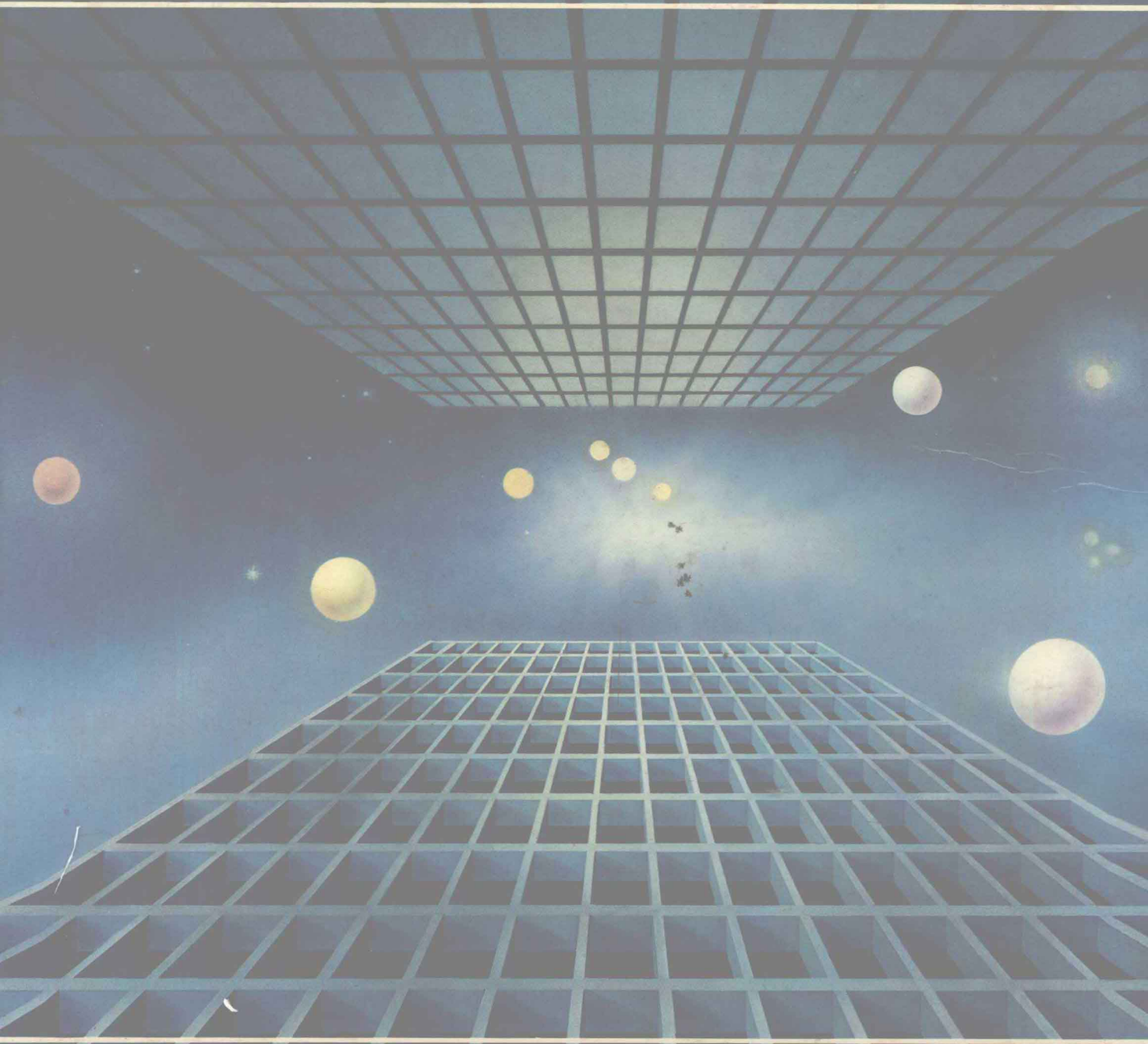
COMPUTERS AND INFORMATION SYSTEMS



JEROME S. BURSTEIN

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School of Business, San Jose State University

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PREFACE

Information systems exist to serve people, not the other way around. If a system doesn't help the people within an organization help their clients, then it shouldn't be there. This has been said so often recently that it seems commonplace, but those of us who work with information systems and who teach about them know how hard this principle is to carry out in practice. It's all too easy to slip into familiar patterns that leave users and clients on the sidelines.

The same is true of most textbooks on information systems. All of them at some point stress the importance of people—users and clients. But when they get into the meat of the subject matter, they slip into familiar patterns. The result is usually a laundry list approach—the authors draw up a list of topics and tick them off as they cover each one. Along the way they lose sight of the "systems" aspect of information systems.

When I set out to write this book, I was determined to avoid this trap. I wanted, of course, to be current and thorough. But more important, I wanted to keep the systems perspective and the importance of people always at the forefront. I wanted students to see how computers affected their lives personally and in the context of the kinds of organizations in which they are likely to work.

FEATURES OF THE TEXT

The key features of *Computers and Information Systems* were all developed with these goals in mind. They include readability, a systems approach, currency, and a flexible organization.

Readability

The first and most important feature of this text is clear, direct, and lively writing. Without good writing, even the simplest concepts can seem obscure. I use numerous examples to illustrate key points. The primary source for examples comes from the world of business, although many business problems, say, in accounting, are applicable in any area.

Systems approach

I have adopted a five-part model as an information system for this book. The parts in this model are people, rules and procedures, data, software, and hardware. The parts are not equal, however—people are more important than the other four. In every chapter I relate the subject matter to this model.

I have developed four fictional organizations, complete with a cast of characters, as a way of showing how the elements of an information system actually work in an organizational setting. Most chapters start with a story that draws on one of these organizations or the people in them. The story usually presents the people in the organization with a problem that relates to the subject matter of the chapter. A wrap-up at the end of the chapter then shows how the problem is resolved.

Currency
In a fast-changing field like that of information systems, currency is important. I have endeavored throughout to include material that is as up-to-date as possible.

Flexibility
Computers and Information Systems is divided into five parts: Introduction, Hardware, Software, Information Systems, and Social Issues. Hardware and Software were written to be independent modules—depending on your preference you can go from the introductory chapters directly to software before covering hardware, or you can cover the material in the sequence in which it appears.

Other features
In addition to these key features, the book includes many other learning aids. These include:

- *A **chapter outline** for each chapter.*
- ***Learning objectives** for each chapter.*
- *An opening **vignette** or **story** and a closing **wrap-up** for each chapter. These are usually taken from one of the four fictional organizations introduced in Chapter 1 and present the subject matter of the chapter in a realistic setting.*
- ***Key terms** set in boldface type and defined when they are introduced.*
- ***Case in point boxes** that present real cases related to the chapter material.*
- ***Career boxes** that focus on a career related to the subject matter of the chapter.*
- ***Enrichment boxes** with interesting supplementary material.*
- *A concise **summary** at the end of each chapter.*
- *A **key terms list** at the end of each chapter that lists the boldface terms in that chapter and the page on which they appear.*
- *A comprehensive set of **review questions,** including true-false, multiple-choice, fill-in, short-answer, and essay questions. Answers to all except the short-answer and essay questions are listed in the back of the book. The short-answer and essay question answers are found in the* Instructor's Manual.
- *An **appendix on programming in BASIC** that provides a comprehensive introduction to the BASIC programming language.*
- *An **appendix on number systems and binary arithmetic**.*
- *A **glossary of key terms** that contains concise definitions of all the key terms in the book.*

Computers and Information Systems is designed for an introductory class in computers and information systems and meets or exceeds the curriculum for the first course in the Data Processing Management Association (DPMA) curriculum (CIS-1, Introduction to Computer-Based Systems). It presents a firm foundation for information system majors, for business students with other majors who must be familiar with information systems, and for students in other disciplines who need a general introduction to computers. Most students who take the course for which this book is written

are business majors, but I do not intend the book to be limited to business students. It can also serve students of diverse majors in a general service course. In fact at San Jose State my classes have many nonbusiness majors from the social sciences, the humanities, aeronautics, engineering, and health science areas.

THE INSTRUCTIONAL PACKAGE

Computers and Information Systems comes with a complete package of ancillary materials for both student and instructor. The package includes a student *Study Guide*, an *Instructor's Manual*, *Transparency Acetates*, a *Test Bank*, and a *Tutorial Disk* to accompany the appendix on BASIC.

THE STUDY GUIDE

The student *Study Guide*, written by Jerry Ralya, uses self-testing to help students master the material in the textbook. For every chapter in the textbook the *Study Guide* provides an outline, a list of objectives, a pretest, a detailed summary, and extensive review questions (with the answers provided in an answer key). Each chapter also includes a new boxed extract and an expanded discussion of the vignette/wrap-up sections of the text (called "Information Systems at Work"), to stimulate student interest in the material further.

THE INSTRUCTOR'S MANUAL

The *Instructor's Manual* is a critical element in the instructional package. It contains material to help instructors organize lectures and class discussions and suggestions for using other elements in the package—including the *Transparency Acetates*, the *Test Bank*, and the *Study Guide*. In preparing it I tried to provide material useful to the full range of people who teach about information systems: both full-time and part-time instructors, veterans and first-timers.

For each chapter of the textbook the *Instructor's Manual* contains:

- *A brief summary of the chapter that stresses its major instructional objectives.*
- *Annotated learning objectives.*
- *A glossary with definitions of the key terms in the chapter.*
- *A lecture outline that reviews the key points of the chapter. This outline is keyed to the transparency acetates, indicating when they should be shown.*
- *Teaching suggestions with ideas for enlivening lectures and discussions and pointers on how to make the most of the textbook and the other elements in the package.*
- *Case studies related to the material in the chapter.*
- *Answers to the end-of-chapter short-answer and essay questions.*

TRANSPARENCY ACETATES

Computers and Information Systems comes with a set of ready-to-show *Transparency Acetates* for use with an overhead projector. All the diagrams have been rendered especially for projection. They include both completely original diagrams and important figures from the book.

THE TEST BANK

The *Test Bank* contains 3000 test items, including true-false, fill-in, multiple-choice, matching, and short-answer questions. The items were prepared

with the help of my colleague, Curt Stafford, a specialist in testing and evaluation for the School of Education at San Jose State University.

The *Test Bank* is available in printed form and on disk for the Apple II family, the IBM PC, and the TRS-80 Model III.

BASIC TUTORIAL SOFTWARE

A tutorial disk is available to accompany the BASIC programming appendix in the text. The disk, for the Apple II family and the IBM PC, lets students work with the model programs in the appendix.

ACKNOWLEDGMENTS

A textbook like this could never be created in a vacuum. My goal, after all, is to serve the instructors and students who will use the book. Thus I owe a special word of thanks to the people who reviewed this book in all its many drafts and kept me in touch with the user perspective: Richard J. Batt, St. Louis Community College; George J. Brabb, Illinois State University; Frank E. Cable, Pennsylvania State University; J. Patrick Fenton, West Valley College, California; Richard Fleming, North Lake College, Texas; George Fowler, Texas A & M University; Carol C. Grimm, Palm Beach Junior College; Thomas M. Harris, Ball State University, Indiana; Rodney J. Heisterberg, Austin Community College; Lorinda Hite, Owens Technical College, Ohio; Prof. Peter L. Irwin, Richland College of the Dallas County Community College District; Cynthia E. Johnson, Bryant College, Rhode Island; Dee Joseph, San Antonio College; E. R. Lannon, University of Maryland; Ida W. Mason, California State Polytechnic University; Leonard Schwab, California State University at Hayward; Douglas A. Waechter, Sheridan College of Applied Arts and Technology, Ontario, Canada; Charles M. Williams, Georgia State University; A. James Wynne, Virginia Commonwealth University; and Fatemeh Zahedi, University of Massachusetts.

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Many people helped me in creating and evaluating the text and in putting together the elements of the package. My wife Lynne Burstein created the glossary and index. She also served as my constant advisor and confidante for the entire project.

Curt Stafford wrote the 3000 questions in the *Test Bank*, and is responsible for their high quality. Jay Barta collaborated with me on writing and testing the computer programs in the text and the appendix. Paul Ross helped me with the Case Studies in the *Instructor's Manual*. Shelly Langman provided a rigorous and extremely helpful review of the appendix on programming in BASIC.

One person—Jerry Ralya—I cannot begin to thank enough. Jerry's work is evident on every page of this book. He edited the text and put together the material for most of the boxes, including the career and case in point boxes. He also wrote the *Study Guide*.

Rachel Hockett of Cobb/Dunlop Publisher Services saw the book through production under an incredibly tight schedule. With her efficiency, intelligence, and tireless good humor, she is as responsible as anyone for the handsome text you're reading.

I would also like to thank Gayle Jaeger for the extremely attractive design of the text, and Teri Stratford for her work as photo researcher.

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Finally, I have to thank the students from my classes at San Jose State who used this book in all of its many drafts over the last several years. Their comments—both critical and encouraging—helped make this book what it is.

Jerome Burstein
San Jose, California

BRIEF CONTENTS

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