

A Guide to the Project & Program Management Body of Knowledge

Certified Project Manager (CPM)

Essential Tips and Guidebook for Undertaking the
CPM and CPD certification

**THE INTERNATIONAL ASSOCIATION OF PROJECT AND PROGRAM
MANAGEMENT (IAPPM)**

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1 About the IAPPM

1.1 Overview of the Organization

The International Association of Project and Program Management (IAPPM), is an accomplished project and program management organization, with extensive international experience in the project and program management space. IAPPM staff has participated in successful global project and program deployments across the Defense, Logistics, Manufacturing, Publishing, Governmental, Pharmaceutical, Cellular and Telecommunications industry verticals. IAPPM is passionate about project and program management and is able to tap into global markets. We have rich experience in methodologies, project processes such as auditing, certifying projects used in the completion of projects and programs. IAPPM utilizes this experience and management content for the purpose of educating its members and chapters worldwide. IAPPM can be reached at info@iappm.com or www.iappm.org.

IAPPM was founded in 2003 to address the inadequacies and lack of practical project and program advice found in many organizations. It has a dedicated group of volunteers, who lead global volunteer chapters, provide ideas to IAPPM staff, and participate in IAPPM projects, thereby enhancing and advancing the profession of project and program management.

IAPPM have established regional country chapters throughout many key areas of the globe and continue to expand their operations. Currently IAPPM experiences significant growth in our Greater China country chapter and also our Middle East and North Africa (MENA) country chapters.

IAPPM™, its logos and organizational identify including our Certified Project Manager (CPM), Certified Project Director (CPD) and Certified Project Professional (CPP) certifications are lawfully registered products and hold official trademarks. Any use or infringement thereof is strictly forbidden.

1.2 Acknowledgement

The International Association of Program and Project Management (IAPPM), would like to express its thanks to the many volunteers who graciously gave of their time, talent, and energies to make this edition of the CPPMBoK possible. This body of knowledge is the result of many new trends and additions in the areas of project and program management, offices, stakeholders and much more. This was largely a desire to both improve and supplement the PM profession and share the wisdom gained from recent events, conferences and special interest groups. In particular, IAPPM would like to thank the following contributing authors who gave up their valuable time and efforts to add to this guide:

- Lindsay McKenna Consulting
- Max Wideman
- Neville Turbit
- Lonnie Pacelli
- James Lewis
- Tsan Fai “Bobby” Ho
- Abdul Qadar Al-Nazli
- Daniel C M Tan
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Thanks to all of the people who read the online draft sections version of the chapters before it was released as a draft and took the time to e-mail their suggestions. Also, thanks to our contributing authors again for not allowing us to sway too much off path (well, not much at least). Thanks for giving IAPPM the leeway needed to find this rather off-the-wall format for the book.

1.3 List of Figures

Here is a listing of figures used in the CPPMBoK:

1. Certification Competency Areas
2. Differentiating Projects, Programs, and Portfolios
3. Example WBS
4. Example network diagram
5. The IAPPM Framework

1.4 Industry Focus of the CPPMBoK

The CPPMBOK does not just cater to the information technology environment. Instead IAPPM wanted to clearly stipulate that the document addresses all industries and groups managing projects and programs. The following are some industry examples we cater to:

- Engineering
- Construction
- Sales & Marketing
- Telecommunication & Cellular
- Government
- Military
- Education
- Financial Services
- Legal Services
- Hospitality Services
- Pharmaceutical & Medical services

2 Executive Summary to CPPMBOK

2.1 Purpose of the CPPMBOK

Over the past 15 years, the Project and Program Management profession has been undergoing numerous changes – greater focus has been placed on Project management and Portfolio Management Offices (PMO's), Business Analysis, virtual project management, metrics, governance, Process Excellence and newer methodologies to name but a few elements of our profession. Despite the high adoption rate of professional guideline documents such as the Project Management Institute PMBOK (which is descriptive) and UK's Office for Government Commerce's PRINCE2 (which is prescriptive), there is still a need to supplement these guides because of continuous project and program failures and improvements being made to the profession.

The traditional approaches and organizational viewpoints on project management do not always present a complete and realistic set of guidelines for project success. A large amount of Bodies of Knowledge either represent the best views from the IT/IS or the major investment projects /Engineering perspectives, which are at times difficult to follow. For this reason, the International Association of Project and Program Management (IAPPM) has consulted with and debated on how to best develop a simple supplemental body of knowledge with the aim to bridge some of the prescriptive and descriptive literature out there..

While perhaps other Bodies of Knowledge focus more on the processes involved in project management activities, this document clearly concentrates on the **practical activities, steps, factors, and knowledge** that surround those processes. Further, the IAPPM is focused not only to project managers, but to all others who are intimately involved with projects and programs, such as executives, stakeholders and program managers. The goal of the IAPPM is to present an up-to-date compilation of practical, helpful, and useful information to aid program managers, project managers, stakeholders, and executive managers succeed in a complex world. This is an evolving body of knowledge, written and verified by successful project managers with many years of experience and we fully suspect that further subsequent draft editions will be needed.

The IAPPM has created a certification program to support those professionals who have mastered the Certified Project and Program Management Body of Knowledge (CPPMBoK). The Certified Project Manager (CPM) Examination of the International Association of Program and Project Managers (IAPPM) contains the following information, in addition to other important topics. The sections set out in the guide are all coupled in that they all focus on the same broad subject: project and program management audits. This guideline originated from seminars and presentations through our interactions trying to figure out when to audit a troubled project and what to do based on the outcomes of these audits. This guideline is intended to be of significant interest to both new and practicing project and program managers, executives, academics or students who are primarily interested in identifying and correcting potential problems in everyday project deployments. The intention of this guide was not to delve into the great depths of audits, but rather learn from these basics and trends happening at many great companies – and allow us to adjust our thinking and mannerisms – to display uniqueness, creative wonder and the ability to add the project value to the organization.

As information become more and more ubiquitous, people from anywhere can obtain proprietary and non-proprietary information more easily, the sustainability of the unique market niche of a company is getting shorter over time. This constitutes a super-competitive market place, and organizations must respond by developing new ways to cope with the shorter product/ services life cycle and hence market window. This constitute to more strategic alliance, new product development (NPD), as well as business process re-engineering (BPR) to achieve the state of excellence across all the industry verticals. This Body of Knowledge is therefore an interesting, illustrative, provocative, compelling and practical piece of document outlining the necessity required for nowadays projects management knowhow and best practices in order to deliver the strategic requirement lay-down by senior management.

It is our intention to strategically analyze the situation so that a viable path to success is selected. If we are to maximize the benefits from the great big world of team dynamics, creative thought and individualism, we must offer a compelling logic; a logic of understanding as to how people can offer value. Over the past decade, the Project and Program Management profession has undergone many changes. Some of these new trends, which have been the drivers of change in both the project and program management, are:

- New Technology Tools,
- Virtual Teams,
- PMO (Project and Portfolio Management Offices),
- Profession Project Management Organizations,
- Communication skills,
- Project leadership
- Increasing importance of Politics in Projects,
- Project Management as a maturing profession,
- Six Sigma and other quality approaches,
- Team building and relationships
- Requirements planning and development,
- Planning,
- Alignment of business goals with Project Goals,

With this being said, we aim to keep our content simple and easy to understand, ready to be used from day one. Prospective project students and even those already familiar with many concepts would hopefully find this guide refreshing at least and something one finds useful enough to return to this Body of Knowledge. The IAPPM continuously seeks comments, suggestions, and ideas from its members and contributors. Please send any comments to editor@iappm.org.

As industries continually design and deploy projects, the ability to manage the project throughout its entire life cycle takes on ever-increasing importance. Ever more important is the role of a CPM, CPP or CPD and his/her approach to managing projects and programs from a practical perspective.

2.2 The CPM & Re-Certification

The CPM is the mark of excellence for a professional certification program is the value and recognition it bestows on the individual who achieves it. With this accreditation, IAPPM anticipates that significant opportunities for CPM will continue to open in the US and around the world.

The vision the IAPPM have established for issuing the CPM certification is to influence the right business decisions by providing value added project and program management knowledge and content. The primary mission will be for IAPPM in certain regions to re-certify its CPMs after a period of three (3) years to ensure organizations and management have an effective skillsets and practical approach to managing and controlling its projects, which safeguard those projects and programs information assets, thereby meeting quality, financial and delivery integrity.

In addition, once certified, it is the intent that CPM, CPP and CPD members will be able to at a minimum perform an additional 20 hours of credit service per year with IAPPM to maintain its certification status. IAPPM will set forth this 20 hour criteria on its website, which will ensure and confirm a level of commitment to the industry.

2.3 Our Audience for CPM, CPD and CPP Certification

The following members are eligible for CPM certification

- 001 – Students
- 002 – Academics
- 003 – Analysts
- 004 – Business Professionals
- 005 – Project Managers
- 006 – Program Managers
- 007 – Compliance Managers
- 008 – Audit Managers
- 009 – Quality Assurance Managers
- 010 – Leadership teams
- 011 – PMO Leaders
- 012 – Business Owners
- 013 – Consultants
- 014 – CEO, CIO, CFO's

2.4 Certification Sources

The following recommended resources are highlighted for further review.

- CoBIT 4.0
- PRINCE2

- IPMA Handbook
- PMBOK
- Code of Federal regulations - <http://www.access.gpo.gov/nara/cfr/cfr-table-search.html>
- [A Guidebook of Project & Program Management for Enterprise Innovation "P2M"](#)

2.5 Benefit of CPM, CPD and CPP

The following benefits are evident when attaining project or program certification:

- Able to plan resources in accordance to customers' needs and requirements
- Better utilization of time and buffers for the project
- More accurately create cost estimates and budget for the project for capital expenses justification
- Detect and resolve problems and issues faster
- Make proper recommendation to management at the right time
- Provides tools for an Operating Company to assess their own project controls environment
- Being globally recognized as a Project and Program Management professional
- By participating in the events of the local chapters, certified members can enjoy the all sort of discount activities and events organized in the corresponding region, such as:
 - Seminars
 - Workshops
 - Project activities
 - Knowledge sharing

2.6 The need for continuous learning

Certification is not designed to be yet just another standard for project management; it is intended to be a lifelong standard for project management, period. Therein lies part of its limitations – practicing PM's need to be aware that there are many types of certifications available and many companies today either accept one or multiple. Our IAPM certification (CPM) supplements those or build upon those that are out in industry today. There are some things that having a PMP, Project A+, PRINCE2, CAPM, demonstrates, and there are some things it does not.

All the certificates mentioned above have something in common, it does demonstrate that you passed the exam, and therefore have some theoretical knowledge about project management. However, there are something missing in which the certificates holders cannot claimed to having, such as:

1. passion on project deliverables
2. application of the skills
3. interpersonal skills

4. domain knowledge of the areas in which the project related to
5. communications (meeting, presentation, conference calls, etc.)
6. indication about how capable a project manager you actually will be in real life.
7. Culture sensitivity
8. ability to deal with corporate politics

It is much easier to convince yourself that someone will not be a good PM than to convince yourself that they will be a good PM. Anything certification/accreditation/education that can give candidates an advantage is worthwhile. Project Managers need to understand that continuous learning plays a key role in the life of a project practitioner.

2.7 CPM Competency Areas

Recall that IAPPM’s focus is on the practical aspect of project and program management. The CPPMBOK thus focuses on complementing and extending the body of knowledge for practicing project management professionals. In the table below, the IAPPM have identified some competency areas that prospective CPM’s should focus on, *in addition* to the foundation knowledge of managing a project end-to-end (project lifecycle management).

Project & Program Management competencies linked to the IAPPM Guide to the Certified Project and Program Management Body of Knowledge (CPPMBoK).	Project Manager	Program Manager	Portfolio Manager
Setting up a High Performance PMO	•	•	•
Utilizing effective Methodologies	•	•	•
Crafting High quality Project requirements	•	•	•
Requirements Evaluation	•	•	•
Quality Assurance	•	•	•
Regulatory Concerns	•	•	•
Project Auditing - Sarbanes-Oxley, etc	•	•	•
Managing Effective Meetings	•	•	•
Metrics Reporting	•	•	•
Cultural Differences on Projects and Programs	•	•	•
Managing Virtual teams	•	•	•
Multi-National Project and Program Teams		•	•
Governance & Maturity of the PM Organization		•	•
Killing a Project or Program		•	•
Post-Implementation Review (e.g. ROI)		•	•
Standardization of Key Performance Indicators		•	•
Project Procurement Audit		•	•
Portfolio Tracking and Prioritization			•
Benefit and Cost Analysis			•
Resource pool management			•
Business Change management			•
Go/ no-go decision			•
Sign-offs the investments			•

Figure 1. CPM Competency Areas

2.8 Preparing for the CPM certification

In preparing for CPM certification, prospective candidates must understand that our approach is practically-biased. Many of our questions will focus on evaluating practical experience and knowledge. Certainly, a key understanding of the CPM competency areas (refer to section 2.7) is essential, however, you might also encounter scenario-based questions that will assess your ability as a practicing PM.

You might find it useful to save everything from your previous work experience. This includes emails, consultant plans, Statement of Work from your vendors, etc .. You never know when you may need to refer to them. Having everything at your finger tips makes it easy to answer questions when they arise.

3 Managing Projects, Programs and Portfolios

"It is management's responsibility to safeguard all the assets of the enterprise. To discharge this responsibility, as well as to achieve its expectations, management must establish an adequate system of internal control."

3.1 Understanding projects, programs and portfolios

Although the terms project, program and portfolio are sometimes used interchangeably, it is important to recognize that these entities are different, and their proper definition should be understood by project and program managers. The key characteristics differentiating each entity are shown in the figure 1 below.

	Project	Program	Portfolio
Basic building block	Tasks	Dependencies	Projects
Organization Type	Typically functional or departmental	Multi-departmental or organization wide	Projectized, shared service environment
Metrics	Schedule Variance Cost Variance Schedule Performance Index Cost Performance Index Cost Variance Percentage Schedule Variance Percentage Predefined success criteria Project/ product specific metric % completion Estimated at completion Variance at completion # of Critical paths	Metrics used in project To Complete Performance Index ROI of the program # of Critical paths between projects # of resources shared amongst the projects on-time delivery	ROI (overall) Opportunity gain Opportunity loss Total Project Value Day
Scope	tactical	strategic	strategic
Duration	short to medium termed	medium to long termed	medium to long termed
Examples	<ul style="list-style-type: none"> A marketing campaign for a new product A construction of a new building An implementation of a new departmental-level information system. 	<ul style="list-style-type: none"> The implementation of a customer relationship management (CRM) system A corporate-wide six-sigma initiative An image-building or image-revamp program for a corporation 	Any examples consists of a set of unrelated projects/ programs

Figure 2: Differentiating Projects, Programs and Portfolios

3.2 Understanding the role of the PM

The project/program/portfolio manager (PM) is the key individual responsible for ensuring the success of a project, program and/or portfolio. From the various definitions differentiating projects, programs and portfolios, it should be obvious that the role of the PM (i.e. project/program/portfolio) differs slightly in relation to the specific entity they are managing.

Roles/ Responsibilities	Project Manager	Program Manager	Portfolio (PMO) Manager
Stakeholder analysis	✓		
Issue management	✓		
Change control	✓		
Time management	✓		
Cost management	✓		
Quality management	✓		
Relationship management	✓		
Project archiving (i.e. lesson learned)	✓	✓	
Feasibility Study	✓	✓	
Scope Verification	✓	✓	
Configuration management		✓	
Managing dependencies within project		✓	
Managing inter-projects dependencies		✓	✓
Managing project managers		✓	✓
Formulate business case/ justification		✓	✓
Post implementation Review		✓	✓
Business change agent		✓	✓
Resource planning	✓	✓	✓
Managing conflicts	✓	✓	✓
Resource allocation			✓
Benefit realization			✓
Project Execution/ process Compliance			✓
Risk Audit			✓
Benckmarking with PM best practices			✓

Figure 3: Roles and responsibilities of Project Manager, Program Manager and Portfolio Manavger

Managing projects, programs and portfolios successfully

While the core fundamentals of managing projects, programs and portfolios remain essentially the same, the PM that is closely aware of the type and characteristics of the particular entity he/she is managing can then take the necessary steps to ensure mission success. For example, project managers, should ensure that their projects are well-conceptualized and defined, and establish pre-agreed quantitative measures to review the progress of their projects (e.g. SPI, CPI). On the other hand, it will be difficult for portfolio managers to insist on utilizing solely quantitative measures for their portfolios, and indeed, such a myopic view may well lead to disaster where it concerns portfolio management.

Both portfolio and program managers have to take a broader, strategic view where it concerns the implementation of their work to ensure that the initiative clearly delivers corporate value instead of merely satisfying the documentation trail (opportunity losses, benefit and cost analysis, economic value added (EVA), stated goals achievability). Indeed, as previously alluded, there have been many instances of failed programs that have otherwise all the hallmarks of a fine project delivered, but sadly, have been unable to deliver actual value to the organization. PMs should remain actively vigilant if they sense their programs/portfolios are heading in this direction and call for a program/portfolio review meeting with senior management while the matter is still addressable.

3.3 Understanding the project lifecycle

NOTE: From this point forth, we will use the term **project** to denote project, program or portfolio. The reason for doing this is to facilitate ease of writing and avoid clumsy text - we believe we have already made clear that we view these entities to be rather distinct.

A project typically consists of five stages: **discovery, planning, implementation, controlling** and **closure**. As these five stages are well defined in most project management texts, we will only describe these briefly here. In this paper, PMs should take note of the key inputs, corresponding outputs and processes expected from each stage. As this guide is meant to be complementary and concise, the PM is also advised to review project management textbooks for a more detailed coverage.

Discovery

The discovery stage is concerned with assessing the feasibility of a project. At this stage, the key inputs, tools and techniques, and outputs are outline but not limited to below:

Input	Tools and Techniques	Output
Vision and objectives for the project Expected project deliverables	Templates	Project charter or project initiation document Executive authorization of project
Project selection criteria	Project Selection techniques: - Scoring model - Decision Tree/ Expected Monetary Values (EMV) - Net Present Value (NPV) - Internal Rate of Return (IRR) - Payback period - Economic Value Added (EVA) - Analytic Hierarchy Process (AHP) - Nominal Group Techniques	Selected Project Identified Project Manager

The project charter or project initiation document is a key document that details the project objectives, deliverables, exclusions, assumptions and constraints. Executive authorization of the project is deemed when the project charter or project initiation document has been **signed off**.

Planning

The planning stage is concerned with detailed planning processes that are vital to ensuring project success. During the planning stage, the key processes include:

Processes	Input	Tools and Techniques	Output
Scope definition	Project Charter Project Idea	Stakeholder analysis Who/What/When/Why/How analysis Quality Function Deployment (QFD)	Scope document (Deliverables) WBS
Resource planning	Available resources Resource calendar Resource requirement	Skill-based tasks matching Experience-based tasks matching Reward-based tasks matching Outsourcing	Roles and responsibility assignment Project Organization Chart
Activity planning	WBS Dependencies between activities	PM software	Project Gantt chart or Project network diagram
Risk Management planning	WBS Stakeholder risk tolerance	Documentation review Cause-and-Effect diagram Delphi technique Interview Questionnaire	Risk register (or known as Risk Log) Contingency Plan
Quality planning	Organizational policy towards quality Contract	Government imposed policy Industry standards Organization specific KPIs Benchmarking	Quality Metric (industry specific) Quality baseline
Communication planning	List of stakeholders Roles and responsibilities	Communication requirement analysis Kick-off meeting to identify necessary information required for distribution (what information, to whom, and how frequent)	Project newsletter, status bar chart, training document, AS-IS/ To-Be document, etc.

The scope document details the project’s scope, parameters and constraints. The scope document is essential since the success or failure of a project will be measured in comparison to the scope. The scope change control document details the processes and the authorization involved in changing the scope.

The WBS breaks down the overall project into individual tasks, called work parcels. In effect, the WBS organizes the work and process flow of the project in a hierarchical and chronological manner. The WBS is usually illustrated graphically, but it can also be demonstrated in a tabular form. An example of a very simple WBS is shown in figure 1 below.

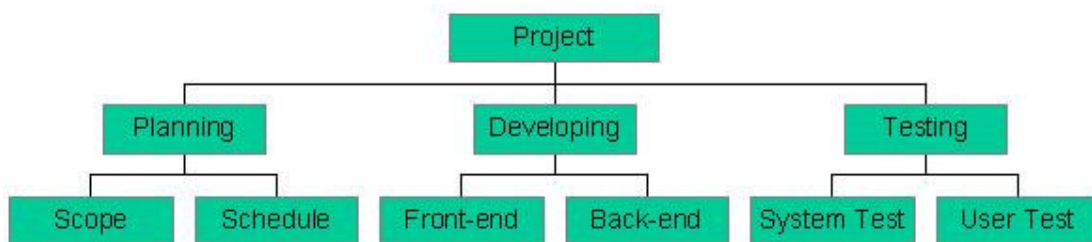


Figure 3: Example WBS

The resource requirements document details resource requirements in the aspects of time, people and finances. Within this category of documents include activity planning documents (such as PERT network diagrams), cost-estimation documents, human resource scheduling documents and procurement plans. An example of a network diagram is shown in figure 2 below.

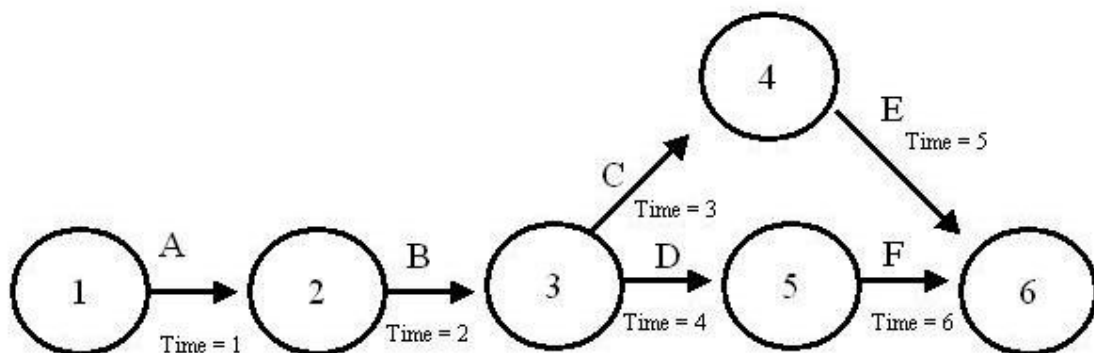


Figure 4: Example Network Diagram

REMINDER: To learn more about WBS and network diagrams, PMs are advised to consult the many resources available both on the internet and in many project management textbooks. It is not within the scope of this CPPMBoK to explain these concepts in detail.

The risk and contingency management document details the known risks and probability estimates of these risks. It also provides reactive measures in event of such contingencies.

The quality assurance document details the quality assurance and control methodology that will be used by the project.

The communication and training document details the communication schedule and process and the training schedule for the project.

Summarily, the planning phase seeks to establish scope, project deliverables, budget, resources required, key activities and the project schedule. In addition, it is prudent to also consider potential risks and propose contingency plans to the executive management.

Deployment

The deployment stage involves executing the plans developed in the planning stage. Hence, the inputs to the deployment stage are the outputs of the previous planning stage. From this simple logic, it is easy to appreciate how poor planning often leads to poor execution.

Typical deployment activities include:

Processes	Input	Tools and Techniques	Output
Assembling the project team	Resource available Resource Calendar	External recruitment Internal transfers and preassignment Outsourcing	Acquired Project Team
Guiding the project team in action	WBS Resource Requirements	Ground rules (do's and don'ts) Managing the individual deliverables Conflict resolution Coaching and mentorship	Team performance enhancement and improvement
Ensuring the availability of project resources	Resources available	Contract Resource on-loan plan and releasing criteria	Resource availability chart
Communicating project information	Stakeholders and their roles and responsibilities Project Organization Chart Training manual	Communication technology: email, mobile phone, Intranet, project bulletin, etc.	Acknowledgement on the Status/ Progress update document
Developing the project	Scope document WBS Resource availability	Issue Log Milestone chart Bar chart (progress)	Project achievements, risks, issues and problems
Establishing quality assurance measures	Quality metric Quality baseline	Process analysis Training Scorecard	Actual performance on quality baseline

Controlling

The controlling stage of the project is concerned with ensuring adequate project quality and control. The key processes in this stage include:

Input	Tools and Techniques	Output
Change requests	Change Control Configuration Management	Key Status change reports
Quality Baseline and agreed upon standards which applied to the project Actual measured quality results	Variance analysis	Quality assurance reports
Scope Baseline and actual deliverables Schedule Baseline, and actual schedule performance Cost Baseline and actual money spent	Earned Value Management Tracking Gantt Chart Comparison Bar Chart	Earned value analysis and overall project manager's report

At the controlling phase, the PM has to make sure things are moving on track, on budget and on time. Should incidents occur, it is the PM's role to facilitate solutions so that project is not derailed. This phase is also useful to review changes to the project and update scope (and cost) documents as necessary.

Closure

The closure stage involves the following processes:

- Acquiring the acceptance of project deliverables
- Obtaining key sign-offs for the project
- Documenting lessons learned during the project
- Archiving project records
- Administrative closure (e.g. payment to suppliers, settlement of bills)
- Formalizing the closing of the project
- Project wrap-up and final communication (e.g. debriefing, official launching)
- Releasing project resources

In this final stage, all the necessary deliverables of the project has been met and the project is deemed completed. A key requirement for this phase is to obtain the necessary sign-offs to officially close the project so that any outstanding obligations may be settled, and the project team may be debriefed and disbanded.

In the next section, we move on to discuss the IAPPM project/program/portfolio framework, which brings together the key elements that influence and shape projects, programs and portfolios. The PM is advised to understand these elements in detail as their significance and ability to affect project, program and portfolio success cannot be over-emphasized!

4 The IAPPM Framework

4.1 Overview

At IAPPM we acknowledge and recognize the availability of excellent project management guides such as PMI's BoK and PRINCE2 guides, but feel they are theoretically-biased and less practically-oriented. As such, our BoK is intended to play a complementary role, while covering all the practical essentials of good project and program management. This balanced focus makes our CPPMBoK unique in since we bridge the gap between existing theory and current business practice. We are ever mindful that no single BoK will ever be fully complete or comprehensive in itself and will endeavour to update our BoK in line with evolving directions.

The IAPPM embraces a framework that recognizes that projects, programs and portfolios are organized and aligned in relation to internal forces and external forces that guide, shape and influence their success. A clear understanding of these forces is essential for all practicing PMs. This framework is depicted pictorially below.

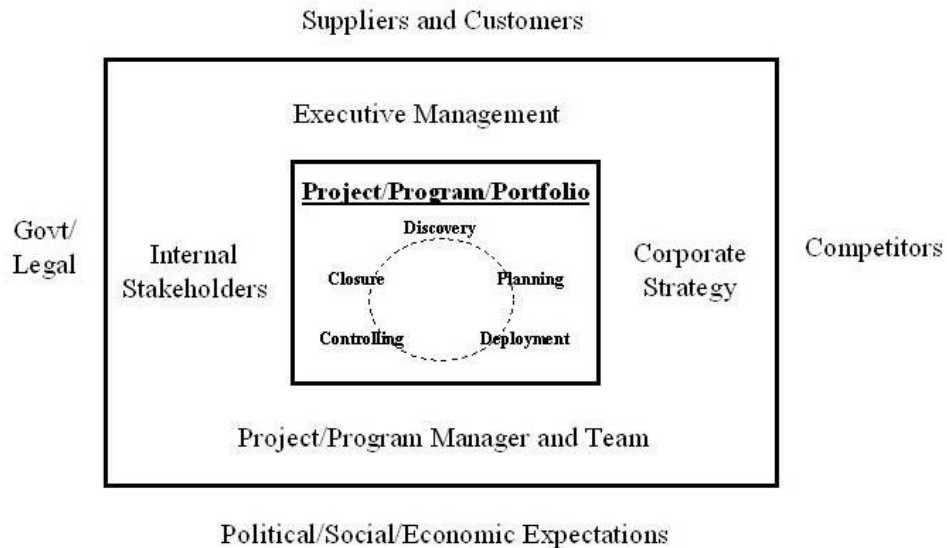


Figure 5: The IAPPM Framework

REMINDER: The term project is used to denote project, program or portfolio. The reason for doing this is to facilitate ease of writing and avoid clumsy text - we believe we have already made clear that we view these entities to be rather distinct. Nevertheless, the forces that influence them are largely similar.

4.2 External forces

The external forces that can shape and influence the design, implementation and success of the project include suppliers and customers, competitors, political, social and economic expectations and obligations and government and legal requirements.

Suppliers influence the project by determining some of the resources available to the project. When relevant, customers determine the marketability and business value of the project. On occasion, competitors can influence the feasibility of the project and due consideration must be given as to the potential response from the competitors.

Some projects have legal, political or socio-economic implications and ramifications. The PM must be careful to understand these (if any) and include them in the project charter as well as risk management documents of the project. On other occasions, a project or a program may be measured and/or justified by its political and/or social value instead of in pure economic terms.

PM's need to ensure that external forces are appropriately managed by:

- Identifying relevant external forces and understand their influence on the project
- Considering if relevant parties need to be involved in the project or program
- Ensuring all relevant parties are committed and will add value when needed
- Ensuring involved parties receive frequent PM updates and status reports

Note: IAPPM uses the term PM interchangeably throughout this guide to either imply project, program or portfolio manager. Please keep this into context when coming across the term PM.

4.3 Internal Forces

The internal forces that can shape and influence the design, implementation and success of the project include the executive management team, other internal stakeholders such as employees, families of employees, board members and shareholders, the prevailing corporate strategy and the project/program team.

The executive management team ranks high in terms of influence on a project. Their support is integral to the project's success. The PM will do well to seek their guidance and obtain their support throughout the project. Constant and clear communication to other internal stakeholders will go a long way in bolstering a project's chances for success.

The prevailing corporate strategy usually guides the available resources and options available to a project. The wise PM will align the project with the corporate strategy to maximize the chances for success.

Last but not least, the project team itself (for obvious reasons) plays a key role in the success or failure of a project. A good project team is one that is balanced in skill and personality, adequately staffed, has sufficient time and resources, and is led by an able and experienced PM.

Hence, PM's need to ensure internal forces are appropriately managed by:

- Understanding the key needs and objectives of the project/program in relation to the prevailing corporate strategy
- Securing the support of top management and understand their expectations
- Considering all relevant parties that will be affected by the project or program
- Ensuring that relevant parties receive adequate communication and are committed to the project
- Ensuring involved parties receive frequent PM updates and status reports

Ultimately, the focus is on delivering a good project or program. By understanding the key drivers of the project or program, the PM can focus on delivering value to key forces that can influence or impact the project/program. The PM can also better balance the competing objectives of scope, time, and cost versus the *strategic* element, which considers the long-term value of the product, service, or result to the organization. All those involved with project and program management should understand the strategic value and contribution of projects and programs to their organizations. This understanding is invaluable as a guiding star to help them make correct decisions even under difficult or unclear conditions.

4.4 Other Frameworks

Professional Project Manager organizations are growing in importance today due to the increasing need for skilled project managers. Professional organizations play the important role of increase the skills and knowledge of their members thus increasing the effectiveness of the profession as a whole.

As organizations have a varying levels of project management maturity, some organizations might find it useful to also review their present maturity levels. They can do this by adopting one of the below commonly used models of organizational maturity.

- The Organizational Project Maturity Model from the Project Management Institute
- The Project Management Maturity Model from the United Kingdom
- The Project and Program Management model from Japan

In the next chapter, we discuss the establishment of the management office to manage the corporation's projects, programs and portfolios.

5 Establishing the PMO

5.1 The general role of the PMO

Due to high competitive nature of everyone’s business nowadays, it is very rare to find an organization have one single project at any point in time, and it is often found that due to limited amount of staff an organization have had, each and every employees may take part in multiple projects. Therefore, we will have the situation as described as shown in Figure 5.1 for an organization. Hence, the role of the project/program/portfolio management office (PMO) will be to support the strategy and strategic direction of the company. Having the PMO as a separate office from other business units is a good thing as it helps the office maintain neutrality and harnesses business resources in a more cohesive manner. As organizations grow, their PMOs tend to mature, beginning to take on greater responsibilities. To leverage the full potential of PMO capabilities, organizations typically allow the PMO to take on full ownership of project manager training, project prioritization, cross-business-unit project coordination, as well as the development of project management standards. Emerging PMO structures take on the following roles and benefits:

- Improved collaboration on cross-business unit projects
- Increased visibility of project performance across the company
- Enhanced career pathing for project managers
- Streamlined project budgeting and approval process
- Standardized project metrics and methodology

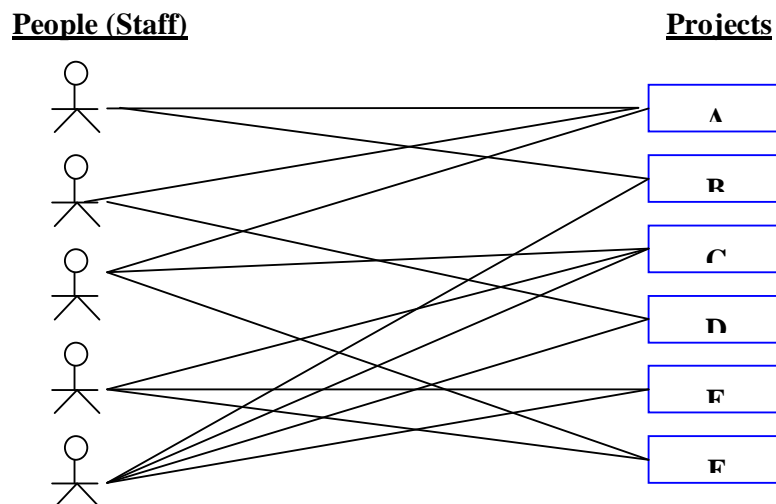


Figure 5.1: Resource assignment situation in multiple projects environment for an

Situations of every company in these hyper competitive market is outlined as shown in Figure 5.1, where resources are tight, and need to be shared across different projects. It is therefore important for companies to organize their resources properly and efficiently to avoid double work and have the capability for management to keep track of the status of individual projects, facilitate mutual growth, learning and knowledge sharing amongst projects at a centralized place and align project outcomes with the business objective by means of – Project Management Office (PMO). The real value of a PMO, or at least one that is fully integrated into the enterprise’s business process, is in making sure that every project undertaken advances the company’s strategy in a measurable way, and does so better than other projects competing for resources as described in Figure 5.2ⁱ

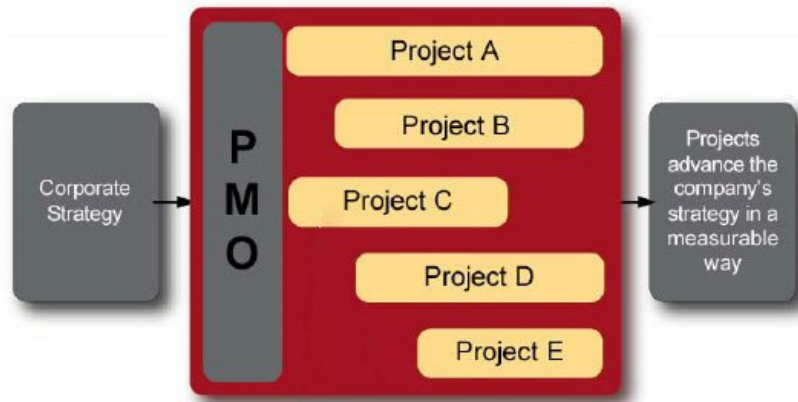


Figure 5.2: The function of PMO in a corporate settingⁱ

5.2 TYPES OF PMO

PMO is where coordinated management of a portfolio of projects takes place. Similar to projects, the realization of the PMO varies across different organization, and in general, we can classified various types of PMO into the following

1. Corporate Project Management Office (CPMO)
 - i. Corporate business function
 - ii. Enterprise-wide distribution of PM practices
2. Project Management Center of Excellence (PMCoE)
 - i. Alternative title of CPMO, which focused on
 - ii. Strategic forecast planning
 - iii. Establishment of corporate standard, e.g. templates, PM methods

3. Project Management Office (PMO)
 - i. Tactical master planning
 - ii. Overseeing the effective application of the project management standards
4. Project Support Office (PSO) [operational]
 - i. Operational master planning
 - ii. Direct support of all projects within a functional department
5. Project Office [operational] – Direct support of a single, mission-critical projects, which is typically large and complex, and whose successes affects multiple areas of the company

The roles, responsibility, accountability as well as requisite authority are illustrated in Figure 5.3, where respective function of Corporate Project Management Office (CPMO) or Project Management Centre of Excellence (PMCoE); Project Management Office (PMO); Project Support Office (PSO) as well as Project Office (PO) are outlined. As a matter of fact, the type of the PMO is mainly driven by the organizational culture and its business nature. While there are a variety of different types of the organization, the core function of PMO is to provide a shared services to manage and standardization of changes; knowledge; resource; communication; and contract related matters.

Types	Organization Type	Responsibility	Accountability	Requisite Authority
CPMO or PMCoE	Projectized	Provides corporate visions, mission, goals, and objectives – strategic master planning	Reports directly to the CEO/ President	Reviews and approve annual corporate master project portfolio and master project capital budget plan
PMO	Strong Matrix	Provides tactical master planning and resource management	Division/ BU/ region – reports directly to PMCoE and dotted line to VP/ director	Establishes annual master project portfolio and project capital plan and authorizes adjustments. Overseas enterprise-wide projects
PSO	Matrix	Provides operational master planning and project portfolio management	Functional department – reports directly to PMO and dotted line to VP/ manager	Develop annual master project portfolio operational plan and capital authorization request plan
PO	Weak Matrix	Provides project implementation – initiation, planning, execution, control and closing	Large strategic project – reports to project manager who reports directly to the PSO	Plans, manages, controls and reports project progress

Figure 5.3: Types of PMO and their function

5.3 BENEFITS OF HAVING A PMO

As mentioned in the previous section, the essence of PMO is to provide cost-effective standardization, administration and management expertise to a portfolio of projects which call upon a common group of resources centrally. The concept of PMO is similar to programme management according to UK government's Central Computer and Telecommunications Agency (CCTA)ⁱⁱ.

Changes Management

Once the scope is confirmed and freeze; any further changes should go through a team of stakeholder to assess the risks and impact so as to approve or reject the proposed changes. For the case of as described in Figure 3.1, it would be much more cost effective should the change control be processed in the central rather than have it done in silos; particularly should the resources allocated for the projects are shared. According to the CCTA the procedures for change control requires consideration ofⁱⁱ:

1. Maintaining a central log of potential changes
2. Establishing a mechanism for prioritizing the potential changes
3. Carry out formal impact assessments of the potential changes against the business case, project portfolio, blueprint, etc.
4. Assessing the impact of the change on the risks to the program
5. Re-evaluating the priority status
6. Decision processes for which changes to accommodate
7. Updating the log with the decision and maintaining an audit trail
8. Implementing the approved changes appropriately and communicating the outcome to those affected

In order to avoid multiple change control board being (CCB) formed, PMO is therefore the best candidate to act as the central body to analyze, approve and reject changes. A common technique to resolve potential conflicts in the decision making process is the called Delphi technique, which can effectively achieve an objective consensus amongst different opinion. It does so without physically assembling the contributors. Instead, information is exchanged via mail, FAX, or email. This technique is designed to take advantage of participants' creativity as well as the facilitating effects of group involvement and interaction. It is structured to capitalize on the merits of group problem-solving and minimize the liabilities of group problem-solvingⁱⁱⁱ.

Knowledge Management

Knowledge Management is the explicit and systematic management of vital knowledge - and its associated processes of creation, organization, diffusion, use and exploitation^{iv}. Knowledge Management caters to the critical issues of organizational adaptation, survival, and competence in face of increasingly discontinuous environmental change.... Essentially, it embodies organizational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creative and innovative capacity of human beings^v.

There should be a process and methodology in place to identify, capture, disseminate, and retain (ICDR) knowledge amongst the stakeholders of the project portfolio. The description of the ICDR process is as follows:

1. Identify – Due to the fact that project team members are dealing with uncertainties on a daily basis, it is relatively common for them fix the unknown problems using innovative approaches. Nevertheless, the newly introduced resolution to the problems can only be valuable to the entire organization should the methodology were recognized as “new” and properly defined as the remedy to the common set of problems.
2. Capture – Once resolutions are introduced and passed various testing conditions and become proven, proper documentation and recognition of the resolution should be done for future reference.
3. Transfer – The knowledge base should be easily disseminate to others by means of formal/informal; written/ verbal means of communication, e.g. meeting, seminars, presentations, technical manuals
4. Retain – Information overload will happen should more and more knowledge be captured without proper management, e.g. archiving, category management, indexing to make the knowledge easily searchable, and sharable in an efficient manner. Hence, a knowledge center, such as library, database of knowledge with proper custodian of the knowledge base is required.

PMO is therefore in the best position to host the knowledge centrally and responsible to develop, categorize and maintain the centralized repository for sharing, and retrieving the knowledge captured by individual projects. Besides the project archive (including the issue/ risk log and each issue/risk and the respective resolution) which may act as the knowledge repository of each project, the post-project review also play an important role in knowledge management. A typical post-project review template contains: lesson learned; areas for improvement after interviewing the project staff as well as the customers^{vi}.

Resource Management

Similar to human resource in a normal corporate setting as outlined in Figure 3.1, other resources such as machines, computers, corporate budget, vendor relationships, project management tools and template should be shared among various projects. However, without proper guidelines and management, usage of the common resource can be abused and become out of control. The role of PMO is therefore an internal service provider to control, support, and monitor the effectiveness and efficiency of the usage of the identified resource which shared across the projects. PMO should therefore required to create and update the resource pool description of the project staff, which specify the resource name, strength, experience, number of projects on hand, current loading and the expected release date of the resource.

Communication Management

PMO should also create the standard of communication within the projects and between projects to facilitate mutual sharing, and avoid potential situation of overlapping and/ or replicating work of among various project team. In addition, PMO should be capable of collecting data on individual project status, and summarizing the collected information in a variety of forms to include departmental, divisional, and enterprise rollups. It should be noticed that PMO should not be involved in each and every project meeting, while proper collection of information can be done by regular meeting with project managers, and documentary reviews, while Project Managers should be the central point of contract and interface with the PMO.

Contract Administration

According to the 3rd edition of the PMBOK Guide^{vii}, tools and techniques of contract administration involve: contract change control system; buyer-conducted performance review; inspections and audits; performance reporting; payment system; claims administration as well as records management systems. PMO is an excellent candidate to act as support office to provided all the tools aforementioned and represent the project stakeholders to liaise between suppliers and the in-house legal department so as to offload the project staff's involvement in all the necessary details, while summarize the pros and cons of the contract details to the project stakeholders and make sure the contract risk expose to the project is stakeholders be minimized.

5.4 PORTFOLIO TRACKING

Project portfolio is simply a list of projects that are deemed to have some sort of commonality and grouped together by the PMO. The criteria of group different projects into one single project portfolio is quite subjective, but the commonly-used method is to group the projects which may have conflict in terms of using common group of resources; another way to come up with a project portfolio is by mean of corporate functions, e.g. marketing, finance, HR, etc.

A typical way to keep track of the project portfolio is by means of a sharable template, which provides visibility and ready access to information regarding projects in progress, and its should contain the following information^{viii}, and a sample is outlined in Figure 3.3:

- Identification number assigned to each approved project
- Name – short name by which the project will be known
- Department manager who owns the project
- Project manager
- Start date/ End date
- Estimated duration of the project
- Current phase the project
- Current status of the project

Project ID	Project Name	Dept	PM	Start Date	End Date	Size (man-month)	Est. Duration	Current phase	C
A123	ERP	SC	Anna B.	01/12/03	01/12/04	80	13	2	
A230	BPR	FIN	Colin W.	01/06/04	01/12/04	28	6	1	
B130	Intranet	IT	Bobby Ho	15/03/04	15/03/05	50	12	1	

Sample of Project Portfolio template

There are many ways to share the above information via email, Intranet, etc., while the most important of all is the identification of the competing resource requirements among the projects, resource availability time-frame, newly raised project changes which may affect others and the inter-project dependencies. Therefore, it is recommended that PMO should organize a monthly management review the projects with all the project managers and their respective owners. The agenda of the review should include new projects, projects in-progress with their respective changes, completed projects, as well as the future projects.

5.5 METRICS REPORTING

Similar to typical business operation, the key performance indicators or metrics of successfulness of a PMO can be measured by:

- *Project Net Goal Units, (PNGU)* - If the PMO is successful, the volume of goal units should increase from year to year. This should come from more projects being completed, better management of resources, and fewer overruns, etc. *Goal units* could be net profit dollars, net present value dollars (NPV), shareholder value units, or other tangible measurement units.
- *Project Cycle Time, (PCT)* – The shorter the combined cycle time of all projects, the more projects the organization can complete, the faster the investment is returned to the organization.

The combination of the two factors, PNGU and PCT is a ratio called Project Value Day (PVD), where,

$$PVD = \frac{\sum_i PNGU_i}{PCT}$$

Example: Assume that last year, the company attributed \$5,000,000 net increase in profits to the projects they implemented. Total days duration of all projects combined was 10,000. Therefore, the Project Value Days works out to \$500. Hence, every day that elapsed on a project was worth \$500 to the company's bottom line. If, in the year after the PMO is implemented, the project net profit dollars increases to \$8,000,000 and the total days duration decreases to 8,000, then the project value days have doubled to \$1,000; i.e. Every day that was invested in a project was worth \$1,000 to the company's bottom line.

The PMO will succeed through an iterative process of frequent revision and tuning, based on thorough and accurate measurement of ongoing performance and comparison of that performance to original estimates. In the example above, should the PMO is adding value to the process, *Project Value Day* (or something equivalent) must improve each year. The tangible metrics, such as PVD, gives executives confident that the PMO will not be just another bureaucracy, but a vibrant entrepreneurial organization that will drive the company forward quickly in its quest for project management excellence and maturity.

5.6 WHAT PMO CAN PROVIDE?

In summary, PMO can provide the following to the enterprise^{ix}:

- Determines and publishes the methodology to be followed
- Determines and provides the tools for project and program management
- Supports project and program managers with consistent guidance and expertise in project and program management practices
- Provides analysis and reporting on project activity such as status reporting and issues management
- Act as a bridge between working level and executive management.
- Provides a controlled environment that ensures that carefully planned projects are successfully completed on time and within budget.
- Acts as an information brokerage across projects and programs
- Audits projects and programs for conformity with standards and procedures
- Reduced learning curves for project teams and clients
- Management of issues & risks

5.7 WHO FUNDS THE PMO?

As mentioned in the previous sections, PMO is a management function which assists senior management or sponsors to realize their objectives by working with the project managers belong to a defined portfolio. As shown in Figure 3.3, the size (and hence the costs) of the PMO varies with different organization types, and number of projects associated with it. In general, the cost of the PMO should be borne by and shared across the individual projects as “overhead” expenses. Therefore, individual project sponsors should be the customers of the PMO, which was initially set up to make sure business objectives be aligned to business direction laid down by senior management.

5.8 STAFFING, ROLES AND RESPONSIBILITIES OF THE PMO

The PMO's role and responsibilities dictate the staff and skills it requires. It is important that the PMO staff match the requirements of these roles and responsibilities. As a general guideline, roles of a PMO of a typical organization should include: audit; assistance; support and services, and details are outlined below^x, and an example is shown in Figure 3.5:

Audit (Conformance and Constructive)

- Conformance (policing) audit – mainly involve in inspecting and monitoring of the projects of interest.
- Constructive audit – assessment is made not only of the conformance to the agreed process and standards but also the use and applicability of those processes to the projects. In this case the auditor identifies how the project manager has dealt with gaps found.

Assistance – provide consultancy, coaching, mentoring, training and advice to project managers

- Consultancy – can either be advice or work on particular activities for project managers.
- Coaching and mentoring – integrates the support activities with personal coaching or mentoring of the project managers in how they perform the role.
- Training – can be provided by the PMO staff, whom are required to identify what training is required, and who should provide and commission it.
- Advice – offer advice to the program and project managers, the advice includes process and standards that apply to the project where to get resources.

Support

- Program and/ or project life cycle – which include the business strategy development; feasibility study; quantification of the organization's existing workload and commitments; monitoring of actual and projected resource and process in existing portfolio; support management to make decisions; and custodianship of records
- Program and project management methods – include support for the accompanying estimating guidelines, e.g. function point analysis^{xi}
- Standards and Templates – support of the standards includes their development; maintenance, application and use

Services

- Training and hotline/ helpdesk support of program and project management tools support
- Progress monitoring and reporting – includes receipt of time sheets, delivery notes and subcontractors' invoices; receive progress reports from program or project; updating the plans; authorizing payments to subcontractors
- Procurement of resource and materials – includes specification of what to procure; source identification; procurement management and it administration
- Risk, issue, change and configuration management – includes administration support; organization; provision and updating of support infrastructure; operation of the risk, issue and change logs
- Administration – includes secretarial and administrative support for the project managers, contract administration

While it seems that the above exhaustive list of the roles seems overwhelming, in real life, the number of full-time staff of a PMO is seldom more than 5 to10 people with one people carry multiple roles, an typical example is shown as follows^{xii}.

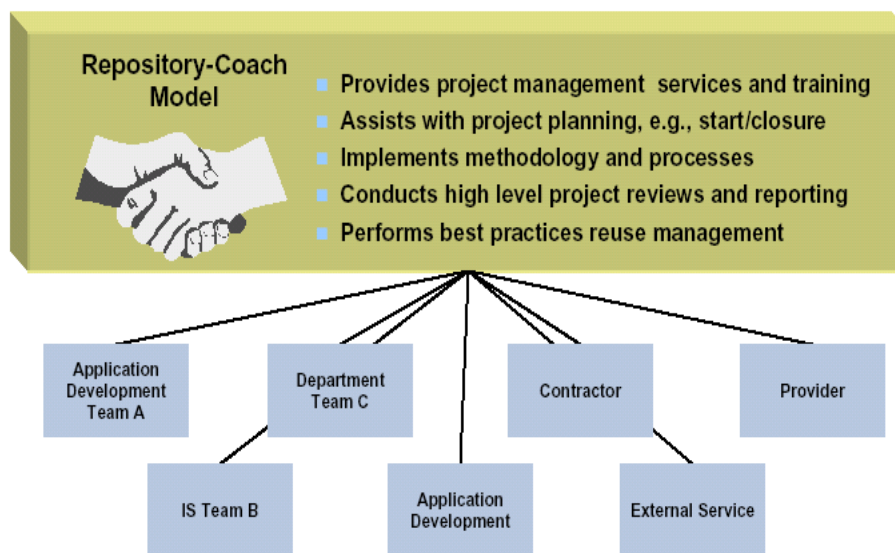


Figure 5.5: Example of a PMO structure^{xii}

Some of the roles played by the staff of PMO mentioned above require a wide range of skills, while others required specific skills, which are summarized as shown in Figure 3.6

Skills Roles	Strong character	Auditing and Compliance	Negotiation	People	Training and coaching	Project Management	Administration
Conformance	✓	✓					
Constructive audit		✓		✓			
Consultancy			✓	✓			
Coaching & mentoring				✓	✓	✓	
Training				✓	✓		
Advice			✓	✓			
Project management method				✓		✓	
Standard and Templates						✓	✓
Program & project management tools support				✓		✓	✓
Progress monitoring						✓	✓
Procurement	✓		✓	✓			✓

Figure 5.6: Role vs. Staffing requirement matrix of PMO

5.9 TRENDS AND FUTURE OF PMO

The CIO/PMI survey showed PMO age has an increasing effect on project success improvement as illustrated in Figure 3.7. In addition, the percent of respondents not tracking project success rates decreased. Hence, we can conclude that PMOs help instill project discipline^{xiii}. We foresee the PMO will continue gain acceptance as a corporate management function, and the role of PMO will shift from a virtual domain to a permanent one, perhaps chaired by positions such as Chief Project Officer (CPO), Chief Operation Officer (COO).

The function of PMO will bring the successes of the projects inline with companies' top and bottom lines. Moreover, the core domain knowledge and expertise requirement for setting up a PMO will be supported by professional project management societies, which will actively conduct researches to derive new tools and techniques to effectively manage multiple projects, and measure the performance out of it. Hence, it is believed that PMO will increasing play an important role in any organization setting, to improve the performance and capabilities of project managers and support them with productivity enhancement tools.

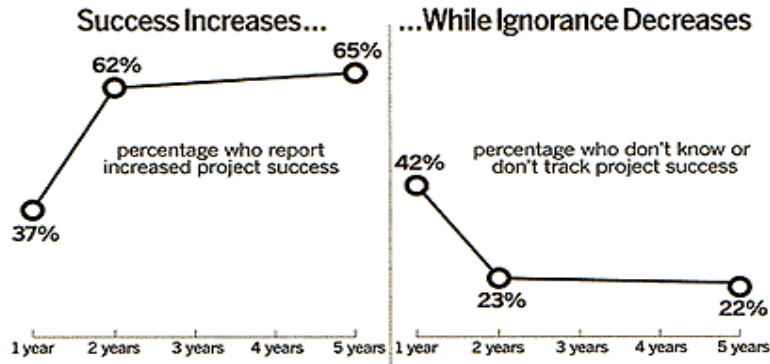


Figure 5.7: Acceptance of PMO, (Source: CIO/PMI Survey www2.cio.com/research)

Projects are often grouped into programs, and project managers manage not only projects but also programs of projects. Program management has become a sub-specialty of project management. There are many ways to group projects into portfolios. An individual project can - in some organizations - be reflected in multiple programs. Groupings can also affect resource allocations and priority decisions. In addition to the general PMO functions above, the program management office should also:

- Organize projects into groupings
- Compare benefits between projects
- Facilitate program reporting
- Balance resources among programs

5.10 PM Governance

In a great many organizations, lip service is paid to the state of their projects and where sponsors contribute virtually zero to no project governance in a practical or positive way. IAPPM would like to give two pieces of advice to an aspiring or even seasoned PM's. Firstly if you aspire to be a professional, hang out with professionals. If you have a choice of jobs, at interview ask the penetrating questions about corporate PM culture, standards and processes and governance of the process. This should give you a guide as to which will be the most rewarding to work for. BUT, If you end up in a tricky situation, working with PM 'turkeys' then don't compromise your own standards. Regardless of what else is happening around you, practice good PM standards and treat your project owner, sponsor, client, director whatever as if they were part of an effective governance structure. Communicate with them in professional project terms, even if you have to water down some of the jargon.

Use scope management, risk management, issue management and change management systematically. Ultimately it will be your professional sword and shield. the more risk aware a

business is the more likely it is to use project management as a way of minimizing risk and enabling proactive management. On the flip side, if a business is only paying lip service to risk management, then project management will be ignored in favor of the "Our project managers are all honest individuals who are totally devoted to their projects (despite their day jobs) and are happy to tell the truth about progress even if it does mean highlighting a serious problem to the senior managers."

Establishing an effective Portfolio Governance Model within an organization leads to an effective and objective process for evaluating projects within the portfolio, and also provides ongoing opportunities for the organization to continually look for opportunities to enrich the portfolio with new projects that can better meet organizational goals. An effective Portfolio Governance Model works by first defining standard stages for each type of project within the portfolio. The stages, which are tailored to the different categories of projects within the organization (e.g. new product development, application development, construction management, new business initiative, Six Sigma implementation), might include stages such as: Project definition, Project approval, Design, Develop

The Portfolio Governance Model works best when executives can make necessary decisions in an environment with accurate real-time information based on the key performance indicators of all active and proposed projects; it is in this type of environment that an organization's leadership can make the right decisions, with confidence and without emotion. The Portfolio Governance Model allows organizations to establish standard metrics for defining, approving, planning, analyzing, tracking, revising and reporting on the status of all projects within the enterprise. By reviewing project portfolios frequently and evaluating performance based on well-defined key performance indicators at specific checkpoints within each project, the Portfolio Governance Model allows executives to see when a project is misaligned with any of the pre-defined dimensions required for a healthy project to be allowed to continue. And when a project is no longer able to meet these strategic objectives, as evidenced by the key performance indicators, it is time to kill the project.

In the next chapter, we review the various practical methodologies that are used in project planning, deployment and control.

6 Project Management Methodologies

6.1 Types of Methodologies

There is not one shadowy single project management methodology that ensures the successful project delivery for all projects and programs. They vary from organization to organization. Utilizing a methodology for global projects may be somewhat different for new product development versus something for the pharmaceutical world. The PM's ability in coordinating and motivating the team, in managing stakeholders expectations, managing the project "technicalities" (scope, time/schedule, cost, risk, quality, communications, human resources, procurement), in dealing with executives and customers etc., is what ensures a successful completion. Methodologies are frameworks – a roadmap so to speak on how to get from point A to point B. Methodologies should not be as complex as originally thought. Instead, PM's need to rather understand the approach or nature of the project very carefully and then determine the following:

- Select an approach for that specific industry or product type that will suit its requirements,
- Recognize that some key templates or deliverables will be needed by phase.
- Don't go overboard and create something not needed, be realistic
- Ensure that your methodology addresses risks and can has mitigation capabilities

Some of the best known Project Management life cycles are:

- SDLC or PMLC
- Waterfall
- Xtreme
- Agile
- Rapid Application Development

6.2 Using pre-canned Methodologies

By far the most commonly used methodology by organizations is the System Development Life Cycle (SDLC). It is largely often referred to a Software Development Life Cycle, since it implies or defines the need to develop a new software system. Regardless of the name chosen, it really remains a waterfall approach. There could be many phases in a SDLC but practitioners should really keep it simple.

6.3 Strategy for Methodologies

Almost every medium to large global company should have its own project management methodology, usually utilizing some examples of the more common practices and approaches

used in our industry today. These methodologies adapt to the specific company culture and capabilities. They add templates to be used, procedural steps to advance the project from one phase to another, mandatory approvals and checkpoints, company standard tools for monitoring, tool entry, reporting etc, and there you have it: a full-size company specific methodology. Some consulting organizations also like to make their internal methodologies available for sale to companies that have none available. These companies would typically be new to project management and would like to start with something that has worked before instead of reinventing the wheel. But what methodology is best for your company? Our short response is: Yours. You can start from scratch and simply define the phases you consider important, and then obtain a "template" methodology and adjust / fill in gaps, it does not really matter. What's really important is that the methodology you wind up with is clearly anchored in your company's mode of doing business.

Do not try to change the company to fit a methodology: it will never work. Take a guidebook (such as this guide for starters) and adjust it to create your own methodology: a good methodology increases your chances but does not ensure project's success. The project manager's abilities are of utmost importance in driving the project to a successful completion.

6.4 SDLC / PMLC

The SDLC or PMLC for an application system would depend on the chosen acquisition/development mode for the project. The stated systems could be acquired/developed through various modes, which include:

- Custom development using internal resources (using analysts, engineers, developers, etc)
- Custom development using fully or partly outsourced resources located onsite or offsite (locally or in an offshore location)
- Vendor software packages implemented as-is with no customisation
- Vendor software packages customised to meet the specific requirements
- At times, large complex applications may involve a combination of the above.

Some organisations use specific SDLC methodologies and processes, either custom- or vendor-developed. These generally prescribe standard processes for different modes of acquisition with the facility to customise the process design for specific application systems. These may be supported by appropriate tools to manage the SDLC. In such cases, the SDLC would depend on the methodology/tool.

Where an application system is developed instead of being purchased as a package, the SDLC would depend on the development methodology used, such as waterfall development, prototyping, rapid application development, CASE and object-oriented development.

An SDLC provides a more consistent and repeatable approach to developing and supporting IM systems by:

- Use of common approach, vocabulary, tools
- Ensuring an appropriate degree of rigor for the size & scope of a project

- Providing a facilitated partnership between IM & Business Partners while engaged together in a project
- Providing guidelines for assigning roles & responsibilities
- Providing quality check-points to ensure consistency & diligence

Phases in a SDLC/PMLC

SDLC essentially provides ‘controlled diligence’ in early project phases (Discovery, Planning), reducing defects and correction cycle-time during downstream phases (Build, Deploy, Close.). Additionally, it also ensures both compliance and validation requirements are met for all systems, reducing exposure to your organization. Each Phase of the SDLC contains phases which has to contain the following. Please ensure you ask yourself if each phase of your methodology contains the following elements:

- An Objective - purpose & boundaries of the Phase
- Process - navigation through the phase
- Reference & Guideline Materials – documentation of practical use
- Deliverables - tools to document the project & system
- Roles & Responsibilities - accountabilities
- Definitions - common vocabulary glossary
- Inputs & Outputs to connect the phases
- References any company specific business processes that support a project/program

In summary, SDLC is a great methodology, which provides a repeatable approach that reduces execution redundancy, increases efficiency to improve project on-time, on-budget. Gartner Group states “... *organizations utilizing an SDLC see as much as 67% gain in project on-time, on-budget ...*”. Generally speaking SDLC focuses on: *Design It - Build It - Test It - Improve It - Retire It*

When to Apply the Methodology

IAPPM recommends adopting a project framework if nothing is in place. Once a methodology is found to be suitable, and is able to be managed and maintained by the PM team, essentially apply the methodology to the project or program. Start as follows:

- Communicate the selected methodology to the entire team (ie., SDLC, 5 phases, 30 deliverables)
- Start identifying the first phase to be used and ensure you identify the deliverables needed
- Ensure these deliverables are mapped to the project plan
- Apply this approach for all phases of the methodology

6.5 Project Management best practices

Whatever the methodology used, project management is ultimately the centralized management by an individual to plan, organize, control and deploy key milestones, deliverables and resources from conception through retirement, according to customer goals. Often project managers are skilled to use specific templates and techniques to manage through the preferred project life cycle.

- Ensure you negotiate with executive management during the initial phase of the project for the necessary resources to be assigned. Do not wait until the last moment to inform management about a lack of resources.
- Understand how any fulltime and SME resources would be required during the life of the project or program. Try and calculate this by month.
- Spend more time on your implementation plan and go through a few peer reviews to ensure it is correct. Have your functional areas provide comments to the plan.
- Develop the project/program organizational structure and how this will be staffed. It will be needed sooner or later. Don't forget.
- As PM, assign a PMO lead to larger major international project/program, as you will not have enough time to drive everything and having a PMO lead take care of milestone meetings, dashboard reviews and project plan administration helps.
- Ensure that a change agent/communications lead be assigned to a larger projects/program, since this position will mitigate any embarrassing issues around incorrect communications going out to the wrong audience. This resource focuses on presentations being drafted for the right audience.
- Ensure you start pulling together a database of lessons learned from the start of the project. This will prevent senior executives asking you for this and key staff may have left the project.
- If you have an international regional project, assign regional PM's to lead regional efforts, reporting into the core PM.
- Do not under-estimate the efforts to develop a capital appropriation request or capital expenditure form to get funding approval for the project.
- Collect sign-offs from each Workstream lead on your project for completed milestones or deliverables. This helps if ever audited on the project. Recommended to do this on a monthly basis.
- Meet regularly with the project/program champion.
- Meet once a week (minimum) with your team leads for larger teams. They will communicate back to their own teams.
- Establish a web portal for storing key project documents. (contact lists, deliverables, etc)
- For large projects and programs, ensure that a sourcing/legal resource can review any 3rd party contracts and agreements to ensure you are aware of fees, penalties and vendor contracts.

- As PM, ensure you work out the rhythm or daily structure for meetings. (e.g., Mondays you meet with PMO on new issues, risks, integration; and on Thursdays you meet with all Team Leads for detail project reviews of their plans).

6.6 Project & Program Industry Classification System

As project or program manager, one is bound to work on either a project or program, which will likely differ in both size and complexity and will require resources of varying degrees. Also, each may be applicable to a specific category; such as -information technology, construction or new product development. IAPPM has classified projects or programs into the following industry groupings:

ID	Category Type	Description
IT	Information Technology	These projects or programs relate to any information technology that cover software development, infrastructure upgrades to deployment related projects or programs specific to the IM community
CONST	Construction/Engineering	These projects or programs relate to any construction or engineering projects that cover buildings, bridges, airports, or even nuclear station
NPD	New Product Development	These projects or programs relate to new product developments, which are innovative and revolutionary in nature. For example, iPod, Xbox, RFID
MIL	Military/Defense	These projects relate to specialist military or defence related project or programs relating to command and control systems, warfare, naval, aerospace or ordnance
GOV	Government/Federal	These are projects specific to a Government department or nature.
EDU	Educational	These are projects specific to a educational institution.
SCI	Scientific	These are projects specific to a Government department or nature.
FIN	Finance/Banking	These are projects specific to the Finance or Banking sector. A example could be a currency conversion project or establishing a new Equity system at an Investment bank.

So the idea is to define a set of identifying naming convention for projects and programs. The IAPPM has devised a simple way of classifying projects to a specific industry type. For example, working on a financial billing system, the PM would assign the project as FIN.

Recommended Document Naming Taxonomy

From a compliance perspective, a universal global naming convention for all project documentation by project phase should be employed by the PM team. Whether the project is done internally or outsourced to a third party, the PM needs to follow up on a standard naming convention. This includes the way analysts, engineers, construction, sales, marketing folk name and deliver their documents to the project. For example, let’s take a careful look at the following deliverable DISC_PROJ_Charter_C01 *It’s in Discovery Phase – It’s a Project related item – It’s a project charter document - and it’s the first document or version*

Phase	Deliverable ID	Type	Numbering Control
DISC	(BUS) = Business (PROC) = Process (PROJ) = Project, PMO (REQ) = Requirements (TEM) = Templates (GUID) = Guidelines	Charter Project Plan Specification Business Case Feasibility Study etc	•01 = # 1 PMO document for the DISCOVERY phase

All deliverables should be stored in a common repository or tool that would be the library that all team members can use to review and comment on these document. Version control is very important and we draw your attention to formal controls around that. Also, it is common practise to restrict confidential documents in such libraries. Please ensure that the following is followed:

- Security controls established per project member to view and read sensitive material
- Access rights to project library
- Ensure there is a policy about non-sharing of passwords in a open office environment

7 Project Discovery Best Practices

7.1 Defining the project

In the beginning, there should be a high level meeting involving a Business Analyst (BA), system analyst (SA) together with the key business/customer. The purpose of this meeting should be to draft the initial version of the project charter – the project definition document. Only when everybody works together for the life of the project is there a truly successful outcome.

7.2 Requirements gathering and scoping

Once the initial project definition has been accepted by all relevant parties, the next step is to scope the project in detail. Typically this involves the formation of a project task force involving business analysts, system analysts, key users, the project manager and the project sponsor.

An oft-encountered challenge is that end users typically do not know how to write good business requirements. That's where the business/requirements analyst comes in. They exist to help the user determine what it is that they want a.k.a. what are their business requirements. The requirements go in what is hopefully a fairly standardized template that guides the user and BA to writing a clear set of requirements that state what it is that the end user really wants.

The business requirements document forms the basis for the scoping document. Essentially, the scoping document is concerned with developing a common understanding as to what is included in, or excluded from, a project, while preserving the spirit of the requirements document. Having defined the scope, you can calculate the resources required. If you get the scope wrong, subsequent resource planning will be inaccurate.

Successful scoping

There are several different ways to successfully define scope. All should start with an agreement on the outcome. The outcome is the change that will occur when the project is complete. Examples are:

- We will be able to answer customer queries regarding statements over the phone
- All licensing details will be accessible on-line and we will be able to identify when they are due.

Another method is to focus people on the internal and external deliverables. *External deliverables* are things the project delivers to the users e.g. screens and reports. Users typically think of a system in these terms. It also includes any hardware or software required by the users or the project team. *Internal deliverables* are things the project generates internally e.g. Project Charter, Business Requirement Specification etc. It is likely that the users will not be absolutely clear on all the deliverables. In this situation you can make generic assumptions. For example, you might not know exactly what reports are required but you allow for 12 unspecified reports. Once the external deliverables are defined, the Project Manager can define the internal deliverables.

Assumptions

It is also important that the scoping document lists the assumptions that have been made. This is important because if the assumption turns out to be false, it may have an impact on the scope and ultimately on the project.

Other Considerations

In documenting the scope of the project, PMs must also consider describing the project boundaries, identifying the major business events, locations, divisions, functions and processes affected by the project, as well as the groups of people impacted both inside and outside the company. Also consider:

- Business processes that will be affected;
- Business areas/units that will be affected;
- Business locations that will be affected;
- Business data that will be changed;
- Business applications that will be changed;
- Technologies that will be changed

All of these may have an impact on the project. For example if numerous locations are to be effected, there may be issues of bandwidth, switching hardware, travel and training, remote support etc

7.3 Meeting the business needs

"Meeting the business needs" implies there is a business need driving the project or program and it is essential that the PM ask what those business needs are. Take the time to search down the presentations or documents containing these needs and study them.

The successful PM is one that understands the true business need and shapes the project to support this need. Be wary of any project that does not seem to fulfil a concrete business need.

8 Project Planning Best Practices

8.1 Elements of project planning

The following lists some of the key elements involved in project planning. While not all elements are relevant for every project, PMs can go through these as a checklist to ensure everything has been thought before. It is beyond the scope of this document to elaborate these elements in detail.

- Resource requirement planning
- Project budgeting
- Project schedule
- Project communication
- Vendor selection
- Training preparation
- Business process documentation
- Contingency and risk management
- Security and privacy planning
- Business continuity planning
- Post-project planning

8.2 Project Decision Making

More often than not, one of the most difficult roles of the PM involves continually making decisions regarding resources, problems, alternatives, disagreements, and policies. Yet decision-making is a confusing and often ignored area of project management. This section describes a logical process of decision-making that can be followed by project managers in most situations. Having a consistent, logical, and workable decision making procedure will improve the ability of any project manager to resolve problems by making decisions or helping the project team to make the best decision. IAPPM recommends the following approach for consistent decision making:

- Defining the problem or problems
- Verification of the problem parameters
- Prioritization of problems
- Elimination of emotional factors
- Evaluating options
- Group decision making

8.3 Understanding how business rules affect the project

Business rules are rules that determine how the system will function. This should include any legislative requirements. For example a business rule may be that an account cannot be opened until the account holder has provided 100 points of proof of identification. Another may be that an account balance cannot fall below a certain level. Business rules tend to become evident all through the project. They are particularly evident when business processes are being defined. In other cases they can be drivers of the project e.g. legislation. They are captured in an ad hoc manner in the early stages, but more formally as the project progresses.

8.4 Effective project workplans

Most PM's realize that the overall project plan is composed of many components developed using some form of project scheduling tool such as Niku, Primavera, Artemis Scheduler, MS Project, etc. There are many other tools that enable nice drawings for project plans (Visio, PowerPoint, Excel, etc). The focus is the use of scheduling tools that allow the project manager to incorporate a WBS, tasks estimates, resourcing availability, which allow you to develop a schedule.

Sometimes, your clients may just want to see the project developed as just a pretty picture. (Practically, this happens all the time). But PM's should not be caught into this trap of not developing the simple plan down to its necessary detail. Also, it is very important to know that not all projects are of sufficient size and complexity do not warrant the use of a scheduling tool.

As with any tool, it should not be the focus of the project. Rather, the project work plan should aide in the process of planning, not get in the way. Regardless of which software a project manager might use, or the approach used in developing the project work plan, the resulting project work plan ought to result in an effective project work plan. I'd like to put some better definition around what is meant by "effective". After all, if I am going to use a tool, I would like to have it clear as to the attributes of an effective plan. Here are some attributes that I would like to hold forth as being reasonable, minimal requirements if I am going to take the time to develop a project work plan using one of these scheduling tools. In no particular order:

- The WBS is reflected in the project work plan, although often progressively elaborated.
- The WBS should clearly show the deliverables, whether final or interim.
- Accountability for each task is assigned
- Dependencies are used only when absolutely necessary to represent physical constraints
- External dependencies, if any, are evident in the work plan

Deadlines must be reflected in the work plan. i.e if the project is due on a certain date, then that's what the plan should show unless it is physically impossible to meet that date and you are out of options.

The scheduled dates should reflect the estimated hours and/or duration. (Even those doing duration-based estimating and planning implicitly are thinking about how many hours might actually be required and the availability of then person doing them) a. Tasks not started should be scheduled to start in the future, not the past b. Tasks not complete should have finish dates in the future, not the past c. Another way of stating a and b is that no incomplete work would be scheduled in the past. The estimated hours required of person assigned to the work should be within the realm of reason over a given time period. (i.e don't expect a person to work 80 hours each week over a 3 week period). The project work plan should show that reasonable resource loading. Tasks should be of a reasonable duration/hours such that project progress can be easily tracked and observed. (There are many guidelines, just pick one). a. Tasks that are too small require too much effort to track b. Tasks that are too long too often result in surprises and a false sense of progress

The project work plan should clearly demonstrate that sufficient resources existing to accommodate the work not yet completed. The project work plan is able to accommodate unforeseen events as inputs (they always happen), allowing the project manager to use the project plan to assess the impact in any changes to cost, schedule or scope. The project plan should also help the project manager determine the best approach to getting back on track, whether cost, scope or schedule.

Project or Program Plan Updates

PM's are to ensure that the project plans are constantly updated in order to capture changing tasks and deliverables that have been met. The shorter the duration of the project, the more frequently the plan needs to be updated. Look at updating the following:

- Critical dates that have changed or shifted by the functional teams
- Color coding of the status of key tasks
- Percentage complete
- New resources assigned
- New critical path

9 Project Deployment and Project Control Best Practices

9.1 Status reporting and project review

It is important that PM's generate a weekly or bi-weekly project status report for the project. Generating and reviewing status reports is a key component to a PM's responsibility and should be done in an efficient manner. Essentially, status reporting is a mechanism to add value to the review of the specific project. Stakeholders will become more familiar and obtain a better understanding of the project, compared to a project that did not produce a status report. Status reports can be generated using either the following ways:

- Online status reports generated automatically from a scheduling tool, such as Niku, MS Project, etc
- Manual based status reports using tools such as MS PowerPoint or MS Word.
- Email

The PM need only ensure that this report is done on a timely basis and should incorporate some of the following items:

- Milestones achieved for that week or month
- Upcoming milestones or deliverables
- Issues and Risks that have arisen
- An indication of project status through color coding the entire project or work stream
- Key concerns
- Dependencies that have not been identified or addressed
- Outstanding decisions

9.2 Managing effective project meetings

Meetings constitute a large part of any PM's responsibility and it goes without saying that PM's lead many daily meetings. Some of the following needs to be answered by the PM prior to setting up any meeting: Is the meeting really necessary?

- Determine who the audience should be and the participant numbers needed at the meeting
- Set the date and time of the meeting according to the participants calendars
- Create the meeting agenda, with topics, speakers and a time allocation

- Arrange to have a person present to take down the notes of the meeting

Once this has been determined, the PM should arrange for a conference room or facility to host the meeting. Once this has been arranged, the PM should immediately notify all participants and also send them any supportive documents to prepare for the meeting. There is nothing more frustrating to get to the meeting and team members have not prepared for the topic. During the actual meeting, it is very important for the PM to understand the following: Be on time and ensure the meeting room is prepared. Do not leave this till the last moment.

9.3 Quality management and customer satisfaction

The ultimate goal of any project is to satisfy the customer or requestor. In recent years, the quality improvement philosophy has led the way to increased customer satisfaction in manufacturing, customer service, and service industries. Quality management is also part of project management. This unit reviews the major approaches to quality, and how they impact the project manager. These include:

- Total Quality Management
- Six Sigma, Lean Thinking
- ISO 9000
- Business Process Improvement or BPI
- European Foundation for Quality Management (EFQM)
- Industry Specific Quality Standards
- Sarbanes-Oxley

Practical Approach to QA/QC

As a PM your focus will be on delivering a quality product or service. Neglect any component of the quality process and you will encounter problems in your timeline.

Some practical advice would be:

Involve your QA manager from the onset of the project. Or obtain a suitable representative that can adequately speak to this topic. Insist on a suitable representative being present.

- Communicate your commitment to the QA team and drive quality in everything
- Never run a project status meeting without a QA person being present

- If you determine no QA resources are available for your project or program, ensure there is funding to buy the necessary resources
- Do not delay bringing in QA resources to the team
- On a global project with different regions (ie, EMEA, ASPAC, LATAM, NA) ensure you have a QA resource allocated to each region
- Sometimes North America project or program team leads fails to see the value of the way things are done in other regions and in other countries.
- Do not under-estimate time to develop test scripts or test plans or user testing. Usually this takes longer than expected.

9.4 When to terminate a project or program

In fact, when an organization doesn't have a formal approach to killing projects, this it becomes a red flag that serves as an indication that the organization may not be adhering to a well-documented and -understood approach to project portfolio governance. The cost of terminating a project must be always be considered. A willingness to cancel projects when necessary helps organizations remain focused on achieving their strategic goals and the adoption of a solid project portfolio governance model is typically required for a project cancellation process to function smoothly. The problem is that many PM's are focused on delivering results and project wellness. Any negativity or bad press is likely to be frowned upon and hence we tend to find that it is a rare case that projects are showcased early enough in the game to executive stakeholders

Deciding when to cancel or terminate a project is really important. In reality, all projects or programs must be evaluated by the organization (i.e. PMO or Board) between its major budgeting cycles in a calendar or financial year. The PMO or even the PM can also decide to terminate the project during a formal gate reviews. Factors that lead to a project being cancelled are as follows:

- Any major, impact or change in the project scope,
- The introduction of a severe risk which impacts the entire organization
- A specific assumption is found not to hold true anymore
- Product fails to achieve goal
- Supplier cannot meet commitments
- When the business strategy does not necessitate the need for the project or service

Upon starting the project, you determine earlier cost or schedule estimates were too optimistic. Also, projects can be terminated at any time during its life cycle. The best recommendation offered is that organizations consider utilizing a termination process as part of its core set of processes. Please note that once a decision has been made to terminate a project, the following tasks or core activities need to be implemented:

- Hold termination close-out or postmortem meeting with project stakeholders
- Re-allocate staff and resources back into the organization or originating teams
- Work with finance team to close out the books and project binders for auditing purposes
- Ensure that all classified data artifacts and access to facilities and accounts are closed
- Hold a lessons learned meeting and document findings in PMO repository

At times it is also useful to know that PM's can salvage certain aspects of one project and re-utilize these working parts on another new project, in order to minimize project setup costs again. PM's should attempt to raise this with the PMO to ensure the possibility of evaluating the potential to create a new, revised project from the remains of the current one. If this can be achieved, it would be a proactive step made by the PM.

In summary, project or program termination is not an easy step to go as it can lead to some guilt on the PM part. Essentially think of the business as your own and determine what you would do. The potential consideration of early termination should be based on an examination of current and projected performance against the project objectives.

10 Project Closure best practices

The closure of the project is an important as its beginning. This is the time when it is all the more important to maintain that crucial discipline that has brought project successfully thus far. At this stage, there is a tendency for a feeling of complacency, and PMs must guard against this to prevent any devastating effects at the last mile.

10.1 When should a project be closed?

This is an important question. Ideally, a project can only be closed when it has fulfilled all the objectives set out for it, it has produced the deliverables expected of it, there is no outstanding work, and there are no loose ends. Below is a project closure checklist PMs will find useful:

- Ensure all project objectives and deliverables achieved and signed
- Submit the final Project Closure Report to the Steering Committee
- Ensure acceptance and endorsement of the Project Manager's Project Closure Report by the Steering Committee
- Clear the bills and close the Project Accounts
- Ensure all other obligations met and closed
- Send a Project Closure Message to everyone associated with the project
- Disband the Project Team

10.2 Should projects be closed formally?

It is our viewpoint that projects should be closed formally. Certainly, we do not advocate the creation and sustenance of long drawn, incomplete projects that continue to hog resources with no end in sight. Sometimes, project closure might seem redundant, but we feel it is important to let the executive management, other relevant stakeholders, the project team, and everyone else associated with the project know that the project is deemed closed.

10.3 The Project Closure Report

The Project Closure Report is an important document. This report becomes the historic record the entire project for the organization. It details the origins, execution and delivery of the project. Future generations of users will rely on this document to maintain or enhance the project. The key elements of the project closure report include:

Final Project Status Report	This sub-report depicts the various milestones of the project and the actual accomplishment of those milestones. Ideally, it should detail the activities undertaken, the performance of the people involved in the project, resources used, and time schedules.
Details of the Deliverable	This document explains the design, pattern, and specifications of the deliverable produced.
Lessons Learnt From the Project	The responsible PM should share the challenges involved in the project, lessons the team learnt while responding to those challenges, and the way the team resolved those challenges.
Feedback from other parties	This subreport details any feedback (either positive or negative) concerning the project, how it was run, issues during its implementation and so forth. This document can serve as the basis for future enhancement projects.

10.4 Celebrating the Closure

Just before the project team is disbanded, don't forget to celebrate the closure of the project! A good PM never forgets the people who have made his project a success. Other than generating a "feel-good" feeling, celebrating a closure can help smoothen any prior ruffled feathers and create enthusiasm for future projects.

11 Compliance for Projects & Programs

11.1 Why audit?

An assessment or audit of a project or program is often undertaken to ensure the following:

- Problematic cost, quality or schedule overruns
- Litigation or legal reviews
- Contract breach by contractors
- Lessons learned
- Poor deployment
- Fraudulent activity

11.2 Skills required to conduct auditing

The following project or program skills are required by the person auditing a project or program:

- Understanding of Project Methodologies and Life-cycles
- Physical Security Skills
- IT Security Skills
- Financial Skills
- Risk Management
- Change management
- Regulatory laws and compliance

11.3 Overview on the Project Compliance Process

This is the era of compliance standards, rules, regulations, and guidelines and we had better get used to this happening frequently. Some regulations are instituted for the public good, while others fall into the category of "best practices". While not required, the latter category of rules often help project teams produce higher quality results. The PM must understand the regulatory constraints that can impact the project, and plan for their involvement. Further, the project manager must monitor the regulatory environment and be prepared for changes. This section lists a few key regulations of laws that impact many types of projects.

- Sarbanes-Oxley
- Gramm-Leach-Bliley
- COBIT

- HIPPA
- ADA
- Safe Harbor (EU)
- Young Persons Policy
- Environmental Policies

The audit process can be divided into four fundamental activities: Audit Risk Assessment, Planning, Fieldwork and Audit Report. The following paragraphs discuss these activities and objectives.

11.4 Audit risk assessment

We utilize an audit risk assessment process to identify audit risk and to utilize our resources to most efficiently fulfil the audit needs of the organization. The factors we consider include: assessment of management's demonstrated commitment to establishing and maintaining proper internal controls, prior audit results, political/economic factors, operational and system changes which may directly affect the control environment, and ongoing discussions with senior management.

11.5 Audit planning

The manager or team coordinator of the audit may schedule preliminary discussions and request information from New Brunswick and Operating Company management to aid in developing the areas to be audited (audit scope). After all Company information has been surveyed, the scope is formalized in a letter that is sent to the Managing Director/Financial Director or Controller of the Company. In addition, CIA notifies management of the planned audit areas in order to minimize disruption.

11.6 Audit fieldwork

The audit work consists of documenting and evaluating the Company's system of internal controls. The information documented is based upon the auditor's observations, inquiries, and testing, which will eventually establish a basis for the auditor's conclusion. There are meetings with appropriate managers throughout the audit to discuss any questions or problems that may arise.

11.7 Audit reporting

A draft of the audit report is reviewed with local management during the final week of fieldwork. Management's agreement with the recommendations, implementation actions, and dates are established, and a final audit report with a conclusion typically is issued to local management the last day of field work.

11.8 Elements of the project audit

Below are the key elements of a project audit. They include, but are not limited to:

- Fulfillment of the project scope
- Quality measures adopted
- Quality report of the deliverable
- Total costs incurred
- Performance of the project team
- Performance of the vendors and other external parties associated with the project
- Risks encountered
- Anomalies detected in the different project phases
- Lessons learnt

11.9 IAPPM's future certification for project auditing

The IAPPM are planning to launch a formal certification titled the Certified International Project Auditor or CIPA certification - more information can be located on the IAPPM website on this specialized certification. It is crucial that PM's be aware of the importance of project and program management auditing and the effect it may have on the organization, its resources and community. There are many occasions whereby failed or troubled projects have had cost, schedule and quality overruns and have had dire legal ramifications to the parent organization.

Instead of introducing external auditors not skilled in project management, it is practical to call upon those PM's who have the necessary experience and deal with daily resources, risk, methodology and the general know-how of where possible problems crept into a project or program. The IAPPM introduces auditing within the CPPMBoK merely as a summary of topics that would be covered within the CIPABOK or Body of Knowledge.

12 Advanced Project Management

12.1 Multi-national project teams

The traditional picture of someone on a project or program team who communicates by walking to the adjoining office cubicles is being rapidly replaced by the virtual project team, where members may have little or no physical proximity and who communicate electronically. There are many types of virtual teams, but all generally share the common mode of electronic communication. This unit discusses the unique challenges when part of the team is located in a different office or different organization.

With the growth of multinational enterprises, project teams can consist of members and groups throughout the world. Team members may speak different languages, reside in different time zones, and use common terms in different ways. All these factors can hinder planning and execution, if they are not recognized and managed. This unit discusses the unique challenges when team members are located in different parts of the world.

12.2 Cultural Aspects to managing Projects & Programs

Project team members bring their not only their own skill sets, but a series of behaviors that reflect their culture, or more accurately, the culture they follow and accept. This is not necessarily a negative situation, but one that must be recognized, evaluated, and managed. This is even more important with multinational teams consisting of members with differing viewpoints toward management, roles and responsibilities, and the project organization. This unit defines the project management values that can be affected by cultural attitudes, and how the project manager can control their effects.

12.3 Overview on Virtual Project Management (VPM)

Today, many project and program managers are connected longer than ever before either through the use of digital age devices. Today we find a great many organizations that are setup as hierarchal industrial institutions, which are asking, more and more of their PM's to operate in a peer-to-peer dynamic networked structure, which clearly raises conflict and creates a lot of spinning and wastage of PM cycles. Therefore, today's offshored or demographically dispersed workforce clashes directly with the traditional style of co-located teams located in the same building, timezone and structure. Teams Organizations accordingly need high value PM's who can deal with highly complex decision-making and do high value work

12.4 Symptoms of Problematic Teams

IAPPM constantly stresses the importance of team building on formal and loosely dispersed teams making the time to keep in touch with project team members, understanding each member's strengths and weaknesses and recognizing individual's efforts and contributions. Remember some team members are no longer in the traditional office or in the same country or time zone.

- Missing-in-Action team members
- Lack of collaboration
- Team members who just don't get it
- Significant pain in managing strategic alliances or offshored relationships
- Team members are not participating "could be multi-tasking on other projects, tasks
- Lack of connection - both technology or mentally
- Team members who dominate the discussions on conference calls
- Lack of agenda or purpose of meetings
- Ignorance of other timezones - keeping meetings always in one timezone
- Lack of trust - since virtual team doesn't know each other well enough
- Lack of the role or clarity
- The leadership effectiveness may be limited since everything is done virtually
- Lack on innovation - since its more difficult to share new ideas

Working on a virtual team is challenging but it is paramount project team members remember to implement the following communication, interpersonal and relationship skills in order to achieve superior results on projects and programs:

- Establish a foundation of trust amongst all team members
- Be creatively accessible to global team members - NetMeeting, WebEx, conference calls, emails, PDA
- Stay in touch with team and constantly communicate - "staying connected" - showing presence!
- Deliver results with distance delegation - delegating from afar can be unnerving.
- Ensure Inter-personal and Interaction skills are used
- Nurture your team and build trust amongst your team

Reaching agreements on Project conference Calls

- Clearly state the needs and expectations of the project tasks
- Explain clearly why they are important and the impact of not meeting them
- Stay calm, speak clearly and do not be abusive on any virtual meeting
- Ask members to agree to timeframes and target dates
- Eliminate any distractions on the distance dialogue

- Ensure items such as key decisions, issues and risks are documented and distributed to all
- As PM, listen, reflect, discuss and summarize often - paying attention to key items
- Ask about issues or new items in specific regions or counties - some members may not speak up unless requested
- Ensure a follow-up meeting is scheduled to review progress

12.5 Approach to Managing a Virtual Team

All PM's regardless of location need to ensure they fully understand who is on their team (assuming we already know the composition of the project) and how they will work together. The PM should:

- Identify each team member on the team and maintain their contact information
- Understand their specific contribution towards the project
- Recognize their contribution and level of effort
- Schedule ways to stay in contact - e.g., once a week for global conference calls,
- Do not skip regular calls - be accessible (i.e., have a second phone line, mobile)
- Communicate your availability such as a busy schedule, vacation, country holidays

Recommendations for Successfully managing Virtual Teams

- Over communicate
- Ensure you are trained and skilled in working with virtual teams
- Ensure your PMO tracks and prioritizes virtual management issues - such as dynamics, cultural differences, countries, traditions, holidays
- Develop a Virtual Management Plan (VMP) for your project, program or PMO, not just communications plan or a roles and responsibility chart
- Develop the relationship with your team
- Develop a virtual team process
- Assume that co-located staff in the same building as you can also become virtual members - always dialing into the conference instead of meeting in person.
- Use a mix of management techniques to manage the virtual PM team – you cannot walk the hallways anymore.

Limitations of Email

When sending email to other members around the globe, we often assume the recipient has the same context or framework of the message. This is very often the cause for email not being answered correctly or obtaining the correct response. PM's need to be able to construct their email and place into context for their team. The PM should recognize that conflict is not to be dealt with on a virtual basis. Especially when using email. The PM should arrange a face-to-face meeting to discuss any potential conflicts between members. The only time a PM should travel when managing project or program, is when doing the following:

- Kick-off of the project or program
- Closing and celebration
- Conflict that arises that needs the PM to be face-to-face at the location
- Quarterly 1:1 sessions

13 PROJECT and PROGRAM TEMPLATE USAGE

PM templates will vary according to the size and complexity of the project or program. The more complex, the more likely it will be that more information will be needed to be captured, documented and shared. It is very important that PMs realize that there should be a good balance between creating effective documentation rather than producing volumes. It is crucial that the PMs approach their PMO or standards teams to determine which key templates would be needed. There is nothing more frustrating than developing documents that are not necessary. The IAPPM has dozens of project templates for use on their website and usage and modification thereof is encouraged.

13.1 Key Templates

The following minimum key project templates are recommended for use on a project or program:

- Project Charter
- Project Brief or Project Management Plan
- Resource Plan
- High Level Milestone Plan
- Communications Plan
- Architectural Plan
- Business Case
- Risk management log
- Feasibility Plan
- ROI
- Backout Plan
- Change control log
- Dashboard template
- Budgetary plan or forecast estimate

REMINDER: IAPPM has spent considerable time loading all the required templates into our portal for you to use on your projects or program. Please note that anyone can generate system documentation or templates – but the real secret is making sure they address the project needs.

14 Recommended Reading

IAPPM encourages all CPMs to continually upgrade their knowledge of PM theory and best practices. To kick start this process, here is a list of IAPPM recommended books for your reading. (Hint: The CPM examination will also rely on these books to set the standard for some of our questions). This list will be updated regularly in future versions of the CPPMBoK.

- *Global Project Management Handbook: Planning, Organizing and Controlling International Projects, Second Edition* by David L. Cleland and Roland Gareis
- *Core Concepts: Project Management in Practice (with CD)* by Samuel J. Jr. Mantel, Jack R. Meredith, Scott M. Shafer, and Margaret M. Sutton
- *Project Management: A Systems Approach to Planning, Scheduling, and Controlling* by Harold Ph.D. Kerzner
- *Project Management Case Studies* by Harold Ph.D. Kerzner
- *Project Management: A Managerial Approach* by Jack R. Meredith and Samuel J. Jr. Mantel
- *Information Technology Project Management, Fourth (or later) Edition* by Kathy Schwalbe
- *Fundamentals of Technology Project Management* by Colleen Garton and Erika McCulloch
- *Lean Project Management: Eight Principles For Success* by Lawrence P. Leach
- *Project Portfolio Management: A Practical Guide to Selecting Projects, Managing Portfolios, and Maximizing Benefits* by Harvey A. Levine
- *Project Management Tool Kit, The: 100 Tips and Techniques for Getting the Job Done Right* by Tom Kendrick

15 Conclusion

Let us state that we who are responsible for managing projects and programs, teams, departments or corporations must do so with uniqueness and diligence, ensuring that the organizations most vital assets, its people, are identified as valuable contributors to take their organization to the future. After all, someone within your organization may have the creative solution or be setting the trend you've been looking for. You need to ensure that they don't suffocate from doing the same things all the time. Times are changing, so must your organizations approach and so too your team members.

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- i Kevin McDermott, "The Successful Project Management Office - Maximizing Project Returns and Enforcing Strategic Alignment," A Fair Isaac White Paper, September 2003.
 - ii "Managing Successful Programs," The Stationery Office, 1999
 - iii "The Delphi Technique," Randall B. Dunham, November 5, 1996
 - iv David J. Skyrme, "Knowledge Management – The State of Practice," October 1998
 - v <http://www.kmnetwork.com/WhatIsKM.html#whatis>
 - vi J. Kent Crawford, "The Strategic Project Office," – A Guide to Improving Organizational Performance, Project Management Solutions, Inc., Havertown, Pennsylvania, 2002
 - vii "A Guide to Project Management Body of Knowledge," 2004 Edition, PMI, Newtown Square, Pennsylvania, USA
 - viii Dennis Bolles, "Building Project Management Centres of Excellence," Amacom, 2002
 - ix Program Management Offices Enabling 21 CFR Part 11 Compliance, Taratec Development Corporation, 2002
 - x David E Marsh, "The Project and Program Support Office Handbook – Volume 2 Advanced," Project Manager Today, 2002
 - xi <http://www.ifpug.org/>
 - xii Delia J. Patel, "Public Sector Project Management Office (PMO)," Gartner Public Sector Practice, ATC Summer Sessions, July 25 2002

