

Contents

Preface — V

Acknowledgments — VII

About the Author — VIII

Part 1: Understanding Simulation and Analytics

Chapter 1 Analytics and Simulation Basics — 3

Chapter 2 Simulation and Business Processes — 52

Chapter 3 Build the Conceptual Model — 67

Chapter 4 Build the Simulation — 110

Chapter 5 Use Simulation for Descriptive, Predictive and Prescriptive Analytics — 154

Part 2: Simulation Case Studies

Chapter 6 Case Study: A Simulation of a Police Call Center — 195

Chapter 7 Case Study: A Simulation of a “Last Mile” Logistics System — 206

Chapter 8 Case Study: A Simulation of an Enterprise Resource Planning System — 214

Chapter 9 Case Study: A Simulation of a Snacks Process Production System — 230

Chapter 10 Case Study: A Simulation of a Police Arrest Process — 239

Chapter 11 Case Study: A Simulation of a Food Retail Distribution Network — 249

Chapter 12 Case Study: A Simulation of a Proposed Textile Plant — 259

Chapter 13 Case Study: A Simulation of a Road Traffic Accident Process — 271

Chapter 14 Case Study: A Simulation of a Rail Carriage Maintenance Depot — 280

Chapter 15 Case Study: A Simulation of a Rail Vehicle Bogie Production Facility — 289

Chapter 16 Case Study: A Simulation of Advanced Service Provision — 298

Chapter 17 Case Study: Generating Simulation Analytics with Process Mining — 308

Chapter 18 Case Study: Using Simulation with Data Envelopment Analysis — 321

Chapter 19 Case Study: Agent-Based Modeling in Discrete-Event Simulation — 325

Appendix A — 336

Appendix B — 337

Index — 338