



UNIVERSITÀ
DEGLI STUDI
DI BERGAMO

APMS 2026

IFIP International Conference

ADVANCES IN PRODUCTION MANAGEMENT SYSTEMS

Sun. September 13, 2026 – Thu. September 17, 2026
Bergamo, Italy

**Shaping the Future of Industry through Sustainable,
Data-Driven, and Human-Centric Production Systems**

DETAILED PROGRAMME

APMS 2026

SUNDAY, 13 SEPTEMBER 2026



UNIVERSITÀ
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9:00 am – 3:00 pm

Doctoral workshop

4:00 pm – 6:30 pm

WG5.7 Meeting

Keynote Speech | Bridging Research, Industry and Policy: the evolving role of
Universities in Manufacturing – Marco Taisch

6:30 pm

Welcome reception

APMS 2026		MONDAY, 14 SEPTEMBER 2026								UNIVERSITÀ DEGLI STUDI DI BERGAMO
8:00 am – 8:30 am	Registration									
8:30 am – 9:10 am	Opening ceremony Location: Aula Magna									
9:10 am – 9:50 am	Keynote speech Implementing Sales & Operations Planning in the Automotive Industry – Data-driven Planning Processes for Increased Operational Resilience – Gregor von Cieminski <i>Location: Aula Magna</i>									
9:50 am – 10:20 am	Coffee break									
10:20 am – 11:40 am	Smart and Sustainable Supply Chain: Technology, Operations, Logistics, and Governance Implications <u>Location: Room Fornasa</u> - Chair: Joao Gilberto Mendes Dos Reis - Chair: Alexandra Lagorio Effects of Soybean Supply Chain Prices on Transport Demand in Brazil <u>João Gilberto Mendes dos Reis</u> , Sivanilza Teixeira Machado, William Machado Emiliano, Vivian Silveira dos Santos Bardini	Digital Transformation Approaches in Production and Management <u>Location: Room 2</u> - Chair: Vlad Bocanet - Chair: Ioan Turcin Organizational Sentiment Intelligence (OSI) as an Early Warning System: A Case Study of LG Electronics Employee Feedback <u>Selver Softic</u> , Xiaoshan Liu, Safet Softic, Vlad Bocanet, Harris Gerzic, Slavko Rakic, Ugljesa Marjanovic, David Romero	Artificial Intelligence Adoption in Higher Education: Challenges, Opportunities, and Responsible Integration <u>Location: Room 4</u> - Chair: Antonio Maffei - Chair: Jannicke Baalsrud-Hauge When Avatars Debate: Design and Evaluation of an LLM-Based Debate Platform for Educational Applications <u>Antonio Cvitković</u> , <u>Luka Batistić</u> , Antonio Maffei, Sandi Ljubic	Human-Centric and Data-Driven AI: Redefining Operations and Supply Chains <u>Location: Room 6</u> - Chair: Filippo De Carlo - Chair: Annalisa Santolamazza Risk-Aware Order Acceptance and Scheduling with Supply Reliability Considerations <u>Mattia Gianassi</u> , Leonardo Leoni, Alessandra Cantini, Mario Tucci, Filippo De Carlo	Industrialisation of Digital Twins: Adoption, Governance, and Value Realisation <u>Location: Room 7</u> - Chair: Néstor Fabián Ayala - Chair: Christian Kober Industrialising Digital Twins: Governance of Data, Metadata, and AI in Production System Ecosystems <u>Shaun West</u> , Oliver Stoll, Kyle Alves, Matthew Anderson, Eugen Rodel, Simon Züst	Interactive and Explainable AI for Production Planning and Scheduling <u>Location: Room 8</u> - Chair: Jong Hun Woo - Chair: Andrea Ferrari Multi-Objective Deep Reinforcement Learning for Automated Storage and Retrieval Systems Control <u>Andrea Ferrari</u> , Giulio Mangano	Advancing Practices for Ecoefficient and Circular Industrial Systems <u>Location: Room Castoldi</u> - Chair: Mélanie Despeisse - Chair: Yannick Taschbach Information Requirements for Eco-Efficient Manufacturing <u>Mélanie Despeisse</u> , Qi Fang, Carlos Alberto Barrera Diaz, Kanika Gandhi, Lena Moestam			
	Exploring Freight Production and Freight Attraction for Different Brazilian Supply Chains <u>João Gilberto Mendes dos Reis</u> , João Guilherme da Costa Braga França, Leise Kelli de Oliveira	A Conceptual Framework for Integrating Digital Voice of the Customer into FMEA and 8D through Industrial Data Spaces <u>Elena Andrushchenko</u> , Dogan Efe, Roland Jochem	Designing a Universal Student Passport for Responsible AIDriven Personalised Learning in Engineering Higher Education <u>Joseph Zammit</u> , Andrea Bondin, Emmanuel Francalanza, Antonio Maffei, <u>Roberto Sala</u> , Fabiana Pirola, Giuditta Pezzotta, Sandi Ljubić, Luka Batistic, Primož Podržaj, Igor Reznichenko, Paolo, C Priarone, Dario Antonelli	A trade-off analysis between representation and usability in fuzzy MCDM: evaluating performance variations across IVIF-AHP, IVPFAHP and PRFAHP <u>Flavia De Cassan</u> , Alessandra Cantini, Leonardo Leoni, Filippo De Carlo, Mario Tucci	Data Governance and Management Principles for Data Space – Enabled Digital Twin Ecosystems <u>Ana Carolina Chaves</u> , Ana Nunes Alonso, António Lucas Soares	Heterogeneous Graph Transformerbased Deep Reinforcement Learning for Integrated Steel Stockyard Scheduling in a Shipyard <u>Won Seok Choi</u> , Young In Cho, Hee Chang Yoon, Seong You Bae, Jong Hun Woo	From End-of-Life to Decision Pathways: Deep Reinforcement Learning for Circular PV Management <u>Bahador Bahramimianrood</u> , Shiva Abdoli			
	Game Theoretic Analysis of the Food Loss Generation Mechanism in the U.S. Lettuce Supply Chain <u>Harufumi Yamaguchi</u> , Shota Suginouchi, Hajime Mizuyama	AI-Driven Forecasting of Volatile Ice-Food Demand for Optimized Cold Chain Management <u>Syrine Guinoubi</u> , Ayoub Chakroun, Yasmina Hani, Abderrahmane El Mhamedi	Game-Based Learning for Sustainability Education in Engineering: A Systematic Literature Review <u>Jannicke BaalsrudHauge</u> , <u>Paola Cocca</u>	A Taxonomy of Human-AI Interaction Patterns in Agent-Based Operations Management <u>Vito Introna</u> , <u>Annalisa Santolamazza</u>	Toward Quantifying Data Usage Of Machine Data <u>Alexander Albers</u> , Christian Kober, Torbjørn Netland	A Systematic Study of Search Algorithms for Planar Storage Retrieval under Operational Constraints <u>Yeongchan Han</u> , Seung Woo Han, Jong Hun Woo				
	Participatory Backcasting for Envisioning Sustainable Food Supply Chains: A Case Study of a Japanese Food Company <u>Mizuho Sato</u> , Yusuke Kishita, Hajime Mizuyama, Toshiharu Tanaka	Modernizing MES: A Pilot Study on eQuality Integration for Enhanced Operational Performance <u>Firdevs Senem Degirmenci</u> , <u>Paolo Gaiardelli</u> , Daryl Powell	Mapping the Policy Landscape of AI in Higher Education: A Multi-Level Analysis Across European Institutions <u>Joseph Zammit</u> , Victoria Grech, Emmanuel Francalanza, Antonio Maffei, <u>Roberto Sala</u> , Fabiana Pirola, Giuditta Pezzotta, Sandi Ljubić, Luka Batistic, Primož Podržaj, Igor Reznichenko, Paolo, C Priarone, Dario Antonelli, Łukasz Paśko, Marcin Olech	AMR-based warehousing systems: Analysis of energy, environmental and economic performance of Robotic Compact Storage Systems <u>Sara Perotti</u> , <u>Luca Cannava</u> , Emma Conti	Operational objectives and value creation mechanisms of Digital Twins in manufacturing <u>Douglas Mendonça dos Santos</u> , <u>Néstor Fabián Ayala</u>	Multi-Agent Reinforcement Learning Algorithm for Routing Optimization in Modular Conveyor Systems <u>Daniele Andolfi</u> , Giovanni Antonio Haakon Callegaro, Andrea Matta, <u>Elena Tappia</u>	Efficient Prototyping in Sheet Metal Forming Through Simulation and Polymer Additive Tooling <u>Yannick Taschbach</u> , Alexander Keuper, Günther Schuh			
11:40 am – 11:50 am	Short break									
11:50 am – 1:10 pm	Smart and Sustainable Supply Chain: Technology, Operations, Logistics, and Governance Implications <u>Location: Room Fornasa</u> - Chair: Alexandra Lagorio - Chair: Eduardo e Oliveira Urban logistics in the 15-Minute City: A Systematic Review and Research Agenda <u>Alexandra Lagorio</u> , Claudia Piffari, Mario Paris, Chiara Cimini	Digital Transformation Approaches in Production and Management <u>Location: Room 2</u> - Chair: Ugljesa Marjanovic - Chair: Johannes Jordan A data readiness assessment for Smart Manufacturing: A Single-Case Study in the Cosmetics Industry <u>Paolla Polla Pontes do Espírito Santo</u> , <u>Néstor Fabián Ayala</u>	Artificial Intelligence Adoption in Higher Education: Challenges, Opportunities, and Responsible Integration <u>Location: Room 4</u> - Chair: Roberto Sala - Chair: Antonio Maffei A Serious Game for AI Integration in Production Systems <u>Davide Matteri</u> , Donatella Corti, Andrea Bettoni	Human-Centric and Data-Driven AI: Redefining Operations and Supply Chains <u>Location: Room 6</u> - Chair: Francesco Mancusi - Chair: Leonardo Leoni Agentic AI as a cognitive support tool for Operator 5.0 <u>Åsa Fast Berglund</u>	Industrialisation of Digital Twins: Adoption, Governance, and Value Realisation <u>Location: Room 7</u> - Chair: Christian Kober - Chair: Hermann Lödding Evaluating the Robustness of Production Planning and Control Procedures <u>Christopher Mundt</u> , Hermann Lödding	Interactive and Explainable AI for Production Planning and Scheduling <u>Location: Room 8</u> - Chair: Yongkuk Jeong - Chair: Andrea Ktenidis An Integrated AI-driven Production Planning Framework for ResourceConstrained Spatio-Temporal Scheduling in Shipyard Block Assembly <u>Jiwon Baek</u> , Youngin Cho, Heechang Yoon, Wonseok Choi, Yejin Yoo, Saenal Sung, Dongha Lee, Jong Hun Woo	Advancing Practices for Ecoefficient and Circular Industrial Systems <u>Location: Room Castoldi</u> - Chair: Carin Rösio - Chair: Beatrice Colombo Decision-Support Approaches for Industrial Symbiosis: A Systematic Literature Review <u>Alessia Boscarato</u> , Federica Acerbi, Sergio Terzi			
	Automatic Simulation Model Generation in the Context of Finished Vehicle Logistics on Automotive Terminals <u>Marit HoffHoffmeyer-Zlotnik</u> , Susanne Schukraft, Michael Gorges, <u>Ricardo Caballero</u> , Michael Freitag	From Data Quality Deficiencies to Production Inefficiency: Data Quality as a Bottleneck for AI-Based PPC <u>Johannes Jordan</u> , Oliver Antons, Julia Arlinghaus	AI-Enhanced Serious Games in Production Management: A Systematic Literature Review <u>Dario Lombardi</u> , Luigi Traetta, Pedro Ferreira, <u>Antonio Maffei</u>	A Readiness Assessment Model for Human-Robot Collaboration in the context of Industry 5.0 <u>Mattia Braggio</u> , Simone Arena, Federico Briatore, Pier Francesco Orrù, Marta Pinzone	A Cost-Benefit Framework for Assessing Digital Twin Value in Manufacturing: Development and Industrial Evaluation <u>Christian Kober</u>	Job Shop Scheduling Revisited under RL-Guided Constraint Programming <u>Andreas Ktenidis</u> , Angelos Ioannis Lagos, Ioannis Mourtos, Alkistis Sytilidou, Georgios Zois	Understanding Industrial Symbiosis through Simulation: A Review of Modeling Approaches and Future Directions <u>Claudia Piffari</u> , Beatrice Colombo, Alexandra Lagorio, Paolo Gaiardelli			
	Examining the role of Industry 5.0 in enhancing competitiveness: A comparative analysis of transport systems. <u>Atle M. Christiansen</u> , Kenn Steger-Jensen, Kenneth Vidskjold	Minding the Gap: Limitations of Existing Automation Potential Analysis Frameworks <u>Chibuike M C Nwagwu</u> , Christina M Micheltree, El Houssein C Harik	Where Can Generative AI Help Educators? A Structured Analysis of AI Support in Course Design <u>Antonio Maffei</u> , David Romero, Fan Mo, Bo Yang, Andrea de Giorgio	Human-Centered evolution of recommender systems: from collaborative filtering to responsible AI <u>Djonathan Quadras</u> , Nicollas Luiz Schweitzer de Souza, Romeo Bandinelli, Enzo Morosini Frazzon	AI-Augmented Digital Twins in Large Industrial Companies: From Use Cases to Industrialisation <u>Adrian Sanchez de Ocaña</u> , Jessica Bruch	Orbital Vehicle Routing Problem for LEO Constellation Refueling <u>Joohnwa Jeong</u> , Seokcheon Lee, Ilkyeong Moon	Smart Circular Economy Implementation in Manufacturing: Identifying Barriers and Enablers <u>Nithin Nagendra</u> , Koteshwar Chirumalla, Auday Al-Dulaimy, Anna Öhrwall Rönnbäck			
	Adoption of Battery Electric Trucks: a Review on transport companies’ perspectives <u>Matteo Capolli</u> , <u>Alessandro Creazza</u> , Pietro Evangelista, Claudia Colicchia	Jurisdictional Contestation in Emergent Digital Manufacturing Domains: TopDown DevOps Vertical Ownership as a Double Loop Learning Mechanism <u>Matthew Anderson</u> , Shaun West, Tobias Larsson	Integrating Sustainability into Assembly Technology Education: A Course Redesign Approach Based on Constructive Alignment <u>Andrea de Giorgio</u> , Fan Mo, Bo Yang, <u>Antonio Maffei</u>	Inclusion of workers with functional diversity in Human-Robot Collaboration: a systematic mapping review <u>Francesco Mancusi</u> , Claudia Piffari, Alexandra Lagorio, Chiara Cimini, Fabio Fruggiero	What is Industrial Metaverse? A Systematic Litera-ture Review-Based Synthesis of Existing Definitions <u>Mohsin Raza</u> , Ole Madsen, Casper Schou, David Acev, Ulrich Berger	Multi-Agent Optimal Communication Decision Making Leveraging Finite Markov Decision Process <u>ATIF ur Rehman</u> , Andrea Matta, Gaetano Cascini, Monica Rossi	Advancing Circular Strategies for Rare Earth Elements: a Bibliometric Analysis <u>Federica Costa</u> , Alessia Napoleone, Mélanie Despeisse			
1:10 pm – 2:30 pm	Lunch									
2:30 pm – 3:10 pm	Keynote speech Toward Absolute Sustainability in Production Systems – Daniela Pigosso <i>Location: Aula Magna</i>									
3:10 pm – 4:30 pm	Enhancing sustainable resilience in food manufacturing value chains through data-driven strategies, systems thinking, and transition approaches <u>Location: Room Fornasa</u> - Chair: Melissa Marques-McEwan - Chair: Nilakshi Galahitiyawe Navigating Complexity in the Circular Economy: A Systems Perspective on Scotch Whisky <u>Isabel Dipirro</u> , Agnessa Spanellis, <u>Melissa MarquesMcEwan</u>	Digital Transformation Approaches in Production and Management <u>Location: Room 2</u> - Chair: Selver Softic - Chair: Mircea Muntean Metaverseenabled digital twin framework for predictive maintenance <u>Vlad Bocanet</u> , Katarina Kostelic Nicolae A. Panc, Harris Gerzic, Mircea H. Muntean, Cristina Fleseriu	Workshop ESG Paradox Serious Game <u>Location: Room 4</u> - Chair: Simone Arena - Chair: Alessandra Cantini From Shewhart’s Control Charts to AI-Enhanced Statistical Process Control in Manufacturing <u>Jorge Santiago Rodríguez Peñalosa</u> , Elisabeth Viles	Human-Centric and Data-Driven AI: Redefining Operations and Supply Chains <u>Location: Room 6</u> - Chair: Simone Arena - Chair: Alessandra Cantini From Shewhart’s Control Charts to AI-Enhanced Statistical Process Control in Manufacturing <u>Jorge Santiago Rodríguez Peñalosa</u> , Elisabeth Viles	Industrialisation of Digital Twins: Adoption, Governance, and Value Realisation <u>Location: Room 7</u> - Chair: Edoardo Palmitessa - Chair: Adalberto Polenghi Immersive Digital Twin for Facility Layout Planning in the Context of Production and Intralogistics Systems <u>Edoardo Palmitessa</u> , Ayoub Chih, Amel Jaoua, Adalberto Polenghi, Elisa Negri	Designing, Engineering, and Managing Truly Human-Centred Industrial Systems for the Operator 4.0/5.0 <u>Location: Room 8</u> - Chair: Tamas Ruppert - Chair: Francesco Pilati Assessing Mental Workload in Manufacturing: A Comparative Study Between RSME and NASA-TLX in a VR Assembly Task <u>Emmie Fogelberg</u> , Patrick Oden, Peter Thorvald	Advancing Practices for Ecoefficient and Circular Industrial Systems <u>Location: Room Castoldi</u> - Chair: Malin Löfving - Chair: Alessia Napoleone Assumptions underlying remanufacturing readiness models: Implications for Manufacturing SMEs in HighMix and LowVolume Environments <u>Malin Löfving</u>			
	Reconfiguring power in food supply chains: governance mechanisms and food waste across stages of the relationship <u>Claudia Colicchia</u> , Attilia Imbriani, Gerardo Rosciano, Alessandro Creazza	In-Situ 3D Monitoring of FDM Processes using Layer-Wise Metrology <u>Mircea H Muntean</u> , Vlad I Bocanet, Ioan Turcin, Domnita Fratila	Voice-to-Text for Quality Management: Improving Nonconformity Reporting and Traceability Through SpeechEnabled Data Capture <u>Nicolò Saporiti</u> , Stefano Marazzini, Simone Arena, Violetta Giada Cannas, Rossella Pozzi, Tommaso Rossi	Mapping the Intellectual Structure of Knowledge Management in Servitization: A Bibliometric Analysis <u>Giacomo Russo</u> , Leonardo Leoni, Mario Rapaccini	A Study on Digital Twin Fidelity for Shop Floor Operational Optimization <u>Hayong Lee</u> , Changha Lee, Hyungchan Lim, Donggeon Lee, Sangdo Noh, Seki Park, Sanghwa Lee, Yunyoung Kim, Eunmi Kim, Hyejin Jang, Kyungkuk Choi, Keunho Jang	Assessing use of work instructions through eyetracking <u>Erik Billing</u> , Rebecka Herin, Patrick Oden, Emmie Fogelberg, Atieh Hanna, Beatrice Alenljung, Maurice Lamb	Implementing a Value-Retention Framework for End-of-Life Product Management: From Theory to Practice <u>Pritty Mathew</u> , Kwaku AduAmankwa, Cameron Swanson, Graeme Bisland, Andreas Reimer, Andrew Wodehouse			
	Nutrient Value Loss Framework for Supply Chain Management <u>Silvia Cardini</u> , Anna Savio, Beatrice Marchi, Simone Zanoni, Lucio Enrico Zavanella	Integrated Machine-Robot Scheduling in a Job Shop: An ILS Algorithm <u>Bilgenur Erdogan</u> , Q. Vinh Dang, Mehrdad Mohammadi, Ivo Adan	Challenges in Implementing Human-Centered AI for Time Data Management in Industry <u>Sandra Mattsson</u> , Peter Almström, Yongkuk Jeong, Bernt Spielberger	Decomposed QLearning for Fixture Selection in MultiResource Constrained Flexible Job Shop Scheduling <u>Yulu Zhou</u> , Andrea Matta, Shichang Du	Modelling and simulation of a digital twin for a hybrid passenger vessel with energy recovery <u>Alessandra Valeria Castruccio Castracani</u> , Ludovica Maria Oliveri, Giovanni Maria Grasso	Human-Centric Fatigue Prediction System for Industry 5.0 With Wearable IoT Sensors <u>Qingwei Cai</u> , Francesco Picariello, Enrico Picariello, Francesco Pilati	Enabling Reuse and Lifetime Extension of Production Equipment: An Exploratory Study of Strategies, Routines and Organizational Conditions <u>Carin Rösio</u> , Filip Skärin, Martin Birtic			
	From Desert to Field: Environmental Corporate Social Responsibility as a Driver of Sustainable Technological Innovation in the UAE Agriculture Sector <u>Nilakshi Galahitiyawe</u> , Mohamad Al Atta, Muhammad Shujaat Mubarik	Low-Sensor and Transferable Predictive Maintenance in Heterogeneous Manufacturing Systems: A Systematic Literature Review <u>Steve Morel Kountchou Ghomsji</u> , ClausPhilipp Langhorst, Shun Yang, Sebastian Thiede				Fatigue Constrained Task Allocation and Scheduling in Human Robot Collaboration <u>Yi-Chieh Chiu</u> , <u>KaiWen Tien</u>	Toward Integrated Remanufacturing Systems: Multi-Area Review and Research Directions <u>Alessia Napoleone</u> , Carin Rösio, Daryl Powell			

