



15th IFAC Workshop
Intelligent Manufacturing Systems (IMS 2025)
Koszalin, Poland, 11-12 September 2025



<https://ims2025.pl/>

This proposal is endorsed by TC 5.1 and TC 5.2

Invited Session Proposal:

Interoperability in Smart Manufacturing Systems (ISMS)

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Code: e9w2a

ABSTRACT

Modern Nowadays data and knowledge are central to modern and smart production. Due to current challenges in production organisation and management such as the need of the analysis of various forms of data in order to be useful for further development of a production company, it is necessary to take actions supporting the building, implementation and application of data-based models for data intelligence in production. In that context interoperability is understood as the ability to share data, information, knowledge between different components or machines both via software and hardware. Broadly speaking, interoperability is the ability of systems, applications, devices, etc. for automatic connection and communication. The process of a fully automated acquiring data, information and expert knowledge, then formalising and transferring it into a useful form, as well as the evaluation and analysis of the gathered data will be covered in this session. Moreover, the approaches to support an interoperable horizontal and vertical integration across Smart Manufacturing Systems are welcome. The session provides an excellent forum for researchers and industrial practitioners to meet and share experiences, theoretical issues or application examples based on the latest trends in data and knowledge engineering, especially in modeling and implementing interoperability in the cyber-physical

manufacturing enterprise. Authors are invited to submit full papers describing original research work associated with Interoperability in Smart Manufacturing Systems related problems in areas including, but not limited to:

- Database Design and Modeling for Production,
- Knowledge and Data Engineering Tools and Techniques,
- Modelling of cyber-physical manufacturing processes,
- Vertical and horizontal integration occurs across manufacturing systems,
- Self-organizing systems and emergent behavior.
- Self-healing systems and preventing errors before they occur.,
- Computational Intelligence Methods and Application,
- Manufacturing Systems Capacity Balancing,
- Proactive-reactive planning for dynamic environment.
- Smart maintenance with predictive and prescriptive capabilities.

Timeline:

- **December 16, 2024:** Deadline for paper submission
- **March 03, 2025:** Notification of acceptance/rejection
- **April 07, 2025:** Final paper submission
- **September 11-12, 2025:** 15th IFAC IMS Workshop (IMS 2025), Koszalin, Poland

Manuscript Preparation

For Manuscript Preparation please look at <http://www.ifac.papercept.net/conferences/support/support.php>

For Manuscript submission please look at <https://ifac.papercept.net/conferences/scripts/start.pl>

Upon submission, make sure to use the **Invited session identification code: to be announced latter**

For any further information, please contact the Special Session Technical Committee

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