Fifth Edition

INFORMATION SYSTEMS MANAGEMENT IN PRACTICE

Barbara C. McNurlin
Writer—Information Systems

Ralph H. Sprague, Jr.
University of Hawaii

UPPER SADDLE RIVER, NJ 07458

Preface

This book deals with the management of information technology (IT) as it is being practiced in organizations today. Successfully managing IT has become crucial for several reasons:

- IT is now a strategic asset that is being used to mold competitive strategies and change organizational processes.
- The situations in which organizations are applying IT have increased in complexity, including more interorganizational environments.
- The capabilities of IT and the complexities of using the technologies are also growing at an accelerating rate.
- As IT and its uses become more complex, developing strategies and systems to deliver the technology has become more difficult.

The net result is a growing need for guidance on the issues, strategies, and tactics for managing the use of information technology. To partially satisfy this need, universities and colleges have developed courses that focus on the management of IT. Textual material for these courses has been sparse for two particularly troublesome reasons.

First, IT is changing so rapidly that textbook authors, practitioners, researchers, and academics have a difficult time staying current. For example, in the past couple of years, two major developments stand out. One has been the surprisingly fast uptake of business uses of the World Wide Web. This dramatic shift appears to be a precursor of a coming revolution—wireless handheld computing—which is touted to change how we all work, live, and play. So while information systems (IS) departments are busily creating an Internet-based platform for their enterprises to become e-corporations, they must also be experimenting with yet another anticipated computing platform: small wireless devices.

The second major development, which is much more subtle but equally profound, is the movement toward knowledge management—which is a far different task from data management or information management. The concern these days is for managing intellectual assets because they provide true competitive advantage. Enterprises are delving for ways to leverage the knowledge in people's heads by fostering fast and efficient sharing, globally. As a result of these and other changes, courses have often had to rely on periodicals to stay up-to-date.

Another reason for the paucity of IT textual material for these courses is that the principles and strategies of effective management are evolving out of the experiences of practicing managers. Merely collecting reports from the current literature fails to provide the interaction needed to decipher principles from the lessons learned in

practice. Current developments and experiences need interpretation and coalescence to provide the guidance that new and practicing managers need to further develop their knowledge and managerial skills.

CONTRIBUTION OF THIS BOOK

We believe this book makes a major contribution to both of these problems. The primary resource for this book is work we recently performed for several organizations—Gartner Executive Programs, The Sourcing Interests Group, and Hawaii International Conference on System Sciences (HICSS), in particular. Our work for these organizations does not merely report current developments and practices, it includes thoughtful interpretation to provide guidance, principles, and strategies for IS executives.

Our objective in this book is to capture the material of most current importance to IS executives, and to organize it around a framework that provides guidance for the IS department. A key element of our writing continues to be examples of actual work in companies. This book includes over 84 company case examples.

USE OF THIS BOOK BY PRACTICING MANAGERS AND CONSULTANTS

In the management of information technology, this book is useful to several levels of managers:

1. To senior executives who want an overview of the issues and strategies in managing IT, with examples of what other companies are doing
2. To chief information officers who must implement IT as a strategic resource, to help their organizations attain their overall goals and objectives
3. To IS managers who are responsible for major technical areas, such as system development, technology planning, and operations
4. To managers of functional units who (a) want to better understand the issues and processes of providing IT support for their areas of responsibility, or (b) are now responsible for overseeing the management of IT in their function

We believe that practicing managers of all types will find this book valuable. By focusing on issues and strategies, while explaining technical concepts, this book provides an overview of IS management for corporate executives and managers. By combining the experiences of successful executives in "the real world," this book provides a unique perspective for all IS managers.

Consultants to executives and managers will also find this book a useful reference for staying up-to-date on important issues in the field.

USE OF THIS BOOK AS A TEXT

Future IS managers who are graduate or undergraduate students will find that this book presents a view of what "the real world" has in store. As a text, it has been intended for students who have had at least one IS course.

At the graduate level, it has been used since its first edition in 1986 for the second course, beyond the required IS course. It is especially well suited for the final course in

a graduate curriculum on IS management. In addition, as MBA students have become more computer literate in recent years, the book has been increasingly used as the text in the MBA IS-core course. In both uses, the book gives students conceptual and practical guidelines for dealing with the management of today's IS function.

At the undergraduate level, the book can serve as the text for a course dealing specifically with the management of IT, or in the capstone course that summarizes the practice of IT for students about to begin their careers. Most undergraduate majors in IT take entry-level positions in the IS department, and then proceed into management. In the short term, they work with IS managers who are facing the problems and using the principles dealt with in this book.

Although this book has not been aimed at students majoring in other areas, non-information systems majors are taking IS courses in increasing numbers to better understand how to deal with systems professionals. Most chapters in this book are pertinent to them, because the theory is illustrated by real-life case studies, which are easily understood by students in all business disciplines.

At the end of each chapter are three types of questions and exercises to reinforce the material in the text.

- *Review questions* are based directly on the material in the chapter, allowing the reader to assess comprehension of the chapter's key principles, topics, and ideas.
- *Discussion questions* are based on a few topics in the chapter for which there is a legitimate basis for a difference of opinion. These questions focus discussion on these issues when the book is used in a seminar or classroom setting.
- *Exercises* provide an opportunity for the reader to put some of the concepts and ideas into practice on a small scale. In particular, one exercise in each chapter requires a student, or a team of students, to visit a local company and discover how the ideas in the chapter are being implemented in that company.

THE INSTRUCTOR'S GUIDE

We accompany this fifth edition with an Instructor's Guide, originally prepared by Jerry McBride of Marist College in Poughkeepsie, New York. Again, Jerry supplied the all-important critical questions in the guide. The purposes of the guide are (1) to help instructors prepare a strategy and outline for conducting an advanced systems course using this text, and (2) to provide support materials and techniques to enhance the course.

We believe there are five approaches for using this text. The five course modes are:

- A lecture-based course
- A seminar-based course
- A directed study course
- An independent study course
- An action research course

In the Instructor's Guide, Jerry suggests some interesting resources to use in these different course approaches. For example, he explains how he has used a computer-based simulation game to help his students understand the consequences of their actions, as they try to introduce technology innovation into an organization.

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The Instructor's Guide includes:

1. Outlines for the five course approaches
2. An overview for each chapter
3. Answers to the review questions in the text
4. Transparency masters for all the figures in the text
5. Suggestions on how to conduct site visit exercises
6. Several sample syllabi
7. An approach to using simulation software
8. Critical questions for each chapter, and how to create them

These critical questions deserve a short explanation. Like the discussion questions in the text, critical questions are designed to stimulate critical thinking and discussion among students. In the Instructor's Guide, we present critical questions for each chapter, as well as an explanation of how Jerry has helped his students create them, thereby stimulating their critical thinking.

A course in IS management can be exciting—to teach and to take. We have provided the Instructor's Guide to make this one of those exciting courses.

FORMAT AND CONTENTS

This book is divided into five major parts, each dealing with a major portion of the field of IT. Chapter 1 precedes Part I because it serves as the framework around which the rest of the book is built. It traces the growing importance of IS management and presents a conceptual model to show the key areas, how they fit together, and the principal issues for executives in each area. It also presents a very interesting longitudinal case example of how these ideas have been implemented in a company over the lifetime of this book—since 1986. In a nutshell, it presents a 15-year historical view of the evolution of IS management.

Part I deals with *leadership issues*, including the top IS job, the strategic area of electronic commerce, and approaches to systems planning. Part II treats the all-important issues in *managing the essential information technologies*, distributed systems, telecommunications, information resources, and operations. Part III deals with *managing system development*; its evolution continues to present management with important, yet risky, challenges. Part IV explores *systems for supporting knowledge work* and includes the expanding universe of computing, supporting group work, executive IS, and document management. Part V concludes the book and discusses *moving into the new economy*.

Throughout the book, our objectives have been to keep the material practical, to give examples, and to derive guidance for today's and tomorrow's IS executives based on the experiences of others. To that end, chapters are sprinkled with company examples. These are not so much case studies that require "solutions" or recommendations; rather, they are case examples that show how companies have put some of the ideas in a chapter into practice.

ACKNOWLEDGMENTS

We wish to acknowledge the contribution of Richard G. Canning, Barbara's father. His insight and foresight originally made this book possible in 1986. In the early 1960s, he recognized the data processing executive's need for case studies, practical research

findings, and thoughtful analysis. Through publishing and editing *EDP Analyzer* (now *I/S Analyzer Case Studies*) from 1963 until his retirement in 1986, Dick Canning devoted a major portion of his professional career to that purpose. His legacy continues in this book.

Special thanks go to William Chismar of the University of Hawaii, who took the responsibility for Chapters 3 and 9. His material on the strategic value of E-Business makes a particularly important contribution to this edition.

We also wish to thank the organizations that have allowed us to draw on work we performed for them—Gartner Executive Programs, The Sourcing Interests Group, and HICSS in particular.

Reviewers for this edition included Jacquelin Dunn of the University of South Dakota, William Nance of San Jose State University, Sasan Rahmatian of California State University at Fresno, and Reza Torkzadeh of the University of Texas at El Paso.

Finally, we thank Jerry McBride and Tracia McNurlin Barbieri. Jerry was again instrumental in creating the all-important Instructor's Guide—and without Tracia's assistance, the Instructor's Guide would not have been completed so quickly.

Barbara Canning McNurlin
Ralph H. Sprague, Jr.
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