

# ANALYSIS AND DESIGN OF BUSINESS INFORMATION SYSTEMS

MERLE P. MARTIN



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California State, Sacramento

Macmillan Publishing Company  
New York

Collier Macmillan Canada, Inc.  
Toronto

Maxwell Macmillan International Publishing Group  
New York Oxford Singapore Sydney

Cover Art: Marko Spalatin  
Editor: Vernon R. Anthony  
Developmental Editor: Peggy H. Jacobs  
Production Editor: Ben Ko  
Art Coordinator: Vincent A. Smith  
Cover Designer: Russ Maselli  
Production Buyer: Janice E. Wagner

This book was set in Century Old Style.

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Printed in the United States of America

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All part opening arts are computer-generated images  
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Macmillan Publishing Company  
866 Third Avenue, New York, New York 10022

Collier Macmillan Canada, Inc.

Library of Congress Cataloging-in-Publication Data

Martin, Merle P.

Analysis and design of business information systems / Merle P.  
Martin.

p. cm.

Includes bibliographical references and index.

ISBN 0-675-20852-1

1. Information storage and retrieval systems—Business.

2. Management information systems. I. Title.

HF5548.2.M3436 1991

658.4'038'011—dc20

90-20497  
CIP

Printing: 1 2 3 4 5 6 7 8 9 Year: 1 2 3 4

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# TO THE STUDENT

Welcome to the exciting world of information systems development. Analyzing and designing business information systems is hard work. It is, however, one of the most creative and fulfilling fields in the information systems discipline. This textbook introduces you to the field of business systems analysis and design through three views: the real world, your needs as a student, and the future.

## REAL-WORLD ORIENTATION

I designed large and small business information systems. I designed some excellent systems and some systems that didn't work as well as they should have. You'll see my real-world experience in this textbook in several ways:

- Coverage is comprehensive. Your instructor may choose to skip some of the topics because of time constraints. The full scope of the textbook, however, will serve you in other courses and after you graduate.
- The textbook is accompanied by a computer-aided systems engineering (CASE) tool called Visible Analyst WORKBENCH, provided by Visible Systems Corporation of Waltham, Massachusetts. It will help you become part of the CASE revolution that will mark business systems development in the next decade.

- Topics are presented realistically. Too often, when students graduate they feel as if they have left one planet (academia) for another planet (the workplace). In this textbook, you will find examples of poorly designed systems, the realism of workplace politics, and the weaknesses as well as strengths of development tools and approaches. You'll come away prepared for the real world.

## STUDENT ORIENTATION

I decided to orient the textbook's delivery toward easing the difficulties I had with some textbooks. The following features were used to make *your* role as a student easier:

- Planned redundancy is one of the design tactics you will study. It means that duplication is valuable if it serves a purpose. I duplicated figures and examples in different parts of the textbook so you won't have to search back to previous chapters. In addition, some material covered in earlier parts of the textbook is repeated later in summary format. This allows you to see how the material applies to different parts of the systems development life cycle.
- Checklists are used throughout as an aid to learning and review, and as a management guide in the workplace.
- At the end of each chapter, Key Terms, Concepts Learned, and Review Questions are special checklists that will help you to learn the material and review for examinations.
- The exercises at the end of each chapter encourage you to get out of the classroom and to enter actual business settings.
- Cases at the end of each section add a real-world quality to the material.
- You may have been introduced to some of the material in this textbook in earlier courses. We all get rusty, however, so review this material at your own pace.

## FUTURE ORIENTATION

Analysis and design of business information systems is a rapidly changing field. This textbook offers you the skills you need for today's jobs, plus the perspective and flexibility you will need to be tomorrow's manager. This mix of present and future is achieved in these ways:

- There is a melding of concepts and tools; tools are explained within a conceptual umbrella. Who knows what tools we will see ten years from now. The concepts, however, will remain.
- Structured design is discussed but not overly stressed. Even though structured analysis and design approaches are evolving rapidly, nonstructured approaches still dominate today's business workplaces.
- The examples and many cases are directed to giving you a better understanding of how business applications operate. Recently, a vice president of information systems for a large aerospace company said, "We'd rather hire college graduates who know business and then teach them programming, than hire programmers and have to teach them business." This textbook will reinforce your knowledge of how business operates.

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## TO THE INSTRUCTOR

The field of systems analysis and design often has been considered merely a collection of tools and techniques. One of the purposes of this textbook is to help establish systems analysis and design as a recognized business discipline. Its approach places the *how* within the context of *why* and *what*.

### WHO IS THE AUDIENCE FOR THIS TEXTBOOK?

This textbook has been designed in a modular fashion. Its flexibility allows it to be used in a one-semester or two-semester undergraduate course or a concentrated one-semester graduate course. Students in these courses are expected to have completed a computer concepts course. In addition, it is helpful if students have already taken several business core courses such as management and marketing. Topics covered in this textbook are compatible with both the DPMA and ACM curriculum models.

### WHY IS THIS TEXTBOOK AN EXCELLENT TOOL?

This textbook is comprehensive and modular enough to allow instructors to tailor it to particular classroom situations. It accomplishes the following goals:

- Places tools within an overall conceptual framework for development of business systems
- Provides equal emphasis on structured and conventional systems development
- Emphasizes a human factors approach to business systems development
- Concentrates on the decisions made rather than the tools used in the development process
- Stresses the realism of systems development in the typical business setting

### **HOW IS THIS TEXTBOOK ORGANIZED?**

Section One, Structure of Business Information Systems, provides a conceptual framework by describing how information fits into business, how information systems are structured, and why new systems are developed.

Section Two, Systems Development Tools, uses an abbreviated systems development life cycle to show how tools are used in the development process.

Section Three, The Human Connection, includes the future-oriented considerations of human factors, prototyping, and CASE.

Section Four, Analysis of Information Systems, demonstrates the five stages in analysis of information systems.

Section Five, Design of Information Systems, describes concepts, techniques, and tools for designing output, input, and files.

Section Six, Systems Implementation, outlines approaches to constructing the newly designed system and bringing it into operation.

Section Seven, Other Systems Development Topics, concentrates on the important issues of project management and acquisition of computer resources.

Each section concludes with case studies, references, and further readings.

### **WHAT AIDS ARE AVAILABLE FOR STUDENTS AND INSTRUCTORS?**

Pedagogical elements that appear in each chapter assist students in the learning process:

- Chapter objectives
- Chapter outline
- Chapter setting that informally sets the scene
- Numerous real-world examples throughout
- Boldfaced key terms in the text and a list of key terms at the end of the chapter
- Review questions that students can use as checklists for material covered in the chapter
- Practical exercises that students can use to hone skills
- A continuous (running) case study for course project development
- Use of Visible Analyst WORKBENCH

An instructor's guide provides suggested course syllabi, lesson planning outlines, textbook cross-references, transparency masters, and additional case studies.

## ACKNOWLEDGMENTS

Many people helped create this textbook—the word processing team, contributors, the Macmillan staff, and reviewers.

The word processing team was led by Dotty Martin, my extraordinary wife, who coordinated the word processing efforts. She entered much of the material herself and supervised all other entry. And, she did much more. Her considerable experience in the information systems field made her one of my most valuable editors. Two other family members also did extensive word processing for the textbook. I give my sincere love and gratitude to my daughter, Collette Gardner, of Huntington Beach, California, and my brother-in-law, Howard Best, of Canyon Lake, California. They jumped in when we really needed them, and quickly became wily veterans. In addition, Ms. Patti Peterson did exemplary work every time there was an emergency entry crunch.

Two valued colleagues contributed significantly to this textbook. Dr. M. B. Khan, California State University, Long Beach, developed most of Chapter 23 on project management. I am especially grateful for the contribution of Dr. Jane Carey, Arizona State University, West Campus. Jane is responsible for most of the material in Chapters 4, 5, and 6 on development tools and Chapter 8 on prototyping. She also added numerous real-life examples to the textbook. Most valued of all was her nonstop enthusiasm for this project during its long life.

Another acknowledgment is due to John Nash of Visible Systems, Waltham, Massachusetts. John provided many examples and case studies that enhanced the textbook's real-world flavor. His firm also rendered many of the illustrations.

Many Macmillan staff members deserve acknowledgment. Vernon Anthony, as acquisitions editor and assistant vice president, supported and contributed to this textbook at every level. His aggressive vision transformed the textbook from a specialized version to a comprehensive offering appealing to a wide professional audience. Two developmental editors assisted in this project. Dwayne Martin contributed significantly to the initial scope and direction of the textbook. Peggy Jacobs guided the project to fruition. Connie Geldis was the full-service production manager. Ben Ko was the ever professional and effervescent production editor; Vince Smith coordinated the production of the extensive art program. The freelance manuscript editor was Mary C. Konstant, one of the finest and most respected in the computer information systems field. The book's designer was Willis Proudfoot; the cover designer was Russ Maselli.

The reviewers of this textbook encouraged us on the one hand and on the other hand humbled us into making the book much better. They are Kirk Arnett, Mississippi State University; Kuriakose Athappilly, Western Michigan University; Yair Babad, University of Illinois; Emerson Bailey, Casper College; William Beidler, University of Southern Mississippi; Charles Bilbrey, James Madison University; Edwin Blanks, Virginia Commonwealth University; John Cary, George Washington University; H. Michael Chung, Texas A&M University; Carl Clavedetscher, California Polytechnic State University–Pomona; Gordon Davis, University of Minnesota; Shepperd Gold, California Polytechnic State University–Pomona; P. J. Guinan, Boston University; Dale Gust, Central Michigan University; James Hansen, Brigham Young University; Thomas

M. Harris, Ball State University; James Hearne, West Washington University; Dennis Hill, Moraine Park Technical Institute; Cary Hughes, Middle Tennessee State University; Jean Insinga, Middlesex Community College; Sheila Jacobs, Oakland University; Joe Jones, University of Arkansas; Connie Knapp, Pace University; Robert Keim, Arizona State University; Thomas Lutz, Baylor University; John McKinney; Ido Millet, Bentley College; Lorne Olfman, Claremont Graduate School; June Parsons, Northern Michigan University; William Pracht, Memphis State University; and Wanda Thies, University of North Carolina–Greensboro.

*Merle P. Martin*

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