Contents

Manifesto: Design Thinking Becomes Foundational 1
Larry Leifer and Christoph Meinel

Introduction: The HPI-Stanford Design Thinking Research Program 5
Claudia Koch, Christoph Meinel, and Larry Leifer

Part I Tools and Techniques for Improved Team Interaction

Globalized Design Thinking: Bridging the Gap Between Analog and Digital for Browser-Based Remote Collaboration 15
Matthias Wenzel, Lutz Gericke, Christoph Thiele, and Christoph Meinel

Diagnostics for Design Thinking Teams 35
Neeraj Sonalkar, Ade Mabogunje, Gina Pai, Aparna Krishnan, and Bernard Roth

Design Thinking Health: Telepresence for Remote Teams with Mobile Augmented Reality 53
Lauren Aquino Shluzas, Gabriel Aldaz, and Larry Leifer

Talkabout: Making Distance Matter with Small Groups in Massive Classes 67
Chinmay Kulkarni, Julia Cambre, Yasmine Kotturi, Michael S. Bernstein, and Scott Klemmer

Improving Design Thinking Through Collaborative Improvisation 93
David Sirkin, Brian Mok, Stephen Yang, Rohan Maheshwari, and Wendy Ju

Part II Creativity and Creative Confidence

Designing a Creativity Assessment Tool for the Twenty-First Century: Preliminary Results and Insights from Developing a Design-Thinking Based Assessment of Creative Capacity 111
Grace Hawthorne, Manish Saggar, Eve-Marie Quintin
Nick Bott, Eliza Keinitz, Ning Liu, Yin-Hsuan Chien, Daniel Hong,
Adam Royalty, and Allan L. Reiss

Innovation in Creative Environments: Understanding and Measuring the Influence of Spatial Effects on Design Thinking-Teams 125
Claudia Nicolai, Marie Klooker, Dora Panayotova, Daniela Hüsam,
and Ulrich Weinberg

Building Blocks of the Maker Movement: Modularity Enhances Creative Confidence During Prototyping 141
Joel Sadler, Lauren Shluzas, Paulo Blikstein, and Riitta Katila

Part III Measuring Design Thinking

Measuring the Impact of Design Thinking 157
Jan Schmiedgen, Lea Spille, Eva Köppen, Holger Rhinow,
and Christoph Meinel

Developing Design Thinking Metrics as a Driver of Creative Innovation 171
Adam Royalty and Bernard Roth

Part IV Documentation and Information Transfer in Design Thinking Processes

Experience and Knowledge Transfer Through Special Topic Coaching Sessions 187
Franziska Häger, Thomas Kowark, and Matthias Uflacker

Smart Documentation with Tele-Board MED 203
Julia P.A. von Thienen, Anja Perlich, Johannes Eschrig,
and Christoph Meinel

Preserving Access to Previous System States in the Lively Kernel 235
Lauritz Thamsen, Bastian Steinert, and Robert Hirschfeld

Connecting Designing and Engineering Activities III 265
Thomas Beyhl and Holger Giese