Contents

Part I Complex Decision Making: Concepts, Theories, and Empirical Evidence

1 How to Improve Dynamic Decision Making? Practice and Promise
Mustafa Krakul and Hassan Qudrat-Ullah.....**3**

2 Expertise and Dynamic Tasks
J. Michael Spector.....**25**

Part II Tools and Techniques for Decision Making in Complex Systems

3 Dynamic Handling of Uncertainty for Decision Making
S.C. Lenny Koh.....**41**

4 Using System Dynamics and Multiple Objective Optimization to Support Policy Analysis for Complex Systems
Jim Duggan.....**59**

5 Creation of Hydroelectric System Scheduling by Simulation
Jesús M. Latorre, Santiago Cerisola, Andrés Ramos, Rafael Bellido, and Alejandro Perea.....**83**

6 Complex Decision Making using Non-Parametric Data Envelopment Analysis
Michael Alexander.....**97**

7 Using Group Model Building to Inform Public Policy Making and Implementation
Aldo A. Zagonel and John Rohrbaugh.....**113**

8 Agents First! Using Agent-based Simulation to Identify and Quantify Macro Structures
Nadine Schieritz and Peter M. Milling.....**139**

Part III System Dynamics and Agent-Based Modeling in Action

9 Influencing and Interpreting Health and Social Care Policy in the UK
Eric Wolstenholme, David Monk, Douglas McKelvie, and Gill Smith.....**155**

10 System Dynamics Advances Strategic Economic Transition Planning in a Developing Nation
Brian Dangerfield.....**185**

11 Saving a Valley: Systemic Decision-making Based on Qualitative and Quantitative System Dynamics
Markus Schwaninger.....**211**

12 Building Long-Term Manufacturer-Retailer Relationships through Strategic Human Resource Management Policies: A System Dynamics Approach
Enzo Bivona and Francesco Ceresia.....**227**

13 Diffusion and Social Networks: Revisiting Medical Innovation with Agents
Nazmun N. Ratna, Anne Dray, Pascal Perez, R. Quentin Grafton, David Newth, and Tom Kompas.....**247**

Part IV Methodological Issues in Research on Complex Decision Making

14 Measuring Change in Mental Models of Complex Dynamic Systems
James K. Doyle, Michael J. Radzicki, and W. Scott Trees.....**269**

15 A Comprehensive Model of Goal Dynamics in Organizations: Setting, Evaluation and Revision
Yaman Barlas and Hakan Yasarcan.....**295**

Part V Future Directions on Complex Decision Making

16 Future Directions on Complex Decision Making Using Modeling and Simulation Decision Support
Hassan Qudrat-Ullah.....**323**