



Invited Session:

Made In Europe Circular and Sustainable: a session promoted by MICS

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This proposal is endorsed by TC 5.1 Manufacturing Plant Control and by TC 5.2 Management and Control in Manufacturing and Logistics

Today's world is embroiled in increasingly and intense geopolitical conflicts that are undermining our economies. Each new crisis reveals Europe's external dependence. In this context, European manufacturing systems face a combination of external pressures from global competition, internal pressures from regulatory and labor environments, and the need for technological transformation. Addressing these challenges requires a multi-faceted approach, including investments in digital transformation, green technologies, workforce development, and supply chain resilience. In addition, Europeans' awareness of the scarcity of resources is driving economic and institutional actors to speed up the implementation of more virtuous manufacturing systems. Circularity and sustainability are ones of the best opportunities for economies and businesses to address growing climate concerns while generating growth and new jobs. With the Green Deal, the EU is leading the transition towards a circular economy. It is only by accelerating the transformation of our manufacturing systems, supply chains and business models that we can work at the heart of current crises and build a more resilient Made In Europe manufacturing sector of the future. In order to achieve this final goal, it is urgent needed to rethink the models of product design, production, consumption, as well as the full lifecycle (comprising Beginning-of-Life, Middle-of-Life and End-of-Life stages) of materials, products, production technologies, processes and management that are necessary for moving towards greener and circular pathways and patterns. Circularity, eco-design, green and innovative materials, digital technologies, and advanced manufacturing are all well-known concepts. How can they become levers for sustaining the European manufacturing system in the future? Research in this area is therefore crucial for realizing a new vision of the manufacturing sector in Europe.

The session is promoted by MICS – Made in Italy Circolare e Sostenibile, an Extended Partnership between Universities, Research Centers and Enterprises financed by the Italian Minister of University and Research (MUR) thanks to funds made available by the European Union under the NextGenerationEU (PNRR) program. MICS consists of 25 partners, including 12 public sector partners and 13 industrial partners from three key sectors of the Italian industrial scenario, namely Fashion, Furniture and Factory Automation. MICS's vision is to enable a fully

closed-loop, self-sufficient, self-regenerative, reliable, safe, and energy-aware design and manufacturing of Made in Italy products and services.

This open invited session aims to promote an open discussion on innovative approaches for sustaining Europe's manufacturing competitiveness in the long run. 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.

Topics may include but are not limited to:

- New models and methods for Circular and Sustainable manufacturing systems
- Case studies and empirically grounded analytics for developing and managing manufacturing systems towards circularity and sustainability
- Multi-loop Supply Chains where reused and recycled materials are returned to the production cycle generating new functionality and value
- Advanced solutions for the optimization of energy consumption in manufacturing and End-of-Life processes according to the logic of industrial symbiosis
- Manufacturing strategies, approaches and solutions for implementing production technologies, digital technologies, smart manufacturing systems, new competencies for high-quality and inclusive work as well as the preservation of inherited craftsmanship skills
- New and consumer-driven business models for resilient and circular supply chains
- New frameworks, models, and methods to implement scalable regenerative and restorative Business Models
- Supply chains' structural archetypes, schemes of coordination mechanisms, collaborative management approaches and tools, for resilience, sustainability and circularity.
- New strategies and solutions for developing inclusive and social sustainable manufacturing solutions, human-centric manufacturing systems, workers' involvement and well-being.
- Implementation of digital technologies including artificial intelligence, the Internet of Things (IoT), automation, and advanced robotics to boost productivity, sustainability and resilience.

INVITATION CODE: 381i2

Draft papers reporting original research (limited to 6 pages in IFAC format) and extended abstracts are welcome. When you submit your paper to the IFAC system, you will be required the **invitation code 381i2** in order to associate your paper to the invited track: <https://ifac.papercept.net>

IMPORTANT DATES:

- Draft papers/ extended abstract submission deadline: **30.11.2024**
 - Final papers submission deadline: **28.02.2025**
 - Early registration opens: **28.02.2025**

Conference website:

- <https://conferences.ifac-control.org/mim2025/>



<https://www.mics.tech/>