



Thematic Section on “Present and Future of social systems for manufacturing (Industry 5.0: Human-centric production management)”

Industry and academia have placed increasing attention on implementing Industry 4.0 (I4.0) in the production of goods and services. Named as Industry 4.0 in Germany and Brazil, Manufacturing of the Future, Advanced Manufacturing Technology and Smart Factory in the U.S., Future Manufacturing in the UK, and/or Smart Manufacturing in Germany, U.S.A. and Korea indicated an extended list related to operations management challenges around the world.

These digital, intelligent, networked systems are immersed in different global/local environments: societies, economies and industries (Hong and Muniz Jr., 2022). In this context, by employing proper technologies and methods, production engineering aims at systems efficiency, productivity, effectiveness, resilience, robustness, adaptiveness and sustainability. The literature addresses difficulties associated with the implementation of I4.0 in emerging economies (Dalagnore, 2018).

Not surprisingly, current literature I4.0 related to technology adoption is the most prevalent theme discussed from a hard, technology-oriented perspective rather than a people-oriented. Production systems are sociotechnical systems, with an explicit understanding that all systems involve ongoing interactions between people and technology, and they are rapidly transforming virtually all areas of human life, work, and interaction (Neumann et al., 2021). This Human-centric production system design and management approach (Industry 5.0) is necessary to support skill development, learning, continuous improvement and collaboration in the organization (Ribeiro et al., 2022).

The European Commission’s (2021) vision for ‘Industry 5.0’ proposes *moves past a narrow and traditional focus on technology-or economic enabled growth of the existing extractive, production and consumption driven economic model to a more transformative view of growth that is focused on human progress and well-being based on reducing and shifting consumption to new forms of sustainable, circular and regenerative economic value creation and equitable prosperity.*

In this “X’s 4.0” mantra, emergent terms like human-centric assembly (Wang, 2022), Industry 5.0 (European Commission, 2021), Education 4.0 (González-Pérez, & Ramírez-Montoya, 2022), social system for future manufacturing (Global Challenge Forum, 2022), have their basis in a vision of enabling the sustainable satisfaction of individualized demands from students, workers and customers within institution education, organizations, society, using digital technologies.

Production Engineering is dedicated to the project and management of systems involving people, materials, equipment and the environment, which embraces a vast number of disciplines and application areas, from Manufacturing and Industrial Engineering to Operations Management. The

involved communities both in academia and in industry reflect this diversity. The interest of Brazilian production engineering includes organizational engineering (ABEPRO, 2022).

The journal *Production* is the flagship journal of ABEPRO - Brazilian Association of Production Engineering. The journal was created in 1990 to provide a communication medium for academic articles in the Production Engineering, Operations, Manufacturing, Industrial and Production Engineering and Management field. The journal is among the top Brazilian journals in Operations, Manufacturing, Industrial and Production Engineering and Management.

The *Production* Journal publishes convincing scientific results with clear, real-life applications as well as fundamental techniques to solve complex decision problems that arise in design, management and control of production, considering a systems-oriented vision. *Production is open access and does not charge fees from its contributors.* The journal is licensed under a Creative Commons Attribution License (CC-BY), and it is digitally preserved by SciELO, and it is indexed in Scopus and other relevant academic bases.

This Thematic Section of *Production* journal aims to provide a detailed description of current situation and possible trends, issues and challenges for Industry 5.0 as a research and praxis-oriented discipline.

The thematic section guest editors invite scientists, engineers and decision makers from government, industry and academia to contribute with research papers. **The manuscripts must present a well-described scientific background; practical and academic relevance; clear aims; robust methods; well-presented and thoughtfully discussed results, with an original and relevant theoretical, empirical and/or methodological contribution.**

Contributions must include discussions on real-life applications of the proposed approach to production systems, providing managerial insight for decision-makers in industry and new research perspectives. The aim of this thematic section is to attract high-quality manuscripts on the “Present and Future of social systems for manufacturing (Industry 5.0)”, considering the following areas:

1. Manufacturing and Industrial Engineering
2. Operations Management and Engineering
3. Logistics and Supply Chain Management
4. Operational Research
5. Knowledge, Information and Data
6. Quality Management, Lean Management and Engineering
7. Strategy and Organizational Engineering
8. Production Economics
9. Product and Service Development
10. Work and Human Factors, including Engineering Education

Topics of interest (not, surely, an exhaustive list):

- Work Organization and 4th. Industrial Revolution
- Human-centric production system design and management: transitioning from I4.0 to 5.0
- Human resources management 4.0
- Knowledge Management & Organization Learning supporting I4.0/5.0 implementation
- Forming and managing communities of practice in I4.0
- Cross culture influencing I4.0 implementation
- People vs. machine-centric learning and innovation processes in future manufacturing
- Strategic trade-offs for sustainable operations and responsible business in the future
- Strategies to support managers when encountering paradoxes when jointly implementing lean and I4.0
- Labor market adaptation to competency requirements
- Employee voice / participation in technological innovation
- Institutional configurations and their impact on technological trajectories

- Potential impact of educational contexts
- Education 4.0 supporting competences and skill development

Guest Editors: Afonso Carlos Correa Fleury (University of Sao Paulo, Brazil); Daniel Wintersberger (University of Birmingham, UK); Elaine Mosconi (Université de Sherbrooke, Canada), Jacky F. L. Hong (University of Macau, China); Jorge Muniz Jr. (Sao Paulo State University, Brazil); Rui Manuel Sá Pereira Lima (University of Minho, Portugal); Yufeng Zhang (University of Birmingham, UK).

Submission

For author guidelines, please refer to www.prod.org.br. **A detailed cover letter must be submitted, in which authors highlight the manuscript adherence to the Editorial scope of the journal, theoretical and practical relevance, aims, methods, main results and its original theoretical, empirical and/or methodological contribution.**

Submissions site: <https://mc04.manuscriptcentral.com/prod-scielo>, choosing Thematic Section “Social systems for future manufacturing (Industry 5.0)” in the submission process.

References

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Important Dates

Thematic Session Open	1st.March.2023
Submission Deadline	30th.November.2023