

# **9th IFAC Conference on Manufacturing Modelling, Management, and Control (MIM 2019)**

IFAC PapersOnline Volume 52, Issue 13

Berlin, Germany  
28 – 30 August 2019

Part 1 of 4

**Editors:**

**Dmitry Ivanov  
Alexandre Dolgui  
Farouk Yalaoui**

ISBN: 978-1-7138-0755-1

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

To the extent permissible under applicable laws, no responsibility is assumed by the Owner, the Publisher or the Licensee for any injury and/or damage to persons or property as a result of any actual or alleged libelous statements, infringement of intellectual property or privacy rights, or products liability, whether resulting from negligence or otherwise, or from any use or operation of any ideas, instructions, procedures, products or methods contained in the material therein.

The publication of an advertisement in the POD Edition does not constitute on the part of the Owner, the Publisher or the Licensee a guarantee or endorsement of the quality or value of the advertised products or services described therein or of any of the representations or the claims made by the advertisers with respect to such products or services.

Copyright© (2019) by IFAC (International Federation of Automatic Control)  
All rights reserved.

Printed with permission by Curran Associates, Inc. (2020)

For permission requests, please contact the publisher, Elsevier Limited  
at the address below.

Elsevier Limited  
The Boulevard, Langford Lane  
Kidlington  
Oxford OX5 1GB UK

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## PART 1

<b>PLANNING THE APPLICATION OF BLOCKCHAIN TECHNOLOGY IN IDENTIFICATION OF COUNTERFEIT PRODUCTS: SECTORIAL PRIORITIZATION</b> .....	1
<i>Sachin Modgil, Vandana Sonwaney</i>	
<b>DESIGNING A BLOCKCHAIN ENABLED SUPPLY CHAIN</b> .....	6
<i>Yingli Wang</i>	
<b>LEVERAGING PARTNERSHIPS WITH LOGISTICS SERVICE PROVIDERS IN HUMANITARIAN SUPPLY CHAINS BY BLOCKCHAIN-BASED SMART CONTRACTS</b> .....	12
<i>Hossein Baharmand, Tina Comes</i>	
<b>SINGLE ITEM LOT SIZING PROBLEM UNDER RENEWABLE ENERGY UNCERTAINTY</b> .....	18
<i>Melek Rodoplu, Taha Arbaoui, Alice Yalaoui</i>	
<b>AN ANALYTICAL MODEL TO ESTIMATE AVS/RS ENERGY CONSUMPTION</b> .....	24
<i>Gianluca D'Antonio, Giulia Bruno, Emiliano Traini, Franco Lombardi</i>	
<b>DIGITAL ENERGY ECOSYSTEMS</b> .....	30
<i>N. Bakhtadze, B. Pavlov, V. Pyatetsky, A Suleykin</i>	
<b>LOT SIZING AND PRICING PROBLEM IN A RECOVERY SYSTEM WITH RETURNS AND ONE-WAY SUBSTITUTION OPTION: NOVEL COST BENEFIT EVALUATION BASED APPROACHES</b> .....	36
<i>T. Zouadi, A. Yalaoui, M. Reghioui</i>	
<b>INDUSTRY 4.0 AND LEAN PRODUCTION: AN EMPIRICAL STUDY</b> .....	42
<i>Matteo Rossini, Federica Costa, Alberto Portioli Staudacher, Guilherme Tortorella</i>	
<b>MES AS AN ENABLER OF LEAN MANUFACTURING</b> .....	48
<i>Paolo Perico, Emrah Arica, Daryl J. Powell, Paolo Gaiardelli</i>	
<b>EXTENDED VALUE STREAM MAPPING METHOD: HARMONIZING INFORMATION FLOWS FOR THE CONTROL OF PRODUCTION PROCESSES</b> .....	54
<i>Timo Busert, Alexander Fay</i>	
<b>PROCESS OPTIMISATION USING COLLABORATIVE ROBOTS - COMPARATIVE CASE STUDY</b> .....	60
<i>Anthony Quenehen, Jérôme Pocachard, Nathalie Klement</i>	
<b>RELAY FEEDBACK IDENTIFICATION WITH ADDITIONAL INTEGRATOR</b> .....	66
<i>M. Hofreiter</i>	
<b>STATISTICAL LINEARIZATION OF MIMO SYSTEMS BY USE OF QUADRATIC TSALLIS MUTUAL INFORMATION</b> .....	72
<i>K. R. Chernyshov</i>	
<b>MODEL OF THE AUTOMATED WAREHOUSE MANAGEMENT AND FORECASTING SYSTEM IN THE CONDITIONS OF TRANSITION TO INDUSTRY 4.0</b> .....	78
<i>V. Lototsky, R. Sabitov, G. Smirnova, B. Sirazetdinov, Sh. Sabitov</i>	
<b>ON SCHEDULING PROBLEMS WITH FORBIDDEN STACK-OVERFLOWS</b> .....	83
<i>Frank Werner, Evgeny Gafarov</i>	
<b>THE OPTIMALITY BOX AND REGION FOR SINGLE-MACHINE SCHEDULING OF A SET OF JOBS WITH UNCERTAIN DURATIONS</b> .....	88
<i>Yuri N. Sotskov, Natalja G. Egorova, Frank Werner</i>	
<b>MATHEMATICAL MODELS FOR A FLEXIBLE JOB SHOP SCHEDULING PROBLEM WITH MACHINE OPERATOR CONSTRAINTS</b> .....	94
<i>Dominik Kress, David Müller</i>	
<b>IMPROVED LAGRANGIAN RELAXATION BASED OPTIMIZATION PROCEDURE FOR SCHEDULING WITH STORAGE</b> .....	100
<i>Hanyu Gu, Julia Memar, Yakov Zinder</i>	
<b>JOINT PRICING AND LOT-SIZING PROBLEM WITH VARIABLE CAPACITY</b> .....	106
<i>Paulin Couzon, Yassine Ouazene, Farouk Yalaoui</i>	
<b>PRIORITIZING SURGICAL CANCELLATION FACTORS BASED ON A FUZZY BEST-WORST METHOD: A CASE STUDY</b> .....	112
<i>S. Momen, R. Tavakkoli-Moghaddam, A. Ghasemkhani, S. Shahnejat-Bushehri, H. Tavakkoli-Moghaddam</i>	
<b>HOME HEALTH CARE ROUTING AND SCHEDULING PROBLEM CONSIDERING TEMPORAL DEPENDENCIES AND PERISHABILITY WITH SIMULTANEOUS PICKUP AND DELIVERY</b> .....	118
<i>S. Shahnejat-Bushehri, R. Tavakkoli-Moghaddam, S. Momen, A. Ghasemkhani, H. Tavakkoli-Moghaddam</i>	

<b>A REACTIVE MULTI-AGENT APPROACH FOR ONLINE (RE)SCHEDULING OF RESOURCES IN PORT CONTAINER TERMINALS .....</b>	<b>124</b>
<i>Kaoutar Chargui, Abdellah El Fallahi, Mohamed Reghioui, Tarik Zouadi</i>	
<b>STUDY ON STATE TRANSITION TRACKING METHOD IN PROCESS FRACTION NONCONFORMING .....</b>	<b>130</b>
<i>Yasuhiko Takemoto, Ikuo Arizono</i>	
<b>INTEGRATED ENERGY EFFICIENCY IN PRODUCTION.....</b>	<b>135</b>
<i>T. Heutmann, B. Zhou, C. Schommer, R. H. Schmitt</i>	
<b>ECONOMIC MODEL PREDICTIVE CONTROL FOR OPTIMAL OPERATION OF COMBINED HEAT AND POWER SYSTEMS.....</b>	<b>141</b>
<i>Jenny L. Diaz C, Thomas Weber, Niklas Panten, Carlos Ocampo-Martinez, Eberhard Abele</i>	
<b>MODELING MULTI-ITEM INVENTORY PROBLEM UNDER TYPE-2 FUZZY DEMAND .....</b>	<b>147</b>
<i>Yanan Li</i>	
<b>SUCCESS FACTORS FOR SUPPLY CHAIN MANAGEMENT PROJECTS: AN EMPIRICAL ANALYSIS.....</b>	<b>153</b>
<i>Christoph Manuel Meyer, Edna Liliana Garcia Torres</i>	
<b>CRITICAL SUCCESS FACTORS FOR HUMANITARIAN SUPPLY CHAIN MANAGEMENT: A GREY DEMATEL APPROACH .....</b>	<b>159</b>
<i>Abhishek Behl, Pankaj Dutta, Shivam Gupta</i>	
<b>MINI-TERM, A NOVEL PARADIGM FOR FAULT DETECTION.....</b>	<b>165</b>
<i>E. Garcia, N. Montes</i>	
<b>MAINTENANCE, REPAIR, AND OPERATIONS PARTS INVENTORY MANAGEMENT IN THE ERA OF INDUSTRY 4.0.....</b>	<b>171</b>
<i>Jing Chen, Oleg Gusikhin, William Finkenstaedt, Yu-Ning Liu</i>	
<b>MACHINE LEARNING FRAMEWORK FOR PREDICTIVE MAINTENANCE IN MILLING .....</b>	<b>177</b>
<i>Emiliano Traini, Giulia Bruno, Gianluca D'Antonio, Franco Lombardi</i>	
<b>STUDY ON PREVENTIVE MAINTENANCE FOR PRIORITY STANDBY REDUNDANT SYSTEM .....</b>	<b>183</b>
<i>Ryosuke Hirata, Ikuo Arizono, Yasuhiko Takemoto</i>	
<b>FRACTIONAL WIENER SYSTEM IDENTIFICATION USING HEURISTIC OPTIMIZATION TECHNIQUE BASED ON KEY_TERM PRINCIPLE.....</b>	<b>189</b>
<i>L. Sersour, T. Djamah, M. Bettayeb</i>	
<b>ADAPTIVE CRUISE CONTROL SYSTEM FOR AN ELECTRIC VEHICLE USING A FRACTIONAL ORDER MODEL REFERENCE ADAPTIVE STRATEGY.....</b>	<b>194</b>
<i>Hanane Balaska, Samir Ladaci, Horst Schulte, Abdelbaki Djouambi</i>	
<b>OPTIMAL DESIGN OF FRACTIONAL ORDER PID<sub>μ</sub> CONTROLLER FOR AN AVR SYSTEM USING ANT LION OPTIMIZER.....</b>	<b>200</b>
<i>Bachir Bourouba, Samir Ladaci, Horst Schulte</i>	
<b>FRACTIONAL HAMMERSTEIN SYSTEM IDENTIFICATION BASED ON TWO DECOMPOSITION PRINCIPLES.....</b>	<b>206</b>
<i>Karima Hammar, Tounsia Djamah, Maamar Bettayeb</i>	
<b>ENTROPY MAXIMIZATION BASED CAPABILITY ALLOCATION OF CLOTHING PRODUCTION ENTERPRISES IN SHARING ECONOMY .....</b>	<b>211</b>
<i>Feifeng Zheng, Qinrui Song</i>	
<b>AN IMPROVED HEURISTIC FOR SINGLE MACHINE LOT SCHEDULING PROBLEM .....</b>	<b>217</b>
<i>Feifeng Zheng, Kaiyuan Jin</i>	
<b>WORKFORCE ASSIGNMENT IN ASSEMBLY LINE CONSIDERING UNCERTAIN DEMAND .....</b>	<b>223</b>
<i>Ming Liu, Rongfan Liu, Xuenan Yang</i>	
<b>SATISFACTION-DRIVEN BI-OBJECTIVE MULTI-SKILL WORKFORCE SCHEDULING PROBLEM.....</b>	<b>229</b>
<i>Ming Liu, Xin Liu</i>	
<b>A MULTI-OBJECTIVE WHALE SWARM ALGORITHM FOR ENERGY-EFFICIENT DISTRIBUTED PERMUTATION FLOW SHOP SCHEDULING PROBLEM WITH SEQUENCE DEPENDENT SETUP TIMES .....</b>	<b>235</b>
<i>Guangchen Wang, Xinyu Li, Liang Gao, Peigen Li</i>	
<b>OPTIMAL CONTROL OF PRODUCTION AND MAINTENANCE OPERATIONS IN SMART CUSTOM MANUFACTURING SYSTEMS WITH MULTIPLE MACHINES .....</b>	<b>241</b>
<i>Elluri Vignan Gupta, D. G. Mogale, Manoj Kumar Tiwari</i>	
<b>ASSEMBLY LINE DESIGN WITH TOOLS VIBRATION.....</b>	<b>247</b>
<i>Serena Finco, Mohammed-Amine Abdous, Daria Battini, Martina Calzavara, Xavier Delorme</i>	

<b>DEVELOPMENT OF TYPICAL COLLISION REACTIONS IN COMBINATION WITH ALGORITHMS FOR EXTERNAL IMPACTS IDENTIFICATION</b> .....	253
<i>Stanislav Mikhel, Dmitry Popov, Shamil Mamedov, Alexandr Klimchik</i>	
<b>ROBUST ENERGY AWARE OUTPUT CONTROLLER FOR UNCERTAIN PLANT</b> .....	259
<i>Dmitrii Dobriborsci, Alexey Margun, Sergey Kolyubin</i>	
<b>REAL TIME MOTION GENERATION FOR MOBILE ROBOT</b> .....	265
<i>Jiuchun Gao, Anatol Pashkevich, Fabien Claveau, Philippe Chevrel</i>	
<b>INTEROPERABILITY AIMS IN BUILDING INFORMATION MODELING EXCHANGES: A LITERATURE REVIEW</b> .....	271
<i>Léa Sattler, Samir Lamouri, Robert Pellerin, Thomas Maigne</i>	
<b>A GENERAL FRAMEWORK FOR DATA UNCERTAINTY AND QUALITY CLASSIFICATION</b> .....	277
<i>Vanessa Simard, Mikael Rönnqvist, Luc Lebel, Nadia Lehoux</i>	
<b>POSSIBILITY THEORY AND PROMETHEE II FOR DECISION AID IN ENGINEERING DESIGN PROCESS</b> .....	283
<i>A. Sylla, T. Coudert, E. Vareilles, L. Geneste, R. Ayachi</i>	
<b>INDUSTRY 4.0 READINESS IN HUNGARY: MODEL, AND THE FIRST RESULTS IN CONNECTION TO DATA APPLICATION</b> .....	289
<i>Gábor Nick, Ádám Szaller, Júlia Bergmann, Tamás Várgedo</i>	
<b>INDUSTRIAL SERVICES CHARACTERIZATION FOR BIDDING PROCESS</b> .....	295
<i>D. Guillon, E. Villeneuve, C. Merlo, E. Vareilles, M. Aldanondo</i>	
<b>REPRESENTATIVE BENCHMARK FOR CONCURRENT PRODUCT AND PROCESS CONFIGURATION PROBLEM: DEFINITIONS AND SOME PROBLEM INSTANCES</b> .....	301
<i>Luis Garcés Monge, Paul Pitiot, Elise Vareilles, Michel Aldanondo</i>	
<b>CONTEXT-SENSITIVE RECONFIGURATION OF COLLABORATIVE MANUFACTURING SYSTEMS</b> .....	307
<i>Birte Caesar, Michael Nieke, Aljosa Köcher, Constantin Hildebrandt, Ina Schaefer</i>	
<b>DECISION MAKING IN NEAR ZERO ENERGY BUILDING REFURBISHMENT: A TECHNOLOGY ALTERNATIVES RANKING TOOL</b> .....	313
<i>L. Laguna Salvad, E. Villeneuve, D. Masson</i>	
<b>OPTIMAL LEASING AND SELLING STRATEGIES OF DURABLE GOODS MANUFACTURER CONSIDERING CONSUMERS' CAPITAL CONSTRAINT</b> .....	319
<i>Jian Li, Zhiwen Deng, Wen Zhang, Guoqing Zhang</i>	
<b>AUTOMOTIVE RETURNABLE CONTAINER MANAGEMENT WITH RFID: A SIMULATION APPROACH</b> .....	325
<i>Benedetto Giubilato, Guoqing Zhang, Arianna Alfieri</i>	
<b>PRICING DECISIONS IN A SOCIALLY RESPONSIBLE SUPPLY CHAIN UNDER CARBON CAP-AND-TRADE REGULATION</b> .....	331
<i>Zhi-Chao Zhang, Kevin W. Li, Zhi Liu, Jun Huang</i>	
<b>NEW DISRUPTION RISK MANAGEMENT PERSPECTIVES IN SUPPLY CHAINS: DIGITAL TWINS, THE RIPPLE EFFECT, AND RESILIENCE</b> .....	337
<i>Dmitry Ivanov, Alexandre Dolgui</i>	
<b>DISRUPTION TAILS AND POST-DISRUPTION INSTABILITY MITIGATION IN THE SUPPLY CHAIN</b> .....	343
<i>Dmitry Ivanov, Maxim Rozhkov</i>	
<b>MANAGING RISK FOR E-COMMERCE SUPPLY CHAINS: AN EMPIRICAL STUDY</b> .....	349
<i>Pankaj Dutta, Pravin Suryawanshi, Pallav Gujarathi, Arnab Dutta</i>	
<b>INTELLECTUALIZATION OF CONTROL: CYBER-PHYSICAL SUPPLY CHAIN RISK ANALYTICS</b> .....	355
<i>Dmitry Ivanov, Alexandre Dolgui, Boris Sokolov, Marina Ivanova</i>	
<b>A MODEL FOR ASSESSING ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY DIMENSIONS OF A FASHION SUPPLY CHAIN AND A CASE STUDY</b> .....	361
<i>Eleonora Bottani, Letizia Tebaldi, Isabella Lazzari, Giorgia Casella</i>	
<b>ASSESSMENT OF THE ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY OF A FOOD COLD SUPPLY CHAIN</b> .....	367
<i>Eleonora Bottani, Giorgia Casella, Majcol Nobili, Letizia Tebaldi</i>	
<b>CULTURAL ASPECTS ON 'ETHICAL CONSUMERISM' FOR TEXTILES: A GERMAN-RUSSIAN COMPARISON</b> .....	373
<i>Nelly Oelze, Tatiana Khvatova, Dorothee Bühler</i>	
<b>GREEN TECHNOLOGY ADOPTION IN TEXTILE SUPPLY CHAINS WITH ENVIRONMENTAL TAXES: PRODUCTION, PRICING, AND COMPETITION</b> .....	379
<i>Bin Shen, Qingying Li</i>	

<b>MACHINE LEARNING IN PRODUCTION PLANNING AND CONTROL: A REVIEW OF EMPIRICAL LITERATURE.....</b>	<b>385</b>
<i>Juan Pablo Usuga Cadavid, Samir Lamouri, Bernard Grabot, Arnaud Fortin</i>	
<b>O2O ON-DEMAND DELIVERY OPTIMIZATION WITH MIXED DRIVER FORCES .....</b>	<b>391</b>
<i>Hongyan Dai, Jiawei Tao, Hai Jiang, Weiwei Chen</i>	
<b>ROBUST TWO-STAGE PACKING INTO DESIGNATED AND MULTIPURPOSE BINS .....</b>	<b>397</b>
<i>Yacine Al Najjar, Noam Goldberg, Shlomo Karhi, Michael Poss</i>	
<b>NATURAL FREQUENCY PREDICTION OF FDM MANUFACTURED PARTS USING ANN APPROACH .....</b>	<b>403</b>
<i>Fahraz Ali, Boppana V. Chowdary</i>	
<b>SINGLE-MACHINE SCHEDULING PROBLEM WITH TOTAL ENERGY CONSUMPTION COSTS MINIMIZATION .....</b>	<b>409</b>
<i>Mohammad Mohsen Aghelnejad, Yassine Ouazene, Alice Yalaoui</i>	
<b>MACHINES GROUP AND LOAD BALANCING: AN INDUSTRIAL CASE.....</b>	<b>415</b>
<i>A. Berthier, A. Yalaoui, H. Chehade, F. Yalaoui, G. Coquelet</i>	
<b>A TWO-STAGE ASSIGNMENT STRATEGY FOR THE ROBUST SCHEDULING OF DUAL-RESOURCE CONSTRAINED STOCHASTIC JOB SHOP SCHEDULING PROBLEMS.....</b>	<b>421</b>
<i>Shichang Xiao, Zigao Wu, Shaohua Yu</i>	
<b>A REFERENCE FRAMEWORK FOR THE HOLISTIC EVALUATION OF INDUSTRY 4.0 SOLUTIONS FOR SMALL-AND MEDIUM-SIZED ENTERPRISES .....</b>	<b>427</b>
<i>Amjed Essakly, Matthias Wichmann, Thomas S. Spengler</i>	
<b>A LITERATURE REVIEW OF OPTIMIZATION PROBLEMS FOR RECONFIGURABLE MANUFACTURING SYSTEMS .....</b>	<b>433</b>
<i>Nadjib Brahimi, Alexandre Dolgui, Evgeny Gurevsky, Abdelkrim R. Yelles-Chaouche</i>	
<b>A METHOD FOR APPLYING INDUSTRY 4.0 IN SMALL ENTERPRISES.....</b>	<b>439</b>
<i>Teresa Taurino, Agostino Villa</i>	
<b>INDUSTRIE 4.0-SCOUTS PROGRAMME.....</b>	<b>445</b>
<i>Joachim Lentes, Nikolas Zimmermann, Michael Hertwig</i>	
<b>INTRODUCING VR TECHNOLOGY FOR INCREASING THE DIGITALIZATION OF SMES .....</b>	<b>451</b>
<i>Vasiliki Liagkou, Chysostomos Stylios</i>	
<b>SUSTAINABLE OPERATIONS MANAGEMENT FOR INDUSTRY 4.0 AND ITS SOCIAL RETURN .....</b>	<b>457</b>
<i>Mahdi Naderi, Enrique Ares, Gustavo Peláez, Daniel Prieto, Madalena Araújo</i>	
<b>STRUCTURE IDENTIFICATION OF CONTINUOUS-TIME BLOCK-ORIENTED NONLINEAR SYSTEMS IN THE FREQUENCY DOMAIN.....</b>	<b>463</b>
<i>B. Shanshiashvili, A. Prangishvili, Z. Tsveraidze</i>	
<b>MATHEMATICAL MODEL AND METHOD OF ANALYSIS OF THE PERSONAL AND GROUP COMPETENCE TO COMPLETE THE PROJECT TASK.....</b>	<b>469</b>
<i>N. Bachtadze, V. Kulba, I. Nikulina, O. Zaikin, A. Zylawski</i>	
<b>NON-PARAMETRIC PROCEDURES IN EVALUATION OF COLLECTIVE PROFESSIONAL SKILLS OF A HUMAN-OPERATORS SHIFT .....</b>	<b>475</b>
<i>K. R. Chernyshov</i>	
<b>STABILITY PREDICTION TECHNIQUES FOR ELECTRIC POWER SYSTEMS BASED ON IDENTIFICATION MODELS AND GRAMIANS 1.....</b>	<b>481</b>
<i>N. Bakhtadze, I. Yadykin</i>	
<b>PREDICTOR-BASED ADAPTIVE CONTROL SYSTEM WITH STABILITY ANALYSIS .....</b>	<b>486</b>
<i>Liudmila Denisova, Vitalii Meshcheryakov</i>	
<b>A PETRI NET MODELING FRAMEWORK FOR THE CONTROL OF FLEXIBLE MANUFACTURING SYSTEMS .....</b>	<b>492</b>
<i>Philipp Wenzelburger, Frank Allgöwer</i>	
<b>LEXICOGRAPHIC R* CRITERION FOR DECISION MAKING UNDER UNCERTAINTY IN REVERSE LOGISTICS .....</b>	<b>499</b>
<i>Zoé Krug, Romain Guillaume, Olga Battaia</i>	
<b>A SCHEDULING APPROACH FOR CHEMICAL VAPOUR DEPOSITION PROCESSES IN THE PRODUCTION OF SEMICONDUCTORS .....</b>	<b>505</b>
<i>Massimo Manzini, Marcello Urgo</i>	
<b>SCHEDULING FOR LAST-MILE MEAL-DELIVERY PROCESSES.....</b>	<b>511</b>
<i>Matteo Cosmi, Gaia Nicosia, Andrea Pacifici</i>	
<b>A MULTI-OBJECTIVE PRODUCTION SCHEDULING CASE: INFORMATION-RICH HEURISTICS AND DEADLOCK PREVENTION MECHANISMS .....</b>	<b>517</b>
<i>Anna Rotondo, Carlos Garcia, Fergus Quilligan</i>	

<b>AN INTEGRATED PRODUCTION INVENTORY ROUTING PROBLEM FOR MULTI PERISHABLE PRODUCTS WITH FUZZY DEMANDS AND TIME WINDOWS</b> .....	523
<i>A. Ghasemkhani, R. Tavakkoli-Moghaddam, S. Shahnejat-Bushehri, S. Momen, H. Tavakkoli-Moghaddam</i>	
<b>COLUMN GENERATION FOR THE DISCRETE UC PROBLEM WITH MIN-STOP RAMPING CONSTRAINTS</b> .....	529
<i>Nicolas Dupin</i>	
<b>A HYBRID HEURISTIC FOR THE MULTI-PRODUCT STRAIGHT PIPELINE SCHEDULING PROBLEM</b> .....	535
<i>M. Bamoumen, S. Belil, S. Elfirdoussi, L. Ren, N. Tchernev</i>	
<b>A TAILORED FUZZY SIMULATION INTEGRATED WITH A FUZZY DEA METHOD FOR A RESILIENT FACILITY LAYOUT PROBLEM: A CASE STUDY OF A REFRIGERATOR INJECTION PROCESS</b> .....	541
<i>Z. Hosseini, F. Navazi, A. Siadat, P. Memari, R. Tavakkoli-Moghaddam</i>	
<b>MODELS FOR THE SINGLE PRODUCT DISASSEMBLY LOT SIZING PROBLEM WITH DISPOSAL</b> .....	547
<i>M. Pour Massahian Tafti, M. Godichaud, L. Amodeo</i>	
<b>INFLUENCE OF WORKFORCE QUALIFICATION ON SERVICE LEVEL IN A FLOW SHOP WITH TWO LINES</b> .....	553
<i>Andreas Schober, Klaus Altendorfer, Johannes Karder, Andreas Beham</i>	
<b>A CUSTOMIZED TWO-DIMENSIONAL WARRANTY MENU DESIGN FOR CUSTOMERS WITH HETEROGENEOUS USAGE RATES</b> .....	559
<i>Zhaomin Zhang, Zhen He, Shuguang He</i>	
<b>BARRIERS AND CRITICAL SUCCESS FACTORS FOR IMPLEMENTING LEAN MANUFACTURING IN SMES</b> .....	565
<i>Ayoub Elkhairi, Faycal Fedouaki, Semma El Alami</i>	
<b>SUSTAINABLE OPEN VEHICLE ROUTING WITH RELEASE-TIME AND TIME-WINDOW: A TWO-ECHELON DISTRIBUTION SYSTEM</b> .....	571
<i>M. Babagolzadeh, A. Shrestha, B. Abbasi, S. Zhang, A. Woodhead</i>	
<b>REDUCING RESUPPLY TIME WITH ADDITIVE MANUFACTURING IN SPARE PART SUPPLY CHAIN</b> .....	577
<i>A. Cestana, E. Pastore, A. Alfieri, A. Matta</i>	
<b>OPTIMAL ORDERING AND CLEARANCE STRATEGIES UNDER DEMAND UNCERTAINTY</b> .....	583
<i>R. Mechmech, S. Harbi, A. B. Hadj-Alouane, S. Sboui</i>	
<b>A ROBUST CAPACITATED LOT SIZING PROBLEM WITH SETUP TIMES AND OVERTIME DECISIONS WITH BACKORDERING ALLOWED UNDER DEMAND UNCERTAINTY</b> .....	589
<i>Mohammad A. M. Abdel-Aal</i>	
<b>SCENARIO-BASED STOCHASTIC LINEAR PROGRAMMING MODEL FOR MULTI-PERIOD DISASSEMBLY LOT-SIZING PROBLEMS UNDER RANDOM LEAD TIME</b> .....	595
<i>I. Slama, O. Ben-Ammar, F. Masmoudi, A. Dolgui</i>	
<b>DISASSEMBLY SCHEDULING PROBLEM: LITERATURE REVIEW AND FUTURE RESEARCH DIRECTIONS</b> .....	601
<i>Ilhem Slama, Oussama Ben-Ammar, Faouzi Masmoudi, Alexandre Dolgui</i>	
<b>DECISION MAKING IN PREDICTIVE MAINTENANCE: LITERATURE REVIEW AND RESEARCH AGENDA FOR INDUSTRY 4.0</b> .....	607
<i>Alexandros Bousdekis, Katerina Lepenioti, Dimitris Apostolou, Gregoris Mentzas</i>	
<b>INTEGRATED WORKFORCE TRAINING AND OPERATIONS PLANNING FOR MAINTENANCE SERVICE PROVIDERS</b> .....	613
<i>Shayan Tavakoli Kafiabad, Masoumeh Kazemi Zanjani, Mustapha Nourelfath</i>	
<b>DISTRIBUTED MAINTENANCE: A LITERATURE ANALYSIS AND CLASSIFICATION</b> .....	619
<i>Ali Attajer, Saber Darmoul, Fouad Riane, Abdelghani Bouras</i>	
<b>DEVELOPING A CONTROL AND MANAGEMENT SYSTEM FOR REINFORCEMENT STEEL-LEFTOVER IN INDUSTRIAL FACTORIES</b> .....	625
<i>Rami A. Maher, Nadeem N. Melhem, Mohamad Almutlaq</i>	
<b>MODEL PREDICTIVE CONTROL OF THE WEFT INSERTION IN AIR-JET WEAVING</b> .....	630
<i>T. Wu, M. Kemper, S. Stemmler, D. Abel, T. Gries</i>	
<b>CLOSED-LOOP CONTROL OF DECISION SYSTEM AND EQUIPMENT EFFECTIVENESS</b> .....	636
<i>Fatma Kechaou, Marc Zolghadri, Sid-Ali Addouche</i>	
<b>METHODOLOGY AND INTEGRATED MODELING TECHNOLOGIES FOR SYNTHESIS OF CYBER-PHYSICAL PRODUCTION SYSTEMS MODERNIZATION PROGRAMS AND PLANS</b> .....	642
<i>Andrey Gnidenko, Vladislav Sobolevsky, Semyon Potriasaev, Boris Sokolov</i>	

<b>ENERGY EFFICIENCY IMPROVEMENT THROUGH MPC-BASED PERIPHERALS MANAGEMENT FOR AN INDUSTRIAL PROCESS TEST-BENCH</b> .....	648
<i>Miguel A. Bermeo, Carlos Ocampo-Martinez</i>	
<b>RE-PLANNING IN HOME HEALTHCARE: A DECOMPOSITION APPROACH TO MINIMIZE IDLE TIME FOR WORKERS WHILE ENSURING CONTINUITY OF CARE</b> .....	654
<i>C. Martinez, M-L. Espinouse, M. Di Mascolo</i>	
<b>AGENT-ORIENTED MODELING AND OPTIMIZATION OF MATERIAL FLOWS OF MULTI- ASSORTMENT PRODUCTION</b> .....	660
<i>Yuri A. Ivashkin, Marina A. Nikitina</i>	
<b>AN AGENT-BASED MODEL OF AN ONLINE COLLABORATION COMMUNITY BY USING FUZZY LOGIC</b> .....	665
<i>Ertug Olcay, Claus Schöttl, Ans Khalid, Michael A. Zaggl, Boris Lohmann</i>	
<b>A MULTI-SERVER QUEUEING-INVENTORY SYSTEM WITH STOCK-DEPENDENT DEMAND</b> .....	671
<i>Gabi Hanukov, Tal Avinadav, Tatyana Chernonog, Uri Yechiali</i>	
<b>TOWARDS A KNOWLEDGE STRUCTURING FRAMEWORK FOR DECISION MAKING WITHIN INDUSTRY 4.0 PARADIGM</b> .....	677
<i>O. Meski, F. Belkadi, B. Furet, F. Laroche</i>	
<b>IDENTIFICATION OF TERRITORIAL RESOURCES BASED ON DOMAIN ONTOLOGY (DOTK) FOR SUSTAINABILITY</b> .....	683
<i>Amer Ezoji, Nada Matta</i>	
<b>POSITION AND ORIENTATION CALIBRATION OF A 2D LASER LINE SENSOR USING CLOSED-FORM LEAST-SQUARES SOLUTION</b> .....	689
<i>R. Müller, M. Vette-Steinkamp, A. Kanso</i>	
<b>INTERACTIVE ROBOTS CONTROL USING MIXED REALITY</b> .....	695
<i>M. Ostanin, R. Yagfarov, A. Klimchik</i>	
<b>STIFFNESS MODELING OF NAVARO II TRANSMISSION SYSTEM</b> .....	701
<i>A. Klimchik, A. Pashkevich, D. Chablat</i>	

## PART 2

<b>INPUT-OUTPUT FEEDBACK LINEARIZATION FOR THE CONTROL OF A 4 CABLE-DRIVEN PARALLEL ROBOT</b> .....	707
<i>Atal Anil Kumar, Jean-François Antoine, Gabriel Abba</i>	
<b>CONTROL OF ACTUATORS WITH LINEARIZED VARIABLE STIFFNESS</b> .....	713
<i>Sergei Savin, Ramil Khusainov, Alexandr Klimchik</i>	
<b>EXPERIMENTAL STUDY ON USER RATING OF VIRTUAL REALITY APPLICATIONS IN MANUAL ORDER PICKING</b> .....	719
<i>Ralf Elbert, Jan-Karl Knigge, Rami Makhlouf, Tessa Sarnow</i>	
<b>ARTIFICIAL INTELLIGENCE FOR FORECASTING IN SUPPLY CHAIN MANAGEMENT: A CASE STUDY OF WHITE SUGAR CONSUMPTION RATE IN THAILAND</b> .....	725
<i>Anirut Kantasa-Ard, Abdelghani Bekrar, Abdessamad Ait El Cadi, Yves Sallez</i>	
<b>A DATA-DRIVEN FRAMEWORK TO DEAL WITH INTRINSIC VARIABILITY OF INDUSTRIAL PROCESSES: AN APPLICATION IN THE TEXTILE INDUSTRY</b> .....	731
<i>Patrice Lajoie, Jonathan Gaudreault, Nadia Lehoux, Maha Ben Ali</i>	
<b>MACHINE LEARNING IN PREDICTING DEMAND FOR FAST-MOVING CONSUMER GOODS: AN EXPLORATORY RESEARCH</b> .....	737
<i>Elcio Tarallo, Getúlio K. Akabane, Camilo I. Shimabukuro, Jose Mello, Douglas Amancio</i>	
<b>PREDICTING AND PREVENTING MISTAKES IN HUMAN-ROBOT COLLABORATIVE ASSEMBLY</b> .....	743
<i>D. Antonelli, D. Stadnicka</i>	
<b>PRODUCT SERVICE SYSTEMS FOR SOCIAL MANUFACTURING: A NEW SERVICE SYSTEM WITH MULTI-PROVIDER</b> .....	749
<i>Wei Guo, Pingyu Jiang</i>	
<b>IMPLEMENTING A DYNAMIC FMECA IN THE DIGITAL TRANSFORMATION ERA</b> .....	755
<i>Michele Colli, Roberto Sala, Fabiana Pirola, Roberto Pinto, Brian Vejrum Wæhrens</i>	
<b>AN ICT-ENABLED PRODUCT SERVICE SYSTEM FOR REUSE OF BUILDING COMPONENTS</b> .....	761
<i>D. Ness, K. Xing, K. Kim, A. Jenkins</i>	
<b>CAPACITATED SUPPLY CHAIN WITH DEMAND UNCERTAINTY</b> .....	767
<i>Meimei Zheng, Cunwu Sun, Peng Jiang</i>	
<b>EMERGENCY BLOOD DEMAND FORECASTING AFTER EARTHQUAKES</b> .....	773
<i>P. Jiang, X. Liu, M. Zheng</i>	



<b>EMERGENCY OPERATIONS SCHEDULING FOR A BLOOD SUPPLY NETWORK IN DISASTER RELIEFS .....</b>	<b>778</b>
<i>Xiao Liu, Xiang Song</i>	
<b>ROBUST CONTROL OF SUPPLY CHAIN NETWORKS WITH MULTIPLE LEAD TIMES AND DEMAND UNCERTAINTIES .....</b>	<b>784</b>
<i>Yongchang Wei, Song Zhu, Fangyu Chen</i>	
<b>A NEW SUSTAINABLE LOCATION-ROUTING PROBLEM WITH SIMULTANEOUS PICKUP AND DELIVERY BY TWO-COMPARTMENT VEHICLES FOR A PERISHABLE PRODUCT CONSIDERING CIRCULAR ECONOMY .....</b>	<b>790</b>
<i>F. Navazi, A. Sedaghat, R. Tavakkoli-Moghaddam</i>	
<b>INTERNET OF THINGS ENABLED REAL-TIME SUSTAINABLE END-OF-LIFE PRODUCT RECOVERY .....</b>	<b>796</b>
<i>S. Keivanpour, D. Ait Kadi</i>	
<b>RESOURCE SHARING AS SUPPLY CHAIN DISRUPTION RISK MANAGEMENT MEASURE .....</b>	<b>802</b>
<i>Ronald Cockx, Dieter Armbruster, Julia C. Bendul</i>	
<b>A METHODOLOGY TO ESTIMATE RESILIENCE OF MANUFACTURING PLANTS .....</b>	<b>808</b>
<i>Antonio C. Caputo, Pacifico M. Pelagagge, Paolo Salini</i>	
<b>A DECISION SUPPORT MODEL FOR PROTOTYPING IN-PLANT MILK-RUN TRAFFIC SYSTEMS .....</b>	<b>814</b>
<i>Grzegorz Bocewicz, Izabela Nielsen, Banaszak Zbigniew</i>	
<b>PLANNING DELIVERIES WITH UAV ROUTING UNDER WEATHER FORECAST AND ENERGY CONSUMPTION CONSTRAINTS .....</b>	<b>820</b>
<i>Amila Thibbotuwawa, Grzegorz Bocewicz, Peter Nielsen, Banaszak Zbigniew</i>	
<b>MODEL OF DECISION SUPPORT FOR THE CONFIGURATION OF MANUFACTURING SYSTEM.....</b>	<b>826</b>
<i>Jaroslav Wikarek, Pawel Sitek, Peter Nielsen</i>	
<b>AN APPLICATION FOR THE ACQUISITION AND UNDERSTANDING OF EXPERT KNOWLEDGE IN A MAINTENANCE DEPARTMENT.....</b>	<b>832</b>
<i>Justyna Patalas-Maliszewska, Sławomir Klos</i>	
<b>BIG DATA APPLICATION FOR E-COMMERCE'S LOGISTICS: A RESEARCH ASSESSMENT AND CONCEPTUAL MODEL.....</b>	<b>838</b>
<i>Paula A. Hurtado, Carina Dorneles, Enzo Frazzon</i>	
<b>TOWARDS A PREDICTIVE APPROACH FOR OMNI-CHANNEL RETAILING SUPPLY CHAINS .....</b>	<b>844</b>
<i>Marina Meireles Pereira, Enzo Morosini Frazzon</i>	
<b>USING DATA MINING TECHNIQUES TO INVESTIGATE THE CORRELATION BETWEEN SURFACE CRACKS AND FLANGE LENGTHS IN DEEP DRAWN SHEET METALS .....</b>	<b>851</b>
<i>Jens Heger, Mazhar Zein El Abdine</i>	
<b>INDOOR POSITIONING IN CAR PARKS BY USING WI-FI ROUND-TRIP-TIME TO SUPPORT FINISHED VEHICLE LOGISTICS ON PORT TERMINALS .....</b>	<b>857</b>
<i>Nicolas Jathe, Michael Lütjen, Michael Freitag</i>	
<b>TOWARDS A CONCEPTUAL MODEL OF STRUCTURAL AND BEHAVIORAL ELEMENTS IN CYBER-PHYSICAL PRODUCTION SYSTEMS .....</b>	<b>863</b>
<i>Thiago Regal, Carlos Eduardo Pereira</i>	
<b>RISK LEVEL-DRIVEN BI-OBJECTIVE STOCHASTIC PARALLEL MACHINE SCHEDULING PROBLEM.....</b>	<b>869</b>
<i>Ming Liu, Xin Liu</i>	
<b>DISTRIBUTIONALLY ROBUST PARALLEL MACHINE SCHELOC PROBLEM UNDER SERVICE LEVEL CONSTRAINTS .....</b>	<b>875</b>
<i>Ming Liu, Xin Liu</i>	
<b>BI-OBJECTIVE OPTIMIZATION OF MULTIPLE-ROUTE JOB SHOP SCHEDULING WITH ROUTE COST .....</b>	<b>881</b>
<i>Feifeng Zheng, Yang Sui</i>	
<b>SINGLE MACHINE SCHEDULING CONSIDERING TIME VALUE OF MONEY .....</b>	<b>887</b>
<i>Rongteng Zhi, Yinfeng Xu, Feifeng Zheng</i>	
<b>BI-OBJECTIVE FLEXIBLE JOB SHOP SCHEDULING WITH OPERATION OVERLAPPING COSTS .....</b>	<b>893</b>
<i>Feifeng Zheng, Zhaojie Wang</i>	
<b>RETHINKING JIDOKA SYSTEMS UNDER AUTOMATION &amp; LEARNING PERSPECTIVES IN THE DIGITAL LEAN MANUFACTURING WORLD.....</b>	<b>899</b>
<i>David Romero, Paolo Gaiardelli, Daryl Powell, Thorsten Wuest, Matthias Thürer</i>	

<b>LEAN THINKING CONTRIBUTIONS FOR INDUSTRY 4.0: A SYSTEMATIC LITERATURE REVIEW</b> .....	904
<i>V. L. Bittencourt, A. C. Alves, C. P. Leão</i>	
<b>NEURO-INSPIRED FRAMEWORK FOR COGNITIVE MANUFACTURING CONTROL</b> .....	910
<i>Ioan Dumitrache, Simona Iuliana Caramihai, Mihnea Alexandru Moisescu, Ioan Stefan Sacala</i>	
<b>A SELF-ADAPTED SWARM ARCHITECTURE TO HANDLE BIG DATA FOR “FACTORIES OF THE FUTURE”</b> .....	916
<i>Guilherme Guerreiro, Ruben Costa, Paulo Figueiras, Diogo Graça, Ricardo Jardim-Gonçalves</i>	
<b>INTELLIGENT CONTROL INTERFACES USING EXTENICS MULTIDIMENSIONAL THEORY APPLIED ON VIPRO PLATFORMS FOR DEVELOPING THE IT INDUSTRY 4.0 CONCEPT</b> .....	922
<i>Luige Vladareanu, Victor Vladareanu, Hongnian Yu, Daniel Mitroi, Alexandra-Catalina Ciocîrlan</i>	
<b>A CLUSTERING METHOD OF ASSET CYBERSECURITY CLASSIFICATION</b> .....	928
<i>Vitaly G. Promyslov, Kirill V. Semenov, Alexander S. Shumov</i>	
<b>AN APPROACH TO MODELING THE DECISION SUPPORT PROCESS OF THE SECURITY EVENT AND INCIDENT MANAGEMENT BASED ON MARKOV CHAINS</b> .....	934
<i>Igor Kotenko, Igor Parashchuk</i>	
<b>I&amp;C SYSTEM AVAILABILITY ASSESSMENT USING UPPER BOUND DELAY ESTIMATION</b> .....	940
<i>A. A. Baybulatov, A. G. Poletykin, G. V. Promyslov, D. V. Shipilov</i>	
<b>APPROACH TO ORGANIZING OF A HETEROGENEOUS SWARM OF CYBER-PHYSICAL DEVICES TO DETECT INTRUDERS</b> .....	945
<i>Lidia Vitkova, Vasily Desnitsky, Andrey Chechulin, Igor Kotenko</i>	
<b>ALGORITHMS FOR LOCOMOTIVES MAINTENANCE SCHEDULE</b> .....	951
<i>A. A. Lazarev, E. M. Grishin, S. A. Galakhov, G. V. Tarasov</i>	
<b>A GENETIC ALGORITHM FOR ASSIGNING TRAIN ARRIVAL DATES AT A MAINTENANCE CENTRE</b> .....	957
<i>Hanyu Gu, Mark Joyce, Hue Chi Lam, Mark Woods, Yakov Zinder</i>	
<b>HEURISTIC APPROACHES FOR SCHEDULING MANUFACTURING TASKS WHILE TAKING INTO ACCOUNT ACCUMULATED HUMAN FATIGUE</b> .....	963
<i>Nicola Berti, Christian Artigues, Olga Battaia, Romain Guillaume, Daria Battini</i>	
<b>COLUMN GENERATION FOR MINIMIZING TOTAL COMPLETION TIME ON A SINGLE MACHINE WITH PARALLEL BATCHING</b> .....	969
<i>A. Alfieri, A. Druetto, A. Grosso, F. Salassa</i>	
<b>AN OPTIMAL POLICY FOR THE CAPACITATED LOT SIZING PROBLEM WITH FINANCING OF THE WORKING CAPITAL REQUIREMENT</b> .....	975
<i>Fabrice Gayraud, David Lemoine, Guillaume Massonnet</i>	
<b>A POLYNOMIAL ALGORITHM FOR BALANCING A SEQUENCE OF OPERATIONS IN RECONFIGURABLE TRANSFER LINES</b> .....	981
<i>Y. Lahrichi, L. Deroussi, N. Grangeon, S. Norre</i>	
<b>A REVIEW ON ROBUST ASSEMBLY LINE BALANCING APPROACHES</b> .....	987
<i>Öncü Hazır, Alexandre Dolgui</i>	
<b>TYPE-1 U-SHAPED ASSEMBLY LINE BALANCING UNDER UNCERTAIN TASK TIME</b> .....	992
<i>Yuchen Li, Xiaofeng Hu, Xiaowen Tang, Ibrahim Kucukkoc</i>	
<b>EVOLUTIONARY DYNAMICS OF MANUFACTURER-BUYER SUPPLY CHAINS UNDER DIFFERENT COORDINATION STRATEGIES</b> .....	998
<i>Juan M. Torres, Fidel Torres</i>	
<b>THE (A, β)-PRECISE ESTIMATES OF MTBF AND MTR: DEFINITIONS, CALCULATIONS, AND INDUCED EFFECT ON MACHINE EFFICIENCY EVALUATION</b> .....	1004
<i>Pooya Alavian, Yongsoon Eun, Kang Liu, Semyon M. Meerkov, Liang Zhang</i>	
<b>BASIC STRUCTURE OF LESSONS LEARNED APPROACH TO IMPROVE MANUFACTURING PROCESSES: A CASE STUDY</b> .....	1010
<i>S. Bracke, B. Ulutas</i>	
<b>ORDER ACCEPTANCE AND SCHEDULING IN DIRECT DIGITAL MANUFACTURING WITH ADDITIVE MANUFACTURING</b> .....	1016
<i>Qiang Li, David Zhang, Ibrahim Kucukkoc</i>	
<b>DETERMINING PRODUCTION SYSTEMS PERFORMANCE METRICS CONSIDERING MACHINE DOWNTIME</b> .....	1022
<i>Bula Gustavo, Tazi Nacef, Chatelet Eric</i>	
<b>AN ANALYSIS OF RECONFIGURABILITY IN DIFFERENT BUSINESS PRODUCTION STRATEGIES</b> .....	1028
<i>Isabela Maganha, Cristovao Silva, Luis Miguel D. F. Ferreira</i>	

<b>DYNAMIC INVENTORY OPTIMIZATION FOR A SERIAL SUPPLY CHAIN WITH STOCHASTIC AND LEAD-TIME SENSITIVE DEMAND</b> .....	1034
<i>E. Dziri, R. Hammami, Z. Jemai</i>	
<b>MATHEMATICAL MODEL FOR DYNAMIC SUPPLIERS' SELECTION STRATEGY IN MULTI-PERIOD SUPPLY PLANNING WITH LEAD-TIMES UNCERTAINTY</b> .....	1040
<i>Oussama Ben-Ammar, Belgacem Bettayeb, Alexandre Dolgui</i>	
<b>INTRODUCING A UNIQUE INVENTORY CONTROL FRAMEWORK FOR CENTRALIZED VMI AND JIT PRODUCTION</b> .....	1045
<i>Sameh M. Saad, Ramin Bahadori</i>	
<b>A DEVELOPED TABU SEARCH ALGORITHM FOR HETEROGENEOUS FLEET VEHICLE ROUTING PROBLEM</b> .....	1051
<i>Youssef Meliani, Yasmina Hani, Sâad Lissane Elhaq, Abderrahman El Mhamedi</i>	
<b>MULTI-AGENT SIMULATION OF THE BALANCED MAIN PARAMETERS OF THE LOGISTICS CENTERS</b> .....	1057
<i>D. Muravev, H. Hu, A. Rakhmangulov, L. Dai</i>	
<b>JOINT OPTIMIZATION OF THE SELECTIVE MAINTENANCE AND REPAIRPERSON ASSIGNMENT PROBLEM WHEN USING NEW AND REMANUFACTURED SPARE PARTS</b> .....	1063
<i>A. Khatab, C. Diallo, E. H. Aghezaf, U. Venkatadri</i>	
<b>DYNAMIC PREDICTIVE MAINTENANCE IN INDUSTRY 4.0 BASED ON REAL TIME INFORMATION: CASE STUDY IN AUTOMOTIVE INDUSTRIES</b> .....	1069
<i>B. Einabadi, A. Baboli, M. Ebrahimi</i>	
<b>APPLIED RISK ANALYSIS APPROACHES FOR MAINTENANCE OF OFFSHORE WIND TURBINES; A LITERATURE REVIEW</b> .....	1075
<i>Afshin Jamshidi, Farzad Jamshidi, Daoud Ait-Kadi, Amar Ramudhin</i>	
<b>DEVELOPING A BI-OBJECTIVE IMPERFECT SELECTIVE MAINTENANCE OPTIMIZATION MODEL FOR MULTICOMPONENT SYSTEMS</b> .....	1079
<i>C. Diallo, A. Khatab, U. Venkatadri</i>	
<b>CONTROL AS A SERVICE ARCHITECTURE TO SUPPORT CONTEXT-AWARE CONTROL APPLICATION DEVELOPMENT</b> .....	1085
<i>M. Lyu, H. Benfenatki, F. Biennier, P. Ghodous</i>	
<b>A SYSTEMATIC APPROACH ON MODELING REFINEMENT AND REGRESSION TESTING OF REAL-TIME DISTRIBUTED SYSTEMS</b> .....	1091
<i>Deepak Pal, Jüri Vain</i>	
<b>SYNTHESIS AND SIMULATION OF BIOTECHNICAL POSITION-FORCE CONTROL SYSTEM OF A ROBOT MANIPULATOR WITH RECONFIGURABLE STRUCTURE</b> .....	1097
<i>Ekaterina N. Rostova, Nikolay V. Rostov, Vladislav A. Sobolevsky</i>	
<b>ROBUST CONTROL OF REGENERATIVE CHATTER IN UNCERTAIN MILLING PROCESS WITH WEAK NONLINEAR CUTTING FORCES: A COMPARISON WITH LINEAR MODEL</b> .....	1102
<i>Hamed Moradi, Ali Nouriani, Gholamreza Vossoughi</i>	
<b>ROBUST TRADING STRATEGIES FOR A WASTE-TO-ENERGY COMBINED HEAT AND POWER PLANT IN A DAY-AHEAD ELECTRICITY MARKET</b> .....	1108
<i>C. Hu, X. Liu, J. Lu</i>	
<b>STOCHASTIC LOCATION-ALLOCATION MODELLING FOR EMERGENCY MOBILE BLOOD COLLECTION</b> .....	1114
<i>X. Zhang, X. Liu, X. Song, M. Zheng</i>	
<b>A BI-LEVEL BI-OBJECTIVE MATHEMATICAL MODEL FOR STOP LOCATION IN A SCHOOL BUS ROUTING PROBLEM</b> .....	1120
<i>Seyed Parsa Parvasi, Reza Tavakkoli-Moghaddam, Ata Allah Taleizadeh, Mohammad Soveizy</i>	
<b>TOWARDS DATA-DRIVEN CAPABILITY INTERFACE</b> .....	1126
<i>Jelena Zdravkovic, Janis Stirna</i>	
<b>FUZZY LOGIC BASED MODELLING OF CAST COMPONENT PROPERTIES</b> .....	1132
<i>He Tan, Vladimir Tarasov, Anders E. W. Jarfors, Salem Seifeddine</i>	
<b>ONTOLOGY-BASED RECONFIGURABLE DSL FOR PLANNING TECHNICAL SERVICES</b> .....	1138
<i>Boris Ulitin, Eduard Babkin</i>	
<b>EXPLORING OPPORTUNITIES FOR ARTIFICIAL EMOTIONAL INTELLIGENCE IN SERVICE PRODUCTION SYSTEMS</b> .....	1145
<i>Marlene Amorim, Yuval Cohen, João Reis, Mário Rodrigues</i>	
<b>KNOWLEDGE NET: MODEL AND SYSTEM FOR ACCUMULATION, REPRESENTATION, AND USE OF KNOWLEDGE</b> .....	1150
<i>Olga Tushkanova, Vladimir Samoylov</i>	

<b>ERROR ANALYSIS IN SOLVING THE INVERSE PROBLEM OF THE CABLE-DRIVEN PARALLEL UNDERACTUATED ROBOT KINEMATICS AND METHODS FOR THEIR ELIMINATION</b> .....	1156
<i>Alexander V. Maloletov, Mikhail Y. Fadeev, Alexandr S. Klimchik</i>	
<b>PATH PLANNING FOR ROBOTIC GRINDING ON A LARGE FORGED WORKPIECE</b> .....	1162
<i>Mohamed Didi Chaoui, François Léonard, Gabriel Abba</i>	
<b>EXPERIMENTAL DYNAMIC IDENTIFICATION OF A YUMI COLLABORATIVE ROBOT</b> .....	1168
<i>Meryem Taghbalout, Jean François Antoine, Gabriel Abba</i>	
<b>METHODS AND TOOLS OF IMPROVING STEEL MANUFACTURING PROCESSES: CURRENT STATE AND FUTURE METHODS</b> .....	1174
<i>Jere Backman, Vesa Kyllönen, Heli Helaakoski</i>	
<b>PRE-OPTIMIZING TOOLS POSITIONS FOR TURRETS-BASED CNC MACHINES WHEN FACING ARBITRARY SEQUENCES OF PRODUCTION</b> .....	1180
<i>Marc-André Ménard, Claude-Guy Quimper, Jonathan Gaudreault</i>	
<b>ANALYSIS OF DIGITAL TRANSFORMATION STRATEGIES WITH AN INTEGRATED FUZZY AHP-AXIOMATIC DESIGN METHODOLOGY</b> .....	1186
<i>Merve Güler, Gülçin Büyükköçkan</i>	
<b>MODELING FOR DEPLOYMENT OF DIGITAL TECHNOLOGIES IN THE COLD CHAIN</b> .....	1192
<i>Vishal Kumar Gupta, Atanu Chaudhuri, Manoj Kumar Tiwari</i>	
<b>FORMAL METHODS BASED SECURITY FOR CLOUD-BASED MANUFACTURING CYBER PHYSICAL SYSTEM</b> .....	1198
<i>Kandasamy Muniasamy, Seshadhri Srinivasan, Juri Vain, M. Sethumadhavan</i>	
<b>PULSEC: SECURE ELEMENT BASED FRAMEWORK FOR SENSORS ANOMALY DETECTION IN INDUSTRY 4.0</b> .....	1204
<i>Varun Deshpande, Laurent George, Hakim Badis</i>	
<b>COLLABORATION EVALUATION METHODOLOGY FOR EXPERIENCE CAPITALIZATION IN INDUSTRIAL PROCESSES</b> .....	1210
<i>D. Meléndez González, T. Coudert, L. Geneste, A. De Valroger</i>	
<b>COMPETITIVENESS OF SERVICITIZATION WITH NEW TRANSACTION BASE</b> .....	1216
<i>Kangzhou Wang, Tushan Huang, Zhibin Jiang</i>	
<b>PREPARATION OF PAPERS FOR IFAC CONFERENCES &amp; SYMPOSIA: EXPLORING SERVICITIZATION FROM VALUE CREATION PATH: A SYSTEMATIC REVIEW ON EMPIRICAL INVESTIGATION</b> .....	1222
<i>Yimeng Niu, Zhibin Jiang, Kangzhou Wang</i>	
<b>FACILITATING CONSISTENCY OF BUSINESS MODEL AND TECHNICAL MODELS IN PRODUCT-SERVICE-SYSTEMS DEVELOPMENT: AN ONTOLOGY APPROACH</b> .....	1229
<i>M. Zou, M. R. Basirati, H. Bauer, N. Kattner, B. Vogel-Heuser</i>	
<b>CONTRIBUTIONS OF INDUSTRY 4.0 TO QUALITY MANAGEMENT - A SCOR PERSPECTIVE</b> .....	1236
<i>Julian M. Müller</i>	
<b>APPLICATION OF A FMEA METHOD COMBINING INTERVAL 2-TUPLE LINGUISTIC VARIABLES AND GREY RELATIONAL ANALYSIS IN PREOPERATIVE MEDICAL SERVICE PROCESS</b> .....	1242
<i>Suxia Shi, Hongying Fei, Xueguo Xu</i>	
<b>APPLICATION OF MACHINE LEARNING ON PLAN INSTABILITY IN MASTER PRODUCTION PLANNING OF A SEMICONDUCTOR SUPPLY CHAIN</b> .....	1248
<i>Tim Lauer, Sarah Legner, Michael Henke</i>	
<b>A SURVEY OF MODEL-BASED SYSTEM ENGINEERING METHODS TO ANALYSE COMPLEX SUPPLY CHAINS: A CASE STUDY IN SEMICONDUCTOR SUPPLY CHAIN</b> .....	1254
<i>Behrouz Alizadeh Mousavi, Radhia Azzouz, Cathal Heavey, Hans Ehm</i>	
<b>OPTIMIZING LOT PRIORITY RULES IN SEMICONDUCTOR PRODUCTION SYSTEMS</b> .....	1260
<i>Bernhard Oberegger, Boualem Rabta, Gerald Reiner</i>	
<b>HORIZONTAL BULLWHIP EFFECT - EMPIRICAL INSIGHTS INTO THE SYSTEM DYNAMICS OF AUTOMOTIVE SUPPLY NETWORKS</b> .....	1266
<i>Tim Gruchmann, Thomas Neukirchen</i>	
<b>USING INVENTORY TO MITIGATE THE RIPPLE EFFECT</b> .....	1272
<i>Florian Lückner</i>	
<b>BULLWHIP EFFECT OF WEIGHTED MOVING AVERAGE FORECAST UNDER STOCHASTIC LEAD TIME</b> .....	1277
<i>Koichi Nakade, Yuta Aniyama</i>	
<b>POSSIBLE WAYS OF ASSESSING THE RESILIENCE OF SUPPLY CHAIN NETWORKS IN CONDITIONS OF UNPREDICTABLE DISRUPTIONS</b> .....	1283
<i>Alexander Pavlov, Dmitry Pavlov, Valerii Zakharov</i>	

<b>MANUFACTURER’S STRATEGIC RISK TEMPERATURE ASSESSMENT WITH CONVERGENT APPROACH, COGNITIVE MODELLING AND BLOCKCHAIN TECHNOLOGY</b> .....	1289
<i>A. Raikov</i>	
<b>RISK BUDGET PLANNING THROUGH ASSESSING THE CRITICALITY AND VULNERABILITY OF SUPPLY NETWORK ENTITIES FACING DISRUPTION RISKS</b> .....	1295
<i>Niels Bugert</i>	
<b>PREDICTION OF VARIABLE TECHNOLOGICAL OPERATION TIMES IN PRODUCTION JOBS SCHEDULING</b> .....	1301
<i>Lukasz Sobaszek, Arkadiusz Gola, Edward Kozlowski</i>	
<b>DECISION VARIABLES FOR INBOUND TRANSPORTATION REDESIGN IN A CHEMICAL MANUFACTURING SUPPLY CHAIN</b> .....	1307
<i>Ninni K. Andreassen, Olumide E. Oluyisola, Jan O. Strandhagen, Marco G. Semini</i>	
<b>SUPPLY CHAIN AND ECO-INDUSTRIAL PARK CONCURRENT DESIGN</b> .....	1313
<i>C. Castiglione, A. Alfieri</i>	
<b>MATHEMATICAL MODELLING FOR FLOWS OPTIMIZATION WITHIN AN INDUSTRIAL SYMBIOSIS</b> .....	1319
<i>H. Nouninou, D. Roy, S. Hennequin</i>	
<b>COLLABORATIVE LOT-SIZING PROBLEM FOR AN INDUSTRIAL SYMBIOSIS</b> .....	1325
<i>Cécilia Daquin, Hamid Allaoui, Gilles Goncalves, Tienté Hsu</i>	
<b>SIMULATION-BASED ANALYSIS OF THE INTERACTION OF A PHYSICAL AND A DIGITAL TWIN IN A CYBER-PHYSICAL PRODUCTION SYSTEM</b> .....	1331
<i>Abderrahim Ait-Alla, Markus Kreutz, Daniel Rippel, Michael Lütjen, Michael Freitag</i>	
<b>A REVIEW ON THE PLANNING PROBLEM FOR THE INSTALLATION OF OFFSHORE WIND FARMS</b> .....	1337
<i>Daniel Rippel, Nicolas Jathe, Matthias Becker, Michael Lütjen, Michael Freitag</i>	
<b>TOWARDS A DATA-DRIVEN PREDICTIVE-REACTIVE PRODUCTION SCHEDULING APPROACH BASED ON INVENTORY AVAILABILITY</b> .....	1343
<i>Satie Ledoux Takeda Berger, Renata Mariani Zanella, Enzo Morosini Frazzon</i>	
<b>EVOLUTION OF GLOBAL MANUFACTURING NETWORKS AND XKD SUPPLY CHAINS: A CROSS CASE STUDY OF SIX GLOBAL AUTOMOTIVE MANUFACTURERS</b> .....	1349
<i>Julia C. Bendul, Toni Erfurth</i>	
<b>THE SUSTAINABILITY AND REDUCTION OF WASTE IN FREIGHT DELIVERY USING SIMULATION STUDY</b> .....	1355
<i>Aurelija Burinskiene</i>	
<b>ADAPTATION OF MANUFACTURING MACHINES BY THE USE OF MULTIPLE-DOMAIN-MATRICES AND VARIABILITY MODELS</b> .....	1361
<i>Xuan-Luu Hoang, Birte Caesar, Alexander Fay</i>	
<b>HYBRID OPTIMISATION APPROACH FOR SEQUENCING AND ASSIGNMENT DECISION-MAKING IN RECONFIGURABLE ASSEMBLY LINES</b> .....	1367
<i>Isabela Maganha, Cristovao Silva, Nathalie Klement, Amélie Beauville Dit Eynaud, Samuel Moniz</i>	
<b>INTEGRATED DECISION PROCESS TO DESIGN MANUFACTURING SYSTEMS TOWARDS INDUSTRY 4.0</b> .....	1373
<i>Mahdi El Alaoui El Abdellaoui, Frédéric Grimaud, Paolo Gianessi, Xavier Delorme</i>	
<b>A NEW HYBRID APPROACH FOR MACHINE LAYOUT DESIGN UNDER FAMILY PRODUCT EVOLUTION FOR RECONFIGURABLE MANUFACTURING SYSTEMS</b> .....	1379
<i>Hichem Haddou Benderbal, Lyes Benyoucef</i>	
<b>SAFETY FUNCTIONS AND SOFTWARE VERIFICATION OF NPP SAFETY IMPORTANT SYSTEMS</b> .....	1385
<i>Elena Ph. Jharko</i>	
<b>“SAFETY MANAGEMENT SYSTEM” AND SIGNIFICANT PLANTS OF CRITICAL INFORMATION INFRASTRUCTURE</b> .....	1391
<i>Andrey Kalashnikov, Ekaterina Sakrutina</i>	
<b>METHOD OF VERIFICATION OF ROBOTIC GROUP AGENTS IN THE CONDITIONS OF COMMUNICATION FACILITY SUPPRESSION</b> .....	1397
<i>A. Iskhakova, A. Iskhakov, R. Meshcheryakov, E. Jharko</i>	
<b>A PERMUTATION-BASED HEURISTIC METHOD FOR THE BLOCKING JOB SHOP SCHEDULING PROBLEM</b> .....	1403
<i>Julia Lange, Frank Werner</i>	
<b>A HYBRID OPTIMIZATION ALGORITHM WITH GENETIC AND BACTERIAL OPERATORS FOR THE DESIGN OF CELLULAR MANUFACTURING SYSTEMS</b> .....	1409
<i>Camilo Mejía-Moncayo, Olga Battaia</i>	

## PART 3

<b>PRACTICAL REINFORCEMENT LEARNING -EXPERIENCES IN LOT SCHEDULING APPLICATION</b> .....	1415
<i>Hannu Rummukainen, Jukka K. Nurminen</i>	
<b>DUAL RESOURCE CONSTRAINED SCHEDULING FOR QUALITY CONTROL LABORATORIES</b> .....	1421
<i>Mariana M. Cunha, Joaquim L. Viegas, Miguel S. E. Martins, Tiago Coito, Susana M. Vieira</i>	
<b>POLCA: CENTRALISED VS. DECENTRALISED JOB RELEASE</b> .....	1427
<i>Nuno O. Fernandes, Matthias Thürer, Luís Pinto Ferreira, S. Carmo-Silva</i>	
<b>BALANCING NON-BOTTLENECK STATIONS USING SIMPLE ASSEMBLY LINE BALANCING MODELS</b> .....	1432
<i>Lukas Lingitz, Viola Gallina, Csaba Kardos, Tamás Koltai, Wilfried Sihm</i>	
<b>AN INTERACTIVE DSS TO IMPROVE DECISION-MAKING IN THE (R,Q) POLICY</b> .....	1438
<i>Margherita Molinaro, Pietro Romano, Marco Battistutta, Giulia Da Re</i>	
<b>EXPLORING THE COMPLEXITY LEVELS OF DISCRETE MANUFACTURING PROCESSES</b> .....	1444
<i>Vladimir Modrak, Zuzana Soltysova</i>	
<b>INVENTORY LEVELS OF TWO STOCKOUT-BASED SUBSTITUTABLE PRODUCTS UNDER CENTRALIZED AND COMPETITIVE SETTINGS</b> .....	1450
<i>Yael Perlman</i>	
<b>FLOW NETWORK CONTROL VIA SUBSTITUTED FLOWS DETERMINING THE RATIO OF PARALLEL FLOWS</b> .....	1455
<i>Alexander Neifer, Marcus Appel, Michael Walther, Ulrich Konigorski</i>	
<b>USING BUSINESS ANALYTICS FOR DECISION SUPPORT IN ZERO DEFECT MANUFACTURING OF COMPOSITE PARTS IN THE AEROSPACE INDUSTRY</b> .....	1461
<i>Helmut Zörrer, Robert Steringer, Sebastian Zambal, Christian Eitzinger</i>	
<b>USING DISCRETE EVENT SIMULATION IN MULTIPLE SYSTEM LIFE CYCLES TO SUPPORT ZERO-DEFECT COMPOSITE MANUFACTURING IN AEROSPACE INDUSTRY</b> .....	1467
<i>Robert Steringer, Helmut Zörrer, Sebastian Zambal, Christian Eitzinger</i>	
<b>A CONTROL MODEL FOR DOWNSTREAM COMPENSATION STRATEGY IN MULTI-STAGE MANUFACTURING SYSTEMS OF COMPLEX PARTS</b> .....	1473
<i>Maria Chiara Magnanini, Florian Eger, Colin Reiff, Marcello Colledani, Alexander Verl</i>	
<b>A CASH CONSTRAINED SINGLE ITEM STOCHASTIC LOT-SIZING PROBLEM</b> .....	1479
<i>Zhen Chen, Roberto Rossi</i>	
<b>ON COMPUTATIONAL PROCEDURES FOR VALUE ITERATION IN INVENTORY CONTROL</b> .....	1484
<i>Eliquis M. T. Hendrix, Cleo Kortenhorst, Gloria L. Ortega</i>	
<b>STOCHASTIC INVENTORY CONTROL: A LITERATURE REVIEW</b> .....	1490
<i>Xiyuan Ma, Roberto Rossi, Thomas Archibald</i>	
<b>TUNING FORECASTING ALGORITHMS FOR BLACK SWANS</b> .....	1496
<i>S. D. Prestwich</i>	
<b>MULTI-MANNED ASSEMBLY LINE SYNCHRONIZATION WITH COMPATIBLE MOUNTING POSITIONS, EQUIPMENT SHARING AND WORKERS COOPERATION</b> .....	1502
<i>Emilio Ferrari, Maurizio Faccio, Mauro Gamberi, Silvia Margelli, Francesco Pilati</i>	
<b>HIERARCHY OF SMART AWARENESS IN ASSEMBLY 4.0 SYSTEMS</b> .....	1508
<i>Yuval Cohen, Maurizio Faccio, Amir Elaluf</i>	
<b>TOWARDS ASSEMBLY 4.0: GRADUATION INTELLIGENT MANUFACTURING SYSTEM FOR FIXED-POSITION ASSEMBLY ISLANDS</b> .....	1513
<i>Daqiang Guo, Peng Lin, Zhongyuan Lyu, Shiquan Ling, Yiming Rong</i>	
<b>STRATEGIC VIEW ON COBOT DEPLOYMENT IN ASSEMBLY 4.0 SYSTEMS</b> .....	1519
<i>Yuval Cohen, Shraga Shoal, Maurizio Faccio</i>	
<b>CONCEPTUALISING ASSEMBLY 4.0 THROUGH THE DRONE FACTORY</b> .....	1525
<i>Å. Fast-Berglund, M. Åkerman, D. Li, Omkar Salunkhe</i>	
<b>A SELF-LEARNING CLASSIFICATION FRAMEWORK FOR INDUSTRIAL TIME SERIES STREAMS</b> .....	1531
<i>Zhenjie Ma, Ke Shi, Kang Feng</i>	
<b>CONTROL CHART PATTERN RECOGNITION METHOD BASED ON IMPROVED ONE-DIMENSIONAL CONVOLUTIONAL NEURAL NETWORK</b> .....	1537
<i>Jie Xu, Huichun Lv, Zilong Zhuang, Zhiyao Lu, Wei Qin</i>	
<b>AN INTELLIGENT RECOMMENDATION METHOD FOR SERVICE PERSONALIZED CUSTOMIZATION</b> .....	1543
<i>Qi Li, Rui Miao, Jie Zhang, Xiaoxu Deng</i>	

<b>TOOL BREAKAGE DETECTION OF MILLING CUTTER INSERT BASED ON SVM</b> .....	1549
<i>Shixu Sun, Xiaofeng Hu, Weili Cai, Jin Zhong</i>	
<b>APPLICATION AND RESEARCH ON ONLINE EVALUATION FOR SERVICE CAPABILITY OF CLOUD MANUFACTURING SUPPLIER</b> .....	1555
<i>Wei Jian, Lu Jianfeng, Han Tiaojuan</i>	
<b>RECALCULATING THE LENGTH OF THE LONGEST PATH IN PERTURBED DIRECTED ACYCLIC GRAPH</b> .....	1560
<i>Golshan Madraki, Robert P. Judd</i>	
<b>APPLICATION OF DIFFERENTIAL EVOLUTION WITH SELECTIVE PRESSURE TO ECONOMIC DISPATCH OPTIMIZATION PROBLEMS</b> .....	1566
<i>Vladimir Stanovov, Shakhnaz Akhmedova, Eugene Semenkin</i>	
<b>A BRANCH AND PRICE ALGORITHM FOR THE ELECTRIC CAPACITATED PROFITABLE TOUR PROBLEM WITH MANDATORY STOPS</b> .....	1572
<i>David L. Cortés-Murcia, H. Murat Afsar, Caroline Prodron</i>	
<b>REVENUE SHARING CONTRACTS IN A SUPPLY CHAIN: A LITERATURE REVIEW</b> .....	1578
<i>Nelly Bart, Tatyana Cheronog, Tal Avinadav</i>	
<b>FRAMEWORK TO SUPPORT MODELS FOR MANUFACTURING (MFM) METHODOLOGY</b> .....	1584
<i>R. Arista, F. Mas, M. Oliva, J. Racero, D. Morales-Palma</i>	
<b>CAPABILITY-BASED SEMANTIC INTEROPERABILITY OF MANUFACTURING RESOURCES: A BASYS 4.0 PERSPECTIVE</b> .....	1590
<i>Alexander Perylo, Julian Grothoff, Levi Lucio, Michael Weser, Torben Deppe</i>	
<b>KNOWLEDGE MANAGEMENT 4.0: THEORETICAL AND PRACTICAL CONSIDERATIONS IN CYBER PHYSICAL PRODUCTION SYSTEMS</b> .....	1597
<i>Fazel Ansari</i>	
<b>TASK MODEL REPRESENTATION: APPROACH AND PROTOTYPE</b> .....	1603
<i>Alexander Smirnov, Nikolay Shilov, Maxim Shchekotov</i>	
<b>FACILITATING DIGITAL TRANSFORMATION BY MULTI-ASPECT ONTOLOGIES: APPROACH AND APPLICATION STEPS</b> .....	1609
<i>Kurt Sandkuhl, Nikolay Shilov, Alexander Smirnov</i>	
<b>OPTIMAL SYNCHRONIZATION OF THE HOT ROLLING STAGE IN STEEL PRODUCTION</b> .....	1615
<i>Quirin Ilmer, Stefan Haeussler, Hubert Missbauer</i>	
<b>A SIMULATION ANALYSIS OF IMPACT OF DESIGN AND STORAGE POLICY ON PERFORMANCE OF SINGLE-CRANE MULTI-AISLE AS/RS</b> .....	1620
<i>Vishwesh Singbal, Gajendra K. Adil</i>	
<b>LAYOUT CONFIGURATION, MAINTENANCE PLANNING AND SIMULATION OF AGV BASED ROBOTIC ASSEMBLY SYSTEMS</b> .....	1626
<i>István Németh, János Püspöki, Andor Bálint Viharos, Levente Zsóka, Benjámín Pirka</i>	
<b>ASSEMBLY 4.0: WHEEL HUB NUT ASSEMBLY USING A COBOT</b> .....	1632
<i>Omkar Salunkhe, Olivia Stensöta, Magnus Åkerman, Åsa Fasth Berglund, Per-Anders Alveflo</i>	
<b>TASK-BASED PROGRAMMING AND SEQUENCE PLANNING FOR HUMAN-ROBOT COLLABORATIVE ASSEMBLY</b> .....	1638
<i>Khurshid Aliev, Dario Antonelli, Giulia Bruno</i>	
<b>A SIMULATION-OPTIMIZATION APPROACH FOR TWO-WAY SCHEDULING/GROUPING IN A ROAD-RAIL PHYSICAL INTERNET HUB</b> .....	1644
<i>Tarik Chargui, Abdelghani Bekrar, Mohamed Reghioi, Damien Trentesaux</i>	
<b>SHOWCASING OPTIMIZATION MODEL FOR HYPERCONNECTED SHOWCASING CENTERS</b> .....	1650
<i>Ji Soo Park, Iman Dayarian, Benoit Montreuil</i>	
<b>THE PRICE OF ANARCHY FOR CENTRALISING OR DECENTRALISING FREIGHT TRANSPORT ORGANISATION THROUGH SERIOUS GAMING</b> .....	1657
<i>Mariam Lafkihi, Shenle Pan, Eric Ballot</i>	
<b>DYNAMIC PRICING FOR CARRIERS IN PHYSICAL INTERNET WITH PEAK DEMAND FORECASTING</b> .....	1663
<i>Bin Qiao, Shenle Pan, Eric Ballot</i>	
<b>A KERNEL SEARCH FOR A PATIENT SATISFACTION-ORIENTED NURSE ROUTING PROBLEM WITH TIME-WINDOWS</b> .....	1669
<i>A. Gobbi, D. Manerba, R. Mansini, R. Zanotti</i>	
<b>BI-OBJECTIVE FRAMEWORK FOR PLANNING A SUPPLY CHAIN PROCESS IN RECONFIGURABLE MANUFACTURING SYSTEMS</b> .....	1675
<i>L. Belaiche, L. Kahloul, S. Benharzallah, Y. Hafidi</i>	
<b>EQ MODELS WITH STOCKOUTS FOR DISASSEMBLY SYSTEMS</b> .....	1681
<i>Matthieu Godichaud, Lionel Amodeo</i>	

<b>INTUITIONISTIC FUZZY AHP BASED STRATEGIC ANALYSIS OF SERVICE QUALITY IN DIGITAL HOSPITALITY INDUSTRY</b> .....	1687
<i>G. Büyükköçkan, O. Feyzioglu, C. A. Havle</i>	
<b>LAST MILE LOGISTICS IN FAST FASHION SUPPLY CHAINS: A CASE STUDY</b> .....	1693
<i>A. Alfieri, A. De Marco, E. Pastore</i>	
<b>COMPLEXITY MEASUREMENT IN TWO SUPPLY CHAINS WITH DIFFERENT COMPETITIVE PRIORITIES</b> .....	1699
<i>Miguel A. Sellitto, Francesco Lolli, Bianca Rimini, Elia Balugani</i>	
<b>DESIGNING SUPPLY CHAINS VIA LOCATING KNAPSACKS IN A BUSINESS-TO-BUSINESS ENVIRONMENT.</b> .....	1705
<i>Mozart B. C. Menezes, Diego Ruiz-Hernández</i>	
<b>BIG DATA ANALYSIS IN SOCIAL NETWORKS FOR MANAGING RISKS IN CLOTHING INDUSTRY</b> .....	1710
<i>Ivan Blekanov, Alexander Krylatov, Dmitri Ivanov, Yulia Bubnova</i>	
<b>THE ROLE OF SOCIAL INFLUENCE IN BLOCKCHAIN ADOPTION: THE BRAZILIAN SUPPLY CHAIN CASE</b> .....	1715
<i>Samuel Fosso Wamba, Maciel M. Queiroz</i>	
<b>COMPLEMENTING DECISION SUPPORT AND FORECASTING RISK IN SUPPLY CHAIN WITH UNSTRUCTURED DATA</b> .....	1721
<i>Samaneh Beheshti-Kashi, Jürgen Pannek, Aseem Kinra</i>	
<b>EXPLORING THE CHALLENGES WITH APPLYING TRACKING AND TRACING TECHNOLOGY IN THE DAIRY INDUSTRY</b> .....	1727
<i>Madeleine R. Hoyer, Olumide E. Oluyisola, Jan O. Strandhagen, Marco G. Semini</i>	
<b>HOW MANAGE WASTE FROM END-OF-LIFE VEHICLES - METHOD PROPOSAL</b> .....	1733
<i>M. Kosacka-Olejnik</i>	
<b>MATERIALS MANAGEMENT IN REMANUFACTURING OF AUTOMOTIVE COMPONENTS - A SMALL REMANUFACTURERS PERSPECTIVE</b> .....	1738
<i>P. Golinska-Dawson</i>	
<b>RELATIONAL DATABASE TEMPLATE IN THE SIMULATION MODELING OF MANUFACTURING SYSTEMS</b> .....	1744
<i>Pawel Pawlewski, Marcin Anholcer</i>	
<b>A SEQUENCE-BASED METAHEURISTIC FOR TACTICAL DISTRIBUTION PLANNING IN CLOSED-LOOP SUPPLY CHAINS</b> .....	1749
<i>Pierre Desport, Frédéric Lardeux, David Lesaint, Carla Di Cairano-Gilfedder, Gilbert Owusu</i>	
<b>SUPPLY CHAIN RISKS IN TIMES OF INDUSTRY 4.0: INSIGHTS FROM GERMAN CASES</b> .....	1755
<i>Manuel Zimmermann, Eugenia Rosca, Oliver Antons, Julia C. Bendul</i>	
<b>AN APPROACH TO DESIGNING SUPPLY CHAIN NETWORKS CONSIDERING THE OCCURRENCE OF DISRUPTIVE EVENTS</b> .....	1761
<i>Nikolaos Papakostas, Vincent Hargaden, Susanne Schukraft, Michael Freitag</i>	
<b>A MODEL-DRIVEN APPROACH FOR TRANSFORMING GRAFCET SPECIFICATION INTO PLC CODE INCLUDING HIERARCHICAL STRUCTURES</b> .....	1767
<i>Robert Julius, Thomas Trenner, Joerg Neidig, Alexander Fay</i>	
<b>APPROACH TO ADAPT MANUFACTURING PROCESS PARAMETERS SYSTEMATICALLY BASED ON MACHINE LEARNING ALGORITHMS</b> .....	1773
<i>M. Radetzky, C. Rosebrock, S. Bracke</i>	
<b>MODEL PREDICTIVE FORCE CONTROL IN GRINDING BASED ON A LIGHTWEIGHT ROBOT</b> .....	1779
<i>S. Husmann, S. Stemmler, S. Hähnel, S. Vogelgesang, T. Bergs</i>	
<b>PREDICTING PATH INACCURACIES IN ROBOT-BASED MACHINING OPERATIONS USING INVERSE KINEMATICS</b> .....	1785
<i>Lars Lienenlüke, Simon Storms, Christian Brecher</i>	
<b>CONTINUOUS IDENTIFICATION FOR MECHANISTIC FORCE MODELS IN MILLING</b> .....	1791
<i>M. Schwenzer, S. Stemmler, M. Ay, T. Bergs, D. Abel</i>	
<b>MODEL PREDICTIVE CONTROL IN MILLING BASED ON SUPPORT VECTOR MACHINES</b> .....	1797
<i>Muzaffer Ay, Sebastian Stemmler, Max Schwenzer, Dirk Abel, Thomas Bergs</i>	
<b>PRODUCTIVITY INCREASE – MODEL-BASED OPTIMISATION OF NC-CONTROLLED MILLING PROCESSES TO REDUCE MACHINING TIME AND IMPROVE PROCESS QUALITY</b> .....	1803
<i>C. Brecher, M. Wiesch, F. Wellmann</i>	
<b>MODEL TO EVALUATE THE INDUSTRY 4.0 READINESS DEGREE IN INDUSTRIAL COMPANIES.</b> .....	1808
<i>Wagner Cezar Lucato, Athos Paulo Tadeu Pacchini, Francesco Facchini, Giovanni Mummolo</i>	



<b>INTEGRATION OF AUTOMATIC GENERATED SIMULATION MODELS, MACHINE CONTROL PROJECTS AND MANAGEMENT TOOLS TO SUPPORT WHOLE LIFE CYCLE OF INDUSTRIAL DIGITAL TWINS.....</b>	1814
<i>J. Garrido, J. Sáez</i>	
<b>INTEGRATED OPERATIONS MANAGEMENT FOR DISTRIBUTED MANUFACTURING.....</b>	1820
<i>Timothy Sprock, Michael Sharp, William Z. Bernstein, Michael P. Brundage, Thomas Hedberg</i>	
<b>A NOVEL FRAMEWORK FOR INTELLIGENT AUTOMATION.....</b>	1825
<i>Tiago Coito, Joaquim L. Viegas, Miguel S. E. Martins, Mariana M. Cunha, João M. C. Sousa</i>	
<b>SCHEDULING ELECTIVE SURGERIES WITH MARKOV DECISION PROCESS AND APPROXIMATE DYNAMIC PROGRAMMING .....</b>	1831
<i>Jian Zhang, Mahjoub Dridi, Abdellah El Moudni</i>	
<b>SCHEDULING OF A CONSUMER GOODS PRODUCTION PLANT WITH INTERMEDIATE BUFFER BY DECOMPOSITION AND MIXED-INTEGER LINEAR PROGRAMMING .....</b>	1837
<i>Vassilios Yfantis, Francesc Corominas, Sebastian Engell</i>	
<b>COMPUTER-ASSISTED SCHEDULING TOOLS IN THE CONSTRUCTION INDUSTRY: A SYSTEMATIC LITERATURE REVIEW .....</b>	1843
<i>Alexandre Desgagné-Lebeuf, Nadia Lehoux, Robert Beauregard, Guillaume Desgagné-Lebeuf</i>	
<b>A GENETIC ALGORITHM FOR SCHEDULING A SEMI-CONTINUOUS PROCESS INDUSTRY: A CASE STUDY .....</b>	1849
<i>Mohammad M. Jalalian, Fantahun M. Defersha</i>	
<b>A DESIGN OF A SCHEDULING SYSTEM FOR AN UNMANNED AERIAL VEHICLE (UAV) DEPLOYMENT.....</b>	1854
<i>Inkyung Sung, Kevin Danancier, Delphine Ruvio, Alexandre Guillemet, Peter Nielsen</i>	
<b>ASSEMBLY LINE BALANCING WITH COLLABORATIVE ROBOTS UNDER CONSIDERATION OF ERGONOMICS: A COST-ORIENTED APPROACH .....</b>	1860
<i>Christian Weckenborg, Thomas S. Spengler</i>	
<b>POTENTIALS OF IT-SUPPORTED ASSISTIVE SYSTEMS: COMPARISON OF TWO USER STUDIES IN THE MANUFACTURING INDUSTRY .....</b>	1866
<i>Johanna Kubenke, Andreas Kunz</i>	
<b>PERCEIVED WORK AUTONOMY IN ORDER PICKING SYSTEMS: AN EMPIRICAL ANALYSIS.....</b>	1872
<i>Tony Cragg, Dominic Loske</i>	
<b>KIT PREPARATION WITH COBOT-SUPPORTED SORTING IN MIXED MODEL ASSEMBLY .....</b>	1878
<i>Patrik Fager, Martina Calzavara, Fabio Sgarbossa</i>	
<b>CUSUM CONTROL CHARTS FOR THE COEFFICIENT OF VARIATION WITH MEASUREMENT ERRORS.....</b>	1884
<i>Phuong Hanh Tran, Cédric Heuchenne</i>	
<b>ADAPTIVE ORDER RELEASE PLANNING WITH DYNAMIC LEAD TIMES .....</b>	1890
<i>Stefan Haeussler, Manuel Schneckenreither, Christoph Gerhold</i>	
<b>A DYNAMIC MULTIOBJECTIVE MODEL FOR DESIGNING MACHINE LAYOUTS.....</b>	1896
<i>Maria Manuela Azevedo, José António Crispim, Jorge Pinho De Sousa</i>	
<b>A MARKOVIAN APPROACH FOR TIME SERIES PREDICTION FOR QUALITY CONTROL .....</b>	1902
<i>Ahmet Sahin, Ayse Dilara Sayimlar, Zehra Melis Teksan, Erinç Albey</i>	
<b>HEURISTIC SOLUTION METHODS FOR THE SELECTIVE DISASSEMBLY SEQUENCING PROBLEM UNDER SEQUENCE-DEPENDENT COSTS .....</b>	1908
<i>Jully Jeunet, Federico Della Croce, Fabio Salassa</i>	
<b>MULTIPLE AGV FAULT-TOLERANT WITHIN AN AGILE MANUFACTURING WAREHOUSE .....</b>	1914
<i>Marcin Wótczak, Pawel Majdzik, Ralf Stetter, Bogdan Lipiec</i>	
<b>A MODIFIED MONTE-CARLO TREE SEARCH ALGORITHM FOR TWO-SIDED ASSEMBLY LINE BALANCING PROBLEM .....</b>	1920
<i>Chuanxun Wu, Xiaofeng Hu, Yahui Zhang, Pengfei Wang</i>	
<b>MULTI-CRITERIA INVENTORY ABC CLASSIFICATION USING GAUSSIAN MIXTURE MODEL.....</b>	1925
<i>F. M. Zowid, M. Z. Babai, M. R. Douissa, Yves Ducq</i>	
<b>A HIERARCHICAL APPROACH FOR SOLVING SIMULTANEOUS LOT SIZING AND SCHEDULING PROBLEM WITH SECONDARY RESOURCES .....</b>	1931
<i>Cevdet Utku Safak, Görkem Yılmaz, Erinç Albey</i>	
<b>MULTI-PRODUCT MULTI-PERIOD FIXED CHARGE TRANSPORTATION PROBLEM: AN ANT COLONY OPTIMIZATION APPROACH .....</b>	1937
<i>Vinay V. Panicker, Sarin I. V.</i>	

<b>EXPERT SELECTION FOR HUMANITARIAN PROJECTS DEVELOPMENT: A GROUP DECISION MAKING APPROACH WITH INCOMPLETE INFORMATION RELATIONS.</b> .....	1943
<i>Abderrahmen Mediouni, Naoufel Cheikhrouhou</i>	
<b>CSR IMPLEMENTATION FOR THE SUSTAINABLE SUPPLY CHAIN PERFORMANCE: A SYSTEM DYNAMIC APPROACH</b> .....	1949
<i>Thi Lan Anh Nguyen, Thi Hoa Le Vo.</i>	
<b>PROPOSITION OF A FRAMEWORK FOR CLASSIFYING RETURNABLE TRANSPORT ITEMS CLOSED-LOOP/REVERSE LOGISTICS ISSUES</b> .....	1955
<i>N. Lakhmi, E. Sahin, Y. Dallery</i>	
<b>DEVELOPMENT OF VEHICLE ROUTING MODEL IN URBAN SOLID WASTE MANAGEMENT SYSTEM UNDER PERIODIC VARIATION: A CASE STUDY</b> .....	1961
<i>S. P. Sarmah, R. Yadav, P. Rathore</i>	
<b>EVALUATION OF CONTROL APPROACHES FOR CAPACITY ADJUSTMENT IN JOB SHOP SYSTEMS</b> .....	1966
<i>Ping Liu, Qiang Zhang, Jürgen Pannek</i>	
<b>MODIFICATION OF MULTIPLE-MODEL DESCRIPTION AND PLANNING AND UPDATE CONTROL ALGORITHMS OF SUPPLY CHAIN</b> .....	1972
<i>Boris Sokolov, Inna Trofimova, Dmitry Nazarov, Valerii Zakharov</i>	
<b>COMPARISON OF PATH PLANNING ALGORITHMS FOR AN UNMANNED AERIAL VEHICLE DEPLOYMENT UNDER THREATS</b> .....	1978
<i>Kevin Danancier, Delphine Ruvio, Inkyung Sung, Peter Nielsen</i>	
<b>IMPACT OF UNCERTAINTIES OF LEAD TIMES AND EXPIRATION DATES ON THE STABILITY OF INVENTORY LEVELS IN A DISTRIBUTION SYSTEM</b> .....	1984
<i>Berna Bou Farraa, Rosa Abbou, Jean Jacques Loiseau</i>	
<b>THE IMPACT OF SUBSIDIES IN ASYMMETRIC PROCUREMENT AUCTIONS: A COMPARISON OF THEORETICAL AND EXPERIMENTAL RESULTS</b> .....	1990
<i>Sanghoon Cho, Joan Donohue, Tim Fry, Joel Wooten</i>	
<b>MATHEMATICAL FORMULATIONS FOR A TWO-ECHELON INVENTORY ROUTING PROBLEM</b> .....	1996
<i>Katyanne Farias, Khaled Hadj-Hamou, Claude Yugma</i>	
<b>ECONOMICALLY OPTIMAL CONTROL OF A COLD ROOM USING AN ARTIFICIAL NEURAL NETWORK AND DYNAMIC PROGRAMMING</b> .....	2002
<i>Alnour Ribault, Samuel Vercaene, Sébastien Henry, Yacine Ouzrout, Lucie Peguet</i>	
<b>SAFETY PROTOCOL FOR COLLABORATIVE HUMAN-ROBOT RECYCLING TASKS</b> .....	2008
<i>Angie C. Medina, Juan F. Mora, Carol Martinez, Nicolas Barrero, Wilson Hernandez</i>	
<b>3D IRREGULAR PACKING IN AN OPTIMIZED CUBOID CONTAINER</b> .....	2014
<i>I. Litvinchev, A. Pankratov, T. Romanova</i>	
<b>TASK ALLOCATION BASED ON SHARED RESOURCE CONSTRAINT FOR MULTI-ROBOT SYSTEMS IN MANUFACTURING INDUSTRY</b> .....	2020
<i>L. Zaidi, M. Sahnoun, B. Bettayeb</i>	
<b>SOLVING A REAL BI-OBJECTIVE SKILLED AGENT ASSIGNMENT PROBLEM IN THE SERVICE-TO-BUSINESS DOMAIN, CONSIDERING BOTH ECONOMIC EFFICIENCY AND AGENT SATISFACTION</b> .....	2026
<i>M. P. Doan, J. Fondreville, V. Botta-Genoulaz, J. F. F Ribeiro</i>	
<b>INVESTIGATING THE ROLE OF QMS IMPLEMENTATION ON CUSTOMERS' SATISFACTION: A CASE STUDY OF SMES</b> .....	2032
<i>Muhammad Usman, Muhammad Shafiq, Matteo Savino, Zahid Rashid, Mariluisa Menanno</i>	
<b>RESEARCH ON TRANSNATIONAL DUAL-SOURCE PROCUREMENT STRATEGY WITH SUPPLIERS' DIFFERENT SUPPLY LEAD-TIME</b> .....	2038
<i>Chen Chong-Ping, Chen Zhi-Xiang</i>	
<b>A SUPPLY CHAIN MATURITY MODEL FOR AUTOMOTIVE SMES: A CASE STUDY</b> .....	2044
<i>Yahiaoui Sanae, Fedouaki Faycal, Mouchtachi Ahmed</i>	
<b>NEGOTIATION DECISION BETWEEN MANUFACTURER AND SYSTEM OPERATOR ON THE ELECTRIC ENERGY DEMAND RESPONSE PROGRAM</b> .....	2050
<i>Yunrong Zhang, Zhixiang Chen.</i>	
<b>OPERATIONALISING AND EVALUATING REDUNDANCY AND FLEXIBILITY-BASED MANAGEMENT STRATEGIES WITHIN A QUEUING SYSTEM</b> .....	2056
<i>Jonathon Mackay, Albert Munoz, Matthew Pepper, Emily Ryan</i>	
<b>ORIGINS OF DISRUPTIONS SOURCES FRAMEWORK TO SUPPORT THE ENTERPRISE RESILIENCE ANALYSIS</b> .....	2062
<i>Raquel Sanchis, Raul Poler</i>	

<b>CO-OP ADVERTISING IN A DYNAMIC SUPPLY CHAIN WHEN SUPPLY IS DISRUPTED</b> .....	2068
<i>Shigui Ma, Yong He, Yanan Yu, Ran Gu, Hongjiang Lyu</i>	
<b>CRITICALITY ANALYSIS FOR NETWORK UTILITIES ASSET MANAGEMENT</b> .....	2074
<i>Pablo Martínez-Galán, Juan Fco. Gómez, Adolfo Crespo, Antonio Guillén, Eduardo Candón</i>	
<b>A MONTE CARLO SIMULATION FOR RELIABILITY ESTIMATION OF LOGISTICS AND SUPPLY CHAIN NETWORKS</b> .....	2080
<i>O. Ozkan, S. Kilic</i>	
<b>ADJACENCY-CLUSTERING FOR IDENTIFYING DEFECT PATTERNS AND YIELD PREDICTION IN INTEGRATED CIRCUIT MANUFACTURING</b> .....	2086
<i>Dorit S. Hochbaum</i>	
<b>DEEP LEARNING AND WLC: HOW TO SET REALISTIC DELIVERY DATES IN HIGH VARIETY MANUFACTURING SYSTEMS</b> .....	2092
<i>Davide Mezzogori, Giovanni Romagnoli, Francesco Zammori</i>	
<b>DATA-BASED SERVICES FOR SMART LOAD CARRIERS: FUNCTIONAL DESIGN AND REQUIREMENTS ANALYSIS FOR INTERNET OF THINGS TECHNOLOGIES</b> .....	2098
<i>Martina Romer, Sebastian Meißner</i>	
<b>IMPLEMENTATION OF AN IOT- AND CLOUD-BASED DIGITAL TWIN FOR REAL-TIME DECISION SUPPORT IN PORT OPERATIONS</b> .....	2104
<i>Wladimir Hofmann, Fredrik Branding</i>	
<b>ANALYSIS OF REAL-TIME TOUR BUILDING AND SCHEDULING STRATEGIES FOR IN-PLANT MILK-RUN SYSTEMS WITH VOLATILE TRANSPORTATION DEMAND</b> .....	2110
<i>Eva Klenk, Stefan Galka</i>	
<b>MACHINE SCHEDULING WITH STOCHASTIC RELEASE AND PROCESSING TIMES</b> .....	2116
<i>Ming Liu, Xin Liu</i>	

#### PART 4

<b>PROFIT-DRIVEN STOCHASTIC SCHEDULING CONSIDERING DISCOUNTED CASH FLOWS UNDER INDUSTRY 4.0</b> .....	2122
<i>Ming Liu, Xin Liu</i>	
<b>BI-OBJECTIVE OPTIMIZATION FOR SCHEDULING AND MULTI-SKILLED WORKER ASSIGNMENTS IN THE HYBRID FLOW SHOP</b> .....	2128
<i>Ming Liu, Xuenan Yang</i>	
<b>A RISK-AVERSE EMPLOYEE SCHEDULING WITH UNCERTAINTY DEMAND</b> .....	2134
<i>Ming Liu, Bian Liang, Xuenan Yang</i>	
<b>A SURVEY ON DIGITALIZATION FOR SMES IN BRANDENBURG, GERMANY</b> .....	2140
<i>Panagiotis Kilimis, Wenchao Zou, Marlon Lehmann, Ulrich Berger</i>	
<b>PROGRAMMABLE MANUFACTURING ADVISOR FOR SMART PRODUCTION SYSTEMS: ARCHITECTURE, ANALYTICS, SOFTWARE, AND PERFORMANCE DEMONSTRATION</b> .....	2146
<i>Larry Achram, Pooya Alavian, Yongsoon Eun, Semyon M. Meerkov, Liang Zhang</i>	
<b>APPLYING MACHINE LEARNING TO AHP MULTICRITERIA DECISION MAKING METHOD TO ASSETS PRIORITIZATION IN THE CONTEXT OF INDUSTRIAL MAINTENANCE 4.0</b> .....	2152
<i>Erick Lima, Ewerton Gorski, Eduardo F. R. Loures, Eduardo A. Portela Santos, Fernando Deschamps</i>	
<b>PRODUCTION PLANNING IN THE FOURTH INDUSTRIAL REVOLUTION: A LITERATURE REVIEW</b> .....	2158
<i>Estefania Tobón Valencia, Samir Lamouri, Robert Pellerin, Patrice Dubois, Alexandre Moëuf</i>	
<b>DESIGNING A SCHEDULING LOGIC CONTROLLER FOR INDUSTRY 4.0 ENVIRONMENTS</b> .....	2164
<i>Daniel Alejandro Rossit, Fernando Tohmé, Mariano Frutos</i>	
<b>EVALUATING THE ADVANTAGES OF A NOVEL DECENTRALISED SCHEDULING APPROACH IN THE INDUSTRY 4.0 AND CLOUD MANUFACTURING ERA</b> .....	2170
<i>Silvestro Vespoli, Andrea Grassi, Guido Guizzi, Liberatina Carmela Santillo</i>	
<b>A MULTI-OBJECTIVE SCHEDULING MODEL FOR A CLOUD MANUFACTURING SYSTEM WITH PRICING, EQUITY, AND ORDER REJECTION</b> .....	2177
<i>B. Vahedi-Nouri, R. Tavakkoli-Moghaddam, M. Rohaninejad</i>	
<b>EXPLORING HUMAN FACTORS IN LOGISTICS 4.0: EMPIRICAL EVIDENCE FROM A CASE STUDY</b> .....	2183
<i>Chiara Cimini, Alexandra Lagorio, Fabiana Pirola, Roberto Pinto</i>	
<b>ASSESSING THE BARRIERS TO INDUSTRY 4.0 IMPLEMENTATION FROM A WORKERS' PERSPECTIVE</b> .....	2189
<i>Julian M. Müller</i>	

<b>THE EFFECT OF WORKER FATIGUE ON THE PERFORMANCE OF A BUCKET BRIGADE ORDER PICKING SYSTEM .....</b>	<b>2195</b>
<i>Giovanni Fontana Granotto, Fabio Sgarbossa, Christoph H. Glock, Eric H. Grosse</i>	
<b>UNDERSTANDING THE MEANING OF HUMAN PERCEPTION AND COGNITIVE BIASES FOR PRODUCTION PLANNING AND CONTROL .....</b>	<b>2201</b>
<i>Julia Bendul</i>	
<b>ORDER RELEASE IN ETO SYSTEMS -A BASIC OPTIMIZATION-BASED APPROACH.....</b>	<b>2207</b>
<i>Ralf Gössinger, Jana Plitt</i>	
<b>AN OPTIMAL PLANNING FOR A LAUNDROMAT SYSTEM WITH A MULTIPLE LINEN TYPE IN A HOSPITAL SUPPLY CHAIN UNDER SUBCONTRACTOR CONSIDERATION.....</b>	<b>2213</b>
<i>Nadia Ndhiaief, Zied Hajej, Nidhal Rezg</i>	
<b>INSTANCE SCALE, NUMERICAL PROPERTIES AND DESIGN OF METAHEURISTICS: A STUDY FOR THE FACILITY LOCATION PROBLEM .....</b>	<b>2219</b>
<i>David Chalupa, Peter Nielsen</i>	
<b>DIGITAL TWIN DRIVEN INCLUSIVE MANUFACTURING USING EMERGING TECHNOLOGIES.....</b>	<b>2225</b>
<i>Sube Singh, Ankit Barde, Biswajit Mahanty, M. K. Tiwari</i>	
<b>A SIMULATION BASED MODELLING APPROACH TO JOINTLY SUPPORT AND EVALUATE SPARE PARTS SUPPLY CHAIN NETWORK AND MAINTENANCE SYSTEM .....</b>	<b>2231</b>
<i>Pablo A. Miranda, Francisco J. Tapia-Ubeda, Valentina Hernandez, Hugo Cardenas, Monica Lopez-Campos</i>	
<b>SUPPLIER SELECTION FOR SPARE PARTS SUPPLY CHAIN NETWORKS .....</b>	<b>2237</b>
<i>Francisco J. Tapia-Ubeda, Pablo A. Miranda, Gabriel Gutiérrez-Jarpa, Orlando Durán</i>	
<b>EVOLUTIONARY OPTIMIZATION OF SPARE PARTS INVENTORY POLICIES: A LIFE CYCLE COSTING PERSPECTIVE .....</b>	<b>2243</b>
<i>Orlando Durán, Arturo Carrasco, Paulo Sérgio Afonso, Paulo Andrés Durán</i>	
<b>INTEGRATING ELECTRIC ENERGY COST IN LUMBER PRODUCTION PLANNING .....</b>	<b>2249</b>
<i>Laurence B. Dumont, Philippe Marier, Nadia Lehoux, Louis Gosselin, Hugues Fortin</i>	
<b>EVALUATION OF THE SUSTAINABLE EFFICIENCY OF TWO MANUFACTURING PROCESSES USING LIFE-CYCLE ASSESSMENT AND EFFICIENCY ANALYSIS .....</b>	<b>2255</b>
<i>C. Rosebrock, S. Bracke</i>	
<b>DIGITAL SOCIETY AS A DRIVING FORCE FOR SUSTAINABLE MANUFACTURING .....</b>	<b>2261</b>
<i>Dmitry Verzhilin, Tatyana Maximova, Irina Sokolova, Sergey Skorykh</i>	
<b>GAME THEORY-BASED RESEARCH IN GREEN SUPPLY CHAIN MANAGEMENT: A REVIEW .....</b>	<b>2267</b>
<i>Maher A. N. Agi, Öncü Hazir</i>	
<b>ANALYSING MANUFACTURING ENTERPRISES TO IDENTIFY OPPORTUNITIES FOR AUTOMATION AND GUIDE IMPLEMENTATION - A REVIEW.....</b>	<b>2273</b>
<i>J. Walker, S. Childe, Y. Wang</i>	
<b>A MULTI-LAYER CONGESTED FACILITY LOCATION PROBLEM WITH CONSIDERATION OF IMPATIENT CUSTOMERS IN A QUEUING SYSTEM .....</b>	<b>2279</b>
<i>Amir Eshaghi Chaleshtori, Hamed Jahani, Abdollah Aghaie, Dmitry Ivanov</i>	
<b>STRATEGIC DECISION-MAKING IN GLOBAL SUPPLY CHAIN NETWORK DESIGN – HOW A DECISION SUPPORT SYSTEM COMBINING MILP AND AHP ON A PARETO FRONT CAN ALLEVIATE DECISION-MAKING.....</b>	<b>2285</b>
<i>Juri Reich, Aseem Kinra, Herbert Kotzab</i>	
<b>THE NONLINEAR DYNAMICS OF ORDER-UP-TO INVENTORY SYSTEMS WITH LOST SALES .....</b>	<b>2291</b>
<i>Stephen M. Disney, Borja Ponte, Xun Wang</i>	
<b>WHEN THE BULLWHIP EFFECT IS AN INCREASING FUNCTION OF THE LEAD TIME.....</b>	<b>2297</b>
<i>Gerard Gaalman, Stephen M. Disney, Xun Wang</i>	
<b>TOWARDS A RELAXATION OF THE PURSUIT-EVASION DIFFERENTIAL GAME .....</b>	<b>2303</b>
<i>Alexander Chentsov, Daniel Khachay</i>	
<b>A NOVEL ARC-ROUTING PROBLEM OF ELECTRIC POWERED STREET SWEEPERS WITH TIME WINDOWS AND INTERMEDIATE STOPS.....</b>	<b>2308</b>
<i>Cansu Yurtseven, Mahmut Ali Gökçe</i>	
<b>THE VARIABLE NEIGHBORHOOD SEARCH FOR A CONSISTENT VEHICLE ROUTING PROBLEM UNDER THE SHIFT LENGTH CONSTRAINTS .....</b>	<b>2314</b>
<i>I. N. Kulachenko, P. A. Kononova, Y. A. Kochetov, A. A. Kurochkin</i>	
<b>ON THE NEW ALGORITHM FOR SOLVING CONTINUOUS CUTTING PROBLEM .....</b>	<b>2320</b>
<i>A. A. Petunin, E. G. Polishchuk, S. S. Ukolov</i>	

<b>SERVITIZATION OF SMALL- AND MEDIUM-SIZED MANUFACTURING ENTERPRISES: FACING BARRIERS THROUGH THE DORTMUND MANAGEMENT MODEL.....</b>	2326
<i>Alexander Michalik, Christoph Besenfelder, Michael Henke</i>	
<b>MASTERING FOURTH INDUSTRIAL REVOLUTION THROUGH INNOVATIVE PERSONNEL MANAGEMENT – A STUDY ANALYSIS ON HOW GAME-BASED APPROACHES AFFECT COMPETENCE DEVELOPMENT.....</b>	2332
<i>Päd. Sandra Kaczmarek</i>	
<b>CONCEPTUAL DEVELOPMENT OF SUPPLY CHAIN DIGITALIZATION FRAMEWORK.....</b>	2338
<i>Ike Ehie, Luis Miguel D F Ferreira</i>	
<b>THE EFFECT OF “INTERNET OF THINGS” ON AIRCRAFT SPARE PARTS INVENTORY MANAGEMENT.....</b>	2343
<i>S. Keivanpour, D. Ait Kadi</i>	
<b>EVENT-TRIGGERED BASED STATE ESTIMATION FOR AUTONOMOUS OPERATION OF AN AERIAL ROBOTIC VEHICLE.....</b>	2348
<i>N. Sadeghzadeh Nokhodberiz, H. Nemati, A. Montazeri</i>	
<b>A DATA-DRIVEN STATISTICAL APPROACH FOR MONITORING AND ANALYSIS OF LARGE INDUSTRIAL PROCESSES.....</b>	2354
<i>A. Montazeri, M. H. Ansarizadeh, M. M. Arefi</i>	
<b>A FUZZY PARADIGMATIC CLUSTERING ALGORITHM.....</b>	2360
<i>Farzad Amirjavid, Sasan Barak, Hamidreza Nemati</i>	
<b>A FUZZY DATA-DRIVEN PARADIGMATIC PREDICTOR.....</b>	2366
<i>Farzad Amirjavid, Hamidreza Nemati, Sasan Barak</i>	
<b>LIFETIME IMPROVED IN POWER ELECTRONICS FOR BLDC DRIVES USING FUZZY LOGIC AND PSO.....</b>	2372
<i>Manuel García, Pedro Ponce, Luis A. Soriano, Arturo Molina, David Romero</i>	
<b>SENSING, SMART AND SUSTAINABLE PRODUCT ANALYSIS METHODOLOGY THROUGH EEG EVALUATION.....</b>	2378
<i>Ponce Pedro, Baltazar R. German, Castillo A. Barbara, Miranda Jhonattan, Perez R. Maria</i>	
<b>TAXONOMY OF LEVELS OF SENSING, SMART AND SUSTAINABLE PRODUCTS TO SUPPORT NEW PRODUCT DEVELOPMENT.....</b>	2384
<i>J. Miranda, P. Ponce, J. M. Molina, A. Molina</i>	
<b>THE NEXT GENERATION OF SOCIAL PRODUCTS BASED ON SENSING, SMART AND SUSTAINABLE (S3) FEATURES: A SMART THERMOSTAT AS CASE STUDY.....</b>	2390
<i>Pedro Ponce, Alan Meier, Jhonattan Miranda, Arturo Molina, Therese Peffer</i>	
<b>AN HYBRID SA-DATC APPROACH FOR JIT OPEN-SHOP SCHEDULING PROBLEM WITH EARLINESS AND TARDINESS PENALTIES.....</b>	2396
<i>Azouz Meddourene, Brahim Bouzouia, Rosa Abbou, Noura Achour, Berna Bou Farraa</i>	
<b>SIMULATION BASED OPTIMIZATION DECISION SUPPORT TOOL FOR PRODUCTION PLANNING.....</b>	2402
<i>S. Belil, N. Tchernev, S. Kemmoé-Tchomté</i>	
<b>ANOMALY DETECTION USING LONG SHORT TERM MEMORY NETWORKS AND ITS APPLICATIONS IN SUPPLY CHAIN MANAGEMENT.....</b>	2408
<i>Kim Phuc Tran, Huu Du Nguyen, Sébastien Thomassey</i>	
<b>COPING WITH DISRUPTIONS IN COMPLEX SYSTEMS: A FRAMEWORK.....</b>	2413
<i>Sondes Chaabane, Damien Trentesaux</i>	
<b>AN ANALYSIS OF THE BULLWHIP EFFECT IN MULTI-ECHELON HYBRID SUPPLY CHAIN.....</b>	2419
<i>Wenjin Lin, He Ren, Qiyun Peng, Song Ye, Kangzhou Wang</i>	
<b>ENHANCING THE PARTNER SELECTION PROCESS IN A SUSTAINABLE PARTNER NETWORK.....</b>	2425
<i>E. Shevtshenko, K. Mahmood, T. Karaluova</i>	
<b>MANAGING THE RISK OF SUPPLY CHAIN BANKRUPTCY IN SUPPLY CHAIN NETWORK REDESIGN.....</b>	2431
<i>Hamed Jahani, Farzad Alavifard, Dmitry Ivanov, Behrooz Ghasemishabankareh</i>	
<b>IS NETWORK TRUST BENEFICIAL FOR SUPPLY NETWORK RESILIENCE A SIMULATION ANALYSIS.....</b>	2437
<i>Ilaria Giannoccaro, Anas Ifikhar</i>	
<b>MODELING AND SIMULATION OF AIR FRANCE BAGGAGE HANDLING SYSTEM WITH COLORED PETRI NETS.....</b>	2443
<i>Dina L. Hafilah, Andi Cakravastia, Younsse Lafdail, Naly Rakoto</i>	
<b>METHOD FOR THE PLANNING OF IOT USE CASES IN SMART LOGISTICS ZONES.....</b>	2449
<i>Olaf Poenicke, Maik Groneberg, Klaus Richter</i>	

<b>STATE OF THE ART - AUTOMATED MICRO-VEHICLES FOR URBAN LOGISTICS</b> .....	2455
<i>Leonard Baum, Tom Assmann, Henning Strubelt</i>	
<b>TOWARDS VIRTUAL COMMISSIONING OF IMAGE-BASED INFORMATION SYSTEMS FOR STATE DETECTION IN LOGISTICS</b> .....	2463
<i>H. Borstell, T. Reggelin</i>	
<b>A METHOD OF CUTTING POWER MONITORING FOR FEED AXES IN MILLING BY POWER MEASUREMENT DEVICE</b> .....	2471
<i>Kazumasa Miura, Thomas Bergs</i>	
<b>A SIMULATION STUDY ON CONWIP SYSTEM DESIGN FOR BICYCLE CHAIN MANUFACTURING</b> .....	2477
<i>Taho Yang, Yu-Hsiu Hung, Kuan-Cheng Huang</i>	
<b>ZERO ENDING INVENTORY DYNAMIC PRICING MODEL UNDER STOCHASTIC DEMAND, FIXED LIFETIME PRODUCT, AND FIXED ORDER QUANTITY</b> .....	2482
<i>Anna V. Kitaeva, Natalia V. Stepanova, Alexandra O. Zhukovskaya</i>	
<b>IMPLEMENTING INTELLIGENT ASSET MANAGEMENT SYSTEMS (IAMS) WITHIN AN INDUSTRY 4.0 MANUFACTURING ENVIRONMENT</b> .....	2488
<i>E. Candon, P. Martinez-Galan, A. De La Fuente, V. Gonzalez-Prida, M. Macchi</i>	
<b>IDENTIFICATION AND DESIGN OF INDUSTRY 4.0 OPPORTUNITIES IN MANUFACTURING: EXAMPLES FROM MATURE INDUSTRIES TO LABORATORY LEVEL SYSTEMS</b> .....	2494
<i>Brenno C. Menezes, Jeffrey D. Kelly, Adriano G. Leal</i>	
<b>SMART CONTRACTS FOR SMART SUPPLY CHAINS</b> .....	2501
<i>Gunnar Prause</i>	
<b>DEVELOPING A MTCONNECT FRAMEWORK FOR REPRAP ADDITIVE MANUFACTURING MACHINES</b> .....	2507
<i>Efrain Rodriguez, Juan Pablo Rodriguez, Alberto J. Alvarez, Cristhian Riaño, Luiz Eduardo De Oliveira</i>	
<b>COMPARISON BETWEEN TWO APPROACHES TO SOLVE THE JOB SHOP SCHEDULING PROBLEM WITH ROUTING</b> .....	2513
<i>M. Gondran, M-J. Huguet, P. Lacomme, N. Tchernev</i>	
<b>AN EFFICIENT TWO-STAGE GENETIC ALGORITHM FOR FLEXIBLE JOB-SHOP SCHEDULING</b> .....	2519
<i>Danial Rooyani, Fantahun M. Defersha</i>	
<b>RESCHEDULING PRODUCTION ON IDENTICAL PARALLEL MACHINES UPON NEW JOBS ARRIVALS</b> .....	2525
<i>Nathália C. O. Silva, Cassius T. Scarpin, Angel Ruiz, José E. Pécora</i>	
<b>CONCURRENT OPTIMIZATION OF SHARED LOCATION ASSIGNMENT AND STORAGE/RETRIEVAL SCHEDULING IN MULTI-SHUTTLE AUTOMATED STORAGE AND RETRIEVAL SYSTEMS</b> .....	2531
<i>Morteza Kazemi, Ardavan Asef-Vaziri, Tahereh Shojaei</i>	
<b>PROSPECTIVE ISO 22400 FOR THE CHALLENGES OF HUMAN-CENTERED MANUFACTURING</b> .....	2537
<i>Andrea Bonci, Sauro Longhi, Massimiliano Pirani</i>	
<b>HUMAN DIVERSITY FACTORS IN PRODUCTION SYSTEM MODELLING AND DESIGN: STATE OF THE ART AND FUTURE RESEARCHES</b> .....	2544
<i>N. Katirae, D. Battini, O. Battaia, M. Calzavara</i>	
<b>ERGONOMIC AND PERFORMANCE FACTORS FOR HUMAN-ROBOT COLLABORATIVE WORKPLACE DESIGN AND EVALUATION</b> .....	2550
<i>João E. Costa Mateus, Dieter Claeys, Veronique Limère, Johannes Cottyn, El-Houssaine Aghezaf</i>	
<b>CAPACITY PLANNING IN ADDITIVE MANUFACTURING</b> .....	2556
<i>A. L. Antomarchi, R. Guillaume, S. Durieux, C. Thierry, E. Duc</i>	
<b>A PROBLEM SPECIFIC HEURISTIC FOR SMOOTHING THE WORKLOAD IN SIMPLE ASSEMBLY LINES</b> .....	2562
<i>Öncü Hazir, Maher Agi, Jérémy Guérin</i>	
<b>QUALITY ANALYSIS OF URBAN TRANSIT SYSTEM IN MEGACITIES</b> .....	2566
<i>Natalia Grafeeva, Elena Mikhailova, Innokenty Tretyakov</i>	
<b>BUILD A BAYESIAN NETWORK FROM FMECA IN THE PRODUCTION OF AUTOMOTIVE PARTS: DIAGNOSIS AND PREDICTION</b> .....	2572
<i>I. Ben Brahim, S. A. Addouche, A. El Mhamedi, Y. Boujelbene</i>	
<b>PLANNING AND DESIGN OF A CHASSIS CONTAINER TERMINAL</b> .....	2578
<i>Mario J. Basallo-Triana, Carlos J. Vidal Holguín, Juan J. Bravo Bastidas</i>	
<b>HYBRID METAHEURISTIC FOR THE PICKUP AND DELIVERY PROBLEM DESIGNED FOR PASSENGERS AND GOODS TRANSPORTATION</b> .....	2584
<i>Alexis Godart, Hervé Manier, Christelle Bloch, Marie-Ange Manier</i>	

<b>THE VALUE PROPOSITION OF INNOVATIVE LAST-MILE DELIVERY SERVICES FROM THE PERSPECTIVE OF LOCAL RETAILERS.....</b>	2590
<i>Giulio Mangano, Giovanni Zenezini</i>	
<b>BIN PACKING PROBLEM WITH PRIORITIES AND INCOMPATIBILITIES USING PSO: APPLICATION IN A HEALTH CARE COMMUNITY .....</b>	2596
<i>Arnaud Laurent, Nathalie Klement</i>	
<b>AN IMPROVED TABU SEARCH ALGORITHM FOR A MULTI-PERIOD BID GENERATION PROBLEM WITH THE CONSIDERATION OF DELIVERY LEAD TIME.....</b>	2602
<i>Elham Jelodari Mamaghani, Haoxun Chen, Christian Prins, Emrah Demir</i>	
<b>A GRASPXILS FOR THE SHARED CUSTOMER COLLABORATION VEHICLE ROUTING PROBLEM .....</b>	2608
<i>A. Felipe Torres-Ramos, Nacima Labadie, Nubia Velasco, Jairo R. Montoya-Torres</i>	
<b>MULTI-PERIOD VEHICLE ROUTING &amp; REPLENISHMENT PROBLEM OF NEIGHBOURHOOD DISASTER STATIONS FOR PRE-DISASTER HUMANITARIAN RELIEF LOGISTICS .....</b>	2614
<i>Mahmut Ali Gökçe, Elif Ercan</i>	
<b>EMERGING TRENDS FROM ADVANCED PLANNING TO INTEGRATED BUSINESS PLANNING.....</b>	2620
<i>Philipp Willms, Marcus Brandenburg</i>	
<b>HIERARCHICAL ADAPTIVE CONTROL OF SAFETY BUFFERS IN MANUFACTURING .....</b>	2626
<i>J. Wikner, L. Hedvall, S-A Mattsson</i>	
<b>INTEGRATION OF ORDER REVIEW AND RELEASE AND OUTPUT CONTROL WITH WORKER'S ALLOCATION IN A PURE FLOW SHOP .....</b>	2632
<i>F. Costa, A. Portioli-Staudacher, D. Nisi, M. Rossini</i>	
<b>SIMULATION-BASED OPTIMIZATION APPROACH WITH SCENARIO-BASED PRODUCT SEQUENCE IN A RECONFIGURABLE MANUFACTURING SYSTEM (RMS): A CASE STUDY .....</b>	2638
<i>S. Ehsan Hashemi Petroodi, Amélie Beauville Dit Eynaud, Nathalie Klement, Reza Tavakkoli-Moghaddam</i>	
<b>TOWARDS AN EFFICIENT APPROXIMABILITY FOR THE EUCLIDEAN CAPACITATED VEHICLE ROUTING PROBLEM WITH TIME WINDOWS AND MULTIPLE DEPOTS .....</b>	2644
<i>Michael Khachay, Yuri Ogorodnikov</i>	
<b>SOFTWARE FOR CONSTRUCTING A-CHAINS WITH ORDERED ENCLOSING FOR A PLANE CONNECTED 4-REGULAR GRAPH .....</b>	2650
<i>Tatiana A. Makarovskikh, Anatoly V. Panyukov</i>	
<b>APPLICATION OF A GENERALIZED BOTTLENECK ROUTING PROBLEM TO THE TASK OF ADHERING TO ACCEPTABLE DOSES OF RADIATION DURING THE DISMANTLING OF RADIATION HAZARDOUS OBJECTS .....</b>	2656
<i>Alexei A. Chentsov, Alexander G. Chentsov, Alexander N. Seseikin, Oleg L. Tashlykov</i>	
<b>GENERAL MODEL OF TOOL PATH PROBLEM FOR THE CNC SHEET CUTTING MACHINES .....</b>	2662
<i>Alexander Petunin</i>	
<b>MODELLING THE INDUSTRIAL WORKFORCE DYNAMICS AND EXIT IN THE AGEING SOCIETY .....</b>	2668
<i>Vlado Dimovski, Barbara Grah, Simon Colnar</i>	
<b>TAXATION AND REVENUES OF CENTRAL PLACES AS THE REGULATOR OF AVAILABLE HUMAN RESOURCES IN MANUFACTURING - RELATED TO THE BID RENT CURVE .....</b>	2674
<i>Samo Drobne, Perta Janež, Marija Bogataj, Bogataj David</i>	
<b>SOCIAL INFRASTRUCTURE OF SILVER ECONOMY: LITERATURE REVIEW AND RESEARCH AGENDA.....</b>	2680
<i>Valerija Rogelj, David Bogataj</i>	
<b>STRUCTURAL DYNAMICS AND DISRUPTION EVENTS IN SUPPLY CHAINS USING FAT TAIL DISTRIBUTIONS.....</b>	2686
<i>Roman Rodriguez-Aguilar, J. A. Marmolejo-Saucedo</i>	
<b>TECHNICAL EVALUATION OF THE OPENING OF FACILITIES IN THE PHARMACEUTICAL INDUSTRY: OPTIMIZATION TO SUPPLY CHAIN IN MEXICO .....</b>	2692
<i>J. A. Marmolejo-Saucedo, Roman Rodriguez-Aguilar, Ofelia S. G. Manuell-Barrera</i>	
<b>THE SUPPLY CHAIN EVENT MANAGEMENT APPLICATION: A CASE STUDY .....</b>	2698
<i>Fanny Palma, Jania A. Saucedo, J. A. Marmolejo-Saucedo, Roman Rodriguez-Aguilar</i>	
<b>STRUCTURAL DYNAMICS OF LOGISTIC NETWORKS: A SUSTAINABLE APPROACH .....</b>	2704
<i>J. A. Marmolejo-Saucedo, J. Niembro-García, Lf. Alva-Guerra</i>	
<b>BLOCKCHAIN FOR CHILD LABOUR DECREASE IN COCOA PRODUCTION IN WEST AND CENTRAL AFRICA .....</b>	2710
<i>Rosaire Brice Senou, Jules Dégila, Esther Chabi Adjobo, Abigail Priscilla M. Djossou</i>	

<b>TOWARDS LEARNING- AND KNOWLEDGE-BASED METHODS OF ARTIFICIAL INTELLIGENCE FOR SHORT-TERM OPERATIVE PLANNING TASKS IN PRODUCTION AND LOGISTICS: RESEARCH IDEA AND FRAMEWORK</b> .....	2716
<i>Sebastian Lang, Michael Schenk, Tobias Reggelin</i>	
<b>THE IMPACT OF INFORMATION SHARING ON THE PERFORMANCE OF HORIZONTAL LOGISTICS COLLABORATION: A SIMULATION STUDY IN AN AGRI-FOOD SUPPLY CHAIN</b> .....	2722
<i>Yaxing Yuan, Nguyen Viet, Behzad Behdani</i>	
<b>MODELING FOOD SUPPLY CHAIN TRACEABILITY BASED ON BLOCKCHAIN TECHNOLOGY</b> .....	2728
<i>Fran Casino, Venetis Kanakaris, Thomas K. Dasaklis, Socrates Moschuris, Nikolaos P. Rachaniotis</i>	
<b>MANUFACTURING-UBER: INTELLIGENT OPERATOR ASSIGNMENT IN A CONNECTED FACTORY</b> .....	2734
<i>Noel P. Greis, Monica L. Nogueira, Tony Schmitz, Michael Dillon</i>	
<b>PLANNING A TEACHER STAFF COMPETENCE STRUCTURE ROBUST TO UNEXPECTED PERSONNEL ABSENCE</b> .....	2740
<i>Eryk Szwarz, Grzegorz Bocewicz, Irena-Bach Dabrowska</i>	
<b>WORKFORCE PLANNING AND ASSIGNMENT IN MIXED-MODEL ASSEMBLY LINES AS A FACTOR OF LINE RECONFIGURABILITY: STATE OF THE ART</b> .....	2746
<i>Alexandre Dolgui, S. Ehsan Hashemi Petroodi, Sergey Kovalev, Mikhail Y. Kovalyov, Simon Thevenin</i>	
<b>SELF-ORGANIZING CHASING-OVERTAKING PRODUCTION LINES TO MAXIMIZE WORKER CAPABILITIES</b> .....	2752
<i>Shilong Liao, Xiaoqing Xie, Qin Chen, Jingjing Li, Zongguang Wang</i>	
<b>OPTIMAL PACKING IN ADDITIVE MANUFACTURING</b> .....	2758
<i>T. Romanova, Y. Stoyan, A. Pankratov, I. Litvinchev, I. Mozgova</i>	
<b>A MODELING APPROACH FOR CYBER-PHYSICAL SYSTEMS BASED ON COLLABORATIVE PROCESSES</b> .....	2764
<i>Giorgio Bruno</i>	
<b>DISRUPTIVE EFFECTS ON LOGISTICS PROCESSES BY ADDITIVE MANUFACTURING</b> .....	2770
<i>Joachim R. Daduna</i>	
<b>SMART FACTORY REFERENCE ARCHITECTURE BASED ON CPS FRACTAL</b> .....	2776
<i>Wei Wu, Jianfeng Lu, Hao Zhang</i>	
<b>A CLOSED-LOOP INSPECTION ARCHITECTURE FOR ADDITIVE MANUFACTURING BASED ON STEP STANDARD</b> .....	2782
<i>Cristhian Riaño, Efraín Rodríguez, Alberto J. Alvares</i>	
<b>CAN A BRANCH AND BOUND ALGORITHM SOLVE ALL INSTANCES OF SALBP-1 EFFICIENTLY</b> .....	2788
<i>Alexandre Dolgui, Evgeny Gafarov</i>	
<b>AN INTEGRATED INVENTORY AND WORKFORCE PLANNING MARKOV DECISION PROCESS MODEL WITH A VARIABLE PRODUCTION RATE</b> .....	2792
<i>Mohammad M. Aldurgam</i>	
<b>ON THE IMPACT OF THE NUMBER OF OPERATORS IN A FLOW SHOP ENVIRONMENT</b> .....	2798
<i>Imene Benkalai, Djamel Rebaine, Pierre Baptiste</i>	
<b>A VERSATILE GENERALIZED SIMULATED ANNEALING USING TYPE-2 FUZZY CONTROLLER FOR THE MIXED-MODEL ASSEMBLY LINE BALANCING PROBLEM</b> .....	2804
<i>M. Lalaoui, A. El Afia</i>	
<b>SCHEDULE INSTABILITY IN AUTOMOTIVE PRODUCTION NETWORKS: THE DEVELOPMENT OF A NETWORK-ORIENTED RESEQUENCING METHOD</b> .....	2810
<i>A. Moetz, P. Stylos-Duesmann, B. Otto</i>	
<b>DESIGNING PROFITABLE AND RESPONSIVE SUPPLY CHAINS UNDER UNCERTAINTY</b> .....	2816
<i>Amir Azaron, Uday Venkatadri, Alireza Farhang Doost</i>	
<b>SUPPLY CHAIN RESILIENCE RESEARCH TRENDS: A LITERATURE OVERVIEW</b> .....	2821
<i>M. Bevilacqua, F. E. Ciarapica, G. Marcucci</i>	
<b>INTEGRATION OF SUPPLIER SELECTION AND INVENTORY MANAGEMENT UNDER SUPPLY DISRUPTIONS</b> .....	2827
<i>Thomy E. Saputro, Gonçalo Figueira, Bernardo Almada-Lobo</i>	
<b>MITIGATION PROPOSAL FOR THE ENHANCEMENT OF ENTERPRISE RESILIENCE AGAINST SUPPLY DISRUPTIONS</b> .....	2833
<i>Raquel Sanchis, Raul Poler</i>	
<b>Author Index</b>	