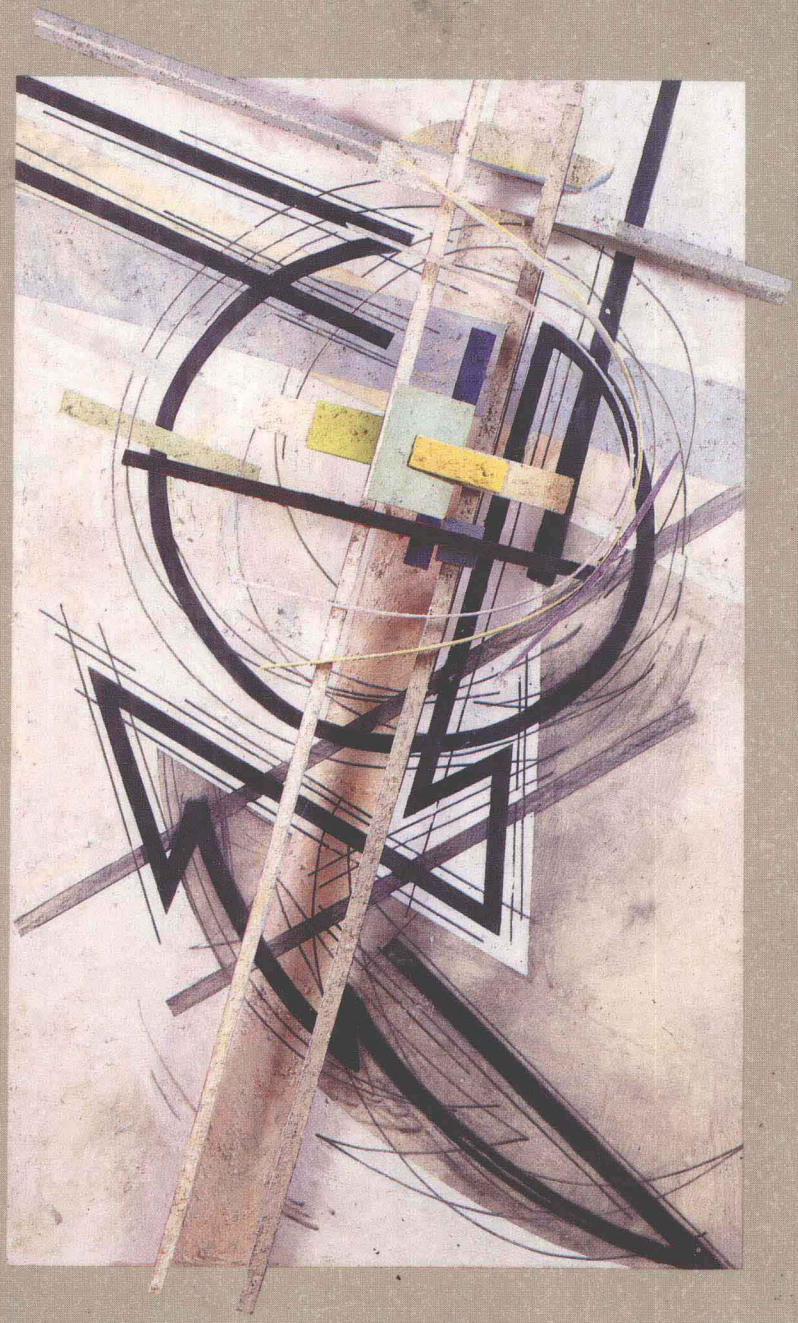
ACCOUNTING INFORMATION SYSTEMS

SECOND EDITION



Summers

Accounting Information Systems

SECOND EDITION

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This book is for
Elizabeth and Elmer Summers,
my mother and father

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Preface

Few disciplines can match the excitement and dynamism of accounting information systems. For example: within an organization, managers compete to influence or control key sources of information and the resources to generate information, while technology spurs a shifting balance between different computer designs and information structures that succeed each other in rapid succession as preferred means of handling accounting system tasks. A new generation of systems designers and developers have pioneered faster, simpler means of acquiring, evaluating, and managing accounting systems—often with little or no computer programming! This text, *Accounting Information Systems*, Second Edition, presents information in the context of these technologies but maintains as its foundation the traditional concepts of double-entry accounting. When students have completed a course using this text, they will be able to answer the key questions involved in understanding accounting information systems:

1. What are accounting information systems?
2. How do they work?
3. Why are they important?
4. Who uses, controls, and designs them?
5. What characteristics do they share with other systems?

Although this edition has benefited from the many improvements described later in the preface, I have kept the features I believe were responsible for the first edition's success. The text is at the same level as before (no extended flow diagrams, programming languages, mathematical proofs, or exotic technical jargon) and

assumes that students are in a first course in accounting information systems and have taken an introductory accounting course sequence. (Background provided by an introductory survey of data processing is suggested but not essential.) I continue to include more information on the relationship between basic accounting concepts and the parts of an accounting system than I perceive is available in most other textbooks for an accounting information systems course. By linking double-entry accounting analysis of transactions to information about computerized systems, the text makes students continually aware that accounting knowledge is essential to understanding how an accounting system works. The advent of new technologies and their inherent complexities continue to place extraordinary demands on the control elements of an accounting information system. This text includes more material on controls—including their theory, application, and analysis—than has previously been available in texts for this course.

Accounting Information Systems, Second Edition, shows how professionals apply management information science and data base theory to understand, design, create, and maintain accounting, reporting, and control systems. The text provides users with skills and ways of thinking that enable them to make informed decisions about any organization's accounting information systems needs. It discusses major topics in the context of their relationship to the entire accounting system. These discussions take in the principles of data processing (including data processing management), internal control, and the uses of computer-generated information in management decision making. The second edition offers the additional coverage of just-in-time inventory methods, EDP auditing, local area networks, artificial intelligence, expert systems, and SQL, since a basic knowledge of these cutting-edge technologies is essential for success as an accounting professional or manager today. Techniques for protecting the accounting information system from carelessness, incompetence, and crime are also described. I emphasize on-line, real-time processing in a data base environment, in recognition that practically all new and enhanced accounting systems use this format.

Text Organization

Accounting Information Systems, Second Edition, is organized in five parts to provide maximum flexibility to users. After covering Parts 1 and 2, instructors may assign Parts 3, 4, and 5 in any sequence they prefer.

- Part 1, Basic Accounting Systems Concepts (Chapters 1–6), lays out the essential information needed to begin a study of accounting information systems, with attention to the changing role to today's accountants. These chapters describe the system concepts, accounting processes, information requirements, computer hardware and software, and information processing concepts that are found in all accounting systems. Part 1 includes introductory sections on general systems theory and the control elements within a system.
- Part 2, Accounting Applications (Chapters 7–10), discusses the central

application areas that make up accounting information systems. Accounts receivable, accounts payable, cost accounting, cash receipts and disbursement, performance reporting, and not-for-profit accounting are all covered in this section. Part 2 emphasizes selected computer concepts, equipment, operations, and software routines.

- Part 3, Controls and Accounting (Chapters 11–14), presents accounting and processing controls and discusses in detail the management of electronic data processing, detection and prevention of computer crime, and the principles of EDP auditing. These topics comprise an essential background for designing efficient controls, anticipating the losses that may occur if controls in a system are defective or missing, and finally, testing for the presence of effective controls.
- Part 4, New Developments Affecting Accounting Information Systems (Chapters 15 and 16), assesses emerging developments in two special areas relating to system design and use: artificial intelligence and communications through local area networks. Included in these chapters are discussions of two tools that are used by accounting system designers and managers: decision support and expert systems.
- Part 5, System Design and Implementation (Chapters 17 and 18), examines the process of bringing an accounting system into existence. This section concludes with a presentation on vendor selection, detail design, and conversion.

The text concludes with a comprehensive case, Sports Products, Incorporated, which includes assignments linked to all but one of the chapters. An expanded glossary and detailed index help students use the text.

Changes in the Second Edition

Based on the comments I received from users and nonusers of the first edition, pre-revision reviews, and accuracy reviewers, the publisher and I have made many improvements in the second edition that we believe its users will find make it even more valuable. These include adding new material and changing existing text to bring all chapters up-to-date and plug gaps in coverage; adding 60 new figures, exhibits, and tables; and doubling the quantity of end-of-chapter assignments (all the new assignments have been class-tested). We have aligned the learning objectives with the appropriate sections of each chapter and, for each question or problem, identified the learning objective it reinforces. We make increased use of flowcharts and entity diagrams to explain accounting applications. In each chapter, we have included one or more brief excerpts from current literature that extend or comment on the chapter topics. The expanded bibliography now appears at the end of each chapter rather than at the end of the book.

Finally, the second edition has been enhanced by a new, more open design and improved illustration program.

Student-Oriented Text

Each chapter of *Accounting Information Systems* has been carefully designed to help students understand and use the knowledge it contains. A chapter outline and list of learning objectives at the beginning of each chapter indicate what students will master by successfully completing the chapter. In the narrative, each learning objective is repeated and precedes the material connected to it. Key terms are in color and defined the first time they appear in the text. More than 250 two-color drawings, figures, and charts enhance student understanding and comprehension.

At the end of each chapter a comprehensive chapter summary reviews all key concepts and is followed by a list of key terms, review questions, discussion questions, problems, and cases. Most chapters also include one or more Lotus-based problems. The review questions focus on major concepts and terms; the discussion questions lend themselves to thought and analysis. Whenever possible the problems require quantitative calculations.

Comprehensive Case. The comprehensive case, Sports Products, Incorporated, is at the back of the text. It provides completely independent chapter-based assignments. Because the assignments are independent of one another, instructors may select whichever assignments they choose. It is recommended that when a case assignment is used, students complete it before leaving the chapter on which it is based.

Instructor's Resource Manual and Test Bank

Accounting Information Systems, Second Edition, is accompanied by a comprehensive *Instructor's Resource Manual and Test Bank* that includes the following:

- suggested syllabi for the course
- introductory comments for each chapter
- lists of learning objectives and lecture outlines
- transparency masters for many of the figures from the text
- an expanded test bank of over 600 items
- worked-out solutions to all assignments including the comprehensive case
- comments and solutions for the Aurora Company: A Microcomputer-Based Accounting System

A microcomputer-based version of the Instructor's Resource Manual text files and a microcomputer-based version of the Test Bank are available from the publisher.

Spreadsheet Templates

The author has created, with the help of Richard Hicks, University of Texas, Austin, Lotus 1-2-3 templates to assist in learning and appreciating the function

of key concepts as they relate to the text. These templates appear on a disk bound into this book. Each related computer assignment is marked with a special icon and appears as the last problem in each chapter.

The Aurora Company

The Aurora Company: A Microcomputer-Based Accounting System by Edward Summers and Richard Hicks is a simulation that provides the look and feel of a fully-featured on-line data base integrated accounting information system. Based on the Lotus 1-2-3 spreadsheet (including the new Student Versions), this program and its accompanying workbook familiarizes students with screen forms, data structures, controls, and support one encounters in such a system. It differs from the spreadsheet template exercises in that it enables users to experience the flow and processing of data from the point of entry through the accounts to the various reports generated by the system. Instructors' materials for the Aurora Company are included in the *Instructor's Resource Manual and Test Bank* for *Accounting Information Systems*, Second Edition.

Quality Control

Accounting Information Systems, Second Edition, is a technically and conceptually accurate textbook. The author developed and tested the first edition's manuscript and end-of-chapter materials through six semesters of classroom teaching. The second edition is the result of five additional semesters of use, plus monitoring of the professional literature, discussions with practicing experts, and careful attention to the comments and suggestions of my students and academic colleagues. As with the first edition, both the author and the publisher obtained independent reviews and developmental assistance. In addition, the manuscript and related materials were reviewed extensively to assure accuracy.

Acknowledgments

This revised new accounting information systems textbook, summarizing the latest thinking and application by thousands of professionals in dozens of disciplines and describing the detailed accounting information systems used by real businesses and organizations, comes together only after years of work. I am grateful for the time my students and colleagues have taken to critique the manuscript. Their efforts have led to many significant improvements. Some of those who have been supportive and have had an impact are:

Professor Don Jones
University of Texas at Austin

Mr. Richard Hicks
University of Texas at Austin

Mr. Matt Jones

Mr. Marc Neves

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University of Southern California

Professor Roland Minch
State University of New York—Albany

Professor Murphy Smith
Texas A & M University

Without the help of these people and others (especially all the students!), this book would not have been possible. I invite and encourage user comments on the text; through such comments I came to have personal relationships with many of the First Edition's users. Please write to me c/o Houghton Mifflin Company, College Division, One Beacon Street, Boston, MA 02108, Attention: Accounting Editor.

E.L.S.

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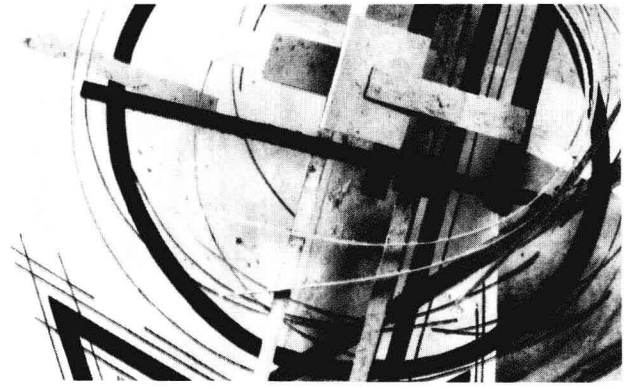
Accounting Information Systems

Part 1



Accounting systems, which provide the information basis for financial and economic decisions, are only one kind of system. To fully understand accounting systems, one must have some knowledge of general systems theory. Accounting information systems not only consist of elements of general systems, they incorporate concepts from organizational and behavioral science and mathematics and make intensive use of one of the most far-reaching developments of the twentieth century: the computer. Part 1 provides the broad knowledge base needed for an understanding of accounting information systems.

Chapters 1 through 3 explain how a general systems framework can be filled out to describe an accounting system and show how managers use accounting systems to secure financial and operational control over an organization. The text then explains how computers implement information-processing concepts

Basic Accounting Systems Concepts

(Chapters 4 and 5). Part 1 concludes with an integrative description of the structure of an accounting system as a transaction-processing, control-enhancing, information-producing model of an organization (Chapter 6).

Part 1 contains the following chapters:

1 An Overview
2 Organizations, Decisions, and Information
3 Financial Controls
4 Computer Hardware and Software
5 File and Data Base Processing
6 Accounting Systems

Chapter 1 An Overview