

## **Invited sessions Proposal**

**11th IFAC Conference on Manufacturing Modelling, Management and Control –  
IFAC MIM2025:Trondheim, Norway, 30 June - 3 July 2025**

### **The Role of Digital Technologies in Shaping the Future of Sustainable Global Supply chain: Innovations, Applications, and Challenges**

In the last few years global operations have experienced the transformation in the way they used to be operate by the emergence of digital technologies such as Artificial Intelligence (AI), Internet of Things (IoT), Blockchain, Big Data, Cloud Computing comes under umbrella of Industry 4.0 (*Angreani et al., 2020; Kim, 2017*). These technologies are reshaping the way organizations operate by using real time data analysis, improving sustainability and data driven decision making for improved productivity (*Bai et al., 2020, 2022*). Organizations are leveraging digital technologies in their operations which helps them to streamline their manufacturing operations and supply chain activities (*Abdirad & Krishnan, 2020*). These technologies also helps organizations to stay competitive and improve overall agility of organization.

Both developing and developed countries across the globe are adopting digital technologies in their operations to explore new opportunities related to sustainability and reduce their operational cost for global supply chain and manufacturing operations (*Frank et al., 2019*). IoT based sensors and devices helps organization to capture real time data. Big data analytics tools helps to use this data for data driven decision making. Blockchain technology helps to ensure secure and transparent transactions while improving the trust and accountability across the global supply chain and manufacturing operations. Cloud computing helps to foster global collaboration and improve operational scalability (*Jamwal et al., 2022; Machado et al., 2019*). All these technologies are providing new opportunities in global supply chain and manufacturing operations for business expansion and sustainability.

This special session seeks to explore the role of digital technologies in transforming sustainable global manufacturing operations and supply chain, invites contributions that investigate how these technologies are reshaping operational strategies, overcoming challenges, and unlocking new opportunities. We welcome both theoretical and empirical research that highlights the potential of digital innovations in global manufacturing operations and supply chain.

#### **Session topics:**

The session chairs invite scholars, researchers, and practitioners from academia, industry, and government to contribute empirically, theoretically, and applied research papers in areas including but not limited to the following topics: Artificial Intelligence in Operations

Management, Blockchain for Transparency and Traceability in global operations, IoT and Smart Manufacturing, Role of Big Data and Analytics in decision making, Cloud Computing in Global supply chain and manufacturing operations, Sustainability and Green Operations through Digital Technologies.

#### Session Chairs:

- India: Dr. Rajeev Agrawal, Mechanical Engineering Department, Malaviya National Institute of Technology Jaipur, Email; [ragrawal.mech@mnit.ac.in](mailto:ragrawal.mech@mnit.ac.in)
- UK : Prof. Vikas Kumar, Associate Dean for Research Innovation and Enterprise; Professor of Operations and Supply Chain Management, Bristol, England, United Kingdom ;Email:Vikas.Kumar@uwe.ac.uk
- Australia: Dr Nagesh Shukla | Associate Professor , Discipline Advisor for Logistics and Supply Chain Management ,Leader – TechSCS Lab (Technology for Supply Chain Sustainability Lab) Department of Business Strategy and Innovation Griffith Business School ,Griffith University | **Email:** [n.shukla@griffith.edu.au](mailto:n.shukla@griffith.edu.au)
- India: Dr. Anbesh Jamwal, Operations and Decision Sciences, Jaipuria Institute of Management Jaipur, India. [Anbesh.jamwal@jaipuria.ac.in](mailto:Anbesh.jamwal@jaipuria.ac.in)
- Portugal: Maria Leonilde Rocha Varela Assistant Professor, Department of Production and Systems PhD at the Algoritmi Research Centre, University of Minho, Portugal;leonilde@dps.uminho.pt

#### References

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