Handbook of Marketing Decision Models
Recent titles in the **INTERNATIONAL SERIES IN OPERATIONS RESEARCH & MANAGEMENT SCIENCE**

Frederick S. Hillier, Series Editor, Stansford University

- Bouyssou Et Al/ **EVALUATION AND DECISION MODELS WITH MULTIPLE CRITERIA:** Stepping Stones For The Analyst
- Blecker & Friedrich/ **MASS CUSTOMIZATION:** Challenges and Solutions
- Appa, Pitsoulis & Williams/ **HANDBOOK ON MODELLING FOR DISCRETE OPTIMIZATION**
- Herrmann/ **HANDBOOK OF PRODUCTION SCHEDULING**
- Axšäřer/ **INVENTORY CONTROL,** 2nd Ed.
- Hall/ **PATIENT FLOW:** Reducing Delay in Healthcare Delivery
- Józefowska & Węglarz/ **PERSPECTIVES IN MODERN PROJECT SCHEDULING**
- Tian & Zhang/ **VACATION QUEUEING MODELS:** Theory and Applications
- Saaty & Vargas/ **DECISION MAKING WITH THE ANALYTIC NETWORK PROCESS:** Economic, Political, Social & Technological Applications w. Benefits, Opportunities, Costs & Risks
- Yu/ **TECHNOLOGY PORTFOLIO PLANNING AND MANAGEMENT:** Practical Concepts and Tools
- Kandiller/ **PRINCIPLES OF MATHEMATICS IN OPERATIONS RESEARCH**
- Lee & Lee/ **BUILDING SUPPLY CHAIN EXCELLENCE IN EMERGING ECONOMIES**
- Weintraub/ **MANAGEMENT OF NATURAL RESOURCES:** A Handbook of Operations Research Models, Algorithms, and Implementations
- Hooker/ **INTEGRATED METHODS FOR OPTIMIZATION**
- Dawande et al/ **THROUGHPUT OPTIMIZATION IN ROBOTIC CELLS**
- Friesz/ **NETWORK SCIENCE, NONLINEAR SCIENCE and INFRASTRUCTURE SYSTEMS**
- Cai, Sha & Wong/ **TIME-VARYING NETWORK OPTIMIZATION**
- Mamon & Elliott/ **HIDDEN MARKOV MODELS IN FINANCE**
- Del Castillo/ **PROCESS OPTIMIZATION:** A Statistical Approach
- Józefowska/ **JUST-IN-TIME SCHEDULING:** Models & Algorithms for Computer & Manufacturing Systems
- Yu, Wang & Lai/ **FOREIGN-EXCHANGE-RATE FORECASTING WITH ARTIFICIAL NEURAL NETWORKS**
- Beyer et al/ **MARKOVIAN DEMAND INVENTORY MODELS**
- Shi & Olafsson/ **NESTED PARTITIONS OPTIMIZATION:** Methodology And Applications
- Samaniego/ **SYSTEM SIGNATURES AND THEIR APPLICATIONS IN ENGINEERING RELIABILITY**
- Kleijnen/ **DESIGN AND ANALYSIS OF SIMULATION EXPERIMENTS**
- Førsund/ **HYDROPOWER ECONOMICS**
- Kogan & Tapiero/ **SUPPLY CHAIN GAMES:** Operations Management and Risk Valuation
- Vanderbei/ **LINEAR PROGRAMMING:** Foundations & Extensions, 3rd Edition
- Chihaied & Lowe/ **BUILDING INTUITION:** Insights From Basic Operations Mgmt. Models and Principles
- Luenberger & Ye/ **LINEAR AND NONLINEAR PROGRAMMING,** 3rd Edition
- Drew Et Al/ **COMPUTATIONAL PROBABILITY:** Algorithms and Applications in the Mathematical Sciences
- Chinneck/ **FEASIBILITY AND INFEASIBILITY IN OPTIMIZATION:** Algorithms and Computation Methods
- Tang, Teo & Wei/ **SUPPLY CHAIN ANALYSIS:** A Handbook on The Interaction of Information, System and Optimization
- Ozcan/ **HEALTH CARE BENCHMARKING AND PERFORMANCE EVALUATION:** An Assessment using Data Envelopment Analysis (DEA)

* A list of the early publications in the series is at the end of the book*
Handbook of Marketing Decision Models
This handbook presents the state of the art in marketing decision models. The book deals with new modeling areas such as customer relationship management, customer value and online marketing, but also describes recent developments in other areas. In the category of marketing mix models, the latest models for advertising, sales promotions, sales management, and competition are dealt with. New developments are presented in consumer decision models, models for return on marketing, marketing management support systems, and in special techniques such as time series and neural nets. Not only are the most recent models discussed, but the book also pays attention to the implementation of marketing models in companies and to applications in specific industries.

The reader can find short content descriptions of the different chapters of the book in the first chapter.

I am very pleased that we can offer this book. Marketing decision models are important and relevant for everyone in the field of marketing, including those with no specific expertise on this topic. Several subsets of readers can be distinguished for this book (partly overlapping): builders of marketing models, users of marketing models, academics in marketing departments of business schools (and in related departments such as decision sciences and strategy), PhD students, marketing researchers, and consultants.

The book is also designed to cover the substantive content in marketing models courses at the PhD and masters level.

At the completion of this book, my greatest thanks go to the authors of the different chapters. They are world renowned specialists in their areas, people with very busy schedules, and they have taken the time and effort to write their chapters. In this way they provide the opportunity to others to share their expertise. This is a great service to the field.

Second, I want to thank the reviewers. Each chapter was reviewed by two expert-colleagues, and the authors have benefited a lot from their comments and recommendations. A list with the names of the reviewers can be found as an Appendix to this preface.

Next, I want to thank the colleagues who have helped with advice and support during the preparation of this book. There were many of them, but I want to specially thank Gary Lilien (Pennsylvania State University) who has a
lot of experience with writing books on marketing models himself, and Gerrit van Bruggen, my colleague at Rotterdam School of Management, Erasmus University. Both of them were excellent sounding board for ideas. I also want to thank the secretaries of the marketing department at RSM, Annette Bartels and Jolanda Lenstra for their invaluable support during the whole process.

Before setting out to write their chapters for this book, the authors got together in the “Workshop on Advances in Marketing Decision Models” which was held on May 27th, 2006, in Athens (Greece). I want to thank the Marketing Science Institute (Dominique Hanssens, then Executive Director) and the Greek Marketing Academy (George Avlonitis, President) for their support in organizing this workshop.

Finally, I want to mention the excellent cooperation with Fred Hillier, the Editor of the Springer International Series on Operational Research and Management Science, and with all the persons at Springer who put a lot of effort in the preparation, production and marketing of this book: Gary Folven, Carolyn Ford and many others.

The field of marketing decision models started almost fifty years ago and has been booming ever since. I hope that this book will be a useful guide for the next phase of its life cycle, and a source of inspiration for everyone who reads it.

Rotterdam, The Netherlands

Berend Wierenga

Appendix: Reviewers of the chapters for the Handbook of Marketing Decision Models

Kusum Ailawadi, Tuck School of Business, Dartmouth College, USA
Eric Bradlow, The Wharton School, University of Pennsylvania, USA
René Darmon, ESSEC Business School, France
Jehoshua Eliashberg, The Wharton School, University of Pennsylvania, USA
Rajdeep Grewal, Pennsylvania State University, USA
Sunil Gupta, Harvard Business School, USA
Manfred Krafft, University of Münster, Germany
V. Kumar, University of Connecticut, USA
Peter Leeflang, University of Groningen, The Netherlands
Donald Lehmann, Columbia University, USA
Gary Lilien, Pennsylvania State University, USA
John Little, Massachusetts Institute of Technology, USA
John Lynch, Duke University, USA
Carl Mela, Duke University, USA
Prasad Naik, University of California, Davis, USA
Scott Neslin, Tuck School of Business, Dartmouth College, USA
Vincent Nijs, Kellogg School of Management, Northwestern University, USA
Leonard Parsons, Georgia Institute of Technology, USA
Arvind Rangaswamy, Pennsylvania State University, USA
David Reibstein, The Wharton School, University of Pennsylvania, USA
John Roberts, University of New South Wales, Australia
Gerrit van Bruggen, RSM Erasmus University, The Netherlands
Dirk van den Poel, University of Gent, Belgium
Harald van Heerde, Waikato Management School, New Zealand
Fred Zyfryden, University of Southern California, USA
## Contents

### Part I Introduction

1. The Past, the Present and the Future of Marketing Decision Models  
   Berend Wierenga  
   
### Part II Consumer Decision Making Models

2. Developments in Conjoint Analysis  
   Vithala R. Rao  

3. Interactive Consumer Decision Aids  
   Kyle B. Murray and Gerald Häubl  

### Part III Marketing Mix Models

4. Advertising Models  
   Peter J. Danaher  

5. Sales Promotion Models  
   Harald J. van Heerde and Scott A. Neslin  

6. Models for Sales Management Decisions  
   Sönke Albers and Murali Mantrala  

7. Modeling Competitive Responsiveness  
   Peter S.H. Leeflang  

### Part IV Customer-Centric Marketing Models

8. Models of Customer Value  
   Sunil Gupta and Donald R. Lehmann
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 Decision Models for Customer Relationship Management (CRM)</td>
<td>291</td>
</tr>
<tr>
<td>Werner J. Reinartz and Rajkumar Venkatesan</td>
<td></td>
</tr>
<tr>
<td>10 Marketing Models for Electronic Commerce</td>
<td>327</td>
</tr>
<tr>
<td>Randolph E. Bucklin</td>
<td></td>
</tr>
<tr>
<td>Part V Special Model Approaches</td>
<td></td>
</tr>
<tr>
<td>11 Time-Series Models in Marketing</td>
<td>373</td>
</tr>
<tr>
<td>Marnik G. Dekimpe, Philip Hans Franses, Dominique M. Hansssens, and Prasad A. Naik</td>
<td></td>
</tr>
<tr>
<td>12 Neural Nets and Genetic Algorithms in Marketing</td>
<td>399</td>
</tr>
<tr>
<td>Harald Hruschka</td>
<td></td>
</tr>
<tr>
<td>Part VI Industry-Specific Models</td>
<td></td>
</tr>
<tr>
<td>13 Decision Models for the Movie Industry</td>
<td>437</td>
</tr>
<tr>
<td>Jehoshua Eliashberg, Charles B. Weinberg, and Sam K. Hui</td>
<td></td>
</tr>
<tr>
<td>14 Strategic Marketing Decision Models for the Pharmaceutical Industry</td>
<td>469</td>
</tr>
<tr>
<td>Venkatesh Shankar</td>
<td></td>
</tr>
<tr>
<td>Part VII Return on Marketing Models</td>
<td></td>
</tr>
<tr>
<td>15 Models for the Financial-Performance Effects of Marketing</td>
<td>501</td>
</tr>
<tr>
<td>Dominique M. Hansssens and Marnik G. Dekimpe</td>
<td></td>
</tr>
<tr>
<td>Part VIII Implementation, Use and Success of Marketing Models</td>
<td></td>
</tr>
<tr>
<td>16 Marketing Engineering: Models that Connect with Practice</td>
<td>527</td>
</tr>
<tr>
<td>Gary L. Lilien and Arvind Rangaswamy</td>
<td></td>
</tr>
<tr>
<td>17 Advances in Marketing Management Support Systems</td>
<td>561</td>
</tr>
<tr>
<td>Berend Wierenga, Gerrit H. van Bruggen, and Niek A. P. Althuizen</td>
<td></td>
</tr>
<tr>
<td>Author Index</td>
<td>593</td>
</tr>
<tr>
<td>Subject Index</td>
<td>605</td>
</tr>
<tr>
<td>Biographies</td>
<td>615</td>
</tr>
</tbody>
</table>