

JACK T. MARCHEWKA

FOURTH EDITION



CHNOLOGY **INFORMATI** PROJECT MANAGEMENT

FOURTH EDITION

International Student Version

Jack T. Marchewka







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PREFACE

Welcome to *Information Technology Project Management (4th Edition)*. This book was written to help you learn the processes, tools, techniques, and areas of knowledge needed to successfully manage information technology (IT) projects.

The idea of project management has been around for a long time. In fact, it was around before the great pyramids of Egypt were created. Today, project management has emerged as its own field, supported by a body of knowledge and research. Although still relatively new, the fields of management information systems (MIS) and software engineering have their own bodies of knowledge that include various tools, techniques, and methods supported by a continually growing base of research.

Unfortunately, the track record for IT projects has not been as successful as one might expect, although the situation appears to be improving. One reason for this improvement has been a greater focus on a project management approach to support the activities required to develop and deliver a product, service, or information system. Just as building a system is more than sitting down in front of a computer and writing code, project management is more than just creating fancy charts or diagrams using one of the more popular project management software packages.

We can, however, build a system that is a technical success but an organizational failure. Information systems—the products of IT projects—are planned organizational change. Information technology is an enabler for new products, services, and processes that can change existing relationships between an organization and its customers or suppliers, as well as among the people within the organization.

This change can represent a threat to many groups. Therefore, people may not always be receptive to a new IT solution regardless of how well it was built or whether cutting edge technology, tools, and techniques are used. On the other hand, people in an organization may rightfully resist an information system that does not function properly or meet their envisioned needs. Therefore, we must take an approach that does not consider the technical side over the organizational side or vice versa. Attention to both the technical and organizational sides of IT projects must be balanced in order to deliver a successful project.

APPROACH

In writing this book, I have tried to create a balance between concept and application. Many project management books tend to cover a broad set of topics with little practical application. Others tend to focus on the tools and techniques, but fall short in showing how everything ties together.

This book was written with the student in mind. Many years ago—more than I would care to admit—when I was a student, one of my instructors said that the problem with many textbooks was that they were written by professors for other professors. That statement stuck with me over the years. When I first began writing this text, I wanted to be sure that it was written with the student in mind.

Learning and understanding how to apply new concepts, tools, and techniques can be challenging enough without being made more complex by obscure writing. As you will find out, learning concepts is relatively easy when compared to putting them into good practice. This

book is intended for both undergraduate and graduate students. While it has no specific prerequisites, you should have at least an introductory class in information systems or programming under your belt. You should find that the concepts of IT project management will complement courses in systems analysis and design.

Those of you who are undergraduates will not be thrust into the role of a project manager immediately after graduation. My goal is to help prepare you for the next several progressions of your career. For example, your first assignment may be to work on a project as a programmer or analyst. The knowledge that you will gain from this text will give you a good idea of how your work fits into the big picture so that you can be a more valuable project team member. More challenging and interesting assignments and opportunities for advancement will follow as you continue to gain more knowledge and experience. Eventually, this may lead to a leadership role where your knowledge and experience will be put to the optimal test.

On the other hand, you may have already acquired some experience and now find yourself in the role of a project manager. This text will provide you not only with the big picture, but also with a foundation for applying directly the tools, processes, and methods to support the management and delivery of a successful IT project.

This book follows a generic information technology project methodology (ITPM). Most students who read this book will never have been on a real IT project. I have written this book based on a flexible methodology that attempts to bridge the questions: How do I get started?, What do I do next?, How do we know when we're finished? This methodology provides a structure for understanding how projects are initiated, conceptualized, planned, carried out, terminated, and evaluated. This methodology will take you through the different phases of the project life cycle and introduce the concepts and tools that are appropriate for each specific phase or stage of the project. In addition, you will find the methodology and central theme of this text is that IT projects should provide measurable value to organizations.

The text provides an integrated approach to IT project management. It incorporates the nine areas outlined in the Project Management Institute's Project Management Body of Knowledge (PMBOK®). The concepts associated with information systems management and software engineering when integrated with PMBOK® provide an important base of knowledge that builds a foundation for IT project management. This integration helps to distinguish IT projects from other types of projects such as construction or engineering.

The text also integrates a knowledge management approach. The area of knowledge management is an area of growing interest and development. Knowledge management is a systematic process for acquiring, creating, synthesizing, sharing, and using information, insights, and experiences to create business value. Here, the concept of learning cycles provides a unique approach for defining and creating new knowledge in terms of lessons learned. These lessons learned can be stored in a repository and made available throughout the organization. Best practices can be developed from the lessons learned and integrated or made a part of an organization's IT project methodology. Over time, the generic ITPM introduced in this text can evolve and become a valuable asset to an organization as it becomes aligned with the organization's culture and business. In turn, this evolving process will provide the organization with increased capability and maturity that hopefully will increase the likelihood of successful projects.

CHAPTER OVERVIEWS

The material in each chapter provides a logical flow in terms of the phases and processes required to plan and manage an IT project. The text begins with a call for a better way to manage IT

projects and then focuses on the deliverables and processes required to initiate a project. Once a decision to approve and fund an IT project is made, the project must be planned at a detailed level to determine the schedule and budget. The planning and subsequent execution of the project's plan are supported by the project management and information technology bodies of knowledge.

- Chapter 1: An Overview of IT Project Management includes defining what a project is and the discipline of project management. The concepts of the project life cycle and systems development life cycle are also introduced, as well as IT project governance and the project selection process.
- Chapter 2: The Business Case introduces an information technology project management methodology (ITPM) and the concept of measurable organizational value (MOV), which will provide a foundation for this text. In addition, the first phase of this methodology, conceptualizing and initializing the project, and the first deliverable of this methodology, the business case, are described and discussed.
- Chapter 3: The Project Charter introduces a knowledge area called project integration management. A project planning framework is also described to support the development of the project plan.
- Chapter 4: The Project Team describes the formal and informal organization so that the project manager and team can conduct a stakeholder analysis to better understand the organizational landscape. Project team selection and the roles of the project manager are discussed, as is the concept of learning cycles to support a knowledge management approach to IT project management.
- Chapter 5: The Scope Management Plan introduces and describes the project management knowledge area called project scope management. The project's scope defines what the team will and will not deliver to the sponsor or client. Scope management processes also ensure that the scope is properly defined and that controls are in place in order to manage scope throughout the project.
- Chapter 6: The Work Breakdown Structure (WBS) describes the project management tool called the work breakdown structure (WBS), which breaks up the project's scope into work packages that include specific deliverables and milestones. Several traditional project estimation approaches are introduced, as well as several software engineering techniques and metrics for software estimation.
- Chapter 7: The Project Schedule and Budget introduces several project management tools, including Gantt charts, activity on the node (AON), critical path analysis, program evaluation and review technique (PERT), and precedence diagramming, that aid in the development of the project schedule. A budget can then be developed based upon the activities defined in the WBS, the schedule, and the cost of the resources assigned or required.
- Chapter 8: The Risk Management Plan describes the concept of risk management and introduces a framework for defining and understanding the integrative nature of risks associated with an IT project. Several qualitative and quantitative approaches and tools are introduced for analyzing and assessing risks so that appropriate risk strategies can be formulated.
- Chapter 9: The Project Communication Plan focuses on developing a communication plan for reporting the project's progress to various project stakeholders. This chapter includes an introduction to the concept of earned value and several common project metrics to monitor and control the project.

- Chapter 10: The IT Project Quality Plan provides a brief history of the quality movement, the people involved, and their philosophies and teachings as an underpinning to support the project quality objective. Several quality systems to support IT project quality are also discussed. These include the International Standards Organization (ISO), Six Sigma, and the capability maturity model (CMM). Together, the concepts, teachings, philosophies, and quality system approaches provide a basis for developing the IT project quality plan.
- Chapter 11: Managing Change, Resistance, and Conflict describes the nature and impact of change associated with the delivery of an information system on the people within an organization. Several organizational change theories are introduced so that a change management plan can be formulated and executed in order to ease the transition from the current system to the system that will be implemented.
- Chapter 12: Managing Project Procurement and Outsourcing introduces several project procurement management processes. This PMBOK® knowledge area focuses on contract management and the processes needed to administer relationships with outside suppliers and vendors as well as clients or customers. In addition, outsourcing of organizational and project components has received a great deal of attention. This chapter describes the various types of outsourcing relationships as well as how an outsourcing relationship should be managed.
- Chapter 13: Project Leadership and Ethics describes some modern approaches to leadership and the relationship with ethics. Some common ethical dilemmas that may be encountered on projects are introduced along with a process for making sound ethical decisions. Moreover, several challenges and issues associated with managing multicultural projects are discussed as more organizations attempt to diversify their workforce or conduct business across the globe.
- Chapter 14: The Implementation Plan and Project Closure describes the tactical approaches for installing and delivering the project's product—the information system. In addition, the processes for bringing closure to the project and evaluating the project team and the project's MOV are discussed.
- Appendix: An Introduction to Function Point Analysis provides a more detailed discussion on counting function points than is provided in Chapter 6.

WHAT'S NEW IN THE FOURTH EDITION

- The Project Management Body of Knowledge areas have been updated to reflect the latest edition of the PMBOK Guide[®].
- Several Quick Thinking exercises have been replaced or updated. These short cases provide a useful pedagogical tool for in-class discussions to increase a student's level of learning.
- A new integrated case called the Martial Arts Academy has been added at the end of each chapter. Along with the Husky Air cases, these cases provide students with an opportunity to work as a project team and apply the concepts presented in each chapter.
- Three Microsoft Project® tutorials have been added to the 4th edition. These tutorials provide a foundation for learning, using, and applying the concepts of the text to the integrated case assignments.

ORGANIZATION AND SUPPORT

An instructor's manual, test bank, and presentation slides are available through the Wiley website.

A 60-day trial edition of Microsoft Project is packaged with every new textbook. Note that Microsoft has designed the trial version to be installed only once. If you have purchased a used book and a prior user has installed the software, you will not be able to install it. Also, please be aware that Microsoft has changed their policy and no longer offers the 120-day trial available with previous editions of this textbook.

Another option now available to education institutions adopting this Wiley textbook is a free 3-year membership to the MSDN Academic Alliance. The MSDN AA is designed to provide the easiest and most inexpensive way for academic departments to make the latest Microsoft software available in labs, classrooms, and on student and instructor PCs.

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Dr. Marchewka has taught a number of courses at both the undergraduate and graduate levels and has been a guest lecturer at the Rotterdam School of Management at Erasmus University in the Netherlands and the University of Bordeaux in France. His current research primarily focuses on IT project management, and his articles have appeared in such journals as Information Resources Management Journal, Information Technology and People, Journal of International Technology and Information Management, Communications of the IIMA, and Information Management.

He is currently a board member and fellow of the International Information Management Association, where he has served as program chair, conference chair, and past president. Dr. Marchewka was also editor of the *Communications of IIMA*.

Jack Marchewka is also a black belt in Kajukenbo and an instrument-rated commercial pilot who enjoys his family, karate, fishing, playing guitar, good BBQ, riding his motorcycle, and a good laugh.

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