Dynamics in Logistics

Proceedings of the 7th International Conference LDIC 2020, Bremen, Germany
Contents

Part I: Maritime Logistics and Multi-Modal Transport

Recommendations for Human Resources Development in Danube Inland Ports .................................................. 3 Sarah Pfoser, Lisa-Maria Putz, and Eva Jung

System Dynamics Modeling of Logistics Hub Capacity: The Dubai Logistics Corridor Case Study ............................... 21 Alberto De Marco, Hussein Fakhry, Marco Postorino, Zakaria Mammar, and Hakim Hacid

Towards Intelligent Waterway Lock Control for Port Facility Optimisation .................................................. 32 Thimo Schindler, Christoph Greulich, Dennis Bode, Arne Schuldt, André Decker, and Klaus-Dieter Thoben

On the Influence of Structural Complexity on Autonomously Controlled Automobile Terminal Processes ......................... 42 Michael Görges and Michael Freitag

Literature Classification on Container Transport Systems for Inter-terminal Transportation .................................. 52 Nicole Nellen, Michaela Grafelmann, Justin Ziegenbein, Ann-Kathrin Lange, Jochen Kreutzfeldt, and Carlos Jahn


Investigation of Vessel Waiting Times Using AIS Data .................................................. 70 Janna Franzkeitz, Hannah Pache, and Carlos Jahn
Resource Sharing as a Management Concept for Digital Logistics Terminals ........................................... 79
Paul Gerken, Herbert Kotzab, and Hans G. Unseld

Coordinating the Seaport-Hinterland Interface: Theoretical and Methodological Insights from Scientific Literature ..................... 89
Patrick Specht and Herbert Kotzab

Sensor Simulation and Evaluation for Infrastructure-Free Mobile Sensor Carrier Platforms ........................................... 101
Artur Schütz and Maik Groneberg

Expansion Planning at Container Terminals ........................................... 114
Marvin Kastner, Ann-Kathrin Lange, and Carlos Jahn

A Hybrid Robust-Stochastic Optimization Approach for the Noise Pollution Routing Problem with a Heterogeneous Vehicle Fleet ............. 124
Hani Shahmoradi-Moghadam, Omid Samani, and Jörn Schönberger

Part II: Supply Chain Management and Coordination

The Influence of Cognitive Biases on Supply Chain Risk Management in the Context of Digitalization Projects ...................... 137
Julia C. Arlinghaus, Manuel Zimmermann, and Melanie Zahner

Flow Management Tools and Techniques for Logistics Performance: An Application to the Logistics Service Sector in Cameroon ............ 148
Nadege Ingrid Gouanlong Kamgang, Adama Bidisse, and Victor Tsapi

Blockchain and Risk in Supply Chain Management ........................................... 159
Rami Alkhudary, Xavier Brusset, and Pierre Fenies

Prioritizing Supply Chain Agility Factors Using Fuzzy Analytic Network Process (FANP) ........................................... 166
Haniyeh Dastyar, Ali Mohammadi, and Moslem Ali Mohamadlou

Influence of Supply Chain Management & Logistics in the Wake of China Pakistan Economic Corridor (CPEC) on Domestic Industry in Pakistan ........................................... 175
Ayesha Khan, Sayed Mehdi Shah, Hans-Dietrich Haasis, and Michael Freitag

A Disruption Management Model for a Production-Inventory System Considering Green Logistics ........................................... 186
Hawa Hishamuddin, Mohd Azizi Abd Aziz, Noraida Azura Md Darom, Mohd Nizam Ab Rahman, and Dzuraidah Abd Wahab

A Concept for a Consumer-Centered Sustainable Last Mile Logistics ........................................... 196
Michael Freitag and Herbert Kotzab
The Omnichannel Retailing Capabilities Wheel: Findings of the Literature ................................................. 204
Bastian Mrutzek, Herbert Kotzab, and Erdem Galipoglu

Sustainable Retail Supply Chain Management – A Bibliometric Viewpoint .................................................. 215
Kristina Petljak and Herbert Kotzab

Part III: Distributed and Collaborative Planning and Control

Autonomous Production Control Methods - Job Shop Simulations ....................................................... 227
Ziqi Zhao, Oliver Antons, and Julia C. Arlinghaus

Individual Predictive Maintenance Approach for Diesel Engines in Rail Vehicles ........................................... 236
Hendrik Engbers, Simon Leohold, and Michael Freitag

Modelling Autonomous Production Control: A Guide to Select the Most Suitable Modelling Approach ................................................................. 245
Oliver Antons and Julia C. Arlinghaus

Predictive Manufacturing Tardiness Inference in OEM Milk-Run Operations ........................................ 254
Antônio G. N. Novaes, Orlando F. Lima Jr., José Eduardo Souza De Cursi, Jaime Andres Cardona Arias, and José Benedito Silva Santos Jr.

Implementation of a Total Cost of Ownership Model for Last-Mile Logistics as a Constraint Satisfaction Problem .................................................. 263
Bernd Nieberding and Johannes Kretzschmar

A Theoretical Framework Assessment Proposal for a Complexity Degree Measurement on a Supply Chain Network .................................................. 274
Silvio Luiz Alvim, Jose Benedito Silva Santos Jr., and Carlos Manuel Taboada Rodriguez

Supply Chain Integration: A Bibliometric Analysis ......................... 286
Herbert Kotzab, Ilja Bäumlner, and Paul Gerken

Development of a Decision Support Model for Managing Supply Chain Design Problems in Global Service Supply Chains ........................................ 299
Juri Reich, Tina Wakolbinger, and Aseem Kinra

Shelter Site Selection and Allocation Model for Efficient Response to Humanitarian Relief Logistics .................................................. 309
Panchalee Praneetpholkrang and Van-Nam Huynh
Part IV: Modeling, Simulation, and Optimization

A Hypercube Queuing Model Approach for the Location Optimization Problem of Emergency Vehicles for Large-Scale Study Areas .......................................................... 321
Felix Blank

Dynamic Optimization Model for Planning of Multi-echelon Logistic System Activity .................................................. 331
Mykhaylo Ya. Postan, Sergey Dashkovskiy, and Kateryna Daschkovska

Simulation-Based Sensitivity Analysis of Dynamic Contract Extension Elements in Supplier Development .................. 341
Haniyeh Dastyar and Jürgen Pannek

Searching for Production Robustness Through Simulation-Based Scheduling Optimization ............................................... 351
Guilherme Ernani Vieira and Enzo Morosini Frazzon

A Multiagent System for Truck Dispatching in Open-pit Mines .................. 363
Gabriel Icarte, Paulina Berrios, Raúl Castillo, and Otthein Herzog

Drone Delivery Using Public Transport: An Agent-Based Modelling and Simulation Approach .................. 374
Raheen Khalid and Stanislav M. Chankov

Part V: Intelligent Production and Logistics Systems

Perspectives on the Application of Internet of Things in Logistics ........ 387
Ícaro Romolo Sousa Agostino, Charles Ristow, Enzo Morosini Frazzon, and Carlos Manuel Taboada Rodriguez

AIDA 4.0: Architectures of Industry 4.0 Demonstrated Through Application Scenarios in Business Game .................. 398
Julia Feldt (geb. Wagner) and Henning Kontny

Machine Learning in Production Scheduling: An Overview of the Academic Literature .............................................. 409
Satie L. Takeda-Berger, Enzo Morosini Frazzon, Eike Broda, and Michael Freitag

Software-Defined Mobile Supply Chains ........................................... 420
Uwe Aßmann, Udo Buscher, Sven Engesser, Jörn Schönberger, and Leon Urbas

Clustering for Monitoring Logistical Processes in General Cargo Warehouses .................................................. 431
Andreas Neubert
Using RFID to Monitor the Curing of Aramid Fiber
Reinforced Polymers .............................................. 441
Marius Veigt, Marco Cen, Elisabeth Hardi, Walter Lang,
and Michael Freitag

Handover Abilities in Reconfigurable Material Flow Systems
for Topology Computing ........................................... 451
Juliane Fischer, Haitham Elfaham, Ulrich Epple, and Birgit Vogel-Heuser

PalletAssist - Concept for a Multisensor-Based Assistance System
for Safe Handling of Palletized Goods with Forklift Trucks .......... 462
Thomas Depner, Liu Cao, and Hagen Borstell

An Edge Neural Cyber-Physical Production System:
Products Monitoring Their Production Recommend Adaptations
of Their Schedule .............................................. 477
Magnus Redeker and Axel Wagenitz

Part VI: Human-Machine Interaction

Augmented Reality in the Packing Process: A Model for Analyzing
Economic Efficiency ............................................. 493
Tim Woltering, Andre Sardoux Klasen, and Carsten Feldmann

Assessment of Cognitive Strain in Digital Logistics Work:
Background, Analysis and Implications .......................... 504
Matthias Klumpp, Vera Hagemann, and Martina Schaper

Human Factor in Forecasting and Behavioral Inventory Decisions:
A System Dynamics Perspective .................................. 516
Kavith Balachandra, H. Niles Perera, and Amila Thibbotuwawa

Improving Human-Machine Interaction with a Digital Twin .......... 527
Jasper Wilhelm, Thies Beinke, and Michael Freitag

Requirements for an Incentive-Based Assistance System
for Manual Assembly .............................................. 541
Christoph Petzoldt, Dennis Keiser, Thies Beinke, and Michael Freitag

Evaluation of Human-Computer-Interaction Design in Production
and Logistics by Using Experimental Investigations .................. 554
Moritz Quandt, Hendrik Stern, Supara Grudpan, Thies Beinke,
Michael Freitag, and Rainer Malaka

Author Index ........................................................ 567