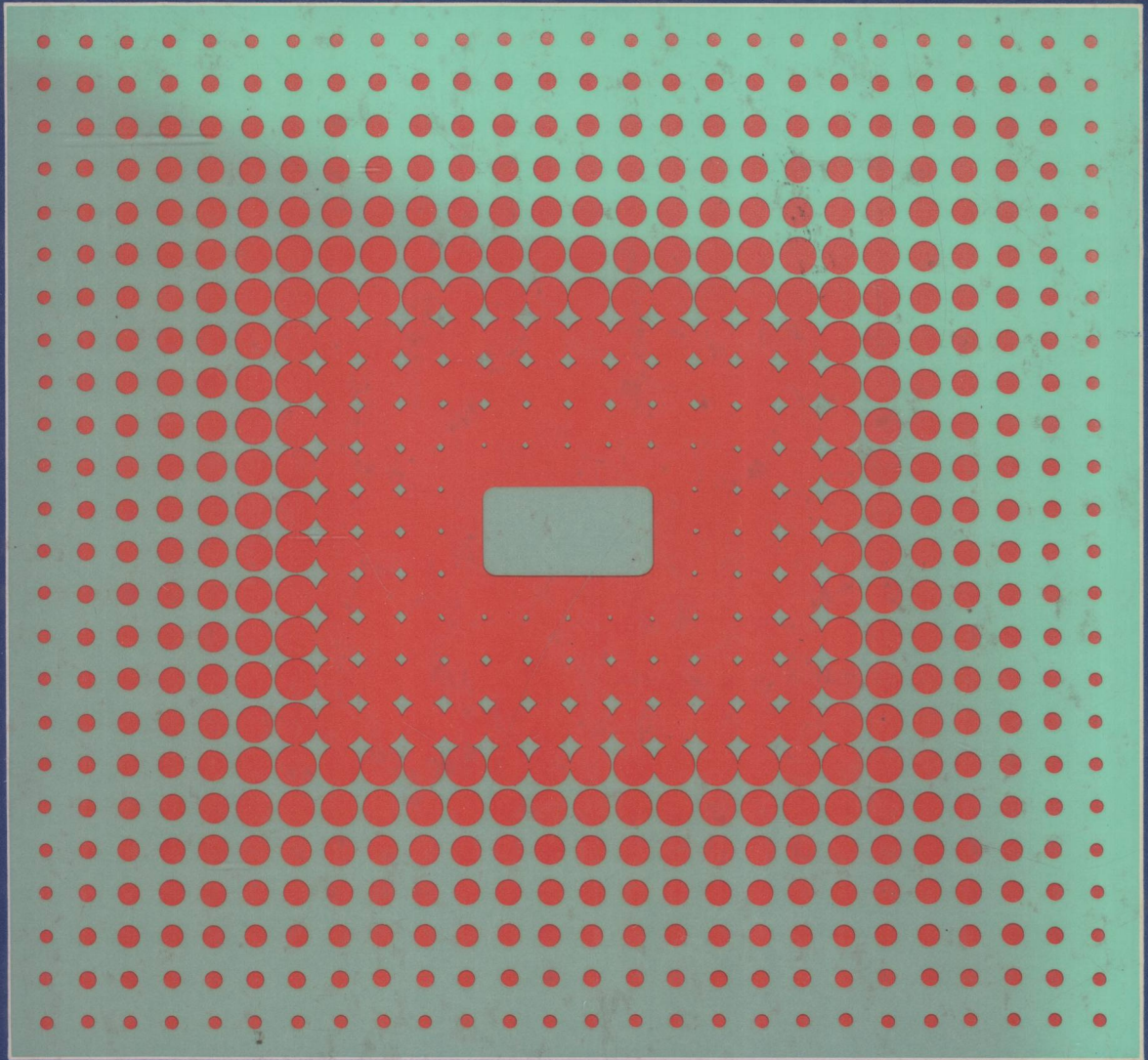


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# INFORMATION PROCESSING SYSTEMS FOR MANAGEMENT

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Hussain & Hussain  
Second Edition

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# Information Processing Systems for Management

Donna Hussain  
K. M. Hussain  
New Mexico State University



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Second Edition

1985



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# Information Processing Systems for Management



**The Irwin Series in  
Information and Decision Sciences**

***Consulting Editors***

**Robert B. Fetter**  
*Yale University*

**Claude McMillan**  
*University of Colorado*



## Preface

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Few businesses have been left untouched by the computer revolution. The computer is being increasingly used for operations, control, and planning as well as to improve office efficiency. Managers today need to know how computers work and how they can be applied to a firm's operations.

The purpose of this book is to provide managers and students of management with a basic understanding of computer processing systems. Use of this textbook does not require a course prerequisite. The book is a stand-alone text, written for the upper division undergraduate or the master's student. Though the text includes a brief overview of hardware, software, peripherals, and communications, the primary focus is on the development and administration of information systems and how managers can use computers on the job. Omitted is an explanation of the internal workings of a computer, flowcharting, how to program, and the history of computers; topics commonly presented in introductory computer science texts.

Three new chapters have been written for this Second Edition: Microcomputers: Home and Business Use; The Impact of Computers on Management; and Computers in Our Future. In addition, all of the chapters have been revised and updated. Subjects added include: spreadsheets, windows, privacy concerns, local area networks, videotex, 4GLs, expert systems, public online data bases, automated integrated factories, information specialists, fifth generation computers, intelligent management information systems, and future trends in computing. Colored photographs now supplement the text and the annotated bibliographies that follow each chapter have been revised to include publications from the 1980s.

An instructor's manual has been prepared to accompany the text. The manual has been expanded for this Second Edition as well. It now includes sample student answers to the discussion questions that follow each chapter. In addition, more than 1,000 multiple-choice questions for reviews or exams are provided.

Like the text, this data base has been updated and rewritten. Supplementary diagrams and summary lists in the form of transparency masters for use in the classroom are also part of the instructor's package.

The authors wish to thank colleagues and reviewers who read the manuscript and provided helpful comments and corrections. We are particularly indebted to Marvin Rothstein, Leslie Spencer, Deane Carter, Steve Hallam, Mark St. Paul, Don Cartlidge, and David Carlson for their constructive criticisms. A special word of gratitude must also be given to our secretaries Stella Rodriguez and Karen Cavert.

**Donna Hussain**  
**K. M. Hussain**

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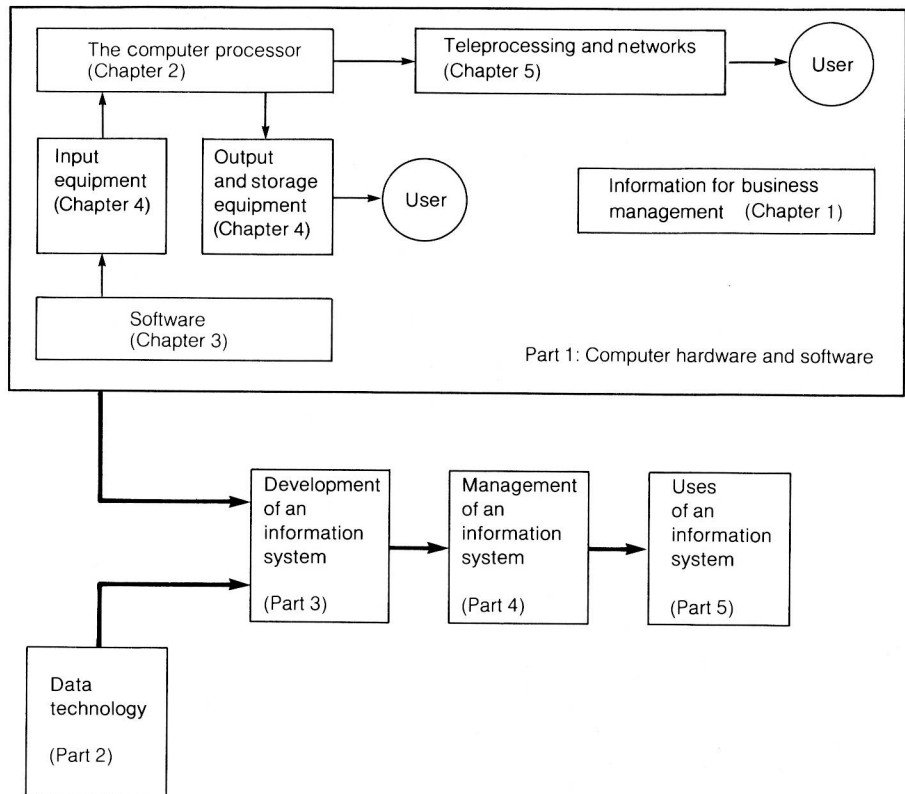
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# **Information Processing Systems for Management**

# COMPUTER HARDWARE AND SOFTWARE

## PART 1



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Computer technology required for a computerized information system is the subject of Part 1. The relationship of the chapters of this part is shown in the diagram.

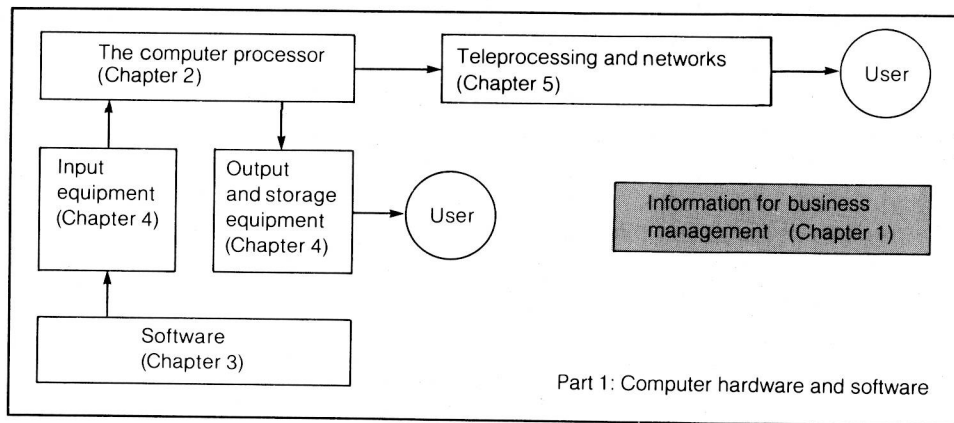
Central to all computer technology is the computer itself. Students of management for whom this text is written need general knowledge about computers, not technical details of how computers are constructed and operate. They are like car owners who can be good drivers without understanding the design and mechanics of internal combustion engines. Chapter 1 discusses the impact of information technology on business. In Chapter 2, the main components of a computer and component capabilities in general terms are described. The chapter also tells what computer equipment can and cannot do.

Given input, computer programs are needed to instruct the computer in processing so that desired results are

achieved. These programs, called software, are the subject of Chapter 3. Again, technical details are omitted. Instead, the chapter presents an overview of types of programs used in processing. Also given is an introductory classification of languages that are used to write programs. Languages used most frequently in business processing are identified, and their capabilities and limitations briefly discussed.

Chapter 4 discusses input and output equipment and how output is stored for later use. Once programs process data, the output generated must be transmitted to a manager or user. The destination for the output is sometimes remote from the place of processing. Equipment and a set of procedures for efficient, effective, and secure transmission of output are required. Chapter 5, on teleprocessing, deals with this subject.

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# Information for business management

## 1

To live effectively is to live with adequate information.

*Norbert Weiner*

Ages, such as the stone, bronze, medieval, and industrial ages, have been used to describe the passage of human history. The dramatic development of computers in recent years has led to the birth of a new age, the age of information. In this chapter, the technology of information as it relates to business management is examined.

### **Growth of information technology**

Businesspeople first felt the impetus of the age of information in the 1950s, when electronic computers reached the market. The first computer, the ENIAC, made calculations in milliseconds, matching in one day 300 days of manual computation. Today, computers execute instructions in nanoseconds (billionths of a second). Business applications such as those listed in Figure 1.1 are now solved in only a fraction of a second. No longer must businesses be run by hunch and intuition. Information on which to base decisions can now be processed by computer at incredible speeds.

Everyone recognizes that technological advances in transportation in the last century have reshaped the American lifestyle. We are no longer limited to walking, but travel by jet, an increase in speed by a factor of 100, from 4 mph to roughly 400 mph. The speed of processing information by computer, however, has increased by a factor of one million. Accessibility of information will ultimately transform society as profoundly as did the invention of the jet or the internal combustion engine.

Speed is not the only aspect of computer development to make prodigious improvement in recent years. Computers are getting smaller. Even purse and pocket models can now be purchased. Other characteristics such as system reliability and cost-performance ratios have also improved greatly as shown in Ta-