

**18th IFAC Symposium on Information Control Problems in
Manufacturing (INCOM 2024) <https://www.incom2024.org>**

28-30 August 2024, Vienna, Austria

Invited session

**Machine learning and Knowledge engineering
for Engineer-To-Order products**

Invited session code: 4d568

An Engineer-To-Order (ETO) product, also called non-standard product, refers to a product that is out of the company's standard offer. It has not been fully designed yet by the company. Once a customer asks for such a product, the supplier must perform some engineering tasks in order to define the product design solution and the subsequent industrial processes (procurement, manufacturing and delivery). However, due to the incompleteness of the available knowledge in ETO situations, engineering tasks are challenging, especially in industrial contexts characterized by huge demands for personalized products and complex processes.

Fortunately, thanks to the early integration of information technologies, such as Product Configuration System (PCS), Enterprise Resource Planning (ERP) and Manufacturing Execution System (MES) in many companies, huge amount of data have been collected and stored. Moreover, during many years, engineers and technicians have gain tacit knowledge about design and problem-solving methods. Using the more advanced Artificial Intelligence (AI) techniques, both data-based AI and knowledge-based AI, historical data and experts' knowledge can be exploited to solve many problems such as automated design solutions recommendation, performance estimation and autonomous reconfiguration of industrial processes. This will not only help to save huge amount of time and money; it will also allow to reduce the cognitive workload of engineers and technicians.

This invited session aims to bring together researchers from academia and industry on real industrial problems. It focuses on the application of data-based AI and knowledge-based AI to solve Engineer-To-Order (ETO) related problems. Original research papers as well as industrial case studies are welcomed.

Topics may include, but are not limited to:

- Machine learning and knowledge-based systems for ETO products configuration
- Machine learning and case-based reasoning for ETO products cost, and risks estimation
- Machine learning and case-based reasoning for projects cost and risks estimation
- Machine learning and knowledge-based systems for manufacturing systems reconfiguration
- Machine learning and knowledge-based systems for procurement and delivery processes reconfiguration
- Machine learning and case-based reasoning for manufacturing systems' performances estimation
- Product configuration systems integration in ETO companies
- Product and manufacturing systems knowledge modelling and reasoning

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Submission

Papers must be submitted electronically using the IFAC PaperPlaza conference manuscript management system: www.ifac.papercept.net.

All submissions must be in PDF format, written in English, and prepared according to IFAC format, see: <https://ifac.papercept.net/conferences/support/support.php> for details. The corresponding author submits the paper online (pdf format) as an invited session paper. Submission as an invited session paper requires the **invited session code: 4d568**. Accepted papers will be published open access in Elsevier's IFAC-PapersOnLine.

Post-conference special issues for extended versions of accepted papers are planned in IFAC and other high-ranked journals.

Important Dates

Full Paper Submission Deadline	31.01.2024
Reviewing papers	15.03.2024
Final paper submission Deadline	15.04.2024
Young Author Award Nomination	15.05.2024
Early Registration Deadline	30.04.2024
Late Registration Deadline	31.07.2024