

Special Issue

Smart, Sustainable, and Circular Manufacturing: From Digitalization to Green Innovation and Systemic Transitions

Message from the Guest Editors

The scope of this Special Issue includes, but is not limited to, the following topics:

- The application of Artificial Intelligence (AI) and machine learning for optimizing resource efficiency and process control.
- The role of Big Data analytics in lifecycle assessment, predictive maintenance, and supply chain transparency.
- The development and implementation of Digital Twins for real-time process simulation, optimization, and waste mitigation.
- Real-time monitoring systems for energy and resource consumption, quality control, and CO₂ emissions tracking.
- AI-driven strategies for energy conservation and integration of renewable energy sources in smart factories.
- The application of smart technologies (e.g., IoT, AI, digital twins) to enable circular processes such as remanufacturing, recycling, and zero-waste production.
- Engineering frameworks and life-cycle assessment (LCA) methodologies for quantifying and reducing the environmental footprint of smart manufacturing systems.
- Technical case studies demonstrating the integration of smart technologies and circular economy principles, highlighting engineering solutions and their measurable environmental benefits.

Guest Editors

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Deadline for manuscript submissions



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