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Models for Structuring and Executing
the Project Hierarchy

GARY LISTER

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Mastering Project,
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Mastering Project, Program, and Portfolio Management

Models for Structuring and
Executing the Project Hierarchy

Gary Lister

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*This book is dedicated to project managers
everywhere—those who hold the official title
and those who do not; to Colonel Charles (Chuck)
Jernigan who first hired me as a project manager;
and to my wonderful family who mean
the world to me.*

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I would be terribly remiss without acknowledging Colonel Chuck Jernigan's influence on my career as a project manager. He hired me, believed in me, and challenged me to be all I could be. He was an inspiration and a great leader.

I am also grateful for the support of my wife and sons for their forbearance of yet another project and their support throughout my career.

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Preface

Project managers stand on the shoulders of giants. History is full of examples of projects—both successful and failed—and the accompanying lessons learned by their managers. From mankind’s earliest collaborative efforts intended to produce a unique product through working project managers’ founding of the Project Management Institute in 1969 through today’s innovative and potentially life-changing projects, project managers have always been involved in cutting-edge initiatives.

Our challenge is to capture that knowledge, experience, and lessons so we are more agile, productive, and better project managers. This book—and this series—is designed to help do exactly that. In my business classes (operations management, project management, supply chain management, accounting, logistics, and purchasing) the real-world anecdotes students enjoy most always center around projects. Projects are fascinating; successful ones, failed ones, somewhere in between, they all have exciting stories with real impact. We’re privileged to work with projects, no matter if we have an official title other than project manager. It’s my hope that this text helps bring wisdom, knowledge, and clarity to the wonderful world of project management.

1

Project Management Roots and Understanding the PMBOK Guide

Introduction

Everyone manages projects; therefore everyone is a project manager. Whether you're planning a surprise birthday party, repairing your car, cooking Thanksgiving dinner, or overseeing the construction of a battleship, you're managing a project. You are a project manager even if you don't have the official title. The tech sector, and in particular the information technology sector, has staked claim to the project management realm in recent years. It's important that we not allow IT to dominate project management. We are all project managers, both in the general business world and life at large. For those seeking to learn the broad fundamentals of project management, the *PMBOK Guide* is an extremely useful reference document. It is often used as the foundation of general project management awareness and training. For project management professionals seeking certification from the Project Management Institute, understanding the *PMBOK Guide* is crucial. In fact, you will have to memorize much of it to pass your exam. It describes the portion of accumulated knowledge and experience of the entire project management community and profession that is generally accepted as applying to "most projects most of the

time.” The first edition was good, every edition has improved, and the fifth edition is the best yet. But it can be difficult to teach, to learn, and to use. This book (and this series) aims to provide enabling support to the concepts and knowledge presented in the *PMBOK Guide* and found in the profession of project management.

Project management can be a profession, a job, an assignment, or a task. It can be a full-time or a part-time endeavor. It can be very formal and regimented, or it can be informal and off-the-cuff.

Learning Objectives

After completing this chapter, you should be able to

1. Understand why projects are important.
2. Identify project managers and their roles.
3. Recognize early project management roots and history.
4. Comprehend the key concepts of project management.
5. Understand the layout and organization of the *PMBOK Guide*.
6. Use the *PMBOK Guide* to assist you in understanding project management and selecting a specific methodology.
7. Recognize common project management methodologies.

PMBOK Guide Concepts Covered in this Chapter

The Purpose of the *PMBOK Guide* (Section 1.1)

What Is a Project? (Section 1.2)

What Is Project Management? (Section 1.3)

Project Management Body of Knowledge (Section 1.8)

Project Management Processes (Section 3)

Why Are Projects Important?

To understand why project management is important, look at your favorite news source—even if it isn't a traditional business publication. Chances are you'll find a failed project in the headlines (sometimes you'll even find a successful project mentioned). In 2013 alone, there were major automobile recalls, unsuccessful deployment of the Affordable Care Act website, the remaking of J.C. Penny, California's MyCalPAYS payroll and benefits system, Boeing's development of the 787 Dreamliner—all very public and very expensive examples of project problems or failures. Take a second and do a Google search for "failed projects 2013" and see what you get. Clearly projects fail. Many project failures have at least one thing in common—a lack of optimal project management. That is, the project manager (or the person in charge with some other title) did not apply the tools and principles appropriately. Although there are nearly as many reasons for failure as there are failed projects, the following are some common causes of project failure in every business sector.

Take Away

Projects fail—often epically.

Common Causes of Project Failure

- Unclear objectives/scope definition
- Inadequate sponsorship/lack of senior management commitment
- Poor planning by the project manager
- Changing or unclear requirements
- Lack of a change control process
- Inadequate resources
- Poor communication
- Lack of customer input
- PM lacks technical, organizational, or interpersonal skills
- Inappropriate (too much or too little) project oversight
- Inappropriate governance structure
- Stakeholders not identified or engaged
- Unclear roles and responsibilities in the project team
- Poor grasp of project complexity
- Key/crucial decisions made by non-SMEs (subject matter experts)
- Unrealistic or non-existent timelines
- Ignoring warning signs that the project is in trouble
- Poor business decisions

The whole concept of project failure is interesting. Projects *should* succeed. Project managers and their stakeholders are usually highly trained, talented, and experienced individuals. Projects shouldn't fail, but they do. There are tools to help avoid failure and to help recover when the unforeseen happens.

Take Away

Projects are vehicles to help organizations learn, change, adapt, improve, and adopt new processes, products, or technology.

Despite projects that fail, there are many successes, and they add much value to their organizations. Although they might not be the current ongoing process and part of normal day-to-day operations, successfully completed projects often establish the foundations for follow-on successes via the resulting new normal. The beauty of projects is that in addition to producing specific, unique, tangible, or intangible results, they are often a catalyst for change—a way of inserting new processes, procedures, tools, resources, and so on into organizations' ongoing operations, thereby enabling future successes. Ongoing operations—especially well-managed, quality, repeatable operations—are a way for organizations to accomplish their mission. Projects are vehicles to help organizations learn, change, adapt, improve, and adopt new processes, products, or technology. The PMBOK is an excellent tool to help professionals manage projects and while it is expansive, it can't cover everything as illustrated in Figure 1.1.



Figure 1.1 No body of knowledge—including the PMBOK—answers all questions.

Source: <http://www.glenknight.com/?p=57>

Who Are Project Managers?

I know of no field with more confusion, misinformation, and ambiguity than project management. Everyone has his or her unique understanding of what project management is and what a project manager does. This applies equally to those who work in the field. A recent program management discussion group on LinkedIn (see Figure 1.2) clearly hit a nerve and received many (most long and detailed) comments to the question, “How many out there have experienced the misuse of the title Project Manager? I’m currently in a company that has many ‘Project Managers’ who have no training or experience, nor are aware of the tools.”

Project management is a misunderstood profession. Organizations are often guilty of attempting to “turn straw into gold” when it comes to project management by assigning people to manage projects without providing the proper training, knowledge, or experience. Despite attempts and assumptions to the contrary, not everyone is suited to being a project manager, just as not everyone is suited to being a surgeon, attorney, engineer, teacher, and so on. It is a unique and demanding profession.

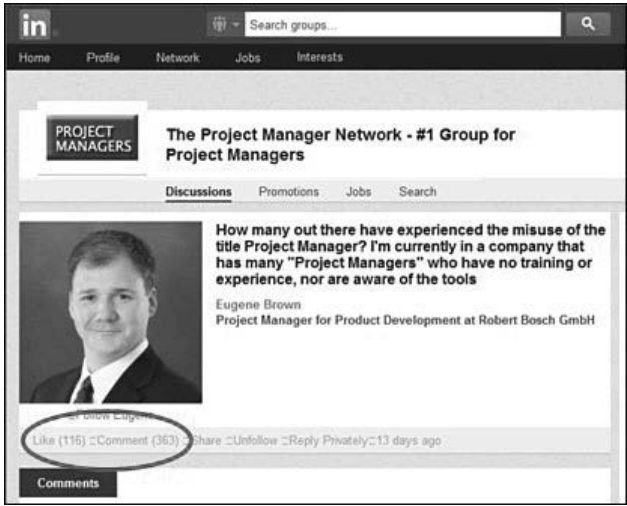


Figure 1.2 LinkedIn Discussion in the Project Management Group.

Source: LinkedIn < http://www.linkedin.com/groupAnswers?viewQuestionAndAnswers=&discussionID=5803933920311394304&gid=37888&commentID=5808736749823737856&trk=view_disc&fromEmail=&ut=3jKFMkmn-sdC01

Job boards and recruiters are filled with openings, the descriptions of which *seem* to imply an understanding of project management:

...the Project Manager will be responsible for delivering organizational and program related projects to schedule, budget, and quality. This role requires a mastery of the project management stages (initiate, plan, execute, monitor, control, and close) and the supporting processes (scope, cost, time, issue, risk, and resource and stakeholder management) combined with excellent stakeholder relationship management skills.

Sadly, recruiters, HR executives, and others often don't know exactly what they want or what can reasonably be expected of a project manager.

Project Management Roots



Figure 1.3 Early example of project deliverable

Source: <http://media.smithsonianmag.com/images/lifelists-giza-631.jpg>

Some point to marvelous and ancient examples such as Solomon's Temple, the Great Wall of China, the Pyramids of Giza, Stonehenge, Petra, the Taj Mahal, or Machu Picchu as the birthplaces of project management (and rightfully so), but the generally accepted beginning of the modern day discipline and practice of project management is the Manhattan Project. This ambitious and uncertain project—which produced the first atomic bomb in the 1940s—violated some of today's project management tenets, but the principles of organization, planning, control, and direction were certainly present and have strongly influenced standard practices for managing projects since then.

To bring some perspective to the first modern project manager Lieutenant General Leslie Groves' challenges, in addition to producing the world's first atomic bomb, he also created (in approximately two years) an industrial base that exceeded America's entire automobile production capability. It was no small project.

Scientists and engineers at the time were dealing with theory only in many cases—even down to the amount of fissionable material

needed to produce a bomb. Due to a lack of practical or proven knowledge, General Groves compared his position to that of a caterer “...who is told he must be prepared to serve anywhere between ten and a thousand guests.”

The discipline of project management enjoyed a long infancy. It was only in the 1970s when the phased approach became standard practice. The Project Management Institute was created in 1969 and contributed immeasurably to the maturing of project management, as did the U.S. Department of Defense (DoD) and NASA procurement approaches on large programs.

Key Concepts of Project Management

Ongoing operations and projects are ways organizations accomplish their goals and missions—their work, their products, their goods and services. Ongoing operations are more permanent than projects, which are unique and temporary (with definite beginning and ending points).

The *PMBOK Guide* describes project management as “the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements” and goes on to state that “...project management is accomplished through the appropriate application and integration of the 47 logically grouped project management processes, which are categorized into five Process Groups.”

The PMBOK Guide—the Standard

Perhaps the most effective way to define the PMBOK Guide is to start with what it is not. It is *not* a project improvement methodology. It is *not* a step by step how-to guide. This isn't a criticism; the

PMBOK Guide itself makes this perfectly clear, “...this standard is a guide rather than a specific methodology.” The Project Management Institute’s *A Guide to the Project Management Body of Knowledge (PMBOK Guide)* is very clear regarding its purpose: “The *PMBOK Guide* identifies that subset of the project management body of knowledge that is generally recognized as good practice.” It further states, “The *PMBOK Guide* also provides and promotes a common vocabulary within the project management profession for using and applying project management concepts.”

Take Away

The *PMBOK Guide* is the gold standard resource for project managers.

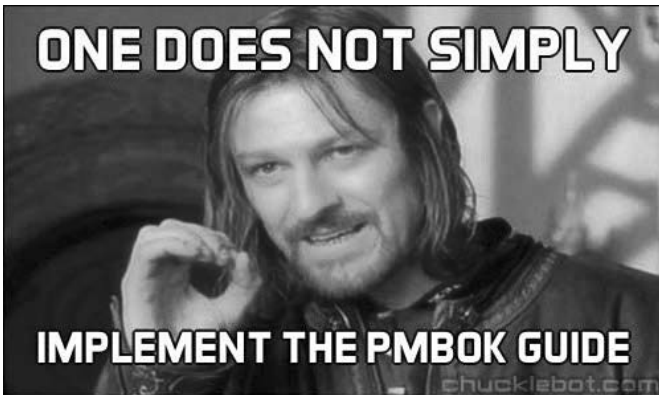


Figure 1.4 The PMBOK is not a methodology or practice to be implemented.

Meme generated using [chucklebot.com](http://www.chucklebot.com/meme-generator/one-does-not-simply) <http://www.chucklebot.com/meme-generator/one-does-not-simply>

You don’t implement the PMBOK in your project management efforts as illustrated in the above meme. There is wide consensus on this among experienced and trained project management

professionals. Rather, you choose, develop, and utilize a custom methodology based on the generally accepted good practices which “apply to most projects most of the time.”

Currently in its Fifth Edition (2013), the *PMBOK Guide First Edition* was published in 1996. The first edition was preceded by a white paper in 1987 in an attempt to document generally accepted practices and bring some standardization and common understanding to the art, science, or discipline of project management. I was a junior project manager for the U.S. Air Force and can still recall the need for said standardization.

The original white paper was a welcome development and generated considerable buzz within the project management community. Though I no longer have it, I received (and put to immediate use) a copy soon after its release. I wish I could locate my original copy; it was worn and tattered and filled with notes by the time I lost it.

The *PMBOK Guide* is a process-based document. It describes work being accomplished via 47 processes that are organized into five process groups and 10 Knowledge Areas. The *PMBOK Guide* considers these processes, groups, and knowledge areas suitable for nearly all projects.

The PMBOK Guide’s 5 Project Management Process Groups

- Initiating Process Group
- Planning Process Group
- Executing Process Group
- Monitoring and Controlling Process Group
- Closing Process Group

The PMBOK Guide's 10 Knowledge Areas

- Project Integration Management
- Project Scope Management
- Project Time Management
- Project Cost Management
- Project Quality Management
- Project Human Resource Management
- Project Communications Management
- Project Risk Management
- Project Procurement Management
- Project Stakeholder Management

The PMBOK Guide's 47 Project Management Processes (in Process Group then Knowledge Area Order)

- Develop Project Charter
- Identify Stakeholders
- Develop Project Management Plan
- Plan Scope Management
- Collect Requirements
- Define Scope
- Create WBS
- Plan Schedule Management
- Define Activities
- Sequence Activities
- Estimate Activity Resources
- Estimate Activity Durations

- Develop Schedule
- Plan Cost Management
- Estimate Costs
- Determine Budget
- Plan Quality Management
- Plan Human Resource Management
- Plan Communications Management
- Plan Risk Management
- Identify Risks
- Perform Qualitative Risk Analysis
- Perform Quantitative Risk Analysis
- Plan Risk Responses
- Plan Procurement Management
- Plan Stakeholder Management
- Direct and Manage Project Work
- Perform Quality Assurance
- Acquire Project Team
- Develop Project Team
- Manage Project Team
- Manage Communications
- Conduct Procurements
- Manage Stakeholder Engagement
- Monitor and Control Project Work
- Perform Integrated Change Control
- Validate Scope
- Control Scope
- Control Schedule

- Control Costs
- Control Quality
- Control Communications
- Control Risks
- Control Procurements
- Control Stakeholder Engagement
- Close Project or Phase
- Close Procurements

Also common among projects is the *PMBOK Guide*'s organization and presentation of the various components: inputs, tools and techniques, and outputs. *Inputs* are items required by a process before it can proceed and can include documents, plans, designs, estimates, reports, outputs from other processes, approved change requests, and so on. *Tools* and *techniques* are how the processes are accomplished (that is, how the inputs are turned into outputs) and can include expert judgment, facilitation techniques, meetings, project management information systems, analytical techniques, change control tools, benchmarking, and group decision-making techniques. *Outputs* are the results of applying the tools and techniques to the inputs and can include project charters; project management plans; work performance data; project document updates; the final product, service, or result; accepted deliverables; and so on.

The *PMBOK Guide* provides a globally recognized standard and guide for project management professionals. That standard, in its current form, represents the accumulated wisdom and knowledge of project managers from around the globe. It has evolved over the years and describes the profession's best practices, established norms, and generally accepted processes. It is a valuable resource and reference and is located in Annex A1 (page 417) of the *Fifth Edition PMBOK Guide*. Every project is unique, however, and the *PMBOK Guide*

itself describes the standard as “...good practice on most projects most of the time.”

How to Use the PMBOK Guide

The *PMBOK Guide* is a standard rather than a methodology, and you shouldn't expect to use it as a project management methodology. Rather, the body of knowledge contained in the *PMBOK Guide* is the “common language” for project managers around the world. It can help you understand nearly the entire accumulated project management body of knowledge, but it expects you to utilize judgment and experience to select a project management methodology that is right for your project. It does not present a prescriptive set of steps for you to follow; most of the various methodologies do that.

Despite the fifth edition being the best *PMBOK Guide* ever produced, some people still find it difficult to comprehend. Looking at its structure and organization will help you understand it and how to use the information it contains.

The *PMBOK Guide* has a deliberate and systematic organization and way of presenting the body of knowledge. It has

- 13 Chapters
- 1 Annex
- 3 Appendices
- 1 Glossary
- 1 Index

Chapters 1 and 2 provide context information on how and where the project management discipline or profession fits into management or decision science. They present the Project Management Institute's (and the *PMBOK Guide*'s) perspective that projects and

project management occur in an environment far greater than just the project itself (that is, no matter how important, the project is usually *not* the center of the universe). Chapter 2 delves into organizational cultures and styles, communications, and structures—especially on how they influence project management.

Chapter 3 addresses the processes of project management and divides those processes into two categories: project management processes and product-oriented processes. Product-oriented processes are outside the scope of the *PMBOK Guide*; it only addresses project management processes. It also stresses the need of “tailoring” or using the *PMBOK Guide* as a resource for managing a project while considering which specific tool or methodology is appropriate for that project.

Chapter 3 also introduces the five process groups. The *PMBOK Guide* simply presents them; they are the Initiating Process Group, the Planning Process Group, the Executing Process Group, the Monitoring and Controlling Process Group, and the Closing Process Group. The *PMBOK Guide* itself acknowledges this listing may be less than optimal for inexperienced project managers, saying “The project management processes are presented as discrete elements with well-defined interfaces. However, in practice they overlap and interact in ways that are not completely detailed in this document.” Figure 1.5 attempts to demonstrate the iterative nature of the process groups (especially of the Monitoring and Controlling Process Group) and the relative amount of time, effort, and energy that each process group may typically require (as indicated by the relative size of the boxes) in the real world. Certainly other project management professionals may have differing experiences and opinions, but this illustration represents my average project experience over three decades. One clarification: The back and forth arrows between the Monitoring and Controlling Process Group and the other process groups indicate *multiple* interactions, not two, as illustrated in Figure 1.5.

Take Away

Although the *PMBOK Guide* makes it very clear that process groups are not project life cycle phases. Most experienced project managers know that various groups are more active at certain times in the project and less so at others.

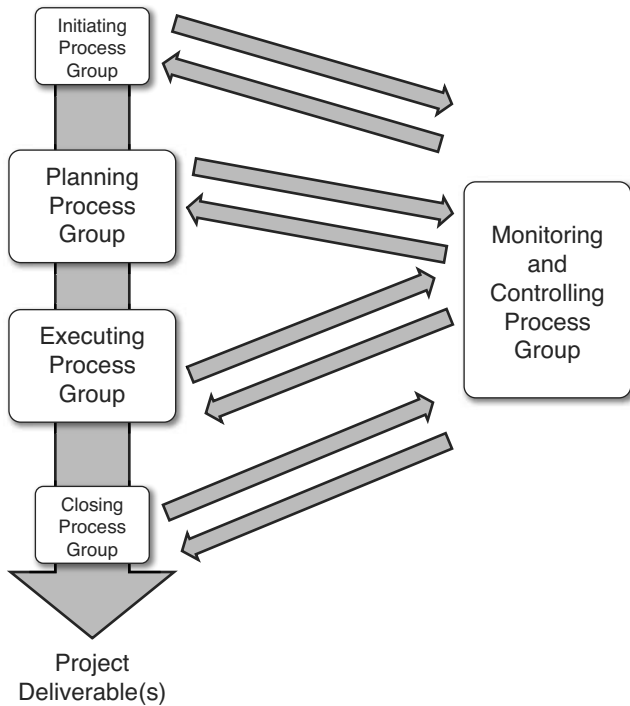


Figure 1.5 Real-world project flow

Chapters 4 through 13 address the ten knowledge areas and associated processes and activities. Each of these ten chapters is presented in a similar format. A consolidated overview from the *PMBOK Guide* is provided in a single location in Appendix A to facilitate teaching, learning, and using. Following chapters of this text will reference

Chapters 4 through 13 while exploring specific methodologies and concepts.

Where the Activity Occurs

One potentially useful and clarifying way of looking at project management activity and lifecycle phases is to identify where the activity occurs.

Management Process Activity occurs in only two Process Groups in five of the Knowledge Areas, as shown in the following charts.

Project Scope Management

Planning Process Group	5.1 Plan Scope Management
	5.2 Collect Requirements
	5.3 Define Scope
	5.4 Create WBS
Monitoring and Controlling Process Group	5.5 Validate Scope
	5.6 Control Scope

Project Time Management

Planning Process Group	6.1 Plan Schedule Management
	6.2 Define Activities
	6.3 Sequence Activities
	6.4 Estimate Activity Resource
	6.5 Estimate Activity Durations
	6.6 Develop Schedule
Monitoring and Controlling Process Group	6.7 Control Schedule

Project Cost Management

Planning Process Group	7.1 Plan Cost Management
	7.2 Estimate Costs
	7.3 Determine Budgets
Monitoring and Controlling Process Group	7.4 Control Costs

Project Human Resource Management

Planning Process Group	9.1 Plan Human Resource Management
Executing Process Group	9.2 Acquire Project Team
	9.3 Develop Project Team
	9.4 Manage Project Team

Project Risk Management

Planning Process Group	11.1 Plan Risk Management
	11.2 Identify Risks
	11.3 Perform Qualitative Risk Analysis
	11.4 Perform Quantitative Risk Analysis
	11.5 Plan Risk Responses
Monitoring and Controlling Process Group	11.6 Control Risks

Management Process Activity occurs in three Process Groups in two of the Knowledge Areas.

Project Quality Management

Planning Process Group	8.1 Plan Quality Management
Executing Process Group	8.2 Perform Quality Assurance
Monitoring and Controlling Process Group	8.3 Control Quality

Project Communications Management

Planning Process Group	10.1 Plan Communications Management
Executing Process Group	10.2 Manage Communications
Monitoring and Controlling Process Group	10.3 Control Communications

Two of the Knowledge Areas have Management Process Activity occurring in four Process Groups.

Project Procurement Management

Planning Process Group	12.1 Plan Procurement Management
Executing Process Group	12.2 Conduct Procurements
Monitoring and Controlling Process Group	12.3 Control Procurements
Closing Process Group	12.4 Close Procurements

Project Stakeholder Management

Initiating Process Group	13.1 Identify Stakeholders
Planning Process Group	13.2 Plan Stakeholder Management
Executing Process Group	13.3 Manage Stakeholder Engagement
Monitoring and Controlling Process Group	13.4 Control Stakeholder Engagement

And one Knowledge Area has Management Process Activity occurring in all five Process Groups.

Project Procurement Management

Initiating Process Group	4.1 Develop Project Charter
Planning Process Group	4.2 Develop Project Management Plan
Executing Process Group	4.3 Direct and Manage Project Work
Monitoring and Controlling Process Group	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control
Closing Process Group	4.6 Close Project or Phase

Conversely, one—and only one—Process Group has Management Process Activity in all ten Knowledge Areas: the Planning Process Group. Judging simply on the basis of Management Process Activity, the Process Planning Group and the Project Integration Management Knowledge Area seem to hold the most challenge and opportunity to achieve a successful outcome. Figure 1.6 illustrates the relative frequency of the management processes within the process groups.

This reflects my personal experience in project management. For instance, some team members are only present at the beginning of the project and serve only on the team that develops the project charter. This is important—critical even—to the project, but they make their contributions in this one area and have no further (or very limited) involvement in the remainder of the project.

Although we must be careful to avoid making unfounded assumptions, it is clear that with over 50% of the Management Process Activity occurring in the Planning Process Group, planning is critical to the successful outcome of any project. I think few experienced Project Management Professionals would take exception to this statement.

47 Management Processes Within the 5 Process Groups

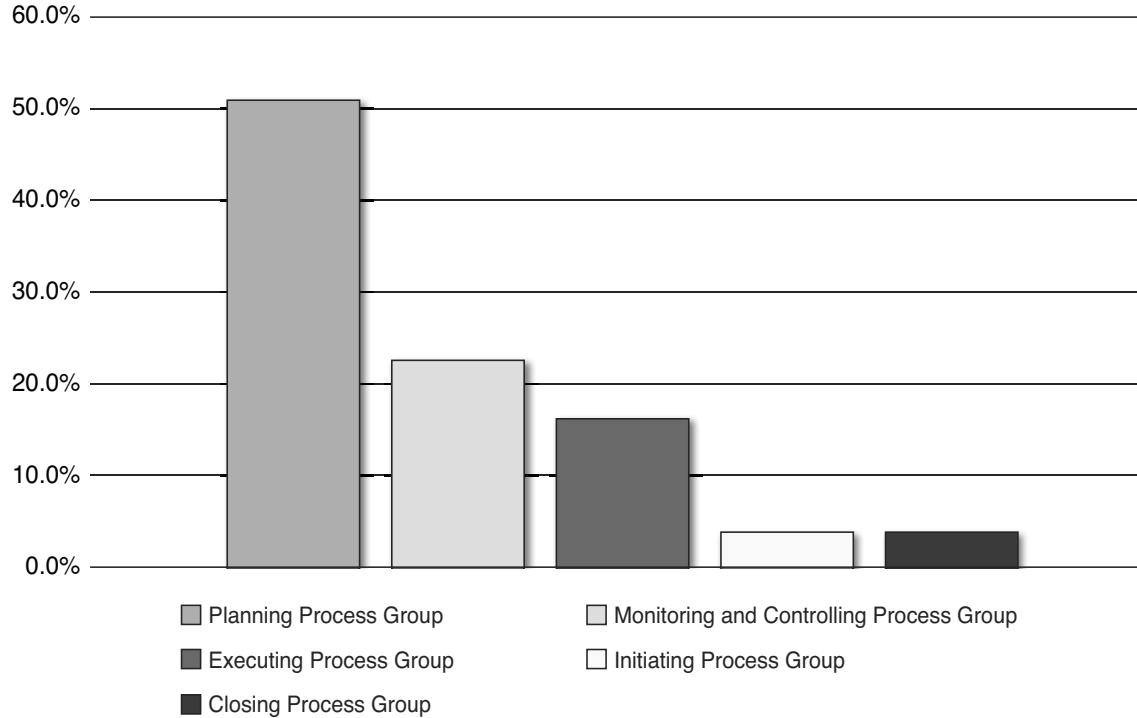


Figure 1.6 Pareto chart of the 47 management processes

Project Management Issues Not Addressed by the PMBOK Guide

I am extremely reluctant to criticize such a valuable resource (it meets its stated goals in a most exemplary manner), but one common observation is that the *PMBOK Guide* fails to adequately address the iterative nature of planning, monitoring, and controlling. Some also feel the exclusive focus on project management techniques is too limiting and that a more holistic approach would enable greater overall project success. That said, the Program Management Institute has done an excellent job of “evolving” the *PMBOK Guide* over the years to address current issues and concerns, and I am confident that project management professionals will find future editions even more helpful.

Some consider the *PMBOK Guide* to be weak in the area of planning and seem to prefer a more how-to or prescriptive approach to process planning. Others feel it misses the boat on soft skills such as communications, leadership, motivation, team building, listening, and so on. Some appreciate the depth in which Processes and Knowledge Areas are addressed; others consider it “over-emphasized.”

Creating a one-size-fits-all tool or document can be challenging. I think the Project Management Institute recognizes this challenge as evidenced by the evolution and “crowd-wisdom” approach. Appendix X2 of the fifth edition of the *PMBOK Guide*, which lists contributors and reviewers in the current and previous editions, is a veritable who’s who of the project management world. The names listed in the core committees, other committees, subcommittees, contributors, and list of reviewers clearly reflect international input. Figure 1.7 illustrates the difficulty of design by committee.



Figure 1.7 No document, no matter how ambitious or will-intentioned, will ever meet all needs.

Designed by committee; Photo: http://www.mediabistro.com/agencyspy/files/original/camelREX_468x372.jpg; Quote: <http://www.brainyquote.com/quotes/quotes/a/alecissigo312014.html>.

Given that I am a project manager, I feel safe in observing that we can be an opinionated group. We—of course—have different opinions on the PMBOK Guide. Listed here are some of my favorites taken from interviews, discussions, and social media sites:

- “The *PMBOK* is for people who want more flexibility when defining project methodology. PRINCE2 will allow less flexibility because it is based on step-by-step instructions.”
- “I have always thought the *PMBOK* is more a guide than a rule and it may not apply to the specific industry you work in.”
- “The *PMBOK* merely serves as a guide to project management. It can’t be rigidly applied...a good project manager will use a combination of experience, wisdom, communication, skill, and the *PMBOK*—or any other program management methodology—to successfully manage a project.”

- “I consider project management to be an art; therefore, there is no rulebook.”
- “Don’t get bogged down in some set of rules...have fun with project management. If we do our jobs correctly we will be adding to the body of knowledge, not stuck in it.”
- “The *PMBOK* is a body of knowledge captured in best practice framework. It is designed to be modified to suit the project. I personally take principles from the *PMBOK*, *PRINCE2*, and Agile in the projects I manage as they all have their strengths and weaknesses.”
- “Because each project is different, you are going to use different methods and different approaches. Consider the *PMBOK* a guidebook to help you shape your project management strategy. After that you have to come up with what works for you, your team, and your sponsor or client.”
- “The *PMBOK* is an important strategy when it comes to broad-scale processes...but Six Sigma is best suited for continuous reviews and improvements.”

So why do those of us in the profession sometimes have trouble defining this thing called the *PMBOK Guide*? It requires careful consideration, much like Bill Clinton’s careful thinking about what the meaning of the word “is” was. It depends... And there are some who feel despite PMI’s adoption of the phrase “Project Management Body of Knowledge” that the true body of knowledge is much greater than a single document. I don’t think PMI and its members would disagree that the ultimate project management body of knowledge (used generically, please note the lower-case letters) might include experience, war stories, project management methodology documentation (processes and procedures), project documents and archives, journals and black books, project postmortems, published information from case studies and best practices, textbooks and corporate

training courses, on-the-job training under a senior project manager, and so on.

There will *always* be some individual and unique areas not served by any project management guide or publication, but in general the *PMBOK Guide* seems to have fully met its stated goal, addressing “most projects most of the time.”

Emerging Issues Likely to Be Addressed in Future Editions

The *PMBOK Guide* is a standard rather than a methodology, and you shouldn't expect to use it as a project management methodology. Rather, it presents a significant amount of the total sum of knowledge regarding the profession or discipline of project management. One of the irritants of professional project managers has and always has been the ability of others who are less trained, less knowledgeable, and less experienced to practice their profession. Given (and it does appear to be a given) that project management is practiced by people with widely different levels of skill, training, experience, and ability, some feel a possible improvement in future editions of the *PMBOK Guide* may be in more prescriptive methods and more standard tools. Some project managers long for a nearly de facto requirement for enterprises practicing program management to comply with or implement the *PMBOK Guide*, which is not appropriate in its current format.

It seems likely that it is in the best interest of the profession that all project managers—even the amateurs, accidental, and de facto project managers—practice project management in the best manner possible. There are a growing number of project managers who would like to see a “*PMBOK-light*” as an entry or introduction into (and possible pathway toward full immersion) the profession. Hopefully this

text—and this series—can facilitate a broader understanding, acceptance, and utilization of the profession and the *PMBOK Guide* both at the individual and enterprise level.

Common Project Management Methodologies

There are a surprising number of project management methodologies. Some are broad-based tools appropriate for a wide variety of projects, industries, or activities; others are more narrowly focused in a particular area. Some of the most common are listed alphabetically and discussed below. In interesting contrast to *The PMBOK Guide*—which enjoys near universal agreement with the information it presents—project management methodologies are the subject of some disagreement. In fact, there isn't even consensus on what to call them; some refer to these methods, techniques, and practices as methodologies, some call them processes, others frameworks or tools, and still others use all these (and other) terms interchangeably. The following list presents some of the most widely known methods of project management:

Agile—As the name implies, this method focuses on speed. There are multiple approaches to Agile Project Management, but in general the project manager (PM) or team manages the project in small “iterations” or sections. As each iteration is nearing completion, it is reviewed and critiqued, and a decision is made on the next step of the project. This method preserves flexibility and works well on projects where a large number of changes, issues, or uncertainty is anticipated. One important caveat: To be optimal, the PM or team must be empowered to make decisions quickly without taking them to a champion, committee, or oversight board.

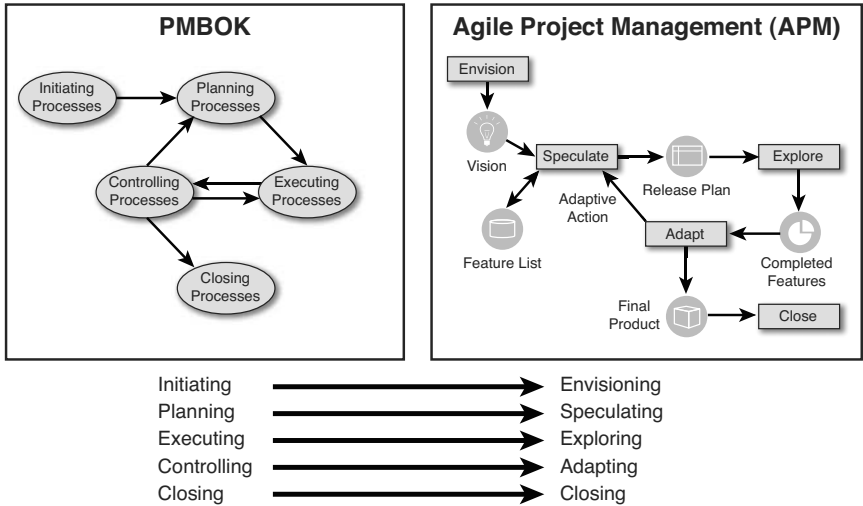


Figure 1.8 Agile Project Management contrasted with the PMBOK Guide's Process Groups.

Source: <http://www.agileconnection.com/sites/default/files/article/2012/XDD10365imagelistfilename1.gif>

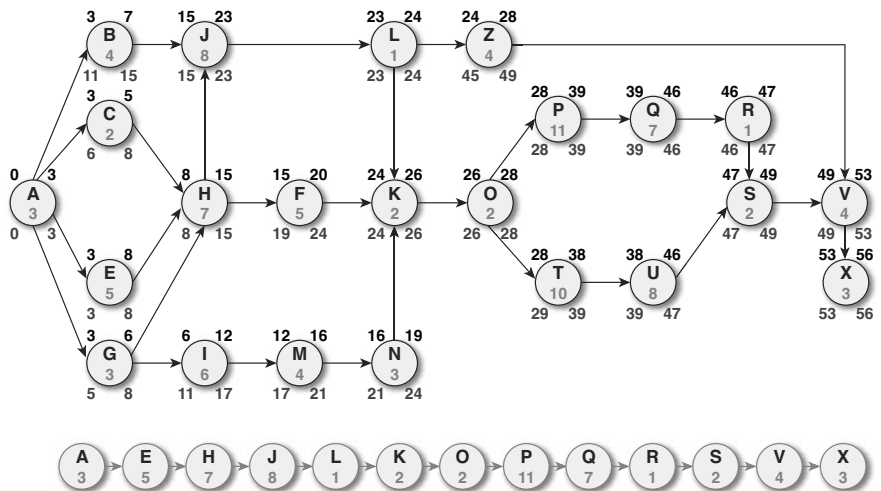


Figure 1.9 Example of a critical path work breakdown structure (WBS)

Source: <http://www.codeproject.com/KB/recipes/CriticalPathMethod/CPMTestCase.png>

Critical Path—The critical path method assigns a time duration to each project task, and then deploys resources necessary to accomplish the task within the scheduled timeframe. Only a very few of the many project tasks are “critical” (with regard to time); this method is very much focused on due date performance. A noncritical task can miss its due date, or “slip”—sometimes significantly—without impacting the overall schedule due date. If a critical task slips, the overall project date is adjusted accordingly (or the PM team takes other intervening actions to mitigate the lost time).

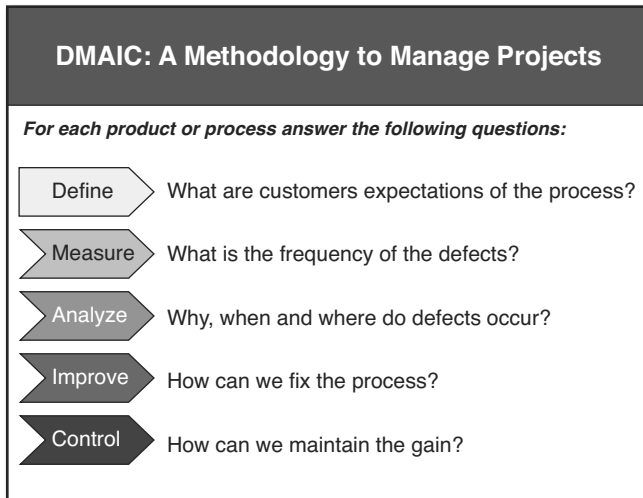


Figure 1.10 DMAIC methodology illustration

Source: <https://fisher.osu.edu/blogs/opex/files/2012/11/DMAIC.jpg>

DMAIC—Similar to (or perhaps a subset of) Six Sigma and typically used in improvement projects, DMAIC is an abbreviation for Define, Measure, Analyze, Improve, and Control. All five steps are required for a DMAIC project and are accomplished in the prescribed order.

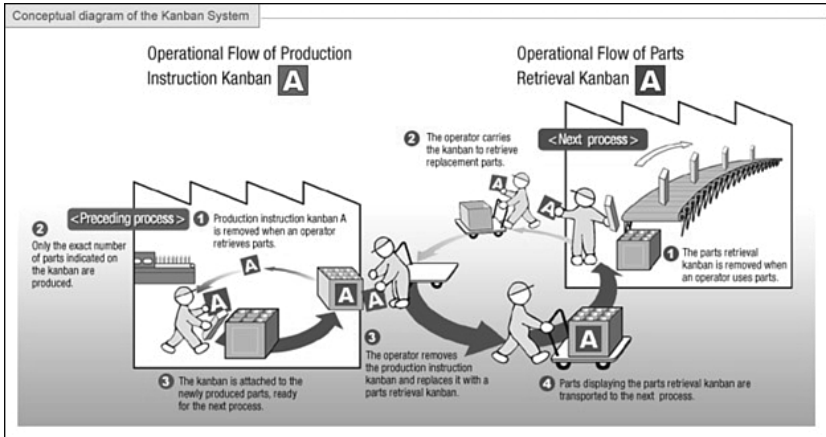


Figure 1.11 Kanban illustration

Source: http://www.toyota-global.com/company/vision_philosophy/toyota_production_system/images/p_2_zu.gif

Kanban—Like DMAIC, the focus in Kanban is usually process improvement. Some argue neither of these two are true project methodologies; others disagree. It begins with a unique project; the results of that project are usually incorporated into ongoing operations (for example, improved method of managing a process). Kanban is a visual process management system that aims to reduce waste by controlling what is produced, when it is produced, and how much is produced.

PRINCE2—An acronym for PProjects IN Controlled Environments, PRINCE2 enjoys widespread recognition and use in the United Kingdom and internationally. Like the *PMBOK Guide*, it is a body of knowledge and presents best practice project management guidance in a nonproprietary manner.

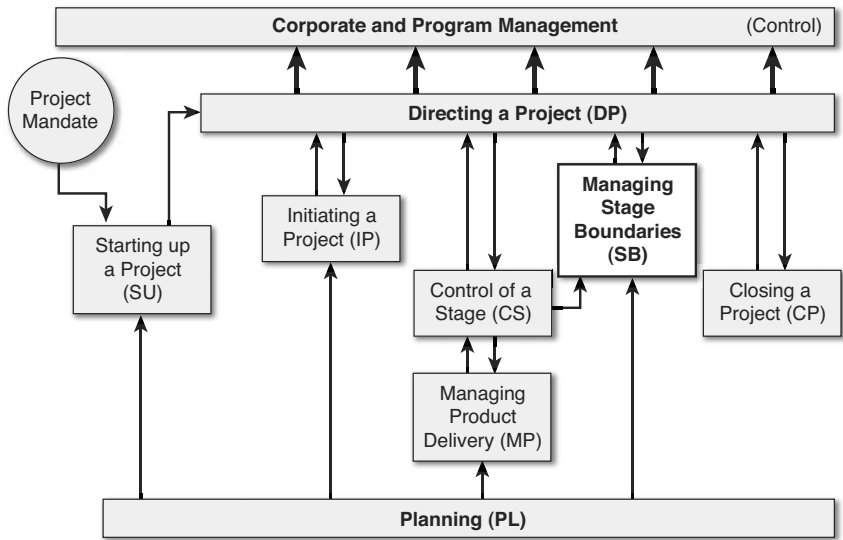


Figure 1.12 PRINCE2 Illustration

Source: http://upload.wikimedia.org/wikipedia/en/b/bc/Prince2_procces_model_.jpg

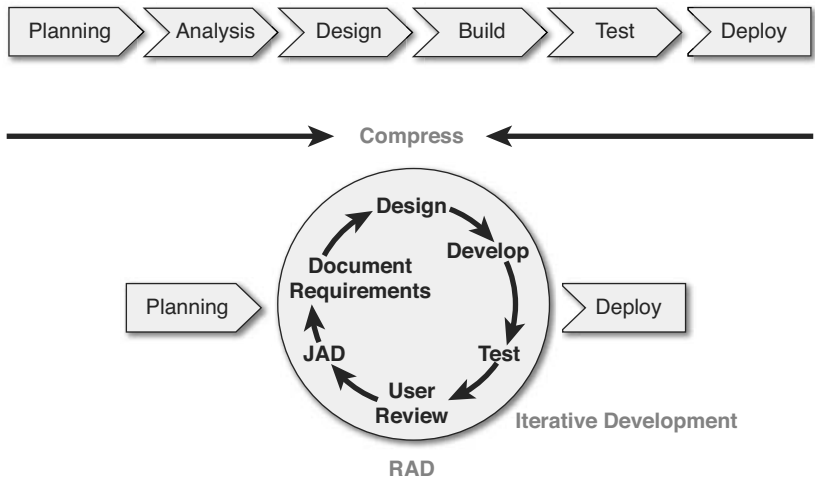


Figure 1.13 RAD illustration; compared with traditional development

Source: <http://www.softtrust.com/images/TRADvsRAD1.gif>

RAD—Rapid Application Development is another process improvement methodology applicable for software development. It is structured and disciplined and involves the customer. Similar to Agile and Scrum, it emphasizes development speed.

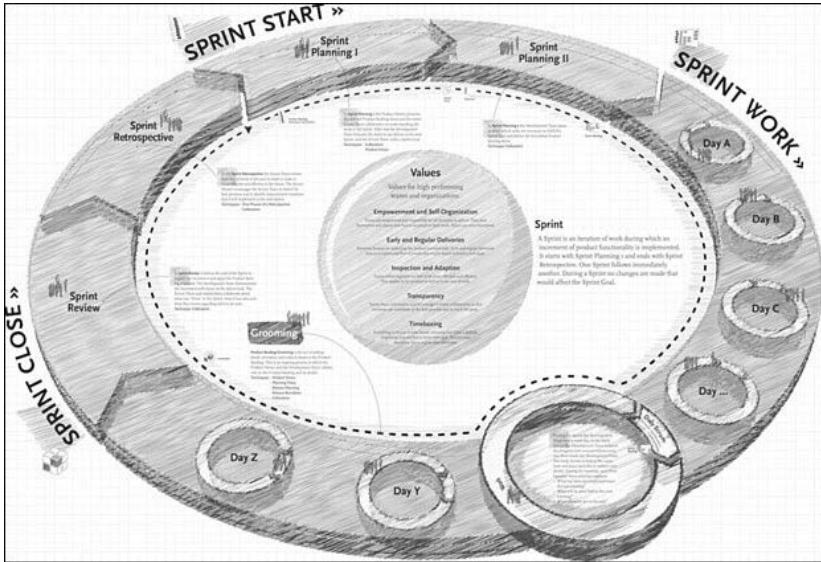


Figure 1.14 Scrum illustration

Source: <http://www.scrumbrowser.com/pkg/rc/SmallScrum/0/HEAD/file/f.img.scr.01.005.001/Scrum-Flow.jpg>

Scrum—Scrum is a type of agile project management where small teams work independently on various tasks or subsections. The PM is known as a *scrum master*, and the teams meet daily to collaborate and focus on common project interests. Similar to agile, scrum focuses on speed, and tasks (or iterations) are worked quickly, exclusively, and with high intensity. Scrum is typically used in software development but is also well-suited for projects requiring work from multiple disciplines. I recently used scrum to establish an organic C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance) depot for the U.S. Air Force and

employed various team of logisticians, supply chain managers, avionic technicians, facility engineers, industrial engineers, software engineers, and electricians. This approach allowed multiple subprojects to be accomplished concurrently and was completed ahead of schedule and under budget.

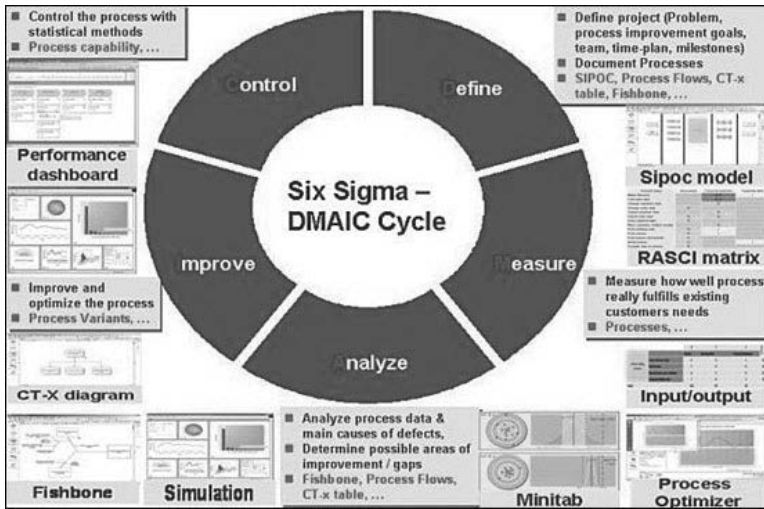


Figure 1.15 Six Sigma illustration

Source: <http://www.ariscommunity.com/system/files/editor/image/arisblog/six-sigma-dmaic-cycle.jpg>

Six Sigma—This method is typically deployed as a tool to find solutions to problems and prevent their recurrence by resolving the root cause. Many similarities exist between Six Sigma and the *PMBOK Guide*, but there is also disagreement; some think it more broadly applicable (beyond the discipline of project management) than the *PMBOK Guide*, yet others consider it more narrowly focused. There appears to be at least broad agreement that Six Sigma is a compliment (but not necessarily a replacement) of the *PMBOK Guide* and may be used on many projects.

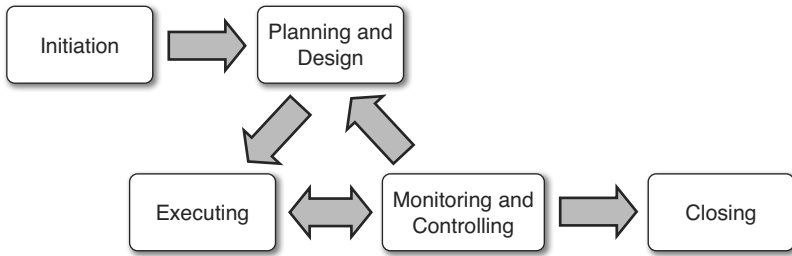


Figure 1.16 Traditional project management illustration

Source: [http://upload.wikimedia.org/wikipedia/commons/b/bb/Project_Management_\(phases\).png](http://upload.wikimedia.org/wikipedia/commons/b/bb/Project_Management_(phases).png)

Traditional—Traditional Project Management is a step-by-step approach of managing the project through five stages: initiation, planning, execution, monitoring, and closing. This method is commonly used in construction and other projects where relatively little change is anticipated during the life of the project. Project stages are accomplished in chronological order; a stage begins only after a preceding stage has been accomplished.

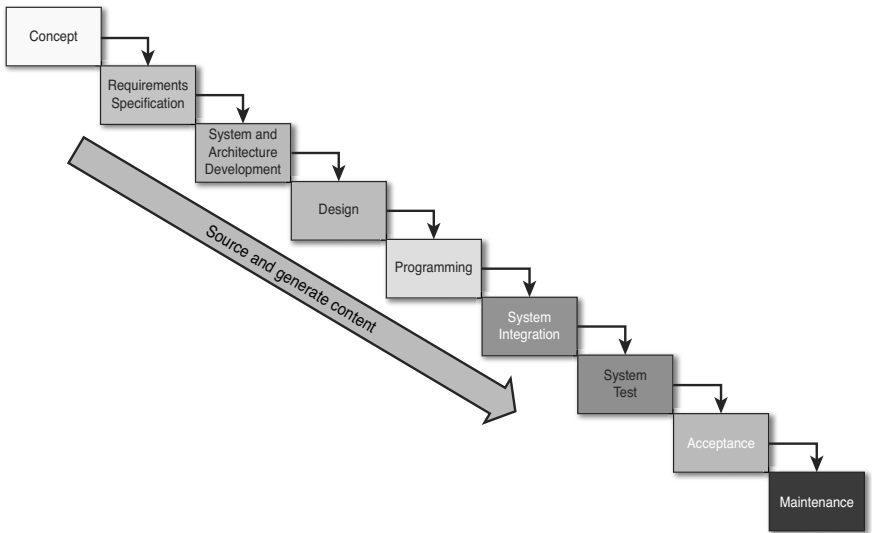


Figure 1.17 Waterfall project management illustration

Source: <http://4.bp.blogspot.com/-grqxMTu7yTY/TdOk2xOqWtI/AAAAAAAAADs/7nx8xS9GPqk/s1600/waterfall+model.PNG>

Waterfall—Waterfall Project Management is used primarily in software development. It employs a linear approach, and *usually* each event is a distinct stage of software development and is finished before the next begins. There is a unique review stage where the customer reviews and approves requirements before development work begins. This should prevent unpleasant surprises at the end of the project, but communicating about requirements in ways that are meaningful for customers can be difficult and often represent the most troublesome aspects of software development projects.

Summary

Ongoing operations—especially well-managed, quality, repeatable operations—are a way for an organization to accomplish its mission. Projects are vehicles to help organizations learn, change, adapt, improve, and adopt new processes, products, or technology. Well-managed projects are ways for project managers to provide enabling support for the sustainment and improvement of their organizations' ongoing operations.

Key Terms You Should Know

Project management

The PMBOK Guide

Process

Process Groups

Methodology

Knowledge Areas

Project manager

Discussion Questions

1. Briefly describe the term *project management*.
2. What does a project manager do?
3. Discuss the differences between ongoing operations and projects.
4. Is it a project if it doesn't have a due date?
5. What competencies are important for a project manager to possess?
6. How/when did the project management discipline (or profession) begin?
7. What is a Process Group? How many are in the *PMBOK Guide*?
8. What is a Knowledge Area? How many are in the *PMBOK Guide*?
9. What is a Project Management Process? How many are in the *PMBOK Guide*?
10. Is the *PMBOK Guide* a process improvement methodology?
11. Which Process Group has the largest number of occurrences of Project Management Processes? Why might this be important?

Project Manager's Perspective

I know of no other profession—with the possible exceptions of medical and legal—where caveats, assumptions, conditions, and so on are so critically important. Your leadership will usually not speak the “language” of program management, and just as the five-year-old who is promised, “Santa will bring you a pony...*if you are good for the rest of the year*,” senior managers sometimes only hear what they want to hear. So a wise and experienced project manager will learn to be explicit in the terms and conditions and requirements of the deliverables.

That was difficult for me to understand as I began my career as a project manager. Like many others in the 1970s and 1980s I was an “accidental” project manager, and it wasn’t a deliberate career or educational choice. My training in accounting gave me an intuitive understanding of schedules and timelines as an ideal state—much like the accounting profession’s budgets. And my understanding of schedules—just like budgets—was that the question wasn’t whether or not you’d miss the targets, but rather how much would you miss them by?

Accuracy is important, of course, but our crystal balls are often cloudy. One of my personal appreciation of project management tools like Symantec’s Timeline (early in my career, no longer available) and Microsoft’s Project (and many others) was the fact that the fresh, clean, optimistic, “best guess” project schedule was just that—a guess. An educated and experienced guess, but a guess nonetheless. I loved the file AFTER project completion. It was reality, full of mistakes and corrections and flawed assumptions and lessons learned for future projects. It was reality, and a really good postmortem of a detailed and accurate project schedule is as educational as any class I’ve ever taken. It can help you be a better project manager.

So from the trenches, my best advice is to realize that your project milestones and schedules are estimates, and they *will* slip. Make sure your leadership knows that, and also make sure they understand the conditions and requirements of your promised deliverables; that is, if X and Y are accomplished, Z will result. If not...

You come to examine project management at a special time. More and more leaders understand its place in helping them achieve goals and targets, and it’s being accepted, embraced even, across

a wide variety of industries—medical, legal, financial, manufacturing, services, construction, engineering, software, and so on. Good luck and find a grizzled old project manager and listen to a few “war stories.” You’ll be glad you did.

Exercises

1. Select two colleagues or acquaintances who work in a different organization than you do. Ask them how they manage projects. Do they have designated project managers or people who manage projects in addition to their regular responsibilities?
2. As a student, you are (or will be) assigned case studies and other research or presentation projects. If you’ve accomplished them successfully (as evidenced by a passing grade), you already know something about organizing, milestones, tasks, project deliverables, and so on. Based on what you’ve learned so far in Chapter 1, how might a school project be similar to a workplace project? How might they be different?

Final Points

- Project management can be a profession, a job, an assignment, or a task. It can be a full-time or part-time activity.
- Everyone manages projects; therefore everyone is either a formal or informal (or perhaps both, at different times) project manager.
- Project management has existed for a very long time, and you can find it all around you.

- The *PMBOK Guide* describes the accumulated knowledge and experience that the project management community at large generally accepts as applying to “most projects most of the time.”
- Project management can be confusing and requires concentrated study to master.
- Projects and ongoing operations are how organizations accomplish their goals and missions.

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