiences into a structured methodology.

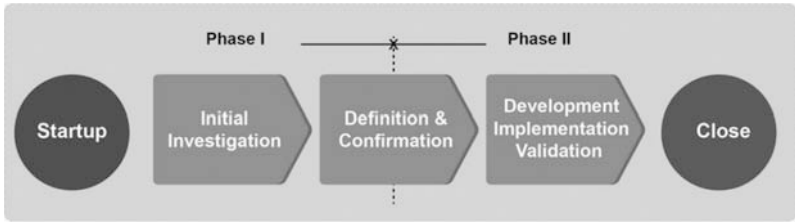


Figure 5.1 PROMOTE methodology flow

It is believed that the PROMOTE methodology advocated here is not just another project management methodology for managing projects, but there are fundamental differences between PROMOTE and other popular approaches (some of these have been discussed in detail in Chapter 4).

The goals that underlie PROMOTE are the needs to understand and improve the program/project management of technology programs/projects to ensure success in the light of stakeholders' expectations of quality, time, and cost (Adelakun and Jennex, 2002; Elpez and Fink, 2006).

The philosophical basis, structure, and design of the methodology have been examined using Avison and Fitzgerald's (1988) framework. This framework is frequently cited and used in the current literature for comparing and developing methodologies (Bielkowicz et al., 2002; O'Donnell et al., 2002).

## 5.2 Reference frameworks

### 5.2.1 Avison and Fitzgerald's framework:

Avison and Fitzgerald (1988) have developed the following framework for comparing methodologies, based on a number of previous attempts by other authors such as Wood-Harper and Fitzgerald (1982). The framework facilitates the conceptual mapping of similarities and differences between different methodologies.

Although their approach resembles a hierarchical structure, the authors describe it as a framework because it takes contextual and philosophical considerations into account. These considerations include academic methodology and taxonomies. The actual evaluation criteria for each element depend on the methodology under consideration. We will discuss each element in brief.

The Avison and Fitzgerald Model (1988) has seven basic framework elements, with sub-elements mentioned below:

1. Philosophy: principle or set of principles that underlie a methodology
  - a. Paradigm
  - b. Objectives
  - c. Domain
  - d. Target
2. Model: the basis of the methodology's view of the world.
3. Techniques and tools: set of integrated techniques, such as Entity – Relationship Modelling and Data Flow Modelling and the use of CASE tools to support the techniques.
4. Scope: life cycle, level of detail.
5. Outputs: deliverables produced during the phases of the methodology.
6. Practice: use of the methodology in terms of the differences between theory and the practice.
  - a. Background: academic or practitioner/commercial.
  - b. User base: numbers and types of users.
  - c. Players: users and/or analyst.
7. Product: looks at the nature of the product itself, in terms of documentation, support, training courses, software, telephone/online help, etc.

### **5.3 Philosophy**

The philosophy is an important aspect of any methodology and is regarded as a principle or set of principles that underlie a methodology. It underscores the choice of the areas covered by the methodology the systems, data, or people orientation; the bias towards computerisation; and other aspects that are configured on the basis of the philosophy of the methodology.

Many authors have emphasised the importance of the methodology's underlying philosophies and assumptions and that organisations need to be aware that they should match their beliefs to that of the authors of the methodology to achieve the claimed benefits (Burrell and Morgan, 1979; Everitt and Fisher, 1995; Hirschheim, 1985; Searle, 1995; Walsham, 1995). Though the philosophy can be explicit, Avison and Fitzgerald (1988) point out that in most methodologies the philosophy is implicit, as the authors of methodologies seldom stress their philosophy.

They also indicate that the philosophy development is guided through the four factors of (1) Paradigm, (2) Objectives, (3) Domains, and (4) Applications, as discussed next.

### **5.3.1 Paradigm**

The PROMOTE methodology is based largely on the systems paradigm, as it uses many of the systems concepts. It is regarded as a participative methodology. It is mainly based on the importance of people in an organisation, while appreciating the bigger picture that also consists of process and technology. It is the activities that people perform that need to be improved in order to succeed with IT projects. PROMOTE is designed to help people achieve this.

The PROMOTE methodology consists of two main phases (see section 5.9 on the PROMOTE design model). Each of these phases is further divided into a series of sub-phases each having a predetermined set of project tasks, deliverables, and exit criteria.

### **5.3.2 Objectives**

Stated objective(s) is another facet of the methodology philosophy, and it also determines the boundaries of the area of concern. Some methodologies state their objectives to be 'computerisation' whilst others take a wider view and direct their attention to achieving solutions or improvements to the problem area(s).

This is an important characteristic of PROMOTE as it makes its philosophical objectives very explicit because the focus of the methodology is on improving the overall program and project management life cycle activities of technology programs and projects it clearly embodies an assumption that a computerised system is to be constructed.

Considered as a socio-technical approach, the proposed methodology recognises the need to understand wider problems and implications than those specified by the scope of the program/project or system.

The overwhelming objective is to provide improved understanding of stakeholder concerns and to see the problem situation and requirements from their perspective.

### **5.3.3 Domain**

Another factor relating to the philosophy is the domain of situations that the methodologies address. This is related to the sub-element of objectives above, but focuses on what aspects or domain the methodology seeks to address.

The PROMOTE methodology takes a much wider view of its starting point, and is not looking to solve, at least in the first instance, particular problems.

The methodology underpins the logic that in order to ensure successful management of technology programs and projects, it is necessary to analyse the organisation as a whole, define the strategic requirements of the business – to ensure that the program/project is designed to support these fundamental requirements. This is dealt with extensively in the first phase of the methodology.

Avison and Fitzgerald (1988) distinguish between methodologies that seek to identify business or organisational need from an information system, that is those which address the general planning, organisation, strategy of information systems in the organisation, and those concerned with the solving of a specific, pre-identified problem; for example, the need to provide a wider range of marketing information to the sales forces.

PROMOTE is identified as belonging to planning, organisation, and strategy type. It is not a specific problem-solving methodology in the sense that it does not assume that a well-defined and structured problem already exists. The first phase of the methodology deals with planning and strategising. It attempts to identify the underlying issues that help in the understanding of the problem situation, including the purpose of the organisation. Here, an overview is taken of the needs of the organisation in terms of its business objectives and related information needs, and an overall information systems plan is designed for the organisation.

The methodology adopts the philosophy that an organisation needs such a plan in order to function effectively, and that the success is related to the identification of information systems that will benefit the organisation and help achieve its strategic objectives. The feasibility assessment results are in a list of recommendations for desirable change(s) and action(s) to improve the situation, the results of which can be the development of information systems that are managed in the second phase of the methodology.

However, if looked at in isolation from its first phase, the second phase of the methodology can be classified as a specific problem-solving methodology, that is, it does not focus on identifying the systems required by the organisation but begins by assuming that a specific problem is to be addressed.

#### **5.3.4 Target**

The fourth aspect of the philosophy model deals with the applicability of the methodology. Some methodologies are specially targeted at

particular types of problem, environment, or type or size of organisation, whilst others are said to be general purpose.

PROMOTE is argued to be a hybrid methodology that combines strengths from the program and project management methodologies/standards and systems development methodologies to eliminate their weaknesses.

The methodology offers a comprehensive approach to managing an overall IT project, where alternative approaches to systems development are envisaged.

The size of the organisation that the methodology addresses is also an important aspect of the target. PROMOTE has been designed primarily for use in large government IT programs and projects and is therefore viewed to subscribe to the Heavy Methodology classification proposed by Charvat (2003).

However, it is viewed to be applicable in either sector – public or private. Before looking at the proposed methodology components and their inner layout and products, the following sections discuss the theoretical foundations that anchor the proposed methodology and some of the working principles and assumptions of the methodology.

## **5.4 PROMOTE and its theoretical foundations**

There are several theoretical foundations that anchor the PROMOTE methodology, including General Systems Theory and General Measurement Theory.

### **5.4.1 General Systems Theory**

General Systems Theory was developed by biologist Ludwig von Bertalanffy in 1936 to guide research in several disciplines as he saw striking parallels among them (von Bertalanffy, 1968). The theory was built on the basis that (1) we must develop systems thinking to deal with complex systems, and that (2) our ability to observe, understand, and explain our universe will improve as different disciplines focus their research and theory development efforts on identifying laws, principles, and models of reality in systemic terms.

A systems approach provides a common framework and a scholarly method for the study of societal organisational patterns and a well-defined vocabulary to maximise communication across disciplines (McNeill and Freiberger, 1993). Systems theory recognises the relativity of perception, which may in itself serve to expand our understanding of

our role in the universe (ibid.). It provides a framework for us to examine and understand our environment (Hutchins, 1982). Indeed, systems thinking was an important thread in the emergence of the IS/MIS discipline (Mason, 2005).

#### **5.4.2 General Measurement Theory**

Measurement is the process by which numbers or symbols are assigned to attributes of entities in the real world in such a way as to describe them according to clearly defined rules (Fenton, 1994). Measurement theory is getting attention from researchers, but is being ignored by practitioners (ibid.), a fact that may be related to the high failure rate in IT projects.

Measurement is critical to help the understanding of what is happening throughout the project journey with regards to budget, schedule assessment, effort, cost, schedule prediction, etc. This allows the present situation to be considered and to setup baselines to set goals for future actions. Measurement also assists in the control of a project. By using baselines, goals, and understanding of associations it is possible to anticipate problems, thus enabling managers to perform actions to deal with them.

Measurement encourages the improvement of processes and deliverables of a given program or project. Wolstenholme et al. (1990) suggest a breakdown of entities into attributes and further into respective dimensions.

The measurement approach used in the PROMOTE methodology combines the above underlined variables and Wolstenholme's approach, to define variables, attributes, their relationships, and their interactions.

With these theoretical concepts underpinning, this methodology aided the positioning of the methodology phases in their contextual setting. Van Maanen (1983) asserts that one may not describe the observed behaviour of a phenomenon until one has developed a description of the context in which the behaviour takes place and has attempted to see the behaviour from the position of the problem owner.

The theories that anchor the methodology conceptualised in this section served as a core foundation to stimulate and organise the development of the PROMOTE methodology. The domains of these philosophical and theoretical characteristics in the applicability of the PROMOTE methodology (as a program and project management approach for large government IT projects) is described at an overview level in the following sections.

## 5.5 Key principles of PROMOTE

The following key principles underpin the PROMOTE methodology:

- Large programs are based on strategic needs of an organisation and focus on strategic corporate objectives.
- All programs are defined by the goals of the strategic objectives and the fulfilment of these objectives
  - Outcomes rather than outputs are the basis for defining initiatives, measuring quality, and tracking progress.
  - Initiative management and investment decisions are managed through the use of master project plans.
  - Each initiative can identify one or more successive projects that build upon and refine its work.
- Each successive project systematically moves the development effort towards a new or improved business process or a supporting application system aimed at the improvement or a new system development.
- Estimates can be made at various levels, but are always based on heuristics associated with elements that are known or can be predicted easily, such as knowledge base objects.
- Resource productivity is maximised through the use of common methods, tools, and techniques and the reuse of knowledge gained from previous projects.
- A program cannot exist without strategy management as its base. Programs can be estimated for effective management, but executive committees with strong governance frameworks and external expertise management for program implementation are driving forces of successful program management.
- Projects are based on an individual business need and focus on specific objectives. All projects are defined by a project charter. This key project management deliverable defines the specific objectives, milestones, budgets, scope, baselines, deliverables, approach, and ground rules for the project.

## 5.6 PROMOTE and stakeholders' satisfaction

One of the principal causes of an information system failure is when the designed system fails to capture the business requirements or improve the organisational performance. Researchers argue that such failures are because many organisations tend to use rule-of-thumb and rely on



previous experiences rather than following a methodological approach (Avison and Fitzgerald, 1988).

The PROMOTE methodology employs a structured approach to fill the gaps in understanding the business requirements and the development of the desired system (Avison and Fitzgerald, 1988; Crain, 1992; Curtis, 1998; Harry, 1997; Olle et al., 1991).

It also stresses the application of iterative, feedback-driven, and people-centred processes. The systematic development of a requirement in the PROMOTE methodology involves seeking the views of stakeholders who will be affected by it, including those who will have to meet the requirement.

In the PROMOTE methodology stakeholders are examined in terms of their roles, degree of support for the initiative, influence over decisions or resources, or the ways in which the project will affect them in both positive and negative ways (Scholl, 2001). See Figure 5.2.

Stakeholder metrics are used to ensure that the programs/projects have a better focus on critical requirements and that they are better able to measure their achievements and to adapt to feedback.

Once the requirements, derived from the understanding of the stakeholder needs, are clearly articulated, the methodology prompts to go

		Importance of Stakeholder	
Influence of Stakeholder	Significant Influence	High influence and can effect project outcomes, interests are not necessarily aligned with the overall goals of the project  <b>A</b>	High degree of influence on the project, who are also of high importance for its success  <b>B</b>
	Somewhat Influence	<b>Action:</b> Careful monitoring and management	<b>Action:</b> Good working relationships with these stake holders, to ensure on effective coalition of support for the project
	Little/No Influence	Little influence on, or importance to the project objectives  <b>C</b>	High importance to the success of the project, but with low influence  <b>D</b>
	Unknown	<b>Action:</b> Limited monitoring or evaluation, but are of low priority	<b>Action:</b> Special initiatives if their interests are to be protected

Figure 5.2 Stakeholder identification/level of influence framework

back to the key stakeholders and to check that they agree with the project teams' interpretation. Working closely with the stakeholders to understand and analyse requirements, an actionable plan is developed which provides numerous opportunities for feedback.

Considering the complexity of any modern information technology system construction or acquisition process, there is a need for a wide range of presentation formats in order to effectively communicate with stakeholders, participants, and providers. The PROMOTE methodology seeks to employ different tools and techniques for providing different views of the same process for different stakeholders.

The methodology assumes that the goal of the project is to produce a set of deliverables that together meets the needs of the project stakeholders. The goal of the methodology is not to produce extraneous documentation, management artefacts, or even models of these artefacts.

The PROMOTE methodology deliverables are considered as guiding documents and a vehicle to reach to the final goal and objective of the project. Any activity that does not directly contribute to the goal of producing a working system should be examined, i.e. performing only those tasks that add value to business processes supported by the system.

The efforts needed to maintain these artefacts must be balanced with their value. Not only must the effort be considered, but the risk that the artefact may create confusion over time if it is not properly maintained must also be considered.

## **5.7 PROMOTE and the danger zone: people, process, and technology**

In addition, during the methodology development process, it was also recognised that no methodology would produce positive results, if the program or project is not structured to support the technology. It is recognised that the only way to take full advantage of technology solutions is by resolving and getting the right balance of people, technology, and process elements throughout the course of its implementation.

Due to the fact that it is the perception of stakeholders (discussed in the above section) which determines the success or failure of projects, the balance is more towards involvement of 'People' aptly supported by process and technology.

The influence of people on projects cannot be too strongly emphasised. People initiate projects, people use the facilities and services provided by projects, people oppose projects, and people manage and execute projects. People are all those who have a stake in the project (sponsor,

project management teams, users, and other stakeholders). Technology enables the desired solution that the project aims to develop. The process is the element that builds the bridge between people and technology.

A process can identify or define who does what to whom and when. It is comprehended as the transformation sequence that achieves the project goal by using technology and people. In this context, the process is seen as the application of the methodology and its stages to bridge the people and technology elements. It is recognised to provide a powerful mechanism for engaging stakeholders throughout the project duration and roll out a shared understanding of project phases and what each phase includes.

The PROMOTE methodology places high importance to people's (stakeholders') involvement and views it as a core component for the institutionalisation of good project management practices to be achieved in the most effective and efficient manner. Once the discipline of project management is driven deep into the culture of an organisation, project management tools are the means to achieve the end.

The methodology emphasises that at least three constituencies need to be represented in the project team: the business with its culture, those implementing the solution (IT often being at the forefront), and the end-users. A disconnect between any of these groups is likely to threaten the success of the project (BCS, 2007).

While the omission of end-users is one of the more obvious issues to address, what is more challenging is ensuring appropriate representation from the wider business. The goal is certainly to achieve frequent input from those who have the best grasp of the business.

## 5.8 Working assumptions

PROMOTE also assumes a certain set of conditions. These assumptions are identified below.

- **Focusing on the business value of the project:** Project management teams need to start with business goals and objectives and demonstrate how the project will help the organisation meet them.
- **Establishing a sound baseline for the planning process:** Structuring should set the stage for scope and expectation management, as well as provide enough detail for the project sponsor to make an informed go/no go decision.
- **Sponsor involvement:** Project sponsor(s) involvement and support is necessary during the approval process and throughout the project. They/(s)he needs to be involved early and often.

- **A project plan is more than a document:** The planning process should also identify the procedures for identifying and resolving issues, change requests, managing risks, training the team, and conducting knowledge co-ordination activities.
- **Building a manageable work plan:** The work plan should contain only the level of detail required to control the project. It may be necessary during the planning process to develop a very detailed plan in order to better understand the project, but this detail should be rolled back up to a controllable level before the project begins. The work plan should contain only the work necessary to produce the deliverables. If the plan is too detailed, then it is likely that the project manager will find himself controlling the plan rather than the project.
- **Change is inevitable:** The project management process is creative and will naturally bring about some change. The project manager's job is to recognise the inherent discovery process in the project and control the change – not stop it.
- **Setting a tolerance level:** Attempting to formally manage small changes can overwhelm the project manager and annoy senior management. The project management team must determine the amount of change they can safely accept without formal user approval and invoke the formal change management process only for changes that fall outside this boundary.
- **Managing expectation as well as scope:** To assess and manage change requires the project manager to be sensitive to the people dimension of the project. Managing the perceptions of team members and the user community is just as important as managing scope. However, to meet objectives and stakeholder expectation, project management must be aligned with the organisation's culture. It should be integrated with change management and accepted by top management and at all levels of the organisation.
- **Controlling the outcomes more than the process:** Team members must be allowed to alter the process based on their experience and ideas. Process improvement ideas frequently come from those who actually perform the process. The project manager or the project management office must strive for strategic control of how the methodology is applied but grant the project leaders tactical freedom.
- **Use of exception reporting:** Exception reporting allows team members to report only when the information varies from what is expected. This method can save time and in certain situations can provide all the information necessary to control the project.

- **The post-implementation evaluation:** Performing post-implementation evaluation is a major step in the continuous improvement of the project management processes. It is important to document lessons learned and best practices from each project in order to apply these lessons and practices in future projects.

### 5.9 PROMOTE design model

The methodology components proposed by Turbit (2004) were used initially as a checklist to ensure that PROMOTE addresses all the known issues. The relevance of these items has been checked by conducting a short review against other methodologies and frameworks. They were found to exist in all with variations in the level of attention given to each component.

Avison and Fitzgerald’s (1988) framework provides a systematic basis for validating the PROMOTE methodology. The framework provides academic rigor and thus a systematic approach to examine its philosophical underpinnings and resulting structures.

Figure 5.3 below provides a high-level overview of the PROMOTE methodology components. A more detailed overview of the components is provided in Figures 5.4 and 5.5.

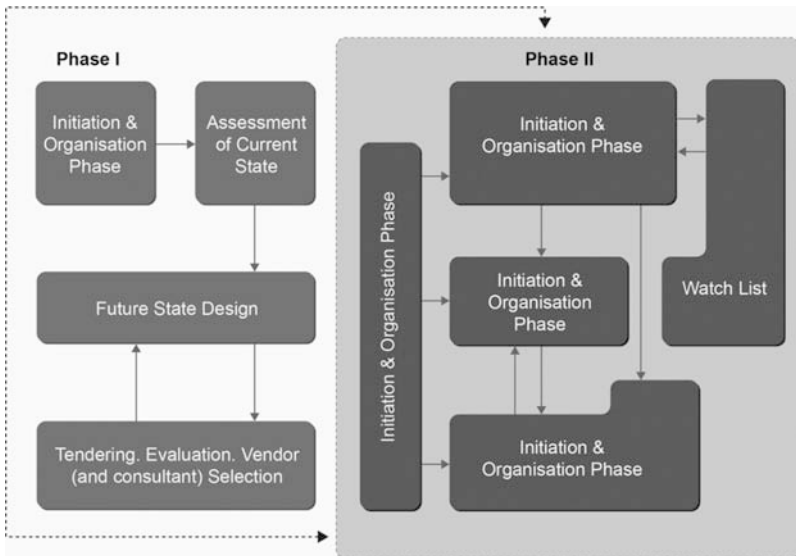


Figure 5.3 PROMOTE methodology

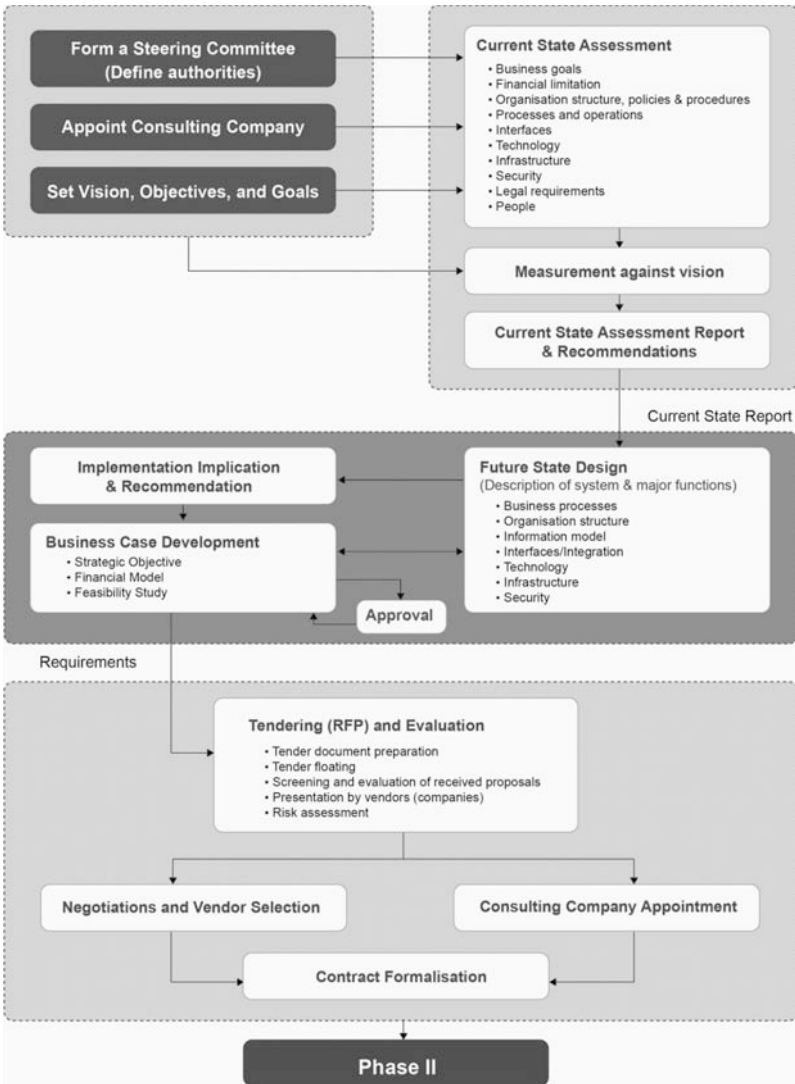


Figure 5.4 Phase one of the PROMOTE methodology

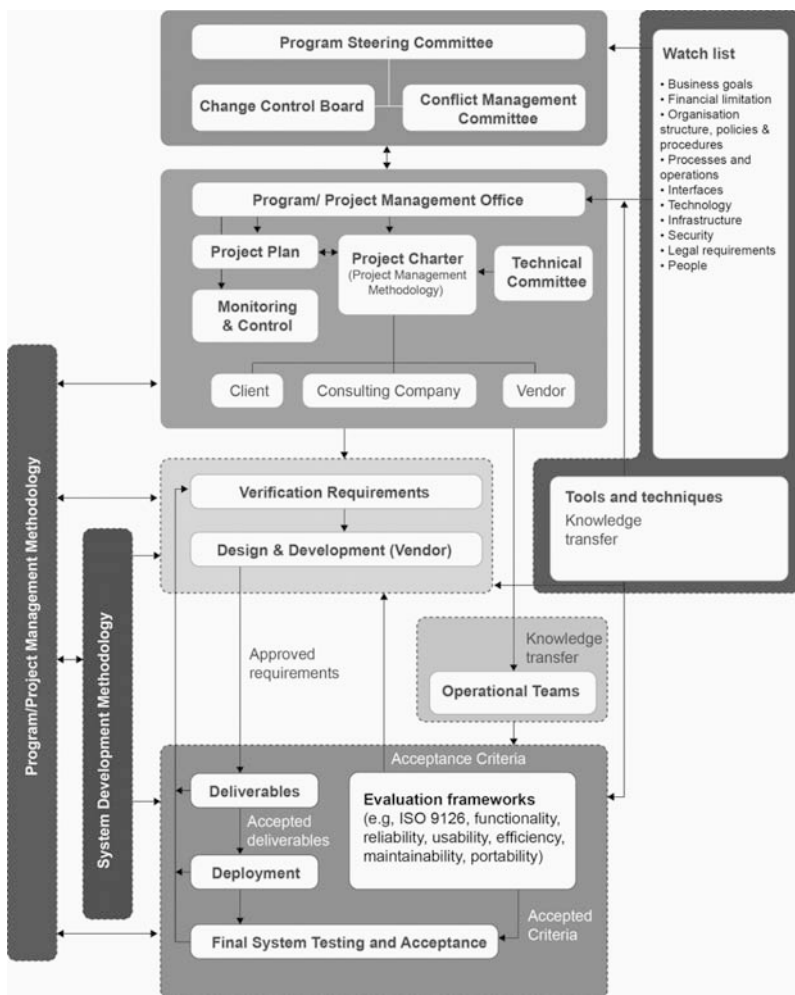


Figure 5.5 Phase two of the PROMOTE methodology

### 5.9.1 PROMOTE phases: phase one

The first phase of the methodology consists of four stages. The aim of this phase is concerned with requirements analysis, feasibility study, systems specifications development, tendering and evaluation, and vendor selection.

#### *5.9.1.1 Stage 1: Initiation and Organisation*

This is the first stage and usually embodies the conceptualisation of the project. A formal process of forming a steering committee and appointing a consulting company to provide assistance from technical and operational perspectives is addressed by the methodology.

This first stage also involves the development of strategic objectives including the vision and mission statements that are used in the later stages for measurement and evaluation purposes.

#### *5.9.1.2 Stage 2: Current State Assessment*

This stage is concerned with understanding of the existing organisation, its operation, and the situation that is causing the problem and or examining the proposed system and its anticipated contribution to the solution of the problem (Turban et al., 2004). It involves several analysis methods such as observation, review of documents, interviews, and performance measurement (ibid.).

An important objective of the current state assessment is to identify the strategic gap between the present state and the future vision (Bocij et al., 2003), which should form the initial input for the next stage – future state design.

#### *5.9.1.3 Stage 3: Future State Design*

This stage encompasses conducting appropriate technical workshops to record the Future State Design (FSD) in respect to the proposed solution and its components. The outcome of this stage is expected to yield a description of the future state business processes, organisation structure, and technology components, which should become the input for defining requirements for systems and necessary automation in the next phase.

The developed FSD should satisfy the future state vision developed during the current state analysis, and must be the approved design mandate given by the sponsor to the project teams to continue to the next stage – the development of the RFP (Request for Proposal). The FSD report should lay down the critical success factors that should be considered prior to and during implementation.

A business case is an important deliverable of this stage, as it can be used to garner funding, provide justification for the required investment, and also provide the bridge between the initial plan and its execution. The need for the system should be justified in ways that relate directly to the organisation's business needs.



Studies argue that one of the major reasons for the collapse of the dot-com bubble and the high IT project failure rates is because of the improper business cases submitted to investors and organisations (Turban et al., 2004). Therefore, the purpose of business case is not only to get approval and funding, but also to provide the foundation for tactical decision making and technology risk management (Reifer, 2001).

#### *5.9.1.4 Stage 4: Tendering and Selection (vendor and/or consulting company)*

This final component of phase one is more about 'how' to reach the desired state. Due to the huge complexity of large government IT programs/projects especially from the technology perspective, governments may find it extremely challenging to use in-house resources for such developments.

To quote an example, all the national ID projects implemented worldwide so far have been tendered to third parties.

The **Current State Assessment** and the **Future State Design** would serve as the basis for drafting the tender (RFP) document. The methodology offers different methods for comparing the received proposals and following a structured decision-making process for vendor/consulting company selection.

The evaluation process and selection criteria recommended in the methodology favour the benchmarking approach. Benchmarking is perceived to be a very effective method to understand the current practices in other governments that have already implemented such systems, though on a smaller scale.

### **5.9.2 PROMOTE Phases: Phase Two**

The second phase of PROMOTE consists of five stages. It includes all the program/project management activities right from organisation, planning, and controlling till the final closure of the program/project. It also includes critical elements related to requirements validation, deliverable reviews, and system acceptance.

#### *5.9.2.1 Stage 5: Program Management (organisation, planning, and control)*

This stage is considered as the main component of phase two. The early steps in this stage involve forming the following:

- **Steering Committee:** Critical decisions are referred to this committee. It is the responsibility of this committee to make resources and

information available to the program and the project(s), to resolve issues, and to approve major changes.

- **Operational/Technical Committee:** For performing the day to day program/project activities – consists of the program/project manager(s) and team leaders.
- **Change Control Board:** Sits to evaluate the change requests for their applicability and the impact on the program/project.

Another step has been introduced later in the methodology, based on the project requirements and feedback from both the UAE and GCC countries, which resulted in forming a **Conflict Management Committee**. Its importance was very obvious in resolving conflicts, improving the working relationship among the teams, and contributing to the overall quality of the project results; a loss of trust and a failure to communicate result from a failure to stress the joint ownership of problems that may inevitably occur.

This stage also places high importance on the establishment of a **Program Management Office** to centralise the accountability for program management (e.g. planning, organising and co-ordinating, leading, supervising, monitoring, and controlling the program and its constituent projects). The office is seen to play a key role in promoting the application and deployment of the methodology across projects.

Two more important activities performed in this stage are related to the drafting of the project charter and project schedule. The project charter document defines the scope of the project, completion criteria, required project management, and control structure (e.g. issues management, quality management, scope management, risk management, etc.).

The project schedule is an integral part of the project charter and aims to obtain the commitment from all stakeholders. It is used to communicate final deadlines and, in some cases, to determine resource needs.

Both of these documents underpin a strategy for dealing with project monitoring and controlling requirements. Strategy here means a plan of actions designed to achieve a particular goal. The PROMOTE methodology uses (but is not limited to) the following strategy –

- What impediments to success will we encounter and how will we overcome them? Risk Management Plan
- How will we recognise that progress is being made? Performance Management
- How will we confirm that sufficient quality is provided to accept the results of the project? Quality Management

### *5.9.2.2 Stage 6: Watch List*

This stage has been introduced based on project requirements and discussion with experts in the field. It was found that project members start losing sight of some important aspects in the project, especially when they start getting much more workload with technically complex deliverables from the vendor(s).

The introduction of the watch list stage provides the project team with the opportunity to keep track of the main project areas and the critical success factors for the overall program. This step should be implemented in the form of regular meetings (every one or two months) with almost all the project members to understand the project vision and goals, defined scope, business context, and project objectives. This has to be an open forum for people to put their business and technical concerns on the table.

These meetings could sometimes include individuals from the client company and other national and international organisations who were invited to present their own experiences of running and managing similar projects. The stories and the different case studies provide the project teams with different perspectives to deal with day-to-day activities and the pressure and challenges they face.

In addition, this stage deals with providing team leaders short (three to four days) training courses on project management. It has been found that even for experienced project managers such courses refresh their understanding of how business initiatives are planned, managed, and evaluated.

Skills gained in these courses include building trust, empowering others, providing feedback, and managing conflicts. These training courses also involved introductions to many of the project management tools and techniques such as those described later in Section 5.10, which provide them with different models of thinking and solving the issues they may face in the execution of projects.

### *5.9.2.3 Stage 7: Project Methodology*

This stage involves revision of the PROMOTE methodology to determine its fitness with the system development methodology and any other possible vendor constraints. It also attempts to align the vendor deliverables with the overall project plan. At this stage, the PROMOTE methodology can be enriched to consider best practices and improved templates.

#### 5.9.2.4 *Stage 8: Requirements Validation and Development*

Requirements validation is performed to ensure that the system meets the infrastructure and business requirements of the client organisation. Research studies show that requirement errors are the number one cause for software project failure (Leffingwell, 2003; Schwaber et al., 2006). The PROMOTE methodology lifecycle consists of several important, yet different processes:

- Elicitation: Gathering requirements (Stage 2)
- Specification and Analysis: Putting requirements into a formal model or document, such as a use case, and inviting stakeholder feedback (Stage 3)
- Validation: Making sure everyone understands and agrees on the requirements put forward and that they are realistic and precise (Stage 8). The validation stage attempts to ascertain answers to the following three questions:
  - Is the set of requirements consistent?
  - Can a practical system be built that satisfies all the requirements?
  - Is it possible to prove that the system satisfies the requirements?

The validation stage is an ongoing and integral part of the methodology based on its core belief that development today needs to be iterative. The methodology assumes that requirements will change as the project moves through development, for at least two reasons:

1. The process of doing iterative development allows one to learn about the system as we build it, thereby refining the notion of what the requirements should have been.
2. The outside world is concurrently changing, imposing adjustments that cannot be ignored. Thus, a continuous and cumulative cycle of ongoing requirements validation is critical to maintaining quality.

The methodology places high importance on addressing communication issues at this stage, as well as the involvement of all stakeholders in the process, together with the application of consistent, reliable best practices for validation.

The PROMOTE methodology advocates the use of quality frameworks (ISO 9126 Quality Model) to assist in requirements validation and to act as an analytical tool to achieve a more thorough view of the system's strengths and weaknesses than will be provided by less systematic approaches.

#### *5.9.2.5 Stage 9: Evaluation of Deliverables and System Acceptance (execution and closure)*

This stage deals with the installation, operational assessment, and acceptance of the project deliverables in the program. The methodology proposes various levels of testing to be performed by the project teams and the end users, which should determine the acceptance or rejection of each deliverable.

Three main review types are followed in the methodology to ensure deliverable quality: (1) team review, (2) formal review, and (3) management review and approval. Structured walkthroughs are used to test the major project deliverables. The methodology offers structured templates designed to guide the review groups in realising the benefits of the walkthroughs.

Upon the completion and acceptance of all the project deliverables, this stage brings the project to a controlled end. Assigned project managers from the client and vendor companies work together (with key stakeholders) and agree to the procedures to close down the project.

Agreements and obligations, with regard to system support, newer versions of the systems, open issues, and disclaimers, are documented and signed off by all the parties (e.g. client organisation, vendor, consulting company, etc.).

### **5.9.3 Why a two-phased methodology?**

It has been widely quoted in various literatures that projects especially in the IT industry tend to fail due to failings at the beginning and not at the end (BCS, 2007). This is due to insufficient planning and concept formulation (see for example: Charette, 1995; Devaux, 1999; Grindley, 1995).

Researchers argue that project management needs to give careful attention to details at the beginning such as the resource needs, required skills, quality of people to be involved, and also a realistic estimation of the effort to develop and implement the project deliverables (see for example: Avison and Fitzgerald, 1995; Checkland and Scholes, 1990). Failure to do so makes the project more likely to be doomed as a chaotic experience.

There are many explanations for such practices. One is that many of today's organisations rely on IT for a competitive advantage, and thus they attempt to speed up the development and implementation of systems to exploit business niches with more advanced IT based products, services, and capabilities. Another possible explanation is that organisations tend to be under severe pressure to cut costs and maintain business operations with a certain level of quality to remain competitive.

Even knowing the consequences; organisations tend to rush through the initial phases of planning and concept development. Without adequate planning and risk assessment, projects, especially large and complex ones, are likely to find their fate in failure.

Research also shows that large projects are executed better if broken down into a series of smaller, more manageable, and easier to understand phases. Unlike large complex projects, a series of smaller projects can be completed as manageable endeavours.

In the UAE National ID Program, for example, the nature of the project required the breakdown of its major activities into different streams i.e. preparation and set-up of data centre and disaster recovery sites, as well as registration centres; and interfacing with other government databases, legislation, redundant network architectures, media and marketing campaigns, etc. Although all these streams had project leaders assigned to them, the program manager had the overall responsibility to ensure that proper communication is in place and that all project leaders are aware of the big picture of how their sub-projects will connect with each other.

Therefore, the PROMOTE methodology breaks down the project into two phases; phase one puts emphasis on concept development, business requirements definition, and planning, and the second phase deals with the management of the program/project implementation.

As discussed earlier, research to date has found no single explanation for system success or failure, nor does it suggest a single or a magic formula for success. However, it has found different elements leading to project success or failure that have been attempted to explore and consider in the development of this new methodology. These factors are referred to as the design elements. Table 5.1 demonstrates these elements and where they have been incorporated in this PROMOTE methodology.

### **5.10 Techniques and tools**

A key element in the development of the methodology is the identification of the techniques and tools used in it. PROMOTE employs a set of tools and techniques – some of which have dominant applications – that are regarded as fundamental to the methodology, although they can be replaced, or substituted as better techniques become available, provided they address the same fundamentals.

This raises an opportunity for this methodology to legitimately develop and evolve over time without losing the essence of the methodology.

Table 5.1 PROMOTE design elements

	Methodology phase	Design element
Phase I	Initiation and Organisation	Management Commitment Concept Development
	Assessment of Current State	Business Strategy Focus
	Future State Design	Business Strategy Focus Requirements Definition
	Tendering, Evaluation, and Vendor Selection	Formal contract Requirements Analysis
Phase 2	Program Management	Project Management Management Commitment Communication and Management Reporting
	Organisation	Utilisation of Resources
	Planning	Project Schedule Utilisation of Resources
	Control	Project Control (Quality, Schedule, Scope, Budget) Changing Targets Complexity Management Management of Stakeholders Expectation Risk Management
	Methodology	Formal Methodology
	Watch List	Risk Management Knowledge Management
	Requirements Validation and Implementation	User Involvement Requirements Analysis Complexity Management
	Deliverable Evaluation and System Acceptance	User Involvement Complexity Management Quality of Output

There are many tools and techniques advocated in the methodology to have a high impact on its effectiveness such as:

- SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis;
- vision development model;
- MS project plan;
- investment justification model (Gunasekaran, et al., 2001);

- data modelling tools (Entity Relationship Diagrams [ERD], Data Flow Diagrams [DFDs], etc.);
- ISO 9126 Quality Framework;
- tender evaluation process;
- risk management;
- change control process;
- project communications and reporting techniques;
- quality management approach; and
- deliverables review model.

The following frameworks were found to be invaluable when used, as they facilitated more structured lines of thought in workshops and assisted in producing quality outcomes.

- Lock's Model: to identify and manage project risk factors influencing projects;
- AIM FIRE Framework: planning and controlling phases of the project, including for risk management;
- SWOT: to identify conflicts and forces by analysing the Strengths, Weaknesses, Opportunities, and Threats;
- SMART: setting objectives and measuring outcomes against following criteria: Specific, Measurable, Achievable, Rewarding, and Time-bound;
- Pareto 80:20 principle: to focus and concentration on the important/problem areas;
- McKinsey's 7S Model: to consider the impact of change on the project by looking at the seven Ss (Strategy, Systems, Staff, Skills, Style, Shared values, and Structure).

### 5.11 Inputs

PROMOTE methodology propagates a strong alignment of program and project management structure with corporate strategic objectives. Thus inputs for program management come from the corporate strategy as mentioned below:

- **Vision:** This provides the time-bound final outcome that is expected to result from the program and provides the meaningful direction to the program.
- **Mission:** It is the *raison d'être* for the program and defines the life-cycle of the program.



- **Strategic Objectives:** It is to provide the structure for the program with the corresponding initiatives for the objective's achievement and an implementation plan.
- **Values:** These provide the ethical guide rails for the objective's achievement.
- **Stakeholders:** This is another major component that provides the framework for expectation management of the program.

## 5.12 Scope

PROMOTE scope includes handling initiative management, strategy management, strategy implementation, and program management leading towards project management. Complexity and expected outcomes of each initiative that has been planned, its priorities, etc., need to be effectively managed.

The scope of the PROMOTE methodology deals with program/project management along with systems development approaches. However, it does not cover all the system development activities as it considers them as a separate activity, but it puts in place a set of control measures to ensure that the requirements and deliverables are synchronised with the business case and program and project objectives.

In fact this separation was based on the recommendation that separating the project management methodology from the system development methodology provides more options for product methodologies without impacting the project management process thus creating a clear pathway for implementing project portfolio analysis and the reporting processes (see for example: Devaux, 1999; Garton and McCulloch, 2005; Ireland, 1991).

The project management methodology design in PROMOTE is primarily based on the five-phase standard of the project lifecycle based on the PMBOK Guide, by PMI, as detailed below. The scope of the project management methodology is examined in terms of following the phases of the life cycle that it addresses.

1. **Initiation:** Involves starting up the project, documenting a business case, feasibility and assessment study to define the economic, social, technical, and political evaluation of the system under consideration.
2. **Planning:** Involves setting out the roadmap for the project by creating the following plans: project plan, resource plan, financial plan, quality plan, acceptance plan, and communications plan. It also addresses aspects related to an organisation-wide context that deals with overall information system strategy, purpose, and planning.

3. **Execution:** Involves building and validation of the project deliverables. It involves the implementation of technical, social, and organisational aspects.
4. **Controlling:** Involves controlling the project delivery, scope, costs, quality, risks, and issues.
5. **Close out:** Involves winding-down the project by releasing the staff, handing over deliverables to the client organisation, and completing a post-implementation review. Post-implementation evaluation and review concerns the measurement and evaluation of the implemented system and a comparison of the original objectives.

With the above elements defining the boundaries, the PROMOTE methodology gives attention to the following critical elements identified as key requirements for project management success – see also Figure 5.7 (e.g. Devaux, 1999; Lake, 1997):

1. Scope definition and management,
2. Deliverables quality,
3. Resource management,
4. Schedule, and
5. Budget

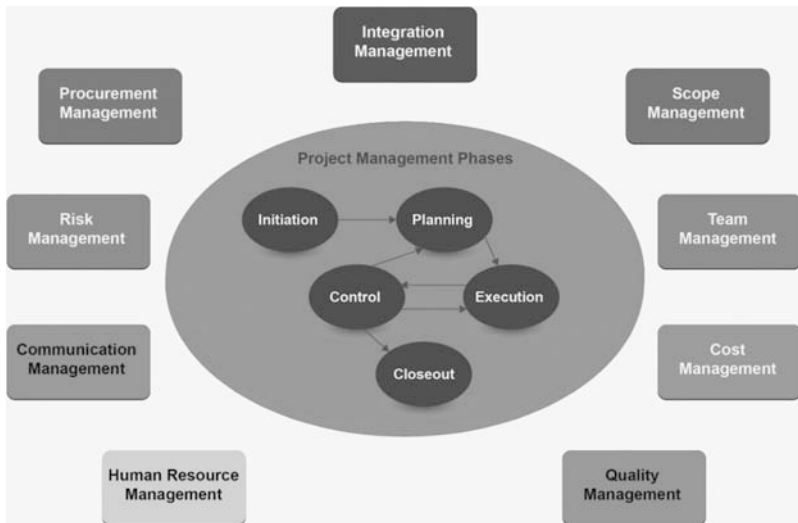


Figure 5.6 Project management phases and knowledge areas based on PMBOK® Guide

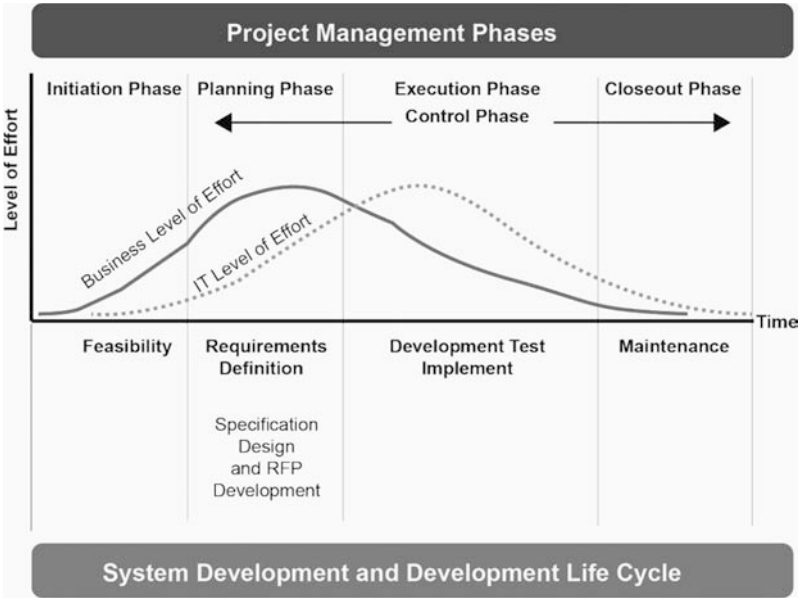


Figure 5.7 Project management phases and SDLC

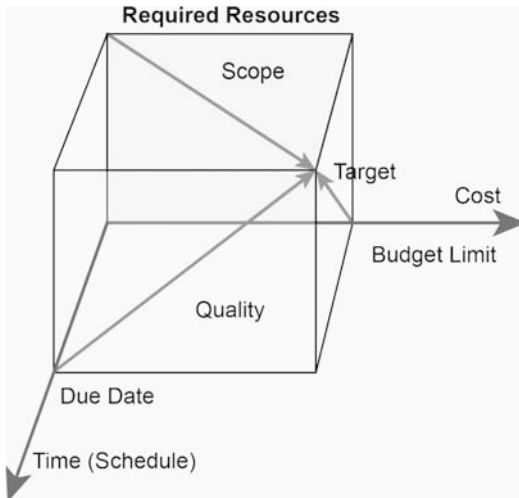


Figure 5.8 PROMOTE methodology consideration factors

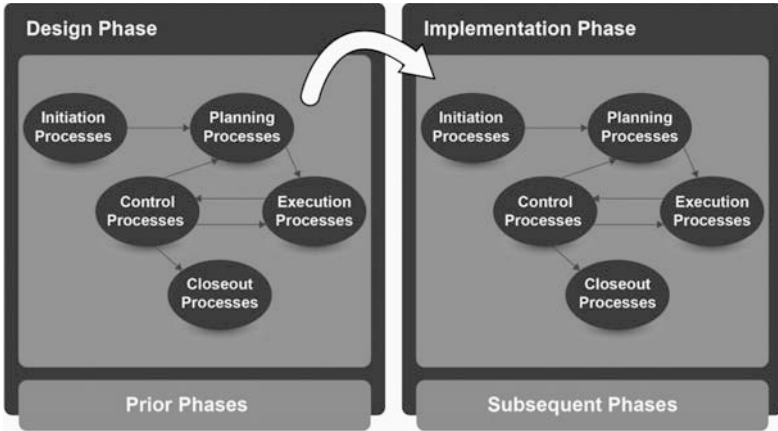


Figure 5.9 Interaction between phases as per PMBOK® Guide, 4th edition, by PMI

### 5.13 Outputs

This element is concerned with the outputs from the methodology. It defines what the methodology is producing in terms of deliverables at each stage and, in particular, the nature of the final deliverable. This can vary from being an analysis specification to a working implementation of the system.

Each project phase may well go through the same life cycle, where the output of one phased cycle may feed input to initiate another phased cycle. This interaction is illustrated in Figure 5.9.

Applying the PROMOTE methodology would produce the following deliverables:

- Program Charter;
- Initiatives Plan;
- Program Expected Outcomes;
- Stakeholder Map;
- Program Communication Plan;
- Enterprise Risk Management Plan;
- Business Continuity Plan;
- Conflict Resolution Plan;
- Technology Roadmap;

- Expertise Management Plan (for consultants engagement and management);
- Project Concept Document;
- Project Charter:
  - details scope objectives, and overall approach to the project,
  - states project deliverables, resources, assumptions, and
  - serves as a contract between the project team, vendor, consulting company and the organisation;
- Project Plan;
  - Work Breakdown Structure;
- Risk Management Plan;
- Quality Management Plan;
- Project Communication and Reporting Structure;
- Project Issue Document;
- Project Assessment Reports:
  - current state analysis,
  - future state design, and
  - improvement opportunities;
- Business Case and Feasibility Study;
- Tender Evaluation Process Document;
- Change Management Plan;
- Deliverable Review and Approval Process;
- System Testing Procedures;
- Progress Reports:
  - status and performance reports and
  - issue reports;
- Post-Implementation Evaluation Report;
- Lessons Learned.

Represented as processes, Figure 5.10 depicts some of the dynamic deliverables in the PROMOTE methodology life cycle that are normally reviewed and updated several times to accommodate project realities.

The adopted procedures in the methodology provide the means of verifying the completeness and correction of project deliverables at each stage of the project life cycle; thus allowing the processes to be repeated. This is clarified in the concept of feedback (depicted in Figure 5.11) that the PROMOTE methodology adopts to achieve control and improvement of each of the proposed processes (deliverables).

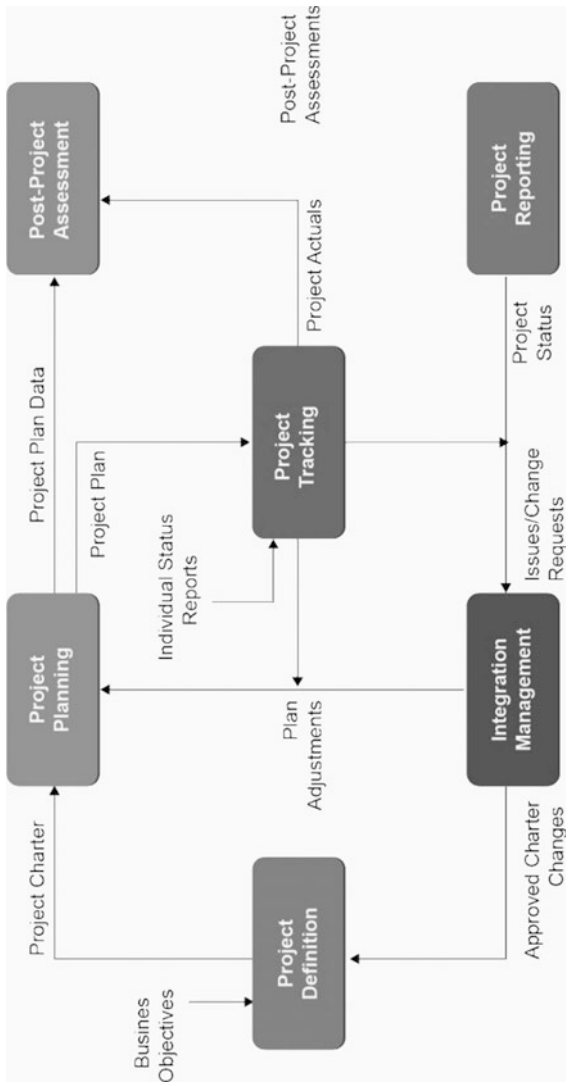


Figure 5.10 Dynamic deliverables in PROMOTE methodology

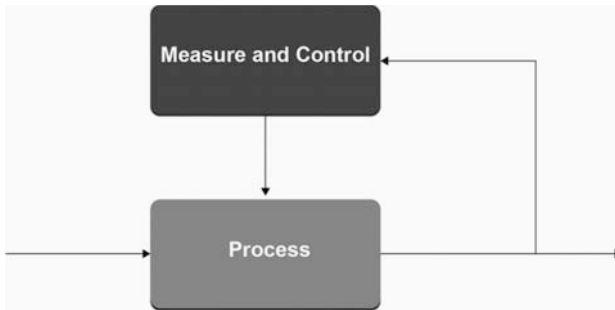


Figure 5.11 Process control and improvement cycle

### 5.14 Practice

This element of the methodology is measured according to:

- **The methodology background:** whether it is intended for commercial or academic use and development;
- **The user base:** including numbers and types of users; and
- **The participants in the methodology:** can it be undertaken by users themselves or must professional analysts be involved, and what skill levels are required?

The practice includes the assessment of difficulties and problems encountered, and perceptions of success and failure. This is envisaged by investigating the experiences of the users of the methodology. Indeed, this will inevitably be subjective, depending on who has been consulted, but it has been a revealing exercise. This has resulted in some modifications to some of the project phases and the introduction of some additional activity elements to address such requirements as explained in the previous sections.

Davis (1982) suggests measuring the success of a methodology based on how well it would minimise uncertainty. PROMOTE reduced uncertainty through the consistent replication of risk management processes. This was based on careful planning and deep understanding of the current and future business environments, effective resource management, and mitigation of perceived risks.

The existing literature provides some prescriptive advice on the appropriate strategies to address risks in IT projects, but most of the recommended strategies are high level (Barki, Rivard, and Talbot, 2001; Boehm,

1991; Charette, 1996b; Fairley, 1994; Heemstra and Kusters, 1996), rather than the detailed risk-by-risk level which has been prescribed in the PROMOTE methodology.

The PROMOTE methodology also recommends rapid prototyping development and delivery of the IT system to reduce risk and uncertainty. This is based on the knowledge that some early methodologies only delivered software in the final phase of development; any errors in the earlier phases meant rework that was costly and have often jeopardised the whole project.

The last sub-element of the practice requires an analysis of the players involved. This requires answers to the following questions;

1. Who is supposed to use the methodology?
2. What roles do they perform?
3. What skills are required to perform such roles?

Program and project management professionals are the end users of this methodology. Their role would be program and project management related activities. The levels of skill required by such players would vary considerably – this is discussed in detail in the next sections.

For implementing the proposed methodology considerable training and project management experience is necessary for at least some of the senior project managers. The methodology incorporates to some extent such requirements within the methodology phases in its aim to improve and develop the skills of project teams.

The last element is the Pproduct of the methodology. According to Avison and Fitzgerald (1988), for example, this may consist of software, written documentation, an agreed number of hours training, a telephone help service, a consultancy service, and so on.

The background of this methodology has been identified as the one being originated from both academic and practical (commercial) spheres. The user base of this methodology currently is the three different governments of Middle East countries implementing the national ID programs/projects.

### **5.15 Testing the methodology**

The PROMOTE methodology was tested in detail in the UAE National ID project. The case study presented in the later chapters of this book provides a detailed reference on how the methodology has been applied in practice.



This methodology, for use by the customer to drive and manage large government IT programs/projects has been tested with a belief to provide a better focus on the real project success factors rather than the current emphasis that has been on the functionality and technology.

It is important to highlight two key differences in the work undertaken:

1. The vast majority of IT project case studies reported and analysed for deriving this methodology have been either through the systems companies or consultants directly involved or neutral observers, often academics. This testing is one of the few that focuses on the client perspective, representing purely the customer's interests and not the vendor's or consultant's perspective.
2. Because the UAE National ID project was of strategic national interest, it was pushed on and developed still based on the original objectives when many more commercial projects would have been modified or adapted. This allowed the project to proceed past the normal barriers and to see the effects and consequences which normally may become hidden with changes to scope and objectives.

The PROMOTE methodology was also partially tested in other large-scale projects part of other national ID initiatives in the region, namely Saudi Arabia, Oman, and Bahrain, who started their projects in 2006. The methodology was communicated and discussed with the GCC officials in the form of workshops primarily in the GCC technical committee meetings.

The PROMOTE model was refined at several stages to address the common problems identified in the UAE National ID project, from the literature, and the experiences reported at GCC committee meetings, and from other large-scale implementations around the world (i.e. from discussions with government officials involved in the ID programs, in conferences, and visits to their countries).

These changes included:

- additional step – business case development,
- additional step – conflict management committee,
- additional items to watch list,
- user involvement and training,
- regular review of contract terms,
- emphasis on management of the client-vendor relationship to build mutual understanding and to arrive at shared objectives, and
- keeping an eye on the international standards development,

This methodology proposed and utilised in the UAE and partially in three other GCC countries has acted as an effective approach to the overall management of the programs. This assertion is primarily based on the results obtained which demonstrated the methodology's contribution towards many aspects of project/program management such as improving the co-ordination of resources and activities, planning activities, project/program control and risk management, scope management, effective communication, deliverable review and acceptance process, the final end product, etc.

Among the most positive stated contributions by the project teams as a result of adopting the methodology were the following:

- divided the project into manageable stages for more accurate planning;
- improved responsibility, authority, and accountability reducing confusion through responsibility assignment matrix;
- improved co-ordination of resources and activities;
- agreed and articulated project goals and objectives;
- staged and controlled phases with appropriate sign-offs;
- showcased strong management control through clear change control and conflict management procedures;
- promoted the involvement of management and stakeholders at different stages of the project; and
- improved project control: regular reviews of progress evaluated and measured performance based on the defined scope, schedule, budget, and quality of the deliverables.

How a methodology was applied in a particular organisation, repeated in other programs/projects, and accepted by clients, would be an indicator of success for an information systems methodology according to Avison and Fitzgerald (2001). In this respect, PROMOTE has been successful as it was accepted in the UAE and the model has been accepted and repeated in three similar government projects.

The methodology was also accepted by the:

- Federal Council of the UAE Government to trial the new methodology in other government sector projects with the author selected to be included in the project management team and as an advisor to the steering committee; and,
- many government officials who attended the presentations about the methodology at international conferences have requested some

training courses on the new methodology (e.g. Sri Lanka and Ghana). However, there is no one best way to assess whether one methodology is better than the other, without due regard for the context which is different each time (Checkland, 1999).

Although PROMOTE had been designed as a methodology with a set of phases and activities, the project activities may be amended to the unique situation at the time. The level of control and flexibility is determined by the project manager and approved by the steering committee and not limited by the methodology itself.

### **5.16 The roles of program manager and project manager in PROMOTE**

The role of a program manager:

A program manager plays a crucial role in the PROMOTE methodology. He/she provides a crucial link between the Executive Management team and the Board of Directors and represents the operational face of the corporate program initiatives.

A program manager is like an architect who plays a strategic role as compared to the tactical role played by a project manager. A program manager is expected to focus on the vision of the organisation and design the selection and prioritisation of the projects and manage the portfolio. The program manager helps in aligning the projects within the program with the strategic objectives' fulfilment along with their structural dependencies to help in achieving the optimum benefits of the program.

A program manager is thus responsible for:

- stakeholder management,
- initiatives management and strategic portfolio management,
- benefits management,
- conflict resolution,
- budget negotiation, and
- strategic risk management.

The role of a project manager:

PROMOTE requires that the project managers be selected early enough so that they clearly understand the project's purpose and objectives, have ownership of the project, and are committed to success. It is important to emphasise that project managers need to understand that their role

is to manage and control and not get involved in doing the work themselves, as they can easily be dragged into hands-on work activities.

A project manager needs to have the ability to switch between macro and micro views of activities. He/she must be able to focus on small, significant details, while retaining an understanding of how they fit into the big picture (Lake, 1997).

Project managers are viewed to be responsible for

- providing reports on progress against their schedule,
- requesting approval for items exceeding delegated authority,
- anticipating problems and preparing strategies for solving them,
- negotiating for staff with division head or staff supervisors or project directors,
- showing expenditure against budget, and
- liaising at all levels.

As the heart of the PROMOTE methodology, the project manager has to act as a leader and as a process manager. As a leader, the project manager is responsible for managing and communicating a clear vision of the project's objectives and motivating the project team to achieve them. As a process manager, the project manager must ensure that the appropriate timing, resources, and sequencing of work efforts are applied to create the project deliverables within a given time frame and budget.

Critical skills essential for project managers for the success of PROMOTE include:

### **1. Leadership Skills**

Leadership in projects involves influencing others through the personality or actions as the project manager. The project manager cannot achieve the project objectives on his or her own – results are achieved by the whole project team. The project manager must then have the ability to motivate the project team to create a team objective that they want to be part of. This will require both participation and consultation.

Project managers should be aware of the basic principles of group dynamics. These principles include, but are not limited to:

- Use the project team's synergy and creative energy.
- Be aware of people's current and developing roles and expectations.
- Be prepared to deal with conflict and dissent.

- Separate the content of the meeting from the group's process in the meeting.
- Maximise participation throughout the project to gain the team's commitment.

## **2. Communication Skills**

Communication is the lifeblood of a project. As blood flows, it pumps oxygen through the body to sustain life. In the same way, communication is the lifeblood of projects and organisations. Communication is vital for the progression of the project, identification of potential problems, generation of solutions, and keeping up to date with the requirements and the perceptions of the team.

To ensure the success of a project a lot of diverse information, including expectations, goals, needs, resources, status reports, budgets, and purchase requests, need to be communicated on a regular basis to all the major stakeholders including the client company, suppliers, vendors, sub-contractors, the project team, and senior management.

## **3. Negotiation Skills**

Project managers have to negotiate on a variety of project issues: availability and level of resources, schedules, priorities, standards, procedures, costs, quality, and people issues. This skill is seen to be crucial.

## **4. Delegation Skills**

A project manager needs to communicate and clarify the overall project objectives to the team members and should then further clarify the individual team members' role in achieving the objective by a process of delegation. Delegation is about empowering the project team and each team member to accomplish the expected tasks for his or her area of responsibility.

## **5. Problems Solving Skills**

Project managers will inevitably face a number of problems throughout a project's life. It is important that the project managers gather as much information as possible about the problem in order to understand the issues as clearly as possible. The project managers should encourage

team members to identify problem within their own tasks and try to solve them on their own initially.

## **6. Change Management Skills**

It is important that the project managers have the skills to manage and control change. The impact change has on accomplishing the project objective must be kept to a minimum and may be affected when in a project's life cycle a change is identified. Generally, the later the change gets identified in the project life cycle, the greater it is likely to impact the overall project objective successfully.

If a project manager lacks an essential skill, but is given the job of managing the project for one reason or another, then the cost can be high as demonstrated in the UAE project. One may imagine the consequences of a person in charge who is not capable of establishing good rapport with people, who does not have the communication skills needed to liaise with the project team or other people involved in or affected by the project.

Uphill battles are sometimes seen as part of the job of project management. Small political empires exist within organisations. The choice of project managers may sometimes result from organisational politics. No matter how they come into the position, project managers often have to negotiate with people in the organisation who have work priorities that differ markedly from those of the project managers. Some staff that the project managers may have to negotiate with may feel pulled in different directions owing to other commitments or work. Others may be in the dark about the project, including managers with staff the project managers need, or the staff members themselves may be uninformed.

## **7. Team Assembly**

Keeping the core project management team membership as small as possible will be effective. Small teams work well. A well-functioning team can produce results that far outstrip the potential output of its members. The concept is known as synergy, which means the total is greater than the sum of its part. Synergistic effect can be physical, in that a group of people together can move an object too large for one person to move. A similar effect may be observed in brainstorming, problem solving, and other team activities.

Besides, the team selection, motivational, and people skills of the project managers need to be exercised to identify and develop the best

team possible, guide it in the right direction, and ensure its members benefit from the experience. As the project team assembles, and perhaps, replaces most of the core team, members will be briefed about the project. The remaining members of the core team may still be able to serve as advisors from time to time but their contribution to the project may not be seen to be sufficient to warrant appointing them to the project team.

The aim at this time is:

- to ensure the project team understands the purpose of the project,
- to provide an opportunity for team members to contribute their own ideas, and
- to gain their commitment.

## **8. Dealing with Project Team Anxiety**

- Project team members often feel considerable anxiety concerning their roles in the project. Particularly if they are new to management by projects they may feel more visible than in the management system they were used to. They may even feel concerned that their career is on the line. In addition, they may feel unsure how their personal lives will be affected by their time on the project. In the UAE project, many of the project staff needed reassurance, support, and answers to questions such as:
  - What is the team expected to achieve?
  - What are my role and the roles of other team members?
  - How will I do the work? – I have never done anything like this before.
  - When am I required – and for how long?
  - Where am I expected to work – and with whom?
  - Who will do my normal work – or am I expected to do it as well as my project work?
  - Who am I responsible to?
  - Does my controlling officer know what is happening?
  - Whom do I see about problems – my controlling officer or the project manager?
  - Do I have any authority on this project?
  - Who will do my personal assessment?
  - Who pays my salary – my division or the project?
  - What happens to me when the project is finished?
  - How will working on this project benefit me?

### 5.16.1 Neutral mentor

It is one of the main recommendations of this methodology that project managers have neutral mentors appointed for them. Clutterbuck and Megginson (1999) define mentoring as an 'off-line help by one person to another in making significant transitions in knowledge, work or thinking'.

It is recommended that the neutral mentor is an independent individual and preferably outside the organisation. People feel normally more comfortable talking to people outside their work boundaries. It is recommended that the neutral mentor is formally appointed by the project owner.

There are different roles a mentor may assume. The precise role will vary according to the experience and needs of the project manager. A discussion and agreement on their relationship is important to be achieved at an early stage of the project. Among the critical roles the mentor is required to play are the roles of a guide, counsellor, motivator, advisor, and door opener.

The mentor's primary role revolves around understanding the psychological and emotional obstacles that the project manager may face during his involvement in the project and trying to resolve them.

Among the suggested roles of the neutral mentor are (PML, 2006):

- provides coaching and advice on setting meaningful goals/objectives;
- door opener: increases the project managers social interaction and networking with others at work or in personal life;
- places project managers on a more balanced emotional path, facilitating the growing pains and life's highs and lows. It's easier to live with change when one has a more even-keeled approach and perspective;
- contributes towards the improvement of career and life satisfaction, seeing them through their struggles, and cheering them when they accomplish their goals; and
- counselling on work and personal habits, encouraging and supporting change behaviour.

### 5.17 Conclusion

PROMOTE makes its philosophical objectives very explicit, as the focus of the methodology is on improving the overall program management/project management life cycle activities of technology endeavours. It was mainly developed to guide and support the implementation of



large government IT programs/projects. The overwhelming objective is to provide an improved understanding of stakeholder concerns and to see the problem situation and the requirements from their perspectives.

PROMOTE is designed to be a hybrid methodology that combines essential elements from the project methodologies and systems development methodologies to combine their strengths and minimise their weaknesses.

From an architecture perspective, and unlike other methodologies, PROMOTE divides programs/projects into two separate phases; phase one puts emphasis on the concept development, business requirements definition, and planning, and the second phase deals with the management of the program/project implementation. It pays careful attention to the details at the beginning such as the resource needs, required skills, quality of people to be involved, and also a realistic estimation of the effort to develop and implement the program/project deliverables.

Techniques and tools are designed to allow project management staff to more effectively manage and control the quality of deliverables, scope deviations, project communications, etc.

The Watch List is a tool used by the program manager to provide a common information infrastructure and facilitate improved communications among project management teams and help key stakeholders to monitor project progress and address critical project subjects. The Watch List concept in the existing project management practices is limited to the identification and management of a project's risks. Considered as an integral part of the methodology, the Watch List component in PROMOTE differs in its application and content. In addition to the risks, the Watch List also includes the critical success factors repository, activities on the critical path of the project plan, management issues that may transcend individual projects, etc.

The introduction of the Watch List in the methodology was to improve and keep the project teams focussed on the project vision and goals, defined scope, business context, and project objectives. This element was practiced in the form of regular meetings with project staff and acted as an open bi-monthly forum for people to put their business and technical concerns on the table.

Due to the enormous stress and pressure that project managers normally go through, they lose motivation and struggle to gather momentum to conduct their work with the same efficiency and effectiveness they used to have at early stages in the project. The presence of a neutral mentor is believed to make a significant contribution to the wellbeing of the

project in the same way that a personal coach is essential to high-level performance in most sports today.

The neutral element is important in trying to control and 'neutralise' the 'them and us' mentality that often occurs among various groups of project stakeholders. It is recommended that project managers have independent neutral mentors formally appointed for them, preferably by the project owner. The mentor's primary role revolves around understanding the psychological and emotional obstacles that the project manager may face during his involvement in the project and tries to resolve them. Indeed, the consequences of high personnel turnover can seriously compromise a project and generate a negative impact, especially in large public sector programs/projects.

# 6

## PROMOTE Processes

This chapter provides a detailed understanding of various program and project management processes suggested by PROMOTE. The elements highlighted here are to be viewed as integral components of PROMOTE. They are key elements in viewing how this work builds up and then expands the current body of knowledge. However, most of the program control elements and reporting mechanisms will be covered in the next chapter. The rich experience from UAE projects and feedback from other similar projects indicate that these processes would have a beneficial impact on the implementation of large-scale technology projects in general and national ID programs in particular.

### 6.1 Design and structure

The origins, vocabulary, areas of knowledge, tools, sections, clauses, and other aspects of PMBOK, PRINCE2, ISO 10006, ISO 21500, Standard for Program Management, MSP, etc., are observed to be widely different. This is to say that methodologies/standards have their own ways of laying out the processes, procedures, best practices, and templates required to successfully manage projects and programs.

The two-phase PROMOTE distinguishes itself from other established standards in the design and layout of its processes. These are seen to be more appropriate and follow the logical sequence of a typical project life cycle based on the feedback of project and program management teams both in the UAE and the three GCC countries. The individual procedures proposed by PROMOTE are discussed in the next sections.

## 6.2 Senior management responsibility and support

PROMOTE indicates that senior management has a critical role to play in overseeing programs/projects in order to ensure success. They do this by providing support, approvals, etc. Their understanding of what they need to do to ensure project success is considered central. PMBOK and PRINCE2 do not cover this important aspect of project management with much emphasis. This often dooms the project to failure before it starts (Whittaker, 1999). The PROMOTE methodology attempts to secure buy-in from the top, through the development of a strong and clear business case backed up with a realistic project plan.

Large-scale programs such as national ID schemes require the support of many government organisations due to the process/procedural connectivity required. In the UAE National ID project, visible senior support was found to be essential for the success of the project. Such projects will surely fail if they do not enjoy the sustained support of top political leadership, which alone can provide long-term commitment of funds, overcome the bureaucracy's inevitable resistance to change, and 'knock heads together' to make diverse departments work in concert (Shetty, 2003).

The need for senior management support is seen as critical to the success of a technology program. It was found that there is a strong need for a senior responsible manager (referred to here as program director) who is much more than a mere technology advocate but has formal business benefits delivery responsibilities as well. Many of the interviewed officials in GCC countries noted that there needed to be a single senior individual within the organisation who was responsible for providing strategic direction and ensuring that the program is focused throughout its life cycle, on delivering its objectives and benefits.

While many of the officials agreed that at an operational level, the responsibility for monitoring and controlling the project rests with the project manager; there is a need for management and control to be provided by a senior individual within the organisation. They could refer problems upwards to senior management and/or to ministries as necessary, in a timely manner to ensure resolution.

From the UAE case study and feedback from other such implementation programs, the program director role is critical in large-scale programs. There has been a common view among officials in all countries that the program director must demonstrate sound leadership qualities. For the program to be successful, the director must be a strong and authoritative person with good communication skills who can articulate the vision of

the program and see it through to its realisation. Unfortunately, in many cases the program director has responsibility without the full authority to address many of the factors challenging the program.

There was also a common agreement among officials that the program director should be identified at the start of the program so that they could influence the development of the overall business case for the program, and ensure that benefits are identified and a strategy is put in place for their delivery. An early identification of this individual would ensure that there is a coherent organisation and governance structure and a realistic implementation plan to ensure delivery.

Many participants felt that the key to delivery of successful programs lies in identifying senior managers who have ownership of delivery of the key benefits associated with the program. Many of the survey and interview participants noted that there are many examples where 'multiple' or 'committee' ownership of a program has diluted accountability, diffused authority, and led to slower, less responsive decision making.

However, some government procedures require the establishment of committees like in the UAE and GCC countries for large-scale programs. For example, the program director headed this committee in the UAE. The director was the formal representative of the program to other government departments. The program director was at a strategic level, not at a tactical or an operational level. The director was usually the delegating authority for major financial expenditure. Their support was perceived to be crucial in setting priorities, delegating authority, and clarifying directions when needed, an area of which was beyond the Program Management Office's authority.

The program director in the UAE project ensured that the program was focused throughout, from initial business case onwards, to delivering the projected benefits. This included ensuring the business case was reviewed continually and that any proposed changes of scope, cost, or timescale were checked against their possible effects on the business case.

To meet objectives and stakeholder expectations, project management must be aligned with the organisation's culture, integrated with project objectives, and accepted by top management and at all levels of the organisation. Projects aiming for success must have a supportive management team and a culture that is open to constant change.

### 6.3 Project management life cycle

The PROMOTE methodology recognises the five phases of project management as per the PMBOK Guide and uses it as a basis for planning and controlling the project activities. It also recognises that these phases are part of the overall project management life cycle and need to be managed as part of a methodological approach. As explained in Chapter 5, these phases are Initiation, Planning, Execution, Controlling, and Closeout; for more details see Figures 6.1 and 6.2.

- Initiation with feasibility study resulting in RFP with specifications,
- Planning resulting in design and vendor selection,
- Execution resulting in implementation of designed system,
- Control resulting in risk and issue management, and
- Closeout resulting in handover to operations and maintenance,

The PROMOTE methodology, although not comprehensive, covers the nine knowledge areas of PMBOK with ‘an adequate level of attention’. This statement is based on the feedback of several Project Management

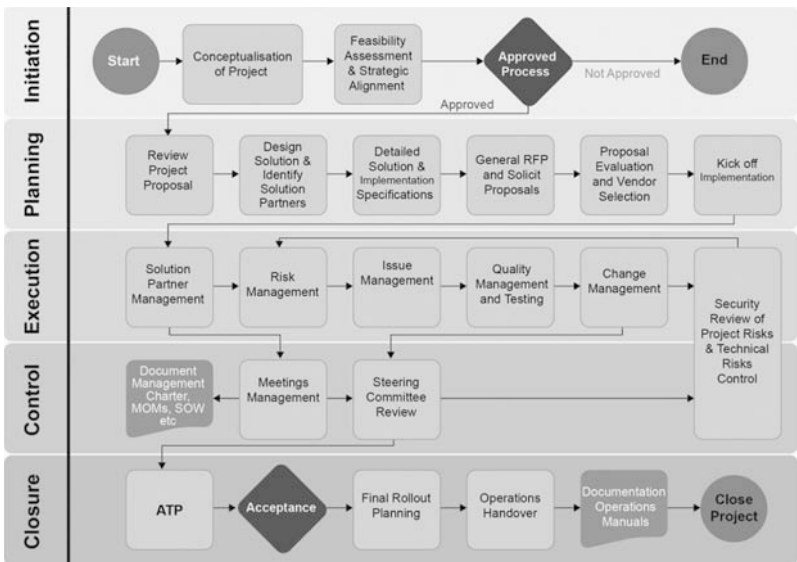


Figure 6.1 Indicative project management processes

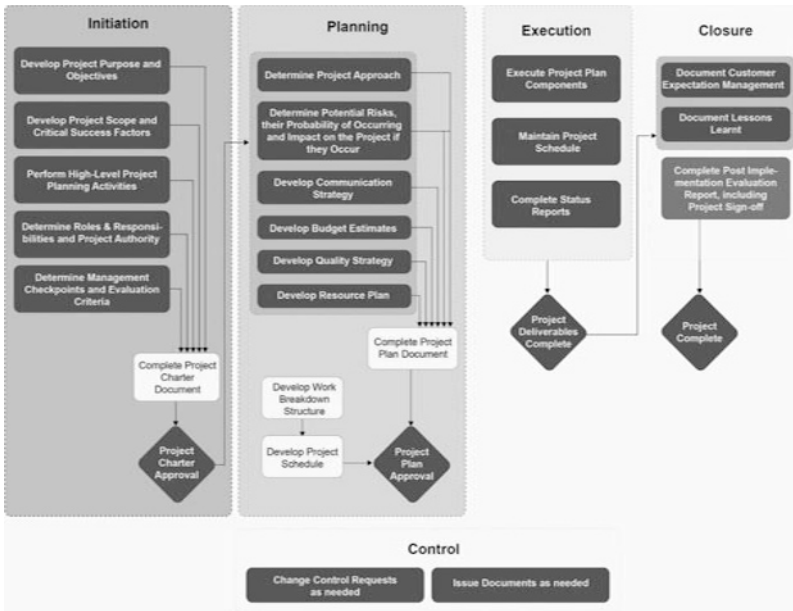


Figure 6.2 Project management work flow

Professional (PMP) certified professionals working in the UAE and also several other project management professionals in the GCC countries.

The knowledge areas of PMBOK mentioned below have focus on planning and controlling elements.

1. Integration Management,
2. Scope Management,
3. Time Management,
4. Cost Management,
5. Quality Management,
6. Human Resources Management,
7. Communications Management,
8. Risk Management, and
9. Procurement Management.

The project management processes in PROMOTE aligned to PMBOK are part of the eight stages as mentioned in the Section 5.9 of Chapter 5 which are designed to follow the logical sequence of a typical project life cycle.

## **6.4 Project management organisation**

### **6.4.1 Project management responsibility**

PROMOTE recognises a project manager as an individual given authority and responsibility to manage the project on a day-to-day basis to deliver required products within the prescribed range of scope, quality, time, and budget.

The authority beyond these limits lies with the program management office/project board or the steering committee. It is the head of the project board or steering committee who has the ultimate authority for a large project/program. Figure 6.3 depicts the key elements for the success of projects.

### **6.4.2 Project/program management office**

The project/program management office has to be established to centralise accountability for project management as it was noted that a centralised program management office works well for large programs in government and is observed to promote the concept of accountability better by the officials who had established them.

It could be either a physical or virtual office depending on the magnitude of the project. Besides, it is also crucial that the office manages and co-ordinates different sub-projects as they all need to come together at one point in time.

The importance of such an office in an organization remains undiminished even through the organizational transition from project mode to operational mode. The role of this office is to provide:

- Project Management Support,
- Technical Support and Co-ordination,
- Recruitment and Training Support,
- Quality Assurance, and
- Consulting.

The office is responsible for planning, organising, and co-ordinating the work, and leading, supervising, monitoring, and controlling the program and component projects and other activities. It plays a key role in promoting the application of project management methodology. In addition, the office provides the opportunity for senior management to keep a closer eye on the schedule and budget of all the projects.

However, when we argue here that the office is normally held accountable for the success or failure of the projects, in reality, the minute a



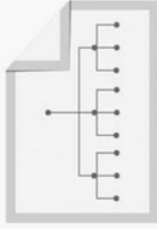
# Project Management Office



Performance Observation



Project Goals



Authority Matrix



Control Procedure



Monitoring &  
Evaluation reports



Project Plan



Project Manager



Neutral Mentor



Skills Checklist

- Leadership
- Communication
- Negotiation
- Delegation
- Problem Solving
- Change Management

Figure 6.3 Project management critical success factor elements

problem exists, accountability may shift quickly, and the search will be on finding a 'scapegoat' elsewhere. Another possible weakness of the PMO and a program director with committee approach is that the PMO will keep passing decisions and issues up the chain to avoid any possible bad consequences. This can also significantly delay decision making as management committees meet only once in a month or quarter.

Another important aspect that was demonstrated in the UAE project by establishing a program management office is that it facilitated adherence to the project management methodology. A common pitfall, however, that was observed early in the UAE project was that the office became so focused on the methodology that adherence to it became the project focus, and the project management team forgot about the actual deliverables of the project, i.e. project management teams became so focused on logging issues in the right place, using the right template, updating their sub-project, MS plans, etc., that they forgot 'why' they were doing the project at hand. It was necessary, therefore, to provide constant reminders for project teams to focus on project artefacts, outcomes more than the methodology.

## **6.5 Project planning, monitoring, and control**

The ability to think ahead and anticipate can make all the difference between achieving or not achieving project objectives. A project manager must be prepared to change project plans in flexible and responsive ways, and it is unlikely that the original plan will be the one to follow all the way since requirements and circumstances generally change as the project progresses in case of large technology projects that are spread over several years.

This implies a regular re-evaluation of the project plan and making necessary changes accordingly. If the project has to succeed, it must be anticipated, change needs to be recognised and implemented, and its impact must be measured effectively. Many organisations tend to think that by pushing for an aggressive schedule, it would accelerate the work involved and complete the project sooner, which may never be true for most projects. When faced with an unrealistic schedule, development teams often behave irrationally. They race through the requirements, produce a superficial design, and rush into the coding stage, leading to 'a not what I asked for' system. The bottom line that organisations need to consider is that when pushing for unrealistic schedules, the project either will get delayed in delivering a working product or will produce a product that does not work.

In the UAE project, all the project teams were involved in the planning process to maximise their buy-in, ownership, and thereby accountability. This served two purposes: it informed people what was happening, and it obtained essential support, agreement, and commitment (not excluding the sponsor). Senior management treated the schedule as an accurate forecast of how the project is going to go, and they seemed to be questioning every time the schedule was updated. For this reason, the schedule was a very powerful tool for commitment from management.

Another aspect to consider in planning is that large projects such as national ID schemes are normally under increasing pressure to achieve more tasks with fewer resources and balance different variables such as available staff, workload volume, complexity, working environment including tools, architecture, and geographical spread. For a project to run smoothly, the resources required must be available at the time they are required.

This demands an effective front-end planning, taking into account not only human resources, but also facilities, equipment, and materials. A detailed and complete plan guides the project, and it is the document that communicates the overall objectives, activities, resource requirements, responsibility assignments, costs, and time schedules. It is also vital to keep everyone involved fully informed of the plan and to update it whenever it changes. This is important to keep the development teams on the same page and to avoid a mad rush when deadlines approach.

Though the project plan will be the basis, project performance must be sensed. This is where performance observation comes into play. Performance observation is the receipt of sufficient information about the project to make an intelligent comparison of planned and actual performance.

Monitoring and control are key activities for effective and efficient operation of the control cycle. Henri Fayol (1949) stresses that to control means seeing everything in conformity with established command. Control is a fact-finding remedial action process to facilitate meeting the project purposes.

Project monitoring and control is the process of knowing the progress a project is making towards accomplishing project objectives. It enables a project to quickly return to the project plan if the project deviates from the schedule. Its purpose is to assure successful project implementation and quick response to problems and opportunities when they occur.

There are many approaches to project monitoring and control that vary in complexity from informal information flow in single projects to automated monitoring and information feedback systems in complex projects. The project monitoring and control system should be designed to assist

the project manager and the project management office, not to replace the need for the project manager's analysis and decision making.

Project monitoring and control systems in the UAE project were based on three fundamental steps:

1. Measure the progress toward project objectives.
2. Analyse the situation to determine the cause of any deviations in project progress.
3. Determine the action to be taken.

In its simplest form, a project control system can be represented by a feedback system. The system has inputs, outputs, and a process for transforming those inputs to outputs, together with a feedback loop, which corrects deviations of outputs and references. The correction will adjust the process parameters to provide correct outputs.

An effective project monitoring and control system is based on the systems theory principles of having a clear standard of performance (i.e. the project objectives, work breakdown structure, and project plan) that provides clear, accurate, and timely feedback on project performance so that effective action can be taken.

## **6.6 Performance management**

Information on project performance can come from many sources, both formal and informal. Formal sources include reports, briefings, review meetings, letters, emails, memos, and audit reports. Informal sources include casual conversations and observations.

In addition, taking into consideration the nature of large technology projects, independent project review should take place at different stages of the project life cycle to assess objectively the degree to which the project is being managed according to project management methodologies, processes, and procedures and how the project is performing in relation to the project's baseline in terms of the agreed scope, cost, time, and quality objectives. This proved a very effective approach to monitor the UAE project's performance.

For example, in the UAE and GCC projects, project managers were needed to monitor project progress on a weekly basis, and if a problem occurred, the progress had to be monitored more regularly. If the problem became serious enough, the monitoring rate increased. Once the problem has been solved, the monitoring may revert to the usual weekly sessions.

Comparing performance against the plan can be found difficult when the work cannot be quantified. It is imperative that substantial work is made to derive key performance indicators (KPIs) for the project. Assessing progress when work is not easily quantifiable will indeed limit the ability to achieve project management control.

It is for this reason; the UAE project work was broken into smaller pieces of work so that progress could be monitored fairly frequently. Tangible deliverables were used as sign posts to show progress. For example, written functional specifications were evidence that work was complete. Looking at this from a more global perspective, the project charter was used to set out the ways in which scope, schedule, cost, quality, staffing, processes, communications, risk, and procurement were managed. It also included project objectives, assumptions, organisation, procedures, review/approval gates, potential risks, the work breakdown structure, network diagram, schedule, budget, and human and physical resources.

The level of detail will vary according to the characteristics of each project, but each area should be explicitly considered to allow better management of performance.

## 6.7 Quality management

A project's quality management strategy is usually derived from that of the program as per MSP. Quality assurance and quality control activities may be carried out by members of the program management team. The program's design authority may provide advice and guidance to the project manager on any quality methods to be used.

According to PROMOTE, every project must identify the quality policy and standards that are applicable and how the project management team will implement its quality policy. These standards or procedures are then put into the individual project plan with a process that can identify whether or not the team is managing the project in accordance with the quality policy that has been established.

### 6.7.1 PROMOTE and ISO 10006

PROMOTE uses ISO 10006 guidelines to ensure that the following processes adhere to quality standards to ensure:

- managing each sub-project is clear and well documented;
- creating and maintaining the project team is documented;
- managing change on the project is apparent and documented;
- managing risk is continuous, is documented, and is followed;

- reviewing task completion is documented and followed;
- reviewing the budget is documented and followed; and
- closing and evaluating the project is documented and followed.

The ISO/IEC 9126 (Figure 6.4) quality model is also used in PROMOTE for the sake of evaluating a technology project. The reason for choosing this standard was that it is an international standard and the results of the evaluation are more generalised and make more sense if mapped to projects of similar nature and complexity. It proved to act as a comprehensive analytical tool as it moved beyond superficial evaluation to achieve a thorough view of the system’s strengths and weaknesses than can be provided by less systematic approaches.

Correspondence failure occurs when pre-defined objectives are not met by the system. In the case of the UAE project, used for evaluation of PROMOTE, the use of the ISO 9126 quality framework played a major role in improving the satisfaction of the top management as well as that of the end users towards the implemented system. The six quality characteristics and the 27 sub-elements of the quality model focused on the final product and on the identification of the key attributes of quality from the user’s point of view. Basing the assessment on the ISO 9126 evaluation, the UAE project is perceived to be successful in the correspondence domain.

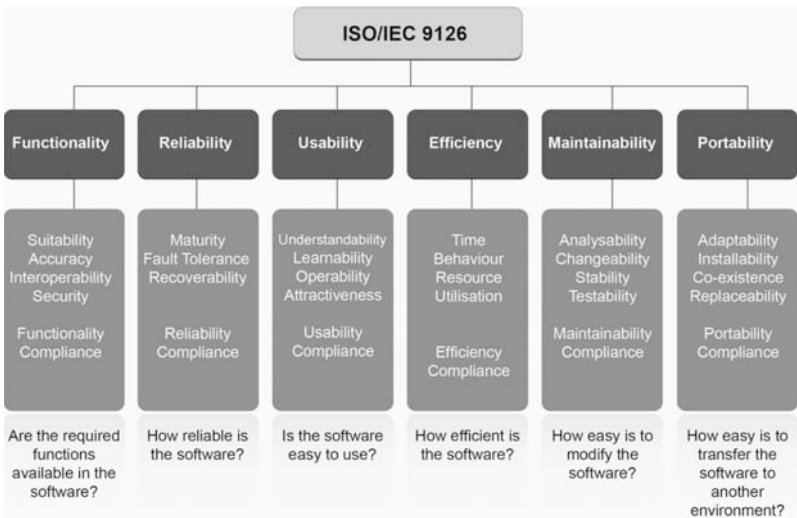


Figure 6.4 ISO/IEC 9126 standards characteristics

While PROMOTE advocates the ISO/IEC 9126 standard for software quality assurance to ensure adherence to the quality standards and stakeholder satisfaction, it also uses some key components and techniques from PRINCE2 related to:

- Organisation ('Project Board'),
- Product-Based Planning,
- Product Descriptions,
- Quality Review,
- Configuration Management,
- Change Control, and
- Work Packages.

## 6.8 Risk management

The project's Risk Management Strategy will be derived from that of the program as per MSP. This will include defining a common set of risk categories, risk scales (for probability, impact, and proximity), any risk evaluation techniques (such as expected monetary value), project level risk tolerance, and mechanisms to escalate risks to the senior management. A key consideration here is that project personnel may identify program-level risks and program personnel may identify project-level risks.

Program-level risk management/response plans need to have a provision to be allocated back to the impending projects and tracked accordingly. Any common project risks need to be summarised and represented at the program level.

Figure 6.5 below shows the inter-relationship between program, project, operational, and strategic risks.



Figure 6.5 Risk relationships

To ensure that an organisation has a full understanding of the risks being faced and the implications on the business, risks will need to be identified and assessed at different levels.

Overall, the strategies recommended in PROMOTE revolve around, first, identifying the specific risks, and then, in the response planning stage, formulating and implementing specific actions to address each risk, on a risk-by-risk basis. The planned actions may include eliminating, mitigating, or accepting risks depending on their priority. Contingent actions are planned to address the problems that may arise despite any eliminating or mitigating actions that may have been taken. The PROMOTE methodology also recommends rapid prototyping development and delivery of the system to reduce risk and uncertainty.

PROMOTE emphasises that risks are documented in a Risk Register at the level in the extended organisation that is most capable of managing them. Risks associated with projects will be reviewed depending on the nature of the project. The project manager will ensure that risks identified at the project approval stages, which may have wider impact, are considered in the course of reviews of the program or corporate risk register.

For a project, potential risks that may impact the project budget, schedule, and scope have to be identified. While assessing risks, likelihood is defined as the probability of the realisation of a risk in the event of no or weak controls being in place, and business impact is defined as the effect of a risk if it is realised. Mitigation strategies for high-impact risks need to be developed. These are the mechanisms and arrangements that are in place within the organisation to mitigate or reduce the likelihood of occurrence of the risk. An internal control system should encompass the policies, processes, tasks, behaviours, and other aspects.

Some of the UAE officials interviewed while evaluating the PROMOTE methodology reported that the application of risk management in their projects had a narrow focus, looking only at the inward-facing project risks that are tangible and within the project manager's control, without considering risks to the organisation's business as a whole.

Also, general analysis of the risks associated with projects mostly gets performed at an early stage of a project to identify and scope their potential impact. During the initiation of projects, respective project management teams were able to foresee the risks involved. After that, however, the vision and value of the predictions concerning risks diminished. One reason was that the teams were exhausted by the daily workload and long working hours. Their thoughts and concerns were more



directed towards completing the assigned tasks. Thus, little or no time was given to perform the much-needed risk assessment throughout the project.

It was also noted in the UAE projects and GCC countries that there was too much reliance on tabulating numerous risks in a register without prioritising them or considering the extent to which they may be correlated with each other. One of the key issues was that there was little understanding of what risk could or should be transferred to the suppliers/vendors.

Many officials recognised that because of lack of project and program management expertise within government organisations, their organisation often fails to understand or define the boundary between responsibilities of the supplier/vendor and the retained responsibility within the purchasing organisation.

There is often a reliance on the contract and its penalty clauses to mitigate risks rather than taking actions or forming effective contingency plans. Even when risks were identified and mitigating actions were formulated, many of the senior management leaders felt that there was insufficient expertise to monitor the effectiveness of mitigating actions and contingency plans or to refer risks to an appropriate level within the organisation in a timely fashion.

It was also learnt from the UAE projects that focus on delivering benefits requires awareness of the potential risks to the business. There is a need in organisations for risk analysis to identify all risks, the likely impact on the project, and the probability of the impact occurring. The combination of impact and probability should then be compared against the project's tolerance for cost, time, and functionality.

For all risks that fall outside the project's tolerance, either mitigating for contingency actions or, particularly, for high impact risks, both must be identified. In the case of mitigating actions these must be included in the project plan and monitored in the normal way. In the case of contingency actions, testing to ensure the feasibility of the contingency action must be included in the project plan and, in addition, the resources to provide the contingency must be reserved.

PROMOTE reduces uncertainty through the consistent replication of risk management processes. This is based on careful planning and deep understanding of the current and future business environment, effective resource management, and mitigation of perceived risks.

Risk management in particular and project management in the broader sense should not focus only on managing time and resources. Failing to see how project management is going to fit in the organisation structure

is a major corporate weakness (Charvat, 2003). Organisations need to invest time and energy to understand culture and identify motivations in order to ensure that change happens where needed.

## **6.9 Customer/stakeholder focus and management**

PROMOTE, although viewed largely to subscribe to the customer-centric approach, relies on the business case, which is documented in the project charter, to describe the organisation's justification, commitment, and rationale for a project's deliverables and overall outcome.

The business case is regularly reviewed in conjunction with the project's progress to ensure the business objectives, which may well change during the life of a project, are still being met and that any deviation from the original plan is well thought through and implications in terms of schedule, resources, cost, and quality aspects are outlined and approved by the key stakeholders.

Section 5.2 in Chapter 5 has provided details on how PROMOTE focuses on stakeholder satisfaction. Stakeholder interest is often influenced by the position in the organisation, and it is thus power based. The more power one holds; the better the negotiating position. In effect, stakeholder groups may attempt to influence decisions in order to achieve their interests. Government organisations are generally designed to deliver services to the satisfaction of multiple stakeholders. This is likely to lead to a lack of clarity over goals. For instance, large government projects such as ID projects are generally designed to deliver economic, social, and political value to a wide variety of stakeholders, e.g. citizens, government departments, regulatory agencies, and businesses, to name a few.

PROMOTE describes the various stakeholders, including all those who may impact or be impacted by the project. Stakeholder analysis is an essential activity in the PROMOTE methodology to gain clearer understanding of stakeholders, and as a result, it provides insights as to how best to engage stakeholders. PROMOTE uses stakeholder metrics to ensure that projects focus better on the critical requirements and that projects are better able to measure their achievements and to adapt to feedback. See the Figure 6.6 for a simple model for stakeholder analysis that was adopted in PROMOTE.

For example, the stakeholders in the UAE National ID project included the sponsor, the board of directors (who represented key decision makers in the country), senior managers, and primary and secondary users of the system.

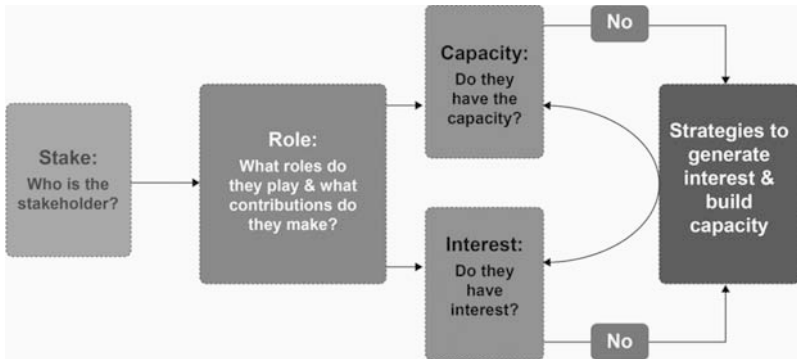


Figure 6.6 Stakeholder analysis

Expectation failure may occur when the expectations of stakeholders' interests are not formulated. The expectations represent stakeholders' set of values. In many instances these expectations are vaguely expressed; e.g. stakeholders are unable to express their opinions due to organisational conflict or a lack of time. A project must have clearly defined goals, which must be agreed upon by all involved so that everyone proceeds with the same expectation. This is an important consideration to avoid conflicts with stakeholders' mind-sets, goals, and interests.

The project schedule is an integral part of the project charter that aims to obtain commitment from all the stakeholders. It is used to communicate final deadlines, and in some cases, to determine resource needs. More details on schedule management are available in the next chapter.

## 6.10 Team management

Projects almost always involve teams; therefore, promoting good teamwork is essential to success. Large projects may last over a long term to reach their completion. To be effective and efficient, teams require a common vision, shared team processes, and a high-performance culture.

The pillars of successful teamwork are Communication, Involvement, Motivation, and Commitment.

PROMOTE gives attention to people management while executing projects, but not as much as PMBOK, which considers it to be a phase in itself, i.e. Project Human Resources Management. Although it promotes

the involvement of stakeholders in almost all phases, it does not handle the issue of team management comprehensively as most technology projects in government operate in outsourced environments.

People management was not an easy task from the observations derived from government projects that were interviewed in the Arab countries while evaluating PROMOTE. Project and program management teams and development teams had different starting points and personal aims. Most of the project teams included equal numbers of senior managers and decision influencers at the same levels. This caused conflicts at different stages of the project as many of them were not working by following the same rules and procedures and had their own agendas. This again weakened co-operation and reduced the potential for project teams and executive teams to benefit from each other. It also reduced the project managers' flexibility as it was hard to transfer people from one activity to another. One explanation for this setback lies in the fact that even though in some projects the roles and responsibilities of the project teams were clear, their decision authority was often limited due to the level of influence and decision-making power of the executive members.

Most of the project teams wasted time doing work that was not their responsibility, especially the consultants. This pitfall would have been avoided by having a clear responsibility chart. The lack of a formally appointed 'owner' in some projects had a severe impact on the overall project progress and performance, as project teams ceased to work in harmony and their efficiency dropped.

A motivated team in which all members are equally involved and can rely on each other is a key factor for success (Larsen, 2004). Organisations therefore need to devote time for the planning and developing a positive project culture (Harry, 1997; Ives and Olson, 1985; Newman and Sabherwal, 1996).

Achieving the right blend of people, process, and technology is extremely difficult, as there are so many aspects to manage in large projects, but maintaining a high level of quality performance over an extended time period is even more challenging (Devaux, 1999). Projects normally prompt people to shift the focus of their work from being a tower of knowledge in their specialised areas to a state where they share their expertise with everybody in the team. Therefore, it is found important to identify and plan the motivation for each group and key individuals.

It is also important to strive to identify champions to transform people into enthusiastic supporters and participants who would drive

the project to success. To assist in this regard, PROMOTE places great emphasis on communication throughout the project life cycle to support project progress through clarification of roles and responsibilities, project structure, decision making process, accountability, etc.

Team building, motivation, and development activities within outsourced projects mostly need to get addressed by vendors/suppliers/consulting companies for their own development teams.

### **6.11 Consulting companies /contractor/vendor/supplier management**

Before proceeding with this section, a simple clarification is provided on the terms Vendors, Suppliers, and Consultants.

Today, a vendor means a supplier of any good or service. A vendor, or a supplier, is a supply-chain management term that means anyone who provides goods or services to a company or individuals. A vendor often manufactures inventorial items and sells those items to a customer. Typically vendors are tracked in either a finance system or a warehouse management system. Vendors are often managed with a vendor compliance checklist or vendor quality audits. Purchase orders are usually used as a contractual agreement with vendors to buy goods or services. 'All Vendors are suppliers but not all suppliers are Vendors.'

The term 'Vendor' generally applies only to an immediate vendor, or an organisation that is paid for goods, rather than the original manufacturer or the organisation performing the service if it is different from the immediate supplier. Supplier is a party that supplies goods or services. Vendor is a party that not only supplies goods and services but also adds specialised input to the deliverable. Vendor can be treated as 'Both Manufacturer and Supplier'.

PROMOTE describes the need for a mutually beneficial vendor/supplier relationship, but PMBOK is not as clear in this area. PMBOK mentions the need for good contractual agreements, but this is not quite the same. As per PROMOTE, a good contract does not always equate to a mutually beneficial vendor/supplier relationship. It argues that the current approaches to the management of projects emphasise a need for the internal organisation's project plan to be merged with the supplier's.

Arrow (1962) suggests that in terms of knowledge and information, there is an inherent asymmetry between the seller, who knows what they are selling, and the buyer, who, to some degree, must remain ignorant of what is being purchased. Sellers, also called vendors, suppliers, or consultants/contractors, are external companies that enter into a

contractual agreement to provide components or services necessary for the project. The buyers' project team is often assigned the responsibility to oversee the performance and acceptance of sellers' deliverables or services. If the sellers bear a large share of the risk for delivering the project's results, they may play a significant role in the project team.

PROMOTE addresses tender evaluation and selection of the Seller as part of Phase One.

The tender can be broken down into three main sections (administration, technical, and financial). The adopted process for evaluation is illustrated in Figure 6.7. The understanding gained during this stage may lead to changes of certain specifications of the required solution for practical and financial reasons.

The steering committee delivers a formal presentation to the sponsor with recommendations, with a very high-level outline of the technical and financial information analysis. The sponsor approval triggers the next process.

As noted from the UAE case study and the feedback from the GCC officials, the 'buyer' is particularly disadvantaged, especially in the case of large IT outsourced government projects, in that usually the parent organisation is less experienced and knowledgeable, particularly in the core proprietary technology being acquired. The overall technological and information weaknesses of the buying authority limit the search

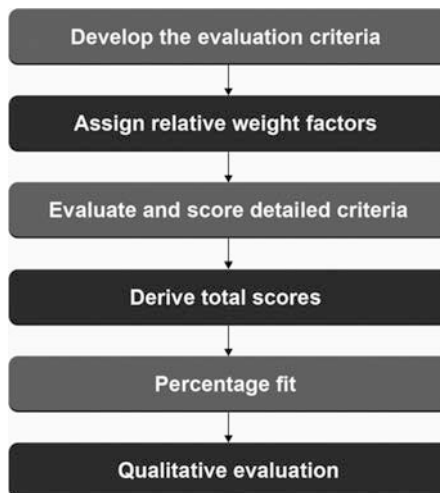


Figure 6.7 Tender evaluation process

among possible technology suppliers and consequently their choice of suppliers. Thus, the buyer's ability to undertake direct technology transfers is often limited, and the transfer has to be undertaken through an intermediary who packages the elements of required technology – often referred to as system integrators. The situation is further aggravated because there tends to be little experience in public sector organisations that is required to manage vendors/suppliers properly and to ensure that any systems procured meet the business needs (Moore, 2001).

There was a common view among the interviewed GCC officials that one of the major factors in achieving success in the implementation of complex IT projects such as national ID schemes is effective communication between the 'buyer' and the 'seller'. Officials suggested that shared understanding of user requirements and the business needs is critical to ensure that appropriate technology is procured and that it can contribute to the design quality of the technology solution.

One criticism was that many of the vendors/suppliers fail to fully understand the business need behind large IT projects. Consequently, rather than developing and proposing solutions to meet the organisation's business needs, many of the vendors/suppliers push their particular 'off-the-shelf' packages or systems that they have implemented elsewhere.

Officials and experts suggested that in order to better manage the implementation of large technology projects, suppliers need to produce realistic plans, including financial, technical, personnel, and communication plans, throughout the life cycle of the project to ensure their activities continue to be in line with the business need. It was also suggested that there needs to be more sharing of information about problems at the earliest opportunity to ensure small issues do not escalate, and an agreement on processes at the start of the program that will actively encourage co-operation and an open dialogue between the vendor/supplier and the client.

## 6.12 Contract management

There has been a tendency in the public sector not to give enough attention or expedite contract formulation of outsourced technology projects with much faith and trust in the vendor/supplier capabilities in delivering project objectives, especially during the early phase of the project.

The UAE National ID project and also the GCC projects studied have witnessed many disputes that took place with vendors during the

project implementation, and many of them were due to the contract being unclear about the development methodology of the system, as the contract articles were interpreted in different ways. The UAE ID project contract was well written from a legal perspective; however, it lacked the required technical details. It mentioned that the vendor will use their own system development and implementation methodology that was later found to be based on the traditional linear system development approach that the vendor was not willing to change or compromise. The project scale and complexity did not allow this area to be addressed thoroughly at the time of writing the contract.

The global literature in contract management shows that many organisations underestimate value of having well-defined contracts (Myss, 2003). A well-defined contract can prove invaluable as the UAE projects encountered several disputes over the delivery dates and option terms as well as litigation over complex details that were not explained in the contract. Studies show that contracts are particularly difficult to establish for information systems projects for reasons illustrated in Figure 6.8 (Bocij et al., 2003).

In the case of large IT projects, if an organisation commits to a vendor, then such projects are commissioned to the same vendor till completion.

Reasons for IT Contracts		
#	Items	Description
1	Requirements Definition	Difficulty to describe specifications in detail at the outset of the project when the contract is signed.
2	Acceptable Performance	Establishment of an acceptable performance at the outset is difficult because this depends on the combination of hardware and software.
3	Responsibilities Definition	Many different suppliers are involved and its often not clear where responsibilities for fixing problems may lie
4	After Project Support	After the project is finished, critical errors can potentially occur and a support contract is required to ensure that they are remedied rapidly.
5	Escrow Code	If a supplier's business fails, the system may be unmaintainable with the software programme, which may need to be put into safe keeping with a third party in a source code escrow agreement.

Figure 6.8 Factors for establishing comprehensive IT contracts



This was true in the UAE and also in other visited projects in Asia and Europe. Large-scale IT projects in the government are implemented for strategic objectives and are normally sponsored by influential people in the political system. Abandoning such projects would definitely have an impact and would attract the attention and questioning of the public about such troubled projects.

Thus, in such projects, the practice has been to allow the project to complete even if it meant injecting in more money to achieve the objectives – as vendors charge extra money for changes and adaptations (as demonstrated in the UAE project). Even if such projects failed after all such attempts, governments tend not attract attention to such projects; instead, they would initiate other projects to achieve the same objectives. This also takes us to the point made earlier about the validity of statistics of IT projects' failure in government organisations in the light of the available information about such projects to the public domain.

Thus, contract formalisation and management has an important role in IT projects for preventing unwarranted issues at a later date.

Workshops/brainstorming meetings should be held with the selected vendors/consulting companies to:

- identify both parties and the role of each in the agreement;
- list project scope, objective, outputs and deliverables;
- identify assumptions, dependencies and resource needs;
- state payment terms, time expectations and other elements of the agreement;
- address potential risks attached to the use of subcontractors; and
- reiterate quality management and assurance parameters.

As per PROMOTE, the project charter serves as a contract between the project team, vendor/consulting company, and the client organisation.

### 6.13 Issue management

Issue management deals with describing the resources, methods, and tools to be used to report, analyse, prioritise, track, and handle on-going project issues. The project charter defines the required project management and control structures like issue management, quality management, scope management, risks management, etc.

A project plan is more than a chart. The planning process should also identify the procedures for identifying, tracking, and resolving issues

to closure. Project managers have to negotiate on a variety of project issues: availability and level of resources, schedules, priorities, standards, procedures, costs, quality, and people issues. It is important that project managers gather as much information as possible about a problem in order to understand the issues as clearly as possible.

PROMOTE places high importance on addressing communication issues during the requirements validation stage, as well as the involvement of all stakeholders in the process, together with the application of consistent, reliable best practices for validation. The project issue document/report is one of the key deliverables that PROMOTE produces.

In case of issues that may arise due to project interdependencies that may hamper overall progress of the projects as well as the program, escalation levels need to be established to resolve such issues with high severity which may be beyond the control of a project manager to track and close.

While a delay in intermediate deliverables of a project due to an open technical issue may appear to be of high impact to a project manager, to the business as a whole the delay may not be such a large problem. Conversely, a relatively small issue impacting the final project schedule, in the project manager's opinion, may sometimes have a significant effect in the overall scheme of things.

## **6.14 Scope management**

Scope creep is a term used to describe the process by which users discover and introduce new requirements that are not part of the initial planning and scope of the project. As widely quoted, in global project management literature, many doubt whether an initial, limited, and specified scope for scale of national ID programs can be maintained, as the nature and high cost of such projects are likely to yield and encourage the expansion of its functions (Clarke, 1992; Clarke, 1994; Fontana, 2003; Froomkin, 2002).

In IT projects, it is common that management and end users often do not know what they want from such systems, and what is often worse is that they think they know and then change their minds partway through the job. As the IT systems, business processes, and people issues are linked, there are doubts whether it is actually possible to produce a complete specification for a large IT project that is not likely to require amendment as new information comes to light, or as new priorities emerge or new technological changes emerge in the market. Changing targets all the time would obviously take any project nowhere.

Finding the right communication approach is the key to managing scope creep.

The experience gained during the study in the UAE showed the need for governments embarking on large IT projects such as national ID schemes to adopt a modular approach that allows large programs to be broken down into smaller, discrete deliverables with defined activities and identified benefits. In the UAE case study, though introduced at later stages of the project, the modular approach allowed the project to demonstrate 'quick wins' which facilitated early release of the functionality into the organisation and kept the project teams and senior management motivated.

The study suggests that adopting an incremental approach is particularly valuable where some of the requirements are likely to change due to environmental factors such as legislative or policy change, or improvement opportunities in business process or technology. The initial incremental delivery could constitute the requirements that are most certain, and then once the delivery of that increment is underway, the organisation can re-evaluate its other requirements. This is likely to prove to be more efficient than trying to specify a module based on uncertain requirements, then making extensive use of change control procedures once development is underway.

The UAE project demonstrated how a waterfall system development approach negatively impacted the project in the beginning, and that it was only when the vendor started to accept a change to its development and implementation methodology that the project wheel got running.

Additionally, a modular approach will allow supplier organisations to adopt an approach that allows trial and pilot implementations to enhance the users' perceptions of the new IT before implementing it on a full-scale basis. It may be possible for the rollout of the piloted system to be carried out in phases. This allows changes to be made that reflect the experiences of small groups of users. Such an approach will increase eventual acceptance of the system by users. This is likely to reduce the overwhelming effect of technology that the new user might experience and should also increase the user's exposure to the technology, and consequently improve acceptance rates.

It is stressed in Phase One of the PROMOTE methodology that in a consensus-building process, the executive sponsors and steering committee develop a common understanding of why the program is taking place and crystallise the business justification. This is translated into a program statement and then composed into project statement documents. This helps to draw a boundary around an individual project

scope as and when it is attempted, in order to capture the agreement of the project definition before the project team descends into detailed requirements study. These project statement documents are used to guide the project efforts and keep main goals at the forefront to help ward off scope creep of projects.

It is also important that the project statement is officially approved. It promotes the understanding of requirements and commitment from higher authorities. It also forms a contract among the parties concerned. Based on the project statement document from Phase One, the project charter document needs to be developed that defines the scope of an individual project and its completion criteria. It provides an agreement of what the project is committed to deliver, its budget, time constraints, resources, and standards within which it must be completed. It specifies the boundary of the project, what is in and what is out, i.e. inclusions and exclusions.

The project charter defines the project issues, risks, and assumptions. The organisational goals, project objectives, cost and schedule constraints, inter-dependencies, and the identification of key stakeholders should be documented and approved.

Using PROMOTE, project performance is monitored and measured regularly to identify variances from the project plan. It is supported with a formal and well-defined process to control and manage the changes being requested to the project scope and objectives during the project life cycle. The project plan is more than a chart. The project planning process should also identify the procedures for resolving issues and change requests. Project plans should be under version control, and necessary changes should be incorporated in a controlled manner, i.e. change control. A project manager is responsible for co-ordinating the scope of any individual work packages of the project and the terms and conditions that apply.

## **6.15 Change management**

Global project management literature shows that coping with changes and changing priorities is perceived as the most important single problem facing the project management function (Heerkens, 2005; Meredith and Mantel, 2003; Reiss, 1995).

Change in projects is inevitable. The project manager's job is to recognise the inherent discovery process in the project and to manage and control the change – not stop it. The project management team must

determine the amount of change that can be safely accepted within the project scope without formal user approval, and should invoke the formal change management process only for changes that fall outside this boundary.

PROMOTE requires a change control board to evaluate the change requests formally for applicability and their impact on a project. The board decides the course of actions to take – implement, keep in view, or discard the change request. Changes to the project are managed through formal processes and procedures, and a change management plan is used for this purpose. Change requests need to be filed whenever changes are required to one or more approved baseline items. The purpose of this procedure is to enable a project to control changes that have an impact on the project progress, overall system, time frame, and/or cost of the project.

Change requests can be classified into four types depending on their nature and financial impact as depicted in a sample in Figure 6.9.

The steering committee may comprise members from the Consulting Company, Vendors, and Program Governance and Operational Committees.

In the light of the inflexible vendor development methodology in the UAE project, the scope changes introduced and processed towards the end of the project caused slippages in the project schedule. It was common during the different implementation stages of the program to change the scope to either add new functions or change agreed functions, which obviously had a severe impact on the implementation

	Technical Nature (No financial impact)	Technical Nature (with financial impact)	Contract Scope (No financial impact)	Contract Scope (Financial impact)
Steering Committee	Accept or Reject	Analyse and Recommend	Accept or Reject	Analyse and Recommend
Change Control Board		Reject or Recommend to Project Sponsor		Reject or Recommend to Project Sponsor
Project Sponsor		Approve or Reject		Approve or Reject

Figure 6.9 Sample types of changes and change control authorities

project plan and budget. Examples of such changes included shifting from centralised card printing to decentralised, upgrading the card technology, changing the card design and displayed data, upgrading database technology, etc. The change control procedures put in place played a major role in overcoming these changes and reducing their impact.

Issues and change are often closely aligned as change of scope or plans are often part of the response plan for an issue. Change must be managed from a program rather than a project perspective since there may be interdependencies between projects with a focus on the impact to benefits delivery.

## **6.16 Communications management**

Communication has immense importance in the success of a project. Careful communication planning and setting the right expectations with all the stakeholders is extremely important. Face-to-face initial communication within the program and project team to establish the team dynamics and learning the expectations are the keys to success when initiating a project.

In the UAE project, despite the fact that it was in the vendor's own interest to work very closely with the client in order to focus on the same goal as a team, it was their view that their responsibility was limited to the development of the system, and not the management of other project activities. This created a communication gap in the project, as many of the project activities took longer periods to be completed.

Effective communication involves both sending and receiving the message. With this in mind, a good definition of project communication management can be 'Project Communication requires ensuring timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project information' (Project Management Institute standards committee, 1996).

The communication plan is the foundational strategy for getting the right information to the right people. Understanding the communication process is the first step in communication planning. These five factors can be considered while creating one:

- Who is involved in the communication process? – the identified stakeholders, such as team members, project management team and staff, customer management team and staff, and other stakeholders.
- What is being communicated? – the message, i.e. information being communicated.

- When the information is communicated? – weekly, monthly, quarterly, as needed, or as identified.
- How the information is distributed? – meeting, memorandum, email, newsletter, presentation, report, etc.
- Who will provide the information being communicated?

It is also important to consider that in some outsourced projects, the clients and vendors may have different mother tongues or an agreed language for official communication. The vendor may experience difficulties when participating in or facilitating workshops with client team members who were not trained to conduct such sessions (e.g. training and testing); who are not fluent in English; and who usually got emotionally involved in serious discussions, arguments, and conflicts on many occasions because of language barriers and misinterpretation of conversations.

Many factors can cause barriers to effective project communication. One main reason for communication gaps is simply that people have different preferences for effective communication. Some people are orientated toward details, while others want only the big picture. Some other common reasons for communication problems during projects can be due to information overload, hidden agendas, power games, bias towards certain people, etc.

A project manager should exercise overall team building for the project team members and other stakeholders in order to facilitate better communication.

E-mails, calls, and the Internet now make day-to-day to communication easier to organise, but distance makes it even more important to have a clear action plan with proper phases, to plan meetings carefully, to specify deliverables and keep to them, and to be clear from the outset about how outcomes will be assessed. Conference calls, internet chat rooms, and project focus groups are all good ways of improving communications.

Issues of project co-ordination often cause sensitive political problems, but it is important to define roles at the beginning of a project. Clear divisions of budgetary responsibility are useful, and someone needs to be a ‘progress chaser’, reminding people of deadlines.

As briefed in Chapter 5, the Watch List is a tool recommended by PROMOTE to provide a common information infrastructure that facilitates improved communications among project management teams and helps key stakeholders monitor project progress by addressing critical project subjects.

## **6.17 Conflict management**

A project must have clearly defined goals, which must be agreed upon by all the involved stakeholders so that everyone proceeds with the same expectation. This is an important consideration to avoid conflicts with the stakeholders' mind-set, goals, and interests.

A good communication plan should include a conflict management strategy which is designed to make issues between stakeholders more manageable. Project managers minimise conflicts and resolve issues through constant communication with the sponsor(s), team members, and other stakeholders. A loss of trust and a failure to communicate, result from a failure to stress the joint ownership of problems that will inevitably occur.

PROMOTE emphasises the need for forming a Conflict Management Committee. Its importance was also emphasised by officials in the GCC countries. At some points, conflicts get viewed more objectively. However, in the heat and pressure of project execution and program review, it is not uncommon to lose perspective as some conflicts come out that distract from the team's progress. The course of action followed to resolve conflicts allowed the participants in the conflict to come up with the resolution. However, if there are time constraints, or they are unable to resolve the conflict themselves, the committee then intervenes to resolve the conflict for them. The committee (with senior officials' intervention when required) has a role in improving all the concerned teams' working relationship that contributes to the overall quality.

## **6.18 Delivery management**

In large outsourced IT projects, the design and development of the system may follow the vendor's own system development life cycle approach as the government did not have much say about it. However, as mentioned in earlier sections, a flexible prototyping/incremental/modular mode of development would be beneficial.

During design and development phases, periodic reviews, inspections, and walkthroughs can be scheduled, conducted, and tracked, and the results can be reported in accordance with the agreed project Quality Assurance Plan.

The following are the key benefits of defining and focussing on project deliverables that were realised in the UAE project and the GCC countries



(e.g. Berkun, 2005; Jones, 1998; Kerzner, 2004; Lock, 2000; Page, 2002; Stankard, 2002; Sviokla and Wong, 2002; Wideman, 1998):

- Expectations are managed based on a clear definition of what the project will produce.
- Deliverables are tangibles that can be tracked, reviewed, improved upon, and accepted.
- Team members have clear goals stated in terms of the work products that must be produced.
- Estimates, costs, risks, and quality are easier to define, measure, and manage.

However, lack of technical detail on the above elements can create conflicts as explained earlier.

Three main review types can be adopted in project execution to ensure deliverable quality as per PROMOTE.

- **Team review:** A brief meeting during which two or more team members examine the output of one or more tasks, focusing on correctness, and completeness. A team review allows team members working on different aspects of a deliverable to confer and maintain consistency. If an inconsistency is discovered, the review offers a forum in which each team member can contribute to the resolution.
- **Formal review:** A formal session to review a work product or deliverable typically occurs at a major completion point. This internal review typically involves participants who are directly involved in the development process. This review allows the work products to be revised in conjunction with other members of the team. This prevents the same defect from appearing in similar work.
- **Management review and approval:** This review point occurs at the end of each stage to verify that deliverables are complete, correct, and consistent before work proceeds. The management review is conducted by members of the management who control structure and members of user management who were designated in the charter as approval authorities.

For system testing, structured walkthroughs have to be used to test major project deliverables. A walkthrough is a formal review of a product to ensure that it is complete, accurate, meets the requirements, and conforms to standards (Beizer, 1995).

The emphasis during the walkthrough is on error detection, not correction, since the system is supposed to conform to the specified requirements defined at earlier stages of the project (see for example Hetzel, 1993; Rubin, 1994). Thus, the system testing is based on structured forms designed to guide the review group in realising the benefits of the walkthrough testing. The form includes many driving factors that impact the quality of the product.

The purpose of system acceptance testing in PROMOTE is to assure that the project objectives are accomplished and all tasks are completed; to close and balance all project financial records and accounts and share learnings from application to other projects. The commencement of this phase is determined by the completion of all project deliverables. It involves a formal acceptance of the system.

The acceptance is mainly based on the results of the quality review and assessment exercise (ISO 9216 quality framework). The use of quality framework was found to be a useful and supportive methodological approach for going about software quality assessment in the UAE project. The ISO 9126 framework acted as a comprehensive analytical tool to get a thorough view of the system's strengths and weaknesses. Other less systematic approaches proved to be inefficient. This exercise contributed to a great extent in spotting some of the system deficiencies that were addressed prior to the final acceptance and handover of the system.

Assigned project managers from the client and vendor companies worked together (with key stakeholders) and agreed upon procedures to close project agreements and obligations; with regard to system support, newer versions of the system, open issues, and disclaimers were documented and signed off by both parties. In principle, a structured project closure approach was followed in the UAE project to ensure that the project was brought to a controlled end, and it involved the following:

1. project sign-off (completion criteria),
2. project review (Project Plan, Cost, Quality/Scope: matching the initial requirements specified by the client with the final delivered product),
3. release of final deliverables,
4. project documentation hand-over,
5. supplier/Vendor contracts and agreements termination,
6. release of project resources,
7. knowledge transfer,

8. formal communication of the closure of the project to top management and other stakeholders,
9. capture of lessons learnt (mainly documenting the challenges faced in the project and their resolution).

Once the technical staff training was complete, the system was formally handed over to the client organisation for future maintenance. A delivery notice was signed by the technical committee accepting the project final delivery and the closure of the contract.

### 6.19 Training and knowledge management

One of the key themes that emerged throughout the implementation of the UAE project and from the experiences reported by the interviewed officials revolved around the need to develop the skills and expertise of personnel working in government organisations. Many officials complained that the level of skill and expertise to manage complex programs such as ID projects lacked in their organisations.

Undoubtedly, governments undertaking complex IT projects such as national ID programs are initiated to provide technical capability and knowledge that is lacking in the existing environment, e.g. new secure means to authenticate individuals, better co-ordination of government services through connected databases using unique identifiers (i.e. id number), enabling of e-government applications, etc.

Failure to assess training requirements and to plan training programs is likely to lead to gaps in knowledge and to an inability of the organisation to optimise the usage of the capability offered by the new technology. Hussain (2004) goes beyond these specific system training programs and suggests that there needs to be a commitment to development and learning at all levels of the organisation. This needs to extend beyond the realm of job-related training and development or be aimed at specific organisational initiatives. This requires establishing an environment in which individuals are encouraged to plan their own requirements for on-going development.

Government organisations need to consider that the cornerstone for the success of large IT projects is not about the alliance between government and technologies but the alliance of people and processes behind them. Ensuring that organisations have the right personnel to support their business both from the technical and management perspective will determine how successful any project or organisation will be.

While detailed technology expertise may be provided by the private sector, there is a common agreement that there is still a need for government organisations to develop and retain skills and expertise around the following:

- business skills to manage new technology initiatives at all levels of an organisation,
- management and leadership,
- contract and supplier management,
- project and program management,
- managing business risks and the delivery of business benefits, and
- understanding of the business context and optimising business processes.

PROMOTE suggests that there needs to be a greater emphasis on transfer of knowledge from governments who have either implemented or are in the process of implementing similar IT projects. Lessons from successful implementation projects need to be learnt and transferred to similar initiatives.

The PROMOTE methodology identifies a process of closure, evaluation, and lessons learnt documentation. It states that a system should be established to retrieve these lessons learnt so that the knowledge from a project can be obtained and transferred. Many of the officials in the countries visited complained that they did not have access to information about how national ID programs have been managed in other countries, e.g. what types of issues and problems they encountered and the solution found. A few officials were of the opinion that they were continuously reinventing the wheel in large government projects such as the ID project.

Although different countries may be trying to achieve different objectives with their national ID schemes, many of the processes will be common to all, for example, project management, technology components, etc. Therefore, there is plenty of scope for sharing experiences. There may be common issues that are likely to be faced in similar initiatives, and they should allow for better comprehension and encourage this pool of knowledge to grow.

## **6.20 Conclusion**

The three dimensions of people, technology, and process must be evaluated and integrated together as a whole for an IT endeavour to succeed (as

discussed in the earlier chapters). To operate effectively, the PROMOTE processes needed to be customised to the unique project requirements, where the project staff, processes and procedures, and technology are all carefully aligned. Some of the processes mentioned in this chapter were meant to address customisation.

A methodology/standard needs to provide the means for selecting the degree of project management attention appropriate to a particular project. Thus, the project management techniques may need to be tailored to the specific risks and opportunities of each project.

PROMOTE supports the premise that if a large technology program of work is broken down into smaller components or modules, the subsequent delivery of these smaller components will:

- be easier to manage and specify;
- be simpler to implement;
- offer more options for contingency;
- be more likely to accommodate changes in technology, or in the political or financial environment; and
- offer more decision points to allow greater control of the work.

# 7

## Program Reporting and Controls

This chapter details the indicative reporting and controlling mechanisms to be administered during implementation of large government programs. It highlights how one can make the program management office effective for successful execution of such government programs with necessary controls; the chapter also briefs about the importance of benefits realisation and program closure.

### **7.1 Program controls – the key to a successful program execution**

Integrated program planning begins with a program charter, which is more detailed than the business case and provides high-level program scope, objectives, and constraints. The charter provides the foundation for scoping each of the component projects. The program manager/director should define boundaries for each project as unambiguously as possible to avoid gaps on the one hand and overlaps on the other.

‘Program visibility’ refers to making sure that everyone involved is aware of the objectives and strategy risks, and that everyone feels involved in the management and its outcome.

A Program Management Office (PgMO) delivers the aggregate and disseminates status information to executives and stakeholders of the particular program(s) that it is responsible for.

PgMO should not be undertaken without a plan, so one of the first steps should be to create a strategy that identifies the mission, role, structure, and measurements for evaluating success of a PgMO. The measurement strategy must consider stakeholder priorities. That is, the measurement plan should be able to tell the story not only from

the perspective of the PgMO but also provide key metrics of interest to its primary stakeholders. Establishing the right measurement plan early is critical as it will serve as the basis by which success will be determined. The measurement plan should allow for change.

To ensure successful implementation of the program charter/plan by keeping it on schedule and within budget, a set of program controls need to be developed and implemented. Below are a few program control activities, which comprise records management, financial management, and schedule management among others.

### **7.1.1 Records management**

A set of program controls will provide the assigned project managers with processes and tools to manage documents, data, and information that are critical to implementation of the program plan. Effective records management is a critical component of program controls for a program with the scope and magnitude of the overall plan.

### **7.1.2 Financial management**

Proper financial management is the key to successful implementation of the program plan. The task of managing a program with the scope and magnitude of the plan will require strict adherence to protocols for cost estimation and forecasting, budget development, and financial reporting. The financial management function reports financial performance through objective metrics, ensuring no cost overruns for the program. It tracks variances against the program budget, ensures that expenditure targets are met, and verifies performance against business objectives. Financial performance is particularly important for high visibility in large projects and is measured by such business-oriented metrics as earned value and internal rate of return. This function collects such metrics at the project level and rolls them up to the program level. Finally, this function is responsible for forecasting future budget requirements.

### **7.1.3 Schedule management**

Implementation of the program plan requires integration of many related and interdependent projects and tasks. Implementation will require an intense and innovative program management effort. Developing and maintaining a common program scheduling and tracking system for planning, scheduling, monitoring, and controlling all the projects within the program will be beneficial.

#### **7.1.4 Communications management**

The communications management function of a program communicates program status, progress, and performance at multiple levels. It also prepares briefing documents and program dashboards for senior management and other high-level stakeholders, generates an information base that allows drill-down capabilities, and facilitates communications among the project teams involved in the program. In addition, this function builds general awareness about projects and their impacts on business, both internally and externally. The program communication plan should detail how various metrics will be delivered to various stakeholders on a periodical basis.

#### **7.1.5 Resource management**

Procuring, training, on-boarding, and managing project and program staff is a major responsibility of a PgMO. Consolidating resource management at the program level enables program executives to optimally deploy staff resources across all projects. While the details of managing individual resources are handled at the project level, the office is responsible for overall capacity planning, including the complex logistics of ensuring that the right people are available at the right time and place. This may include negotiating and managing relationships with third-party vendors, suppliers, and subcontractors and deploying internal and external resources. This function is also responsible for training program management office staff in the program processes, tools, and applied methodologies.

#### **7.1.6 Technology management**

This function implements and maintains the physical, technical, functional, and process infrastructure used by the program. Responsibilities include implementing consistent methodologies and tools, managing facilities and equipment, performing capacity planning for the resources required by the program, managing licensing and other technology agreements, performing disaster recovery planning, and procuring any necessary equipment.

#### **7.1.7 Program metrics**

Far too often, measurement systems used for project or program management focus on what has been done, rather than assessing whether the strategic intent of an initiative is being or has been attained. A PgMO, if properly designed and aligned with the business strategy, would



capture metrics that help the organisation understand where they are on this trajectory and what on-going actions will deliver success of the program.

Merely measuring the number of risks and issues is not an effective indicator. The number of issues escalated to the PgMO from the projects could be a useful indicator of poor relationships between project managers and the office, or an understanding of risks and issues and inter-dependencies across projects. The PgMO is not designed to micro-manage project risks and issues, but the metrics that get captured at the program level, the effective management of risks and issues at the project level, and those managed by the PgMO should be considered. When issues arise, having a means to manage, track, and report is important. An advanced PgMO may consider as a metric the percentage of issues with identified root causes and actions to rectify them (and the progress of such actions).

The program plan should include key definitions for collecting and reporting metrics data, including what is meant by each metric source of the data, defining who is responsible for collecting and analysing it and to whom it must be reported. Developing the right measurement system, and obtaining agreement on that system from the key stakeholders, is a critical responsibility of the PgMO since it drives the way in which it operates.

## **7.2 Establishing the environment for successful control of large government programs**

Successful large programs ensure early establishment of governance procedures and organisation structure by the executive management (here top management in the government) with well-defined roles and responsibilities, communication processes, reporting and monitoring mechanisms, and required controls to operate outsourced projects when multiple vendors/suppliers/consultants are closely involved in system development projects.

Governance is about control and regulation implemented so as to reflect good order. The areas of governance that apply to IT outsourcing are corporate governance, IT governance, and program/project governance.

### **7.2.1 Program governance and organisation structure**

Effective governance ensures that strategic alignment is optimised and the program's targeted value and benefits are delivered as expected. Governance also confirms that all the stakeholders are appropriately

engaged and appropriate supportive tools and processes are defined and effectively leveraged. Governance processes provide the foundation for ensuring that decisions impacting a program are made rationally and with appropriate justification, and that the responsibilities and accountabilities are clearly defined and applied. All of these activities are accomplished within the policies and standards of the client organisation (i.e. government) and vendor/supplier/consulting organisations, and they are measured to ensure compliance.

Governance of programs also gives the opportunity to support the business with systemic or organisational risk management. Projects can have limited visibility of overall risk, and decisions made at that level can have an enormous impact on the rest of the business. Another aspect of governance is ensuring that projects involved are reviewed against previous lessons learnt.

To facilitate the design and implementation of effective governance, many organisations prepare documented descriptions of each program's governance structures, processes, and responsibilities. Such descriptions are summarised in a program governance plan. The program governance plan can also be provided as a sub-section of the program management plan or maintained as a separately approved document.

Effective program governance boards are usually staffed by individuals who are either individually or collectively recognised as having organisational insight and decision-making authority that is critical to the establishment of program goals, strategy, and operational plans, and who are able to ensure that sufficient resources are available to achieve the targeted program benefits. Program governance boards are usually composed of executive-level stakeholders who have been selected for their strategic insight, technical knowledge, functional responsibilities, operational accountabilities, responsibilities for managing the organisation's portfolio, and/or abilities to represent important stakeholder groups.

In some organisations, program governance boards are referred to as steering committees, oversight committees, or boards of directors. Occasionally, in very small organisations, a single senior executive may assume the responsibilities of a program governance board.

The program governance plan describes the structure and composition of the program governance board. It describes the roles and responsibilities of the program governance board and how governance processes will be implemented by the board. The governance plan also contains a schedule of anticipated program-related governance meetings and activities, such as scheduled expected phase-gate reviews, program 'health checks', and required audits. Moreover, it also provides guidance for

scheduling any additional governance meetings or activities by defining criteria for their scheduling.

PROMOTE suggests the formation of the following boards/committees early during the program initiation stage.

- **Steering Committee:** Critical decisions of a program are to be referred to this committee. It is the responsibility of this committee to make resources and information available to the program and the project(s) as well as to the program management office, to resolve any escalated issues from the PgMO, and to approve major changes to the program. The program sponsor may or may not be part of this committee.
- **Change Control Board:** To evaluate the change requests for their applicability and the impact on the involved program/project(s).
- **Conflict Management Committee:** To resolve conflicts and improve the working relationship among diverse teams, it contributes to the overall quality of the program results.
- **Program Governance Board:** To handle approvals, phase gates have to be passed with mandatory activities and sign-offs along with the responsibility of governance structure, audit, reviews, and escalation procedures of the program. It can be different from the Steering Committee or can be same based on the organisation size and the nature, criticality, and size of a program.
- **Operational/Technical Committee:** It consists of the program/project manager(s) and team leaders (may also belong to vendor/consulting companies) for performing day-to-day program/project activities.

A typical large PROMOTE Organisation Structure is depicted in Figure 7.1. A program director's responsibilities include:

- reviewing reports and making recommendations;
- identifying and providing business justification for potential projects;
- recommending new projects/major change requests to the Steering Committee;
- overall governance of all the projects, part of the governance board;
- addressing conflicts of interest/risks/issues in a timely fashion;
- Ensuring transparent reporting at all levels.

A program management office has to be supported by staff like budget manager, contracts manager, schedule manager, business change manager, quality manager, specialists, and analysts among others who work closely under the directions of the program director.

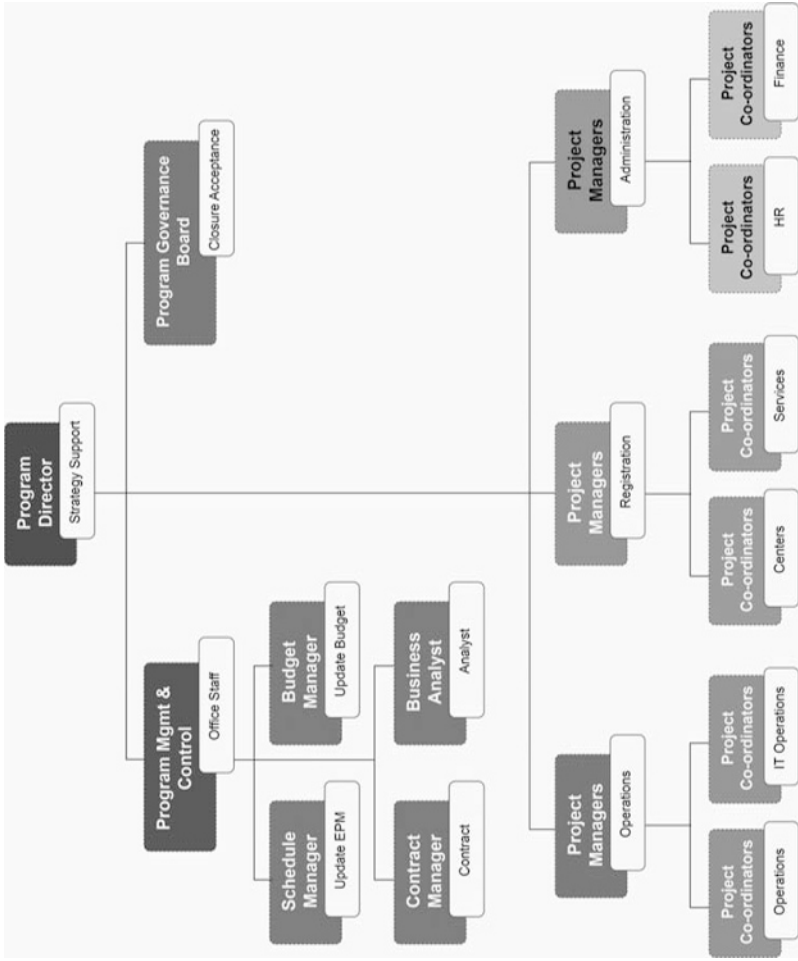


Figure 7.1 Sample program management office team in a large government program

Support staff's responsibilities include:

- assist project sponsors and project managers to develop project documentation and to plan the project;
- advice and training on project reporting standards and timeframes, including provision of reporting templates;
- maintain summary dashboards with inputs from project teams – status, costs, schedules, resource utilisation, and duration;
- contact point for inter project related communications, particularly to minimise conflicts and develop synergies across projects;
- collating/processing/filing of all project related documentation including contracts, formal agreements, and correspondence;
- provide robust reporting to program director and executive committees across all projects (with inputs from project managers); and
- project documentation and project office support administration.

Establishing an appropriate collaborative relationship between individuals responsible for program governance and program management is critical to the success of programs in delivering the benefits desired by the organisation. Program teams rely on program governance board members to establish organisational conditions that enable the effective pursuit of programs and to resolve issues that inevitably arise when the needs of their program conflicts with the needs of other programs, projects, or on-going operational activities.

Creation of a Program Management Office Manual or Handbook containing details of customised processes, templates, standards, methodologies, etc., for usage in managing the specific program would act as single point of reference for all the stakeholders and the program teams. This would be highly beneficial in aligning everyone involved towards successful execution of the program.

PROMOTE emphasises a well-defined and strong organisation structure for realising program benefits (Figure 7.1). If the client organisation decides to bring the outsourced functions in-house for development or implementation activities for any specific reasons, it will need to re-constitute the IT function of the program. An exit committee should manage contract termination procedures with vendors/suppliers/consultants. The exit strategy will be the board's responsibility because the strategy must be aligned with the client organisation's goals and objectives. The strategy will be driven by a steering committee to which the exit committee will be responsible for implementation.

### 7.2.2 Program monitoring and reporting mechanisms

To support the ability to monitor program progress and strengthen the organisation's ability to assess the program status and conformance with organisational controls, many organisations define standardised monitoring, reporting, and control processes applicable to all programs. The program governance board often assumes responsibility for assuring program compliance with such processes. Examples of such reporting and control processes include operational status and progress of programs, component subprograms, component projects, and related activities as mentioned below (PMI, 2013a):

- expected or incurred program resource requirements;
- known program risks, their response plans, and escalation criteria;
- strategic and operational assumptions;
- benefits realised and expected sustainment;
- decision criteria, tracking, and communication;
- program change control;
- compliance with corporate and legal policies, government regulations;
- program knowledge management;
- issues and issue response plans; and
- program funding and financial performance.

The Program Management Plan should detail the key program level activities and how different controls will be applied such as:

- governance activities;
- program Initiatives;
- program phase gates;
- list of Projects/Activities;
- project milestones;
- project wise list of key deliverables;
- interdependencies;
- key transition activities;
- communication activities;
- risk and change management activities;
- benefits management activities (e.g. Benefit Reviews);
- review activities (e.g. Quality Reviews and Compliance Audits); and
- assurance activities (e.g. Gateway Reviews and Health Checks).

This plan will be influenced by the resource management strategy, monitoring and control strategy, vendor/consulting company/contractor/

consultant relationship strategy. Program monitoring plays an important role in stakeholder management, especially when dealing with senior management.

Program objectives are defined at the broad level during program initiation. Since a program is a long-term initiative, these objectives may further get elaborated as the program progresses. Wherever possible, short-term goals need to be defined preferably for a duration of one year. Rather than waiting for the entire duration, the program governance board can identify mid-term goals of large government programs which can be achieved and implemented to benefit public at large. This is similar to the Agile approach followed in systems development life cycle.

Monitoring and controlling activities should be performed throughout the course of a program. This includes collecting, measuring, and disseminating performance information and assessing the overall program trends. This activity provides the program management office with the data necessary to determine the program's state and trends, and may point to areas in need of adjustment or realignment. Based on the thresholds defined by the program director/manager, requests for corrective or preventive action and adaptive change may be approved at the component or at the program level.

The PgMO is responsible for the on-going program monitoring and control. This is achieved by monitoring all the involved projects and activities within the program.

### **7.2.3 Status/progress/performance reports**

Performance reporting aggregates all the performance information across projects and non-project activities to provide a clear picture of the program performance as a whole.

A performance status report at the program level includes a summary of the progress of its component projects and other activities, describes the program's status relative to the expected benefits, and identifies resource usage to determine if the program's objectives will be met.

Periodical (bi-monthly or quarterly) performance dashboards/reports need to be shared by the program manager to the steering committee and program governance board. These should include:

- plan vs progress;
- likelihood of meeting the program objectives based on the progress made till date;
- pending work;

- shortfalls, if any in meeting the phased milestones and the final outcome;
- consolidated Earned Value Analysis reports of the program;
- major issues/problems/challenges which could not be resolved by the PgMO;
- support or help required from the steering committee, etc.;
- changes under consideration and their impact;
- risk analysis – program risks occurred and handled, new risks identified, and appropriate mitigation strategies.

The program governance board is also responsible for external interfaces like working with other government departments to get the necessary buy-in and support for collaboration needs.

Issues that cannot be resolved at the office level will be escalated to program governance board/steering committee for guidance and support along with taking it up with the conflict management committee when conflicts arise.

Monthly reports that need to be shared with the PgMO by all the concerned project managers for their respective projects are mentioned below which would be reviewed in a virtual or on-site meeting every month.

- project progress/status,
- effort variances,
- schedule variances,
- cost variances,
- issue log,
- quality metrics defined during the project planning phase,
- milestone progress,
- pending tasks, and
- risk analysis data of the project.

PgMO representatives seek clarifications and ensure that the projects are progressing as per the approved plans. In case of any minor deviations, project managers are advised to rectify them and are also provided with necessary support and any remedial actions or alternative solutions.

Internal program reviews substantiate the Project Status Reports, Audit Reports, and Earned Value Analysis Reports. Different specialists like the schedule manager, budget manager, etc., specifically identified by the PgMO examine these reports in detail and compare them with previous reports and plans. They categorise the projects and different activities within the program as 'Green – On Track', 'Yellow – may get



in to problems if corrective mechanism is not put in place', and 'Red – Serious Problems – Will impact the achievement of program objectives' and alert the program governance board and steering committee.

Program communication should be a two-way information flow. Any communication from the customers or stakeholders regarding the program performance should be gathered by the PgMO team, analysed, and distributed within the program as required.

#### **7.2.4 Feedback loops**

Feedback can take many forms. Project and program stakeholders, PgMO staff, development teams, and users are a part of the feedback ecosystem.

A feedback loop is a continuous cycle of self-improvements that loops through collection of data, evaluation of the data with respect to the project's objective, modification of the behaviour of the system, then starting over with collection of new data. Feedback allows client organisation teams' and the vendors'/suppliers'/consultants' insight into products that are otherwise unavailable when a project is merely a concept. Armed with insights, the path to deploying a successful application becomes clearer and the sponsor's investment generates a higher return. Both are possible because the development teams work on what matters most to the project. The result is delivering the end users the features that matter most to them.

In outsourced environments where program and project teams operate in globally distributed environments away from the client organisation (here government), they all need to be virtually connected by a feedback system. Suggestion boxes, email IDs, satisfaction surveys/checklists, and other processes are setup for obtaining feedback from all the stakeholders at the early stages of the program. The PgMO analyses all the suggestions/feedback received continuously and segregates them into various categories like 'to be discarded', 'to be addressed in subsequent phases of the program', and 'to be addressed immediately'. After analysis these are promptly passed on to the respective projects. Any suggestions which are important but could have budget and schedule impact are summarised and presented to the program governance board for decisions.

The strongest feedback loops do more than just connecting customers, vendors, the front line, and a few decision makers in the management; however, a number of tactics, such as hiring 'mystery shoppers' to test the service or arranging periodic forums between project/program teams and client organisation, help strengthen this focus.

### 7.2.5 Program/project audits and reviews

There may be several interdependencies between projects that are under progress in a program at any time. The PgMO evaluates individual project reports monthly to ascertain the impact on these interdependencies. Staff appointed for the program help in this evaluation analysis. The PgMO exercises control to bring the projects on track in meeting the tactical and strategic objectives.

Such projects that have major deviations from deadlines and those that have high severity of causing delays on other interdependent projects will be under observation and are monitored more closely by the PgMO to achieve necessary control. Watch lists would also help in effective communication and in on-going monitoring activities.

As project-level time and cost tolerances will be defined by the program, the number and length of management stage gates will be influenced by the program plan so that end stage assessments align to other program-level milestones. It may even define a set of standard management stages that all the projects within the program comply with, such as common stage gates which require reviews and audit mechanisms.

The program governance function may assume the responsibility of ensuring that programs under its authority remain prepared for audits that may be required or desired based on the specific nature of the organisation. Such audits may be conducted by agents internal or external to the organisation, as part of assessments of organisational and program compliance with approved or mandated business or program management processes. Program audits are frequently focused on program finances, management processes and practices, program quality, and program documentation (PML, 2013b).

A program governance board may assume the responsibility of creating program-specific audit plans to be used by the program team. Such plans often provide detail on organisational policies regarding audit expectations and preparedness, standardised audit processes, anticipated schedules for known internal or external audits, roles and responsibilities of the program staff regarding the conduct of audits, and policies for review and communication of audit results.

Audits are sometimes viewed as time-consuming endeavours that add burden to the program staff. It should be noted, however, that audits are often valuable measures of program quality, which help the program director/manager and program team in avoiding the need for corrective actions later. The audit support provided by the governance function may therefore contribute significantly to the eventual success of a program.

Project audit review reports need to be sought from two independent sources.

1. Project managers and
2. Independent third party auditors (these auditors are either outsourced or part of the PgMO staff).

Program office staff arrange to conduct third-party audits on all the individual component projects. These audit reports are correlated with the monthly project status reports. Any discrepancies identified are resolved with project managers, and changes needed to the status reports are made to represent the correct picture.

Program audits have an important role to play in judging the progress of the program objectively and also deciding if the program is moving towards its successful completion as mentioned below:

- Consolidate of the audit reports of all individual projects and identify the crucial program deviations and the sources.
- Financial audits report the planned vs completed status with reference to budgets. Earned value analysis is important since there may be several parallel projects going on simultaneously as part of a large program.
- Audit report from an independent auditor needs to be sought that highlights absences of evidence.
- Program review reports are prepared based on all the above. These are presented to the program governance board that can take necessary corrective actions like:
  - allocating more budgets or resources, if required;
  - re-aligning the program objectives;
  - terminating and/or re-assigning contracts; and
  - initiating governmental actions needed to be performed by other stakeholder departments.

Audits are sometimes viewed as time-consuming endeavours that add burden to the program office staff. It should be noted, however, that audits are often valuable measures of program quality, which help the program director/manager and program team in avoiding the need for corrective actions later. The audit support provided by the governance function may therefore contribute significantly to the eventual success of a program.

Too many controls may slow down a project, so it is important to prioritise the key metrics and milestones that need to be tracked and reported by the projects to the program management office.

### 7.3 Program and project dashboards

Sample program and project dashboards used in a large government program in UAE are depicted below.

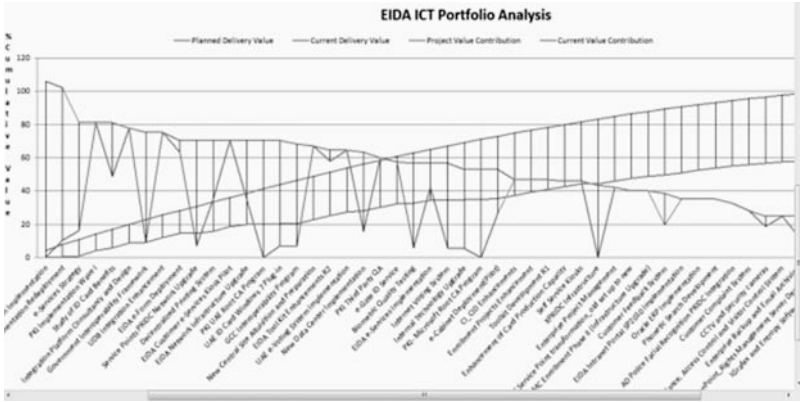


Figure 7.2 Sample portfolio analysis from ICT projects

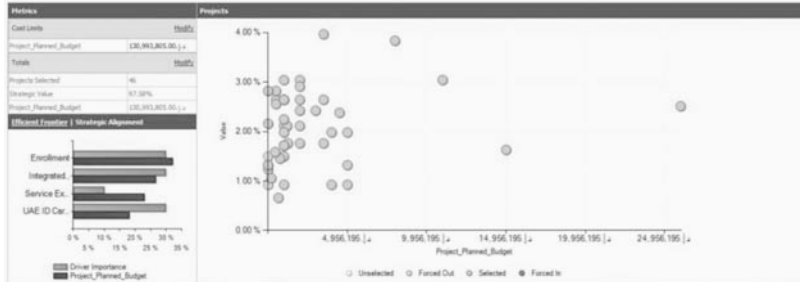


Figure 7.3 Portfolio analysis report

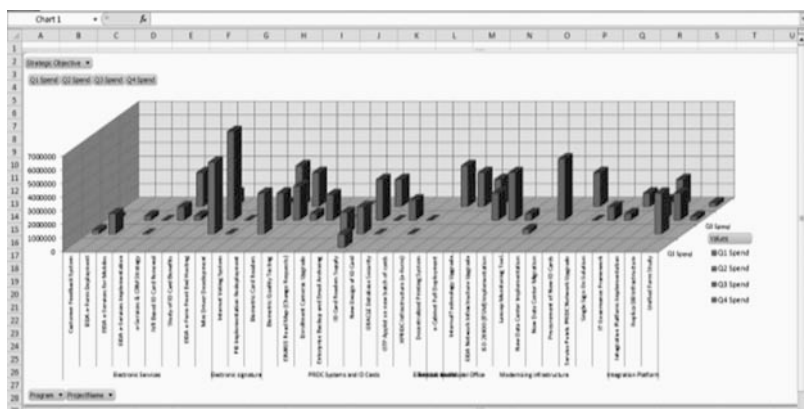


Figure 7.4 Program portfolio analysis – project landscape



Figure 7.5 Project status chart

## 7.4 Various program controls

As mentioned in chapters 5 and 6, PROMOTE suggests a Program Management Office (PgMO) to be setup in the beginning with a centralised pool of resources assigned to manage the different subsystems and phases of various involved projects which belong to a large program. Figure 7.6 indicates the governance structure for monitoring and control with the usage of a watch list as proposed by PROMOTE. PgMO

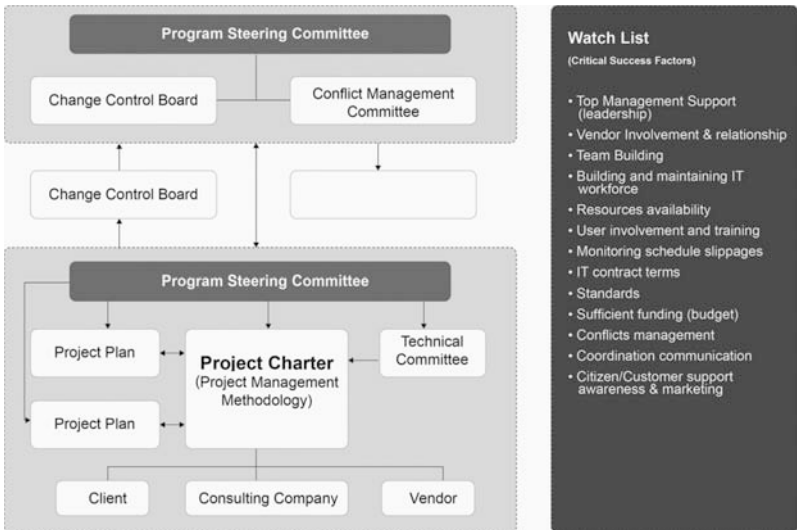


Figure 7.6 Sample program organisation structure as per PROMOTE

has to report the metrics on various items mentioned below which are explained in detail:

- scope control,
- schedule performance,
- cost performance,
- strategic alignment,
- risk control, and
- KPIs as defined.

The PgMO should help monitor and update individual project plans and progress reports regularly to help aggregate the right information at the program level. The impact of any risk, issue, or change within a component project needs to be recognised as early as possible to prevent disruption at the program level.

#### 7.4.1 Master schedule

Program schedule control is an activity to ensure that the program produces the required capabilities and benefits, on-time. This activity includes tracking and monitoring the start and finish of all high-level component and program activities and milestones against the

program master schedule planned timelines. Updating the program master schedule and directing changes to individual project schedules is required to maintain an accurate and up-to-date program master schedule.

Successful program management is dependent upon the alignment of program scope with cost and schedule, which are dependent on each other. Schedule control involves identifying not only slippages but also opportunities and should be used for proper risk management. Program schedule risks should be tracked as part of the risk management activity. The program master schedule should also be reviewed to assess the impact of component-level changes on other components and on the program itself.

Schedule variations identified at the project level which can cause inter-project problems need to be addressed within the projects as much as possible. This control is exercised by the PgMO staff. Variations that could not be handled within projects are escalated to program governance boards in the bi-monthly/quarterly progress reports.

Project dashboards are studied by the PgMO, and the implication of schedule variations is examined in view of the master schedule and mid-term and long-term objectives.

#### **7.4.2 Vendor/supplier/consultant schedule**

This is usually handled at the project level for many vendors. Phase-wise deliverables and milestones are defined in the vendor/consultant schedule. Vendors/consultants are assigned tasks and monitored, and their outputs are handled by the PgMO whenever they are assigned to individual projects or across multiple projects.

In case of Vendors who support several projects or the entire program, the contract manager and budget manager working with the PgMO will consolidate their observations and update the Vendor Rating.

PgMO monitors the Vendor Performance and Rating closely (once every quarter). Strict control is enforced to make sure that vendors are meeting schedules and budgets regularly. Periodic reports are prepared on schedule deviations and out of budget situations. These are shared with vendors, and their explanation is sought. At any point in time, if meeting the mid-term goals or long-term objectives of a program is at risk because of vendors, it is reported to the program governance board to escalate issues impacting the overall relationship of the government with the steering committee.

In the case of vendors/consultants who might be a part of the program governance board, the program director monitors the work outputs

and decides on continuing the support from time to time (usually once every year).

### **7.4.3 Master budget**

At the time of program initiation, the master budget is estimated for the entire program. Budgets are allocated to individual projects on an annual basis for long-duration projects. Based on the budget performance, budgets for subsequent periods are revised. In case the master budget needs upward revision, appropriate justifications and budget performance reports for the completed period are presented to the program governance board.

A program whose costs exceed the planned budget may no longer satisfy the business case used to justify it and hence may be subject to cancellation. Even minor overruns are subject to audit and management oversight, and should be justified. A program director has the authority to request the steering committee and government for additional master budget allocations duly supported by the program governance board recommendations.

Throughout the course of the program, as changes are approved that would have significant cost impacts, the program's budget baseline is updated accordingly, and the budget needs to be re-baselined.

### **7.4.4 Cost control**

Since programs by definition comprise multiple components, program budgets should include the costs for each of the individual components as well as costs for the resources to manage the program itself. Once the program receives initial funding and begins its operations, the financial effort moves into tracking, monitoring, and controlling the program's funds and expenditures. This is the responsibility of the program director/manager with oversight by the program governance board.

Cost control needs to be monitored by budget managers. It is done at the project level against the budgets allocated for each project. Monthly reports on Cost Performance (not just the expenses vs allocations, but also EVA) are prepared against each project and Cost dashboards are drawn reflecting 'Green', 'Yellow' and 'Red' statuses. 'Yellow' ones are highlighted to individual project managers for necessary corrective actions. 'Reds' are escalated to the program governance board.

Program-level budget analysis is performed. Analysis is made to review and report goals envisaged vs met and budgets allocated vs actual costs with overall expenditure.



#### **7.4.5 Scope change**

It is important for the program director/manager to address and control the scope as the program develops in order to ensure successful completion. Scope changes that have significant impact on a component and/or the program may originate from stakeholders, components within the program, previously unidentified requirements or architecture issues, and/or external sources.

Ideally, a qualified business analyst who is a member of the PgMO team leads the requirements management. This critical role must ensure that the front end of the program and any later projects are consistent with common practices and processes for requirements elicitation and documentation.

A change control board as mentioned in the previous chapter's analysis the impact of the proposed changes to involved projects and programs due to scope change. Projects which may be impacted by approved changes are updated with revised scope, schedules, and budgets. New projects may be initiated if required to meet the approved change requests if a change has severe impact on an existing project cost, schedule, and quality.

A program director/manager is responsible for determining the components of the program that are affected when a program scope change is requested and should update the program work breakdown structure accordingly. In very large programs, the number of components affected may be substantial and difficult to assess. Program managers should restrict their activities to managing scope only to the allocated level for component projects and should avoid controlling component project scope that has been further decomposed by the project manager.

It should be ensured that the changes introduced by the program management team are fit for purpose, operationally effective to enable achievement of the benefits planned at the beginning of the program.

#### **7.4.6 Program quality**

Program quality control is the activity of monitoring specific component project or component program deliverables and results to determine if they fulfil quality requirements that lead to adequate benefits realisation (PMI, 2013a).

Quality control enforces activities that ensure that projects within the program have met the quality objectives. These objectives include adherence to program procedures and standards, as well as the completeness and quality of project deliverables. If business requirements change during the program, the quality management function

modifies its standards accordingly. This function researches the required methods for continuously improving quality and ensuring that quality is built into all deliverables from the start. It audits project practices and captures project quality and performance metrics and is addressed by the PgMO staff. Project performance metrics measure the efficiency of project operations, enabling benchmarking of project activities against other projects.

#### **7.4.7 Program risk control**

Risk management activities are detailed in Chapter 6. Risks can be of different types like corporate, sectorial, and program/project risks. Risks at the program level are very different compared to the risks at the project level. Program risks are externally focused while project risks are more towards internal operations. Technology is an important risk at the program level. Similarly international relations, changes to GCC regulations (for example all UAE countries adopting a single currency), etc., need to be considered carefully. These are dynamic in nature and thus need to be consistently analysed on a quarterly basis by the program governance board.

Program risk control works with business areas to anticipate and understand the changing business environment and associated risks, modifying project plans and risk response strategies as needed. Separate business and project risk assessments are performed to identify potential problem areas, determine the impact of those problems, and estimate the effort required to mitigate them.

Inputs are given by the PgMO based on the progress (or the lack thereof) of on-going projects, vendor/supplier behaviour patterns, cost (budget allocated vs expended) patterns, etc.

Consultants or PgMO staff at the program level will provide risk analysis related to technology and similar initiatives and their success rates across the globe. Risk mitigation is planned carefully, keeping in view the overall mid-term goals and long-term objectives of the program, keeping in view disaster recovery and business continuity plans that would impact the successful execution of the program.

#### **7.4.8 Document control**

Program level document control is very important to realise the benefits of any large program initiative. Individual projects will have document control activities carried out within the projects along with configuration management activities. One of the PgMO staff members will be responsible for collection, storage, retrieval, and archival of all the program documentation. All plans, minutes of meetings, contracts, updates,

progress reports, presentations, dashboards, etc., have to be stored centrally. Any document will be base-lined and stored after they are reviewed and approved for use by other users/departments. The PgMO will play the role of a custodian for all the program documentation.

A well-defined mechanism for identifying personnel responsible for providing documents for storage, and personnel authorised to view and approve has to be published at the initial stages of the program. Any request for access needs to be authorised by the PgMO outside the program. All the documents generated out of program governance board meetings have to be controlled with highest levels of security. Only the program director authorises release of such documents. For soft copies, a central storage location has to be safe-guarded against hackers by providing necessary security firewalls, and periodic back-ups should be taken and stored at a remote location covering all eventualities.

#### **7.4.9 Control of contracts**

The contract manager under the PgMO is responsible for monitoring and control of all the contracts. All the contracts are reviewed monthly against the contractual obligations, compliances, and milestones, quality of deliverables and schedule/cost overruns. Contracts due to expire and due for renewals are identified well in advance and are properly closed or extended as per requirements.

An independent audit team periodically audits document control and contract control activities and submits an audit report to the PgMO. Non-conformances if any are addressed before the next audit period. Non-conformances not addressed within the stipulated timeframe or to the complete satisfaction of the PgMO are escalated to the next level. These are also reflected in the vendor rating sheets maintained against all vendors/suppliers/consultants/contractors.

### **7.5 Program benefits realisation**

Benefits management helps ensure that the benefits achieved during the conduct of the program can be sustained beyond its closure. While benefits identification, analysis, and planning need to be addressed at early stages of program initiation and planning, they need to be tracked and delivered for sustainment till program closure and also beyond.

Every program benefit identified needs to be validated on pre-defined terms by the program director/manager like:

Where and when will the benefit arise? Is a benefit owner and target periods identified? Can this program claim its benefit realisation? Are

there any other programs that might also claim this benefit? Is ownership of the delivery of the changes and outcomes that will enable the benefit clear and agreed? Is a measurement system in place?

The most important benefits will be tangible, measurable and, ideally, definable in financial terms. However, some benefits might be intangible (sometimes referred to as 'soft' benefits) in that they are difficult to substantiate – proxy measures might be necessary to provide some evidence of realisation (e.g. a reduction in the number/type of calls to a help line might be used as a proxy indicator for the improved usability of a website). Ideally, it will be possible to establish the 'baseline' current value for a benefit before any changes are introduced via the program. Benefits review needs to be done at program level like phase gate reviews and periodic health checks.

A change manager who can link outcomes to strategies, events, and assumptions and works closely with the change control board and the PgMO team would be best to lead benefits management. He or she should also establish agreed-upon benefits-tracking metrics. Without an agreed-upon measurement system in place, disagreements will be inevitable, and the entire program will suffer.

The PgMO team should implement the mechanisms by which a program benefit can be realised and measured for its achievement based on the progress being made by the program and ensure that the changes being introduced to enable benefit realisation do not cause any side-effects that could damage the integrity of business operations.

Program benefits must be realised in a timely manner. By following Agile techniques, programs are designed to start proving beneficial to the end-users at the earliest as per interim milestones. Early implementation of programs gives another major advantage in terms of resolving the initial hurdles, especially for government technology programs where end user beneficiaries are citizens. Usually these are implemented on a pilot basis within a controlled location and under observation. All problems faced are analysed with root cause analysis techniques. Root causes are addressed before large-scale roll-out is implemented in a widespread manner.

## **7.6 Program closure**

There has to be a defined mechanism to execute a controlled closure of the program. This consists of two primary activities: program transition and program close out.

A program cannot reach the closure stage when its component projects are still under progress.

Component projects of a program will enter the project closeout phase, which is to assure that the project objectives are accomplished and all tasks are completed. It requires to close and balance all the project financial records and accounts; and to share the learning for future reference with other projects. The commencement of this phase determines the completion of all project deliverables as per PROMOTE. It involves a formal acceptance of the system that the project intended to develop.

Assigned project managers from the client organisation and vendor/supplier/consulting companies would work together with key stakeholders and agree on the procedures to close down the project. Agreements and obligations, with regard to system support, newer versions of the systems, open issues, and disclaimers will be documented and signed off by both parties. In principle, a structured project closure approach has to be followed to ensure that the project is brought to a controlled end, which involves the following:

1. project sign-off (completion criteria);
2. project review (project plan, cost, quality/scope: matching the initial requirements specified by the client with the final delivered product);
3. releasing the final deliverables;
4. handing over the project documentation;
5. ceasing supplier contracts and agreements;
6. releasing project resources;
7. knowledge transfer;
8. formal communication of the closure of the project to higher management and other stakeholders; and
9. listing the lessons learnt (mainly documenting the challenges faced in the project and their resolution).

A delivery notice has to be signed by the technical committee accepting the final delivery of the project and closure of contract. These activities will be followed till all the projects of a program are closed. Individual project managers at the component level report closeouts to the program manager/director. All components should be completed and all the contracts formally closed before the program is closed.

The program governance board needs to be consulted to determine whether:

1. the program has met all of the desired benefits and all the transition work was performed within the component transition, or
2. there is another program or sustaining activity that will oversee the on-going benefits for which this program was chartered.

In the second case, there may be work involved to transition the resources, responsibilities, knowledge, and lessons learnt to another sustaining entity.

Once the steering committee/program sponsor of the client organisation approves the program closure, numerous activities occur to formally closeout the program. The program is formally closed by either cancelling the program or receiving formal closure acceptance from the steering committee and/or program sponsor that the program has achieved its objectives. The program may be cancelled due to poor performance, changes in the business case, or government policies that make the program unnecessary.

Successful completion of the program is judged against the actual business case, the current goals of the program, and the benefits realisation report. Sometimes, program costs continue after program closeout as operational costs to sustain the benefits are included in the program funding; program costs may also end at program closeout. In addition, in cases where quantifiable benefits may or may not have exceeded program costs, program benefits are expected to exceed program costs over time, as specified in the business case.

## **7.7 Perceived limitations of PROMOTE and future recommendations**

Each standard/methodology/framework has its own unique features that may distinguish it from others, but it is likely to have limitations as well. Although its design supported parallel system development efforts, PROMOTE does not recommend one, and leaves it to the organisation to decide the best fit; however, it suggests an Agile approach.

Nonetheless, the implementation PROMOTE revealed that this area needs to be clarified early in a project's lifecycle to ensure smooth and successful closure.

In the UAE project in particular and in the other initiatives reviewed from around the world, the system development methodology adopted

tended to be a vendor's own or a customised standard. In these, many details are largely hidden and not disclosed to clients.

Also, in large outsourced IT projects, client organisations don't tend to give sufficient attention to such fundamental project areas and trust the assigned vendor to deliver what is required. The experience of implementing PROMOTE revealed a limitation in this regard. It did not clarify this area with adequate details, largely because the focus was on the management of project activities rather than on the development effort itself. Comprehension and agreement on how the solution will be deployed by the client company is likely to bring about better appreciation and management of user requirements.

Other limitations of PROMOTE include:

- The scalability to manage much larger projects has not been tested. The UAE project studied was designed to enrol a population of 5 million people.
- Although it promotes the involvement of stakeholders in almost all the phases, it does not handle the issue of team management comprehensively. The current approach needs further testing to establish if it can work with larger-sized teams which are globally distributed.
- PROMOTE requires highly skilled and motivated individuals, and it demands increased management attention to project activities from the government.
- Though addressed with procedures to tackle technical challenges, issues related to hardware, operating system, network, database, security risks, and interoperability issues were considered outside the scope of PROMOTE.
- The stages of the second part of PROMOTE and especially in larger-scale initiatives with more projects/sub-projects may result in the increase of dedicated resource requirements especially in program and project management areas.

Though the projects used for testing PROMOTE were of relatively small country size, the results and learnings should be highly relevant to all such projects. Larger projects in more developed countries would benefit from the better supply of skilled work force available, a key issue in the projects studied.

Additional work must also be carried out if a better understanding of PROMOTE in other countries or globally is to be established. Further research in some additional areas, such as consulting support, strategy management may yield valuable insights for more comprehensive

understanding to assist management in determining optimal courses of action. In the future, this standard would need to be calibrated and be customised for other large-scale IT programs, thereby extending the applicability of PROMOTE to a much wider spectrum.

## 7.8 Conclusion

Governance is a very important aspect of any long-term program. PROMOTE identifies this and recommends an effective program governance board in its proposed organisation structure. PROMOTE realises the fact that large programs are highly complicated and the established SDLC and project management methodologies in isolation cannot provide a comprehensive solution when multiple stakeholders, vendors/suppliers/consulting companies are involved.

Many large government programs suffer from a lack of proper alignment at a high level, which inevitably leads to friction and contention across project teams. Establishing a top-down approach to defining the program organisation structure early will ensure effective alignment among stakeholders, and among development and implementation teams.

Accurate, frequent, and visible program performance reporting clearly provides value to the client organisation. This reporting addresses a variety of audiences and requires multiple views to satisfy various stakeholder expectations belonging to client and partner organisations.

The attainability of program benefits is directly linked to the achievability of the stipulated requirements. For a program to have any chance of success, it is vital that requirements and benefits be:

- realistic,
- clearly articulated,
- understood by all the stakeholders,
- accepted and signed off as viable, and
- supported by a rigorous change management process.

Many government organisations do not have in-house expertise to effectively manage large, complex programs. For an organisation to deliver successful programs, the discipline of program management must be first instilled. Deep organisational knowledge of program and project management and implementation will facilitate the progression of large, complex programs. Effective program management skills are learnt from practice. These skills can also be developed internally by instituting an



intensive program management education program or by contracting with an external firm for mentoring middle and senior management officials in the government.

PROMOTE was mainly developed for use in the government sector. PROMOTE is relevant to large and complex IT projects, particularly national ID card projects. The structure, program and project activities, and deliverables were designed and scaled according to these factors as explained in chapters 5, 6, and 7. The next chapter further details the case study of the UAE National ID Project.

The information shared so far highlights and preaches that if implemented properly, national ID projects can provide the infrastructure to revolutionise public services and improve the identification and verification of citizens' physical and virtual identities. The infrastructure has the potential to enable and advance Government to Citizen (G2C) e-government initiatives.

# 8

## PROMOTE Case Study

### 8.1 Introduction

Soon after finalising the PROMOTE methodology, an opportunity presented itself in the form of the UAE National ID project to validate the methodology and make finer re-adjustments as needed. This chapter explains how the project is managed with the help of the PROMOTE methodology. Many of the templates used in the project are included towards the end of this chapter, clearly outlining where each one of them is used.

### 8.2 National ID projects and the UAE experience

Even before the actual start of the National ID project, senior officials from government analysed the feedback received from the GCC officials and experts from many countries. It was noted that large projects such as the UAE National ID project are very vulnerable to falling into the trap of ‘project teams drifting away from the primary goals and the bigger picture, focusing on issues and discussing unnecessary details that could result in wastage of valuable project time and team energy’.

PROMOTE also has advocated to secure buy-in from the top, through the development of a strong and clear business case backed up with a realistic project plan.

### 8.3 Identification of project director

PROMOTE has clearly emphasised the need of strong support and constant focus on the objectives of the project. Based on this, it was

clearly felt right from the beginning that the role of the project director is critical in large-scale programs.

There was a common view among the officials in all countries that the project director must demonstrate sound leadership qualities. For the program to be successful, the director must be a strong and authoritative person, with high communication skills, and who can articulate the vision of the project and see it through to its realisation. Unfortunately in many cases the project director has responsibility without the full authority to address many of the factors challenging the project.

The need for senior management support is seen as critical to the success of a technology program. In this research, it was found that there is a strong need for a senior responsible manager (referred to here as project director) who is much more than a mere technology advocate but has formal business benefits delivery responsibilities as well.

Many of the interviewed officials noted that there needed to be a single senior individual within the organisation who was responsible for providing strategic direction and ensuring that the project is focused throughout its life cycle on delivering its objectives and the projected benefits.

While many of the officials agreed that at an operational level the responsibility for monitoring and controlling the project rests with the project manager, there is a need for management and control to be provided by a senior individual within the organisation. He or she could refer problems upwards to senior management and / or ministries as necessary in a timely manner to ensure resolution.

There was also a common agreement among the officials that the project director should be identified at the start of the program so that they could influence the development of the overall business case for the program and ensure benefits are identified and the strategy put in place for their delivery. An early identification of this individual would ensure that there is a coherent organisation and governance structure and a realistic implementation plan to ensure the delivery.

Many of the participants felt that the key to delivery of successful programs is senior managers being identified and having ownership of the delivery of the key benefits associated with the program. Many of the survey and interview participants noted that there are many examples where 'multiple' or 'committee' ownership of a project has diluted accountability, diffused authority, and led to slower, less responsive decision making.

However, some government procedures require the establishment of committees like in the UAE and GCC countries for large-scale projects. The project director headed this committee in the UAE. The director was the formal representative of the project to other government departments. The project director was at a strategic level, not at a tactical or an operational level.

The director was usually the delegating authority for major financial expenditures. The director's support was perceived to be crucial in setting priorities, delegating authority, and clarifying directions when needed, an area of which was beyond the 'project management office' authority.

The project director in the UAE National ID project ensured that the program was focused throughout, from initial business case onwards, on delivering the projected benefits. This included ensuring that the business case was reviewed continually and that any proposed changes of scope, cost, or timescale were checked against their possible effects on the business case.

The following organisational structure is a model that has been recommended for Emirates ID:



Figure 8.1 Strategy support office

## 8.4 Program management office (PgMO)

Considering the scale of the National ID program a program management office was established under the strategy support office. There were two phases of program operations. Phase 1 concentrated on initiation and organisation, current state assessment, future state design, and tendering and evaluation of vendors or consulting companies. Phase 2 dealt with individual projects required to achieve the program objectives.

In this case, it was felt that constitution of a PgMO early under the direct supervision of the program director can ensure a seamless transition from Phase 1 to Phase 2.

The program management office had the overall responsibility and authority to manage the project. The office was responsible for planning, organising, and co-ordinating the work, and leading, supervising, monitoring, and controlling the project. The office was established to centralise accountability for project management.

It was also noted that a centralised PgMO works well for large programs such as ID projects. In some of the visited countries, however, it was not clear which department in the Ministry was completely responsible for the project. Several departments had separate pieces of responsibilities.

Though obvious problems could be seen with co-ordinating system interfaces as a result, this could not be validated – largely due to the limited information obtained. A centralised PgMO was observed to promote the concept of accountability better by the officials who had established them.

However, though we argue here that the PgMO is normally held accountable for the success or failure of the project, in reality, the minute a problem exists, accountability will typically shift quickly, and the search will start to find a ‘scapegoat’ elsewhere.

Another possible weakness of the PMO and a project director with project committee approach is that the PMO will keep passing decisions and issues UP the chain to avoid any possible bad consequences. This can also significantly delay decision making as often the management committee will only meet every month or quarter.

Another important aspect that was demonstrated by establishing a PgMO is that it facilitated adherence to the project management methodology. A common pitfall, however, that was observed early in the UAE project was that the PMO became so focused on the methodology, and adherence to it became the project focus, and the project team forgot about the actual deliverables of the project, i.e. the project teams became so focused on putting issues in the right place, using the right template,

updating their sub-project MS plans, etc., that they forgot 'why' they were doing the project at hand. It was, therefore, a constant reminder to the project team to focus on project artefacts and the methodology.

## 8.5 Project management

PROMOTE requires that project managers must be selected early enough so they clearly understand the project's purpose and objectives, have ownership of the project, and are committed to success. It is important to emphasise that project managers need to heed that their role is to manage and control and not get involved in doing the work themselves, as they can easily be dragged into this. The UAE project manager situation was an example of such mix-ups in roles.

Since national ID programs have normally several associated sub-projects, project leaders were required to be responsible for each subgroup and report to the project manager, who should have the overall responsibility.

The Responsibility Assignment Matrix recorded who or which department was responsible for which project components. Initial work negotiation was the process by which the project management office obtained the initial commitment of resources for the project. The purpose was to assure clear responsibility for completing all components of the project and to obtain the initial commitment of resources for the project.

Project managers were viewed to be responsible for:

- providing reports on progress against their schedule,
- requesting approval for items exceeding delegated authority,
- anticipating problems and preparing strategies for solving them,
- negotiating for staff with division head or staff supervisors or project directors,
- showing expenditure against budget, and
- liaising at all levels.

A common view among all interviewed officials was that project managers were required to possess a set of skills to encourage and lead their project team to succeed and to create the required level of confidence in the project team. The Emirates ID Authority identified a number of critical project management skills that were taken into account during the selection process for project managers and team leaders.

The management also identified specific areas of expertise that need to be addressed by management in the government sector. A key

finding was that there is a fundamental need for government agencies' and departments' professional development activities to ensure that employees and management alike have the required skills and knowledge to manage the technology projects they have responsibilities for.

It was noted that the level of skill and knowledge of senior managers responsible for ID projects was insufficient to comprehend the project deliverables and benchmark them against the stated objectives of the project. It was an agreed view among the interviewed officials that government organisations need to develop a range of skills and expertise in their staff that will allow them to comprehend work activities and work closely with IT suppliers.

Similar to UAE, many of the officials in other countries stated that deep-seated technical expertise is provided by private-sector organisations. However, many others noted that government organisations must retain at least some core skills in order to effectively manage complex technology programs such as national ID schemes. Where these core skills may not be detailed technology skills, they do involve the ability to recognise how to make better use of technology and technical resources.

While many of the GCC government organisations primarily sought the private-sector, particularly overseas, companies to implement their ID projects, a number of senior managers expressed the view that there is a need for individuals within the organisations to perform the host of activities that are crucial to the success of the technology endeavour, and the full exploitation of new technology to deliver business needs.

Many of the officials expressed the view that there was a core level of skills that must be retained and developed within the organisations responsible for the implementation of ID programs. These core skills included:

- overall management of the ID programs and the associated business changes,
- development of the business cases to identify the business benefits that underpin the need for the program,
- understanding of the business model and development and design of consistent business processes,
- management of business risks and the delivery of business benefits, and
- management of new commercial contracts and procurement.

Many of the interviewed officials stated that their organisations needed to understand the importance of these core skills and to raise the level,

status, and career values of posts requiring these skills. They also indicated that government organisations do not normally recognise the importance of these skills and do not provide incentives or rewards for people who stay in or take up these posts.

Roles and responsibilities are clearly set forward in the handbook that is made mandatory for all project teams. These are given below.

### **8.5.1 Roles and responsibilities**

#### *8.5.1.1 PgMO – program manager*

The PgMO manager will serve to:

- monitor PgMO project plan and schedule;
- review and prioritise projects, action items, and risks;
- assist with resolution of project risks/issues or escalates when needed;
- be accountable for integration between the various streams and activities;
- review major deliverables and milestones;
- facilitate project steering committee meetings;
- facilitate completion of the overall status report with project managers;
- facilitate project-wide communications;
- attend team level, team leads, and project steering committee meetings as necessary;
- ensure teams are using PMO process tools and templates;
- provide strategic guidance as needed; and
- ensure that the project is aligned with Emirates ID's strategic objectives.

#### *8.5.1.2 Co-ordinator*

The co-ordinator is an entity that will serve to:

- be a single point of contact regarding projects related to his/her department,
- receive project / program progress feedback,
- be responsible to co-ordinate with all departments' project managers and update the PMO manager on regular basis, and
- co-ordinate with department project managers and collect the projects' progress on a weekly basis.



### 8.5.1.3 *Project manager*

The project manager will serve to:

- monitor and guide overall project direction;
- co-ordinate overall integrated work effort;
- monitor and maintain project scope;
- update the PMO project plan;
- define and deliver project deliverables and milestones;
- review project progress and develop status reports;
- prepare project steering committee status reports and related communications;
- attend team level, team leads, and project steering committee meetings as necessary; and
- work with teams to solve intra-team and cross-functional risks/issues and escalate risks/issues as needed.

## 8.6 **Neutral mentor**

PROMOTE recommends the appointment of a neutral mentor to help the stressed out project managers.

There are different roles a mentor may assume. The precise role varies according to the experience and needs of the project manager. A discussion and agreement on their relationship need is important to be achieved at an early stage of the project. Among the critical roles the mentor is required to play are those of guide, counsellor, motivator, advisor, and door opener.

The mentor's primary role revolves around understanding the psychological and emotional obstacles that the project manager may face during his involvement in the project and tries to resolve them.

In addition to his executive role in the project, the author played the neutral mentor role for the project manager as well as for many other project members. Listening and playing guide and motivator roles proved to have profound positive effects on their performance.

Statistics on the turnover of project managers during a project have not been found, but anecdotal evidence suggests that it is not unusual, especially on large public projects. The consequences of high turnover can seriously compromise a project. If a mentor can reduce this possibility, then they have made a significant contribution to the wellbeing of the project.

## **8.7 Planning, communicating, and performance management**

In the UAE National ID project, all project teams were involved in the planning process to maximise their buy-in, ownership, and thereby accountability. This served two purposes, it informed people what is happening, and it obtained essential support, agreement, and commitment (not excluding the sponsor).

Senior management treated the schedule as an accurate forecast of how the project is going to go, and they seemed to be questioning every time the schedule was updated. For this reason, the schedule was a very powerful tool for commitment management.

Another aspect to heed in planning is that large projects such as ID schemes are normally under increasing pressure to achieve more tasks with fewer resources and to balance different variables such as available staff, workload volume and complexity, and the working environment including tools, architecture, and geographical extent. For a project to run smoothly, the resources required must be available at the time they are required.

This demands effective front-end planning, taking into account not only people resources, but also facilities, equipment, and materials. A detailed and complete plan guides the project, and it is the document that communicates the overall objectives, activities, resource requirements, responsibility assignments, cost, and time schedules.

It is also vital to keep everyone involved fully informed of the plan and update it whenever it changes. This is important to keep project members on the same page and avoid a mad scramble when deadlines approach.

Though the project plan will be the basis, project performance must be sensed. This is where performance observation comes into play. Performance observation is the receipt of sufficient information about the project to make an intelligent comparison of planned and actual performance.

Information on project performance can come from many sources, both formal and informal. Formal sources include reports, briefings, and participation in review meetings, letters, emails, memos, and audit reports. Informal sources include casual conversations and observations.

In addition, and taking into consideration the nature of large IT projects, independent project review (IPR) should take place at different stages of the project life cycle to assess objectively the degree to which the project is being managed according to the project management

methodology's processes and procedures, and how the project is performing in relation to the project's baseline in terms of the agreed scope, cost, time, and quality objectives. This proved a very effective approach to monitoring the UAE National ID project's performance.

Monitoring and control are key activities for effective and efficient operation of the control cycle.

In its simplest form, a project control system can be represented by a feedback system. The system has inputs, outputs, and a process for transforming those inputs to outputs, together with a feedback loop, which corrects deviations of outputs and references. The correction will adjust the process parameters to provide correct outputs.

In the real world, what was realised in the UAE and the GCC projects was that project managers needed to monitor project progress on a weekly basis, and if a problem occurs, the progress must be monitored more regularly. If the problem becomes serious enough, the monitoring rate might increase. Once the problem has been solved, the monitoring may revert to the usual weekly sessions.

Comparing performance against the plan was found difficult when the work could not be quantified. It was imperative that substantial work was done to derive key performance indicators (KPIs) for the project. Assessing progress when work is not easily quantifiable will indeed limit the ability to achieve project management control.

It is for this reason that the UAE project work was broken into smaller chunks of work so that progress can be monitored fairly frequently. Tangible deliverables were used as sign posts to show progress. For example, written functional specifications were evidence that work was complete.

Looking at this from a more global perspective, the project charter was used to set out the ways in which scope, schedule, cost, quality, staffing, processes, communications, risk, and procurement were managed. It also included the project objectives, assumptions, organisation, procedures, review/approval gates, potential risks, the work breakdown structure, the network diagram, the schedule, the budget, and human and physical resources. The level of detail will vary according to the characteristics of each project, but each area should be explicitly considered to allow a better management of performance.

## **8.8 Learning lessons and transfer of knowledge**

PROMOTE methodology identifies a process of closure, evaluation, and lessons learnt documentation. It states that a system should be

established to retrieve these lessons learned so that the knowledge from a project can be obtained and transferred.

Many of the officials in the countries visited complained that they did not have access to information about how ID programs have been managed in other countries, e.g. what types of issues and problems they encountered and the solution found. One official stated that 'it is as if we are continuously re-inventing the wheel in large government projects such as the ID project'.

This is a statement that the author very much accepts as a fact. Through active participation in more than 40 conferences the author noticed that representatives of many governments were discussing and presenting superficial information about their projects.

The data presented about ID projects from different countries was almost the same. The only observed difference was the statistics provided about enrolment, system capacity, etc.

Many officials and experts complained that management of ID projects is a complex, difficult, and risky process. Obtaining help and advice from those countries that have gone through similar experiences would support other initiatives greatly. This is argued to pave the way to developing better approaches to managing such projects that are adaptable and malleable as lessons learnt are captured from similar implementations around the world.

Although different countries may be trying to achieve different objectives with their ID programs, many of the processes will be common to all, e.g. project management, technology components, etc. Therefore, there is plenty of scope for sharing experiences. Nonetheless, it could also be argued that all the programs from different countries will provide a security chain around their regions, and that this chain may only be as strong as the weakest link in it.

In this case study, several factors were identified as key consideration areas that ID projects need to take account of.

## **8.9 Critical success factors**

For any project to be successful, in addition to the methodology to be followed, there would be some application-specific critical success factors. Some of these are carried forward as lessons learnt, but the others which are not directly related to the methodology are listed here.

This section provides a review of some important areas identified during the research study that particularly relate to national ID card projects. They need to be given serious consideration and are considered as the key critical success factors.

They have been partly derived from the literature but more importantly from personal experience and from the views of the experts interviewed.

The first area addressed here revolves around business process improvement and the overall planning and strategy to improve public acceptance. They have a significant impact on the project progress and efficiency of performance and subsequently on the overall success of such schemes.

If underestimated, the elements identified have the potential to threaten project performance and may become project killers. In the review of national ID programs conducted in other countries around the world, governments still have scattered views on how these elements need to be organised and implemented. The identified areas are considered to be crucial outcomes from the project implementation that the project management methodology itself cannot address, but can highlight.

### 8.10 Registration process

Initially, the project was envisaged to meet two objectives, namely building a statistical database, enrolling the whole population of UAE, and producing ID cards for them. Overall, the registration process was taking about 17 minutes. The review committee then suggested that one objective at a time be targeted for achievement. This led to an improvement of registration process time to less than five minutes per person. This was achieved by having three clearly defined stages with individual goals, namely,

Stage 1: Issue ID Cards to citizens and residents and minimise potential issues from the public.

Stage 2: Promote / enforce the presentation of ID card as a means of verification and make it a pre-requisite to benefit / access to a government service.

Stage 3: Interface / integrate with different government agencies like the Ministry of Labour, Ministry of Justice, Ministry of Interior, Ministry of Education, and Ministry of Health among others.

Stage 4: Conduct internal process optimisation and efficacy improvement.

This stage-wise approach reduced the inputs required to be taken for the initial registration process. There were also some important comments made by the committee related to number of biometrics to be captured. Some improvements are made related to quality of the biometrics. These

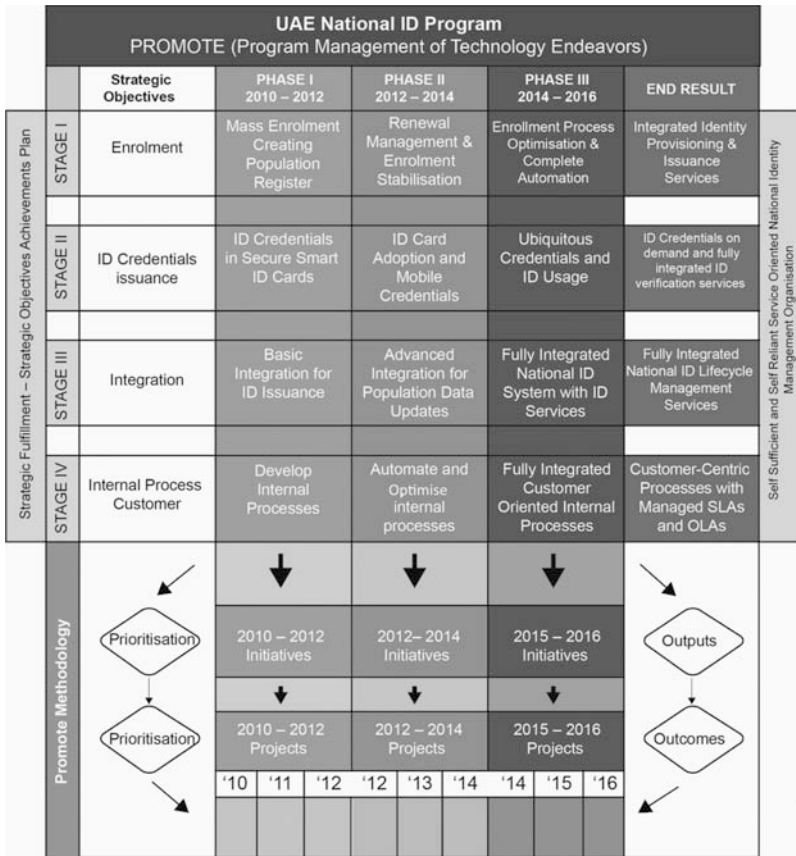


Figure 8.2 Emirates ID implementation plan using PROMOTE

are more technical in nature and considered to be beyond the scope of this book.

Based on these, the revised project implementation plan as shown below was arrived at.

### 8.11 Supplier relationship management

Major criticism with any large IT project is that many of the suppliers fail to fully understand the business need behind such large IT projects. Consequently, rather than developing and proposing solutions to meet

the organisations business needs, many of the suppliers' approaches appear to push their particular 'off-the-shelf' packages or systems that they have implemented elsewhere.

Officials and experts suggested that in order to better manage the implementation of technology programs, suppliers need to produce realistic plans, including financial, technical, personnel, and communication plans, throughout the life cycle of the program to ensure their activities continue to be in line with the business need.

It was also suggested that there needs to be more sharing of information about problems at the earliest opportunity to ensure small issues do not escalate, and an agreement on processes at the start of the program that will actively encourage co-operation and an open dialogue between the supplier and the client.

This research has shown that public-sector organisations, in the UAE and GCC countries in particular, do not necessarily have the skills and expertise to ensure that the suppliers fully understand the business context of large IT projects which normally involves advanced state-of-the-art technology acquisition or whether the solution proposed will fully meet the business needs of the organisation.

Many of the officials interviewed suggested that the lack of an overall procurement strategy that defines the common mechanism for managing the procurements throughout their life cycles was seen as a significant problem in managing IT acquisition projects. Research has supported the need to raise the skills and knowledge within the organisation to ensure that these critical procurements are not put at unnecessary risk and deliver value for the money.

In IT projects, all parties (i.e. client, supplier, consulting firms, etc.) need to be clear about their responsibilities in relation to all of the key activities at the outset and throughout the project. There needs to be a shared understanding of user requirements and the business needs to ensure that appropriate technology is procured and that it can contribute to the design quality of the technology solution (Swanson, 1988).

In the UAE project, and despite the fact that it was in the vendor's own interest to work very closely with the client in order to focus on the same goal as a team, it was their view that their responsibility was limited to the development of the system, and not the management of the other project activities. This created a communication gap in the project, as many of the project activities took longer periods to be completed.

The vendor in the UAE ID project needed to recognise that the end users group was not only limited to the client's staff operating the system, but also the public; i.e. the system must be acceptable to public and

usable by the end-users (the operators of the system). In other words, the system was expected to satisfy the functional and technical requirements of the country.

This is an important aspect that needs to be heeded in all large IT projects. Unfortunately, the vendor's view was centred on the concept of 'tell me your requirements, and we will develop it for you'. This resulted in many heated discussions between the client and the vendor especially when the latter was requested to put forward business and technical solutions to certain requirements during the project. To a large extent, the vendor was seen to play a passive role in the project, limiting their involvement and responsibility to the implementation and delivery of the system.

This period of disagreement between the client and the vendor over requirements was minimised when the system was in operation and the project team had the opportunity to do a closer evaluation. The use of software quality metrics has proven to be an effective tool for improving the quality of software and the productivity of the development process. The author acknowledges the usefulness of ISO/IEC 9126 in this project. This standard has indeed proved very beneficial in making sure the deliverables are of the right quality. For more details about ISO/IEC 9126, readers may refer to other available literature.

The feedback received from GCC officials and experts also confirmed the usefulness of this framework in large IT projects, and ID projects in particular. GCC officials indicated that the framework was a good tool for communicating with executives and senior management and to agree on general characteristics of the system.

One may still argue that if the contract was formulated properly to address project objectives and requirements, it could eliminate all such issues. There has been a tendency in the public sector to not give enough attention or rush through contract formulation in IT projects with much faith and trust in the vendor capabilities in delivering project objectives, especially at this early phase of the project.

The UAE ID project and also the GCC projects witnessed many disputes that took place with the vendor during the project implementation, and many of them were due to the contract being unclear about the development methodology of the system, as the contract articles were interpreted in different ways. The UAE ID project contract was well written from a legal perspective; however, it lacked the technical details.

It is mentioned that the vendor will use their own system development and implementation methodology that was later found to be



based on the traditional linear system development approach that the vendor was never willing to change or compromise. The project scale and complexity did not allow this area to be addressed thoroughly at the time of writing the contract.

Large-scale IT projects in government organisations are implemented for strategic objectives and are normally sponsored by influential figures in the political system. Abandoning such projects would definitely have an impact and attract the attention and questioning of the public about such troubled projects.

Thus, in such projects, the general practice has been to allow the project to be completed even if it meant injecting more money to achieve the project objectives leading to huge cost overruns.

## 8.12 Risk management

### 8.12.1 Process flow summary

The following flow diagram provides a high-level overview of the risk management process followed in the case study.

### 8.12.2 Key roles and responsibilities for risk management

Table 8.1 describes the responsibilities of the different roles for risk management in the PMO.

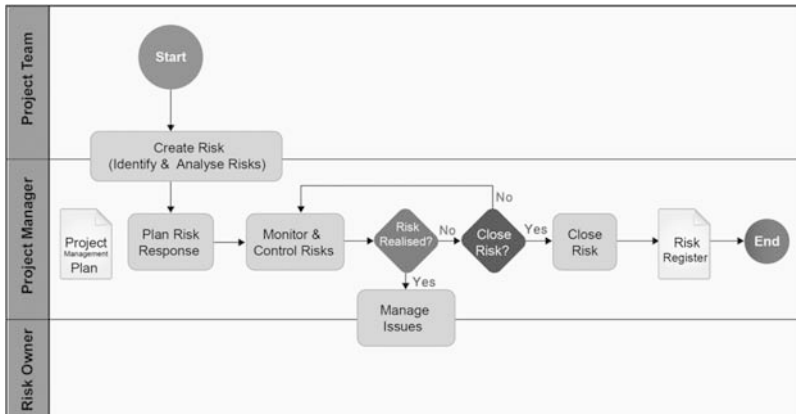


Figure 8.3 Risk management process

Various Templates that are used as a part of risk management in this case study are given below.

*Table 8.1* Risk management roles and responsibilities

<b>Role</b>	<b>Responsibilities</b>
Project team	<ul style="list-style-type: none"> <li>Works with project manager to define project-specific requirements for the project's risk management process</li> <li>Updates the Risks Register as necessary</li> <li>Identifies and documents project risks using planned risk identification techniques</li> <li>Assesses risk probability and impact, and prioritises risks</li> <li>Determines appropriate risk response strategies</li> </ul>
Risk Owner (any one on the project team can be a Risk Owner)	<ul style="list-style-type: none"> <li>Identifies and documents project risks on the Enterprise Project Management (EPM) tool using risk identification techniques</li> <li>Conducts initial analysis on assigned risks</li> <li>Assesses risk probability and impact, and prioritises risks</li> <li>Determines appropriate risk response strategies</li> <li>Defines and executes detailed risk response plans</li> <li>Identifies and documents issues resulting from risks that have been realised</li> </ul>
Project Manager	<ul style="list-style-type: none"> <li>Identifies and documents issues resulting from risks that have been realised</li> <li>Prepares and enters the risks in the EPM tool</li> <li>Arranges for the biweekly risk meetings</li> <li>Monitors the progress of the risk responses for all active risks</li> <li>Updates and modifies the risks on the EPM tool based on the biweekly meetings</li> <li>Extracts the risks from the EPM tool to the risk log in order to come up with the reports</li> <li>Defines and executes detailed risk response plans</li> <li>Makes sure all risks are up-to-date and have all required fields completed</li> <li>Escalates unmitigated risks as necessary</li> <li>Closes risks where the closure criteria are met</li> </ul>

### 8.12.3 Risks logs

The Risks Log supports the Emirates ID PMO's standard risk management process and can be used to record, track, and manage project risks throughout the life of the project (Table 8.2). Following details provide a template for the managing and maintaining the Risks Log:

Table 8.2 Risk log design

Field	Description
Summary	Unique identifier for the risk.
Risk #*	<b>Contract</b> – Any risk related to the contracts of the project (such as a signed agreement between Emirates ID and client or subcontractors).
Type*	<p><b>External</b> – Any risk related to environmental factors largely outside the control of the project (such as cultural, legal, or regulatory).</p> <p><b>Financial</b> – Any risk related to the budget or cost structure of the project (such as increase or decrease in project-related budget).</p> <p><b>Functional</b> – Any risk related to overall function of the project (such as requirements or design) being developed by the project.</p> <p><b>Quality</b> – Any risk related to the quality requirements of the project.</p> <p><b>Organisation</b> – Any risk related to internal, client, or third-party organisational or business changes (such as executive leadership role changes).</p> <p><b>Performance</b> – Any risk associated with the performance of the application (such as response time, stress testing, and development environments).</p> <p><b>Project management</b> – Any risk related to the management of the project (such as communications, status reporting, and issues management).</p> <p><b>Resource</b> – Any risk related to project resources (such as the addition or removal of resources).</p> <p><b>Schedule</b> – Any risk related to the Project Work Plan and related tasks (such as extensions or reductions of project timeline).</p> <p><b>Scope</b> – Any risk related to project scope (such as process, module, or development objects).</p> <p><b>Technical</b> – Any risk related to software or hardware, including infrastructure related to the project.</p> <p><b>General</b> – Any risk that cannot be categorised into one of the above categories.</p> <p><b>Strategy</b> – Any risk related to the Emirates ID strategy.</p>
Date Raised*	Date the risk was created.
Description*	Detailed description of the risk.
Probability (Likelihood)*	Probability or likelihood that the risk will occur: 1 – Very unlikely to occur 2 – Less likely to occur 3 – 50/50 chance of occurring 4 – More likely to occur than not 5 – Certain to occur

(Continued)

Table 8.2 Continued

Field	Description
Impact*	<p>Impact level of the risk:</p> <ul style="list-style-type: none"> <li>0 – No impact</li> <li>1 – Insignificant changes</li> <li>2 – Small delays, small cost increase</li> <li>3 – Delay, increased cost in excess of tolerance</li> <li>4 – Substantial delay, key deliverables not met, incur cost</li> <li>5 – Inability to deliver, business objectives not viable</li> </ul>
Severity	<p>Severity rating, based upon risk score:</p> <ul style="list-style-type: none"> <li><b>Low</b> – Risk Score between 0 and 5</li> <li><b>Medium</b> – Risk Score between 6 and 12</li> <li><b>High</b> – Risk Score greater than 12</li> </ul> <p><b>NOTE:</b> Use the detailed Risk Severity Ratings table below (Table 8.3) to tailor the severity ratings to meet project-specific needs.</p>
Score	<p>Risk Score, calculated as the product of risk probability x impact:</p> <ul style="list-style-type: none"> <li>0–5 – Low, 6–12 – Medium, 13–25 – High</li> </ul>
Status*	<ul style="list-style-type: none"> <li><b>New</b> – The risk has been created, but not started. It will remain in this status until it is started. All new risks need to be approved by PM.</li> <li><b>In Progress</b> – The risk is in progress. It will remain in this status while the risk is being reviewed.</li> <li><b>Escalated</b> – The risk has been escalated to a higher approval body. It will remain in this status while the risk is being reviewed.</li> <li><b>Closed</b> – The risk has been closed and all required fields have been updated. No further action is required.</li> <li><b>Cancelled</b> – The risk was no longer required and no action was taken. No further action is required.</li> </ul>
Assigned To*	Name of person responsible for addressing the risk.
Details	Priority of the risk. Questions regarding the priority for risks should be directed to the project manager.
Priority*	<ul style="list-style-type: none"> <li><b>Critical</b> – The risk will negatively impact overall project outcomes or objectives if realised and must be addressed immediately.</li> <li><b>High</b> – The risk will negatively impact the project significantly if realised (for example, cost overruns or milestone delays) and must be addressed as soon as possible.</li> <li><b>Medium</b> – The risk will negatively impact the project or parts of the project if realised; the risk should be addressed, monitored, and controlled using regular project risk management processes.</li> <li><b>Low</b> – The risk will have minimal negative impact if realised; the appropriate risk response strategy depends upon risk severity score analysis.</li> </ul>

Created By*	Name of user who created the risk.
Team	Project team impacted by the risk.
Phase	Phase of the project impacted by the risk.
<b>Risk Response</b>	
Escalation Level (Project)	Project level or group for escalation options: Project – Project manager and/or team leads Business owner – Project or initiative business owner Initiative owner – PMO PMO steering committee – Executive leadership Emirates ID program sponsor – Emirates ID strategy program sponsor
Risk Response	Response strategy selected for the risk, which is required to close a risk: <b>Accept</b> – Accept the risk, but monitor it. <b>Avoid</b> – Identify alternative strategies that avoid the risk. <b>Mitigate</b> – Determine actions to eliminate or reduce the risk. <b>Transfer</b> – Transfer the risk responsibility to another group.
Response Plan	Response plan details; required to close a risk.
Response End Date*	Risk mitigation target date.
Response Action Status	Description of the actions taken, as part of the Response Plan, required for closing the risk. This should keep the actions history.
Contingency Plan	Description of the risk contingency or backup plan once the risk occurs.
Issue #	Issue Log reference number if the risk is realised and becomes an issue.
<b>Notes</b>	
Notes	Notes about the risk.
<b>References</b>	
Reference Materials	Links to any reference materials related to the risk.

*Note:* \*indicates mandatory fields.

Risk #	Type	Date Raised	Description	Probability (Likelihood)	Impact	Severity	Score	Status	Assigned to	Priority	Created by	Team	Phase	Escalation level	Risk Response	Response Plan	Response End Date	Response Action Status	Contingency Plan	Issue #	Notes	Reference Materials
3							0															
4							0															
5							0															
6							0															

Figure 8.4 Risk register

### Instructions for Filling the Risk Log

1. Record the details of each risk identified on the project and assign appropriate owners.
2. Analyse each risk by type, probability, and impact.
3. Determine the appropriate risk response strategy and contingency plans for each active and valid risk.
4. Track and manage each active risk to closure throughout the life of the project.

### Risks Log Field Details

*Table 8.3 Risk assignment*

Risk #*	1	2	3
Type*			
Date Raised*			
Description*			
Probability (Likelihood)*			
Impact*			
Severity			
Score	0	0	0
Status*			
Assigned To*			
Priority*			
Created By*			
Team			
Phase			
Escalation Level			
Risk Response			
Response Plan			
Response End Date*			
Response Action Status			
Contingency Plan			
Issue #			
Notes			
Reference Materials			

\*indicates mandatory fields

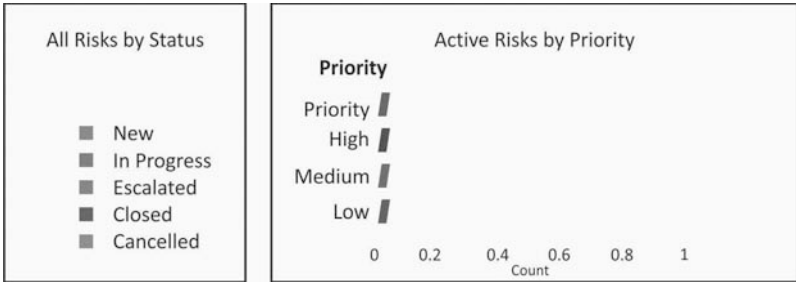


Figure 8.5 Risk status report

Table 8.4 Risk prioritisation and status

The risk status provides the management with the snapshot of the risks faced and their status. This report is derived from the risks log. In the following report template the n1- n20 indicate the numbers of the risks mapped according to their criticality and status.

Risk Status	Critical	High	Medium	Low
New	n1	n2	n3	n4
In Progress	n5	n6	n7	n8
Escalated	n9	n10	n11	n12
Closed	n13	n14	n15	n16
Cancelled	n17	n18	n19	n20

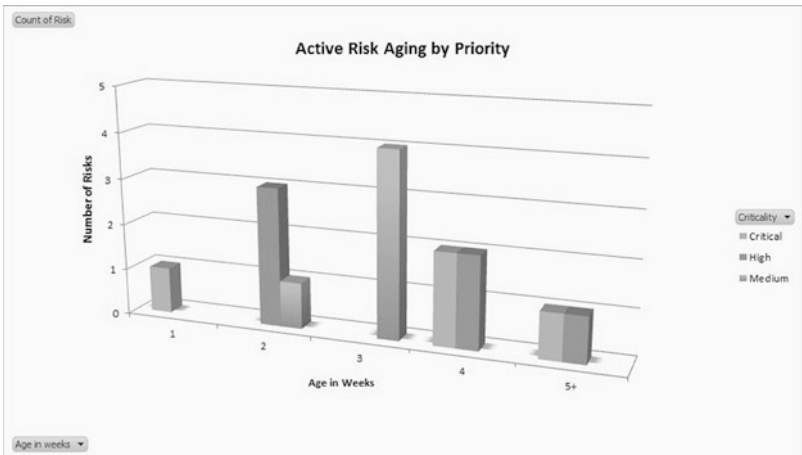


Figure 8.6 Risk ageing



### 8.13 Quality management process

The quality management process flow is illustrated on a high level in the following diagram:

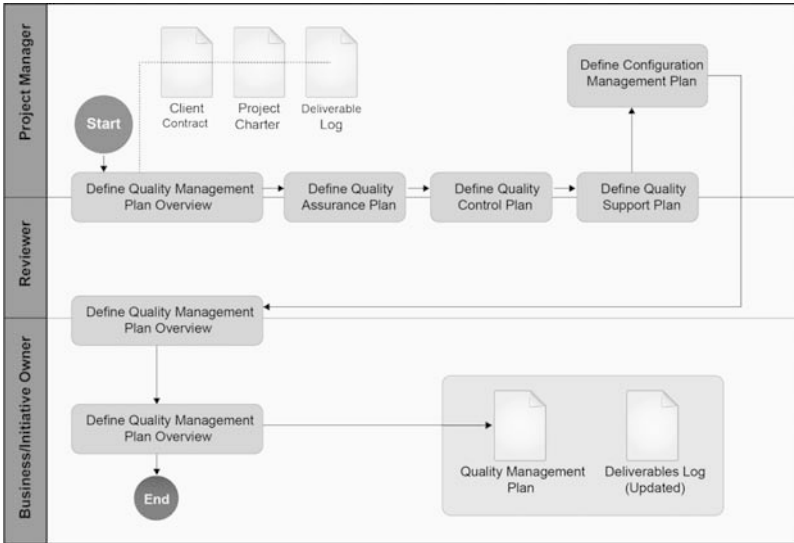


Figure 8.7 Project quality management

#### 8.13.1 Key roles and responsibilities related to quality management

Table 8.5 Project quality responsibilities table

The project quality is an essential ingredient in project performance monitoring. It is thus important to assign clear responsibilities to the project resources as:

Role	Responsibilities
<b>PMO Director</b>	Provides quality guidelines and standards Measures and reviews quality of deliverables against standards at Emirates ID PMO Develops quality reports for Emirates ID
<b>Project Administrator</b>	Implements quality standards Accountable for quality management
<b>Business Owner</b>	Reviews quality reports

## 8.14 Communications management

### 8.14.1 Communication Process

Key Roles and Responsibilities in Communications Management Process are given in Table 8.6.

A summarised status report of the several projects is maintained contributing to the overall program management. This report template is shown in Table 8.7.

### 8.14.2 Minutes of Meetings

Every project meeting is recorded and stored along with the project data. Critical information is available from these minutes. Project meetings minutes template used in communications management is given below

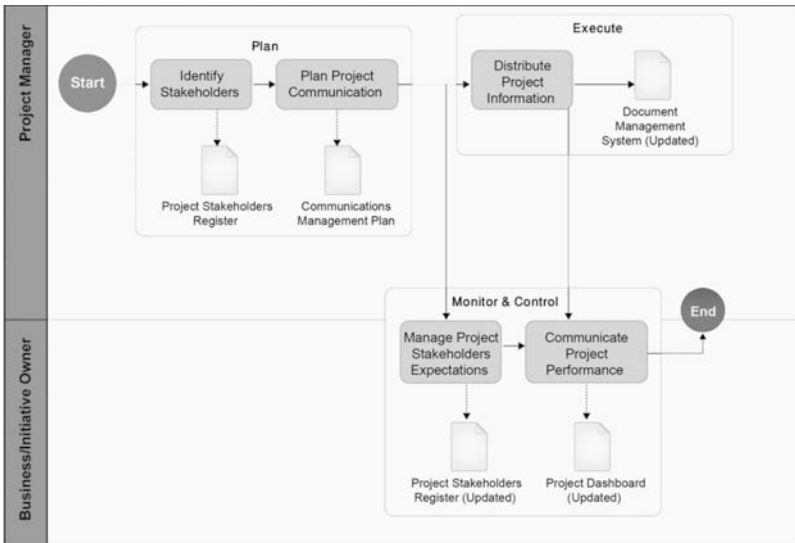


Figure 8.8 Project communication process

Table 8.6 Communication management roles and responsibilities

<b>Task</b>	<b>Role</b>	<b>Responsibilities</b>
<b>Identify Stakeholders</b>	Project Managers	<ul style="list-style-type: none"> <li>• Create the Project Stakeholders Register</li> <li>• Identify project stakeholders and plan for how to secure their support for the change the project brings</li> </ul>
<b>Plan Project Communication</b>	Project Managers	<ul style="list-style-type: none"> <li>• Lead the effort to create and finalise the Communications Management Plan</li> <li>• Determine types and content of communication each project group will receive</li> <li>• Review and approve the Communications Management Plan</li> <li>• Determine information and communication needs of various project stakeholders</li> <li>• Determine timing and channel (or medium) of communication</li> <li>• Identify the communication requirements</li> <li>• Review the Communications Management Plan and register for validity</li> </ul>
<b>Distribute Project Information</b>	Business / Initiative Owner Project Managers	<ul style="list-style-type: none"> <li>• Review and approve the Communications Management Plan</li> <li>• Aid in identifying the communication requirements</li> <li>• Establish information distribution responsibilities</li> <li>• Review and validate that information is distributed according to the Communication Management Plan</li> <li>• Review and validate that required information is archived in the Document Management System</li> </ul>
	Project Team (including Initiative and Business owner) PMO	<ul style="list-style-type: none"> <li>• Execute required distribution of information</li> <li>• Archive distributed information in the Document Management System</li> <li>• Ensure project status information is available in EPM tool for project, initiative, and Emirates ID Program management</li> <li>• Provide feedback to project manager from Emirates ID program leadership and governance</li> </ul>

*Continued*

Table 8.6 Continued

<b>Task</b>	<b>Role</b>	<b>Responsibilities</b>
<b>Manage Project Stakeholders' Expectations</b>	Project Managers	<ul style="list-style-type: none"> <li>• Identify risks and issues, and submit changes as appropriate</li> <li>• Communicate with the project stakeholders regarding project performance, and facilitate issues and risks resolution</li> <li>• Involve stakeholders in the project to increase stakeholder commitment</li> </ul>
	Project Team (including Initiative and Business owner)	<ul style="list-style-type: none"> <li>• Provide feedback on effectiveness of communications</li> <li>• Identify risks and issues with communications and submit changes as appropriate</li> </ul>
	Business / Initiative Owner	<ul style="list-style-type: none"> <li>• Review and approve corrective actions to communication plan</li> </ul>
	PMO	<ul style="list-style-type: none"> <li>• Manage communications with the Emirates ID program governance</li> </ul>
<b>Communicate Project Performance</b>	Project Managers	<ul style="list-style-type: none"> <li>• Provide required periodic work performance and status reports, including (%) complete on work breakdown structure (WBS) tasks</li> <li>• Analyse and determine performance measurements</li> <li>• Validate and update project forecasts as appropriate</li> <li>• Update Project Dashboard and present as required to Initiative Owner, Business Owners, Emirates ID program leadership and Emirates ID program governance</li> </ul>
	Business / Initiative Owner	<ul style="list-style-type: none"> <li>• Review Project Dashboard and provide project guidance as necessary</li> <li>• Support resolution of issues stemming from business areas</li> </ul>
	PMO	<ul style="list-style-type: none"> <li>• Manage projects status communication with the steering committee</li> <li>• Provide project manager requirement(s) for communicating performance based on the project profile and guidance from Emirates ID leadership and governance</li> </ul>

Table 8.7 Comprehensive project status report

	Emirates ID	Project Status Report	Date: dd-mmm-yyyy	
			For Reporting Period: dd-mmm-yyyy – dd-mmm-yyyy	
			Prepared by:	
Program Name: Emirates ID Program		Project Start Date:		
Business Owner:		Original End Date:		
Initiative Owner:		Forecast End Date:		
Reason for Revised Forecast (if different from original plan):				
Summary of Progress:				
1. Insert six or seven key items				
2.				
Key Completed Tasks / Milestones / Deliverables since Last Report			Comments	
Key Ongoing Tasks / Milestones / Deliverables			Target Completion Date	
1.				
2.				
3.				
Key Tasks / Deliverables / Milestones for Next Month			Target Completion Date	
1.				
2.				
Project Risks				
ID	Type	Risk Description	Response Plan	Assigned to
Comments				
XXX				
Project Dependencies				
XXX				

### 8.14.2.1 Meeting details

Date:

Time:

Participants:

Participant	Present

Agenda:

(A brief description of the all agenda items for the meeting)

#	Topic
1	
2	
3	
4	

Meeting notes:

(Important notes from the meeting discussion topics)

#	Topic	Description
1		
2		
3		

### 8.14.2.2 Issues, risks, or action items

All items documented here during the meeting are transferred over to the appropriate project log and managed to closure (that is, transferred to the Issues Log, Risks Log, or Action Items Log).

Type	Description	Assigned to	Due Date

### 8.14.2.3 Decisions

Decision items documented here during the meeting must be transferred over to the appropriate project log and managed to closure: for example, Action Items Log if follow up on a decision is required, or enter the

pending decision into the Decisions Log if it meets the project’s criteria for a formal decision.

Decision	Rationale

### 8.15 Scope change management

A Change Request is a potential risk on the project and needs to be handled very diligently. The following format provides the template used for managing the change in the project.

#### 8.15.1 Scope change management

Changes are inevitable while handling large programs. It is extremely critical to document these changes and ensure that they are managed properly. The high-level process flow of scope change management is given below.

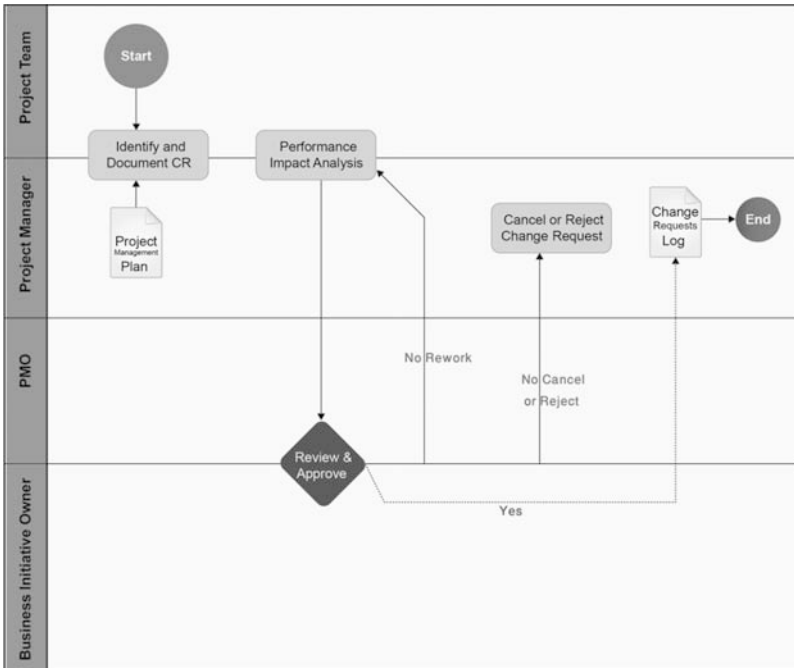


Figure 8.9 Scope management process

*Table 8.8* Scope change management roles and responsibilities

<b>Role</b>	<b>Responsibilities</b>
PMO	<ul style="list-style-type: none"> <li>• Establishes the project change control governance</li> </ul>
Business / Initiative owner, Emirates ID Program Sponsor	<ul style="list-style-type: none"> <li>• Evaluates and prioritises requested changes, and either rejects or defers change requests for implementation into a specified release</li> <li>• Escalates change request issues as defined in escalation procedures to the project's steering committee</li> <li>• Addresses escalated change requests by balancing project business objectives with project schedule, budget, and scope requirements</li> <li>• Approve / reject the change request</li> </ul>
Project Manager	<ul style="list-style-type: none"> <li>• Creates and maintains the project's change control process</li> <li>• Works with the business owner to define project-specific requirements for the project's change control process. Updates the Change Requests Log as necessary</li> <li>• Assigns resources to perform change request impact analysis</li> <li>• Updates the Work Plan to implement approved change requests</li> <li>• Identify and log project change requests</li> <li>• Communicates the status of change requests to stakeholders</li> <li>• Implement approved change requests by the steering committee</li> </ul>
Project Team	<ul style="list-style-type: none"> <li>• Identify and log project change requests</li> <li>• Perform CR impact analysis to understand its impact</li> </ul>

Key roles and responsibilities of scope change management are shown in Table 8.8.

## **8.15.2 Change request format template**

### *8.15.2.1 General information*

It is important to understand the source of the scope change. The change could be necessitated by external factors such as government regulations, or internal factors such as policy changes or technology changes. Thus, the initialisation of a given scope change needs to be documented well. The Table 8.9 shows the format used by Emirates ID for documenting such change initialisation.



Table 8.9 Change report form initialisation

Is this change request the consequence of a previous change request being rejected?			Y/N
Project:	Project name	Change No:	
Raised by: (plus contact number)	Requestor name	Date Raised:	dd/mm/yy
Current Status:	Change definition Solution definition Awaiting impact assessment Impact currently being assessed Impact assessed – awaiting decision on action Change accepted – plans currently being amended Change accepted – escalated to executive Change accepted – request closed Change rejected – request closed Change deferred	Allocated to:	Name
Priority:	High / Medium / Low	Impact:	High / Medium / Low

**Change Information**

Once the change scope is identified, the justification for this change needs to be documented. Table 8.10 shows the template used.

Table 8.10 Change request justification

**Description of the required change:**

A full description of the change being requested to be completed by the requestor (additional information may be appended or referenced).

**Reason for change:**

Reason for change – or the benefit to be derived from implementing the change – must be documented to allow the evaluator and approver to make an approval decision. For example, the change may be requested because it: satisfies mandatory requirement/will reduce operational or implementation costs / increase operational efficiency/resolve an issue or mitigate a risk, etc. Include any relevant dates, e.g. implementation dates, and the impact to the project and business case if the change is not accepted.

**Proposed solution and actions:**

Describe the proposed solution that the change will provide and detail action required to implement change – what actually needs to be done to complete the change.

### 8.15.2.2 *Impact assessment*

Every change has an impact on the project- either on the schedule, on the efforts on the financials. A change impact assessment is a key factor for decision making in approving the changes. This is documented using the template shown in Table 8.11

*Table 8.11* Change request impact assessment

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Impact on Resources	Impact on resources – what is the increase (or decrease) in man days of work, and does the group have a problem with resourcing the work?
Impact on Costs	Impact on costs – what will implementing the change cost? E.g. man days, hardware, software, support, licenses, testing, and implementation.
Impact on Plan	Impact on plan – what is the effect on elapsed timescales for delivery of major components within the stage, the stage completion date, or project completion date.
Impact on Initiative	Impact on initiatives – what is the effect of the change on initiatives of the project? Refer to the business case to identify and quantify what this will be.
SLA or supplier contract impacted? Y/N	If yes, please provide reasons and detail the impact.
Risks associated with making the change (list)	Risks – what are the risks associated with the approach to implementing the change, and therefore the degree of certainty on the resource, cost, and timescale estimates above. How do the risks affect the delivery of any anticipated benefits?
Other projects or key milestones that will be affected by the change (dependencies)	Dependencies – what impact will the change have on any existing project dependencies, internal or external? Will the change create any new dependencies? Review project schedule and dependencies logged in the project plan document.
Documentation / products that will need to be changed or created as a result of the change	Documentation/products – what documents or other products will need to be updated or amended? Consider management products, i.e. Business Case, Project Plan (for product descriptions), project schedule for delivery timeframe, and impact on scheduled quality gates. Specialist products include impact on designs, current build, testing, or rollout (i.e. training) deliverables

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8.15.2.3 *Project impact*

The impact then is summarized at the project level as shown in Table 8.12.

8.15.2.4 *Approval for change*

Based on the recommendations and overall impact from the proposed change, the request for change is formally approved for implementation. The approval is clearly documented as in Table 8.13

8.15.2.5 *Implementation of change*

Once approved, the change is implemented. The changes could be small or large (leading to being classified as a project in itself). Every approved change is tracked and recorded for implementation as shown in Table 8.14.

Table 8.12 Change request project impact assessment

Department	Resources	Costs	Plan	Risks
Project name	Man days +/-	SAR Costs +/-	Elapsed time	Risk of implementing change
	Expected impact on total project team (man days impact +/-)	Expected £ Cost impact against budget +/-	Expected delivery impact in work days	Expected impact on risks / new risks created

**Final Recommended Action:**

Requestor to clearly confirm the recommended action for this change as a summary

Table 8.13 Change approval

Action	Assigned to	Signature	Date
*Accepted	Authoriser name	Embed signature or email approval	Provide date of action
*Rejected			
*Postponed			

Table 8.14 Change implementation log

---

<b>Change implemented</b>	<b>Implementer</b>	<b>Date implemented</b>	<b>Documentation updated</b>
---------------------------	--------------------	-------------------------	------------------------------

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Change management was a serious issue, and it was handled with utmost care. One can see how meticulously change was documented and managed!

# 9

## Conclusion

I have demonstrated that by following a formal structured methodology, the governments involved will have better visibility and control over large programs. The implementation revealed that the phases and processes of the new methodology supported the overall management, planning and control over the project activities; promoted effective communication; improved scope and risk management; and ensured quality deliverables.

My role in the UAE National ID program, and involvement from its early stages, provided me with the authority and insights to undertake the development and testing of a methodology called PROMOTE – ‘PROgram and PROject Management Of Technology Endeavours’ – for planning and implementing large-scale programs/projects mainly in the government context. We tested the project methodology initially in the organisation headed by me and subsequently in other neighbouring countries.

The said methodology phases were refined several times (and other phases were added) to address the problems identified from various UAE projects/programs based on the project/program management literature, experiences reported at various GCC committee meetings, and from other large-scale implementations around the world.

The primary objective of this publication is to bring awareness to effectively manage large government programs and projects, especially in the government sector by:

- understanding the factors influencing the successful implementation of large technology programs and projects,
- getting exposure to the new methodology PROMOTE proposed for government programs and projects along with understanding its usage in the national ID program, and

- assessing the current available methodologies for managing such projects/programs.

This book intends to provide guidance for the key stakeholders like directors, senior management teams, program sponsors, program and project managers, engineers, etc., who want to improve the performance of their programs and projects in order to deliver them successfully.

As mentioned in the introduction, a project is a temporary endeavour, embarked upon to create a unique product, service, or result (PMI, 2013a).

Projects usually have a specified duration and objectives. The product or outcome of a project could be short term or long lasting, but each product is usually unique; although they may sometimes contain some repetitive elements, this does not undermine the uniqueness of the project. Projects can generate deliverables that go into other projects or become a finished product.

A sub-project is a smaller portion of the overall project created when a project is subdivided into more manageable components or pieces.

Project management is the application of knowledge, skills, and techniques to project activities to meet project requirements (PMI, 2013a).

## 9.1 Managing a project

This involves:

- identifying requirements;
- addressing the various needs, concerns, and expectations of the stakeholders;
- balancing the competing project constraints;
  - scope,
  - quality,
  - schedule,
  - cost,
  - resources, and
  - risk.

The specific project will influence the constraints on which the project manager who manages the project needs to focus.

Project management is most often perceived as working with common sense, characterised by phrases like 'Just build in a x% cost overrun in the budget', 'Just Do It!', 'We can fix it later', 'It is general management',

'too long a process to follow', and similar misconceptions as mentioned in Chapter 2.

## 9.2 Need for project management

It has been noted in several studies that the major reason attributed to project failures for several decades has been poor project management (Stepanek, 2005).

An often forgotten key ingredient to major project success is investing in the creation of a high-performance team environment. The essential characteristics are:

- **Clarity:** A clear understanding among all those involved about the common purpose, goals, and direction of the project.
- **Culture:** An embedded value system of integrity, trust, support, honesty, and commitment.
- **Alignment:** The interests of all team members should be aligned and focused.
- **People focus:** Many project managers spend a great deal of time on the technical aspects of project management, often overlooking the 'softer', people-oriented, issues that can derail a complex project. Although many books – including the PMBOK Guide – stress the importance of soft skills, the current paradigm of project management is essentially mechanistic. It is also implicitly assumed that human actions, interactions (and consequences thereof) can be objectively observed and then be corrected or controlled.
- **Core project team:** Successful core project teams include no more than four to six individuals who are responsible for making 80% of project decisions; building 'straw models' and soliciting input/buy-in from other stakeholders (on issues such as master project timelines); aligning their sub-team leads to the master project timeline; holding sub-teams' leads accountable for execution of the master project timeline; and escalating and resolving key project issues that may impede progress.

## 9.3 PROMOTE

PROMOTE – PROgram and PROject Management Of Technology Endeavours – has been mainly developed and tested in an attempt to guide and support the implementation of large government technology programs/projects which have notoriously high rates of failure. This

methodology was developed after analysis of the worldwide standards and methodologies for project management like PMBOK® and PRINCE2®, other program management standards, and the existing literature on critical factors for succeeding with large IT projects and programs.

This was blended with my personal experience in project management, especially in the IT projects field, and in particular the UAE ID card and Iris projects plus the feedback from the government officials in various countries that I have visited, and the feedback from the many conferences/seminars that I have attended during the last few years where I also had an opportunity to present papers. As a practitioner, I have attempted to bring out the insights of practical program management and to adopt these experiences into a structured methodology.

It is believed that the PROMOTE methodology advocated here is not just another project management methodology for managing projects, but there are fundamental differences between PROMOTE and other popular approaches (some of these have been discussed in detail in Chapter 4).

The goals that underlie PROMOTE are the needs to understand and improve the program/project management of technology programs/projects to ensure success in the light of stakeholders' expectations of quality, time, and cost (Adelakun and Jennex, 2002; Elpez and Fink, 2006).

The philosophical basis, structure, and design of the methodology have been examined using Avison and Fitzgerald's (1988) framework. This framework is frequently cited and used in the current literature for comparing and developing methodologies (Bielkowicz et al., 2002; O'Donnell et al., 2002).

The PROMOTE methodology was tested in detail in the UAE National ID project. The case study presented in the later chapters of this book provides a detailed reference on how the methodology has been applied in practice.

This methodology, for use by the customer to drive and manage large government IT programs/projects, has been tested with a goal to provide a better focus on the real project success factors rather than the current emphasis that has been on the functionality and technology.

It is important to highlight two key differences in the work undertaken:

1. The vast majority of IT project case studies reported and analysed for deriving this methodology have been either through the systems companies or consultants directly involved or neutral observers,



often academics. This testing is one of the few that focuses on the client perspective, representing purely the customer's interests and not the vendor's or consultants perspective.

2. Because the UAE National ID project was of strategic national interest, it was persisted with and developed based on the original objectives when many more commercial projects would have been modified or adapted. This allowed the project to proceed past the normal barriers and to see the effects and consequences which normally may become hidden, with changes to scope and objectives.

The PROMOTE methodology was also partially tested in other large-scale projects including other national ID initiatives in the region, namely Saudi Arabia, Oman, and Bahrain, who started their projects in 2006. The methodology was communicated and discussed with the GCC officials in the form of workshops primarily in the technical GCC committee meetings.

The PROMOTE model was refined at several stages to address the common problems identified in the UAE National ID project, the literature, the experiences reported at GCC committee meetings, and other large-scale implementations around the world (i.e. from discussions with government officials involved in the ID programs, in conferences, and visits to their countries).

These changes included:

- additional step – business case development,
- additional step – conflict management committee,
- additional items to watch list,
- user involvement and training,
- regular review of contract terms,
- emphasis on management of the client-vendor relationship to build mutual understanding and to arrive at shared objectives, and
- keeping an eye on the international standards development.

This methodology proposed and utilised has acted as an effective approach to the overall management of the programs. This assertion is primarily based on the results obtained which demonstrated the methodology's contribution towards many aspects of project/program management such as improving the co-ordination of resources and activities, planning activities, project/program control and risk management, scope management, effective communication, deliverable review and acceptance process, and the final end product.

Among the most positive stated contributions by the project teams as a result of adopting the methodology were the following:

- dividing the project into manageable stages for more accurate planning;
- improved responsibility, authority, and accountability reducing confusion through responsibility assignment matrix;
- improved co-ordination of resources and activities;
- agreement and articulation of project goals and objectives among all stakeholders;
- staged and controlled phases with appropriate sign-offs;
- showcased strong management control through clear change control and conflict management procedures;
- promoted the involvement of management and stakeholders at different stages of the project; and
- improved project control – regular reviews of progress evaluate and measure performance based on the defined scope, schedule, budget, and quality of the deliverables.

How a methodology was applied in a particular organisation, repeated in other programs/projects, and accepted by clients would be an indicator of success for an information systems methodology according to Avison and Fitzgerald (2001). In this respect, PROMOTE has been successful as it was accepted in the UAE, and the model has been accepted and repeated in three similar government projects.

Although PROMOTE had been designed as a methodology with a set of phases and activities, the project activities may be amended to the unique situation at the time. The level of control and flexibility is determined by the project manager and approved by the steering committee and not limited by the methodology itself.

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