
BUILDING DECISION SUPPORT SYSTEMS

John L. Bennett, editor
IBM Research Laboratory
San Jose, California

TECHNISCHE HOCHSCHULE DARMSTADT	
Fachbereich 1	
<u>Gesamtbibliothek</u>	
<u>Betriebswirtschaftslehre</u>	
Inventar-Nr. :	35.533
Abstell-Nr. :	A 18/1380
Sachgebiete:	1.7.9.1



ADDISON-WESLEY PUBLISHING COMPANY

Reading, Massachusetts • Menlo Park, California
London • Amsterdam • Don Mills, Ontario • Sydney

CONTENTS

Chapter 1 Overview 1

John L. Bennett

<i>Introduction</i>	1
<i>Purpose of This Book</i>	4
<i>Scope and Coverage of the Content</i>	5
<i>A Commentary on the Chapters</i>	7

Chapter 2 An Approach for Designing Decision Support Systems 15

Eric D. Carlson

<i>Introduction</i>	15
<i>Requirements for DSS</i>	17
<i>Analysis of DSS</i>	20
<i>A DSS Design Framework</i>	23
<i>Using the Design Framework</i>	27
<i>Concluding Arguments</i>	36

Chapter 3 Analysis and Design of the User Interface for Decision Support Systems 41

John L. Bennett

<i>Introduction</i>	41
<i>The User-Computer Interface</i>	45
<i>What the User Sees, Has to Know, and Can Do</i>	46
<i>The DSS Designer Cannot Impose Process When a Problem Is Unstructured</i>	48
<i>A Definition and Measures of Usability</i>	49
<i>Translating Usability Considerations into Design Impact</i>	52
<i>The User Needs More than a Graphics Programming Language</i>	54
<i>Designing a Context for Interaction—the User Interface</i>	55
<i>Summary</i>	62

Chapter 4 Developing the User Interface for Decision Support Systems 65

Eric D. Carlson

<i>Introduction</i>	65
<i>Examples</i>	66
<i>Trade-offs</i>	71
<i>Design Techniques</i>	72
<i>Hardware Selection</i>	75
<i>Software Packages</i>	76
<i>Programming Techniques</i>	81
<i>Summary</i>	86

Chapter 5 Integrating Optimization Models with Information Systems for Decision Support 89

James S. Dyer and John M. Mulvey

<i>Introduction</i>	89
<i>A Preview of Two Problems</i>	90
<i>The Choice of an Optimization Model</i>	97
<i>Interactive Decision Making Within a DSS</i>	103
<i>Implications for Builders of DSS</i>	106
<i>Summary and Conclusions</i>	109

Chapter 6 Growing DSS: A Flexible, Evolutionary Approach 111E. Gerald Hurst, Jr., David N. Ness, Thomas J. Gambino,
and Thomas H. Johnson

<i>Nurturing a DSS</i>	111
<i>Case Examples</i>	114
<i>Insights into DSS Cultivation</i>	116
<i>Conclusion</i>	129

Chapter 7 Building A Decision Support System: The Mythical Man-Month Revisited 133

Peter G. W. Keen and Thomas J. Gambino

<i>Introduction</i>	133
<i>School Finance Policy Issues</i>	136
<i>ISSPA Design Features</i>	137
<i>The Development Process</i>	141
<i>Principles of Adaptive Design</i>	152
<i>Command-Based DSS and User Verbs</i>	159
<i>APL and the Mythical Man-Month</i>	162
<i>Conclusion: Guidelines for Building DSS</i>	168

Chapter 8 Meta-Design Considerations in Building DSS 173

Jeffrey H. Moore and Michael G. Chang

<i>Background of DSS Issues</i>	174
<i>Overview of Some DSS Frameworks</i>	178
<i>A DSS Design Framework</i>	185
<i>The First DSS Example: The Eastern Manufacturing Company</i>	189
<i>The Second DSS Example: Western Electronics</i>	194
<i>Summary of Meta-Design Issues</i>	201
<i>Concluding Remarks</i>	203

Chapter 9 Artificial Intelligence Research and Decision Support Systems 205

G. Anthony Gorry and Rand B. Krumland

<i>Introduction</i>	205
<i>Models as Puzzles</i>	206
<i>The Decision Support System as a Consultant</i>	208
<i>Progress in Artificial Intelligence</i>	209
<i>The Contribution of Artificial Intelligence Research to DSS</i>	216

Chapter 10 A Decision-Oriented Approach to Building DSS 221

Charles B. Stabell

<i>Introduction: A Decline of the D in DSS?</i>	221
<i>Decision Research: Description and Diagnosis of Decision Making in Organizations</i>	232
<i>Principles and Guidelines for a Decision-Oriented Design</i>	248
<i>Summary: Alternative Approaches to the Development of DSS?</i>	255

Index 261**The Author Teams 273**