
Contents

Managing Complexity: An Introduction	
<i>Dirk Helbing, Stefan Lämmer</i>	1

Part I Markets and Business

Market Segmentation: The Network Approach	
<i>Jörg Reichardt, Stefan Bornholdt</i>	19

Managing Autonomy and Control in Economic Systems	
<i>Markus Christen, Georges Bongard, Attila Pausits, Norbert Stoop, Ruedi Stoop</i>	37

Complexity and the Enterprise: The Illusion of Control	
<i>Karl G. Kempf</i>	57

Part II Logistics and Production

Benefits and Drawbacks of Simple Models for Complex Production Systems	
<i>Oliver Rose</i>	91

Logistics Networks: Coping with Nonlinearity and Complexity	
<i>Karsten Peters, Thomas Seidel, Stefan Lämmer, Dirk Helbing</i>	119

Repeated Auction Games and Learning Dynamics in Electronic Logistics Marketplaces	
<i>Miguel A. Figliozzi, Hani S. Mahmassani, Patrick Jaillet</i>	137

Part III Traffic

Decentralized Approaches to Adaptive Traffic Control
Arne Kesting, Martin Schönhof, Stefan Lämmer, Martin Treiber, Dirk Helbing 179

Critical Infrastructures Vulnerability: The Highway Networks
Limor Issacharoff, Stefan Lämmer, Vittorio Rosato, Dirk Helbing 201

Part IV Critical Infrastructures and Systemic Risks

Trade Credit Networks and Systemic Risk
Stefano Battiston, Domenico Delli Gatti, Mauro Gallegati 219

A Complex System’s View of Critical Infrastructures
Vittorio Rosato, Ingve Simonsen, Sandro Meloni, Limor Issacharoff, Karsten Peters, Nils von Festenberg, Dirk Helbing 241

Part V Information Systems

Bootstrapping the Long Tail in Peer to Peer Systems
Bernardo A. Huberman, Fang Wu 263

Coping with Information Overload through Trust-Based Networks
Frank E. Walter, Stefano Battiston, Frank Schweitzer 273

Part VI Conflict and Consensus

Complexity in Human Conflict
Neil F. Johnson 303

Fostering Consensus in Multidimensional Continuous Opinion Dynamics under Bounded Confidence
Jan Lorenz 321

Multi-Stakeholder Governance - Emergence and Transformational Potential of a New Political Paradigm
Bertrand de La Chapelle 335

Part VII Network Design

Evolutionary Engineering of Complex Functional Networks*Pablo Kaluza, Hiroshi Kori, Alexander S. Mikhailov* 351**Path Length Scaling and Discrete Effects in Complex Networks***Julian Sienkiewicz, Agata Fronczak, Piotr Fronczak, Krzysztof Suchecki, Janusz A. Holyst* 369**Index** 389