

Preface

In the past, the formal discipline of project management was applied primarily to very large projects lasting several years and costing millions of dollars; this was as true for information technology (IT) projects as it was for other industries. Furthermore in the 20th century, project management methods were largely based upon “command and control” techniques. These techniques evolved from ancient military regimes and dictatorial governments, where relatively few educated people directed large numbers of uneducated people. Some industries are still that way, but many companies and most IT organizations are evolving into team- and project-based environments using knowledge workers, independent contractors, and, perhaps, various forms of outsourcing. Competitive advantage today is increasingly based upon knowledge assets instead of upon the traditional assets of land, labor, and capital. In addition there is now a separation of “work” from “workplace,” and operations may be performed on a global scale.

To be successful in our IT projects (and most IT projects are still not successful), it is imperative that we apply formal project management methods and tools to all IT project-based work. Also the formal methods and tools of project management need to evolve to address the changes in modern software engineering and our high-tech global workplaces. In the past, project success was defined too narrowly as simply meeting time and cost constraints for a given scope of work. However, in order for an IT project to be completely successful, that basic definition of success needs to be extended. This extension is particular with regard to product quality, stakeholder satisfaction, security, organizational human capital, and long-term factors such as maintainability and adaptability. With that extended definition of success, management techniques and tools can be extended or otherwise modified to be more effective.

This book describes and illustrates practices, methods, and tools for IT project management that address this extended definition of project success for modern times. As such, this book is directed to IT project managers, those IT personnel aspiring to become project managers, and also to experienced IT personnel who wish to learn of new project management concepts, methods, and tools. This book is also designed for use as a textbook or reference in graduate or upper-level undergraduate university

programs in IT or project management. Throughout the book, a number of IT project management “standard forms” are presented and a number of spreadsheet models are also developed. An open source general Web-based project management software system (FiveAndDime) is used to illustrate many of the methods and applications discussed in the book. An appendix of the book contains a glossary of the IT project management and software engineering terms and acronyms used.

Chapter I introduces and defines a project, project management, the project manager, and project stakeholders. These management concepts are discussed relative to our modern IT dominated world and in context with today’s “information revolution” and to the business and technical forces that drive this revolution. The distinctions of IT project management as compared to general project management are also identified here.

Chapter II introduces the concept of project “critical success factors.” A key factor leading to the continued failure in IT projects is the lack of identification and appreciation for all the major components of project success. Critical success factors are those things that must be done or handled properly for a project to be successful. A comprehensive model of critical success factors for IT projects permits the development of better management plans, processes, and metrics particularly for risk, quality, and performance control. In this chapter, general critical IT success factors are identified and techniques for the management of those factors are introduced. The notion of a “dual stage gate process” for the comprehensive and effective management of these success factors is also introduced in this chapter; later chapters define metrics and control methods for these success factors using dual stage gating.

Chapter III discusses project initiation and selection. The careful selection of which projects to initiate is vital to the success of an organization. Project initiation represents a future commitment of both human and financial resources as well as of management attention. In this chapter, methods for the proper selection and initiation of projects are discussed with regard to overall organizational goals and business justification. In this chapter, project initiation and the processes and documents involved with project evaluation from a business perspective are discussed and illustrated. Standard forms for the “project proposal” and “project business plan” are presented. (Later, Chapter VI continues with the life of a project after an organization has committed to perform said project.)

Chapters IV and V discuss project management and software engineering from a disciplinary perspective, as these concepts and terms are used throughout the remainder of this book. A number of worldwide professional organizations have been developed to foster the project management discipline, and these organizations and their bodies of knowledge are presented in Chapter V.

Although software engineering is not a formal part of project management, it is vital for the proper planning of IT projects. Even for IT projects that primarily involve software acquisition and integration instead of software development, the software engineering embedded in the products that are acquired will significantly affect long-term project success factors. In Chapter V, modern software engineering and its relation to IT project management is discussed. Key challenges to software engineering in the 21st century are presented as well as how software engineering together with project management can address those challenges.

Chapter VI formalizes overall project planning and requirements analysis. Getting off to a fast start in the right direction is important in any endeavor, and overall planning and requirements are two of the most important aspects of IT project management. Standard forms are presented for the project charter, overall project plan, software management plan, and requirements document. The process of IT requirements' discovery and documentation is formalized and illustrated. Once a complete and clear set of requirements has been documented and approved by all relevant stakeholders, detail project planning can begin; such detail planning is covered in the following chapters.

Chapter VII is concerned with detail project planning, particularly the schedule and cost plan. In this chapter, the formulation of a detail schedule and cost plan is discussed and illustrated. WBS formulation, task sequencing, task estimation, scheduling, and costing methods are all covered. The detail scope, time, and cost planning of this chapter forms the basis for other detail plans—including the risk plan, procurement plan, HR plan, quality plan, control plan, and change plan—described in subsequent chapters.

Success in the modern business world involves taking some risk. All the systems that are really changing the world today are very risky systems, but one needs to know how to manage risk, including how to identify risk sources, quantify risk parameters, and develop plans to handle risks; these are the topics covered in Chapter VIII. The total project risk-management process is described and illustrated and standard forms are developed for an IT risk-management plan. A framework based upon critical success factors for analyzing project risk threats and hazards is also presented.

Once a project is planned and underway, the project manager cannot simply walk away and assume that everything will go according to plan. In Chapter IX, project performance control metrics and techniques are defined and discussed. Performance metrics for each critical success factor are identified and illustrated. Standard forms for status reports and stage gate reviews are presented. Corrective actions to bring a project back in compliance with the plan are also identified and discussed.

As a project proceeds, quality is often the most difficult area to keep on track. Chapter X discusses the many quality aspects of project management, and project success factors are used as the basis for key quality metrics. A quality management plan for IT projects includes both verification and validation, and such a plan is presented here. Other important quality topics are also discussed in this chapter, including the many types and methods of software testing, software development standards, and quality organizations and programs. Standard forms for quality standards and quality stage gates are included here.

Change is a fact of life for most projects, particularly IT projects. A major cause of IT project overruns is changes in scope. Change can be good or bad, but change is expected, and change has to be managed. Chapter XI is concerned with the overall IT change management process, including version control and configuration control. Project closeout and related topics such as lessons learned are also included and illustrated. Standard forms for change control plans, change orders, and project closeout are presented in this chapter.

Many IT projects involve the purchasing of goods or services, and some IT projects are mostly procurement activities, at least from a cost perspective. With the increase in IT outsourcing and outsourcing offshore, there is an increasing need for very formal

procurement management, and that overall management process is the subject of Chapter XII. This chapter covers general project procurement and the formal procedures and documents used in procurements such as the statement of work, request for proposal, and contracts. The different types of procurement documents are discussed and which types are used in which situations and with what types of contracts. In particular for IT projects the subject of outsourcing is also covered in detail.

The identification and management of a project's stakeholders is vital to the complete success of a project. Often, well-planned and properly executed projects can still fail due to a lack of relationships or inappropriate relationships between the project manager and various stakeholders. Chapter XIII discusses matters related to the human side of project management including stakeholder relations, communications, team management, and security. Standard forms are presented for the project communications plan, human resources plan, and security plan.

Traditional methods of progress performance reporting are often inaccurate and misleading. Earned value analysis (EVA) has proven to be an extremely effective tool for project time and cost management, providing good estimates of actual project completion cost and date. EVA is also a good early indicator of project problem areas, so that appropriate corrective action can be initiated. In Chapter XIV, EVA is defined, discussed, and illustrated in detail. EVA is one of the key metrics in the management-for-success philosophy that is developed in this book via critical success factors and dual stage gates. EVA is often difficult to implement effectively and can have a number of problem areas. However, this chapter identifies the EVA problem areas and their practical solutions.

There is a vast amount of project management software available today in a wide variety of capabilities, applicability, platform requirements, and prices. These software products significantly enhance a PM's job of managing a project in almost all aspects including selection, planning, scheduling, execution, control, risk, communications, and so forth. Therefore, PMs should be aware of the types of tools available and the features and applicability of those tools. In Chapter XV, types of software products and some specific products are identified and discussed, including spreadsheet models and open source software.

Management of IT projects and being on an IT project team used to be simpler. PMs typically had one project to manage and team members were only on one team. All the team members were located in close geographic proximity, and the work was all done at the workplace. Today, however, the project landscape has become much more complex, where everyone is concerned, with multiple projects and teams spread out all over the world. The business needs of cutting costs to the bone and being quicker to market have increased the pressures on project teams and their managers. Chapter XVI discusses modern ways that organizations can effectively deal with these complexities, including the use of project management offices (PMOs), project portfolio optimization, knowledge management, project dashboards, and PMO portals. Chapter XVI also discusses project management from a strategic perspective.