

Contents

Design Thinking Research	1
<i>Christoph Meinel and Larry Leifer</i>	

Part I Road Maps for Design Thinking

Tele-Board: Follow the Traces of Your Design Process History	15
<i>Lutz Gericke, Raja Gumienny, and Christoph Meinel</i>	

Understanding Radical Breaks	31
<i>Jonathan Edelman, Avantika Agarwal, Cole Paterson, Sophia Mark, and Larry Leifer</i>	

If You Want to Know Who You Are, Tell Me Where You Are: The Importance of Places	53
<i>Julia von Thienen, Christine Noweski, Ingo Rauth, Christoph Meinel, and Sabine Lang</i>	

Creativity and Culture: State of the Art	75
<i>Hannah Hyunjee Kim, Siddharth Mishra, Pamela Hinds, and Lei Liu</i>	

Part II Creative Tools and the Importance of Prototypes in Design Thinking

Design Loupes: A Bifocal Study to Improve the Management of Engineering Design Innovation by Co-evaluation of the Design Process and Information Sharing Activity	89
<i>Rebecca Currano, Martin Steinert, and Larry Leifer</i>	

Towards Next-Generation Design Thinking II: Virtual Multi-user Software Prototypes	107
Gregor Gabrysiak, Holger Giese, and Andreas Seibel	
Parallel Prototyping Leads to Better Design Results, More Divergence, and Increased Self-efficacy	127
Steven P. Dow, Alana Glassco, Jonathan Kass, Melissa Schwarz, Daniel L. Schwartz, and Scott R. Klemmer	
 Part III Distributed Design Collaboration and Teamwork in Design Thinking	
Towards a Shared Platform for Virtual Collaboration Monitoring in Design Research	157
Thomas Kowark, Matthias Uflacker, and Alexander Zeier	
Communicating Meaning and Role in Distributed Design Collaboration: How Crowdsourced Users Help Inform the Design of Telepresence Robotics	173
David Sirkin, Wendy Ju, and Mark Cutkosky	
Teamology – The Art and Science of Design Team Formation	189
Greg L. Kress and Mark Schar	
Monitoring Design Thinking Through In-Situ Interventions	211
Micah Lande, Neeraj Sonalkar, Malte Jung, Christopher Han, and Shilajeet Banerjee	
 Part IV Design Thinking in Information Technology	
On the Perception, Adoption and Implementation of Design Thinking in the IT Industry	229
Tilman Lindberg, Eva Köppen, Ingo Rauth, and Christoph Meinel	
Determining the Effect of Tangible Business Process Modeling	241
Alexander Luebbe and Mathias Weske	
Applying Design Knowledge to Programming	259
Bastian Steinert and Robert Hirschfeld	