To Shannon and our future:
Maximiliaan, Katharine, Marcus and Karolien

JVM

To Revital and our future:
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His research focuses on manufacturing, service and supply chain operations. His articles have appeared in leading journals, including *Annals of Applied Probability, Journal of Economic Theory, Management Science, Manufacturing and Service Operations Management* and *Operations Research*. He is past editor of the operations and supply chain area of *Operations Research* and has served on the editorial board of several journals.

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Gad Allon

Dr. Gad Allon is Professor of Managerial Economics, Decision Science, and Operations Management at the Kellogg School of Management at Northwestern University. He received his PhD in Management Science from Columbia Business School in New York and holds a Bachelor and a Master degree from the Israeli Institute of Technology.

His research interests include operations management in general, and service operations and operations strategy in particular. His articles have appeared in leading journals, including *Management Science, Manufacturing and Service Operations Management* and *Operations Research*. Professor Allon won the 2011 Wickham Skinner Early-Career Research Award of the Production and Operations Management Society. He is the Operations Management Department Editor of *Management Science* and serves on the editorial board of several journals.

Professor Allon teaches courses in operations management and operations strategy in MBA and executive programs. Professor Allon won the 2009 Outstanding Professor of the Year Award at Kellogg, the 2014 Alumni Professor of the year, and was recently named among the Worlds Top 40 B-School professors under the age of 40. Professor Allon regularly consults firms both on service strategy and operations strategy.
This book explains the principles of operations strategy and describes how companies can apply these principles in practice to increase value. Designing and implementing a successful operations strategy require judgment, experience, creativity, and luck, all of which cannot be taught. What can be taught, however, are the concepts, principles, and tools to help you in that process—and therein lies the purpose of this book.

“Principles and practice” is my guiding motto throughout this book. Going beyond telling war-stories, my goal is thus to describe the practice of operations strategy while revealing its driving principles in a structured manner. I am writing under the assumption that we—which in this book means you, the reader and I, the writer—seek to build sound intuition for designing, assessing, and improving operations strategies. I believe that sound intuition results from a journey of logical analysis that culminates in a theory. Good theory gives you intuition into the familiar, and beyond.

Each chapter opens with a description of how a real company practices some aspect of operations strategy and then reviews the concepts behind that practice. Tools are provided to analyze the concepts, distill their principles, and suggest guidelines for implementation and improvement. When appropriate, state-of-the-art research findings are integrated in the discussion. Each chapter closes with a mini-case that asks you to explore how you would apply the principles and tools in practice. The last part of the book contains a set of “full-blown” cases to integrate the chapters and emphasize the relevance of our topic to practice.

To increase accessibility, most analysis is described in words and is exhibited with minimal notation and mathematics. For example, equations are stated only if they capture a relationship better than words alone can. To increase usefulness and illustrate implementation, a particular example of each analysis is worked out in a spreadsheet (all spreadsheets can be downloaded from www.vanmieghem.us). More advanced analysis or spreadsheet implementations are relegated to appendices for those who are interested.

Though we are interested in designing good operations strategies, strategy evaluation is as much art as it is science. We will adopt a dual perspective that combines qualitative analysis with a financial evaluation of the value created by the operations strategy. Throughout this book, value will thus be our yardstick and our guide to assess and improve operations strategy. Merging the strategic and financial perspective should be natural to the intended reader:

I have written this book with a specific focus on MBA and engineering management students, and on their instructors. I hope that the structured approach
of using analysis to build intuition and reveal improvement levers within a coherent framework facilitates learning and instruction. While the book naturally follows a core course in operations and supply chain management and adopts basic financial evaluation, all concepts are explained “from scratch” to make the book accessible to every business or engineering management student. The book should also be of interest to consultants and practitioners as a reference for concepts, principles, and tools.

According to Francis Bacon, “writing makes an exact man.” While a valiant goal, operations strategy is not an exact science. Nor is there an agreed-upon paradigm for its study, let alone agreement on what exactly “is part” of operations strategy. Given these constraints, this book reflects my best effort to structure concepts and principles in a unified framework for operations strategy. Like any good operation, however, this really is a process of continuous improvement. It never ends, as better ways always exist. If you have any suggestions for improvement, I welcome hearing about them.

Jan Van Mieghem (Jan@VanMieghem.us)
July 13, 2007

CHANGES IN THE SECOND EDITION

This second edition contains changes along various dimensions. First, Professor Allon has joined this ongoing book project as second author. In 2010, Gad started teaching the MBA elective course, Operations Strategy, that Jan began designing and teaching in 1998. Second, while the first edition followed a “leading strategy,” in the sense that it contained material that hadn’t been taught yet, this second edition reflects how our MBA elective course has evolved over the last 7 years. It thus contains “class-room tested content.” These two changes led to a new chapter 2; majorly revised chapters 1, 3, 4, 5, 6, and 7 and appendix A; and minor revisions of the remaining chapters.

While we believe significant progress has been made, this book project remains a process of continuous improvement. It never ends, as better ways always exist. If you have any suggestions for improvement, we welcome hearing about them.

Jan Van Mieghem and Gad Allon
July 11, 2014
ACKNOWLEDGMENTS

This book results from the MBA elective course, *Operations Strategy*, that I began designing and teaching in 1998. It reflects the experience and knowledge of the colleagues, teachers, and managers that I have worked with. I have also benefited greatly from the experience, suggestions, and questions of the many MBA and executive students that I have interacted with; while I was teaching, I was learning even more.

Many people have helped me while writing this book. I would especially like to acknowledge the following people:

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I am particularly indebted to the organization that has graced my business card for the last 12 years—after all, this book would have never seen the light of day without the Kellogg School of Management. I am also thankful for the hospitality of the Katholieke Universiteit Leuven during my sabbatical in 2005, when half this book was written.

Finally, and most importantly, I would like to thank my lovely wife, Shannon Cahill, for her unwavering support during this project and so many others. She managed the family with a smile, even during my extensive absence during the last months of this project. It is done at last!

Jan Van Mieghem (jan@VanMieghem.us)
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## CONTENTS

Preface .......................................................... vii

### I Operations Strategy: Concept, Value and Capabilities 1

1 Operations Strategy: Concept and VCAP Framework 3
   1.1 Operations Strategy ................................................. 3
   1.2 Operating System = Assets + Processes ......................... 6
   1.3 Operations Strategy Framework: VCAP .......................... 6
   1.4 Operations Strategy: Relation with Operations Management and Competitive Strategy ............................... 10
   1.5 The Capabilities View of Operations ............................... 13
   1.6 Assets: The Resource View of Operations ....................... 17
   1.7 The Process View of Operations ................................... 19
   1.8 RoadMap .............................................................. 25
   1.9 Applying the VCAP Framework: Zara .............................. 27
   1.10 Summary of Learning Objectives ................................. 29

Discussion Questions ........................................... 30
Further Reading and References ................................. 31
Appendix 1: Three Tools to Tailor Operations .................. 33
Mini-Case 1: The Swiss Watch Industry .......................... 38

2 Value Creation and Operations: The Investor View 41
   2.1 The External View and Operations Forensics .................. 41
   2.2 Quantifying Value Creation from Operations .................. 43
   2.3 Identifying and Ranking Operational KPIs ...................... 46
   2.4 Linking ROIC to operations ...................................... 47
   2.5 Linking Profit and Value to Process Flows .................... 50
   2.6 Industrial Applications .......................................... 55
   2.7 Summary of Learning Objectives ................................ 55

Further Reading and References ................................. 56
Appendix 2: Linking Financials to Detailed Process Flows .... 59
# 3 Capabilities, Competition and Operations

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Determining Defensibility</td>
<td>61</td>
</tr>
<tr>
<td>3.2</td>
<td>Efficient Frontier</td>
<td>63</td>
</tr>
<tr>
<td>3.3</td>
<td>The Concept of Operational Trade-off</td>
<td>64</td>
</tr>
<tr>
<td>3.4</td>
<td>Operational trade-off curves to analyze a competitive threat</td>
<td>68</td>
</tr>
<tr>
<td>3.5</td>
<td>Example: Using Operational Equipment Efficiency (OEE) to Assess Defensibility</td>
<td>70</td>
</tr>
<tr>
<td>3.6</td>
<td>Shaping Operational Trade-offs: Examples</td>
<td>73</td>
</tr>
<tr>
<td>3.7</td>
<td>Properties of Operational Trade-offs</td>
<td>78</td>
</tr>
<tr>
<td>3.8</td>
<td>How to improve Operational Efficiency? Focus!</td>
<td>83</td>
</tr>
<tr>
<td>3.9</td>
<td>Operational Efficiency and Productivity</td>
<td>88</td>
</tr>
<tr>
<td>3.10</td>
<td>Guidelines for Operations-based Competitive Advantage</td>
<td>91</td>
</tr>
<tr>
<td>3.11</td>
<td>Summary of Learning Objectives</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>Discussion Questions</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>Challenge Questions</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>Further Reading and References</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>Mini-Case 3: FedEx v. UPS</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>Appendix 3: Data Envelopment Analysis (DEA)</td>
<td>99</td>
</tr>
</tbody>
</table>

## II The Resource View: Tailoring Real Assets

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Capacity Strategy: The Concept</td>
<td>105</td>
</tr>
<tr>
<td>4.2</td>
<td>Capacity Strategy: Decisions and Trade-offs</td>
<td>109</td>
</tr>
<tr>
<td>4.3</td>
<td>Challenges for Capacity Strategy</td>
<td>111</td>
</tr>
<tr>
<td>4.4</td>
<td>Forecasting and Modeling Uncertainty</td>
<td>115</td>
</tr>
<tr>
<td>4.5</td>
<td>Tools to incorporate uncertainty into capacity analysis</td>
<td>120</td>
</tr>
<tr>
<td>4.6</td>
<td>Optimal Capacity Sizing</td>
<td>122</td>
</tr>
<tr>
<td>4.7</td>
<td>Capacity Risk and Operational Hedging</td>
<td>124</td>
</tr>
<tr>
<td>4.8</td>
<td>Guidelines for Capacity Sizing</td>
<td>131</td>
</tr>
<tr>
<td>4.9</td>
<td>Summary of Learning Objectives</td>
<td>133</td>
</tr>
<tr>
<td></td>
<td>Discussion Questions</td>
<td>134</td>
</tr>
<tr>
<td></td>
<td>Challenge Questions</td>
<td>135</td>
</tr>
<tr>
<td></td>
<td>Further Reading and References</td>
<td>136</td>
</tr>
<tr>
<td></td>
<td>Mini-Case 4: Gujarat Apollo Industries Ltd</td>
<td>138</td>
</tr>
<tr>
<td></td>
<td>Appendix 4A: Capacity and Bottleneck OEE and TEEP</td>
<td>139</td>
</tr>
<tr>
<td></td>
<td>Appendix 4B: Capacity-Inventory-Waiting Trade-offs</td>
<td>140</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Dynamic Capacity Strategies</td>
<td>149</td>
</tr>
<tr>
<td>5.2</td>
<td>Five Capacity Timing Strategies</td>
<td>153</td>
</tr>
<tr>
<td>5.3</td>
<td>Capacity Expansion Cost and Scale Economies</td>
<td>158</td>
</tr>
<tr>
<td>5.4</td>
<td>Modeling Dynamic Capacity Strategies: Level 1 (Classic Timing Model)</td>
<td>161</td>
</tr>
<tr>
<td>5.5</td>
<td>Modeling Dynamic Capacity Strategies: Level 2 (Real Options)</td>
<td>165</td>
</tr>
<tr>
<td>5.6</td>
<td>Modeling Dynamic Capacity Strategies: Level 3 (DCF Simulations)</td>
<td>170</td>
</tr>
<tr>
<td>5.7</td>
<td>Tactical Capacity Adjustment: Aggregate Planning</td>
<td>173</td>
</tr>
<tr>
<td>5.8</td>
<td>Leadtimes, Irreversibility, and Service Levels</td>
<td>178</td>
</tr>
<tr>
<td>5.9</td>
<td>Guidelines for Dynamic Capacity Strategies</td>
<td>182</td>
</tr>
</tbody>
</table>
5.10 Application: Rationalizing Sharp’s Sakai Factory .......... 184
5.11 Summary of Learning Objectives ................. 186
Discussion Questions .................................... 188
Challenge Questions .................................... 188
Further Reading and References ........................ 188
Mini-Case 5: Timing of IT expansions .................. 190
Appendix 5: Linear Planning Optimization in Excel .......... 192

6 Asset and Network Flexibility and Consolidation 195
6.1 Different Kinds and Benefits of Flexibility ............. 195
6.2 Obstacles to Achieving Flexibility .................... 202
6.3 Asset Flexibility: Valuation and Consolidation ........ 203
6.4 Network Flexibility .................................. 210
6.5 Modeling and Optimizing Network Flexibility ........... 213
6.6 Tailored Network Flexibility .......................... 218
6.7 Product Design Strategies for Flexibility ............... 221
6.8 Mass Customization .................................. 225
6.9 Guidelines for Capacity Flexibility .................... 228
6.10 Summary of Learning Objectives ..................... 229
Discussion Questions .................................... 231
Analytical Questions ..................................... 232
Further Reading and References ........................ 232
Mini-Case 6: Strategic Network Flexibility using FlexCap ..... 234
Appendix 6: Optimization using Simulation in Excel ........ 237

7 Asset Location, Global Networks and Offshoring 241
7.1 Why firms globalize their operations .................. 241
7.2 Strategic Framework for Location Decisions ............ 247
7.3 Total Landed Cost (TLC) analysis .................... 250
7.4 Integrating Location with operations strategy ........... 253
7.5 Network and Competitive Location Analyses .......... 257
7.6 Network Choices: Centralize or Distribute? .......... 260
7.7 Network Choices: Localize or Standardize? .......... 263
7.8 Global Network Choices: Integrate or Separate? .... 264
7.9 Global Network Choice: Offshoring and Reshoring .... 266
7.10 Global Network Valuation: Flexibility and Currency Risk .. 271
7.11 Guidelines ......................................... 274
7.12 Summary of Learning Objectives ..................... 275
Discussion Questions .................................... 277
Further Reading and References ........................ 277
Mini-Case 7: Mexico or China? Managing a Global Network .... 279

III The Process View: Tailoring Activity Networks 283

8 Strategic Sourcing, Supply Management, and Outsourcing 285
8.1 Strategic Sourcing: Concept and Framework ............ 285
8.2 The Spectrum of Sourcing Relationships ................ 290
8.3 A Framework for the Outsourcing Decision ............. 297
8.4 Total Cost of Ownership ................................ 300
Mini-Case 11: Quantum-Seagate: Competing on Innovation 434

IV Integrating Case Studies 439

12 Harley-Davidson Motor Company 441
   History (1903-1992) and Company Information 441
   The 1992 Capacity Decision 447
   More Growth in Demand 449
   Strategic Choices 451
   Discussion Questions 453

13 Seagate Technology 455
   Discussion Questions 463

14 Peapod 465
   Grocery Industry Overview 465
   Peapod 468
   Webvan 473
   What’s Next? Tesco’s Entry 474
   Discussion Questions 475
   Appendix 14: Peapod’s Operating Data 478

V Book Appendices 479

A Discounting and Calculating NPV for Operations Strategy 481
B Make-to-Stock Operations (EOQ Model) 489
C Safety Capacity and Inventory (Newsvendor Model) 493
D Make-to-Order and Service Operations (Queuing Model) 499
E Simple Forecasting Techniques 503

Glossary 505
Notation 515
Name Index 517
Subject Index 521
Strategy and operations are inextricably connected: strategy is a plan to reach an objective and operations is the means of getting there. Operations management involves the planning and coordination of work. Strategically, this involves the long-term planning and structuring of work. Operations management and strategy. (Brief defining or introductory sentence). The word operations stems from the Latin verb operari and noun opus, which mean (to) work. Strategy and effectively managing business operations are key to success. We can help you to develop your company strategy and plans for the future, identify your priorities, assess the impact of changes on employees and business systems, as well as reduce corporate costs and taxes. Potential issues. You need your strategy and business plan to comply with changing economic conditions, regulations and goals. You need to restructure your operations to enhance effectiveness. Deriving an operations strategy from a business strategy will not be a straightforward planning activity. During the translation from business to operations strategy, all the ambiguities and conflicts that are buried within most businesses strategies will be exposed and will need to be resolved. Business strategies are painted in broad brushstrokes. They point the business in a general direction, but cannot spell out every detail; that is what functional strategies are for.
This book covers all areas of Operations Strategy including formulation methods for operations strategy and improvement approaches.

Description. This book covers all areas of Operations Strategy including formulation methods for operations strategy and improvement approaches and the organisational structure around which operation strategies are implemented. Preface. This book covers the area of Operations Strategy. The firm’s expertise in operations strategy was further enhanced by the acquisition of Management Engineers in 2013, adding deep operations capabilities, and implementation-driven approach, and experience across the manufacturing, chemicals and industrials sectors. Today, as part of the PwC network, we turn vision into reality.