

APMS 2018 Program (Building 38)

 Regular session  Special session  Research Workshop

Date: Monday, 27/Aug/2018 (Day 1)

9:30am - 10:00am	OPENING CEREMONY Location: AUDITORIUM 520
10:00am - 11:00am	KEYNOTE 1: Smart City by LH Location: AUDITORIUM 520 Keynote speaker: CEO Dr. Sang Woo Park (Korea Land & Housing Corporation, Korea)
11:00am - 12:00pm	KEYNOTE 2: Big Data Innovations in Korea Manufacturing Location: AUDITORIUM 520 Keynote speaker: Professor Sungzoon Cho (Seoul National University, Korea)
12:00pm - 12:30pm	Speech on Korean Culture: Hidden wonders of Korea Location: AUDITORIUM 520 Hyekyung Song , Executive Director, (Korean Spirit & Culture Promotion Project, KSCPP, Korea)

Date: Monday, 27/Aug/2018 (Day 1)

1:45pm - 3:15pm Parallel Sessions #1 (90min)	CN-CD: COLLABORATIVE NETWORKS - Collaborative Design Location: ROOM 513 Chair: Pisut Koomsap Embedding Memorable Experience to Customer Journey Duangthida Hussadintorn Na Ayutthaya, Pisut Koomsap Asian Institute of Technology, Thailand	KBPM-IMS: KNOWLEDGE BASED PRODUCTION MANAGEMENT - Intelligent Manufacturing System Location: ROOM 515 Chair: Xuehao Feng Measuring Similarity for Manufacturing Process Models Hyun Ahn ¹ , Tai-Woo Chang ² 1: Division of Computer Engineering, Kyonggi University, Korea; 2: Department of Industrial & Management Engineering / Intelligence & Manufacturing Research Center, Kyonggi University, Korea	CN-AFM: COLLABORATIVE NETWORKS - Agile and Flexible Manufacturing Location: ROOM 516 Chair: Byung Do Chung Scenarios for the Development of Platform-Based Networks for Additive Spare Part Production Jana Frank, Philipp Jussen, Lennard Holst, Timo Lütke Meyering Research Institute for Industrial Management (FIR) at RWTH Aachen, Germany	PALC(1): PRODUCT AND ASSET LIFE CYCLE MANAGEMENT IN SMART FACTORIES OF INDUSTRY 4.0 (1) Location: ROOM 517 Chair: Gökan MAY A Scheduling tool for achieving Zero Defect Manufacturing (ZDM): a conceptual framework Foivos Psarommatis, Dimitris Kiritsis École polytechnique fédérale de Lausanne, Switzerland	LGM(1): LEAN AND GREEN MANUFACTURING (1) Location: ROOM 519 Chair: Christoph Roser Digital Lean Cyber-Physical Production Systems: The Emergence of Digital Lean Manufacturing and The Significance of Digital Waste David Romero ¹ , Paolo Gaiardelli ² , Daryl Powell ³ , Thorsten Wuest ⁴ , Thürer Thüer ⁵ 1: Tecnológico de Monterrey, Mexico; 2: University of Bergamo, Italy; 3: Norwegian University of Science and Technology, Norway; 4: West Virginia University, USA; 5: Jinan University, China
	Overcoming Barriers against Interaction on Innovation Capabilities within and between SMEs Sara Hajikazemi, Anandasivakumar Ekambaram, Carl Christian Røstad, Bjørnar Henriksen SINTEF, Norway	Dynamic Rescheduling in energy-aware unrelated parallel machine problems Sergio Ferrer, Giancarlo Nicolò, Miguel A. Salido, Adriana Giret, Federico Barber Universitat Politècnica de Valencia, Spain	Controllable production rate and quality improvement in a two-echelon supply chain model Mitali Sarkar ¹ , Byung Do Chung ² 1: Hanyang University, Korea; 2: Yonsei University, Korea	Predictive maintenance platform based on integrated strategies for increased operating life of factories Gökan MAY ¹ , Nikos Kyriakoulis ² , Konstantinos Apostolou ³ , Sangje Cho ¹ , Konstantinos Grevenitis ³ , Stefanos Kokkorikos ² , Jovana Milenkovic ³ , Dimitris Kiritsis ¹ 1: EPFL, Switzerland; 2: Core Innovation and Technology O.E, Athens, Greece; 3: ATLANTIS Engineering SA, Thessaloniki, Greece	Effect of Prioritization on the Waiting Time Yannic Jäger ¹ , Christoph Roser ² 1: Locom Consulting, Karlsruhe, Germany; 2: Karlsruhe University of Applied Science, Germany
	Collaborative and Sustainable Network Design in Courier Services Ki Ho Chung ¹ , Seung Yoon Ko ² , Chang Seong Ko ³ 1: Kyungsung University, Korea; 2: Korea University, Korea; 3: Kyungsung University, Korea	Simulation Analysis for Demonstrating the Economic Competitiveness of Busan Port in the Northeast Asia Ilkyeong Moon ¹ , Qianru Shen ² , Xuehao Feng ³ 1: Seoul National University, Korea; 2: Beijing CaoZiTou Aesthetic Co. Ltd, Beijing, China; 3: Zhejiang University, China	Reduction of decision complexity as an enabler for continuous production network design Günther Schuh, Jan-Philipp Prote, Bastian Fränken, Stefan Dany, Andreas Gützlaff Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University, Germany	A framework based on predictive maintenance, zero-defect manufacturing and scheduling under uncertainty tools, to optimize production capacities of high-end quality products Paul-Arthur Dreyfus, Dimitris Kiritsis EPFL, Switzerland	A Small Dice Game for the Kingman Formula Christoph Roser ¹ , Masaru Nakano ² 1: Karlsruhe University of Applied Science, Germany; 2: Graduate School of System Design and Management, Keio University, Tokyo, Japan.
	Possibilities and Benefits of Intermediate Care Units in Healthcare Systems from a Logistics Perspective Aili Biriita Bertnum, Giuseppe Ismael Fragapane, Marco Semini, Jan Ola Strandhagen Norwegian University of Science and Technology, Trondheim, Norway	On Comparison of Multiple Non-Linear Profiles for Process Selection Chen-ju Lin, Pei-Ying Lin Yuan Ze University, Taiwan	Measuring Throughput Times in Wood Component Production: A Case Study Sven-Vegard Buer, Oladipupo Olaitan, Jan Ola Strandhagen Department of Mechanical and Industrial Engineering, NTNU, Norwegian University of Science and Technology, Trondheim, Norway	A hybrid machine learning approach for predictive maintenance in smart factories of the future Sangje Cho ¹ , Gökan May ¹ , Ioannis Tourkogiorgis ¹ , Roberto Perez ² , Oscar Lazaro ³ , Borja de la Maza ⁴ , Dimitris Kiritsis ¹ 1: EPFL, Switzerland; 2: GFMS, Switzerland; 3: Innovaia, Spain; 4: Trimek, Spain	

Date: Monday, 27/Aug/2018 (Day 1)

3:45pm - 5:15pm Parallel Sessions #2 (90min)	CN-ICT: COLLABORATIVE NETWORKS - ICT for Collaborative Manufacturing Location: ROOM 513 Chair: Stanisław Strzelczak A framework for process model based human-robot collaboration system using augmented reality Hwaseop Lee, Yeeyeng Liau, Siku Kim, Kwangyeol Ryu Pusan National University, Korea Management of Reconfigurable Production Networks in Order-based Production Johannes be Isa¹, Helge Epha², Gunter Reinhart³ 1: Fraunhofer IGCV, Germany; 2: TU Berlin, Germany; 3: TU München, Germany Method to Assess Social and Human Factors of Production Innovations Stanisław Strzelczak, Stanisław Marciniak Warsaw University of Technology, Poland A Fundamental Study on the Effect of Visual Guidance to Inspectors using Visual Indicator on Defect Detection in Visual Inspection utilizing Peripheral Vision Ryosuke Nakajima¹, Kosuke Fujie², Takuya Hida², Toshiyuki Matsumoto² 1: Seikei University, Japan; 2: Aoyama Gakuin University, Japan	INDUSTRY-DT: INDUSTRY 4.0 - Digital Twin Location: ROOM 516 Chair: Kwangyeol Ryu Conceptual Design of a Digital Shadow for the Procurement of Stocked Products Daniel Pause, Matthias Blum FIR at Aachen University, Germany Skill Modelling for Digital Factories Damiano Arena¹, Farhad Ameri², Dimitris Kiritsis¹ 1: École Polytechnique Fédérale de Lausanne, Switzerland; 2: Texas State University, USA Digital twin approach for solving reconfiguration planning problems in RMS Kezia Amanda Kurniadi, Sangil Lee, Kwangyeol Ryu Pusan National University, Korea	PALC(2): PRODUCT AND ASSET LIFE CYCLE MANAGEMENT IN SMART FACTORIES OF INDUSTRY 4.0 (2) Location: ROOM 517 Chair: Irene Roda An introduction to PHM and prognostics case studies HongBae Jun Hongik University, Korea Remaining Useful Life estimation for informed End of Life Management of industrial assets: a conceptual model Marco Macchi, Irene Roda, Leonardo Toffoli Politecnico di Milano Heat Recovery Unit Failure Detection in Air Handling Unit Manik Madhikermi¹, Narges Yousefnezhad¹, Kary Främling² 1: Aalto University, Finland; 2: Umeå university, Sweden	LGM(2): LEAN AND GREEN MANUFACTURING (2) Location: ROOM 519 Chair: Masaru Nakano Towards a Sustainable Innovation Process: Integrating Lean and Sustainability Principles Myrna Flores^{1,2}, Doroteja Maklin², Billy Ingram³, Matic Golob², Christopher Tucci¹, Andrea Hoffmeier⁴ 1: École Polytechnique Fédérale de Lausanne, Switzerland; 2: Lean Analytics Association (LAA), Switzerland; 3: Interface Inc., Georgia, USA; 4: SHERPA Sustainability Institute, Colorado, USA Formalising Specific-Energy Consumption under a Production-Management Form where Rush Orders Are Added in Time Slots Shungo Arai¹, Hironori Hibino¹, Takamasa Horikawa¹, Makoto Yamaguchi² 1: Tokyo University of Science, Japan; 2: Akita University, Japan Implementation challenges affecting the environmental improvement performance in pharmaceutical production: Results of a green kaizen pilot Seyoum Eshetu Birkie¹, Martin Kurdve², Monica Bellgran¹, Jouni Korhonen¹ 1: KTH Royal Institute of Technology, Sweden; 2: Chalmers University of Technology, SE-412 96 Gothenberg, Sweden
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9:00am - 10:30am Parallel Sessions #3 (90min)	SIG-Intelligent: INTELLIGENT DIAGNOSTICS AND MAINTENANCE SOLUTIONS FOR SMART MANUFACTURING, AN SM & CPPS SIG WORKSHOP SESSION Location: ROOM 513 Chair: Boonserm Kulvatunyou Upgrading Legacy Equipment to Industry 4.0 through a Cyber-Physical Interface Hanna Jónasdóttir, Karishma Dhanani, Kenneth McRae, Jörn Mehnen University of Strathclyde, United Kingdom	KBPM-KE: KNOWLEDGE BASED PRODUCTION MANAGEMENT - Knowledge Engineering Location: ROOM 515 Chair: Ralph Riedel Analyzing Intuitive Skills of a Waitperson in a Restaurant Dining Room Using a Serious Game Fumihide Nishimura¹, Emi Kinoshita¹, Tomomi Nonaka², Hajime Mizuyama¹ 1: Aoyama Gakuin University, Japan; 2: Ritumeikan University, Japan	SPM: SUSTAINABILITY AND PRODUCTION MANAGEMENT Location: ROOM 516 Chair: Gyu M. Lee Reverse logistics route selection using AHP: A case study of electronics scrap from Pakistan Fahad Mushtaq¹, Muhammad Shafiq^{1,2}, Matteo Mario Savino², Touqeer Khalid¹, Marialuisa Menanno², Ali Fahad¹ 1: Department of Industrial Engineering, University of Engineering and Technology Taxila, Pakistan; 2: Department of Engineering, University of Sannio, Italy	PSS(1): PRODUCT-SERVICE SYSTEMS CUSTOMER-DRIVEN INNOVATION AND VALUE CO-CREATION (1) Location: ROOM 517 Chair: Khaled Medini Economic assessment of PSS value networks – an algorithmic approach Khaled Medini¹, Xavier Boucher¹, Sophie Peillon², Hervé Vaillant³ 1: Mines Saint-Etienne, Univ Clermont Auvergne, CNRS, UMR 6158 LIMOS, Institut Henri Fayol, F – 42023, Saint-Etienne France; 2: Mines Saint-Etienne, Univ Lyon, COACTIS EA4161, Institut Henri Fayol, F - 42023 Saint-Etienne France; 3: Mines Saint-Etienne, Univ Lyon, CNRS, UMR 5600 EVS, Institut Henri Fayol, F - 42023 Saint-Etienne France	OME(1): OPERATIONS MANAGEMENT IN ENGINEER-TO-ORDER MANUFACTURING (1) Location: ROOM 519 Chair: Erlend Alfnes Dual Resource Constrained (DRC) Shops: Literature Review and Analysis Matthias Thurer Jinan University, China
	Evaluating Impact of AI on Cognitive Load of Technicians during Diagnosis Tasks in Maintenance Hyunjong Shin, Vittaldas Prabhu Pennsylvania State University, United States of America	Revisiting challenges in using Discrete Event Simulation in early stages of Production System Design Erik Flores¹, Magnus Wiktorsson^{1,2}, Jessica Bruch¹, Mats Jackson³ 1: Mälardalen University, Sweden; 2: KTH Royal Institute of Technology, Sweden; 3: Jönköping University, Sweden	Mathematical Modelling for Sustainable Agricultural Supply Chain Management Considering Preferences between Farmers and Retailers Takashi Hasuike¹, Tomoko Kashima², Shimpei Matsumoto³ 1: Waseda University, Japan; 2: Kinki University, Japan; 3: Hiroshima Institute of Technology, Japan	The demand-pull approach to business model innovation through product-service systems: a case study Martha Orellano¹, Christine Lambey-Checchin², Khaled Medini³, Gilles Neubert⁴ 1: Ecole Nationale Supérieure des Mines de Saint-Etienne UMR 5600 EVS; 2: Université Clermont Auvergne EA3849 CRCGM; 3: Ecole Nationale Supérieure des Mines de Saint-Etienne UMR 6158 LIMOS; 4: emlyon business school UMR 5600 EVS	Controlling customer orders in the ETO/VUCA contexts Stanisław Strzelczak¹, Viswavikram Viswanathan² 1: Warsaw University of Technology, Poland; 2: Essel Propack, Międzyrzecz, Poland
	The future of Maintenance within Industry 4.0: an empirical research in manufacturing Irene Roda, Marco Macchi, Luca Fumagalli Politecnico di Milano	Knowledge Management as an important tool in participatory design Xiaoli Chen, Ralph Riedel, Michael Bojko, Mandy Tawalbeh, Egon Müller Chemnitz University of Technology, Germany	A Stochastic Programming Model for Multi-commodity Redistribution Planning in Disaster Response Xuehong Gao, Gyu M. Lee Pusan National University, Korea	Defining solution spaces for customizations Nikolas Käkelä, Joakim Wikner Jönköping University, Sweden	A Conceptual Framework for Stage Configuration Bjørn Christensen, Thomas D. Brunoe, Kjeld Nielsen Aalborg University, Denmark
	Modeling the Influence of Technician Proficiency and Maintenance Strategies on Production System Performance Kai-Wen Tien, Vittaldas Prabhu Pennsylvania State University, United States of America	Towards the Generation of Setup Matrices from Route Sheets and Feedback Data with Data Analytics Moritz Schröter, Ben Lütkehoff, Markus Fischer, Matthias Blum, Volker Stich Institute for Industrial Management (FIR) at RWTH Aachen University, Germany			

11:00am - 12:30pm Parallel Sessions #4 (90min)	SIG-Service: SERVICE ENGINEERING BASED ON SMART MANUFACTURING CAPABILITIES, A COLLABORATIVE SESSION OF THE SIG'S FOR SERVICE ENGINEERING AND SM & CPPS Location: ROOM 513 Chair: Boonserm Kulvatunyou How to increase share of product-related services in revenue? Strategy towards servitization Ugljesa Marjanovic¹, Bojan Lalic¹, Vidosav Majstorovic², Nenad Medic¹, Jasna Prester³, Iztok Palcic⁴ 1: University of Novi Sad, Serbia; 2: University of Belgrade, Serbia; 3: University of Zagreb, Croatia; 4: University of Maribor, Slovenia Maturity Models for Digitalization in Manufacturing - Applicability for SMEs Stefan Wiesner¹, Paolo Gaiardelli², Nicola Gritti², Gianluca Oberti² 1: BIBA - Bremer Institut für Produktion und Logistik GmbH, Germany; 2: Università degli Studi di Bergamo, Italy Smart Service Lifecycle Management: A Framework and Use Case Mike Freitag¹, Stefan Wiesner² 1: Fraunhofer IAO, Stuttgart, Germany; 2: BIBA, Bremen, Germany SIG-Ontologies: Industrial Ontologies Foundry, an SM & CPPS SIG Workshop Session Location: ROOM 513 Chair: Boonserm Kulvatunyou Industrial Ontologies Foundry Proof-of-Concept Project Boonserm {Serm} Kulvatunyou¹, Evan Wallace¹, Dimitris Kiritsis², Barry Smith³, Chris Will⁴ 1: National Institute of Standards and Technology, United States of America; 2: EPFL; 3: State University of New York at Buffalo; 4: Dassault Systems	KBPM-PPC(1): KNOWLEDGE BASED PRODUCTION MANAGEMENT - Production Planning and Control (1) Location: ROOM 515 Chair: Subrata Saha Discrete Event simulation – a new approach to multi-level capacitated planning? Ernst-August Stehr¹, Jan Reschke¹, Günther Schuh² 1: FIR eV an der RWTH Aachen, Germany; 2: Werkzeugmaschinenlabor WZL der Rheinisch-Westfälischen Technischen Hochschule Procurement decisions in multi-period supply chain Izabela Ewa Nielsen¹, Subrata Saha² 1: Aalborg University; 2: Institute of Engineering & Management Due-date based multi-period part selection for flexible manufacturing systems with controllable processing times Issa Bou Zeid, Hyoung-Ho Doh, Jeong-Hoon Shin, Dong-Ho Lee Hanyang University, Korea Inventory model with the consideration of pricing, product substitution and value deterioration Felix T. S. Chan¹, J.H. Ruan^{1,2,3}, A. H. Tai¹, S.H. Chung¹, A.E.E. Eltoukhy¹ 1: The Hong Kong Polytechnic University, Hong Kong S.A.R. (China); 2: Northwest A & F University; 3: Dalian University of Technology	GSC-SCO(1): GLOBAL SUPPLY CHAIN - Supply Chain Optimization (1) Location: ROOM 516 Chair: Jan Ola Strandhagen Exploring the role of information systems in mitigating gate congestion using simulation: Theory and Practice at a bulk export terminal gate Mihai Neagoe¹, Mohammad Sadegh Taskhiri¹, Hong-Oanh Nguyen², Paul Turner¹ 1: Discipline of ICT, College of Sciences and Engineering, University of Tasmania, Australia; 2: Australian Maritime College, College of Sciences and Engineering, University of Tasmania, Australia Combinatorial Benders' cut for the admission control decision in flow shop scheduling problems with queue time constraints Rudi Nurdiansyah^{1,2}, I-Hsuan Hong¹ 1: National Taiwan University, Taiwan; 2: Universitas Negeri Malang, Indonesia	PSS(2): PRODUCT-SERVICE SYSTEMS CUSTOMER-DRIVEN INNOVATION AND VALUE CO-CREATION (2) Location: ROOM 517 Chair: Khaled Medini Modularity in Product-Service Systems: Literature Review and Future Research Directions Maria Stoettrup Schioenning Larsen, Ann-Louise Andersen, Kjeld Nielsen, Thomas Ditlev Brunoe Aalborg University, Denmark How can hackathons accelerate corporate innovation? Myrna Flores^{1,2}, Matic Golob², Doroteja Maklin², Martin Herrera³, Christopher Tucci¹, Ahmed Al-Ashaab⁴, Leon Williams⁴, Adriana Encinas⁴, Veronica Martinez⁵, Mohamed Zaki⁵, Lourdes Sosa⁶, Karina Flores Pineda² 1: École Polytechnique Fédérale de Lausanne, Switzerland; 2: Lean Analytics Association (LAA), Switzerland; 3: CEMEX, Mexico; 4: Cranfield University, UK; 5: University of Cambridge, UK; 6: London School of Economics and Political Science, UK Construct a Customized Product Service System Utilizing Multi-Agent System Cheng-Yen Chang, Chi-Hsuan Tsai, Ming-Chuan Chu National Tsing Hua University, Taiwan, Taiwan acatech Industrie 4.0 Maturity Index – A Multidimensional Maturity Model Violett Zeller¹, Christian Hocken², Volker Stich¹ 1: Institute for Industrial Management (FIR) at RWTH Aachen University, Germany; 2: I40MC - Industrie 4.0 Maturity Center at RWTH Aachen Campus	OME(2): OPERATIONS MANAGEMENT IN ENGINEER-TO-ORDER MANUFACTURING (2) Location: ROOM 519 Chair: Erlend Alfnes Dynamic weight configuration of dispatching rule using machine learning Jong-Ho Shin¹, Chaekyo Lee¹, Sangrae Kim², Jun-Kyu Kang² 1: Chosun University, Korea; 2: Sungkyul University, Korea Customizations vs. Platforms – a conceptual approach to COSI Jenny Bäckstrand, Martin Lennartsson Jonkoping University, Sweden Barriers and Success Factors for Continuous Improvement Efforts in Complex ETO Firms Emrah Arica, Kristoffer Magerøy, Marta Therese Mathisen Lall SINTEF, Norway Engineering change management in the engineer-to-order production environment: insights from two case studies Natalia Iakymenko, Anita Romsdal, Marco Semini, Jan Ola Strandhagen Norwegian University of Science and Technology, Norway
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Date: Tuesday, 28/Aug/2018 (Day 2)

1:45pm - 3:15pm Parallel Sessions #5 (90min)	SIG-Operator 4.0: THE OPERATOR 4.0: COLLABORATIVE CYBER-PHYSICAL PRODUCTION SYSTEMS & HUMAN SYSTEMS, AN SM & CPPS SIG WORKSHOP SESSION Location: ROOM 513 Chair: David Romero A Literature Review on Human Changeover Ability in High-variety Production Christopher Ketelsen, Rasmus Andersen, Kjeld Nielsen, Ann-Louise Andersen, Thomas Ditlev Brunoe, Sofie Bech Aalborg University, Denmark	KBPM-PPC(2): KNOWLEDGE BASED PRODUCTION MANAGEMENT - Production Planning and Control (2) Location: ROOM 515 Chair: Takashi Irohara Improving Carry-out Operations of Inbound Containers using Real-time Information on Truck Arrival Time Sanghyuk Yi¹, Lin Gui², Kap Hwan Kim² 1: University of Bremen, Germany; 2: Pusan National University, Korea	GSC-SCO(2): GLOBAL SUPPLY CHAIN - Supply Chain Optimization (2) Location: ROOM 516 Chair: Joakim Wikner Managing delivery-time variance in maritime-equipment supply chains Olumide Emmanuel Oluyisola, Tuomo Eero Salmi, Jan Ola Strandhagen NTNU – Norwegian University of Science and Technology, Department of Mechanical and Industrial Engineering, Trondheim, Norway	EEL: EXPERIMENTAL AND EXPERIENTIAL LEARNING IN INDUSTRIAL ENGINEERING AND MANAGEMENT Location: ROOM 517 Chair: Nick B. Szirbik A framework for task-based ambidexterity in manufacturing SMEs Kristina Sollander, Annika Engström, Joakim Wikner Jönköping University, Sweden	SPMC(1): SMART PRODUCTION FOR MASS CUSTOMIZATION (1) Location: ROOM 519 Chair: Ann-Louise Andersen A new IT architecture for the supply chain of configurable products Ernst-August Stehr^{1,2}, Jan Reschke², Volker Stich² 1: SIM-ERP GmbH, Germany; 2: FIR eV an der RWTH Aachen, Germany
	A Conceptual Digital Assistance System Supporting Manual Changeovers in High-Variety Production Rasmus Andersen, Christopher Ketelsen, Kjeld Nielsen, Ann-Louise Andersen, Thomas Ditlev Brunoe, Sofie Bech Aalborg University, Denmark	Process planning assessment framework Günther Schuh, Jan-Philipp Prote, Philipp Hünnekes Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen, Germany	Influence of Setup Cycles on the Throughput Time of Rush Orders Friederike Engehausen, Hermann Lödding Hamburg University of Technology, Germany	Using Serious Gaming to Discover and Understand Distributed Ledger Technology in Distributed Energy Systems Jan Willem Veeningen, Nick B. Szirbik University of Groningen, The Netherlands,	Understanding Changeability Enablers and their Impact on Performance in Manufacturing Companies Ann-Louise Andersen, Kjeld Nielsen, Thomas Ditlev Brunoe, Jesper Kranker Larsen, Christopher Ketelsen Aalborg University, Denmark
	Softbots Supporting the Operator 4.0 at Smart Factory Environments Ricardo J. Rabelo¹, David Romero², Saulo Popov Zambiasi³ 1: UFSC - Federal University of Santa Catarina, Florianopolis, Brazil; 2: Tecnológico de Monterrey, Mexico; 3: UNISUL - University of Southern Santa Catarina, Florianopolis, Brazil	Dynamic scheduling of the dual stocker system using reinforcement learning Seol Hwang, Sang Pyo Hong, Young Jae Jang KAIST, Korea	A flow based foundation for capacity dimensioning Joakim Wikner, Lisa Hedvall Jönköping University, Sweden	University Education as a Networked Service for Competence Co-creation Riitta Johanna Smeds, Rita Henriikka Lavikka, Miia Carola Jaatinen Aalto University, Finland	A Changeable Jig-less Welding Cell for Subassembly of Construction Machinery Mads Bejlegaard, Thomas Ditlev Brunoe, Kjeld Nielsen Aalborg University, Denmark
	Digitalizing Occupational Health, Safety and Productivity for the Operator 4.0 David Romero¹, Sandra Mattsson², Åsa Fast-Berglund², Thorsten Wuest³, Dominic Gorecky⁴, Johan Stahre² 1: Tecnológico de Monterrey, Mexico; 2: Chalmers University of Technology, Sweden; 3: West Virginia University, USA; 4: Switzerland Innovation, Switzerland	Dual resource constrained scheduling considering operator working modes and moving in identical parallel machines using a permutation-based genetic algorithm Muhammad Akbar, Takashi Irohara Department of Information and Communication Science, Sophia University, Japan		Integrating Experiential Learning and Accreditation Requirements – A Case Study Based Course Khaled Medini Ecole Nationale Supérieure des Mines de Saint-Etienne, France	Challenges in Production and Manufacturing Systems Platform Development for Changeable Manufacturing Daniel Grud Hellerup Sorensen, Thomas Ditlev Brunoe, Kjeld Nielsen Aalborg University, Denmark

3:45pm - 5:15pm Parallel Sessions #6 (90min)	SIG-Smart: SMART MANUFACTURING SYSTEM CHARACTERIZATION, AN SM & CPPS SIG WORKSHOP SESSION Location: ROOM 513 Chair: Joakim Wikner Big data analytics for logistics and distributions using Blockchain Benedito Cristiano Petroni, Elisangela Monaco, Rodrigo Franco Gonçalves Universidade Paulista, Brazil	INDUSTRY-SF(1): INDUSTRY 4.0 - Smart Factory (1) Location: ROOM 515 Chair: Paolo Gaiardelli Development of Maturity Levels for Agile Industrial Service Companies Achim Kampker, Jana Frank, Roman Emonts-Holley, Philipp Jussen Research Institute for Industrial Management (FIR) at RWTH Aachen, Germany	INDUSTRY-SSC(1): INDUSTRY 4.0 - Smart Supply Chain (1) Location: ROOM 516 Chair: Yunchool Kang Lease Contract in Usage-Based Remanufactured Equipment Service System Hennie Husniah¹, U. S. Pasaribu², Bermawi P. Iskandar² 1: Langlangbuana, Indonesia; 2: Bandung Institute of Technology, Indonesia	SC: SMART CITY INTEROPERABILITY AND CROSS-PLATFORM IMPLEMENTATION Location: ROOM 517 Chair: Prodromos Kolyvakis How to choose the greenest delivery plan: a framework to measure KPIs for sustainable urban logistics Adriana Giret Boggino¹, Vicente Julian¹, Juan M. Corchado², Alberto Fernández³, Miguel A. Salido¹, Dunbing Tang⁴ 1: Universitat Politècnica de València, Spain; 2: Universidad de Salamanca; 3: Universidad Rey Juan Carlos; 4: Nanjing University of Aeronautics and Astronautics	SPMC(2): SMART PRODUCTION FOR MASS CUSTOMIZATION (2) Location: ROOM 519 Chair: Thomas Ditlev Brunoe Product-process modelling as an enabler of manufacturing changeability Thomas Ditlev Brunoe, Daniel Grud Hellerup Soerensen, Mads Bejlegaard, Ann-Louise Andersen, Kjeld Nielsen Aalborg University, Denmark
	Towards a Platform for Smart Manufacturing Improvement Planning SangSu Choi¹, Thorsten Wuest², Serm Kulvatunyou³ 1: IGI, LLC; 2: Industrial and Management Systems Engineering, West Virginia University; 3: Systems Integration Division, National Institute of Standards and Technology	The role of Internet of Services (IoS) on Industry 4.0 through the Service Oriented Architecture (SOA) Jacqueline Zonichenn dos Reis, Rodrigo Franco Goncalves Universidade Paulista, Brazil	Towards a Smart Manufacturing Maturity Model for SMEs (SM3E) Sameer Mittal¹, David Romero², Thorsten Wuest¹ 1: West Virginia University, United States of America; 2: Tecnológico de Monterrey, Mexico	Node and Edge Surveillance Using Drones Considering Required Camera Altitude and Battery Charging Ivan Kristianto Singgih^{1,2}, Jonghwa Lee¹, Byung-In Kim¹ 1: Department of Industrial and Management Engineering, Pohang University of Science and Technology (POSTECH), Pohang; 2: Department of Industrial Engineering, Sepuluh Nopember Institute of Technology, Surabaya, Indonesia	A literature-based analysis of the Cyber-Physical Systems under the lens of reconfigurability Alessia Napoleone, Marco Macchi, Alessandro Pozzetti Politecnico di Milano, Italy
	SIG-MFC: Manufacturing Performance Management in Smart Factories, an SM & CPPS SIG Workshop Session Location: ROOM 513 Chair: Senthilkumaran Kumaraguru Real-time Linked Open Data for Life Cycle Inventory Jayakrishnan Jayapal, Senthilkumaran Kumaraguru Indian Institute of Information Technology, Design and Manufacturing, Kancheepuram, India	An in-process BSR-noise detection system for car door trims Woonsang Baek, Duck Young Kim Ulsan National Institute of Science and Technology, Korea	An Order Control Policy in Crowdsourced Parcel Pickup and Delivery Service Yunchool Kang Hongik University, Korea		
	Performance Measurement in Sensorized Sociotechnical Manufacturing Environments Emrah Arica¹, Manuel Oliveira¹, Christos Emmanouilidis² 1: SINTEF, Norway; 2: Cranfield University, UK	Towards Digital Lean Cyber-Physical Production Systems: Industry 4.0 Technologies as Enablers of Leaner Production Daryl John Powell¹, David Romero², Paolo Gaiardelli³, Chiara Cimini³, Sergio Cavaleri³ 1: Norwegian University of Science and Technology, Norway; 2: Tecnológico de Monterrey, Mexico; 3: University of Bergamo, Italy	Study on the utilization of digital manufacturing for production operations Masahiro Shibuya¹, Kenichi Iida², Koki Mikami³ 1: Tokyo Metropolitan University, Japan; 2: Hokkaido Industrial Research Institute, Japan; 3: Hokkaido University of Science, Japan		
				Developing an Advanced Cloud-based Vehicle Routing and Scheduling System for Urban Freight Transportation Sotiris P. Gayialis, Grigorios D. Konstantakopoulos, Georgios A. Papadopoulos, Evripidis Kechagias, Stavros T. Ponis National Technical University of Athens, Greece	The Platform of Intelligent Manufacturing System Based on Industrie 4.0 Jinghui Yang¹, Guorong Huang², Qi Hang³ 1: Shanghai Polytechnic University, China; 2: Shanghai Polytechnic University, China; 3: Shanghai Polytechnic University, China
				Semantic Interoperability and Open IoT APIs for Smart Cities Applications Prodromos Kolyvakis¹, Christian Mader², Dimitris Kiritsis¹ 1: École Polytechnique Fédérale de Lausanne (EPFL), Lausanne,	

Switzerland; 2: Fraunhofer
Institute for Intelligent
Analysis and Information
Systems (IAIS), St.
Augustin, Germany

10:00am - 11:00am					IFIP WG 5.7 Research Workshop Location: ROOM 519 Chair: Prof. Klaus-Dieter Thoben Co-chair: Ms. Friederike Engehausen
11:00am - 12:30pm	INDUSTRY-SF(2): INDUSTRY 4.0 - Smart Factory (2) Location: ROOM 513 Chair: Sang Do Noh A Study on the Integrations of Products and Manufacturing Engineering using sensors and IoT Dahye Hwang, Sang Do Noh Sungkyunkwan University, Korea	KBPM-MS(1): KNOWLEDGE BASED PRODUCTION MANAGEMENT - Modelling and Simulation (1) Location: ROOM 515 Chair: Hajime Mizuyama Modelling for service solution of a closed-loop supply chain with the presence of third party logistics Mitali Sarkar, Rekha Guchhait, Biswajit Sarkar Hanyang University, Korea	INDUSTRY-SSC(2): INDUSTRY 4.0 - Smart Supply Chain (2) Location: ROOM 516 Chair: Dimitris Kiritsis A Hybrid Forecasting Framework with Neural Network and Time-series method for Intermittent Demand in Semiconductor Supply Chain Wenhan Fu, Chen-Fu Chien, Zih-Hao Lin National Tsing Hua University, Taiwan	GSC-TI: GLOBAL SUPPLY CHAIN - Technology Innovation Location: ROOM 517 Chair: Ming Kim Lim Construction Value Chain in a BIM Environment Myrna Flores^{1,3}, Ahmed Al-Ashaab², Oliver Moerth², Pablo Cifre Usó², Harry Pinar², Fatimah Alfaraj², Ming Yu², 1: Lean Analytics Association, Switzerland; 2: Cranfield University, United Kingdom; 3: EPFL, Switzerland	What about the discontinuities in continuous flow Joakim Wikner Jönköping University, Sweden
Parallel Sessions #7 (90min) & IFIP WG 5.7 Research Workshop (150min)	Manufacturing Execution Systems: The Next Level of Automated Control or of Shop-Floor Support? Sabine Waschull, J.C. Wortmann, J.A.C. Bokhorst University of Groningen, Faculty of Economics and Business	A Model of Dynamic Scheduling of Restaurant Operations Considering the Order and Timing of Serving Dishes Tomomi Nonaka¹, Terumi Nobutomo², Hajime Mizuyama² 1: Ritsumeikan University, Japan; 2: Aoyama Gakuin University, Japan	CONSTRUCTING A METROLOGY SAMPLING FRAMEWORK FOR IN-LINE INSPECTION IN SEMICONDUCTOR FABRICATION Chen Fu Chien, Yun Siang Lin, Yu Shin Tan National Tsing Hua University, Taiwan	Information Support for Supplier Kit Preparation Maria Kollberg Thomassen¹, Lars Skjelstad¹, Erlend Gjønnes² 1: SINTEF Technology and Society, Norway; 2: Orkel AS, Norway	The Grand Tour of Japanese Automotive Christoph Roser Karlsruhe University of Applied Science, Germany
	Constructing an Intelligent Yield Alert and Diagnostic Analysis system via Data analysis: Empirical Study of a Semiconductor Foundry Yi-Jyun Chen¹, Yen- Han Lee¹, Ming-Chuan Chiu¹, Jei-Zheng Wu² 1: National Tsing Hua University, Taiwan; 2: Soochow University, Taiwan	Achieving Balanced Workload Distribution Amongst Cross-Trained Teams Oladipupo Olaitan, Erlend Alfnes, Jørn Vatn, Jan Ola Strandhagen Norwegian University of Science and Technology (NTNU), Trondheim, Norway	An analysis of the impact of Industrie 4.0 on Production Planning and Control Uwe Dombrowski, Yannick Dix TU Braunschweig, Germany	The interaction of global networks in their evolutions: a longitudinal case study Yang Cheng¹, Ruihong Gao² 1: Aalborg University, Denmark; 2: Osaka University of Economics, Japan	Network Action Learning for Lean Supply Chain Development – Revisiting the Phenomenon of Kyoryokukai Daryl Powell Norwegian University of Science and Technology, Norway
				Increasing Rate of Diffusion of Innovation in Supply Chain: Targeting the Early Adopters in UK Supply Sir Yee Lee¹, Ming Kim Lim^{1,2}, David Food³, Jia Yao Hu¹ 1: coventry university, United Kingdom; 2: Chongqing University, China; 3: University of Warwick, United Kingdom	

1:45pm - 3:15pm Parallel Sessions #8 (90min)	INDUSTRY-SF(3): INDUSTRY 4.0 - Smart Factory (3) Location: ROOM 513 Chair: Duck Young Kim The Lean Production System 4.0 Framework – enhancing Lean methods by Industrie 4.0 Uwe Dombrowski, Thomas Richter TU Braunschweig, Germany AR/VR-based Live Manual for User-centric Smart Factory Services Minseok Kim¹, Kyeong-Beom Park¹, Sung Ho Choi¹, Jae Yeol Lee¹, Duck Young Kim² 1: Chonnam National University, Korea; 2: UNIST, Korea Active role-based database system for factory planning Uwe Dombrowski, Christoph Imdahl, Alexander Karl TU Braunschweig, Germany	KBPM-MS(2): KNOWLEDGE BASED PRODUCTION MANAGEMENT - Modelling and Simulation (2) Location: ROOM 515 Chair: Koichi Nakade Service Rate Control in Mn/Gn/1 Queue Koichi Nakade, Shunta Nishimura Nagoya Institute of Technology, Japan Evaluation of leadership in nontechnical skills Haruka Ohba¹, Shinya Mizuno¹, Yoshikazu Fujisawa^{2,3}, Masashi Uramatsu³, Mikihiro Kano⁴, Naoki Hirabayashi⁴, Takahiro Souma⁵ 1: Shizuoka Institute of Science and Technology, Japan; 2: The Department of Social Engineering and Community Science, Miyagi University, Taiwa, Miyagi, Japan; 3: The Department of Patient Safety and Quality, Tokyo Medical University, Shinzuku, Tokyo, Japan; 4: The Department of Gastrointestinal Surgery, Hiroshima City Asa Citizens Hospital, Asakita, Hiroshima, Japan; 5: The Department of Medical Safety Management, Chiba University Hospital, Chuou, Chiba, Japan	INDUSTRY-SSC(3): INDUSTRY 4.0 - Smart Supply Chain (3) Location: ROOM 516 Chair: Thorsten Wuest The Strategic Landscape of Industry 4.0 Børge Sjøbakk SINTEF Technology & Society, Norway Online Life Cycle Assessment for Fluid Power Manufacturing Systems – Challenges and Opportunities Marcel Rückert, Stephan Merkelbach, Raphael Alt, Katharina Schmitz RWTH Aachen University, Institute for Fluid Power Drives and Systems (IFAS), Germany The impacts of quick response in a dual-channel supply chain Huihui Zhang, Danqin Yang Nanjing University of Science and Technology, China	GSC-MC: GLOBAL SUPPLY CHAIN - Mass Customization Location: ROOM 517 Chair: Kjeld Nielsen Mass Customization as a Productivity Enabler in the Construction Industry Kim Noergaard Jensen¹, Kjeld Nielsen², Thomas Ditlev Brunoe³ 1: Aalborg University, Denmark; 2: Aalborg University, Denmark; 3: Aalborg University, Denmark Smart Supply Chain – Development of the equipment supplier in global value networks Martina Schiffer, Michael Luckert, Hans-Hermann Wiendahl Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany Mass Customization Capability Planning with Additive Manufacturing Songi Kim, Bongju Jeong Yonsei University, Korea
3:15pm - 4:00pm	CLOSING CEREMONY Location: AUDITORIUM 520			