

Hermann Lödding · Ralph Riedel
Klaus-Dieter Thoben · Gregor von Cieminski
Dimitris Kiritsis (Eds.)

Advances in Production Management Systems

The Path to Intelligent,
Collaborative and Sustainable
Manufacturing

IFIP WG 5.7 International Conference, APMS 2017
Hamburg, Germany, September 3–7, 2017
Proceedings, Part II

Contents – Part II

Supply Chain Design

| | |
|---|----|
| A System Maturity Model for Supply Chain Management | 3 |
| <i>Shigeki Umeda</i> | |
| The Link Between Supply Chain Design Decision-Making and Supply Chain Complexity: An Embedded Case Study | 11 |
| <i>Jesper Asmussen, Jesper Kristensen, and Brian Vejrum Wæhrens</i> | |
| Reframing the Outsourcing Process | 20 |
| <i>Børge Sjøbakk and Gaute Knutstad</i> | |
| A Production Transfer Risk Assessment Framework | 29 |
| <i>Maria Flavia Mogos, Børge Sjøbakk, and Erlend Alfnes</i> | |
| Design of Hybrid Multimodal Logistic Hub Network with Postponement Strategy | 40 |
| <i>Imane Essaadi, Bernard Grabot, and Pierre Fénès</i> | |
| Collaborative Process Planning on Route Market Platform | 49 |
| <i>Keisuke Beppu, Hajime Mizuyama, and Tomomi Nonaka</i> | |
| Continuous vs Step Change Production Process Improvement as Enablers for Product Redesign and New Market Opportunities. | 57 |
| <i>Geir Ringen and Kjersti Øverbø Schulte</i> | |
| Cluster Competitiveness Analysis: A Brazilian Case | 65 |
| <i>Elizangela Maria Menegassi de Lima, Isabela Romanha de Alcantara, Jose Benedito Sacomano, and Ana Paula de Lima da Silva</i> | |
| Goal Programming for Supply Chain Optimization with Insufficient Capacity | 73 |
| <i>Mohan Chiriki, Yooneun Lee, and Vittaldas V. Prabhu</i> | |

Production Management in Food Supply Chains

| | |
|--|----|
| Neural Network System to Forecast the Soybean Exportation on Brazilian Port of Santos. | 83 |
| <i>Emerson Rodolfo Abraham, João Gilberto Mendes dos Reis, Adriane Paulieli Colossetti, Aguinaldo Eduardo de Souza, and Rodrigo Carlo Tolo</i> | |

| | |
|---|-----|
| Business Games Based on Simulation and Decision-Making in Logistics Processes | 91 |
| <i>Marco Aurelio Butzke, Anete Alberton, Jeancarlo Visentainer, Solimar Garcia, and Irenilza de Alencar Nääs</i> | |
| Managing Enterprise Resource System (ERP) and Balanced Scorecard (BSC) in Food Industry in Brazil - Food and Beverage Products: A Multiple Case Study | 99 |
| <i>Celso Affonso Couto, Marcos de Oliveira Morais, Antonio Sergio Brejão, Oduvaldo Vendrametto, and Pedro Luiz de Oliveira Costa Neto</i> | |
| Brazilian Corn Exports: An Analysis of Cargo Flow in Santos and Paranagua Port | 105 |
| <i>Aguinaldo Eduardo de Souza, João Gilberto Mendes dos Reis, Emerson Rodolfo Abraham, and Sivanilza Teixeira Machado</i> | |
| Inventory Allocation of Perishables: Guidelines | 113 |
| <i>Kasper Küll, Hans-Henrik Hvolby, Heidi C. Dreyer, and Jan Ola Strandhagen</i> | |
| Challenges and Opportunities in ‘Last Mile’ Logistics for On-Line Food Retail. | 122 |
| <i>Jacques Trienekens, Hans-Henrik Hvolby, and Paul Turner</i> | |
| Replenishment Planning of Fresh Meat Products: Case Study from a Danish Wholesaler | 130 |
| <i>Flemming Max Møller Christensen, Iskra Dukovska-Popovska, and Kenn Steger-Jensen</i> | |
| Differentiated Demand and Supply Chain Planning of Fresh Meat Products: Linking to Animals’ Lifetime | 139 |
| <i>Flemming Max Møller Christensen, Iskra Dukovska-Popovska, and Kenn Steger-Jensen</i> | |
| Scheduling Fresh Food Production Networks | 148 |
| <i>Quan Yu, Taravatsadat Nehzati, Carl Philip T. Hedenstierna, and Jan Ola Strandhagen</i> | |
| Factory Planning | |
| Case Studies of Participatory Design: Comparison of Methodologies in Factory Planning. | 159 |
| <i>Mandy Tawalbeh, Ralph Riedel, Samuel Horler, and Egon Müller</i> | |

| | |
|---|-----|
| A Robust Facility Layout Planning Method Considering Temporal Efficiency | 168 |
| <i>Eiji Morinaga, Komei Iwasaki, Hidefumi Wakamatsu, and Eiji Arai</i> | |
| Approach for the Evaluation of Production Structures | 176 |
| <i>Ulf Bergmann and Matthias Heinicke</i> | |
| An Investigation on Implemented Actions to Improve Responsiveness in Manufacturing Firms | 184 |
| <i>Alessia Napoleone, Marco Macchi, and Alessandro Pozzetti</i> | |
| Development Projects in SMEs: From Project Organization to Dynamic Resource Planning. | 193 |
| <i>Bjørnar Henriksen, Carl Christian Røstad, and Moritz von Stietenron</i> | |
| Industrial and Other Services | |
| Resource Planning for the Installation of Industrial Product Service Systems | 205 |
| <i>Kosmas Alexopoulos, Spyros Koukas, Nikoletta Boli, and Dimitris Mourtzis</i> | |
| Morphology of Strategic Components for Data-Driven Industrial Services . . . | 214 |
| <i>Günther Schuh and Dominik Kolz</i> | |
| Support to the Public Services Mutation Through Continuous Improvement in a French Metropolis | 222 |
| <i>Gautier Aubourg, François Galasso, Bernard Grabot, and Jacques Lamothe</i> | |
| Service Innovation and Performance in Mexican Service SMEs | 230 |
| <i>Gonzalo Maldonado-Guzman, Jose Arturo Garza-Reyes, Luis Rocha-Lona, and Vikas Kumar</i> | |
| Operations Management in Engineer-to-Order Manufacturing | |
| Project Execution Strategy and Planning Challenges | 243 |
| <i>Kristina Kjersem, Gabriele H. Jünge, and Jan Emblemståg</i> | |
| A Three Steps Methodological Approach to Assess the Engineer-to-Order Operations Environment. | 251 |
| <i>Aldo Duchi and Paul Schönsleben</i> | |
| Operating Curves Based Working Capital Management for Engineer to Order Manufacturers | 259 |
| <i>Dennis Schiemann, Sudharshan Santhanam, and Günther Schuh</i> | |

| | |
|--|-----|
| Resource and Information Sharing for the Installation Process of the Offshore Wind Energy | 268 |
| <i>Thies Beinke, Abderrahim Ait Alla, and Michael Freitag</i> | |
| Gamification of Complex Systems Design Development | |
| Using a Serious Game Development Approach in the Learning Experience of System Engineering Design | 279 |
| <i>Marco Blokhuis and Nick Szirbik</i> | |
| A Generic Architecture for Quickly-Deployable, Flexible, Scenario-Oriented Serious Games | 287 |
| <i>Jan Willem Veeningen, Nick B. Szirbik, and Marco P. Blokhuis</i> | |
| Transforming a Supply Chain Towards a Digital Business Ecosystem | 295 |
| <i>Rita Lavikka, Antero Hirvensalo, Riitta Smeds, and Miia Jaatinen</i> | |
| Knowledge Fusion of Manufacturing Operations Data Using Representation Learning. | 302 |
| <i>Martin Ringsquandl, Steffen Lamparter, Raffaello Lepratti, and Peer Kröger</i> | |
| A Framework for Mathematical Analysis of Collaborative SCM in ColPMan Game | 311 |
| <i>Tatsuki Furukawa, Tomomi Nonaka, and Hajime Mizuyama</i> | |
| Identifying Scenarios for Ambidextrous Learning in a Decoupling Thinking Context | 320 |
| <i>Annika Engström and Joakim Wikner</i> | |
| Lean and Green Manufacturing | |
| Lean Manufacturing and Environmental Performance – Exploring the Impact and Relationship | 331 |
| <i>Simon Peter Nadeem, Jose Arturo Garza-Reyes, Sin-Ching Leung, Anass Cherrafi, Anthony I. Anosike, and Ming K. Lim</i> | |
| Industry 4.0 and Lean Management – Synergy or Contradiction?: A Systematic Interaction Approach to Determine the Compatibility of Industry 4.0 and Lean Management in Manufacturing Environment. | 341 |
| <i>Adam Sanders, Karthik R. K. Subramanian, Tobias Redlich, and Jens P. Wulfsberg</i> | |
| A Method of Multi-perspective Assessment of Lean Management. | 350 |
| <i>Andreas Mueller</i> | |

| | |
|---|-----|
| Sustainability Strategies in Industrial Practice | 358 |
| <i>Silje Helene Aschehoug and Kjersti Øverbø Schulte</i> | |
| Introducing Buffer Management in a Manufacturing Planning and Control Framework | 366 |
| <i>Lisa Hedvall, Joakim Wikner, and Per Hilletoft</i> | |
| Bottleneck Prediction Using the Active Period Method in Combination with Buffer Inventories | 374 |
| <i>Christoph Roser, Kai Lorentzen, David Lenze, Jochen Deuse, Ferdinand Klenner, Ralph Richter, Jacqueline Schmitt, and Peter Willats</i> | |
| Relationship Between Variants and Inventory Under Consideration of the Replenishment Time. | 382 |
| <i>Christoph Roser, Hauke Meier, and Masaru Nakano</i> | |
| Health Impact of Electric Vehicles Considering Environmental Leakage. The Case Study on Japan, China, UK and Poland | 390 |
| <i>Kamila Romejko and Masaru Nakano</i> | |
| A Multi-agent Approach to Implement a Reverse Production Virtual Market in Green Supply Chains | 399 |
| <i>Adriana Giret and Miguel A. Salido</i> | |
| Eco-Efficiency in Manufacturing Operations | |
| Product Circularity Assessment Methodology | 411 |
| <i>Cecilia Maria Angioletti, Mélanie Despeisse, and Roberto Rocca</i> | |
| Teaching Energy Efficiency in Manufacturing Using Gamification: A Case Study | 419 |
| <i>Mélanie Despeisse and Peter Lunt</i> | |
| Organizational Designs for Sharing Environmental Best Practice Between Manufacturing Sites. | 427 |
| <i>Lampros Litos, Peter Lunt, Wen Liu, and Steve Evans</i> | |
| Simulation-Supported Verification of Methods for Controlling Disassembly Lines | 435 |
| <i>Jan Hrdina and Gert Zülch</i> | |
| A Novel Knowledge Repository to Support Industrial Symbiosis | 443 |
| <i>Miriam Benedetti, Maria Holgado, and Steve Evans</i> | |
| Ecological Footprint in the Cotton Supply Chain: The Consumers' View | 452 |
| <i>Solimar Garcia, Alexandra Cordeiro, Fernando Gorni Neto, and Irenilza de Alencar Nääs</i> | |

| | |
|---|------------|
| Green Distribution – A Comparative Study of Sea and Road Transport Modes for a Norwegian Manufacturing Company | 460 |
| <i>Espen Rød and Mikhail Shlopak</i> | |
| From SCM to Eco-Industrial Park Management: Modelling Eco-Industrial Park’s Symbiosis with the SCOR Model | 467 |
| <i>Mathilde Le Tellier, Lamia Berrah, Benoit Stutz, Simon Barnabé, and Jean-François Audy</i> | |
| An Integrated Supply Chain Model with Excess Heat Recovery | 479 |
| <i>Beatrice Marchi, Simone Zanoni, and Lucio Enrico Zavanella</i> | |
| Environmental KPI Selection Using Criteria Value and Demonstration. | 488 |
| <i>Deogratias Kibira and Shaw Feng</i> | |
| Simulation Method for Evaluation of Productivity and Energy Consumption Concerning Production Line for Injection Molding Machines | 496 |
| <i>Rio Takasaki, Hironori Hibino, Kazuhide Kaifuku, and Keitaro Nishitani</i> | |
| Author Index | 505 |