影印

世界工商管理名典系列（影印版）

Decision Support and Data Warehouse Systems

决策支持和数据仓库系统

Efrem G. Mallach

清华大学出版社
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出版说明

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由于原作者所处国家的政治、经济和文化背景等与我国不同，对书中所持观点，敬请广大读者在阅读过程中注意加以分析和鉴别。

我们期望这套影印书的出版对我国经济科学的发展能有所帮助，对我国经济管理专业的教学能有所促进。

欢迎广大读者给我们提出宝贵的意见和建议；同时也欢迎有关的专业人士向我们推荐您所接触到的国外优秀图书。

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2000.12

To my students, who have taught me more than I have taught them

PREFACE

WHY THIS BOOK?

Decision Support and Data Warehouse Systems is intended as a textbook for a one-semester course in decision support systems (DSS), with data warehousing playing the same starring role in the course as it does in today's decision support picture. With the addition of enrichment material in data warehousing, much of which can be found on the Web, it also fits a quarter system: the DSS portion of the book fits one quarter, and the data warehousing portion can easily be expanded to fill another. The book suits these environments:

- Management (business administration) programs, at the advanced undergraduate or master's level.
- Programs in computers and information systems (CIS) or in application-oriented computer science programs, typically at the advanced undergraduate level. (My own DSS courses, while offered in our College of Management, attract computer science majors as well.)
- Workshops for practicing professionals who need a grasp of this important area of technology.

I wrote this book for the same reason that most authors write textbooks: I had taught the subject for several semesters and was not satisfied with any of the available texts. It is meant to offer several advantages over its alternatives.

- It has a realistic objective: to help the student understand decision support systems, not to create an experienced professional.
- It was written as a unified whole in which each chapter relates its content to what went before and is, in turn, related to what will follow.

- As a result, topics are reinforced by continued use rather than being touched upon and subsequently forgotten.
- It gets away from the conventional wisdom, often repeated in textbook after textbook, long after actual practice has left it in the dust, to reflect how the real world works.
- It focuses throughout, not just on how things are, but on *why* they are that way. It does not present facts or research results without explanation and context.
- Along the same lines, it does not attempt to provide exhaustive coverage of every fact or research result that exists. It focuses on what is (in the author's opinion) important.
- It makes realistic assumptions about what students have already studied. It neither presumes they remember every nuance of their introductory IS course nor insults them by assuming they never saw the subject.
- It offers many accessible, often nontechnical (even homey) examples of difficult concepts.
- It includes a running case that enables the students to apply the concepts in the chapters to a familiar situation.

A learning tool for the twenty-first century must be more than well planned, though. It must be current. No technology is changing the world as quickly as information technology. The decision support field is no exception to this general truth. A book that is not up-to-date, a book that merely gives the content of the 1980s a new look, will not serve its students well. The content of this book is as current as possible.

- The technology is up-to-date throughout. This is most evident in Chapter 5, where hardware issues are covered, but shows up in most other areas as well.
- The Web pervades this book as much as it pervades our world. It is discussed explicitly as a DSS platform. In the data warehousing arena, WOLAP is covered with examples.
- The last third of the book is devoted totally to the new and vital area of data warehousing. Nobody can claim to understand DSS today without having studied this key topic in depth. This section covers the approaches in use today, arranging them so the student can understand how they relate to each other and enabling the reader to sort through competing vendor claims.
- Material on expert systems, long a staple of DSS texts, has been cut back to one chapter.

HOW THIS BOOK IS ORGANIZED

Decision Support and Data Warehouse Systems is divided into three major parts. They are described further in Section 1.6, "The Plan of This Book." Each major part opens with a brief introduction to the entire part.

Part I, Chapters 1 to 4, provides an overview of decision support system fundamentals: how people make decisions, how systems work, where models fit into the DSS picture, what the benefits of DSS are, and several ways to classify them. The purpose of this classification is this: if we know something about the types of deci-

sions and the types of DSS, and we know what DSS have been useful with certain decisions in the past, we have a head start in developing a DSS for a similar decision today.

Part II, Chapters 5 to 11, covers technical and nontechnical DSS development issues. Chapters 5 and 6 cover the hardware and software technologies that go into DSS. The nontechnical side, including implementation and some ethical issues, is in Chapter 7. The intent throughout is to enable the student to apply the best method to a new situation. Chapters 8 through 11 then go into particular types of DSS and important aspects of many DSS in more detail. These chapters cover, respectively, the major kinds of models that are useful for decision support, optimization, group decision support systems, and expert systems.

Part III, Chapters 12 to 15, covers data warehousing. It opens with an introduction to this area and continues through their database, analyzing their contents, and implementation.

Finally, Chapter 16 summarizes the book. It is followed by an Appendix with nine real-world cases that bridge chapter boundaries to reinforce the material.

Each chapter includes:

- A chapter outline.
- A set of learning objectives for the chapter.
- An introduction, which explains why the subject of the chapter is worth taking time to study.
- A summary, which recaps the major points made in the chapter.
- A list of key terms introduced in the chapter.
- A set of simple review questions to check the reader's understanding. These require only reference to the appropriate paragraph(s) of the chapter.
- A set of more involved discussion questions to apply the material. These require additional thought. Some also require, or can benefit from, the use of a computer.
- References, covering both citations in the chapter and sources of further depth in the chapter topics.
- A case, about the fictional Fort Lowell Trading Company department store chain,[1] to show how the concepts and principles of that chapter work out in practice. FLTC is introduced at the end of Chapter 1. Each episode of this running case includes discussion questions.

SUPPLEMENTS

Adopters of this book can obtain the following items, in addition to the book itself:[2]

- An instructor's manual with suggestions for presenting the material, for class projects, and other information that will help make a DSS course successful.

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[1]The overlap between this name and that of the university where I teach is a coincidence. As explained in Chapter 1, the store was named for the first Anglo settlement newr what is now Tucson, Arizona.

[2]These items may accompany *Decision Support and Data Warehousing Systems*. Please consult your McGraw-Hill representative for policies, prices, and availability, as some restrictions may apply.

- A test bank, which instructors can use to develop exams.
- A set of PowerPoint presentations for every chapter.[3]

ACKNOWLEDGMENTS

No person can sit down unaided at a word processor and hope to arise some time later with a finished manuscript. I am indebted to many people for much that is in these pages. In particular, I wish to thank:

- The more than 100 DSS students at the University of Massachusetts, Lowell, who suffered through several versions of this book in manuscript form and whose comments improved it substantially.
- The thousands of DSS students and teachers who used *Understanding Decision Support Systems and Expert Systems* (Irwin, 1994) and whose feedback led to many of the improvements in the present book.
- The reviewers, both the anonymous ones and the ones whose names I know, who pointed out many errors and opportunities for improvement in earlier drafts. Since I ignored their advice in a few places, I retain the blame for any remaining problems.
- The editors and production staff at Irwin/McGraw-Hill, who kept after me to ensure that the book was as good as I was capable of making it.
- The many educators and MIS professionals who have worked in DSS and related fields over the past several decades and who have taken the time to record what they have learned. I hope I have added some useful insight here and there but, as with any textbook, I can claim originality for only a small part of its content.
- The software vendors who have provided examples of how decision support software works, often with screen photographs to enhance the book.
- The administration of the University of Massachusetts, Lowell, which granted me sabbatical leave to develop the manuscript for this book.
- My family, who understood the needs of someone trying to do creative work. They gave me the schedule flexibility to write it and supported my sometimes-unusual needs during the process.

If *Decision Support and Data Warehouse Systems* helps students develop into practicing professionals who understand what DSS are about and how to construct systems that meet decision makers' support needs, it will have achieved its most important objective.

Efrem G. Mallach

[3]Requires Microsoft PowerPoint 97 (Windows) or 98 (Macintosh), or compatible software.

BRIEF CONTENTS

CONTENTS

PART I

Introduction to Decision Support Systems