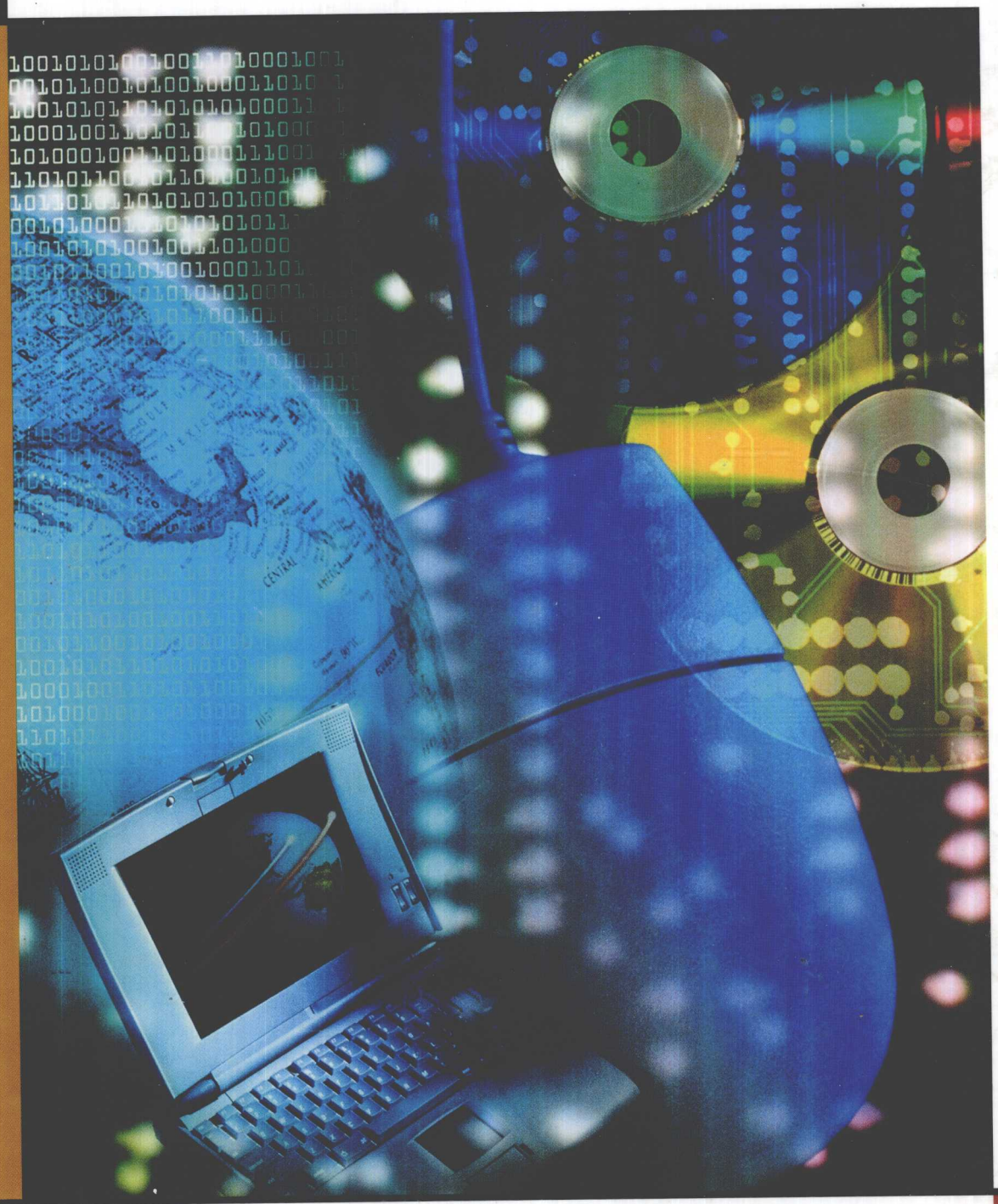
BUSINESS AND INFORMATION SYSTEMS

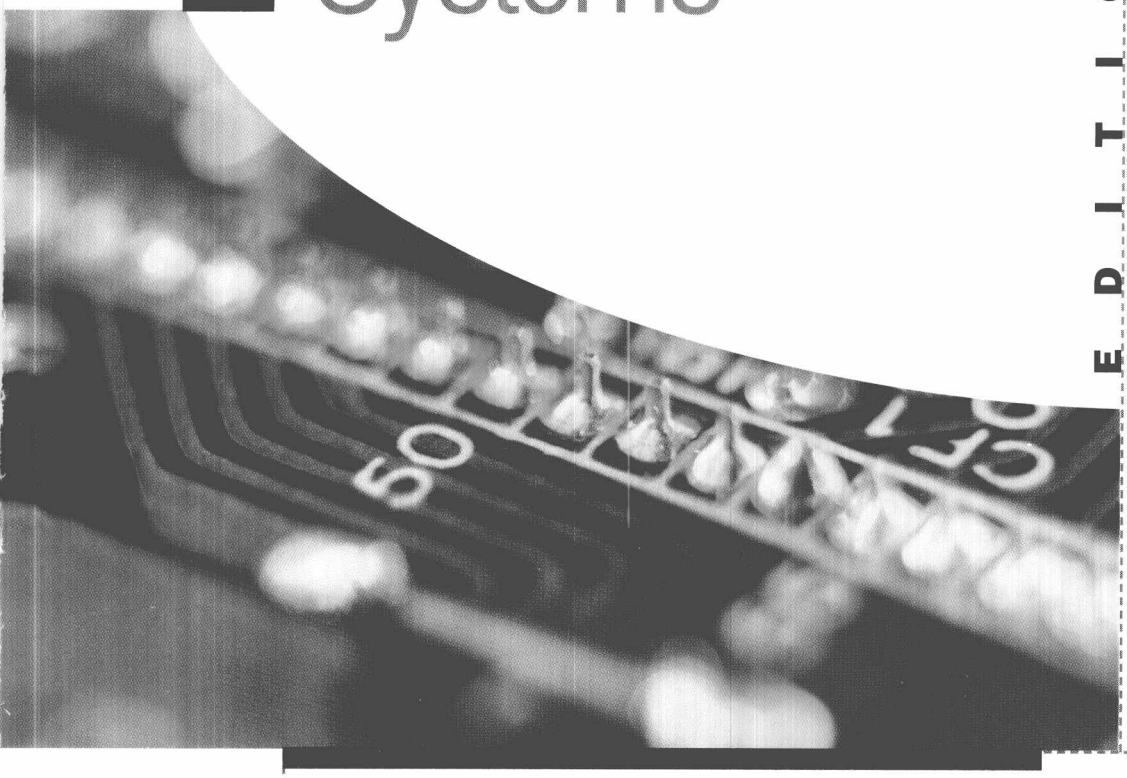
Second Edition



ROBERT C. NICKERSON

Business and Information Systems

EDITION 2



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PREFACE

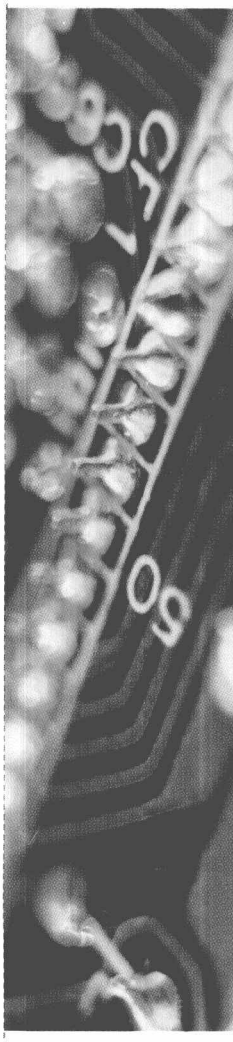
Information systems are essential to the operations and management of businesses today. To become effective business professionals, students must be educated in information systems and technology, and in the integration of information systems into business activities. A student's understanding of business is limited without an understanding of information systems. But how can a student understand information systems without *first* understanding business?

This question prompted the writing of the first edition of this book. The question is even more important today, as businesses increasingly rely on information systems. The second edition of *Business and Information Systems* continues to take the unique approach of covering both business fundamentals and information systems. The book views information systems and businesses as intricately intertwined. It presents not only the traditional information systems and technology topics, but also the fundamental business background that students need in order to understand the relevance of these topics. The book describes how businesses operate and are managed, and shows how information systems support business operations and management. It discusses the importance of competitive advantage to businesses and explains how information systems can help provide that advantage. The book covers the technical foundations of information systems and shows how the technology is critical to the success of businesses.

Students taking an information systems course often find the approach followed by other books unsatisfactory. Although most books explain information systems and technology adequately, they do not provide a sufficient foundation in business functions for students to fully understand the importance of the technical topics. As a result, students often complete the information systems course without knowing how the course material relates to other areas of business, such as accounting, finance, marketing, production, and human resource management. When they take other business courses, they are not able to use information systems concepts in those courses.

This book overcomes these difficulties by integrating business topics with information systems concepts. For example, the second chapter of the book explains business fundamentals. It describes the functions and organization of a business, explains the flow of information in a business, and examines the use of information in business management. This background serves as a basis for understanding the need for and structure of information systems. This approach is carried through in other chapters. For example, the chapter on information system fundamentals (Chapter 3) discusses the need that businesses have for information technology, and the chapters on specific technologies (Chapters 4 through 7) emphasize the role of each type of technology in businesses. Similarly, each chapter on business information systems (Chapters 8 through 12) discusses the advantages businesses gain from the systems described in the chapter. These chapters also cover such topics as management decision making and competitive advantage to provide a basis for understanding the role of management information and strategic information systems.

Students taking an information systems course may also find that some books provide a narrow view, focusing primarily on personal computers and applications. This book presents a broad view of information systems, showing how systems function at many levels within an organization and between organizations. It describes how individuals, workgroups, and organizations as a whole use information systems. It examines systems that operate within a business and between businesses–including



electronic commerce systems–and that function at local, national, and global levels. All these perspectives, from the individual to the interorganizational and global, are covered completely in the book.

Content and Organization

The book is organized into four parts. Part I introduces business and information systems concepts and examples. Chapter 1 motivates the students by showing that they will be involved with information systems as end users in their jobs and careers. Chapter 2 covers basic business concepts that students need to know in order to understand information systems. More advanced business concepts appear in later chapters, where they relate to different types of information systems. Chapter 3 examines the basic structure of information systems, emphasizing the need for each component of the system. This chapter also discusses ethical decision making and ethical issues for information systems in detail. With the background in Part I, the other parts of the book can be covered in any order.

Part II examines the information technology that forms a foundation for information systems. Chapter 4 covers information system hardware that is relevant to the user. Chapter 5 describes information system software, again emphasizing concepts that are most relevant to the user. Chapter 6 discusses networks used in information systems, including local area networks, wide area networks, internetworks, and the Internet. Chapter 7 covers data management for information systems, including database organization and processing.

Part III of the book examines information systems in businesses. Chapter 8 discusses the need for improving personal productivity in the workplace, explains how people use common end-user software to improve their productivity, and shows how users solve business problems using this software. Chapter 9 examines the importance of group collaboration in businesses and describes the groupware tools that encourage such collaboration. Chapter 10 covers basic business operations and explains how information systems can increase the efficiency of these operations. Chapter 11 examines management decision making, the information and analysis that can improve the effectiveness of decision making, and the information systems that provide the necessary support. Chapter 12 explains how information systems can have a strategic impact on a business and examines the types of systems that can have such an impact, with particular emphasis on electronic commerce systems. Numerous examples are used throughout this part of the book to illustrate the information systems that are described.

Part IV of the book discusses the development and management of information systems. Chapter 13 covers the development of information systems, with an emphasis on end-user involvement in the development process. Chapter 14 examines the management of information systems.

Changes in the Second Edition

A number of changes, including the following, have been made in the second edition based on the experiences of users of the first edition.

- Chapter 3 has been almost entirely rewritten to eliminate redundancy with other chapters. The emphasis in this chapter is on the business need for the technological and other components of the information system.
- The material on individual problem solving in Chapter 13 of the first edition has been moved to Chapter 8 and rewritten to increase its relevance. Other material

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in Chapter 13 that overlapped with Chapter 14 of the first edition has been eliminated.

- New material on electronic commerce has been incorporated throughout the book. Chapter 1 introduces electronic commerce, Chapter 6 covers information technology for electronic commerce, Chapter 12 discusses electronic commerce from an organizational perspective, Chapter 13 examines the development of electronic commerce systems, and case studies throughout the book examine applications of electronic commerce.
- Ethics in information systems has been moved to Part I, and the material has been expanded. Chapter 1 introduces ethics and the problem of evaluating ethical questions, and Chapter 3 covers ethical issues for information systems in detail. In addition, each chapter has a separate set of ethical questions in the end-of-chapter material.
- Coverage of the Internet and the World Wide Web has been expanded throughout the book. In addition, more cases emphasizing the Internet have been included, and separate end-of-chapter projects on the Internet, the Web, and e-commerce have been added to each chapter.
- All chapters have been updated to ensure that the material is current. A few examples of the many new topics are rewritable compact disk (Chapter 4), XML (Chapter 5), DSL (Chapter 6), multidimensional databases (Chapter 7), portals (Chapter 8), instant messaging (Chapter 9), ERP (Chapter 10), and knowledge management (Chapter 11).
- Almost all in-chapter boxed cases and end-of-chapter real-world cases have been replaced with newer cases. More electronic commerce and Internet/World Wide Web cases have been added.

Key Features

The importance of information systems to end users is emphasized throughout the book. Starting with the first chapter, examples show how end users are involved in information systems. Part II discusses only the information technology topics that are immediately useful to end users or that provide a foundation for understanding important concepts. Part III discusses personal productivity for end users and end-user involvement in workgroup, organizational, interorganizational, and global information systems. Part IV shows how end users are involved with others in the development of organizational information systems.

Three fictitious businesses are presented in Chapter 1 and used as examples in various chapters. These businesses–a campus sports shop, an athletic clothing wholesaler, and an athletic shoe manufacturer–were selected because they are easy for students to understand and represent a range of business types. Examples of information systems for these businesses are used in different chapters to illustrate basic concepts.

In addition to fictitious businesses, a wide range of real businesses and organizations are used for examples of information systems in case studies throughout the book. Systems in small, local businesses, those in regional and national companies, and systems in multinational corporations are all presented. Systems in not-for-profit organizations and government agencies also are described. Many of the examples come from businesses and organizations that are based outside the United States, including businesses in Canada, Europe, and Asia.

The book takes the view that the Internet and the World Wide Web are essential to information systems in businesses and organizations. Consequently, these topics are covered throughout the book, not just presented in a single chapter. The goal is

for students to see how the Internet and the Web help support business operations and management at different levels and in different ways. Chapter 1 introduces the Internet and the World Wide Web, and other chapters expand on these topics as appropriate. Technical descriptions of the Internet, the World Wide Web, intranets, and extranets are provided in Chapter 6, but students do not need the technical background to use the Internet and the Web.

Electronic commerce is also viewed as essential to businesses today. The topic is introduced in Chapter 1, expanded on in other chapters, and discussed in cases throughout the book. Chapter 6 covers the technical background necessary for electronic commerce but, again, the technical topics are not necessary to understand the use of electronic commerce in businesses. Chapter 12 covers electronic commerce in detail from the organizational point of view, including business-to-consumer and business-to-business e-commerce. Chapter 13 examines the process of developing electronic commerce systems.

Each chapter in the book begins with the chapter outline and a list of learning objectives. Within each chapter are two boxed cases, called Bookmarks, that describe applications and systems in real businesses. These cases, taken from professional publications, show how the topics in the chapter apply in the real world. Each case includes questions to challenge the students. Each case also includes one or more URLs of relevant Web sites. Many of the cases involve either non-U.S. companies or U.S. companies engaged in international business.

Each chapter in the book ends with a chapter summary, a list of key terms introduced in the chapter, review questions, discussion questions, ethics questions, problem-solving projects, and Internet and electronic commerce projects. The discussion questions are designed to challenge the students to think more deeply about the chapter's topics. The ethics questions ask the students to examine ethical issues for information systems. The problem-solving projects, which are designed to encourage the application of the chapter's material, present problems that the students must solve, often using personal computer software such as spreadsheet and database software. The Internet and electronic commerce projects mostly require the use of the World Wide Web to locate and analyze information related to chapter topics or to the application of chapter topics in electronic commerce. Finally, each chapter concludes with a real-world case taken from a professional publication or similar source. The case integrates many of the chapter's topics and includes questions that require the students to apply chapter material in analyzing the case.

Instructor Support Materials

A complete set of instructor support materials is available to adopters of the book. The materials are designed to improve instructor effectiveness and enhance the learning experience for the students. Included in the materials are the following:

- Instructor's Resource CD-ROM. The Instructor's Resource CD-ROM contains the instructor's manual, test item file, Windows PII Test Manager, PowerPoint slides, and image library.
- Instructor's Manual with Test Item File. A full and complete instructor's manual, written by Robert C. Nickerson and Robert Kachur, is available in print, on the Instructor's Resource CD-ROM, and through the book's Web site. The manual includes teaching suggestions, answers to review and discussion questions, answers to Bookmark and Real-world Case questions, and other items to help the instructor prepare the course. The test item file, written by Arthur Rasher, features multiple-choice, true/false, fill-in-the-blank and essay questions. It is printed in the back

of the instructor's manual and is available on the Instructor's Resource CD-ROM; it is not available on the Web site.

- Windows PH Test Manager. The Windows PH Test Manager, also found on the Instructor's Resource CD-ROM, is an excellent suite of tools for testing and assessment. The questions used in the Test Manager are the same as those found in the test item file.
- PowerPoint Slides. PowerPoint slides, created by T. Warren Hardy, delivered on the Instructor's Resource CD-ROM and through the book's Web site, feature key concepts from the book.
- Image Library. The image library is an excellent resource to help instructors create vibrant lecture presentations. Almost every figure and photo found in the book is provided and organized by chapter for the instructor's convenience. A complete listing of the images, their copyright information, and page references is also provided. These images can easily be imported into Microsoft PowerPoint to create new presentations, or to add to existing sets.
- Videotapes. Commercially produced videotapes can be used to enhance lectures on concepts presented in the book. The videotapes are available free of charge to qualified adopters.

Companion Web Site

The companion Web site for the book (www.prenhall.com/nickerson) was designed specifically to provide support for students in the course. The site features an Interactive Study Guide with numerous items to enhance the students' learning experiences. Included in the Interactive Study Guide are the following:

- Links to general business and information systems Web sites.
- Links to Bookmark and Real-world Case Web sites.
- Updates to the material in the book.
- Study Guide questions in which students receive automatic feedback and can print or e-mail their results to their instructor.

A secure Faculty Resource section of the Web site is also available where adopters can download the Instructor's Manual and PowerPoint slides.

Acknowledgments

Many of the ideas for the second edition of *Business and Information Systems* came from comments and reviews by users of the first edition. I greatly appreciate their input. The manuscript reviewers did a thorough job, and their comments were especially useful. My colleagues at San Francisco State University provided much useful advice. David Chao, Sam Gill, Bonnie Homan, Jim Glenn, and Art Kuhn were especially helpful, but many other colleagues contributed in some way. Finally, I could not have completed this book without the help and support of my family.

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