Special Session proposal for the IJCIEOM 2026 conference
SPS3

1. Session title:

Beyond Industry 4.0: Human-Centric Technologies and Operations in Industry and Service Systems

2. Session objectives:

This Special Session aims to advance a human-centric and societally oriented perspective on digital transformation in operations, aligning with the vision of Society 5.0 and the ongoing transitions from Industry 4.0 and beyond. While grounded in a human-centered view, the session welcomes multi-disciplinary research exploring how emerging technologies, automation, and digital systems reshape operational environments and decision-making processes across industry and service systems.

We encourage submissions that combine technical, organizational, and human-focused insights, including advanced modeling, mixed-methods approaches, rigorous quantitative or qualitative analyses, and experimental or analytical studies with practical implications for industry, management, and public policy.

- First, to gather conceptual and empirical studies that demonstrate how digital technologies can enhance the design and management of industrial, service, and healthcare operations, incorporating considerations of social value, sustainability, and resilience.

- Second, to discuss indicators, models, and decision-support tools that integrate operational excellence with ethical, environmental, and public-health outcomes.

- Third, to compare experiences from different institutional contexts – with special interest in emerging economies and Global South settings – to understand opportunities, constraints, and governance challenges for human-centric technologies, including their alignment with the Sustainable Development Goals (SDGs).

- Fourth, to promote research on human-centered technologies that improve workers' physical, cognitive, and ergonomic conditions, enabling safer, healthier, and more adaptive work environments. We welcome studies that examine how digital tools, such as wearables, sensing systems, digital twins, or intelligent assistance, can support human wellbeing, reduce physical and mental workload, and enhance situational awareness within industrial and service operations.

- Fifth, to advance research on how digital technologies foster workers' competencies, learning, adaptability, and performance, emphasizing skill development, human–machine collaboration, and workforce empowerment. Contributions may explore training, decision-support systems, AI-enabled learning environments, or socio-technical models that strengthen workforce readiness in Industry 5.0 and beyond.

- Finally, the session seeks to build an interdisciplinary network of researchers and practitioners from engineering, operations management, health, computer science, and the social sciences, fostering collaborative projects and future publications.

By addressing these goals, the Special Session aims to provide concrete pathways for realizing Society 5.0 in factories, hospitals, and cities, in line with the IJCIEOM 2026 theme, "Bridging Futures: AI Human Centric Industry and Global Challenges."

3. Organizer(s):

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