## Contents

### Part I  Supply Chain Management and Sustainability

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Impact of Demographic Changes on Human Resources Management in European Supply Chains-Selected Aspects</td>
<td>3</td>
</tr>
<tr>
<td>Halina Brdulak</td>
<td></td>
</tr>
<tr>
<td>Barriers of the Supply Chain Integration Process</td>
<td>15</td>
</tr>
<tr>
<td>Anjali Awasthi and Katarzyna Grzybowska</td>
<td></td>
</tr>
<tr>
<td>The Essence of Integration in Supply Chains and Reverse Supply Chains: Similarities and Differences</td>
<td>31</td>
</tr>
<tr>
<td>Martyna Kupczyk, Łukasz Hadaś, Piotr Cyplik and Żaneta Pruska</td>
<td></td>
</tr>
<tr>
<td>Supply Chain Integration in View of Secondary Raw Materials</td>
<td>47</td>
</tr>
<tr>
<td>Żaneta Pruska, Łukasz Hadaś, Piotr Cyplik and Martyna Kupczyk</td>
<td></td>
</tr>
<tr>
<td>Integration Level Measurement System in Modeling Forward and Backward Supply Chains</td>
<td>59</td>
</tr>
<tr>
<td>Łukasz Hadaś, Piotr Cyplik and Michał Adamczak</td>
<td></td>
</tr>
<tr>
<td>Green Supplier Selection Criteria: From a Literature Review to a Flexible Framework for Determination of Suitable Criteria</td>
<td>79</td>
</tr>
<tr>
<td>Izabela Ewa Nielsen, Narges Banaeian, Paulina Golińska, Hossein Mobli and Mahmoud Omid</td>
<td></td>
</tr>
<tr>
<td>A Model for Optimizing Traceability of Product in a Supply Chain Based on Batch Dispersion</td>
<td>101</td>
</tr>
<tr>
<td>Muhammad Saad Memon, Young Hae Lee and Sonia Irshad Mari</td>
<td></td>
</tr>
<tr>
<td>Investigating the Readiness of the Grocery Retail Chains for Virtual Supply Chain Technology in Egypt</td>
<td>115</td>
</tr>
<tr>
<td>Sama Gad, Khaled Hanafy and Sara Elzarka</td>
<td></td>
</tr>
</tbody>
</table>
Fuzzy TOPSIS/SCOR-Based Approach in Assessment of RFID Technology (ART) for Logistics of Manufacturing Companies .................................................. 129
Bartłomiej Gladysz and Krzysztof Santarek

Comarch EDI Platform Case Study: The Advanced Electronic Data Interchange Hub as a Supply-Chain Performance Booster ............................................. 143
Piotr Reichert

Modelling Integration Process Planning in the Supply Chain Using SOP Approach .......................................................... 157
Michał Adamczak, Łukasz Hadaś, Roman Domáński and Piotr Cyplik

Problems of Logistic Systems Vulnerability and Resilience Assessment .......................................................... 171
Tomasz Nowakowski and Sylwia Werbińska-Wojciechowska

The Category of Risk Management in a Company with High Level of Customization .......................................................... 187
Anna K. Stasiuk-Piekarska, Łukasz Hadaś and Magdalena K. Wyrwicka

Literature Study Overseas on SCM Strategy with a State of Art SCM Strategy Model .......................................................... 201
Angela Y. Y. Chen, Yutaka Karasawa, Nobunori Aiura, Kuninori Suzuki and Keizo Wakabayashi

Part II Reverse Logistics and Environmental Sustainability

Single Forward and Reverse Supply Chain .......................................................... 229
Ahmad E. Alozn, Moza S. Al Naimi and Omar Y. Asad

A Case Study of H&M’s Strategy and Practices of Corporate Environmental Sustainability .......................................................... 241
Danny C. K. Ho

Efficient Chemical Management in Global Paint Industry:
A Case Study in Sri Lanka .......................................................... 255
T. Sunil Somasiri Gomes
A Consideration on the Functions of Logistic Parks Against Great Disasters ................................. 269
Keizo Wakabayashi, Kuninori Suzuki, Akihiro Watanabe, Yutaka Karasawa and Koichi Murata

A Consideration of a Reverse Logistics Network Over a Wider Area .................................................... 277
Kuninori Suzuki, Keizo Wakabayashi, Akihiro Watanabe and Yutaka Karasawa

A Consideration on an Effective Reverse Logistics System for Discarded Tires ...................................... 285
Kuninori Suzuki, Nobunori Aiura and Yutaka Karasawa

Analysis of Effective Recycle System for Used Personal Computers in Japan .......................................... 293
Akihiro Watanabe, Kuninori Suzuki, Keizo Wakabayashi and Yutaka Karasawa

Optimal Reutilization of the Leased Products in a Closed Loop Supply Chain ........................................ 303
Hsiao-Fan Wang and Chang-Fu Hsu

Part III Modeling and Optimization of the Manufacturing Operations

A Pareto-Archived Differential Evolution Algorithm for Multi-Objective Flexible Job Shop Scheduling Problems .......... 325
Warisa Wisittipanich and Voratas Kachitvichyanukul

Sugarcane Harvest Scheduling to Maximize Total Sugar Yield with Consideration of Equity in Quality Among the Growers ................................................................. 341
Kanchana Sethanan, Somnuk Theerakulpisut and Woraya Neungmatcha

Production Scheduling in Food Freezing Process Under the Effect of Freezer-Door Opening .................... 353
Pachara Chatavithee and Supachai Pathumnakul

Redefinition of Tasks to Increase the Process Capacity of Bottlenecks: Adjustment to a Real Case of Cutting Process of Structural Profiles of Carbon Steel ............................... 363
Clemente Lobato Carral and Carlos Andrés Romano
Examining Effect of JITP Implementation on Performance of Jordanian Firms ........................................ 381
Abbas Al-Refaie and Nour Bata

Analysis and Improvement of the Process Engineer’s Levels of Competence in a Manufacturing Company. ......................... 395
Malgorzata Spychala

Modeling and Performance Improvement: The Remedy to Treat Social and Environment Issues for Enterprises in Today’s Difficult Economic Climate ........................................ 411
Paul-Eric Dossou and Philip Mitchell

Energy Audit Methodology and Energy Savings Plan in the Nautical Industry ................................................................. 425
Gilles Dedeban, Philip Mitchell and Paul-Eric Dossou

Part IV Optimization of the Location Problems, the Inventory Management and the Vehicle Routing Problems

Strategic Inventory Positioning for MTO Manufacturing Using ASR Lead Time .......................................................... 441
Suk-Chul Rim, Jingjing Jiang and Chan Ju Lee

Improving Efficiency of a Process in Warehouse with RFID: A Case Study of Consumer Product Manufacturer .................. 457
Natanaree Sooksaksun and Sriyos Sudsertsin

Model of Forklift Truck Work Efficiency in Logistic Warehouse System ................................................................. 467
Paweł Zająć

The Integration of Environmental Foot-Printing Strategies to the Capacitated Warehouse Location Problem with Risk Pooling .... 481
Noura Al Dhaheri, Maria Polo Alvez and Shin Ju-Young

Storage Location Assignment Considering Three-Axis Traveling Distance: A Mathematical Model ................................. 499
Chompoonoot Kasemset and Pongsakorn Meesuk

Solving a Multi-objective, Source and Stage Location-Allocation Problem Using Differential Evolution .......................... 507
Rapeepan Pitakaso and Thongpoon Thongdee
Contents

A Study on the Optimum Location of the Central Post Office in Bangkok: Applying the Travelling Salesman Problem. ............... 525
Keizo Wakabayashi, Akihiro Watanabe, Jun Toyotani, Kuninori Suzuki, Koichi Murata and Sarinya Sala-ngam

A Closed-Loop Capacitated Warehouse Location Model with Risk Pooling ........................................ 539
Nabil Kenan, Marwa Attiya and Bedoor AlShebli

A Joint Inventory-Location Model with CO₂ Emission Taken into Account in Design of a Green Supply Chain. .................. 553
Faisal Alkaabneh, Abdullah Kaya and Jasem AlHammadi

Keizo Wakabayashi, Kuninori Suzuki, Akihiro Watanabe and Yutaka Karasawa

A Simulated Annealing Heuristic for the Vehicle Routing Problem with Cross-docking ........................................ 575
Vincent F. Yu, Parida Jewpanya and A. A. N. Perwira Redi

Pollution-Inventory Routing Problem with Perishable Goods ....... 585
Ahmed Al Shamsi, Ammar Al Raisi and Muhammad Aftab

A Meta-heuristic Approach for VRP with Simultaneous Pickup and Delivery Incorporated with Ton-Kilo Basis Saving Method .... 597
Yoshiaki Shimizu and Tatsuhiko Sakaguchi

Inventory Routing Problem with CO₂ Emissions Consideration .... 611
Nasir Alkawaleet, Yi-Fang Hsieh and Yanxiang Wang