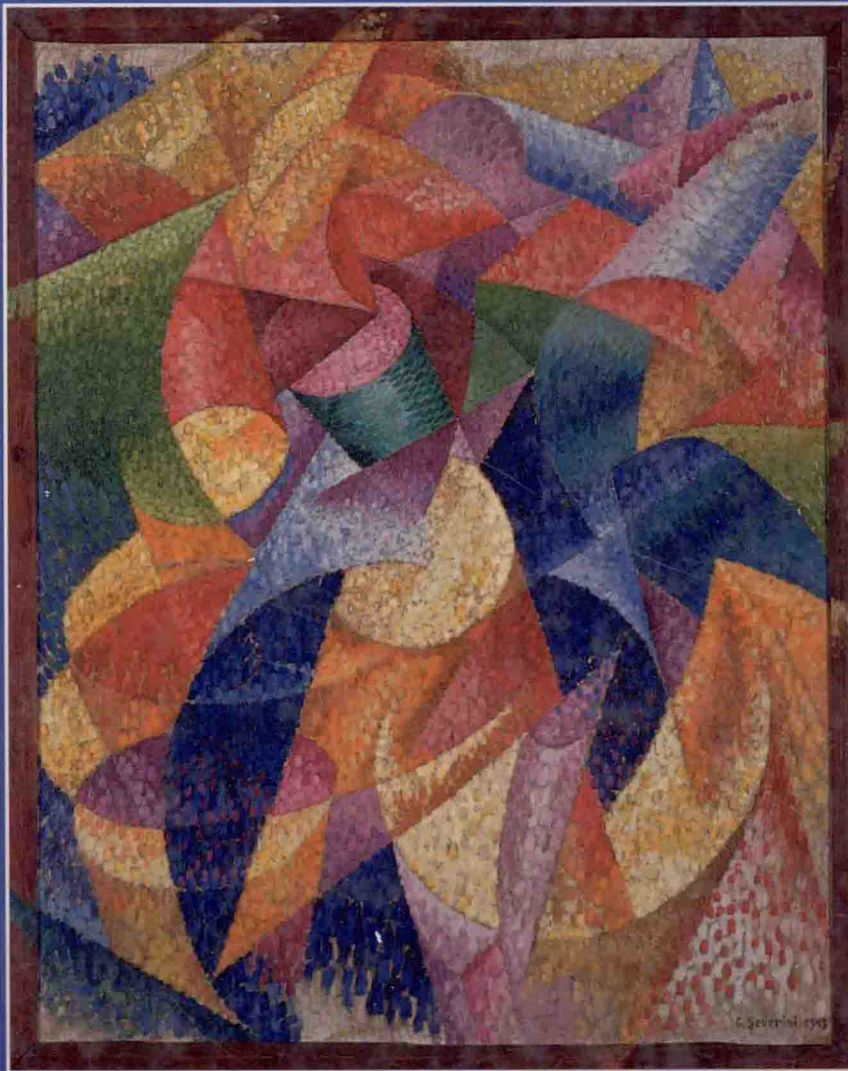


ESSENTIALS OF MANAGEMENT INFORMATION SYSTEMS



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Essentials of Management Information Systems:

Organization
and Technology

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Preface

Essentials of Management Information Systems: Organization and Technology is based on the premise that professional managers in both the private and public sectors cannot afford to ignore information systems. In today's business environment, professional managers must learn how to use information technology to create competitive firms, manage global corporations, and provide useful products and services to customers. Briefly, it is difficult—if not impossible—to manage a modern organization without at least some grounding in the fundamentals of what information systems are and how they affect the organization and its employees. Accordingly, we have written this book to provide a concise introduction to management information systems (MIS) that undergraduate and MBA students will find vital for their professional success.

Essentials of Management Information Systems is an abridged 15-chapter version of the larger text, *Management Information Systems: Organization and Technology (Third Edition)*. The main features, conceptual framework and style of the larger text are presented here in a concise manner. The *Essentials* text is well-suited for courses lasting less than one semester, mini-courses and those requiring a smaller MIS text to combine with hands-on software, case studies or other projects.

The Contemporary Environment

The book reflects three related trends in the contemporary business environment of the 1990s. First, globalization of markets puts new emphasis on organizational design and management control. When your parts originate in Korea, your assembly occurs in Mexico, and your finance, marketing and general counsel are in New York, then you know you face tough challenges in designing the proper organization and managing the work.

Second, the transformation of the American and other advanced industrial economies into full-fledged knowledge and information economies puts new emphasis on time-based competition, productivity of knowledge workers, short product life cycles, and employee training. When 75% of the gross national product is an output of the information sector, then the productivity of information workers is a central societal concern. When your firm's future depends on having a new product in the marketplace in nine months, then you face a difficult challenge as a manager in speeding up the work of engineers and other knowledge workers. The demand for information, for communications, has never been so great.

Third, the development of powerful microprocessors and telecommunications networks has brought forth a new information architecture based on powerful

desktop computers and communications networks. We can now put what used to be called a mainframe computer on every desktop, and we can now design organizations in which every desktop and information worker can be part of the firm's information network. A few years ago this was a dream.

The work of an organization—and its employees—depends increasingly on what its information systems are capable of doing. Increasing market share, becoming the high-quality or low-cost producer, developing new products, and/or increasing employee productivity, depend more and more on the kinds and quality of information systems in the organization.

One result of these trends is a change in the role of the modern manager. Today's managers are not only expected to use systems but are also expected to:

- Know how to use information technology to design competitive and efficient organizations.
- Understand the business and system requirements of a global environment.
- Use information systems to ensure quality throughout the firm.
- Manage the procurement of a variety of information technologies.
- Manage and control the influence of systems on employees and customers.
- Understand the ethical dilemmas and controversies which surround the use of advanced information systems.

In essence, contemporary managers are expected to know enough about information technology to use it in the design and management of their organizations. These new management responsibilities require a deeper understanding of information technology and systems than ever before. Although this book primarily deals with private organizations, public sector managers are no less susceptible to these trends and changes in management and organization.

Unique Features of This Text

Essentials of Management Information Systems has many unique features designed to create an active, dynamic learning environment.

- **Interactive Multimedia Edition:** This is the first MIS text with an interactive multimedia version on CD-ROM. The Multimedia Edition features the full 15 chapters of the printed text plus 15 additional videos explaining key concepts, audio clips, line art, research articles, and interactive exercises. The multimedia version can be used independently of the hard cover version or in conjunction with the hard cover text as an interactive study guide. All supplements for the printed version may be used with the Multimedia Edition.
- **An integrated framework for describing and analyzing information systems.** An integrated framework portrays information systems as being composed of management, organization and technology elements. This framework is used throughout the text to describe and analyze information systems and information system problems. A special diagram accompanying each chapter-opening vignette graphically illustrates how management, organization, and technology elements work together to create an information system solution to the business challenges discussed in the vignette. The diagram can be used as a starting point to analyze any information system problem.
- **Real-World Examples:** Real-world examples drawn from business and public organizations are used throughout to illustrate text concepts. Each chapter opens with a vignette illustrating the themes of the chapter by showing how a real-world organization meets a business challenge using information sys-

tems. More than 100 companies in the United States and over 75 organizations in Canada, Europe, Australia, and Asia are discussed (see the United States and Foreign Companies indexes.)

Each chapter contains three WINDOW ON boxes (WINDOW ON MANAGEMENT, WINDOW ON ORGANIZATIONS, WINDOW ON TECHNOLOGY) that present real-world examples illustrating the management, organization, and technology issues in the chapter. Each WINDOW ON box concludes with a section called *To Think About* which consists of a question or series of questions for students to apply chapter concepts to management problem solving. The themes for each box are:



WINDOW ON MANAGEMENT: Management problems raised by systems and their solution; management strategies and plans; careers and experiences of managers using systems.



WINDOW ON TECHNOLOGY: Hardware, software, telecommunications, data storage, standards, and systems-building methodologies.



WINDOW ON ORGANIZATIONS: Activities of private and public organizations using information systems; experiences of people working with systems.

- **Coverage of new leading-edge topics.** Full chapters address the challenges posed by today's competitive global business environment: Managing International Information Systems (Chapter 14); Ethical and Social Issues in Information Systems (Chapter 15); Building Successful Systems: Quality and Implementation (Chapter 9); and Knowledge and Information Work Systems (Chapter 10) address these themes. The text includes up-to-date coverage of topics such as:
 - The information superhighway
 - Business process redesign (redesigning organizations with information systems)
 - Case-based reasoning
 - Fuzzy logic
 - Outsourcing
 - Multimedia
 - Object-oriented systems development
- **A truly international perspective:** In addition to a full chapter on Managing International Information Systems, all chapters of the text are illustrated with real-world examples from 75 corporations in Europe, Asia, Latin America, Australia, and the Middle East. Each chapter contains at least one WINDOW ON box, case study or opening vignette drawn from a non-U.S. firm, and often more. The text concludes with six major international case studies contributed by leading MIS experts in Canada, Europe, and Australia—Andrew Boynton, International Institute for Management Development (Switzerland); Len Fertuck, University of Toronto (Canada), Helmut Krcmar and Bettina Schwarzer, Hohenheim University (Germany); Tapio Reponen, Turku School of Economics and Business Ad-

ministration (Finland); Alan Underwood, Queensland University of Technology (Australia); and Peter Weill and J. B. Barolsky, University of Melbourne (Australia).

- **Activist pedagogy to teach management problem-solving.**

Essentials of Management Information Systems contains many features that encourage students to actively learn and to engage in management problem-solving.

Interactive learning: The CD-ROM version provides an interactive, computer-managed instruction component that lets students learn at their own pace. Students can select and access material using powerful electronic indexes for subjects, names, and organizations. They can review key terms with an electronic glossary. Each chapter of the text contains a bulletized summary of the key points for immediate on-line access and review through hot buttons and on-line glossaries and indexes. Videos and audio clips for each chapter illustrate real-world applications of key concepts. An interactive study guide provides helpful question-and-answer sessions, which can be automatically graded and handed to the professor.

Group projects: At the end of each chapter is a group project that encourages students to develop teamwork and oral and written presentation skills. The group project exercise asks students to work in groups of three or four to research a specific topic, analyze the pros and cons of an issue, write about it, and orally present the group's findings to the class. For instance, students might be asked to work in small groups to analyze a business and to suggest appropriate strategic information systems for that particular business or to develop a corporate ethics code on privacy that considers E-mail privacy and employers' use of information systems to monitor work sites.

Management Challenges Section: Each chapter concludes with two or three major challenges relating to the chapter topic that managers are likely to encounter. These challenges are multi-faceted and sometimes pose dilemmas. They make excellent springboards for class discussion. Some of these Management Challenges are the organizational obstacles to building a database environment, determining the right level of integration between different types of systems, and major risks and uncertainties in systems development.

To Think About questions concluding every WINDOW ON box require students to apply chapter concepts to real-world scenarios. These questions frequently ask students to assume the role of managers, use multiple perspectives, consider different alternatives, and think creatively. The questions can be used for class discussion or for short written projects.

Case Studies: Management problem-solving opportunities are also provided by case studies at the end of each chapter and by the six international case studies concluding the text.

Book Overview

The five parts of the book are designed to be relatively independent of each other. Each instructor may choose to emphasize different parts.

Part One is concerned with the organizational foundations of systems and their emerging strategic role. It provides an extensive introduction to real-world systems, focusing on how they are related to organizations and to management. This section is important for understanding the larger environment in which systems operate and for showing students how systems relate to organizational design, strategy, and operations.

Part Two provides the technical foundation for understanding information systems, describing hardware, software, storage, and telecommunications technologies. The section concludes by describing connectivity, standards, and the challenge of making all of the information technologies work together in a new information architecture based on enterprise-wide networks.

Part Three focuses on the process of redesigning organizations using information systems. Because information systems and organizations are so closely intertwined, we see systems analysis and design as an exercise in organizational design, one that requires great sensitivity to the right tools and techniques, quality assurance and change management.

Part Four describes the role of information systems in capturing and distributing organizational knowledge and intelligence and in enhancing management decision-making. It shows how knowledge creation and distribution, work group collaboration, and individual and group decision making can be supported by the use of knowledge work systems, decision support systems, and executive support systems. Organizational performance can also be enhanced by carefully chosen artificial intelligence applications.

Part Five concludes the text by examining the special management challenges and opportunities created by the pervasiveness and power of contemporary information systems: ensuring security and control, developing global systems, and coping with the ethical and social impact of information systems. Throughout the text emphasis is placed on using information technology to redesign the organization's products, services, procedures, jobs and management structures, with numerous examples drawn from multinational systems and global business environments.

CHAPTER OUTLINE

Each chapter contains the following:

- A detailed outline at the beginning to provide an overview.
- An opening vignette describing a real-world organization to establish the theme and importance of the chapter.
- A diagram analyzing the opening vignette in terms of the management, organization, and technology model used throughout the text.
- A list of learning objectives.
- Marginal glosses of key terms in the text.
- Management challenges.
- A chapter summary keyed to the learning objectives.
- A list of key terms that the student can use to review concepts.
- Review questions for students to test their comprehension of chapter material.
- A set of discussion questions that can be used for class discussion or for research topics.
- A group project to develop teamwork and presentation skills.
- A chapter-ending case study that illustrates important themes.
- A list of references for further research on topics.

Instructional Support Materials:

SOFTWARE

A series of optional management software cases called *Solve It! Management Problem Solving with PC Software* has been developed to support the text. *Solve it* consists of 10 spreadsheet and 10 database cases drawn from real-world businesses, plus a data diskette with the files required by the cases. The cases are graduated in difficulty. The case book contains complete tutorial documentation showing how to use spreadsheet and database software to solve the problems. A new version of *Solve it!* with all new cases is published every year. *Solve it!* can be purchased directly from the supplier, Azimuth Corporation, 124 Penfield Ave., Croton-on-Hudson, New York 10520 (Telephone 914-271-6321).

MULTIMEDIA MANUAL: INSTRUCTOR'S MANUAL/TEST BANK/TRANSPARENCY MASTERS AND VIDEO CASES

The *Instructor's Resource Manual*, written by Ken and Jane Laudon and Marshall R. Kaplan, has been fully revised and now includes lecture outlines as well as answers to review questions, discussion questions, group project exercises, case study questions, video cases, and To Think About questions. The Test Bank has been expanded to include of 25 true-false questions, 25 multiple choice questions, and 25 fill in the blank questions for each chapter. The Instructor's Resource Manual contains transparency masters.

VIDEO CASES

Video cases based on the real-world corporations and organizations used in the text are available to adopters. The five video cases illustrate the concepts in each section and can be used for class discussion or written projects. The video cases are analyzed in the Instructor's Resource Manual.

INSTRUCTOR'S RESOURCE MANUAL ON DISK

The Instructor's Resource Manual is available on disk to adopters wishing to put it on their computers.

COMPUTERIZED TEST BANK

All test bank questions are available in computerized form.

TRANSPARENCY ACETATES

A set of approximately 100 full-color transparency acetates is available to illuminate key concepts.

Acknowledgments

The production of any book involves many valued contributions from a number of persons. We would like to thank in particular our editors at Macmillan for encouragement, insight, and strong support for many years. We are grateful to Charles Stewart for his energy, enthusiasm, and insight in guiding the initial preparation of this text and to P. J. Boardman for her support of the final stages of the project. We commend Paul Smolenski, John Travis and the Macmillan and Prentice Hall production departments for guiding production of this text under a very ambitious schedule and Pat Smythe for her beautiful design work.

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One of our goals for *Essentials of Management Information Systems* was to write a book which was authoritative, synthesized diverse views in the MIS literature, and helped define a common academic field. A large number of leading scholars in the field were contacted and assisted us in this effort. Reviewers and consultants for this text took considerable time and care to examine individual chapters as specialists and the entire manuscript as instructors in the MIS course. Insofar as time and space allowed, we tried to incorporate their ideas in the text. We deeply appreciate their work and their suggestions for improving the text. These consultants are listed in the front end papers of the book. It is our hope that this group endeavor contributes to a shared vision and understanding of the MIS field.

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