



APMS 2020
Conference Program

Advances in Production Management Systems



"The path to digital transformation and innovation of production management systems"

August 30 - September 3, 2020

Novi Sad, Serbia

WELCOME MESSAGE

Dear Members of the IFIP WG5.7 and the Participants of the APMS2020,

On behalf of the Organizing Committee, the Program Committee, and the hosting institution – the University of Novi Sad, Faculty of Technical Sciences, Department of Industrial Engineering and Management – it is our great pleasure to welcome you to Novi Sad, Serbia for the 2020 IFIP International Conference on Advances in Production Management Systems (APMS2020). We are looking forward to inspiring presentations and fruitful discussions during this “mixed-media” event in its 41st Edition.

APMS2020 in Novi Sad, Serbia brings together leading international experts from academia, industry, and government in the area of digital transformation and innovation to discuss globally pressing issues in digital and smart manufacturing, operations management, and supply chain management in the Industry 4.0 era. Under the influence of COVID-19, the event was also digitally transformed and for the first time in its history, the APMS International Conference was organized in a “hybrid-mode”, meaning face-to-face as well as online conference sessions. A large international panel of experts reviewed all the submitted papers and selected the best ones to be included in two volumes as part of the APMS2020 conference proceedings. The topics of interest in APMS 2020 included Digital Supply Networks; Data-Driven Production Management; Sustainable Production Management; Cloud and Collaborative Technologies; Smart Manufacturing, Industry 4.0 and the Operator 4.0, Data-Driven Services; Digital Lean Manufacturing; and Digital Transformation Approaches.

We thank the local staff, participants, session chairs, keynote and plenary speakers for helping us build this exciting conference program. The APMS2020 Organizing Committee made every possible effort to make sure that your participation, either online or face-to-face, will be scientifically rewarding and a pleasurable experience. We appreciate the generous support from both the Ministry of Education, Science and Technological Development and Provincial Secretariat for Higher Education and Scientific Research of the Republic of Serbia.

Thank you all for (e-)attending APMS2020 and welcome to Novi Sad!

Bojan Lalić

Conference Chair

Vidosav Majstorović

Program Chair

Uglješa Marjanović

Organizing Committee Chair

Gregor von Cieminski

WG5.7 Chairperson

David Romero

WG5.7 Secretary

Objectives and Scopes

APMS 2020 in Novi Sad, Serbia brings together leading international experts from academia, industry, and government in the area of production systems to discuss globally pressing issues in smart manufacturing, operations management, supply chain management, and Industry 4.0. The conference features several sessions filled with original, high-impact academic contributions, which will be published in the Springer Series ACIT and indexed on SCOPUS and Web of Science. Industrial viewpoints and insights will be shared through industry keynotes by world renown industry leaders. High quality papers will be fast tracked to several peer reviewed archival journals, including Production Planning & Control (PPC) and International Journal of Production Research (IJPR). The conference is supported by the International Federation of Information Processing (IFIP) and is organized by the IFIP Working Group 5.7 on Advances in Production Management Systems which was established 1978.

Program

APMS 2020 in Novi Sad, Serbia brings together leading international experts from academia, industry, and government in the area of production systems to discuss globally pressing issues in smart manufacturing, operations management, supply chain management, and Industry 4.0. The conference features several sessions filled with original, high-impact academic contributions, which will be published in the Springer Series ACIT and indexed on SCOPUS and Web of Science.

General Information



CAMPUS MAP

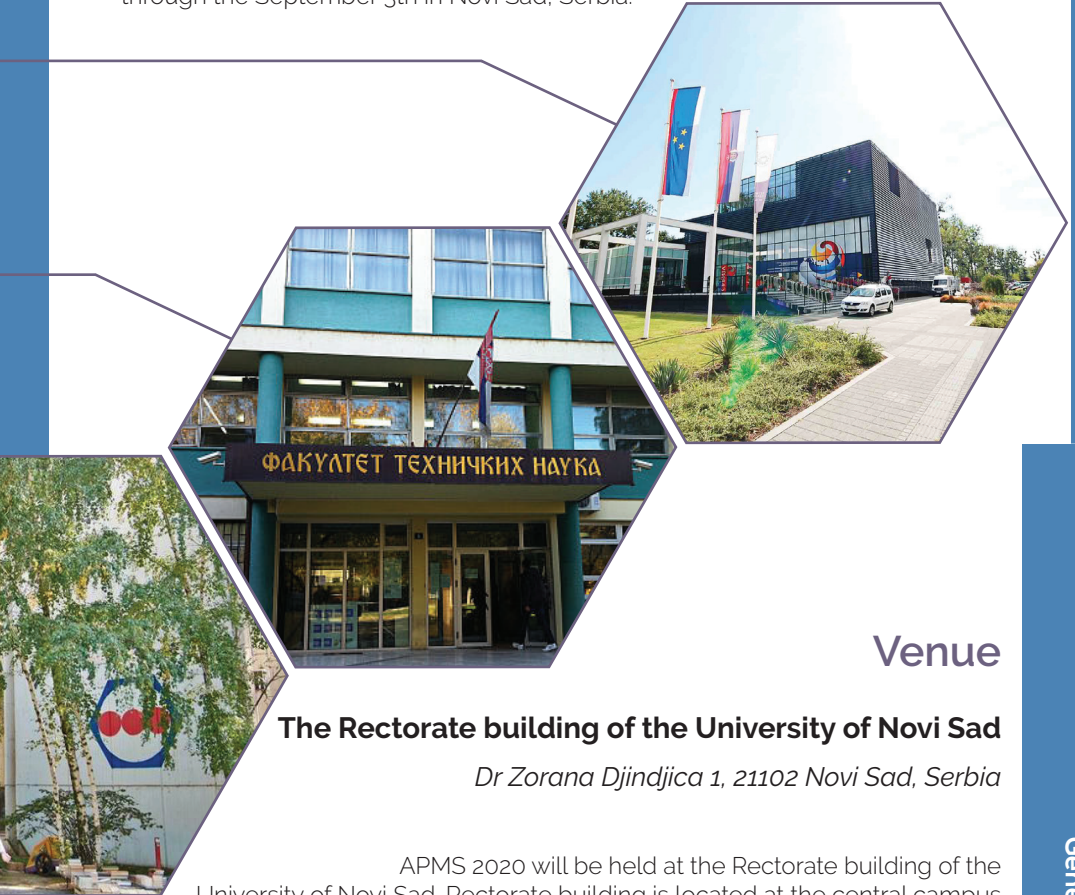


- 1 - The Rectorate building of the Univeristy of Novi Sad
- 2 - Faculty of Technical Sciences
- 3 - Danube river

CONFERENCE VENUE

Conference Dates

The APMS 2020 International Conference - Advances in Production Management Systems will be held on August 30th through the September 3th in Novi Sad, Serbia.



Venue

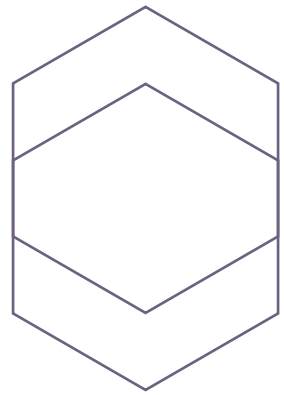
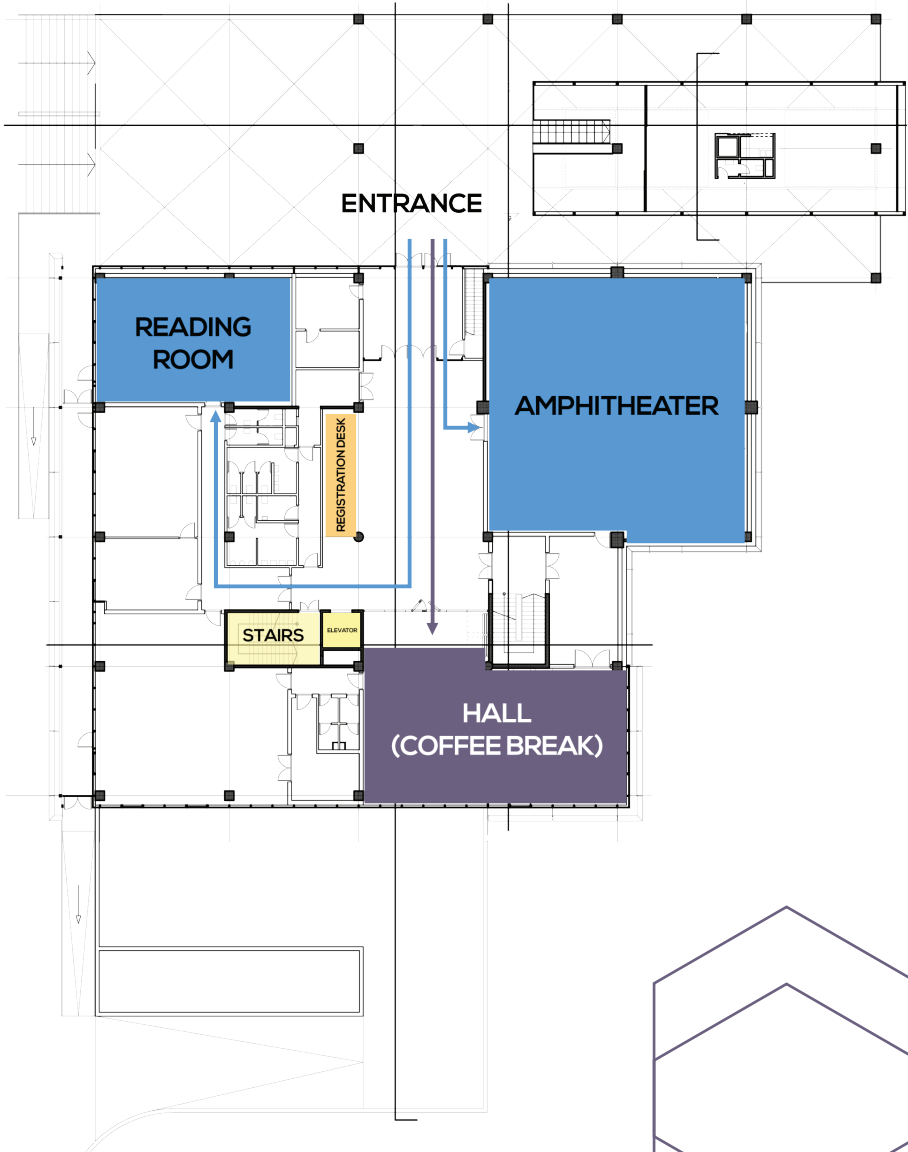
The Rectorate building of the University of Novi Sad

Dr Zorana Djindjica 1, 21102 Novi Sad, Serbia

APMS 2020 will be held at the Rectorate building of the University of Novi Sad. Rectorate building is located at the central campus on the left bank of the Danube, across the famous 18th century Petrovaradin fortress, and the walking distance from the city old town. Novi Sad, the city on the Danube, the city of European history and Balkan hospitality. It is the city of museums, galleries, and events such as EXIT Music Festival that has been awarded international rewards and that has acquired international recognizability. New creative energy brought about by youth groups and organizations has contributed, along with the already recognizable traditional platform, to turn Novi Sad into the European Capital of Culture 2021.

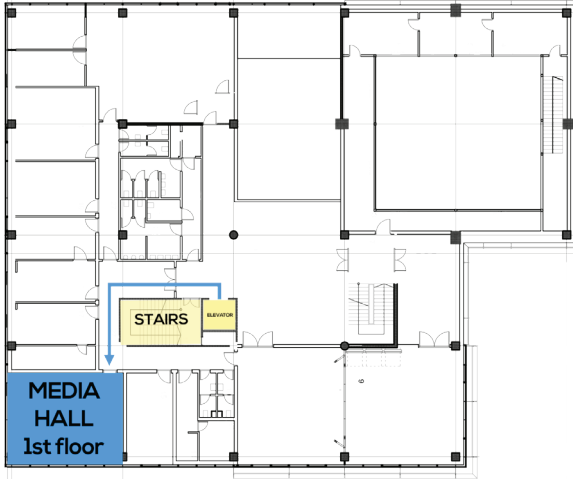
CONFERENCE FLOOR MAP

Ground Floor

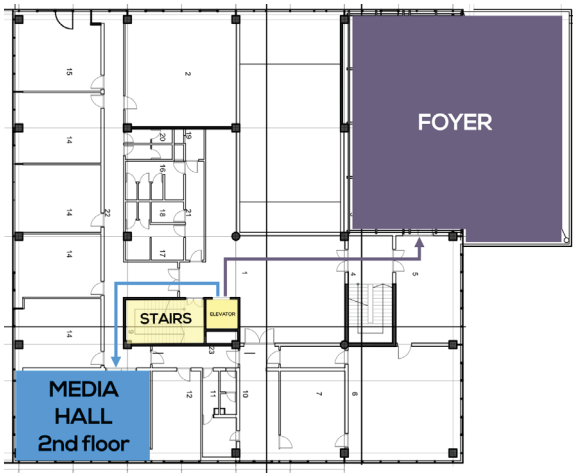


CONFERENCE FLOOR MAP

1st Floor



2nd Floor



CONFERENCE INFORMATION

Registration Desk

The registration desk will be located on the ground floor of Rectorate building.

The registration desk will be open during the following hours.

Sunday: August 30th, - 8:30 a.m. to 5:30p.m.

Monday: August 31st, - 9:00 a.m. to 6:00p.m.

Tuesday: September 1st, - 9:45 a.m. to 5:00p.m.

Instructions for Presentations

Presenters are allotted 15 minutes for presentation and 5 minutes more for Q&A. Session chairs have been instructed to retain control of the schedule.

The preferred file type for presentations is Microsoft Power Point (.pptx-Format recommended). All presenters are instructed to bring their presentation on a USB memory stick if they present face-to-face, or to store it on their personal computer if present online. All presenters are responsible for the correct display of their presentations. We recommend to test the presentation before the session.



Social Activities

Welcome Reception

August 30th, 2020

PLACE: The Rectorate building, ground floor

TIME: 5:30 p.m. 8:00 p.m.

DRESS: Casual

All participants and accompanying guests are cordially invited to an informal gathering at the welcome reception of APMS 2020.

Drinks and snacks will be served.

Novi Sad city guided tour

August 31st, 2020

PLACE: Hotel Centar lobby

TIME: 7:00 p.m. 8:00 p.m.

DRESS: Casual

ADDRESS: Uspenska 1, Novi Sad

Gala Dinner

September 1st, 2020

PLACE: Aqua Doria (Carda Aqua Doria)

TIME: 6:30 p.m. 8:30 p.m.

DRESS: Smart Casual

ADDRESS: Kamenički put bb, Petrovaradin 21000

Wine tour and dinner at Sremski Karlovci

September 2nd, 2020

PLACE: Sremski Karlovci

TIME: 6:30 p.m. 10:00 p.m.

DRESS: Casual

MEETING POINT: Hotel Centar lobby

LUNCH INFORMATION

Monday, August 31st, 2020



CUBO
concept bar and restaurant

12:15 p.m. to 13:15 p.m.
Strumička 16, Novi Sad

Tuesday, September 1st, 2020



CUBO
concept bar and restaurant

12:15 p.m. to 13:15 p.m.
Strumička 16, Novi Sad

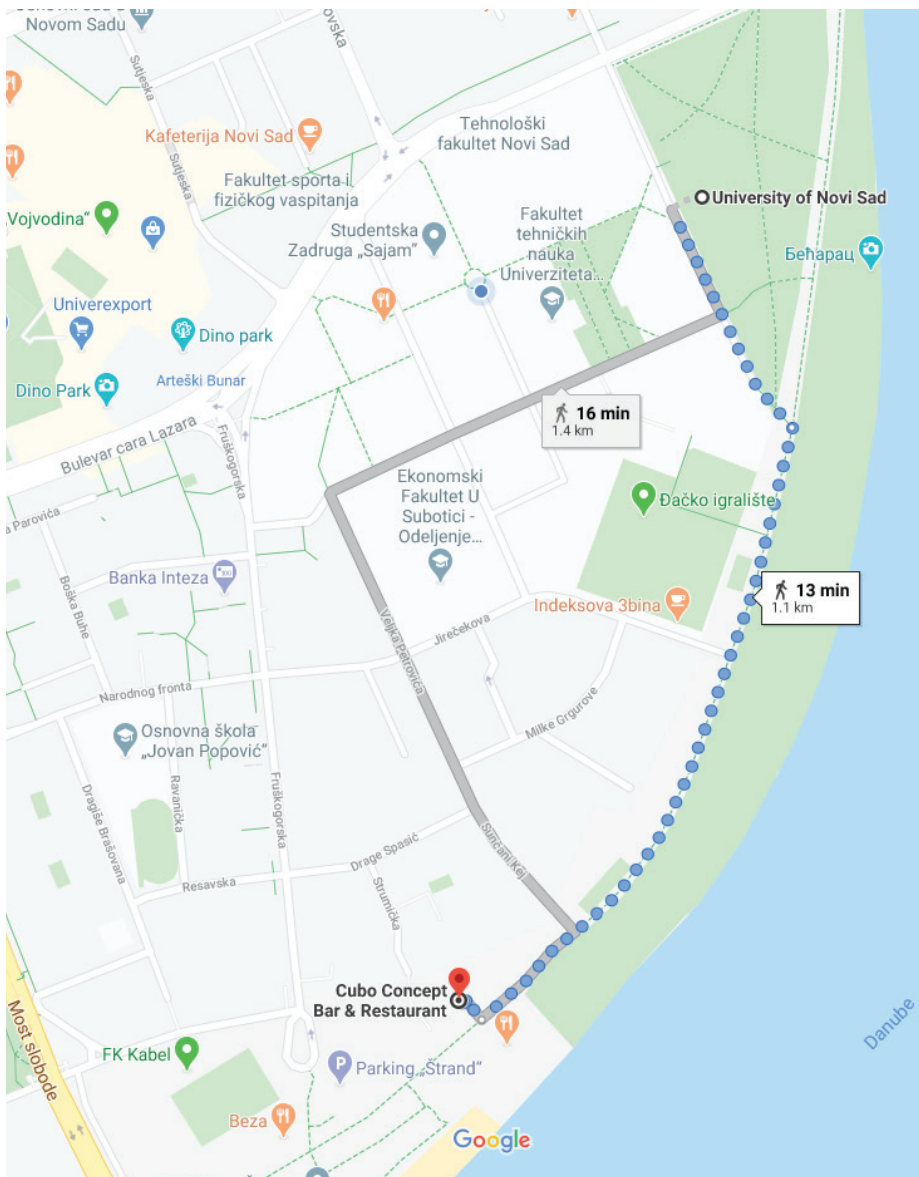
Wednesday, September 2nd, 2020



CUBO
concept bar and restaurant

12:15 p.m. to 13:15 p.m.
Strumička 16, Novi Sad

RESTAURANT LOCATIONS



KEYNOTE SPEAKERS



Dr. Ivanka Višnjic

Associate Professor, ESADE

Ramon Llull University,
Barcelona, Spain

*How to execute digital transformation?
Lessons from manufacturing industry*



Dr. Marco Ulrich

Head of "Software Technologies
and Applications"

Department Manager of Software
Technologies (DECRC/S)
ABB Corporate Research Center Germany
Ladenburg, Germany

*Industrial digitalization -
the way to autonomous systems*



Dr. Jin Chen

Professor, Department of Innovation,
Entrepreneurship and Strategy

Tsinghua University,
Beijing, China

*Innovation for industry key technologies:
Evidence from China*

CONFERENCE INFORMATION

Industrial Tours

The conference program includes three tours with site visits to 3Lateral, Continental, and TTEch (RT-RK).

Thursday, September 3rd, 2020



Departure from hotel Centar	9:00 a.m.
Tour	9:15 a.m. - 10:05 a.m.
Arriving at hotel Centar	11:00 a.m.

Thursday, September 3rd, 2020



Departure from hotel Centar	9:00 a.m.
Tour	9:05 a.m. - 10:05 a.m.
Arriving at hotel Centar	10:10 a.m.

Thursday, September 3rd, 2020



Departure from hotel Centar	9:00 a.m.
Tour	9:15 a.m. - 10:15 a.m.
Arriving at hotel Centar	10:30 a.m.

Conference Overview



SESSIONS OVERVIEW

monday

9:30 - 10:00	Amphitheater – ground floor	Opening ceremony
10:15 - 12:15	Amphitheater – ground floor	Digital Transformation - Part I
10:15 - 12:15	Multimedia Hall – 1st floor	Data-Driven Services - Part I
10:15 - 12:15	Multimedia Hall – 2nd floor	Digital Twins & Shadows - Part I
10:15 - 12:15	Reading Room – ground floor	Production Ramp-up Strategies
13:15 - 15:15	Amphitheater – ground floor	Digital Transformation - Part II
13:15 - 15:15	Multimedia Hall – 1st floor	Data-Driven Services - Part II
13:15 - 15:15	Multimedia Hall – 2nd floor	Digital Twins & Shadows - Part II
13:15 - 15:15	Reading Room – ground floor	Reconfig., Flex. & Agile Mfg. - Part I
15:30 - 16:15	Amphitheater – ground floor	Keynote Address 1
16:30 - 18:30	Amphitheater – ground floor	Digital Transformation - Part III
16:30 - 18:30	Multimedia Hall – 1st floor	Data-Driven Applications
16:30 - 18:30	Multimedia Hall – 2nd floor	Collaborative Robotics Applications
16:30 - 18:30	Reading Room – ground floor	Reconfig., Flex. & Agile Mfg. - Part II

tuesday

10:15 - 12:15	Amphitheater – ground floor	Digital Lean Manufacturing
10:15 - 12:15	Multimedia Hall – 1st floor	Gastronomic Service System Design
10:15 - 12:15	Multimedia Hall – 2nd floor	Product & Assets Lifecycle Mgmt.
10:15 - 12:15	Reading Room – ground floor	Blockchain & Logistics 4.0
13:15 - 14:00	Amphitheater – ground floor	Keynote Address 2
14:00 - 14:45	Amphitheater – ground floor	Panel I: Women in Production Management
15:00 - 17:00	Amphitheater – ground floor	Smart Manufacturing & Industry 4.0
15:00 - 17:00	Multimedia Hall – 1st floor	Scheduling Methods
15:00 - 17:00	Multimedia Hall – 2nd floor	The Operator 4.0
15:00 - 17:00	Reading Room – ground floor	Production Logistics 4.0

wednesday

10:15 - 12:15	Amphitheater – ground floor	Sustainable Manufacturing
10:15 - 12:15	Multimedia Hall – 1st floor	Quality & Risk Management
10:15 - 12:15	Multimedia Hall – 2nd floor	Human Resources Management
10:15 - 12:15	Reading Room – ground floor	Food Supply Chains - Part I
13:15 - 14:00	Amphitheater – ground floor	Keynote Address 3
14:00 - 14:45	Amphitheater – ground floor	Panel II: Digital Transformation and the Social Factory of Things, Services and People
15:00 - 17:00	Amphitheater – ground floor	Circular Manufacturing
15:00 - 17:00	Multimedia Hall – 1st floor	Assembly Systems 4.0
15:00 - 17:00	Multimedia Hall – 2nd floor	ETO Manufacturing
15:00 - 17:00	Reading Room – ground floor	Food Supply Chains - Part II
17:15 - 17:45	Amphitheater – ground floor	Closing Ceremony

	Sunday August 30, 2020	Monday August 31, 2020
8:45	Doctoral Workshop Intro	
9:00		Registration
9:15	Doctoral Workshop (Session 1 and 2)	Opening ceremony
9:30		
9:45		
10:00		Coffee Break (15 min.)
10:15	Break (15 min.)	Parallel Session #1
10:30	Doctoral Workshop (Session 3 and 4)	
10:45		
11:00		
11:15		
11:30		
11:45		
12:00	Lunch Break (75 min.)	Lunch (60 min.)
12:15		
12:30		
12:45		
13:00		

CONFERENCE OVERVIEW

Tuesday September 1, 2020	Wednesday September 2, 2020	Thursday September 3, 2020
		8:45
		9:00
		9:15
		9:30
		9:45
Registration		10:00
Parallel Session #4	Parallel Sessions #6	Industrial tours
		10:15
		10:30
		10:45
		11:00
		11:15
		11:30
		11:45
		12:00
		12:15
Lunch (60 min.)	Lunch (60 min.)	12:30
		12:45
		13:00

	Sunday August 30, 2020	Monday August 31, 2020	
13:15	Doctoral Workshop Closing	Parallel Session #2	
13:30			
13:45			
14:00			
14:15			
14:30	WG5.7 Meeting (Multimedia Hall - 1st floor; Online: Cisco WebEx)		Coffee Break (15 min.)
14:45			
15:00			Keynote 1
15:15			
15:30			
15:45			
16:00		Coffee Break (15 min.)	
16:15			
16:30		Registration	Parallel Session #3
16:45			
17:00	Welcome reception (150 min.)		
17:15			
17:30			
17:45			
18:00			
18:15			
18:30	Novi Sad city guided tour		
18:45			
19:00			
19:15			
19:30			
19:45			
20:00			
20:15			
20:30			

CONFERENCE OVERVIEW

Tuesday September 1, 2020	Wednesday September 2, 2020	Thursday September 3, 2020
Keynote 2	Keynote 3	13:15
		13:30
		13:45
Plenary Session #1	Plenary Session #2	14:00
		14:15
Coffee Break (15 min.)	Coffee Break (15 min.)	14:30
		14:45
Parallel Session #5	Parallel Session #7	15:00
		15:15
		15:30
		15:45
		16:00
		16:15
		16:30
		16:45
	Coffee Break (15 min.)	17:00
	Closing Ceremony	17:15
		17:30
		17:45
		18:00
		18:15
Gala dinner (Carda Aqua Doria)	Wine tour and Dinner (Sremski Karlovci)	18:30
		18:45
		19:00
		19:15
		19:30
		19:45
		20:00
		20:15
		20:30

Sunday, August 30, 2020

8:45 - 10:15

Doctoral Workshop – Opening Session

Multimedia Hall – 1st floor

(Online: Cisco WebEx)

Chair: David Romero

Doctoral Workshop - Session 1 (Sustainable and Circular Manufacturing)

Multimedia Hall – 2nd floor (Online: Cisco WebEx)

Chairs: Milan Delic

Data and information valorisation towards Circular Manufacturing adoption

Federica Acerbi

Politecnico di Milano, Italy

Discussant: Mélanie Despeisse

Design and Management of Assembly 4.0 Systems

Marco Simonetto

Norwegian University of Science and Technology,
Norway

Discussant: Duck Young Kim

Doctoral Workshop – Session 2 (Smart and Digital Manufacturing)

Multimedia Hall – 1st floor (Online: Cisco WebEx)

Chairs: David Romero

The impact of digital servitization on manufacturing firm performance in transition countries

Slavko Rakic

University of Novi Sad, Serbia

Discussant: Paolo Gaiardelli

Sunday, August 30, 2020

10:30 - 12:00

Doctoral Workshop - Session 3 (Sustainable and Circular Manufacturing)

Multimedia Hall – 2nd floor

(Online: Cisco WebEx)

Chairs: Milan Delic

Sustainable deployment of lean within producing corporate groups

Sara Linderson

KTH Royal Institute of Technology, Sweden

Discussant: Milan Delic

Integrating the human factors at the human level with the system level in an order picking process

Vivek Vijayakumar

Norwegian University of Science and Technology,
Norway

Discussant: Jorn Mehnen

A Tool for the Selection of Process Mining Perspectives, Types, Algorithms and Techniques

Dusanka Dakic

University of Novi Sad, Serbia

Discussant: Marco Macchi

DOCTORAL WORKSHOP PROGRAM

Sunday, August 30, 2020

Doctoral Workshop – Session 4 (Smart and Digital Manufacturing)

Multimedia Hall – 1st floor (Online: Cisco WebEx)

Chairs: David Romero

Industrial Asset Management in manufacturing: how to manage data and information in Maintenance?

Adalberto Polenghi

Politecnico di Milano, Italy

Discussant: Åsa Fast-Berglund

Industry 4.0 – The crucial role of Quality 4.0 and Quality management in the context of Serbian transitional economy

Stana Vasic

University of Novi Sad, Serbia

Discussant: David Romero

Sustainable, Data-Driven Food Production Planning and Control

Maggie Bresler

Norwegian University of Science and Technology,

Norway

Discussant: Gyu Lee

13:15 - 13:45

Doctoral Workshop - Closing Session

Multimedia Hall – 2nd floor

(Online: Cisco WebEx)

Chair: Milan Delic

Detailed Agenda



DETAILED AGENDA

Monday, August 31, 2020

9:30 - 10:00

Opening ceremony

Amphitheater – ground floor

10:15 - 12:15

Digital Transformation - Part I

Amphitheater – ground floor

Chairs: Bahrudin Hrnjica & Egon Lüftenegger

A conceptual model for deploying digitalization in SMEs through capability building

Zuhara Chavez, Jannicke Baalsrud Hauge,
Monica Bellgran

KTH Royal Institute of Technology, Sweden

Towards the definition of an Impact Level factor of SME features over Digital Transformation

Melissa Liborio Zapata^{1,2}, Lamia Berrah²,
Laurent Tabourot¹

1: Laboratoire Systèmes et Matériaux pour la
Mécatronique (SYMME), Université Savoie Mont Blanc;
2: Laboratoire d'Informatique, Systèmes, Traitement de
l'Information et de la Connaissance (LISTIC),
Université Savoie Mont Blanc

Industry 4.0 on demand: a value driven methodology to implement Industry 4.0

Deborah Leone, Andrea Barni
SUPSI, Switzerland

DETAILED AGENDA

Monday, August 31, 2020

Technology Adoption in the Industry 4.0 Era: Empirical Evidence from Manufacturing Companies

Nenad Medić¹, Zoran Anisic¹, Nemanja Tasic¹,
Nikola Zivlak², Bojan Lalic¹

1: University of Novi Sad, Faculty of Technical Sciences, Serbia; 2: Emlyon Business School, Écully, France

ERP in Industry 4.0 Context

Vidosav Majstorovic¹, Slavenko Stojadinovic¹,
Bojan Lalic², Ugljesa Marjanovic²

1: University of Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia; 2: University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia

General readiness assessment of Industry 4.0: Evidence from Serbian manufacturing industry

Tanja Todorovic¹, Bojan Lalic¹, Vidosav Majstorovic²,
Ugljesa Marjanovic¹, Nemanja Tasic¹

1: Faculty of Technical Sciences, University of Novi Sad, Serbia;
2: Faculty of Mechanical Engineering, University of Belgrade, Serbia

10:15 - 12:15

Data-Driven Services - Part I

Multimedia Hall – 1st floor

Chairs: Paolo Gaiardelli & Shaun West

Industry 4.0 data-related technologies and servitization: a systematic literature review

Michela Zambetti, Roberto Pinto, Giuditta Pezzotta
Department of Management, Information and
Production Engineering, University of Bergamo, Italy

Engineering of data-driven Service Systems for Smart Living: Application and Challenges

Henrik Kortum¹, Laura Sophie Gravemeier¹,
Novica Zarvic¹, Thomas Feld², Oliver Thomas^{1,2,3}

1: DFKI German Research Center for Artificial
Intelligenz, Germany;

2: Strategion GmbH;

3: Universität Osnabrück, Informationsmanagement
und Wirtschaftsinformatik

Impact of platform openness on ecosystems and value streams in Platform-based PSS exemplified using RAMI 4.0

Michela Zambetti¹, Till Blüher², Giuditta Pezzotta¹,
Konrad Exner³, Roberto Pinto¹, Rainer Stark^{2,3}

1: Department of Management, Information and
Production Engineering, University of Bergamo, Italy;

2: Technische Universität Berlin, Germany;

3: Fraunhofer Institute for Production Systems and
Design Technology, Germany

Towards a Comparative Data Value Assessment Framework for Smart Product Service Systems

Lennard Phillip Holst, Volker Stich, Jana Frank,
Günther Schuh

Institute for Industrial Management at RWTH
Aachen University, Germany

The Data-Driven Product-Service Systems Design and Delivery (4DPSS) methodology

Roberto Sala¹, Alessandro Bertoni², Fabiana Pirola¹,
Giuditta Pezzotta¹

1: University of Bergamo, Italy;

2: Blekinge Institute of Technology, Sweden

DETAILED AGENDA

Monday, August 31, 2020

Agile guideline for development of smart services in manufacturing enterprises with support of artificial intelligence

Mike Freitag¹, Oliver Hämmerle²

1: Fraunhofer IAO, Germany;

2: University of Stuttgart, Germany

10:15 - 12:15

Digital Twins & Shadows - Part I

Multimedia Hall – 2nd floor

Chairs: Erik Flores-Garcia & Sabine Waschull

The transformation towards smart(er) factories: integration requirements of the digital twin

S. Waschull, J.C. Wortmann, J.A.C. Bokhorst

University of Groningen, Department of Operations

Systems Engineering Approach to Identify Requirements for Digital Twins Development

Ali Gharaei¹, Jinzhi Lu¹, Oliver Stoll², Xiaochen Zheng¹, Shaun West², Dimitris Kiritsis¹

1: EPFL, Switzerland;

2: HSLU, Switzerland

Analyzing the Characteristics of Digital Twin and Discrete Event Simulation in Cyber Physical Systems

Erik Flores-Garcia¹, Goo-Young Kim², Jinho Yang²,

Magnus Wiktorsson¹, Sang Do Noh²

1: KTH Royal Institute of Technology, Sweden;

2: Sungkyunkwan University

DETAILED AGENDA

Monday, August 31, 2020

A Digital Twin modular framework for Reconfigurable Manufacturing Systems

Hichem Haddou Benderbal¹, Abdelkrim R. Yelles-Chaouche^{1,2}, Alexandre Dolgui¹

1: IMT Atlantique, LS2N-CNRS, Nantes, France;

2: IRT Jules Verne, Bouguenais, France

Business Process Management for Manufacturing Execution System deployment: some lessons from a bearings manufacturer experience

Hervé Verjus, Vincent Clivillé, Lamia Berrah, Romain Gandia, Claude Chapel
Université Savoie Mont-Blanc, France

Identifying Key Business Processes that Can Benefit from Industry 4.0 in the Gas Sector, The Public Gas

Distribution Networks Case in Greece

Nikolaos A. Panayiotou, Vasileios P. Stavrou, Konstantinos E. Stergiou

National Technical University of Athens, Greece

10:15 - 12:15

Production Ramp-up Strategies

Reading Room – ground floor

Chairs: Stefan Wiesner & Jannicke Baalsrud

Key factors on utilizing the production system design phase for increasing operational performance

Md Hasibul Islam, Zuhara Chavez,

Seyoum Eshetu Birkie, Monica Bellgran

KTH Royal Institute of Technology, Sweden

DETAILED AGENDA

Monday, August 31, 2020

Part Selection for Freeform Injection Molding: framework for development of a unique methodology

Elham Sharifi¹, Atanu Chaudhuri¹,
Brian Vejrum Wæhrens¹, Lasse G. Staal²,
Saeed D. Farahani³

1: Aalborg university, Denmark;
2: Addifab company, Denmark;
3: Maersk Mc-Kinney Moller Institute,
Southern Denmark University

Business Model Development for a Dynamic Production Network Platform

Stefan Alexander Wiesner¹, Larissa Behrens²,
Jannicke Baalsrud Hauge^{1,3}

1: BIBA - Bremer Institut für Produktion und Logistik
GmbH, Germany;
2: Karlsruher Institut für Technologie (KIT), Institut für
Fördertechnik und Logistiksysteme, Germany;
3: KTH – Royal Institute of Technology, Sweden

A Model for Cost-Benefit Analysis of Production Ramp-up Strategies

Khaled Medini¹, Antoine Pierné²,
John Ahmet Erkoyuncu³, Christian Cornet⁴

1: Mines Saint-Etienne, Univ Clermont Auvergne, CNRS,
UMR 6158 LIMOS, Henri Fayol Institute,
F - 42023 Saint-Etienne France;
2: Mines Saint-Etienne, F - 42023 Saint-Etienne France;
3: Through-life Engineering Services Centre, School of
Aerospace, Transport and Manufacturing, Cranfield
University, Cranfield, MK43 0AL, UK;
4: Centre Technique des Industries Mécaniques, 42000
Saint -Etienne, France

DETAILED AGENDA

Monday, August 31, 2020

Machine Learning-Supported Planning of Lead Times in Job Shop Manufacturing

Kathrin Julia Kramer¹, Carsten Wagner²,
Matthias Schmidt¹

1: PPI, Leuphana University Lueneburg, 21335
Lueneburg, Germany;

2: HAWK University of Applied Sciences and Art
Hildesheim/ Holzminden/ Goettingen, Buesgenweg
1a, 37077 Goettingen, Germany

Backlog Oriented Bottleneck Management – Practical Guide for Production Managers

Roman Ungern-Sternberg, Christian Fries,
Hans-Hermann Wiendahl

Fraunhofer-Institute for Manufacturing Engineering and
Automation IPA, Germany

13:15 - 15:15

Digital Transformation - Part II

Amphitheater – ground floor

Chairs: Ioan Turcin & Selver Softic

Challenges in Data Life Cycle Management for Sustainable Cyber-Physical Production Systems

Mélanie Despeisse, Ebru Turanoglu Bekar
Chalmers University of Technology, Sweden

Applying contextualization for data-driven transformation in manufacturing

Sonika Gogineni¹, Kai Lindow¹, Jonas Nickel²,
Rainer Stark^{1,3}

1: Fraunhofer Institute for Production Systems and
Design Technology IPK, Berlin, Germany;

2: Rolls-Royce Deutschland, Eschenweg 11, 15827
Blankenfelde-Mahlow, Germany;

DETAILED AGENDA

Monday, August 31, 2020

3: Technische Universität Berlin, Chair Industrial Information Technology, Berlin, Germany

Concept of PLM application integration with VR and AR techniques

Jan Duda, Sylwester Oleszek
Cracow University of Technology, Poland

Organizational enablers for digitalization in manufacturing industry

Lars Harald Lied, Daryl John Powell,
Maria Flavia Mogos
SINTEF Manufacturing AS, Norway

Explainable AI in Manufacturing: A Predictive Maintenance Case Study

Bahrudin Hrnjica², Selver Softic¹
1: CAMPUS 02 University of Applied Sciences, Austria; 2:
University of Bihac, Bosnia and Herzegovina

The big potential of Big Data in manufacturing: evidence from emerging economies

Marko Pavlović, Uglješa Marjanović, Slavko Rakić,
Nemanja Tasić, Bojan Lalić
University of Novi Sad, Faculty of Technical Sciences,
Novi Sad, Serbia

13:15 - 15:15

Data-Driven Services - Part II

Multimedia Hall – 1st floor

Chairs: Xavier Boucher & Giuditta Pezzotta

A novel value driven co-creation framework

Geir Ringen, Halvor Holtskog, Torgeir Welo
NTNU, Norway

DETAILED AGENDA

Monday, August 31, 2020

A framework to support value co-creation in PSS development

Martha Orellano¹, Xavier Boucher², Gilles Neubert³
1: Mines Saint-Etienne, Univ Lyon, Univ Jean Moulin, Univ Lumire, Univ Jean Monnet, ENTPE, INSA Lyon, ENS Lyon, CNRS, UMR 5600 EVS, Institut Henri Fayol, F-42023, Saint-Etienne, France.;
2: Mines Saint-Etienne, Univ Clermont Auvergne, CNRS, UMR 6158 LIMOS, Institut Henri Fayol, F 42023, Saint-Etienne, France;
3: emlyon business school, CNRS, UMR 5600 EVS, F-42009, Saint-Etienne, France

Value chain integration – a framework for assessment

Inger Gamme¹, Bjørn Andersen², Håkon Raabe¹, Daryl Powell^{1,2}
1: SINTEF Manufacturing, Norway;
2: Norwegian University of Science and Technology, Norway

Using Service Dominant logic to assess the value co-creation of Smart Services

Oliver Stoll¹, Shaun West¹, Cosimo Barbieri²
1: Lucerne University of Applied Sciences and Arts, Switzerland;
2: Università degli Studi di Firenze, Viale G. Morgagni 40 - 50134, Italy

The role of service business models in the manufacturing of transition economies

Slavko Rakic, Nenad Simeunovic, Nenad Medic, Marko Pavlovic, Ugljesa Marjanovic
University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia

DETAILED AGENDA

Monday, August 31, 2020

Reshoring of service operations: evidence from a Delphi study

Paolo Gaiardelli, Albachiara Boffelli,
Matteo Kalchschmidt, Daniel Bellazzi,
Simone Orom Samorani
University of Bergamo, Italy

13:15 - 15:15

Digital Twins & Shadows - Part II

Multimedia Hall – 2nd floor

Chairs: Dimitris Kiritsis & Frederick Birtel

Digital Shadows as an enabler for the internet of production

Günther Schuh, Andreas Güzlaff, Frederick Saueremann,
Judith Maibaum
Werkzeugmaschinenlabor WZL der RWTH Aachen,
Germany

Digital and physical testbed for production logistics operations

Jannicke Baalsrud Hauge^{1,2}, Masoud Zafarzadeh¹,
Yongkuk Jeong¹, Yi Li³, Wajid Ali Khilji¹,
Magnus Wiktorsson¹

- 1: KTH Royal Institute of Technology, Sustainable production system, Södertälje, Sweden;
2: Bremer Institut für Produktion und Logistik GmbH (BIBA), Bremen, Germany;
3: Fraunhofer-Chalmers Centre for Industrial Mathematics Gothenburg, Sweden

First Steps to the Digital Shadow of Maintenance Services' Value Contribution

Frederick Birtel¹, Achim Kampker²,
Volker Stich¹

DETAILED AGENDA

Monday, August 31, 2020

- 1: Research Institute for Industrial Management (FIR) at RWTH Aachen University, Germany;
- 2: Chair Production Engineering of E-Mobility Components at RWTH Aachen University, Germany

Process Mining in Manufacturing: Goals, Techniques and Applications

Darko Stefanovic, Dusanka Dakic,
Branislav Stevanov, Teodora Lolic
University of Novi Sad, Serbia, Faculty of Technical Sciences

Integrated Platform and Digital Twin Application for Global Automotive Part Suppliers

Jinho Yang¹, Sangho Lee¹,
Yong-Shin Kang¹,
Sang Do Noh¹, Sung Soo Choi², Bo Ra Jung²,
Sang Hyun Lee², Jeong Tae Kang²,
Dae Yub Lee³, Hyung Sun Kim³
1: Sungkyunkwan University, Republic of Korea;
2: Yura, Republic of Korea;
3: DEXTA Inc., Republic of Korea

The successful commercialization of a digital twin in an industrial product service system

Oliver Stoll¹, Shaun West¹, Paolo Gaiardelli²,
David Harrison³, Fintan Corcoran⁴
1: Lucerne University of Applied Sciences and Arts, Switzerland;
2: Università degli studi di Bergamo, 24129 Bergamo, Italy;
3: Glasgow Caledonian University, Glasgow G4 0BA, Scotland UK;
4: Mebag, Planungs- und Bauträger AG, Cham CH-6330, Switzerland

DETAILED AGENDA

Monday, August 31, 2020

13:15 - 15:15

Reconfig., Flex. & Agile Mfg. - Part I

Reading Room – ground floor

Chairs: Alexandre Dolgui & Xavier Delorme

A computational method for identifying the optimum buffer size in the era of Zero Defect Manufacturing

Foivos Psarommatis, Ali Boujemaoui,

Dimitris Kiritsis

École polytechnique fédérale de Lausanne,
Switzerland

A Bi-objective Scheduling Model for Additive Manufacturing with Multiple Materials and Sequence-dependent

Setup Time

Reza Tavakkoli-Moghaddam, Shadi Shirazian,

Behdin Vahedi-Nouri

University of Tehran

A Method of Distributed Production Management for Highly-Distributed Flexible Job Shops

Daiki Yasuda¹, Eiji Morinaga²,

Hidefumi Wakamatsu¹

1: Osaka University, Japan;

2: Osaka Prefecture University, Japan

Dynamic Distributed Job-Shop Scheduling Problem Consisting of Reconfigurable Machine Tools

Mehdi Mahmoodjanloo¹,

Reza Tavakkoli-Moghaddam¹,

Armand Baboli², Ali Bozorgi-Amiri¹

1: University of Tehran;

2: INSA of Lyon

DETAILED AGENDA

Monday, August 31, 2020

Towards a Non-Disruptive System for Dynamic Orchestration of the Shop Floor

Milan Pisarić¹, Vladimir Dimitrieski²,

Marko Vještica²,

Goran Krajoski¹

1: Industrial Automation, KEBA AG, Linz, Austria;

2: University of Novi Sad,

Faculty of Technical Sciences, Novi Sad, Serbia

Balancing and configuration planning of RMS to minimize energy cost

Audrey Cerqueus, Paolo Gianessi,

Damien Lamy,

Xavier Delorme

Mines Saint-Etienne,

Univ Clermont Auvergne, CNRS,

UMR 6158 LIMOS, Institut Henri Fayol,

F - 42023 Saint-Etienne France

15:30 - 16:15

KEYNOTE I: How to execute digital transformation?

Lessons from manufacturing industry

Amphitheater – ground floor

Prof. Dr. Ivanka Visnjic

ESADE, Ramon Llull University, Spain

16:30 - 18:30

Digital Transformation - Part III

Amphitheater – ground floor

Chairs: Vlad Bocanet & Bahrudin Hrnjica

DETAILED AGENDA

Monday, August 31, 2020

**Achieving Business Model Innovation
with the Personalized Product**

Business Model Radar Template

Egon Lüftnegger^{1,2}

1: BusinessModelRadar.com;

2: CAMPUS 02

University of Applied Sciences, Austria

**Integrating electronic components into
3D printed parts to develop a
digital manufacturing**

approach

Ioan Turcin^{1,2}, Ali Abdallah¹, Cosmin Cosma²,

Manfred Pauritsch¹, Nicolae Balc²

1: CAMPUS 02

University of Applied Sciences in Graz, Austria;

2: Technical University of Cluj-Napoca, Romania

**The Application of ICT Software Solutions in
Manufacturing Sector in Serbia**

Danijela Ciric, Teodora Lolic, Danijela Gracanin,

Darko Stefanovic, Bojan Lalic

University of Novi Sad,

Faculty of Technical Sciences, Serbia

Retrofit Concept for Textile Production

Felix Franke, Susanne Franke, Ralph Riedel

TU Chemnitz, Germany

**Smart contract-based blockchain solution to reduce
supply chain risks**

Fabian Dietrich^{1,2}, Ali Turgut³,

Daniel Palm^{1,4}, Louis Louw²

DETAILED AGENDA

Monday, August 31, 2020

- 1: ESB Business School, Reutlingen University, Alteburgstr. 150, 72762 Reutlingen, Germany;
- 2: Department of Industrial Engineering, University of Stellenbosch, 145 Banghoek Rd., 7600, South Africa;
- 3: Steinbeis-Innovationszentrum Transferplattform Industrie 4.0, Alteburgstr. 150, 72762 Reutlingen, Germany;
- 4: Fraunhofer Institute for Manufacturing Engineering and Automation, Alteburgstr. 150, 72762 Reutlingen, Germany

The Potential of Game Development Platforms for Digital Twins and Virtual Labs: Case Study of an Energy Analytics and Solution Lab

Ali Abdallah, Matthias Primas, Ioan Turcin,
Udo Traussnigg
CAMPUS 02, University of Applied Sciences,
Graz 8010, Austria

16:30 - 18:30

Data-Driven Applications

Multimedia Hall – 1st floor

Chairs: Magnus Wiktorsson & Sang Do Noh

Smart Factory Competitiveness based on real time Monitoring and Quality predictive model applied to multi-stages Production lines

Nicola Gramegna¹, Fabrizio Greggio¹,
Franco Bonollo²

- 1: EnginSoft SpA, Italy;
- 2: Università di Padova - DTG, Italy

DETAILED AGENDA

Monday, August 31, 2020

A framework of data-driven dynamic optimisation for smart production logistics

Sichao Liu¹, Lihui Wang¹, Xi Vincent Wang¹,
Magnus Wiktorsson²

1: Department of Production Engineering, KTH Royal
Institute of Technology, 1044 Stockholm, Sweden;

2: Department of Sustainable Production Development,
KTH Royal Institute of Technology,
15181 Södertälje, Sweden

Workforce Assignment with a Different Skill Level for Automotive Parts Assembly Lines

Hyungjoon Yang¹, Je-Hun Lee², Hyun-Jung Kim¹

1: KAIST;

2: Sungkyunkwan University

A New Application of Coordination Contracts for Supplier Selection in a Cloud Environment

Reza Tavakkoli-Moghaddam, Mohammad Alipour-Vaezi,
Zahra Mohammad-Nazari

University of Tehran

Decentralized Industrial IoT Data Management Based on Blockchain and IPFS

Xiaochen Zheng¹, Jinzhi Lu¹, Shengjing Sun²,
Dimitris Kiritsis¹

1: École polytechnique fédérale de Lausanne,
Switzerland;

2: ETSII, Universidad Politécnica de Madrid, Spain

SKOS Tool: A Tool for Creating Knowledge Graphs to Support Semantic Text Classification

Farhad Ameri, Reid Yoder, Kimia Zandbiglari

Texas State University, United States of America

16:30 - 18:30

Collaborative Robotics Applications

Multimedia Hall – 2nd floor

Chairs: Åsa Fasth-Berglund & Jan Ola

A Literature review on the Level of Automation and new approach proposal

Hasnaa Ait Malek^{1,2}, Alain Etienne²,

Ali Siadat², Thierry Allavena¹

1: PSA Groupe, France;

2: LCFC, France

Framework for identifying gripper requirements for collaborative applications in manufacturing

Omkar Salunkhe, Patrik Fager, Åsa Fast-Berglund

Chalmers University of Technology,

Gothenburg Sweden

Gripper types and components in robotic bin picking

Patrik Fager¹, Stefano Rossi², Robin Hanson¹,

Lars Medbo¹, Omkar Salunkhe¹, Mats Johansson¹,

Åsa Fasth-Berglund¹

1: Chalmers University of Technology, Sweden;

2: University of Padova, Italy

A Simulation Analysis of Part Feeding to Assembly Stations with Vertical Robotic Storage and Retrieval Systems

Elena Tappia, Emilio Moretti, Marco Melacini

Politecnico di Milano, Italy

DETAILED AGENDA

Monday, August 31, 2020

Autonomous mobile robots in hospital logistics

Giuseppe Fragapane, Hans-Henrik Hvolby,
Fabio Sgarbossa, Jan Ola Strandhagen
Norwegian University of Science and Technology,
Norway

Planning environments of hospital laboratories: An exploratory study

Aili Biriita Berthum, Marco Semini,
Jan Ola Strandhagen
Norwegian University of Science and Technology,
Norway

16:30 - 18:30

Reconfig., Flex. & Agile Mfg. - Part II

Reading Room – ground floor

Chairs: Xavier Delorme & Alexandre Dolgui

Towards a reference model for configuration of reconfigurable manufacturing system (RMS)

Erica Capawa Fotsoh^{1,2}, Nasser Mebarki²,
Pierre Castagna², Pascal Berruet³,
Francisco Gamboa¹

1: IRT Jules Verne/ LS2N, France;
2: Nantes University, IUT of Nantes, LS2N;
3: Lab-STICC Research Center, University
of South-Brittany

Towards an Industry-Applicable Design Methodology for Developing Reconfigurable Manufacturing

Alessia Napoleone¹, Ann-Louise Andersen¹,
Ditlev Brunoe¹, Kjeld Nielsen¹, Simon Boldt²,
Carin Rösiö², David Grube Hansen³

DETAILED AGENDA

Monday, August 31, 2020

- 1: Aalborg University, Denmark;
- 2: Jönköping University;
- 3: University of Southern Denmark

Reconfigurable Digitalized and Servitized Production Systems: Requirements and Challenges

Magdalena Paul¹, Audrey Cerqueus²,

Daniel Schneider¹,

Hichem Haddou Benderbal³,

Xavier Boucher², Damien Lamy⁴,

Gunther Reinhart¹

1: Technical University of Munich, Germany;

2: Mines Saint-Etienne, Univ Clermont Auvergne, CNRS, France;

3: IMT Atlantique, France;

4: Mines Saint-Etienne, Institut Henri Fayol, France

Reconfigurable Manufacturing: Lesson Learnt from the COVID-19 Outbreak

Alessia Napoleone¹, Lorenzo Bruno Pratavia²

1: Aalborg University, Denmark;

2: Politecnico di Milano, Italy

Assembly process design: performance evaluation under ergonomics consideration using several robot collaboration modes

Anthony Quenehen, Stephane Thiery, Nathalie Klement,

Lionel Roucoules, Olivier Gibaru

Arts et Metiers Institute of Technology, France

The impact of dynamic tasks assignment in paced mixed-model assembly line with moving workers

Seyyed Ehsan Hashemi-Petroodi¹, Simon Thevenin¹,

Sergey Kovalev², Alexandre Dolgui¹

1: IMT-Atlantique, Nantes, France;

2: INSEEC Business School, Lyon, France

DETAILED AGENDA

Tuesday, September 1, 2020

10:15 - 12:15

Digital Lean Manufacturing

Amphitheater – ground floor

Chairs: Daryl Powell & David Romero

A Learning Roadmap for Digital Lean Manufacturing

Anja Bottinga Solheim, Daryl John Powell

SINTEF Manufacturing, Norway

New Forms of Gemba Walks and their Digital Tools in the Digital Lean Manufacturing World

David Romero¹, Paolo Gaiardelli², Thorsten Wuest³,
Daryl Powell⁴, Matthias Thürer⁵

1: Tecnológico de Monterrey, Mexico;

2: University of Bergamo, Italy;

3: West Virginia University, USA;

4: SINTEF Manufacturing AS, Norwa;

5: Jinan University, China

Investigating the Challenges and Opportunities for Production Planning and Control in

Digital Lean Manufacturing

Daryl Powell^{1,2}, Eirin Lodgaard¹, Heidi Dreyer²

1: SINTEF Manufacturing, Norway;

2: Norwegian University of Science and Technology, Norway

Lean Thinking: from the shop floor to an organizational culture

Paulo Amaro, Anabela C. Alves, Rui M. Sousa

University of Minho, Portugal

Utilizing Lean Thinking as a Means to Digital Transformation in Service Organizations

Felix Preshanth Santhiapillai, Chandima Ratnayake

University of Stavanger, Norway

DETAILED AGENDA

Tuesday, September 1, 2020

Assessing the Value of Process

Improvement Suggestions

Torbjørn Netland¹, Hajime Mizuyama², Rafael Lorenz¹

1: ETH Zurich, Switzerland;

2: Aoyama Gakuin University, Japan

10:15 - 12:15

Gastronomic Service System Design

Multimedia Hall – 1st floor

Chairs: Tomomi Nonaka & Nobutada Fujii

Human–Robot Hybrid Service System Introduction for Enhancing Labor and Robot Productivity

Takeshi Shimmura¹, Ryosuke Ichikari²,

Takashi Okuma²

1: Ritsumeikan University, Japan;

2: National Institute of Advance Industrial
Science and Technology

Effectiveness of Vendor Managed Inventory [VMI] in Explosive Inventory Management

Alexandre Formigoni¹, Joao Gilberto Mendes Dos Reis²,

Roberto Moia¹, Caio Stettiner¹,

Joao Maiellaro¹

1: Centro Paula Souza;

2: Universidade Paulista, Brazil

Forecasting Customers Visiting using Machine Learning and Characteristics Analysis with Low Forecasting Accuracy Days

Takashi Tanizaki¹, Yuta Hanayama¹, Takeshi Shinmura²

1: Graduate School of Systems Engineering,
Kindai University, Japan;

2: Ritsumeikan University, Japan

DETAILED AGENDA

Tuesday, September 1, 2020

A study on menu planning method for managed meal -Consideration of the cost of ordering ingredients

Kyohei Irie, Fuji Nobutada, Daisuke Kokuryo,
Toshiya Kaihara
Graduate School of System Informatics,
Kobe University, Japan

Service system design considering employee satisfaction through introducing service robots

Tomomi Nonaka¹, Takeshi Shimmura¹, Nobutada Fujii²
1: Ritsumeikan University, Japan;
2: Kobe University, Japan

10:15 - 12:15

Product & Assets Lifecycle Mgmt.

Multimedia Hall – 2nd floor

Chairs: Irene Roda & Adalberto Polenghi

Exploring synergies between Circular Economy and Asset Management

Federica Acerbi, Adalberto Polenghi, Irene Roda,
Marco Macchi, Marco Taisch
Politecnico di Milano, Italy

A conceptual model of the IT ecosystem for Asset Management in the global manufacturing context

Adalberto Polenghi, Irene Roda, Marco Macchi,
Alessandro Pozzetti
Politecnico di Milano, Italy

DETAILED AGENDA

Tuesday, September 1, 2020

Agent-Based Modeling and Analysis of Dynamic Slab Yard Management in a Steel Factory

Hajime Mizuyama

Aoyama Gakuin University, Japan

Data-driven maintenance delivery framework: test in an Italian company

Roberto Sala, Fabiana Pirola, Giuditta Pezzotta

University of Bergamo, Italy

Information flows supporting Circular Economy adoption in the manufacturing sector

Federica Acerbi, Marco Taisch

Politecnico di Milano, Italy

Bayesian Modelling for Product Testing and Release

John Wilson

Ivey Business School, Canada

10:15 - 12:15

Blockchain & Logistics 4.0

Reading Room – ground floor

Chairs: Ugljesa Marjanovic & Chiara Cimini

Identifying the opportunities for enhancing the digital readiness level of the supply chain

Chiara Cimini, Fabiana Pirola, Sergio Cavalieri

Department of Management,

Information and Production Engineering,

University of Bergamo, Italy

DETAILED AGENDA

Tuesday, September 1, 2020

Evaluating a Blockchain-based supply chain purchasing process through simulation

Geraldo Jose Dolce Uzum Martins¹,
Jacqueline Zonichenn Reis²,
Benedito Cristiano Petroni²,
Rodrigo Franco Gonçalves^{1,2}, Berislav Andrić³
1: Politecnic School, University of Sao Paulo;
2: Universidade Paulista, Brazil;
3: Polytechnic in Pozega, Croatia

Blockchain-based secured collaborative model for supply chain resource sharing and visibility

Tarun Kumar Agrawal¹, Ravi Kalaisrasan^{1,2},
Magnus Wiktorsson¹
1: KTH Royal Institute of Technology,
Södertälje, Sweden;
2: Scania CV AB, Södertälje, Sweden

A Robust Multi-Commodity Rebalancing Process in Humanitarian Logistics

Xuehong Gao¹, Xuefeng Jin²
1: Pusan National University, Busan, Korea;
2: Alibaba (China) Co., Ltd, Alibaba Supply Chain Platform, Hangzhou, China

Travel-Times Analysis and Passenger Transport Disutilities in Congested

American Cities:

**Los Angeles, New York, Atlanta,
Austin, and Chicago**

Helcio Raymundo, Joao Gilberto Mendes Dos Reis
RESUP/PPGEP - Universidade Paulista, Brazil

DETAILED AGENDA

Tuesday, September 1, 2020

The Role of Last-Mile Delivery in the Future of E-commerce

Fernanda Alves De Araujo¹,

Joao Gilberto Mendes Dos Reis^{1,2},

Paula Ferreira Da Cruz Correia¹

1: Universidade Paulista, Brazil;

2: Universidade Federal da Grande Dourados, Brazil

13:15 - 14:00

KEYNOTE II: Industrial digitalization – the way to autonomous systems

Amphitheater – ground floor

Dr. Marco Ulrich

ABB Corporate Research Center, Germany

14:00 - 14:45

Panel I: Women in Production Management

Amphitheater – ground floor

Chair: Irene Roda

15:00 - 17:00

Smart Manufacturing & Industry 4.0

Amphitheater – ground floor

Chairs: Thorsten Wuest & Boonserm (Serm) Kulvatunyou

Smart Products in Smart Manufacturing Systems: An Opportunity to Utilize AR?

Thorsten Wuest, Joshua Gross

West Virginia University, United States of America

DETAILED AGENDA

Tuesday, September 1, 2020

Manufacturing Operations Management for Smart Manufacturing – A Case Study

Oliver Lohse¹, Michael Meyer-Hentschel¹,
Subba Rao², Raffaello Lepratti³

1: Siemens AG, Corporate Technology, Germany;
2: Siemens Industry Software Inc., Digital Industries,
USA; 3: Siemens AG, Digital Industries, Germany

Industry 4.0: maturity of automotive companies in Brazil for the digitization of processes

Sergio Miele Ruggero, Nilza Aparecida Santos,
José Benedito Sacomano,
Antonio Carlos Estender, Marcia Terra
Universidade Paulista Unip, Brazil

The impact of Industry 4.0 connectivity on the collaboration along Brazilian automotive supply chain

Nilza Aparecida Dos Santos^{1,2}, Sergio Miele Ruggero¹,
Jose Benedito Sacomano¹,
Antonio Carlos Estender¹, Marcia Terra¹
1: Universidade Paulista Unip, Brazil;
2: Fatec Cotia

An Application of a DSML in Industry 4.0 Production Processes

Marko Vještica¹, Vladimir Dimitrieski¹,
Milan Pisarić², Slavica Kordić¹,
Sonja Ristić¹, Ivan Luković¹
1: University of Novi Sad,
Faculty of Technical Sciences, Novi Sad, Serbia;
2: Industrial Automation,
KEBA AG, Linz, Austria

DETAILED AGENDA

Tuesday, September 1, 2020

Digital transformation and its potential effects on future management:

Insights from an ETO context

Antoni Vike Danielsen

Norwegian University of Science and Technology,
Norway

15:00 - 17:00

Scheduling Methods

Multimedia Hall – 1st floor

Chair: Toshiya Kaihara

Automatic Design of Dispatching Rules with Genetic Programming for Dynamic Job Shop Scheduling

Shady Salama, Toshiya Kaihara, Nobutada Fujii,
Daisuke Kokuryo

Graduate School of System Informatics,
Kobe University

A basic study on scheduling method for electric power saving of production machine

Masayuki Yabuuchi¹, Toshiya Kaihara¹,
Nobutada Fujii¹, Daisuke Kokuryo¹,
Satoko Sakajo², Yoshito Nishita²

1: Kobe University;

2: Mitsubishi Electric Corporation

A dynamic hybrid Berth Allocation Problem with routing constraints in bulk ports

Hamza Bouzekri^{1,2}, Gülgün Alpan^{1,2},
Vincent Giard^{1,3}

1: EMINES - School of Industrial Management, Moham-
med VI Polytechnic University;

2: Univ. Grenoble Alpes, Grenoble INP, CNRS, G-SCOP;

3: Université Paris-Dauphine, PSL Research University

DETAILED AGENDA

Tuesday, September 1, 2020

Towards inter-operable enterprise systems – graph-based validation of a context-driven approach for message profiling

Elena Jelusic¹, Nenad Ivezic², Boonserm Kulvatunyou²,
Scott Nieman³, Hakju Oh², Sladjan Babarogic¹,
Zoran Marjanovic¹

1: Faculty of organizational sciences, Belgrade, Serbia;

2: National Institute of Standards and Technology,
Gaithersburg, MD, USA;

3: Land O'Lakes, Shoreview, MN, USA

System Architecture Analysis with Network Index in MBSE Approach - Application to Smart Interactive Service with Digital Health Modeling

Toshiya Kaihara, Nobutada Fujii, Daisuke Kokuryo,
Mizuki Harada
Kobe University, Japan

15:00 - 17:00

The Operator 4.0

Multimedia Hall – 2nd floor

Chairs: David Romero & Johan Stahre

Challenges for the Operator 3.0 Addressed Through the Enabling Technologies of the Operator 4.0

Malin Tarrar¹, Peter Thorvald^{1,2},
Åsa Fasth-Berglund¹, David Romero³

1: Chalmers University of Technology, Sweden;

2: University of Skövde, Sweden;

3: University of Monterrey, Mexico

Knowledge Strategies for Organisation 4.0

Magnus Gerdin¹, Adam Palmkvist¹, Dan Li²,
Åsa Fast-Berglund²

1: Insert Coin; 2: Chalmers

Production Management as-a-Service:

A Softbot Approach

Brunno Abner Machado¹, Ricardo J. Rabelo¹,
Saulo Popov Zambiasi², David Romero³

1: Federal University of Santa Catarina, Brazil;

2: University of Southern Santa Catarina, Brazil;

3: Tecnológico de Monterrey, Mexico

Improving the Safety of Using Didactic Setups by Augmented Reality

Srdjan Tegeltija, Vule Reljić, Ivana Šenk,

Laslo Tarjan, Branislav Tejić

University of Novi Sad, Faculty of Technical Sciences,
21000 Novi Sad, Serbia

Facilitating Operator Participation in Continuous Improvement: An Investigation of Organizational Factors

Eirin Lodgaard, Silje Helene Aschehoug, Daryl Powell
SINTEF Manufacturing, Norway

Agent- and Skill-based Process Interoperability for Socio-Technical Production Systems-of-Systems

Åsa Fast-Berglund¹, David Romero²,

Magnus Åkerman¹, Björn Hodig³, Anderas Pichler⁴

1: Chalmers University of Technology, Sweden;

2: Tecnológico de Monterrey, Mexico;

3: PTC, Sweden;

4: PROFACOR GmbH, Austria

DETAILED AGENDA

Tuesday, September 1, 2020

15:00 – 17:00

Production Logistics 4.0

Reading Room – ground floor

Chairs: Jannicke Baalsrud & Gregor von Cieminski

Tools for Evaluating Human Factor Aspects in Production and Logistics System

Vivek Vijayakumar, Fabio Sgarbossa

Norwegian University of Science and Technology,
Norway

Supporting the Decision of the Order Processing Strategy by using Logistic Models: A Case Study

Janine Tatjana Maier¹, Tammo Heuer²,
Peter Nyhuis², Matthias Schmidt¹

1: Institute of Product and Process Innovation, Leuphana
University of Lüneburg, Universitätsallee 1,
21335 Lüneburg, Germany;

2: Institute of Production Systems and Logistics, Leibniz
Universität Hannover, An der Universität 2,
30823 Garbsen, Germany

Towards a unified reliability-centered information logistics model for production assets

Florian Defèr, Günther Schuh, Volker Stich
FIR e.V. an der RWTH Aachen, Germany

Streaming Analytics in Edge-Cloud Environment for Logistics Processes

Moritz von Stietencron¹, Marco Lewandowski¹,
Katerina Lepenioti², Alexandros Bousdekis²,
Karl Hribernik¹, Dimitris Apostolou^{2,3},
Gregoris Mentzas²

1: BIBA - Bremer Institut für Produktion und
Logistik GmbH;

DETAILED AGENDA

Tuesday, September 1, 2020

2: ICCS - Institute of Communications and Computer Systems;

3: Department of Informatics, University of Piraeus

Order acceptance and scheduling with a throughput diagram

Christopher Mundt, Hermann Lödning

University of Technology Hamburg, Germany

Production-storage and transport integrated planning for a multi-site mining industry

Asma Rakiz^{1,2}, Pierre Fenies^{1,2}

1: Université Mohammed VI Polytechnique;

2: Université Paris II Panthéon Assas

Sustainable Manufacturing

Amphitheater – ground floor

Chairs: Ralph Riedel & Bojan Lalić

Towards sustainability: The manufacturers' perspective

Olena Klymenko, Lise Lillebrygfjeld Halse,

Bjørn Jæger

Molde University College, Norway

A methodology to integrate sustainability evaluations into vendor rating

Alessandro Fontana, Silvia Menato, Andrea Barni

SUPSI, Switzerland

Application of Virtual Reality Technologies for Achieving Energy Efficient Manufacturing: Literature Analysis and Findings

E. G. Nabati¹, M. T. Alvela Nieto¹,

A. Decker², K.-D. Thoben¹

1: University of Bremen, Faculty of Production

Engineering, BIK-Institute for Integrated Product

Development, 28359 Bremen, Germany;

2: BIBA - Bremer Institut für Produktion und Logistik

GmbH at the University of Bremen, 28359 Bremen,

Germany

Characterization of energy consumers in production systems with renewable on-site power generation

Julia Schulz, Felix Rosenberg, Valerie M. Scharmer,

Michael F. Zaeh

Institute of Machine Tools and Industrial Management

(iwb), Technical University of Munich, Germany

DETAILED AGENDA

Wednesday, September 2, 2020

Sustainable Business Model Innovation in Furniture

Supply Chain: A Case Study

Mikhail Shlopak, Bella B. Nujen, Jon Halfdanarson

Møreforskning Molde AS, Norway

10:15 - 12:15

Quality & Risk Management

Multimedia Hall – 1st floor

Chairs: Milan Delic & Ugljesa Marjanovic

**Questionnaire model for paraconsistent quality
assessment of software developed in Sales Force**

Luiz Roberto Forçan, Jair Minoro Abe, Luiz Antonio de

Lima, Samira Sestari Nascimento

Paulista University, Brazil

**An Improvement in Master Surgical Scheduling using
Artificial Neural Network and
Fuzzy Programming Approach**

Ahmad Ghasemkhani, Reza Tavakkoli-Moghaddam,

Mehdi Hamid, Mehdi Mahmoodjanloo

University of Tehran

**Insights from a top-down lean subprogram
deployment in a corporate group:**

The use of deployment tactics

Sara Victoria Linderson, Monica Bellgran, Seyoum

Eshetu Birkie

KTH Royal Institute of Technology, Sweden

**On the Necessity for Identifying Waste in Knowledge
Work Dominated Projects: A Case Study from Oil &
Gas-Related Product Development Projects**

Felix Preshanth Santhiapillai, Chandima Ratnayake

University of Stavanger, Norway

DETAILED AGENDA

Wednesday, September 2, 2020

**De-risking investments in industrial systems
using Real Options Analysis:**

Case of chemical industry

Imane Essaadi¹, Richard de Neufville²

1: EMINES – Mohammed VI Polytechnique University; 2:
Institute for Data, Systems and Society,
Massachusetts Institute of Technology

**On the Need of Functional Priority and Failure Risk
Assessment to Optimize Human Resource
Allocation in Public Service Organizations**

Felix Preshanth Santhiapillai, Chandima Ratnayake
University of Stavanger, Norway

10:15 - 12:15

Human Resources Management

Multimedia Hall – 2nd floor

Chairs: David Romero & Johan Stahre

**Gamification of Operational Tasks in Manufacturing -
A Literature Review**

Makenzie Keepers¹, David Romero²,
Jannicke Baalsrud Hauge³, Thorsten Wuest¹

1: West Virginia University,
United States of America;
2: Tecnológico de Monterrey, Mexico;
3: Bremer Institut für Produktion und Logistik GmbH at
the University of Bremen, Germany

**Evaluation of Augmented Reality
in Industry**

Tone Lise Dahl, Manuel Oliveira, Emrah Arica
SINTEF, Norway

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Wednesday, September 2, 2020

Virtual and Augmented reality as a digital support to HR systems in production management

Danijela Lalić, Dunja Bošković, Bojana Milić,

Sara Havzi, Jelena Spajić

University of Novi Sad, Faculty of Technical Sciences,
Serbia

The interdependencies of Quality Management, Knowledge Management and Innovation Performance. A literature review

Marina Žižakov, Stana Vasić, Milan Delić,

Marko Orošnjak, Srđan Vulcanović

Faculty of Technical Sciences, University of Novi Sad,
Serbia

The Use of Organizational Innovation Concepts in Manufacturing Companies

Iztok Palčič, Simon Klančnik, Robert Ojsteršek, Tone

Lerher, Borut Buchmeister, Mirko Ficko

University of Maribor,

Faculty of Mechanical Engineering, Slovenia

Interorganizational learning in manufacturing networks

Geir Ringen¹, Frode Paalsrud¹, Eirin Lodgaard²

1: NTNU, Norway;

2: Sintef Manufacturing

10:15 - 12:15

Food Supply Chains - Part I

Reading Room – ground floor

Chairs: Irenilza de Alencar Nääs & João Mendes

DETAILED AGENDA

Wednesday, September 2, 2020

Food Bank: A Proposal for Short

Agri-Food Chains

Aguinaldo Eduardo de Souza,

João Gilberto Mendes dos Reis, Antonio

Carlos Estender, Jorge Luiz Dias Agia,

Oduvaldo Vendrametto, Luciana Melo Costa,

Paula Ferreira da Cruz Correia

Paulista University - UNIP, PPGEP, Sao Paulo, Brazil

The New Frontiers in

World Soybean Production:

An Analysis of Savanna in Piauí, Brazil

José Alberto Alencar Luz^{2,1},

João Gilberto Mendes Dos Reis^{1,2},

Alexandre Formigoni^{3,4}

1: RESUP/PPGEP - Universidade Paulista,

São Paulo, Brazil;

2: Postgraduate Program in Production Engineering

UNIP/UNIFSA;

3: Universidade Federal da Grande Dourados, Brazil;

4: Postgraduate Program in Gestão Tecnologia em

Sistemas Produtivos, Brazil

Prediction of cold chain transport conditions

using data mining

Clayton Mangini, Nilsa Lima, Irenilza de Alencar Nääs

Paulista University-Graduate Program in Production

Engineering, Brazil

Economic and Environmental Performance in Coffee

Supply Chains: A Brazilian Case Study

Paula Ferreira da Cruz Correia^{1,2},

João Gilberto Mendes dos Reis^{1,2,3},

Rodrigo Carlo Toloi^{2,4}, Fernanda Alves de Araújo^{1,2},

Silvia Helena Bonilla¹, Jonatas Santos de Souza^{1,2},

Alexandre Formigoni⁵,

Aguinaldo Eduardo de Souza^{1,2,6}

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Wednesday, September 2, 2020

- 1: Postgraduate Program in Production Engineering, Universidade Paulista, São Paulo, Brazil;
- 2: RESUP - Supply Chain Research Group, Postgraduate Program in Production Engineering, Paulista University;
- 3: Federal University of Grande Dourados - UFGD, PPGA, Dourados, Brazil;
- 4: Federal Institute of Mato Grosso Campus Rondonópolis, Mato Grosso, Brazil;
- 5: Postgraduate Program in Gestão de Tecnologia em Sistemas Produtivos, Centro Paula Souza;
- 6: UNIBR, São Vicente, Brazil

Managing Perishable Multi-Product Inventory with Supplier Fill-Rate,

Price Reduction and Substitution

Flemming Max Møller Christensen,

Kenn Steger-Jensen, Iskra Dukovska-Popovska
Aalborg University, Denmark

Potential benefits of Reverse Blending in the fertilizer industry

Latifa Benhamou¹, Pierre Fenies², Vincent Giard³

1: Mohammed VI Polytechnic University, Morocco;

2: Panthéon Assas Paris II University, France;

3: Paris-Dauphine University, France

13:15 - 14:00

KEYNOTE III: Innovation for industry key technologies: Evidence from China

Amphitheater – ground floor

Prof. Dr. Jin Chen

Tsinghua University, China

DETAILED AGENDA

Wednesday, September 2, 2020

14:00 - 14:45

Panel II: Digital Transformation and the Social Factory of Things, Services and People

Amphitheater – ground floor

Chair: Gregor Von Cieminski

15:00 - 17:00

Circular Manufacturing

Amphitheater – ground floor

Chairs: Mélanie Despeisse & Federica Acerbi

Economy and its symbiosis with Circularity

Abelino Reis Guimarães Neto,

Jacqueline Zonichenn Reis, Julio Cesar Raymundo,

Rodrigo Franco Gonçalves, Rodrigo Rodrigues

UNIP, Brazil

Knowledge and practices towards sustainability and circular economy transitions:

A Norwegian manufacturing perspective

Jon Halfdanarson¹, Nina Pereira Kvadsheim^{1,2}

1: Møreforsking Molde AS, Norway;

2: Molde University College, Norway

Finding and Capturing Value in e-Waste for Refrigerators Manufacturers & Recyclers

Clarissa A. González Chávez¹, Mélanie Despeisse¹,

Björn Johansson¹, David Romero²

1: Chalmers University of Technology, Sweden;

2: Tecnológico de Monterrey, Mexico

Changeable Closed-Loop Manufacturing Systems:

A Case Study of Challenges in Product Take-Back

Markus Thomas Bockholt¹, Ann-Louise Andersen¹,
Thomas Ditlev Brunoe¹, Jesper Hemdrup Kristensen¹,
Michele Colli¹, Peter Meulengracht Jensen²,
Brian Vejrum Wæhrens¹

1: Department of Materials and Production, Aalborg University, Aalborg, Denmark;

2: Group Environment CoE, Group EHS, GRUNDFOS Holding A/S, Bjerringbro, Denmark

The Potential for Purchasing function to Enhance Circular Economy Business Models

for ETO production

Deodat Mwesiumo¹, Nina Pereira Kvadsheim^{1,2},
Bella Belerivana Nujen^{2,3}

1: Molde University College, Norway;

2: Molde University College, Norway, Møreforskning Molde AS;

3: Møreforskning Molde AS, Norwegian University of Science and Technology

Sustainability in fabric chains and garments for a circular economy

Solimar Garcia¹, Irenilza de Alencar Nääs¹,

Pedro Luiz de Oliveira Costa Neto¹,

João Gilberto Mendes dos Reis¹,

Valdice Neves Pólvara¹, Luiz Antonio de Lima¹,

Angel Antonio Gonzalez Martinez¹,

Vanessa Santos Lessa²

1: Paulista University, Brazil;

2: Universidade Presbiteriana Mackenzie, Brazil

DETAILED AGENDA

Wednesday, September 2, 2020

15:00 – 17:00

Assembly Systems 4.0

Multimedia Hall – 1st floor

Chairs: Vidosav Majstorovic & Åsa Fasth-Berglund

Assembly issue resolution system using machine learning in aero engine manufacturing

Jörg Brünnhäußer¹, Sonika Gogineni¹,

Jonas Nickel², Heiko Witte², Rainer Stark^{1,3}

1: Fraunhofer IPK, Pascalstraße 8-9, 10587 Berlin, Germany;

2: Rolls-Royce Deutschland, Eschenweg 11, 15827 Blankenfelde-Mahlow, Germany;

3: Technische Universität Berlin, Pascalstraße 8-9, 10587 Berlin, Germany

A simulation model supporting the production optimization for high-precision machines assembly

Andrea Monti, Donatella Corti, Dario Pietraroia

Scuola universitaria professionale della Svizzera Italiana (SUPSI), Switzerland

Cycle Time Estimation Model for Hybrid Assembly Stations based on Digital Twin Concept

Dimitris Mourtzis, John Angelopoulos, Vasileios Siatras

Laboratory for Manufacturing Systems and Automation, Department of Mechanical Engineering and Aeronautics, University of Patras, Greece

A stochastic model for a two-level disassembly lot-sizing problem under random lead time

Lhem Slama¹, Oussama Ben-Ammar²,

Alexandre Dolgui¹, Faouzi Masmoudi³

1: IMT Atlantique, France;

2: Mines Saint-Etienne, France;

3: Engineering School of Sfax, Tunisia

DETAILED AGENDA

Wednesday, September 2, 2020

Introduction to Material Feeding 4.0: strategic, tactical, and operational impact

Marco Simonetto, Fabio Sgarbossa

Norwegian University of Science and Technology (NTNU), Norway

Data-driven Replenishment Method Choice in a Picking System

Simon Hummelshøj Sloth, Magnus Abildsten Bøgh, Christian Møller Nielsen,

Konstantinos Panagiotis Konstantinidis, Inkyung Sung
Aalborg University, Denmark

15:00 – 17:00

ETO Manufacturing

Multimedia Hall – 2nd floor

Chairs: Erlend Alfnes & Martin Rudberg

Factors affecting shipyard operations and logistics: A framework and comparison of shipbuilding approaches

Jo Wessel Strandhagen¹, Yongkuk Jeong²,

Jong Hun Woo³, Marco Semini¹, Magnus Wiktorsson²,

Jan Ola Strandhagen¹, Erlend Alfnes¹

1: NTNU – Norwegian University of Science and Technology, Norway;

2: KTH Royal Institute of Technology;

3: Seoul National University

Exploring the Path Towards Construction 4.0:

Collaborative Networks &

Enterprise Architecture Views

Ovidiu Noran^{1,3}, David Romero²,

Sorin Burchiu³

1: Griffith University, Australia;

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2: Tecnológico de Monterrey, Mexico;
3: Technical University of Constructions Bucharest,
Faculty of Installations Engineering

Using the Smartphone as an Augmented Reality Device in ETO Industry

Niklas Jahn, Axel Friedewald, Hermann Lödding
Hamburg University of Technology, Hamburg, Germany

Planning procurement activities in ETO projects

Kristina Kjersem¹, Marte F. Giskeødegård²

1: Møreforskning Molde AS, Norway;

2: NTNU Ålesund

Maturity model for successful cost transformation in ETO companies

Johann Gregori, Ralph Riedel
Chemnitz University of Technology, Germany

Cross-functional coordination before and after the CODP: an empirical study in the machinery industry

Margherita Pero¹, Violetta Giada Cannas²

1: Politecnico di Milano, Italy;

2: Carlo Cattaneo University - LIUC

15:00 - 17:00

Food Supply Chains - Part II

Reading Room – ground floor

Chairs: João Mendes & Irenilza de Alencar Nääs

Principles and Research Agenda for Sustainable, Data-Driven Food Production Planning and Control

Maggie Bresler, Anita Romsdal,
Jan Ola Strandhagen, Olumide E. Oluyisola
Norwegian University of Science and Technology,
Norway

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Wednesday, September 2, 2020

**Digital Technology Enablers for Resilient
and Customer Driven**

Food Value Chains

Christos Emmanouilidis¹, Serafim Bakalis²

1: Cranfield University, United Kingdom;

2: University of Nottingham, United Kingdom

**Software-based Assistance System for
Decision Support on Supply Chain Level**

Maria Linnartz, Volker Stich

Institute for Industrial Management at RWTH

Aachen University, Germany

17:15 - 17:45

Closing Ceremony

Amphitheater – ground floor

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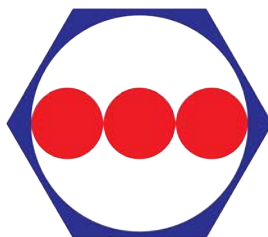
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