ISM

6th International Conference on Industry 4.0 and Smart Manufacturing

20-22 November 2024, Prague (Czech Republic)

Conference Time:
Czech Republic Local Time - CET

Preliminary Program

Organized by

CALTEK

MSC-LES
MODELING & SIMULATION CENTER
LABORATORY OF ENTERPRISE SOLUTIONS

UNIVERSITÀ DELLA CALABRIA

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ISM 2024

Hybrid Conference

All the sessions will be physically chaired. If you are a **Session Chair,** please follow the instructions reported below.

Procedure for Sessions' Chairs

If you are a Session Chair, below you can find the procedure you are required to follow to manage your session.

1) Please be sure to join the Session Room at least 15 minutes before the Session scheduled time.

2) Check the presence of the speakers in the room and ask them some basic information to properly introduce them before their speeches. Please ask the speakers to upload their presentations on the laptop.

3) Some of the speakers will be online. Please ask them some basic information to properly introduce them. Familiarize yourself with the Microsoft TEAMS meeting functionalities (e.g., camera and microphone controls, desktop sharing, etc.). You can easily find all these functionalities on the screen. A session assistant will be there to start the Microsoft TEAMS session for online participants and to help you if needed.

4) Keep the computer camera and microphone switched ON. At the time of the session, you can introduce yourself as Session Chair and you can start the Session. Please be sure to stay close to the microphone to be sure that online participants can hear you well.

5) If you have in person speakers in your session:

    a. Be sure to share the screen of the presentation on Microsoft TEAMS (so the online attendees can follow the presentation).
    b. Ask the speaker to stay close to the microphone (to allow online attendees to listen properly).
    c. After the presentation, please check if there are questions from physical and online participants. If there are no questions, please be prepared to "break the ice" by doing the first question.

6) If you have online speakers in your session:

    a. Ask the speaker to switch the microphone and the camera ON and introduce the speaker.
    b. Ask the speaker to share the screen of the presentation on Microsoft TEAMS (so all the attendees can follow the presentation).
    c. After the presentation, please check if there are questions from physical and online participants. If there are no questions, please be prepared to "break the ice" by doing the first question. After question time, remember the online speaker to switch the camera and the microphone OFF.

ISM 2024

Hybrid Conference

All the sessions will be held in a hybrid mode both in presence and online (through Microsoft TEAMS). If you are an **"in presence" or "online" speaker** please follow the instructions reported below.

Procedure for "in presence" Speakers

If you are an "in presence" Speaker, below you can find the procedure you are required to follow to make your presentation.

- Please join the session at least 15 minutes before the scheduled time and present yourself to the Session Chair.
- At a certain point in time (according to the scheduling of the presentations in the session), the Session Chair will call your name, present you and invite you to join the floor. Please be sure that the screen of the computer is shared on TEAMS.
- Please stay close to the microphone when doing your presentation (so the "online" participants can easily listen your presentation).
- Your presentation must not exceed 10-12 minutes. Be ready to answer questions made by session's attendees.

Procedure for "online" Speakers (Conference time is Czech Republic Local Time, CET)

If you are an "online" Speaker, below you can find the procedure you are required to follow to make your presentation.

- Please join the session at least 15 minutes before the scheduled time and present yourself to the Session Chair (you can switch your camera and microphone ON). You can easily find the name of the Session Chair within the Conference Program. After presenting yourself to the Session Chair, please switch your camera and microphone OFF.
- At a certain point in time (according to the scheduling of the presentations in the session), the Session Chair will call your name, present you and invite you to share your screen and your presentation. At this time, please switch your microphone and your camera ON, share your screen, your presentation and present your work.
- Your presentation must not exceed 10-12 minutes. Be ready to answer questions made by session's attendees.
- After the presentation and questions time, please be sure to switch your microphone and camera OFF.

ISM 2024

Hybrid Conference

All the sessions will be held in a hybrid mode both in presence and online (through Microsoft TEAMS). If you are an **"in presence" attendee or an "online" attendee,** please follow the instructions reported below.

Procedure for "in presence" Session Attendees

If you are an "in presence" Session Attendee, below you can find the procedure you are required to follow during the Session.

- Please join the Session at the scheduled time according to the conference program.
- You will be allowed to make questions at the end of each presentation. Please be sure to raise your hand in case of question. The Session Chair will allow you the make the question.
- When you ask the question, please remember to stay close to the microphone or to be sure that the online attendees (or speaker) can correctly hear your question (if needed the chair of the session can repeat your question for the online attendees).

Procedure for "online" Session Attendees (Conference time is Czech Republic Local Time, CET)

If you are an "online" Session Attendee, below you can find the procedure you are required to follow during the Session.

- Please join the session at the scheduled time (Conference time is Czech Republic Local Time, CET) according to the conference program. The links to join the sessions are reported within the program in correspondence of each session. Once you join the session, please be sure to switch your microphone and camera OFF.
- You will be allowed to make questions at the end of each presentation. Please be sure to raise your hand in case of question (you have to click on the "raised hand" symbol in Microsoft TEAMS. The Session Chair will allow you the make the question by calling your name).
- When you ask the question, please remember to switch your microphone and camera ON.
- After the interaction with the Speaker please remember to switch your microphone and camera OFF.

ISM 2024

Activities and Sessions Details

Wednesday, November 20th

10:00 am – 10:45 am Czech Republic Local Time - CET, *Hotel Olšanka, Prague (Czech Republic)* **Main Room**	**Wed 20th, 2024**

Microsoft Teams, Session Link:

> Access the Online Session

ISM 2024 Opening Ceremony
Chair: Francesco Longo, ISM 2024 General Co-Chair, University of Calabria, Italy

10:45 am – 11:15 am Czech Republic Local Time - CET

Coffee Break

11:15 am – 1:00 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* **Main Room**	**Wed 20th, 2024**

Microsoft Teams, Session Link:

> Access the Online Session

ISM Plenary Session Speeches

ISM Plenary Session Speeches
Chair: Francesco Longo, ISM 2024 General Co-Chair, University of Calabria, Italy

> **Dmitry IVANOV – Berlin School of Economics and Law, *Germany***

Human-AI Collaboration in Supply Chain Resilience
In this talk, we discuss how human-based and AI-based decision-making support can be combined when managing supply chain resilience. The focus of our talk is an intelligent digital twin (iDT) framework. New digital technologies and artificial intelligence are enabling novel approaches and tools, allowing us to move from isolated models to intelligent decision-support systems. Our talk presents a comprehensive decision-making framework for leveraging digital twins in stress-testing and resilience analysis of supply chains, and outlines the ways digital twins can aid in theoretical advancements in SC resilience and viability. An iDT is a system that combines human intelligence with AI to create a digital representation of physical supply chains, use cognitive AI capabilities and create new knowledge about the system through mutual feedbacks between human and artificial intelligence. The iDT collects and processes data, employs analytics, mimics human decision-making, and develops new knowledge and decision-making algorithms through human-AI collaboration.

Biographical Sketch
Prof. Dr. Dr. habil. Dmitry Ivanov is Professor of Supply Chain and Operations Management, director of the Digital-AI Supply Chain Lab, and faculty director M.A. Global Supply Chain and Operations Management at the Berlin School of Economics and Law. His research spans supply chain resilience and digital supply chain twins. Author of the Viable Supply Chain Model and founder of the ripple effect research in supply chains. He gained Dr., Dr. Sc., and Dr. habil. degrees and won several research excellence awards. His research record counts around 450 publications, with more than 160 papers in prestigious academic journals and the leading books "Global Supply Chain and Operations Management" (three editions), "Introduction to Supply Chain Resilience", "Introduction to Supply Chain Analytics", „Structural Dynamics and Resilience in Supply Chain Risk Management", "Scheduling in Industry 4.0 and Cloud Manufacturing", "Digital Supply Chain" and „Handbook of Ripple Effects in the Supply Chain". He delivered invited plenary, keynote, panel and guest talks at the conferences of INFORMS, IFPR, IFIP, IFAC, DSI and POM, and over 30 universities worldwide. He has been Chairman, IPC Chair, and Advisory Board member for over 60 international conferences in supply chain and operations management, industrial engineering, control and information sciences. Recipient of several prestigious academic awards. Principal investigator in several projects about digital supply chain twins and resilience funded by EU Horizon and DFG. Listed in several rankings as one of the most cited researchers in Business and Management. Chair of IFAC CC 5 "Cyber-Physical Manufacturing Systems", Editor-in-Chief of International Journal of Integrated Supply Management, Associate Editor of International Journal of Production Research, Annals of Operations Research and OMEGA, guest editor and Editorial Board member in over 20 leading international journals including IISE Transactions and IJPE, to name a few.

> **Syed Abdul Rehman KHAN – Business Research and Consultancy Ltd, *United Kingdom***

Implications of Industry 4.0 in Real-World Industries
Growing emphasis on long-term viability prompts researchers and industry professionals to collaborate on innovative approaches for sustainability and survival. Industry 4.0 (I4.0) technology's importance drives active adoption by firms amidst evolving business dynamics. This research examines the influence of I4.0 technologies on lean, agile resilient and green practices and their impact on supply chain performance. Survey data from manufacturing enterprises were analyzed using SMART PLS to explore the relationship between I4.0 technology, supply chain practices and supply chain performance. The findings revealed that I4.0 technologies significantly impact all supply chain practices and integrating with digital technology solutions enhances supply chain performance. This study advances understanding of the interplay between I4.0 technologies, practices and supply chain performance, providing a basis for further research and practical implications.

Biographical Sketch
Dr. Khan completed a Postdoctoral Fellowship at Tsinghua University (the 16th-ranked University in the world). He is a Research Director at Business Research and Consultancy Ltd (England) and attends guest lectures at international conferences to share his research expertise with young researchers.
Throughout his academic career, Dr. Khan has made significant contributions to the field. As a Full Professor at Xuzhou University of Technology and Xian University of Posts and Telecommunication, he has published nearly 150 research articles. These articles, focusing on digital technologies, sustainable development, sustainable supply chain management, and technology-enabled Circular Economy approaches, have been published in various internationally renowned indexed journals. Dr. Khan's research has been recognized with highly cited researcher awards for the past three years.
Dr. Khan has been invited as a keynote speaker and invited speaker at 50+ international conferences. He has also published nine books related to the digital technology and sustainability aspects of business operations.

> *Rodolfo Haber Guerra – Centro de Automatica y Robotica, Spain*

Towards Industry 5.0: some research challenges and opportunities
Built on the pillars of human-centricity and resilience, Industry 5.0 is focused on fostering the industry towards a new paradigm that not only remains within economic boundaries but also actively contributes to well-being and sustainability. The adoption of Industry 5.0 principles is just at the beginning phase in Europe, where the paradigm is transitioning from awareness and methods development to implementation. In this conference, the industrial human needs, human factors and potential future applications are analysed, exploring the links with cyber-physical human systems and enabling technologies. The initiative of Community of Practice of Industry 5.0 (CoP Industry 5.0, European Commission) is also presented. Two case studies with applications in the industry and the recently funded Horizon Europe project FORTIS, all driven by Artificial Intelligence with applications to manufacturing, are discussed. Finally, some directions and specific areas for potential research are presented.

Biographical Sketch

Rodolfo Haber received the Ph.D. degree in Industrial Engineering from the Universidad Politécnica de Madrid, Spain, in 1999. Researcher of the Spanish Council for Scientific Research (CSIC) since 2006. From 2020-24, he has been Director of the Center for Automation and Robotics of the Spanish Council for Scientific Research (CSIC) and Polytechnic University of Madrid (UPM), formerly Vice-Director (2016-20). He has authored 3 books, 18 patents and trade secrets, 21 book chapters, and dozen of articles in indexed journals and conference papers. He has been co-founder of the starts-up Kinequo S.L. (2015), Xymbot Digital Solutions S.L. (2020) and Invofox SL (2022). Since 2002, he has belonged to the IFAC's TC3.1/5.1 Computers for Control/Manufacturing Plant Control of IFAC, ASME TC Model Identification and Intelligent Systems and IEEE IES TC on Industrial Cyber-Physical Systems. He is member of the Editorial Board of several journals, editing nowadays a Collection Topic "Smart manufacturing systems and industry 4.0 Technologies" (Scientific Reports, Nature Portfolio). He represents CSIC in "Data, AI and Robotics (DAIRO)" EU Association and he is member of Industry 5.0 Community of Practice Initiative (European Commission). His main research activities are focused on cyber-physical systems, Internet-of-Everything, intelligent systems, modelling, control and supervisory systems, artificial cognitive systems and Industry 5.0.

1:00 pm – 2:30 pm Czech Republic Local Time - CET

Lunch Break

2:30 pm – 4:15 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 1**	**Wed 20th, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Smart and Sustainable Warehouse Operations in Industry 4.0 (WAREHOUSE)
Chair(s): Luigino Filice, University of Calabria (Italy)

> ISM_147: Applications and methodologies of internet of things in warehouses and inventory management: A systematic literature review
> *Alejandro Puga Mendoza, Jeili Leilani Caballero Chávez and Ricardo Torres Mendoza*

> ISM_57: The Use of Simulation Modeling in Hospital Pharmacy Inventory Management
> *Duangpun Kritchanchai, Wirachchaya Chanpuypetch and Tuangyot Supeekit*

> ISM_132: Assessing the Circular Transformation of Warehouse Operations through Simulation
> *Loloah Alasmari, Michael Packianather, Ying Liu, Peter Tuthill and Xiao Guo*

> ISM_156: Emerging Technologies & Risk Management For Smart and Sustainable Warehouses : A CPS-Based Use Case In SMEs
Mariam Moufaddal, Asmaa Benghabrit and Oumaima Dali

> ISM_399: Sustainability Impact of Automated Warehouses in Industry 4.0 scenario
Antonio Maria Igor Cosma, Gabriele Zangara, Luca Silvestri and Luigino Filice

> ISM_284: Enhancing flexibility in intralogistics 4.0 by using Services, Capabilities, and Skills
Benjamin Blumhofer, Philipp Richard, Tatjana Legler and Martin Ruskowski

2:30 pm – 4:15 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 2**	**Wed 20th, 2024**

Microsoft Teams, Session Link:

<button>Access the Online Session</button>

Novel and Sustainable Solutions for Smart Manufacturing (SMARTMFG)
Chair(s): Radu Godina, NOVA School of Science and Technology (Portugal)

> ISM_55: Decision-support system for automotive recycling: disassembling components before shredding?
Magdalena Paul, Nora Reinbold, Covadonga Ortiz and Gunther Reinhart

> ISM_51: Experimentation on the sustainability of 3D printing with recycled filaments using LSS methodology
Jose Alberto Eguren, Kristina Zgodavova, Jone Alberdi, Gorka Unzueta, Javier Retegi and Juan Ignacio Igartua

> ISM_356: Environmental Comparison of Wire and Arc Additive Manufacturing and CNC Milling on Steel Produced Part
Adriana S. F. Alves, Samruddha Kokare, J. P. Oliveira and Radu Godina

> ISM_54: Roughness prediction in end milling of Ti1023 alloy using machine learning-based Gaussian Process Regression
Viswajith S. Nair, K. Rameshkumar and S. Saravanamurugan

> ISM_354: Towards Industry 5.0 within Micro Injection moulding Production and Industrialization: a proof of concept
Benedetta Stampone, Valerio Pulcini, Giuseppina Vitale and Antonio Grieco

> ISM_69: Industry 5.0 in Smart Manufacturing: The Need for Equilibrium in Work Organization
Daniel Wentzek, Thorben Krokowski and Cornelia Regelmann

2:30 pm – 4:15 pm Czech Republic Local Time - CET *__Hotel Olšanka, Prague (Czech Republic)__* **Room 3**	**Wed 20th, 2024**

Microsoft Teams, Session Link:

<button>Access the Online Session</button>

Advancements in Material Testing under the Industry 4.0 Paradigm (MATERIALTEST)
Chair(s): Giovanna Rotella, LUM University (Italy) and Maria Rosaria Saffioti, University of Calabria (Italy)

> ISM_42: Comparison of Material Fatigue Testing Strategies
> *Nikolaus Haselgruber, Gerhard Oertelt and Kristopher Boss*

> ISM_101: Influence of process parameters and wall thicknesses on the properties of tool steel 1.2709 (X3NiCoMoTi18-9-5) processed by Selective Laser Melting
> *Sara Halilovic, Norbert Wild, Marko Orsolic and Aziz Huskic*

> ISM_248: Vision-based in-situ process monitoring for increased productivity in abrasive waterjet trepanning
> *Chinmoyee Datta, Rajesh Ranjan Ravi and D.S. Srinivasu*

> ISM_374: Fiber laser surface pre-treatment on steel substrate to investigate the influence of surface state on fabrication durable joints
> *Maria Rosaria Saffioti, Mariateresa Caggiano, Giovanna Rotella and Domenico Umbrello*

> ISM_18: Characterization of the mechanical properties of a laminated composite material, from PLA and Carbon fiber-acrylic resin, obtained by hybrid manufacturing for the development of a new product
> *Edher Duvan Fonseca Abril, Clara Isabel López Gualdrón and Juan Dayal Castro Bermudez*

> ISM_249: Surface quality and orientation estimation using speckle imaging of ground specimens
> *Deep Singh and N. Arunachalam*

2:30 pm – 4:15 pm Czech Republic Local Time - CET **_Hotel Olšanka, Prague (Czech Republic)_** **Room 4**	**Wed 20th, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Marketing Management in the Digital Era (DIGMARKETING)
Chair(s): Manuel Brunner, University of Applied Sciences Upper Austria (Austria)

> ISM_35: Factors Affecting Green Cosmetic's Brand Loyalty: The Mediating Effect of Brand Love
> *Thi-Minh-Ngoc Luu, Thi Mai Le, Bao Ngoc Le and Khanh Huyen Vu*

> ISM_65: Exploring the drivers of customer loyalty for energy-efficient home appliances
> *Bao Ngoc Le, Thi Mai Le and Thi-Minh-Ngoc Luu*

> ISM_94: In-app Ad Intensity vs. App Quality, Versioning, and Interaction with Ad Mediation Platform
> *David Fine and Tatyana Chernonog*

> ISM_261: Social Media Marketing in Industry 4.0: The Role of TikTok in Shaping Generation Z's Purchase Intentions
> *Lim Jia Ying, Lee Te Chuan, Umi Kartini Rashid and Noor Aslinda Abu Seman*

> ISM_245: Evaluation of Clustering with PCA for Market Segmentation: A Study Using Simulated and Surrogate Data
> *Shailesh Tripathi, Nadine Bachmann, Manuel Brunner, Alican Tuezuen, Ann-Kristin Thienemann, Sebastian Pöchtrager and Herbert Jodlbauer*

> ISM_52: Artificial intelligence and consumer loyalty in e-commerce
> *Svetlana Revinova, Svetlana Ratner and Svetlana Balashova*

2:30 pm – 4:15 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* Room 5	Wed 20th, 2024

Microsoft Teams, Session Link:

> **Access the Online Session**

Adaptive Automation for Smart and Sustainable Manufacturing (AUTOMATION)
Chair(s): TBA

> ISM_21: Leveraging Performance-Shaping Factors for a human-centric adaptive automation algorithm
> *Margherita Bernabei*

> ISM_49: The Need for Smart Shop Floor Management in the Automotive Industry: Potentials, Challenges and Requirements
> *Janika Kutz, Altus Viljoen, Maximilian Feike, Leonard Przybilla, Jakob Guhl, Jens Neuhüttler and Helmut Krcmar*

> ISM_56: Design and Development of a Lean Robotic Cell for Concrete 3D Printing
> *Fatima Ramirez-Rodriguez, Paolo Pancho, Daniela Sanchez, Suman Poudel, Dhyan Bhavsar and Rafiq Ahmad*

> ISM_120: Adaptive and Adaptable Automation in manufacturing: a bibliometric review
> *Lucia Vigoroso, Federica Caffaro, Massimo Tronci and Mario Fargnoli*

2:30 pm – 4:15 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* Room 6	Wed 20th, 2024

Microsoft Teams, Session Link:

> **Access the Online Session**

***Artificial Intelligence for Supporting Human and Industrial Practices* (AIPRACTICES)**
Chair(s): Stephan Wagner, University of Applied Sciences Upper Austria (Austria)

> ISM_28: Company perspectives of generative artificial intelligence in industrial work
> *Susanna Aromaa, Päivi Heikkilä, Marko Jurvansuu, Selen Pehlivan, Teijo Väärä and Marko Jurmu*

> ISM_44: Exploring the Role of Artificial Intelligence for Pattern Recognition of Textile Sorting and Recycling for Circular Economy
> *Irfan Mohammed Karmali and Omid Fatahi Valilai*

> ISM_151: Automatic Gear Tooth Alignment 2.0: Improved Image Segmentation for Better Rotation Angle Deviation Determination
Florian Grimm, Daniel Kiefer, Tim Straub, Günter Bitsch and Clemens van Dinther

> ISM_179: Exploring AI frontiers: Insights from Austria's Industrial Sector on Enhancing Control Functions
Rudolf Gruenbichler, Alexander Sitter and Thomas Fenzl

> ISM_301: Artificial intelligence as a facilitator for public administration procedures: a literature review
Benedetta Pini, Virginia Dolci, Emilio Gianatti, Alberto Petroni and Barbara Bigliardi

> ISM_216: Product Design of Customized 3D Printed Knives Using Artificial Intelligence and Numerical Simulation Technologies
Paschalis Charalampous, Nikolaos Kladovasilakis, Thanasis Pelekoudas, Ioannis Kostavelis, Dimosthenis Ioannidis and Dimitrios Tzovaras

2:30 pm – 4:15 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* **Room 7**	**Wed 20th, 2024**

Microsoft Teams, Session Link:

Access the Online Session

Machine Learning Applications in Smart Manufacturing (MLSMART)
Chair(s): Vagan Terziyan, University of Jyväskylä (Finland)

> ISM_4: Context-Aware Machine Learning for Smart Manufacturing
Vagan Terziyan and Oleksandra Vitko

> ISM_20: Adaptive Generalized Mean and Social Distance Metric for Smart Manufacturing Tasks
Vagan Terziyan and Oleksandra Vitko

> ISM_25: Discover and Explore Weak Causality and Causal Disposition in Images for Smart Manufacturing Tasks
Oleksii Streltsov, Vagan Terziyan and Oleksandra Vitko

> ISM_126: Machine learning-driven fault identification and classification: a two-step approach for industrial applications
José Cação, José Santos, Mário Antunes and António Completo

> ISM_280: Wood-based sorting system for wood valorisation purposes
> *Ioannis Zorzos, Fotios Konstantinidis, George Arvanitakis, Georgios Tsimiklis and Angelos Amditis*

> ISM_335: Addressing Heterogeneity in Federated Learning: Challenges and Solutions for a Shared Production Environment
> *Tatjana Legler, Vinit Hegiste, Ahmed Anwar and Martin Ruskowski*

4:15 pm – 4:45 pm Czech Republic Local Time - CET
Coffee Break

4:45 pm – 6:30 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 1**	**Wed 20th, 2024**

Microsoft Teams, Session Link:

Access the Online Session

Integrating AI and Human Factors in Adaptive Manufacturing Systems (AIHUMANSYS)
Chair(s): TBA

> ISM_121: Human-Machine Interaction Design in Adaptive Automation
> *Alessandro Pollini, Gian Andrea Giacobone, Michele Zannoni, Diego Pucci, Virginia Vignali, Andrea Falegnami, Andrea Tomassi and Elpidio Romano*

> ISM_177: Large Language Models for topic analysis: insights from robotic accident narratives
> *Francesco Costantino and Nicolò Sabetta*

> ISM_192: Application Of A Digital Intelligent Assistant To Support Industrial Processes: The Case Of Adaptive Allocation In The Face Of Cyber Attacks
> *Silvia Colabianchi*

> ISM_272: SAMBA: A reference framework for Human-in-the-Loop in adaptive Smart Manufacturing
> *Filippo Bianchini, Marco Calamo, Francesca De Luzi, Mattia Macrì, Matteo Marinacci, Jerin George Mathew, Flavia Monti, Jacopo Rossi, Francesco Leotta and Massimo Mecella*

> ISM_167: A comparative analysis for automated information extraction from OSHA Lockout/Tagout accident narratives with Large Language Model
> *Nicolò Sabetta, Francesco Costantino and Sara Stabile*

> ISM_206: Synthetic data generation procedures for domain-specific environments in manufacturing
> *Parth Rawal, Mrunal Sompura and Wolfgang Hintze*

4:45 pm – 6:30 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 2**	**Wed 20th, 2024**

Microsoft Teams, Session Link:

<div style="background-color: #FFC000; padding: 10px; display: inline-block;">**Access the Online Session**</div>

AI-Driven Tools and Knowledge Systems (AIKNOWLEDGE)
Chair(s): Herbert Jodlbauer, University of Applied Sciences Upper Austria (Austria)

> ISM _299: Technological improvements of crowdsourcing using AI
> *John Michael Maxel Okoche, Marcia Mkansi, Godfrey Mugurusi and Wellington Chakuzira*

> ISM_289: Automated Knowledge Graph Learning in Industrial Processes
> *Lolita Ammann, Jorge Martinez-Gil, Michael Mayr and Georgios Chasparis*

> ISM_305: Granular and Relational SWOT Analysis: An Ontological Approach
> *Alican Tuzun, Shailesh Tripath, Nadine Bachmann, Ann-Kristin Thienemann, Manuel Brunner and Herbert Jodlbauer*

> ISM_309: A Smart Tool to Unlock Hidden Insights in Industrial Data by Leveraging EDA, LLM, Conformal Prediction, and AutoML
> *Vasco Vieira Costa, Diogo Costa and Eugénio M. Rocha*

> ISM_234: Generalizing Ability of Neural Descriptor Fields for 3D Data
> *Sebastian Ukleja, Michael Hofmann and Andreas Pichler*

> ISM_90: A Preliminary multidimensional AI readiness assessment model for SMEs
> *Saqib Naheed, Roberto Pinto and Fabiana Pirola*

4:45 pm – 6:30 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* Room 3	**Wed 20th, 2024**

Microsoft Teams, Session Link:

<div style="background:#FFB800;color:#0000CC;padding:6px;display:inline-block;border:1px solid #000;">Access the Online Session</div>

AI Interfaces and Robotics in Smart Manufacturing (AIROBOTICS)
Chair(s): TBA

> ISM _102: Towards the Development of a Conversational CNC Assistant: Compiling a Sample of Key Questions and Procedures for Benchmarking Purposes
> *Maia Aguirre, Ariane Méndez, Manuel Torralbo, Arantza Del Pozo, Cristina Aceta, Izaskun Fernández, Aitor Etxalar, María Inés Torres, Joseba Andoni Agirre, Egoitz Artetxe, Iker Altuna and Iker Etxebeste*

> ISM_303: Advancing robotic systems with Ensemble and Modular Deep Learning: research idea and framework
> *Viktor Artiushenko, Richard Reider, Tobias Reggelin and Sebastian Lang*

> ISM_319: Adapting Vision Transformers for Cross-Product Defect Detection in Manufacturing
> *Nikolaos Nikolakis, Paolo Catti, Luca Fabbro and Kosmas Alexopoulos*

> ISM_118: Morphing Based Transfer of Demonstrated Surface Finishing Trajectories to Point Clouds of Similar Objects
> *Philipp Möhl, Anish Pratheepkumar, Markus Ikeda and Andreas Pichler*

4:45 pm – 6:30 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* Room 4	**Wed 20th, 2024**

Microsoft Teams, Session Link:

<div style="background:#FFB800;color:#0000CC;padding:6px;display:inline-block;border:1px solid #000;">Access the Online Session</div>

Exploiting Data for Smart Decision-Making (DATADECISION)
Chair(s): TBA

> ISM _219: A practical investigation of ML and Industry 4.0 for reactive fault detection in manufacturing systems
> *Heiko Webert, Stephan Simons and Alan McGibney*

> ISM_222: SmartManPy - Open Source Synthetic Manufacturing Data

Lukas Lodes, Erik Hass, Kristina Dachtler and Alexander Schiendorfer

> ISM_172: Image-based Cutting Tool Health Diagnosis in Multi-machine Settings
Debasish Mishra, Krishna Pattipati and George Bollas

> ISM_334: Exploring Historical Data Utilization in Skill-Based Production Systems
Patrick Kremser, Tatjana Legler and Martin Ruskowski

> ISM_145: The development and optimization of processes in organizations in the context of the fourth industrial revolution
Andrea Gažová and Lucia Kohnová

> ISM_313: Causal Time-Series Synchronization for Multi-Dimensional Forecasting
Michael Mayr, Georgios Chasparis and Josef Küng

4:45 pm – 6:30 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 5**	**Wed 20th, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

CPS and IIoT in the Edge-Cloud Continuum (CPSEDGE)
Chair(s): Raffaele Gravina, University of Calabria (Italy)

> ISM _188: COCOWEARS: A framework for COntinuum COmputing WEARable Systems
Gianluca Aloi, Fabio Frustaci, Raffaele Gravina, Antonio Guerrieri, Gianvito Pio and Claudio Savaglio

> ISM_217: Optimizing 5G Networks for Low-Latency Communication: A Reinforcement Learning-Based Approach
Andrea Pazienza, Ludovico Bozzolo, Domenico Mancuso, Massimiliano Rossi, Gianluca Aloi and Raffaele Gravina

> ISM_229: Optimal Model Placement in Heterogeneous Edge AI Environments
Bara Al-Bataineh, Marcus Paradies, Marta Dembska and Matthias Pohl

> ISM_252: Developing Platform-Agnostic IIoT Applications in Edge-Cloud Environments
Loris Belcastro, Fabrizio Marozzo, Aleandro Presta, Rosa Varchera and Andrea Vinci

> ISM_306: Edge-cloud continuum driven industry 4.0
Nawaz Ali, Gianluca Aloi, Floriano De Rango, Claudio Savaglio and Raffaele Gravina

4:45 pm – 6:30 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* **Room 6**	**Wed 20th, 2024**

Microsoft Teams, Session Link:

Access the Online Session

Resilience and Sustainability of industrial cyber-physical systems (SYSRESILIENCE)
Chair(s): Marco Bortolini, University of Bologna (Italy)

> ISM _168: A Human-Digital Twin model to track human motion in an experimental Cyber-Socio-Technical System
> *Marco Bortolini, Emilio Ferrari, Mauro Gamberi, Francesco Gabriele Galizia and Enrico Giannone*

> ISM_233: A NLP Approach to Quantify Resilience in Cyber-Socio-Technical Systems with LLM Agents
> *Antonio De Nicola, Maria Guariglia Migliore, Ida Mele and Maria Luisa Villani*

> ISM_275: System-theoretic analysis for the identification of emerging risk in Cyber-Physical systems
> *Antonio Javier Nakhal Akel, Francesco Simone, Elena Stefana, Lorenzo Fedele and Riccardo Patriarca*

> ISM_276: Enhancing IT/OT Cybersecurity Knowledge Transfer Through Demonstrative Workshops in Cyber-Physical Production Systems
> *Matteo De Marchi, Marco Pomalo, Raphael Vallazza, Igor Falcomatà, Tanel Aruväli and Erwin Rauch*

> ISM_60: The Industrial Metaverse: Towards a Research Agenda of its Sustainability Implications
> *Viktoria Leutheuser, Julian Müller and Kai-Ingo Voigt*

> ISM_83: Examining the Relationship between Corporate Social Responsibility, Organizational Citizenship Behavior and Job Satisfaction: Evidence from Vietnamese Manufacturing Firms in the Digital Age
> *Quang Tuyen Bui, Vu Phuong Anh Do, Luu Ly Tran and Phuong Mai Nguyen*

| 4:45 pm – 6:30 pm Czech Republic Local Time - CET
__Hotel Olšanka, Prague (Czech Republic)__
Room 7 | **Wed 20th, 2024** |

Microsoft Teams, Session Link:

Human-Robot Collaboration for Smart Manufacturing – Part I (HRC1)
Chair(s): Marta Rinaldi, University of Salerno (Italy)

> ISM_184: Towards Benchmarking of Collaborative Robots in Production
> *Alexander Kinast and Roland Braune*

> ISM_63: An approach to task scheduling in an end-of-line quality assurance situation with human-robot cooperation
> *Alexander Hämmerle, Martin Kollingbaum, Florian Steiner, Gerhard Ebenhofer, Markus Ikeda, Harald Bauer, Andreas Pichler and Fabian Widmoser*

> ISM_204: On the improvement of the combination of Power and Force Limiting and Speed and Separation Monitoring for an effective Human Robot Collaboration
> *Matteo Manzardo and Renato Vidoni*

> ISM_294: Increase Flexibility for Adaptive Human-Robot Co-Work at Complex Production Workplaces
> *Aaron Heuermann, Zied Ghrairi, Anton Zitnikov and Artem Schurig*

> ISM_208: Human–robot interaction in industry: a tertiary study
> *Marta Rinaldi, Valentina Di Pasquale, Paola Farina, Raffaele Iannone, Roberto Macchiaroli and Eric Grosse*

ISM 2024
Activities and Sessions Details

Thursday, November 21st

9:00 am – 10:45 am Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* Room 1	**Thu 21st, 2024**

Microsoft Teams, Session Link:

<button>Access the Online Session</button>

Human-Robot Collaboration for Smart Manufacturing – Part II (HRC2)
Chair(s): Maurizio Faccio, University of Padova (Italy)

> ISM_50: A neural network approach for collaborative cells: an innovative online rescheduling strategy for maximizing productivity
> *Matthias Bues, Martina Calzavara, Maurizio Faccio, Irene Granata and Benjamin Wingert*

> ISM_130: Safety-driven Electronic Components disassembly through Human-Robot Collaboration framework
> *Nima Rahmani Choubeh, Mostafa Zarei, Walter Quadrini, Sergio Gusmeroli and Luca Fumagalli*

> ISM_213: Overcoming Challenges in Programming Human-Robot Collaboration in Flexible Manufacturing
> *Stefan Fixl, Michael Hofmann, Helmut Zörrer and Andreas Pichler*

> ISM_359: Digital SFM: Definition of a platform for the digital daily meetings
> *Diamantino Torres, António Cerejo, Carina Pimentel and João Matias*

> ISM_224: Ensuring Kinematic Feasibility for Mobile Manipulators in Industrial Assembly: A Behavior Tree Based Approach
> *Kapil Deshpande, Sharath Chandra Akkaladevi, Matthias Propst, Michael Hofmann, Andreas Pichler and George Alexakis*

9:00 am – 10:45 am Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 2**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

[Access the Online Session]

From Warehousing 4.0 to 5.0: Towards smart, human-centered, and sustainable logistics facilities (WAREHOUSING)

Chair(s): Antonella Meneghetti, University of Udine (Italy) and Sara Perotti, Polytechnic University of Milan (Italy)

> ISM_82: Human Factor and Order Picking 5.0 – Matching the Job-Demands-Resources Model and Empirical Insights
> *Rebecca Klaue, Laura Steenbock, Quinrui Yu and Matthias Klumpp*

> ISM_107: The Influence of Human Age on Order Picking Performance with Collaborative Robots: Experimental Insights
> *Thilini Ranasinghe, Minqi Zhang, Eric Grosse, Dominic Loske, Jakob Marolt and Tone Lerher*

> ISM_190: Sustainable logistics facilities: a simulation-based approach towards warehouse decarbonization within the food and beverage industry
> *Luca Cannava, Sara Perotti, Alessia De Chirico, Behzad Najafi and Fabio Rinaldi*

> ISM_198: Assistive technologies and the human factor in warehousing: a picking experimental case with active and passive exoskeletons
> *Sara Perotti, Maria Lazzaroni, Jesùs Ortiz, Stefano Filippo Binda and Vittoria Tudisco*

> ISM_347: Tracing the evolution of warehouse technologies: a bibliometric study
> *Eleonora Bottani, Giorgia Casella and Laura Monferdini*

9:00 am – 10:45 am Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 3**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

Advanced IIoT and AI Integration for Sustainable and Flexible Manufacturing (ADVANCEDIIOT)
Chair(s): TBA

> ISM_29: Industrial Internet of Things-Driven Coopetition for SMEs
> *Agostinho da Silva and Antonio Cardoso*

> ISM_76: Integration of AI and IoT in Smart Manufacturing: Exploring Technological, Ethical, and Legal Frontiers
> *Peter Onu*

> ISM_98: Enabling Semantically Enriched Data Streams from OPC UA in Industrial Cyber-Physical Systems
> *Felix Pacher and Gernot Steindl*

> ISM_128: Unveiling Industrial Internet of Things potential for sustainable manufacturing: a Triple Bottom Line approach
> *Roberta Vadruccio, Camilla Scarpino and Angela Tumino*

> ISM_226: Optimization of monitoring, data collecting, and energy resupplying tasks with scarce resources
> *Luigi Di Puglia Pugliese, Marcello Sammarra, Giusy Macrinaand Francesca Guerriero*

> ISM_266: Edge, Fog and Cloud Computing framework for flexible production
> *Federico Briatore and Mattia Braggio*

9:00 am – 10:45 am Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 4**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Modeling Approaches and Security Issues in Complex Systems (MODSECURITY)
Chair(s): TBA

> ISM _36: RAMI 4.0-based Security Assessment of Healthcare Systems: Identifying Attacks and Quantifying Risks across Layers
> *Nastaran Farhadighalati, Sanaz Nikghadam-Hojjati and Jose Barata*

> ISM_81: The technique for multilevel modeling of discrete industrial cyber-physical systems
> *Oman Abyshev, Marat Abyshev, Ormon Abyshev and Anar Zaripova*

> ISM_137: Leveraging Rowhammer for Physically Unique and Non-tamperable Device Identification
> *Bernhard Fischer, Daniel Dorfmeister, Harald Lampesberger and Eckehard Hermann*

> ISM_336: Using In-Process Workpieces and Asset Administration Shells for Chaining Machining Skills
> *Andreas Wagner, Tatjana Legler and Martin Ruskowski*

> ISM_311: GNSS Interference and Security: Impacts on Critical Infrastructure and Mitigation Strategies
> *Jakub Trýb and Jakub Hospodka*

> ISM_291: EASA Part IS in U-Space Operations: Is STPA-Sec Enough to Comply with Information Security Risk Assessment Requirements?
> *Natalia Guskova, Max Chopart and Jakub Kraus*

Microsoft Teams, Session Link:

Access the Online Session

Digital Twins for Smart Manufacturing (DTWINS)
Chair(s): Fabiana Tornese, University of Salento (Italy)

> ISM_223: Sustainable maintenance and digital twin technology: a test case for evaluating integration potentialities
> *Valerio Elia, Maria Grazia Gnoni, Fabiana Tornese and Serena Andriulo*

> ISM_371: A Digital Twin architecture for monitoring and quality assessment for a composite filament extrusion pilot line
> *Giuseppe Serratore, Francesco Borda, Antonio Maria Igor Cosma, Francesco Gagliardi and Luigino Filice*

> ISM_47: Virtual commissioning of a mechatronic plant for insulating material processing: a company application towards Digital Twin
> *Chiara Nezzi, Alexandr Muzhichkov, Renato Vidoni and Erwin Rauch*

> ISM_256: A Human Digital Twin for Worker-Centric Production
> *Viktoria Mordaschew, Benedikt Latos and Sven Tackenberg*

> ISM_361: Towards a Digital Twin for Production Planning: Combining Discrete Event Simulation and ML for Flexible Job Shops
> *Mohaiad Elbasheer, Francesco Longo, Michael Madden, Antonio Padovano and Ihsan Ullah*

> ISM_344: Digital Twin in Industry 4.0: Systematic review and content analysis and an architectural reference model
> *Pedro Filho and Osiris Canciglieri Junior*

9:00 am – 10:45 am Czech Republic Local Time - CET *__Hotel Olšanka, Prague (Czech Republic)__* **Room 6**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Innovative ML/AI-Based and Optimization Techniques (OPTIMIZATION)
Chair(s): Michael Affenzeller, University of Applied Sciences Upper Austria (Austria)

> ISM _5: Digital Cloning as a Self-Adaptive Multicriteria Optimization Process
> *Vagan Terziyan and Timo Tiihonen*

> ISM_26: Literature survey on combining machine learning and metaheuristics for decision-making
> *Andrey Kharitonov, Jonathan Ifeanyichukwu Abani, Abdulrahman Nahhas and Klaus Turowski*

> ISM_238: Adaptive Operators for Genetic Programming to Identify Optimal Energy Flow Controllers
> *Kathrin Kefer, Michael Affenzeller and Stephan Winkler*

> ISM_239: A Two-Step Approach for Trend Detection in Injection Molding: Mann-Kendall Test and Machine Learning Classification
> *Du Nguyen Duy and Johannes Himmelbauer*

> ISM_88: The impact of feature selection models on the accuracy of tree-based classification algorithms: heart disease case
> *Yiğit Efe and Leyla Demir*

> ISM_68: Bio-inspiration Applied to Cooperative Healing in Self-Organized Manufacturing: Concepts, Exploratory Review, and Outlook
> *Luis Alberto Estrada Jimenez, Sepideh Kalateh, Sanaz Nikghadam-Hojjati and Jose Barata*

9:00 am – 10:45 am Czech Republic Local Time - CET _**Hotel Olšanka, Prague (Czech Republic)**_ **Room 7**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Special Session: B2B/B2S
The B2B/B2S (Business to Business/Business to Science) Brokerage Event @ISM2024 is the perfect and unique setting where networking and discussing partnership opportunities has never been so easy. This hybrid matchmaking event taking place on November 21-22, during the 2024 edition of the International Conference on Industry 4.0 and Smart Manufacturing (ISM) aims at attracting companies, organizations, and research institutions from the broad field of Industry 4.0 – all explicitly focused on getting in contact with potential business partners or project cooperation partners.

10:45 am – 11:15 am Czech Republic Local Time - CET

Coffee Break

11:15 am – 1:00 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* **Room 1**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

Access the Online Session

The digitalization of supply chain: challenges and opportunities (DIGITALSUPPLY)
Chair(s): Antonella Petrillo and Mizna Rehman, University of Naples "Parthenope" (Italy)

> ISM _46: Supporting Changes in Digital Ownership and Data Sovereignty Across the Automotive Value Chain with Catena-X
> *Marvin Michael Manoury, Theresa Riedelsheimer, Malte Hellmeier and Tom Meyer*

> ISM_53: Beyond Supply Chain Transparency: Organizational and Technological Aspects of Sustainability Platforms
> *Viktoria Leutheuser*

> ISM_73: A Survey of AI Capabilities in Austrian Supply Chain Management
> *Christian Raab, Thomas Fischer and Patrick Brandtner*

> ISM_264: The Development of GHG Emissions Calculation Platform for Postal Supply Chain
> *Janya Chanchaichujit, Sreejith Balasubramanian, Wai Peng Wong and Suriyan Jomthanachai*

> ISM_253: Optimizing Coffee Supply Chain Transparency and Traceability through Mobile Application
> *Antonella Petrillo, Ilaria Baffo, Fabio De Felice, Gianfranco Iovine and Mizna Rehman*

> ISM_315: Development of an ERP-Integrated Direct Routing and Way-Point Routing for Increasing Automation of LCAs in Supply Chains
> *Manuel Felder, Aliasghar Bataleblu, Georg Grünbacher and Erwin Rauch*

11:15 am – 1:00 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 2**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Supply Chain Optimization and Management (SUPPLYOPT)
Chair(s): Eleonora Bottani, University of Parma (Italy)

> ISM _62: Cost and Profit Distributions in Allied Supply Chains
> *Herbert Jodlbauer, Shailesh Tripathi, Nadine Bachmann, Manuel Brunner, Ann-Kristin Thienemann, Alican Tüzün and Sebastian Pöchtrager*

> ISM_89: Optimizing Multi-Plant Supply Chains: A Case Study of Textile and Spare Parts Production in Qatar and Türkiye
> *Omar A Hasnah, Majed Hadid, Regina Padmanabhan and Laoucine Kerbache*

> ISM_351: Digital Product Passport (DPP) technological advancement and adoption framework: A systematic literature review
> *Hendro Wicaksono, Abel Mengistu, Atit Bashyal and Tamas Fekete*

> ISM_348: The Impact of Additive Manufacturing on Supply Chain Management: Trends, Challenges and Future Directions
> *Andrea Balloni, Laura Monferdini and Eleonora Bottani*

> ISM_330: CHASM: a Combined Hierarchical Approach for Suppliers Management
> *Lucia Catellani and Eleonora Bottani*

> ISM_23: Enhancing Waste Management in Cold Supply Chains via Digital Transformation
> *Hajar Fatorachian and Kul Pawar*

11:15 am – 1:00 pm Czech Republic Local Time - CET **_Hotel Olšanka, Prague (Czech Republic)_** **Room 3**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Technological Barriers and Digital Transformation in Industry and Supply Chain (TECH)
Chair(s): TBA

> ISM_131: The Impact of Board Characteristics on Business Performance in the 4.0 Era: Empirical Research from Banks Listed on the Vietnamese Stock Exchange
> *Phuong Hoa Dinh, Thi Huong Dang and Ngoc Mai Trinh*

> ISM_142: Exploring the technological and managerial barriers to the digitalisation of food quality control systems
> *Elena Radovet, Pieternel A. Luning and A. Selcen Semercioz Oduncuoglu*

> ISM_154: Applying Interpretive Structural Modeling to Identify Wastes in Pharmaceutical Distribution
> *Lucas Ruan Assunção Pereira, Nayara Cardoso de Medeiros, Mario Henrique Callefi, Cinthia Sayuri Shiramizu and Francisco de Assis da Silva Mota*

> ISM_209: Exploring barriers to ICT adoption in road freight operations
> *Mario Henrique Callefi, Sara Yumi Shiramizu, Luiz Antonio de Carvalho Junior, Matthias Thürer, Syntia Lemos Cotrim and Lucas Daniel Del Rosso Calache*

> ISM_174: Digital servitization of the machinery sector: a comparison between Italy-Based and Foreign companies
> *Roberto Sala, Marco Ardolino, Federico Adrodegari and Giuditta Pezzotta*

> ISM_382: Exploring the environment of technology adoption: challenges and effective strategies
> *Omar Ali and Ahmad Al-Ahmad*

11:15 am – 1:00 pm Czech Republic Local Time - CET **_Hotel Olšanka, Prague (Czech Republic)_** **Room 4**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Engineering Education 5.0 (EDUCATION5.0)
Chair(s): Erwin Rauch, Free University of Bozen-Bolzano (Italy)

> ISM _113: Integrating Stakeholder Engagement: Refining Engineering Education for the Mobility Value Chain
> *Michaela Golser, Angelika Hofer, Johanna Kargruber and Erwin Rauch*

> ISM_115: Instructional Design as a Key Factor for Industry 5.0 Engineering Education
> *Ane Arregi, José Alberto Eguren, Jabier Retegi, Dorleta Ibarra and Juan Ignacio Igartua*

> ISM_129: A Learning Factory Implementation with Industry, Teaching and Research Perspectives
> *William Quinn, Killian Buckley, Alberto Casotti and Cemalettin Ozturk*

> ISM_135: Determining Training Needs to Promote Circular Economy and Decarbonization in Production
> *Johanna Kargruber, Michaela Golser, Angelika Hofer and Erwin Rauch*

> ISM_186: Rethinking Tutoring Activities in the New Normal: New Ways of Tutoring and Evolution of The Tutor's Profile
> *Maria Menshikova, Isabella Bonacci and Danila Scarozza*

> ISM_296: Development of an educational demonstrator for energy management in manufacturing
> *Lars Jakobs, Matteo De Marchi, Adrian Haupt, Alex Strickner, Angelika Hofer and Erwin Rauch*

11:15 am – 1:00 pm Czech Republic Local Time - CET **_Hotel Olšanka, Prague (Czech Republic)_** **Room 5**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Educational Strategies for Sustainability and Industry Evolution in Engineering (EDUINDUSTRY)
Chair(s): Corina Pacher, Graz University of Technology (Austria)

> ISM_194: Promoting sustainable practices through education: insights from the SAFE living lab initiative
> *Mariaelena Murphy and Robert Obenaus-Emler*

> ISM_195: Shaping the future of mining; balancing responsible extraction of resources and related social impacts through the PRO SLO education initiative
> *Mariaelena Murphy and Hanno Bertignoll*

> ISM_205: Revolutionizing Education in Industry 4.0: Eye-Tracking and AI for Personalized Learning
> *Cella-Flavia Buciuman and Sabina Potra*

> ISM_214: Investigating the Influence of the Transition from Industry 4.0 to 5.0 on the Education and Career Development of Industrial Engineers and Managers
> *Laurenz Luger, Volker Koch, Corina Pacher and Bernd M. Zunk*

> ISM_215: Identifying Competences of Engineers in the Context of Operations Management: A Literature Overview
> *Tanja Sajko, Volker Koch, Corina Pacher and Bernd M. Zunk*

> ISM_159: VR Games for Teaching Lean Manufacturing Tools: A Case Study of Stool Manufacturing
> *Tim Tsai, Zaneta Sarah Widjaja, Md Rakibul Hasan, Dhrumil Pithwa, Purna Sai Teja Pinninti and Rafiq Ahmad*

11:15 am – 1:00 pm Czech Republic Local Time - CET *__Hotel Olšanka, Prague (Czech Republic)__* **Room 6**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

<button>Access the Online Session</button>

Enhancing Industry 4.0 with Extended Reality: Applications and Insights (XRINDUSTRY)
Chair(s): Vito Manghisi, Polytechnic University of Bari (Italy)

> ISM_22: Immersive representation exercise in BIM through the integration of prerequisites and requirements: structuring of an artefact applied to a case study
> *Simone Balin, Cecilia Maria Bolognesia and Paolo Borin*

> ISM_125: Towards an integration of Augmented Reality and Intelligent Systems for Assisted Assembly: Issues and Perspectives
> *Bruno Souza, Anderson Szejka and Roberto Freire*

> ISM_220: Assessing the User Experience in realistic Virtual Reality Environment: operational framework and experimental Survey
> *Antimo Cardilicchio, Alessandro Greco, Salvatore Cesarano, Marta Rinaldi and Salvatore Gerbino*

> ISM_218: Exploring Augmented Reality Interaction Metaphors: Performance and Ergonomic Assessment using HoloLens 2 and RULA Method
> *Vito De Giglio, Alessandro Evangelista, Antonio E. Uva and Vito Manghisi*

> ISM_114: From Concept to Reality: A Contemporary Framework for Virtual Designing and Commissioning Processing Plant Systems
> *Mads Nielsen, Michail Beliatis and Torben Tambo*

> ISM_39: Towards dynamic Visualization of Digital Twins in Engineering
> *Matthias Jaenicke, Janek Bender and Jivka Ovtcharova*

11:15 am – 1:00 pm Czech Republic Local Time - CET *__Hotel Olšanka, Prague (Czech Republic)__* **Room 7**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

<button>Access the Online Session</button>

Special Session: B2B/B2S
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during the 2024 edition of the International Conference on Industry 4.0 and Smart Manufacturing (ISM) aims at attracting companies, organizations, and research institutions from the broad field of Industry 4.0 – all explicitly focused on getting in contact with potential business partners or project cooperation partners.

1:00 pm – 2:30 pm Czech Republic Local Time - CET

Lunch Break

2:30 pm – 4:15 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* **Room 1**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Innovative Business Strategies and Technological Transformations (BUSINESSTECH)
Chair(s): Eleonora Bottani, University of Parma (Italy)

> ISM _231: Investigating Research Trends in Computer Vision for Food Quality Control: A Bibliometric Approach
> *Natalya Lysova, Federico Solari and Roberto Montanari*

> ISM_339: Artificial intelligence in consumer preferences: implications for health and well-being
> *Barbara Bigliardi, Eleonora Bottani, Virginia Dolci, Laura Monferdini and Benedetta Pini*

> ISM_340: Exploring the evolution of Industry 4.0 research: a bibliometric perspective
> *Barbara Bigliardi, Virginia Dolci, Laura Monferdini, Benedetta Pini and Eleonora Bottani*

> ISM_180: Visual Management for digitizing the production scheduling: An Italian case study
> *Chiara Brunelli, Letizia Tebaldi and Eleonora Bottani*

> ISM_293: Assessing the Maturity of Blockchain-based Supply Chain Management and Logistics: Comprehensive Examination of the Current Situation
> *Umut Şener, Murat Tahir Çaldağ and Ebru Gökalp*

> ISM_384: Exploring Industry 4.0 Technologies in Tourism: A Literature Review
> *Domenico Gattuso, Francesco Longo and Gaetana Rubino*

2:30 pm – 4:15 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* **Room 2**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

<div style="background-color:#FFC000; padding:10px; display:inline-block;">**Access the Online Session**</div>

R&D Dissemination Event

2:30 pm – 4:15 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* **Room 3**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

<div style="background-color:#FFC000; padding:10px; display:inline-block;">**Access the Online Session**</div>

Engineering Education 5.0: Lifelong Learning for Future Challenges (ENGEDU)
Chair(s): Rui Pinto, University of Porto (Portugal) and Miroslav Žilka, Czech Technical University of Prague (Czech Republic)

> ISM _13: A Comparison of Educational Perspectives on VDI 2221 and Axiomatic Design
> *Patrick Kröpfl, Christian Landschützer, Hannes Hick, Wajih Haider Awan and Christopher Brown*

> ISM_92: Game-based learning for industrial maintenance: a unity 3D educational game of compressed air system training
> *Birkan Isik, Gulbahar Emir Isik and Miroslav Zilka*

> ISM_96: Project Development Management for Innovation and Research: A module approach for researchers in Higher Education Institutions
> *George Valakas, Sibila Šoštarić and Katerina Adam*

> ISM_243: A Proposed Educational Framework for Professional Upskilling in Smart Manufacturing: On-Demand Microlearning Units
> *Rui Pinto, Adrian Lomba Perez, Gil Gonçalves, Jesús F. Lampón and Hugo Pérez-Moure*

> ISM_277: Tools to support managerial decision-making: experiences from the pilot run of the training program for professionals in the manufacturing sector
> *Miroslav Žilka, Jan Lhota and Václav Kalina*

2:30 pm – 4:15 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 4**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Sustainability and Efficiency in Manufacturing and Logistics (MANULOG)
Chair(s): TBA

> ISM _70: Energy Efficiency Analysis in Industry 4.0 set up leveraging Industry 5.0 methods for Sustainable Manufacturing: Case Study
> *Shantall Cisneros Saldana, Arshit Kapoor, Sampat Acharya and Heike Markus*

> ISM_30: Distribution logistics network optimization with a multi-distribution center considering carbon emission: A case study in the petrochemical industry in Thailand
> *Wirachchaya Chanpuypetch, Duangpun Kritchanchai, Sermpong Niemsakul and Jirawan Niemsakul*

> ISM_67: Design and Simulation of a Production Line for Plastic Recycling with Additive Manufacturing
> *Afia Rasool, Guru Ratan Satsangee, Madison Warawa, Almas Khan, Meet Shah, Ashavjeet Singh and Rafiq Ahmad*

> ISM_32: Integration of Environmental Assessment into the Configuration Process of Complex Products
> *Dennis Keiser and Michael Freitag*

> ISM_78: A multi-perspective framework to address manufacturing and transportation challenges in green hydrogen supply chains transportation challenges in green hydrogen supply chains
> *Matthias Klumpp, Frank Meisel, Christian Thies and Udo Buscher*

> ISM_343: Advanced Multi-Criteria Group Decision Making for Transportation Mode Selection: Integrating Consensus and Choquet Integral with Possibility Measures
> *Ryma Zegai, Imen Khettabi, Lyes Benyoucef and Moncef Abbas*

2:30 pm – 4:15 pm Czech Republic Local Time - CET _**Hotel Olšanka, Prague (Czech Republic)**_ **Room 5**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

<button>Access the Online Session</button>

Optimizing Collaborative Systems and Novel Cognitive Approaches (COLLABCOGNITIVE)
Chair(s): Emmanuel Francalanza, University of Malta (Malta)

> ISM _189: Robust Segmentation and Classification of Robot Skills from Demonstrations with Detection of Unknown Skills
> _Isacco Zappa, Alessandro Tomasoni, Andrea Maria Zanchettin and Paolo Rocco_

> ISM _77: Conceptualizing cognitive and physical worker-technology symbiosis in manufacturing: Lessons from J.A.R.V.I.S.
> _Mohsen Moghaddam and Matthias Klumpp_

> ISM_281: The role of human error in human robot interaction
> _Carmen Esposito, Valentina De Simone, Valentina Di Pasquale, Marta Rinaldi, Marcello Fera and Salvatore Miranda_

> ISM_327: A Cost-Effective Balancing Model for Human-Robot Collaborative Assembly Lines
> _Yuksel Degirmencioglu Demiralay and Yakup Kara_

> ISM_332: Cognitive Design of Collaborative Human-Robot workstations in Industry 5.0: A Kansei Engineering approach to quantifying emotions in problem decomposition.
> _Amberlynn Bonello, Emmanuel Francalanza, Christopher A. Brown and Paul Refalo_

2:30 pm – 4:15 pm Czech Republic Local Time - CET _**Hotel Olšanka, Prague (Czech Republic)**_ **Room 6**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

<button>Access the Online Session</button>

Innovative Solutions for Maintenance Activities – Part I (MAINTENANCE1)
Chair(s): Ferdinando Chiacchio, University of Catania (Italy)

> ISM _110: Implementing and using smart maintenance technologies: Introducing challenges and enablers related to human, organizational and technological perspectives
> _San Giliyana, Marcus Bengtsson and Antti Salonen_

> ISM_111: Anomaly detection using different types of machine learning models in the context of "smart maintenance technologies in the manufacturing industry"
San Giliyana

> ISM_152: Concept of a plug-and-play, Machine Learning Digital Twin of the production resource for Detailed Capacity Planning and Scheduling
Mario Luber, Sarah Wagner, Marc Wegmann and Johannes Schilp

> ISM_257: Maintenance 4.0 in Mining Trucks: Data Digitalization and Advanced Protocols
Nour Elkhenin and Hatem Mrad

> ISM_355: Enhancing Maintenance Operations in Industry 5.0: A Conceptual User Interface Design for Task Assignment
Ludovica Oliveri, Ferdinando Chiacchio, Nazareno Lo Iacono, Micaela Vitti and Francesco Facchini

> ISM_379: Application of Two-Parameter Weibull Distribution for Predictive Maintenance: A Case Study
Stefania Ferrisi, Paolo Cappellari, Rosita Guido, Domenico Umbrello and Giuseppina Ambrogio

2:30 pm – 4:15 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* **Room 7**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

[**Access the Online Session**]

Special Session: B2B/B2S
The B2B/B2S (Business to Business/Business to Science) Brokerage Event @ISM2024 is the perfect and unique setting where networking and discussing partnership opportunities has never been so easy. This hybrid matchmaking event taking place on November 21-22, during the 2024 edition of the International Conference on Industry 4.0 and Smart Manufacturing (ISM) aims at attracting companies, organizations, and research institutions from the broad field of Industry 4.0 – all explicitly focused on getting in contact with potential business partners or project cooperation partners.

4:15 pm – 4:45 pm Czech Republic Local Time - CET

Coffee Break

4:45 pm – 6:30 pm Czech Republic Local Time - CET **_Hotel Olšanka, Prague (Czech Republic)_** **Room 1**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Driving Sustainability Through Technological and Strategic Innovations (INNOVATION)
Chair(s): Luigino Filice, University of Calabria (Italy)

> ISM _34: Productivity convergence and the role of innovation in productivity convergence: The case of processing and manufacturing enterprises in Vietnam
> *Khac Thanh Nam Ninh, Thi Minh Ngoc Luu, Huy Hung Ta and Thi Mai Huong Nguyen*

> ISM_109: Modelling and assessment of obstacles to energy saving technological changes: the case of Ukrainian industrial enterprises
> *Olexandr Yemelyanov, Tetyana Petrushka, Orest Koleshchuk, Kateryna Petrushka and Dmytro Havras*

> ISM_377: A framework for LCA analysis of low TRL products: towards a sustainable approach in early development stages
> *Romina Conte, Antonio Barbieri, Alessandra Treviso and Giuseppina Ambrogio*

> ISM_24: A Systematic Bibliometric Review and Visualization of the Intersection between Lean Start-ups and Sustainability
> *Domicián Máté, Tímea Galambos and Edit Szűcs*

> ISM_173: The technology foresight to shape the future in the global arena
> *Filippo Nicola Coppoletta, Luigino Filice and Vincenzo Corvello*

> ISM_161: Transition Towards a Green Future: Upgrading a Digital Decarbonization Maturity Model
> *Tamer Abdulghani and Herwig Winkler*

4:45 pm – 6:30 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* Room 2	**Thu 21st, 2024**

Microsoft Teams, Session Link:

<button>Access the Online Session</button>

Innovative Solutions for Maintenance Activities – Part II (MAINTENANCE2)
Chair(s): Duarte Dinis, NOVA School of Science and Technology (Portugal)

> ISM_150: Discrete event simulation analysis of the attention cycle for a vehicle maintenance order
> *Guillermo Azahel Piña Silva, Alejandro Puga Mendoza, Jorge Peralta Enríquez, Alejandro Aranda López and Ricardo Torres Mendoza*

> ISM_169: Empowering SMEs in the Fourth Industrial Revolution: A Framework for Maintenance 4.0 Adoption
> *Majid Nasirinejad, Hamid Afshari and Srinivas Sampalli*

> ISM_295: Maintenance Management in Production: A Qualitative Study on Industry 4.0 Adoption and Challenges
> *Birkan Isik and Miroslav Zilka*

> ISM_360: Maintenance Management: A Review on Problems and Solutions
> *Duarte Dinis*

> ISM_342: Optimal coordination of Production, Logistics, and Maintenance 4.0: Perspectives for Multi-Site Stamping Plants
> *Raoua Zerrad and Kamar Diaz*

4:45 pm – 6:30 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* Room 3	**Thu 21st, 2024**

Microsoft Teams, Session Link:

<button>Access the Online Session</button>

Data Management Approaches for Sustainability and Efficiency (DATA)
Chair(s): TBA

> ISM_304: The Independent Event Log Layer (IELL): Semantic Integration of Industrial IoT Event Logs
> *Valentin Philipp Just, Gernot Steindl and Wolfgang Kastner*

- > ISM_358: Classifying Forest Supply Chain Traceability Data with an Ontological Approach
  Hugo Silva, Reinaldo Gomes and Cristóvão Sousa

- > ISM_100: Proposal approach for a traceability solution in tableware ceramics in the context of industry 4.0
  Filipe Gonçalves, Sara Paralta, Luís Silva and Fernando Piedade

- > ISM_162: Review and concepts on how construction and facilities management can utilize barcode and QR code technology to access documents onsite
  Robert Lopez and Alexander Rose

- > ISM_48: Integrating Chipless RFID Technology to Provide Seamless Data Interoperability for Textile Industry Circularity
  Maximilian Scholz and Omid Fatahi Valilai

- > ISM_8: Blockchain and Smart Contract Creation for Efficient and Secure Data Storage of Consumer Habits and Logistics Data
  Krisztian Balint

4:45 pm – 6:30 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 4**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

Innovative Methodologies for Additive Manufacturing – Part I (ADDITIVE1)
Chair(s): Pedro Espadinha-Cruz, NOVA (Portugal)

- > ISM _99: Mechanical properties and corrosion resistance of a component manufactured by Wire Arc Additive Manufacturing
  Lucas Lauriano da Silva and Demostenes Ferreira Filho

- > ISM_106: Additive Manufacturing adoption in aviation: A literature review
  Jorge Oliveira and Pedro Espadinha-Cruz

- > ISM_171: A Fuzzy System to Measure Additive Manufacturing Maturity: A Case Study in the Automotive Industry
  Pedro Espadinha da Cruz and Elisa Reboredo

- > ISM_153: Additive manufacturing (AM) and 3D bioprinting for Biomedical Application: Understanding the Drivers, Barriers and Technology Trends
  Peter Onu

> ISM_297: Additive manufacturing in food space: A bibliometric review
Marco Scatto, Karen Venturini, Virginia Dolci, Benedetta Pini, Alberto Petroni and Barbara Bigliardi

> ISM_104: Impact of Additive Manufacturing on Spare Parts Inventory Management
Tamer Farghali, Regina Padmanabhan, Majed Hadid and Laoucine Kerbache

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4:45 pm – 6:30 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* **Room 5**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

Technological Innovations in the Maritime Sector (MARITIME)
Chair(s): Serena Bertagna, University of Trieste (Italy)

> ISM_287: Simulation to predict the behaviour of a new seaport gate: An application in the Sines container terminal
Raquel Gil-Pereira, Rui Borges Lopes and Leonor Teixeira

> ISM_285: An innovative methodology for enabling predictive maintenance of ship systems based on Industry 4.0 technologies
Serena Bertagna, Luca Braidotti, Vittorio Bucci and Alberto Marinò

> ISM_337: A Concise Account for Challenges of Machine Learning in Seakeeping
Hamed Majidiyan, Hossien Enshaei and Damon Howe

> ISM_290: Decision support system for port terminals: Design and development of a business intelligence tool
Marco Gonçalves and Leonor Teixeira

4:45 pm – 6:30 pm Czech Republic Local Time - CET *__Hotel Olšanka, Prague (Czech Republic)__* **Room 6**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

<div style="background-color:#FFC000;">**Access the Online Session**</div>

Integrating Novel Technologies for Supply Chain Performance (TECHSUPPLY)
Chair: Abla Chaouni Benabdellah, International University of Rabat (Morocco)

> ISM_10: The role of Hybrid Simulation for Dynamic Analysis of Sustainable Supply Chains 4.0
> *André Ferreira, Ana Ramos, José Ferreira and Luis Ferreira*

> ISM_259: Metaverse and Generative AI's Digital Capabilities For Supply Chain Resilience
> *Azz-Eddine Meafa, Abla Chaouni Benabdellah and Kamar Zekhnini*

> ISM_279: Enhancing healthcare supply chains in developing countries: the role of blockchain technology
> *Amira Nabli, Asmae El Mokrini and Tarik Aouam*

> ISM_312: Industry 5.0 for Sustainable Supply Chains: A Fuzzy AHP Approach for Evaluating the adoption Barriers
> *Chaimae Chrifi-Alaoui, Imane Bouhaddou, Abla Chaouni-Benabdellah and Kamar Zekhnini*

> ISM_320: Enhancing transparency in buyer-driven commodity chains for complex products: a blockchain-based traceability framework demonstrated through an apparel supply chain simulation
> *Ritwik Takkar, Ken Birman and H. Oliver Gao*

> ISM_346: From Industry 4.0 to Industry 5.0: Opportunities, Challenges, and Future Perspectives in Logistics
> *Laura Monferdini, Letizia Tebaldi and Eleonora Bottani*

4:45 pm – 6:30 pm Czech Republic Local Time - CET **_Hotel Olšanka, Prague (Czech Republic)_** **Room 7**	**Thu 21st, 2024**

Microsoft Teams, Session Link:

[Access the Online Session](#)

Special Session: B2B/B2S

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ISM 2024 Gala Dinner
21st November 2024

8:30 pm – 11:00 pm Czech Republic Local Time - CET **In presence**	**Thu 21st, 2024**

ISM Awards Ceremony

The ISM comes with three different awards that will be granted to the authors of high-quality papers who will present the paper during the Conference. The winner for each award will be determined by the Award Committee (different per each award) from a short list of finalists based on the gathered reviews and on their own reading of the papers. The winner certificates will be awarded during the Awards Ceremony.

Best Paper Award
The Best Paper Award is assigned by the ISM Best Paper Award International Committee and selected among the top quality papers presented at ISM based on originality, scientific quality and impact on the manufacturing domain.

Industrial Impact Paper Award
The Industrial Impact Paper Award is assigned by the ISM Industrial Partners Committee and selected among the top quality papers presented at ISM that have the greatest impact on industrial practice and provide relevant advances to manufacturing systems.

Best Service Innovation Paper Award
The Best Service Innovation Paper Award is assigned by ISSIP (Int. Society of Service Innovation Professionals) to the best paper dealing with promoting service innovation in industry and in our world by large.

Best Student Paper Award
The Best Student Paper Award is assigned by the ISM Award Committee and selected among the top quality papers presented at ISM and having a student as corresponding author. The student will get a monetary prize and the opportunity to publish a paper on the Journal of Manufacturing and Materials Processing (MDPI).

Innovation Management Best Paper Award

The Innovation Management Best Paper Award is assigned by the ISM Award Committee in collaboration with the Editorial Board of the European Journal of Innovation Management to the best paper dealing with promoting innovation management in industrial contexts.

ISM 2024

Activities and Sessions Details

Friday, November 22nd

9:00 pm – 10:45 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 1**	**Fry 22nd, 2024**
Microsoft Teams, Session Link: Access the Online Session	

Transformative Educational Practices for Future-Ready Engineering and Innovation (EDUFUTURE)
Chair(s): Corina Pacher, Graz University of Technology (Austria)

> ISM _236: Integrating the Circular Economy and Life Cycle Thinking into project-based learning of engineering students
> *René Herbert Reich and Veerle Vermeyen*

> ISM_268: Preparing Students for Industry 5.0: Evaluating the Industrial Engineering and Management Education
> *Dajana Tomasevic, Volker Koch, Corina Pacher and Bernd M. Zunk*

> ISM_322: Strategic Realignment of Accelerator Programs to Foster Deep Tech Talents: A Framework for Innovation and Growth
> *Corina Pacher, Martin Glinik, Volker Koch and Bernd M. Zunk*

> ISM_269: Innovative teaching methodologies: Keyword-based analysis to monitor the trends of the last decade
> *Claudio Suppini, Andrea Volpi, Federico Solari, Letizia Tebaldi, Natalya Lysova and Roberto Montanari*

> ISM_352: Experiencing Open Innovation within an education institution: the University of Calabria's case
> *Francesco Borda, Gabriele Zangara, Filippo Nicola Coppoletta and Luigino Filice*

9:00 am – 10:45 am Czech Republic Local Time - CET
Hotel Olšanka, Prague (Czech Republic)
Room 2

Fri 22nd, 2024

Microsoft Teams, Session Link:

> **Access the Online Session**

Innovative Methodologies for Additive Manufacturing – Part II (ADDITIVE2)
Chair(s): Roberta Pellegrino, Polytechnic University of Bari (Italy)

> ISM _17: Hybrid Additive Manufacturing for Assembly and Postprocessing Solutions.
> *Miguel Zamora Cordero, Rayko Toshev and Petri Helo*

> ISM_228: Deriving formal concepts of 3D objects in support of additive manufacturing applications
> *Elena Tsiporkova, Chaitra Harsha, Michiel De Vis and Robbert Verbeke*

> ISM_144: Quality control techniques in additive manufacturing: Current trends and their prototypical implementation
> *Daniel Seifert, Pierre Grzona, Keyur Raval and Matthias Thürer*

> ISM_308: Recycled vs. Virgin Materials in Additive Manufacturing: Assessing the Risk Mitigation Potential in Uncertain Supply Scenarios
> *Antonio Piepoli, Francesco Paolo Lagrasta, Roberta Pellegrino and Pierpaolo Pontrandolfo*

> ISM_112: Towards Additive Manufacturing Enabled Sustainable Spare Parts Supply Chain: A Multi-Objective MILP Model for Cost and Carbon Emissions Minimization
> *Muhammad Fahad Sheikh, Dr. Regina Padmanabhan, Dr. Majed Hadid and Dr. Laoucine Kerbache*

9:00 am – 10:45 am Czech Republic Local Time - CET
Hotel Olšanka, Prague (Czech Republic)
Room 3

Fri 22nd, 2024

Microsoft Teams, Session Link:

> **Access the Online Session**

Innovative Solutions for Maintenance Activities – Part III (MAINTENANCE3)
Chair(s): TBA

> ISM _207: Automating the labeling of industrial data: a challenge and an opportunity to boost the development of Condition-Based Monitoring in Industry 4.0
> *Philipe Lepetit, Leila Belmerhnia and Flavien Peysson*

> ISM_255: Heterogeneous vibration data preprocessing method for fault detection
Donatien Claeyssens Beaupere, Dorsaf Zekri, Thierry Delot and Abdessamad Ait el Cadi

> ISM_3: Guardians of Reliability, Robustness, and Resilience: Adversarial Maintenance in the Era of Industry 4.0 and 5.0
Vagan Terziyan and Olena Kaikova

> ISM_203: Degradation Modelling and Prognostics of Rotating Equipment with Automated Machine Learning
Stefanos Kontos, Alexandros Bousdekis, Katerina Lepenioti and Gregoris Mentzas

> ISM_235: Big Data and AI for Smart Maintenance: Literature review on the impact on plants Resilience
Marco Mosca, Roberto Mosca and Mattia Braggio

9:00 am – 10:45 am Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* Room 4	Fri 22nd, 2024
Microsoft Teams, Session Link: Access the Online Session	

Intelligent Systems for Optimizing Logistics Processes (INTLOGISTICS)
Chair: Elena Tappia, Polytechnic University of Milan (Italy)

> ISM_64: Literature review and process development for inbound transport demand forecasts
Jens Jakob Jacobsen, Marina Mardanova and Nikolas Ulrich Moroff

> ISM_201: An Integrated Big Data Analytics Architecture for Resilience: A Case Study of Last-Mile Agri-Food Delivery
Morteza Alaeddini and Alireza Asgari

> ISM_227: Carrier selection: Is data valuable for shippers?
Matteo Mascheroni, Alessandro Del Fabbro, Emilio Moretti, Elena Tappia and Marco Melacini

> ISM_329: Applying Deep Learning and Forecasting Techniques to the Pharmaceutical Supply Chain
Marco Javier Suarez Baron

> ISM_353: Design of a Data Integration and Exchange Service for Touristic City and Logistics Planning in Şanlıurfa, Turkey
Richard Reider, Vasu Dev Mukku, Marcel Müller, Tobias Reggelin, Fred Barıs Ernst and

Sebastian Lang

> ISM_282: A Smart Adaptive Transportation Planning Model Including Real-time Drivers' Knowledge using Answer Set Programming and Knowledge Graphs
> *Mohammad Yaser Mofatteh, Reyan Abbas, Nicholas Desire Seddoh, Suraj Sedhumadhavan, Mintra Thunyaluck and Omid Fatahi Valilai*

9:00 am – 10:45 am Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* **Room 5**	**Fri 22nd, 2024**
Microsoft Teams, Session Link: [Access the Online Session]	

Innovative solutions for smart and sustainable agri-food supply chains (AGRIFOOD)
Chair: Raffaele Iannone, University of Salerno (Italy)

> ISM _72: Towards Efficient and Fine-Grained Traceability for a Live Lobster Supply Chain using Blockchain Technology
> *Sarra Fekih Romdhane, Kaiwen Zhang and Luis Antonio DeSanta-Eulalia*

> ISM_163: Monte Carlo-based instance generator for agri-food supply chain operations assessment
> *Beatrice Guidani, Riccardo Accorsi, Riccardo Manzini and Michele Ronzoni*

> ISM_165: Data architecture framework for reverse logistics management in reusable food packaging networks
> *Giorgia Bartolotti, Beatrice Guidani, Michele Ronzoni, Riccardo Manzini and Riccardo Accorsi*

> ISM_202: Uncovering the role of data analytics on the resilience of agri-food supply chains: a systematic and science mapping review
> *Alireza Asgari*

> ISM_271: Risk management in wine supply chain: a state-of-the-art analysis
> *Benedetta Franco, Valentina De Simone, Alessandra Capolupo, Pier Paolo Miglietta and Raffaele Iannone*

9:00 am – 10:45 am Czech Republic Local Time - CET _**Hotel Olšanka, Prague (Czech Republic)**_ **Room 6**	**Fri 22nd, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

R&D Dissemination Event – Part II (DISSEMINATION2)

9:00 am – 10:45 am Czech Republic Local Time - CET _**Hotel Olšanka, Prague (Czech Republic)**_ **Room 7**	**Fri 22nd, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Special Session: B2B/B2S
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10:45 am – 11:15 am Czech Republic Local Time - CET
Coffee Break

| 11:15 am – 1:00 pm Czech Republic Local Time - CET
Hotel Olšanka, Prague (Czech Republic)
Room 1 | **Fri 22nd, 2024** |

Microsoft Teams, Session Link:

> [**Access the Online Session**]

Technological Innovations for Sustainable Agriculture (AGRICULTURE)
Chair(s): Giuseppe Vignali, University of Parma (Italy)

> ISM _230: Advancing Ohmic Treatment of Egg Products: Insights from Numerical Simulation
> _Natalya Lysova, Federico Solari, Giacomo Aprili and Roberto Montanari_

> ISM_288: Digital twin enhanced with Machine Learning Algorithms for Irrigation Management Using Sensor Data
> _Giovanni Paolo Carlo Tancredi, Luca Preite and Giuseppe Vignali_

> ISM_350: Modeling, simulation and control of the nutritional solution in the hydroponic cultivation of blueberries
> _Honorato Ccalli Pacco and Jorge Lázaro Franco Medina_

> ISM_357: Sustainable Harvest/Collection Optimization of Residual AgroForestry Biomass including Wildfire Risk
> _Ruxanda Silva, Carina Pimentel, Reinaldo Gomes, Ana Ramos and João Matias_

| 11:15 am – 1:00 pm Czech Republic Local Time - CET
Hotel Olšanka, Prague (Czech Republic)
Room 2 | **Fri 22nd, 2024** |

Microsoft Teams, Session Link:

> [**Access the Online Session**]

Improving Operations in the Agri-Food Sector (AGRIOPERATIONS)
Chair(s): TBA

> ISM_323: Product Quality and Sustainability in a Multi-Objective VRP: Case Study on the Distribution of Extra-Virgin Olive Oil
> _Francesca Guerriero, Giusy Macrina, Veronica Mosca and Edoardo Scalzo_

> ISM_164: Data architecture framework for improving consumer awareness in food shopping experience
> _Riccardo Accorsi, Barbara Ballotta, Giorgia Bartolotti, Luca Falasconi, Beatrice Guidani,_

Riccardo Manzini, Maria Letizia Petroni, Michele Ronzoni, Anisa Rula, Andrea Segrè and Simone Zanoni

> ISM_1: Green purchasing as a catalyst for suppliers' compliance to environmental standards: e-grocery perspective
Marcia Mkansi and Phumlani Masilela

> ISM_166: Enhancing Malaysian Organic Food Retail Business Models Through Consumer Behaviour Analysis
Noor Aslinda Abu Seman, Umi Kartini Rashid, Arifha Mohamad and Mohd Khairulnizam Sahlan

> ISM_316: Production line balancing and reconfiguration in food industry: A simulation study from a baked goods manufacturer
Wolfgang Grenzfurtner, Parisa Tizghadam and Tim Gruchmann

11:15 am – 1:00 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 3**	**Fri 22ⁿᵈ, 2024**

Microsoft Teams, Session Link:

Enhancing Worker Well-being and Ergonomics with Technology in Industry 4.0 (WELLBEING)
Chair(s): TBA

> ISM _123: Remote control desk in Industry 4.0 for train driver: an ergonomics perspective
Emelyne Michel, Philippe Richard and Quentin Berdal

> ISM_240: Wearable devices for stress detection: insights on exploring generalizability in controlled laboratory settings
Marianna Ciccarelli, Asya Pesaresi, Alessandra Papetti and Michele Germani

> ISM_338: Predicting the Impact of Cognitive Load and Psychological Well-Being Among Workers in Manufacturing Environments
Ochuko Orikpete, Modestus Okwu, Samina Khalid, Nura Abubakar and Lagouge Tartibu

> ISM_74: Managing Workplace Conflict for Enhancing Employee Satisfaction in MSMEs
Arifha Mohamad

> ISM_221: Influencing factors on worker task sequencing decisions in a medium-sized hydraulic cylinder manufacturer
Jan-Phillip Herrmann, Sven Tackenberg, Florens Burgert and Verena Nitsch

Microsoft Teams, Session Link:

> **Access the Online Session**

Leveraging AI and Advanced Analytics for Operational Efficiency in Industry (ANALYTICS)
Chair(s): TBA

> ISM _85: Multi-agent Scheduling for Shared Manufacturing Systems
> *Ege Duran, Cemalettin Ozturk and Barry O'Sullivan*

> ISM_242: Application of time series snippets: the matrix profile enabling low-parameter shape-based analysis of machine tools sensor data
> *Mauritz Mälzer, Hajo Wiemer and Steffen Ihlenfeldt*

> ISM_11: The effects of Integrated Management System certification in financial stability and effective indicator forecasting: a test case using Artificial Neural Networks
> *Fábio Freitas, Lino Costa, Pedro Domingues and André M. Carvalho*

> ISM_75: Enhancing Resource Assignment Efficiency in Service Industry: A Predict-then-Optimize Approach with XGBoost
> *Mehran Nasseri, Taha Falatouri, Patrick Brandtner, Farzaneh Darbanian and Sina Mirshahi*

> ISM_210: Sales predictive analysis for improving supply chain drug sample
> *Susana Casy Tellez-Ballesteros, Ricardo Torres-Mendoza, José Antonio Marmolejo-Saucedo and Roman Rodriguez-Aguilar*

> ISM_138: Discovery and characterization of operating modes in a fleet of assets via hypergraph clustering
> *Chaitra Harsha, Alessandro Murgia, Pierre Dagnely and Elena Tsiporkova*

11:15 am – 1:00 pm Czech Republic Local Time - CET *__Hotel Olšanka, Prague (Czech Republic)__* **Room 5**	**Fri 22nd, 2024**

Microsoft Teams, Session Link:

<button>Access the Online Session</button>

Integrating Advanced Neural Networks and Physics-Informed AI in Manufacturing Processes (NEURALPHYSICS)

Chair(s): Ivo Bukovsky, University of South Bohemia (Czech Republic)

> ISM_273: Feasible Robustness in Adaptive Monitoring of Complex Harmonic Time Series Using In-Parameter-Linear Nonlinear Neural Architectures
> *Katerina Marzova and Ivo Bukovsky*

> ISM_274: Potentials of Gated Higher Order Neural Units for Signal Decomposition and Process Monitoring
> *Ondrej Budik, Ivo Bukovsky and Noriyasu Homma*

> ISM_321: Physically Informed Higher-Order Neural Units Reduce the Curse of Dimensionality and Improve Explainability
> *Ivo Bukovsky, Vit Pawlik, Ondřej Budík, Katerina Marzova and Pavel Steibauer*

> ISM_368: A Physics-Informed AI Control System for Enhanced Safety and Automation in Hollow Glass Manufacturing
> *Federico Monegaglia, Nicola Peghini, Edoardo Lenzi, Simone Bettio, Paolo Calanca, Damiano Dallapiccola, Alessandro Bertolli and Matteo Mazzola*

11:15 am – 1:00 pm Czech Republic Local Time - CET *__Hotel Olšanka, Prague (Czech Republic)__* **Room 6**	**Fri 22nd, 2024**

Microsoft Teams, Session Link:

<button>Access the Online Session</button>

Special Session: Focus Group – Future Competences in the Mobility Value Chain (COMPETENCES)
Chair(s): Bernd Markus Zunk and Volker Koch, Graz University of Technology (Austria)

Graz University of Technology invites you to participate in this focus group as part of the EU-funded "Engineering Excellence for the Mobility Value Chain" (EE4M) project. The focus group aims to explore the specific competences required for Entrepreneurship and Industrial Marketing Management to address the challenges and opportunities presented

by Industry 4.0 and 5.0 in the mobility sector. Entrepreneurs, industry experts, academics, educators, and practicing engineers are welcome to contribute their expertise.

11:15 am – 1:00 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 7**	**Fri 22nd, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Special Session: B2B/B2S
The B2B/B2S (Business to Business/Business to Science) Brokerage Event @ISM2024 is the perfect and unique setting where networking and discussing partnership opportunities has never been so easy. This hybrid matchmaking event taking place on November 21-22, during the 2024 edition of the International Conference on Industry 4.0 and Smart Manufacturing (ISM) aims at attracting companies, organizations, and research institutions from the broad field of Industry 4.0 – all explicitly focused on getting in contact with potential business partners or project cooperation partners.

1:00 pm – 2:30 pm Czech Republic Local Time - CET
Lunch Break

2:30 pm – 4:15 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 1**	**Fri 22nd, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Advanced Quality Control in Manufacturing (QUALITY)
Chair(s): TBA

> ISM_95: Zero-Defect Manufacturing Maturity Model
> *Marta Pinzone, Danusuya Pachimuthu, Marco Spaltini and Marco Taisch*

> ISM_193: A Smart Manufacturing Conceptual Framework for Digitalising Data Collection of the Quality Management System for Regulatory Compliance in the Medical Device Industry
> *Puneeth Kannaraya, Manish Arora and Amaresh Chakrabarti*

> ISM_232: Reverse engineering tools - 3D scanning - as support for precise quality control in automated special processes
Dorota Klimecka-Tatar and Marek Krynke

> ISM_244: Virtual Sensors and Thermal Modelling for Quality Control in Industrial Thermal Spraying
Wolfgang Rannetbauer, Carina Hambrock, Simon Hubmer and Ronny Ramlau

> ISM_146: Real time contaminants detection in wood panel manufacturing process using YOLO algorithms
Mohaned Djedidi, Mariem Ben Hassen, Hatem Mrad and Ahmed Koubaa

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| 2:30 pm – 4:15 pm Czech Republic Local Time - CET
Hotel Olšanka, Prague (Czech Republic)
Room 2 | **Fri 22nd, 2024** |

Microsoft Teams, Session Link:

> **Access the Online Session**

Enhancing Processes through Digitalization (PROCESSDIGIT)
Chair(s): *TBA*

> ISM_31: Data Quality: revisiting dimensions towards new framework development
André M. Carvalho, João Montenegro, Sónia Soares and Lígia Conceição

> ISM_86: Quality Problems Reporting: Digitalization of the processes in an Automotive Company
Marco Silva, Helena Alvelos and Ana Raquel Xambre

> ISM_140: Continuous Improvement through Back-office Processes Automatization: a case study on Standardized Work Documentation
Leonor Gonçalves, Ana Moura and Helena Alvelos

> ISM_59: Value Stream Mapping for Smart Pharmaceutical Management in a Thai Hospital
Ganda Boonsothonsatit, Rardchawadee Silapunt, Supachai Vongbunyong, Kamol Kaemarungsi, Wirachchaya Chanpuypetch and Nilubon Chonsawat

| 2:30 pm – 4:15 pm Czech Republic Local Time - CET
Hotel Olšanka, Prague (Czech Republic)
Room 3 | **Fri 22nd, 2024** |

Microsoft Teams, Session Link:

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Circular Economy and Sustainable Practices for a better future (CIRCULAR)
Chair(s): Fabio Fruggiero, University of Basilicata (Italy)

> ISM_80: Risk management of Circular Economy: a framework based on Interpretive structural model
> *Roberta Pellegrino*

> ISM_211: Matching Circularity Improvements and Digital Product Passport Viewpoints: Insights from Three Industrial Case Studies
> *Federica Acerbi, Kristiina Valtanen, Leila M. Saari, Marta Pinzone, Danusuya Pachimuthu, Riccardo Canavesi, Jennifer Nika, Vasiliki C. Panagiotopoulou, Elmer Rietveld and Johanna Nylander*

> ISM_237: Sustainability Assessment of Smart Mobile Factory and Centralized Factory - related Logistics for Linear Infrastructure Projects: A Comparative Study
> *Ishaan Kaushal, Jianxiang Ma and Patrick Dallasega*

> ISM_247: Challenges and Opportunities in Life Cycle Assessment for Precast Concrete Production: A Case Study
> *Angie Katherin Salamanca Cano, Marwa Ben Ali and Erwin Rauch*

> ISM_43: A competency map for circular economy education
> *Micaela Vitti, Adriana Hofmann Trevisan, Hernan Ruiz, Vlatka Katusic Cuentas, Saman Sarbazvatanc, Sergio Terzi and Claudio Sassanelli*

> ISM_366: The Critical Uncertainties Method to enhance robustness in circularity
> *Francesco Mancusi, Sotirios Panagou and Fabio Fruggiero*

Microsoft Teams, Session Link:

> [Access the Online Session]

Human-Centric Manufacturing and Cyber-Physical Systems (HUMANCYBER)
Chair(s): Emmanuel Francalanza, University of Malta (Malta)

> ISM_176: Opportunities and Barriers for Implementing Human-Centric Manufacturing in SMEs: Results from Focus Group Workshops in Argentina
> *Leila Zare, Brian Benedini, Marwa Ben Ali, Erwin Rauch and Sergio Salimbeni*

> ISM_200: SMEs' Requirements for Resilient Cyber-Physical Production System
> *Tanel Aruväli, Erwin Rauch, Dominik T. Matt and Emmanuel Francalanza*

> ISM_265: Examples of Potential Applications of Bio-intelligent Manufacturing
> *Asja Emer, Matteo De Marchi, Angelika Hofer, Benedikt G. Mark, Walburga Kerschbaumer, Erwin Rauch and Dominik T. Matt*

> ISM_278: Design Parameters for Resilience in Cyber-Physical Production Systems
> *Humberto Alejandro Barrero-Arciniegas, Ali Asghar Bataleblu, Davide Don, Erwin Rauch and Dominik T. Matt*

> ISM_286: Workforce training performance assessment in manufacturing
> *Mario Caterino, Paolo Cutolo, Valentina De Simone, Valentina Di Pasquale, Salvatore Miranda and Stefano Riemma*

> ISM_328: Skill-Based Edge-Brain Smart Manufacturing: A Case of Grasp Pose Selection Skill
> *Sukhan Lee, Byungwoo Jang, Seokjong Hyeon, Soojin Lee and Jaesun Lee*

Microsoft Teams, Session Link:

> **Access the Online Session**

Energy Efficiency and Resource Management in Industrial Systems (ENERGY)
Chair(s): *TBA*

> ISM_108: Enhancing Resource Efficiency through Effective Communication: A Workshop-Based Approach
> *Sten Grahn and Luis Ribeiro*

> ISM_134: Energy-Aware Blocking Hybrid Flow Shop Scheduling Problem with Sequence-depend Setup Times and Machine Speed Levels
> *Ahmed Missaoui, Cemalettin Ozturk and Barry O'Sullivan*

> ISM_175: Demand response based industrial energy management with focus on consumption of renewable energy: a deep reinforcement learning approach
> *Atit Bashyal, Hani Alnahas, Hendro Wicaksono and Tina Boroukhian*

> ISM_324: Single-Axis Solar Tracking Systems: A Comprehensive Design and Performance Study
> *Modestus Okwu, Nura Abubakar, Ochuko Felix Orikpete, Catherine Maware, Cletus Ori and Lagouge Tartibu*

> ISM_325: Innovative Swing Mechanism for Sustainable Energy Generation: Design, Performance, and IoT Integration
> *Modestus Okwu, Nura Abubakar, Ochuko Felix Orikpete, Catherine Maware, Cletus Ori and Lagouge Tartibu*

2:30 pm – 4:15 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 6**	**Fri 22nd, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Social sustainability in the supply chain (SOCIALSUPPLY)
Chair(s): TBA

> ISM_27: Human-centered operations in transportation: New foundations for driver safety by a review regarding attention and chronotype
> *Maria Keil and Matthias Klumpp*

> ISM_170: The Role of Social Media Marketing as an ICT Tool in Improving Supply Chain Sustainability of SMEs: A Systematic Literature Review
> *Lawal Abideen Ayokunmi, Noor Aslinda Abu Seman, Umi Kartini Rashid and Arifha Mohamad*

> ISM_307: Employing innovation for social sustainability in supply chains: a systematic literature review
> *Barbara Bigliardi, Virginia Dolci, Serena Filippelli, Alberto Petroni and Benedetta Pini*

> ISM_364: How Industry 4.0 is shaping the future of a disadvantaged region: the case of Calabria
> *Antonio Maria Igor Cosma, Luca Silvestri, Aurora Coloca and Luigino Filice*

2:30 pm – 4:15 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 7**	**Fri 22nd, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

The Role of Twin Transitions in Driving Sustainable Business Model Innovation (TWINTRANS)
Chair(s): Herbert Jodlbauer, University of Applied Sciences Upper Austria (Austria)

> ISM_66: Digital manufacturing in SMEs: Green, efficient and socially responsible?
> *Manuel Zall, Viktoria Leutheuser, Julian Müller and Kai-Ingo Voigt*

> ISM_105: Circular Data Service Cards: A Card-Based Ideation Tool for Data Services supporting the Twin Transition
> *Gert Breitfuss, Lilia Yang, Viktoria Pammer-Schindler and Leonie Disch*

> ISM_119: The Evolution of the Business Model Canvas for Digital Sustainability
> *Nadine Bachmann, Ann-Kristin Thienemann, Alican Tüzün, Manuel Brunner, Shailesh Tripathi and Herbert Jodlbauer*

> ISM_196: Value Retention with the Digital Product Passport: Optimising Repair and Refurbishment Activities in the Furniture Industry
> Viola Gallina, Arko Steinwender, Daniel Bachlechner and Sebastian Schlund

> ISM_345: Enhancing customer satisfaction through digitalization: Past, present and possible future approaches
> *Manuel Brunner, Shailesh Tripathi, Katherine Gundolf, Nadine Bachmann, Ann-Kristin Thienemann, Alican Tuzun, Sebastian Pöchtrager and Herbert Jodlbauer*

> ISM_212: Crossing Paths of Industry 4.0 and Sustainability: A Bibliometric Analysis of Twin Transition Literature
> *Seyedehmehrsa Fatemi, Sanja Smiljic and Behzad Bahdani*

4:15 pm – 4:45 pm Czech Republic Local Time - CET

Coffee Break

4:45 pm –6:30 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* **Room 1**	**Fri 22nd, 2024**

Microsoft Teams, Session Link:

AI for Process Control and Optimization in Industrial Settings (AIPROCESS)
Chair(s): TBA

> ISM_300: AI in Manufacturing: A comprehensive Keywords and Topics Analysis
> *Sonja Strasser, Shailesh Tripathi and Manuel Brunner*

> ISM_181: From Theory to Practice: Implementing Causal AI in Manufacturing for Sustainability
> *Heonyoung Jeong, Tamas Fekete, Atit Bashyal and Hendro Wicaksono*

> ISM_283: Process regulation control using Echo State Networks, an ESN-based deep neural network approach
> *Andrea Bonci, Lorenzo Longarini, Sauro Longhi, Geremia Pompei and Mariorosario Prist*

> ISM_71: Towards AI-enhanced process planning: assessing machine tool capability based on part design
Sepideh Abolghasem, Matthew Youssef, Faruk Abedrabbo and Amman Pandde

> ISM_310: Taking a snapshot of artificial intelligence in supply chain management: A bibliometric study
Barbara Bigliardi, Virginia Dolci, Emilio Gianatti, Alberto Petroni, Benedetta Pini and Azio Barani

4:45 pm –6:30 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 2**	**Fri 22nd, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Human Factors and Ethics in Industry 4.0 (HUMANETHICS)
Chair(s): Erwin Rauch, Free University of Bozen-Bolzano (Italy)

> ISM_258: The Change from Shareholder Value to Stakeholder Value within Industry 5.0
Angelika Hofer, Tanel Aruväli, Erwin Rauch and Dominik T. Matt

> ISM_9: Intellectual Capital in Construction SMEs
André Sucena, Florinda Matos and António Nunes

> ISM_45: Comparing environmental and social performance measurement understandings
Ann-Kristin Thienemann, Katherine Gundolf, Nadine Bachmann, Shailesh Tripathi, Manuel Brunner, Alican Tuezuen, Sebastian Pöchtrager and Herbert Jodlbauer

4:45 pm –6:30 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 3**	**Fri 22nd, 2024**

Microsoft Teams, Session Link:

> **Access the Online Session**

Resilience and Risk Management in the Industry of the Future (RESILIENCERISK)
Chair(s): Eleonora Bottani, University of Parma (Italy)

> ISM_365: Subcontracting Risk Management in the Portuguese Moulds and Plastics Industry
Carolina Marques and Florinda Matos

> ISM_19: Strengthening supply chain risk management: Unveiling opportunities through the lens of behavioral economics and organizational culture
Chase Smith and Hajar Fatorachian

> ISM_116: Manufacturability: a framework to determine production risks
Karin de Smidt-Destombes, Rufus Fraanje and Jenny Coenen

> ISM_41: Resilient smart services: a literature review
Jakob Guhl and Jens Neuhüttler

> ISM_341: Evolution of Industry 4.0 in the Fashion Sector: A Comparative Analysis Before and After COVID-19
Eleonora Bottani, Matteo Tommaso Baracetti Falcomer and Laura Monferdini

4:45 pm –6:30 pm Czech Republic Local Time - CET ***Hotel Olšanka, Prague (Czech Republic)*** **Room 4**	**Fri 22nd, 2024**

Microsoft Teams, Session Link:
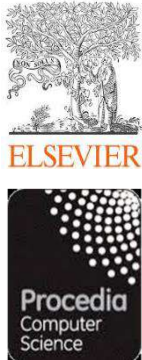
Access the Online Session

Novel Tools for Production Planning in Industry 4.0/5.0 (PRODUCTIONPLAN)
Chair(s): Lorenzo Tiacci, University of Perugia (Italy)

> ISM_139: A Mixed Integer Programming model to optimize production planning in the luxury textile industry
Andrea Rossi, Lorenzo Tiacci and Matteo Simonetti

> ISM_302: Simulation-Based Knowledge-Driven Optimization for Efficient Production Sequencing in Hybrid Flow Shops
Ehsan Mahmoodi, Masood Fathi, Amos H. C. Ng and Amir Nourmohammadi

> ISM_12: Mapping the Scientific Landscape of Integrated Scheduling for Industry 5.0: A Bibliometric Analysis
Anak Agung Ayu Putri Ardyanti, Xie Zhiqiang, Andrea Stevens Karnyoto, Ni Made Estiyanti and Bens Pardamean

> ISM_225: Flexible assembly planning for self-organizing production cells
Christian Lehner, Oliver Kosak, Hella Ponsar and Wolfgang Reif

> ISM_124: Identification of Planning Periods Based on Time Series Characteristics for the Design of Matrix Production Systems
Daniel Ranke

4:45 pm –6:30 pm Czech Republic Local Time - CET *Hotel Olšanka, Prague (Czech Republic)* **Room 5**	**Fri 22nd, 2024**

Microsoft Teams, Session Link:

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Project Management Issues and Novel Approaches for SMEs (PROJECTSME)
Chair(s): TBA

> ISM_87: Effective project portfolio management for SMEs: A conceptual framework using business intelligence tools
> *Václav Kalina, Jan Lhota and Zeynep Tuğçe Kalender*

> ISM_363: Enhancing MRP Adoption in SMEs: A Python-Based Algorithmic Approach
> *Micaela Vitti, Rossella Coletta, Joao Reis, Francisco Silva Pinto and Francesco Facchini*

> ISM_270: Evaluation of collaboration in BIM-supported building design projects
> *Eric Bunse, Christina Mayer and Susanne Mütze-Niewöhner*

> ISM_314: Digitalization and startups: an analysis of recent literature using keywords analysis
> *Barbara Bigliardi, Virginia Dolci, Serena Filippelli, Alberto Petroni and Benedetta Pini*

Proceedings and Indexing

The ISM Conference Proceedings are published as a dedicated issue of the **Elsevier Procedia Computer Science**. Launched in 2009, Procedia Computer Science is an electronic product focusing entirely on publishing high quality conference proceedings. Procedia Computer Science is **Open Access** and **indexed in Scopus**, thus providing maximum exposure for your work. For authors publishing in Procedia Computer Science, accepted manuscript will be governed by CC BY-NC-ND license.
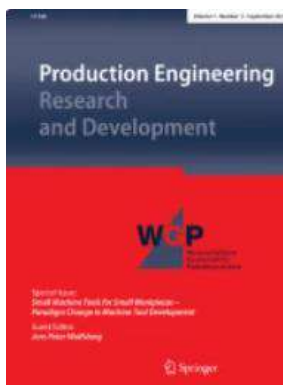
Post-conference Publication Opportunities

The IPC of ISM 2024 will screen presented papers based on their scientific quality and expected impact with the purpose of recommending the authors to consider significantly extended versions in one of the ISM 2024 partner journals.

European Journal of Innovation Management - Emerald (ISSN 1460-1060)

EJIM encourages ISM authors to submit papers to the conference that can be later considered for submission in the Section **"Innovation Management for Smart Manufacturing"**. EJIM is indexed by the major databases, including **Scopus, Web of Science** and has a 9.0 Citescore (2022). The ISM 2024 Scientific Committee will screen and select the ISM papers that are eligible for possible publication on EJIM based on their scientific quality and expected impact. Invitation emails will be sent to the corresponding authors after the selection and the extended papers will then go through the standard peer review process.
Contacts: *Vincenzo Corvello - University of Messina, Italy*

Production Engineering - Springer (ISSN 1863-7353)

Production Engineering encourages and will welcome regular submission of the best papers presented at ISM on the topic of industrial engineering. The journal has a **3.8 CiteScore** (2022) and is indexed by the major scientific databases, including Scopus. Papers will be screened and selected for possible publication, based on their scientific quality and expected impact. Invitation emails will be sent to the corresponding authors after the selection and the extended papers will then go through the standard peer review process.
Contact: *Marion Merklein - Institute of Manufacturing Technology, Germany*

Applied Sciences – MDPI (ISSN 2076-3417)

A selection of papers will be shortlisted by the ISM IPC on the topic "Supply Chains and Logistics 4.0" and invited to extend their work for possible publication on Applied Sciences. Papers will be candidate to receive a **full waiver** for submission to Applied Sciences. The selected papers will go through the standard peer review process. Applied Sciences is indexed in many scientific databases like **Scopus** and **Web of Science** and publishes **Open Access**.
Contacts: *Vittorio Solina - University of Calabria, Italy*
Website: https://www.mdpi.com/journal/applsci/special_issues/VY1HVWXJZA

Discover Sustainability - Springer (ISSN 2662-9984)

A selection of papers will be shortlisted by the ISM IPC on the topic "Global Industrial Processes and Sustainable Development" and invited to extend their work for possible publication on Discover Sustainability. Papers will be candidates to receive a waiver for submission. Discover Sustainability is indexed by the major scientific databases, including **Scopus** and Web of **Science**.
Contacts: *Domicián Máté - University of Debrecen, Hungary*
Website: https://link.springer.com/journal/43621