



PRO-VE 2025

26th IFIP/SOCOLNET Working Conference on Virtual Enterprises

Hybrid Human-AI Collaborative Networks

www.pro-ve.org

PRO-VE 2025 Special Session

AI-Driven Manufacturing-as-a-Service

Scope

The convergence of Artificial Intelligence (AI) and Collaborative Networks transforms modern manufacturing, enabling agile, scalable, and sustainable production. This special session explores the innovative concept of Manufacturing-as-a-Service (MaaS) through AI-driven autonomous agents, fostering a paradigm shift toward flexible, decentralized, and on-demand manufacturing ecosystems.

At the core of this transformation is the Manufacturing-as-a-Service and AI System, a digital platform that automates negotiations and interactions between manufacturing providers and consumers, ensuring efficient resource allocation and transparent decision-making. The digital platform enhances trust, adaptability, and seamless collaboration in dynamic industrial networks by leveraging AI and secure real-time data exchange.

This session will address critical challenges in human-AI interoperability, emphasizing the integration of AI systems within hybrid human-machine organizations. It will also explore the role of digital twins, data-driven manufacturing, and smart supply chains in advancing circular production models. Through a multidisciplinary lens, the session will showcase the potential of AI-powered collaborative platforms to lower entry barriers for SMEs, optimize resource utilization, and redefine the future of European manufacturing.

This special session focuses on disseminating real-world applications from ongoing research initiatives. It will address specific challenges related to integrating AI-driven autonomous agents in collaborative manufacturing networks, including robotic automation, secure data exchange, interoperability, and trust management in dynamic production environments. Additionally, the session will explore AI-driven solutions for real-time monitoring, defect detection, waste reduction, and production optimization, demonstrating how AI and digital platforms can enhance efficiency, resilience, and sustainability in next-generation manufacturing ecosystems.

Session Organizers

- Miguel Ángel Mateo Casali, *Centre on Production and Engineering and Management of the Polytechnic University of Valencia, Spain*, mmateo@cigip.upv.es
- José Ferreira, *Center of Technology and Systems (CTS) and Associated Lab of Intelligent Systems (LASI), UNINOVA. FCT-UNL, Caparica, Portugal*, japf@uninova.pt
- Joan Lario Femenia, *Centre on Production and Engineering and Management of the Polytechnic University of Valencia, Spain*, joalafe@upv.es

Topics/ Keywords

- AI-Driven Collaborative Networks for Agile Manufacturing
- Interoperability and Hybrid Intelligence in Manufacturing-as-a-Service (MaaS)
- Collaborative Digital Twins and Real-Time Data Exchange for Smart Factories
- Trust and Security in AI-Powered Manufacturing Collaboration.

Keywords: Manufacturing-as-a-Service; AI-Driven Autonomous Agents; Digital Twins; Interoperability; Collaborative Networks; Smart Manufacturing.

Submission procedure

Special sessions are included in the main Conference and follow the same reviewing process.

- 1 Mar 2025 - Special session proposal
- 11 Apr 2025 - Abstract submission (optional)
- 9 May 2025 - Full paper submission
- 20 Jun 2025 - Results notification
- 4 Jul 2025 - Camera-ready version
- 27-29 October, 2025 - Conference

Acceptance of papers is based on the **full paper** (up to **16** pages). Each paper will be evaluated by three members of the International Program Committee.

When submitting on the web site, you have to indicate the name of the special session.

Submission procedure via EasyChair available on: <http://www.pro-ve.org>, with copy by email to the chairs of the special session.