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**Special Issue
Building Industry 5.0
Ecosystems using
Emerging Information and
Communication Technologies**

This special issue focuses on building Industry 5.0 ecosystems in the supply chain using Emerging Information and Communication Technologies (ICT) like IIoT, Blockchain, CPS, Cloud-Computing, Automation, Big-Data, Digital-Twins, and Metaverse. The main objective of this special issue is to aim for greater insights into the challenges and shortcomings faced by Operations and Supply Chain Management in Industry 5.0 ecosystem while using these technologies.

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Special Issue Information

Industry 5.0 is a term that describes the future vision of industrial development, building upon the previous industrial revolutions. It is often referred to as the "human-centric" or "people-centric" industrial revolution (Xu et al., 2021). While no universally accepted definition exists for Industry 5.0, it represents a shift towards greater collaboration between humans and machines, focusing on integrating advanced technologies with human skills and capabilities (Atif, 2023; Lu et al., 2022). Industry 5.0 represents a human-centric approach to industrial development, aiming to create a harmonious integration of advanced technologies and human capabilities to drive innovation, productivity, and sustainable growth (Lu et al., 2022). It seeks to enhance the overall well-being of individuals, organizations, and society. Industry 5.0 and Information and Communication Technology (ICT) are closely intertwined. ICT is crucial in enabling and supporting the development and implementation of Industry 5.0 principles and concepts (Bettiol et al., 2022). Here's how Industry 5.0 and ICT are interconnected:

Digital Transformation: Industry 5.0 is driven by digital transformation, and ICT forms the backbone of this transformation. Advanced technologies such as the Internet of Things (IoT), cloud computing, big data analytics, artificial intelligence (AI), and robotics are integral to Industry 5.0 (Pan & Nishant, 2023; Vial, 2019). These technologies use ICT infrastructure to connect, gather, analyse and process data, enabling seamless integration and communication between humans and machines.

Connectivity and Communication: ICT provides the necessary connectivity and communication infrastructure for Industry 5.0. It enables machines, devices, and systems to communicate and exchange data in real-time. This connectivity facilitates the collaboration between humans and machines, allowing them to work together effectively.

Data Management and Analytics: Industry 5.0 generates vast amounts of data from various sources including sensors, machines, and systems. ICT enables the collection, storage, management, and analysis of this data. Advanced analytics techniques powered by ICT help derive valuable insights from the data, enabling informed decision-making, process optimization, predictive maintenance, and personalized customization (Papadopoulos et al., 2022).

Automation and Robotics: ICT is crucial in enabling automation and robotics, which are fundamental components of Industry 5.0. ICT systems control and coordinate the operations of robots, autonomous vehicles, and other automated systems. This integration improves efficiency, accuracy, and productivity in manufacturing and other industries.

Cybersecurity

As Industry 5.0 relies heavily on interconnected systems and data exchange, cybersecurity becomes crucial. ICT provides the tools, technologies, and protocols to protect data, networks, and systems from cyber threats. Secure ICT infrastructure ensures data integrity, confidentiality, and availability, safeguarding critical operations and information.

ICT-enabled Collaboration: Industry 5.0 emphasizes collaboration between humans and machines. ICT platforms such as collaborative robots (cobots), virtual reality (VR) and augmented reality (AR), enable remote collaboration, training, and knowledge sharing. These technologies facilitate effective communication and cooperation between individuals and machines, regardless of geographical location.

In summary, ICT is an enabler and catalyst for implementing Industry 5.0. It provides the necessary technological infrastructure, connectivity, data management, automation capabilities, cybersecurity, and collaborative tools to support the vision of a human-centric industrial revolution. ICT empowers integrating advanced technologies with human skills and expertise, driving innovation, productivity, and sustainable growth in Industry 5.0.

By adopting these emerging technologies, companies can unlock new windows of opportunities, surmount impediments, and achieve sustainable and competitive supremacy in the dynamic world of supply chain management for effective decision-making (Nayeri et al., 2023).

In this Special Issue, we focus on building Industry 5.0 ecosystem using ICT in supply chains that can foster innovation and pave the way for revolution. It can embolden organizations to delve into untapped applications, explore state-of-the-art technologies, and develop game-changing solutions to optimize their supply chains. Organizations can pioneer breakthroughs that transform supply chain management and build sustainable competitive superiority by fostering a culture of research and study in this field. In essence, comprehensive analysis in this sector is paramount for equipping organizations with the expertise and understanding required to employ the developing ICT optimally. There is still a lack of extensive research on the impact of emerging ICTs on decision-making and how it must be adopted for a long-term competitive edge. In light of the above discussion, there is a need for more academic and scholarly work to study the role ICT will play in adopting Industry 5.0 for effective decision-making.

In this special issue, we invite studies on how firms can effectively use emerging information technologies for managerial decision-making in supply chains. Some topics can be on the papers' agenda for this special issue.

- **Building Digital Resilience with Supply Chain 5.0**
- **Applications of Data and Information Sharing in Digital Supply Chain**
- **Ethical Issues in Adopting Industry 5.0 in supply chain**
- **Challenges and Opportunities of Industry 5.0 Adoption in the Supply Chain**
- **Decision-making framework for Industry 5.0 implementation**
- **Impact of Industry 5.0 on Net-zero Economy**
- **Production Plant and Warehouse Automation with Industry 5.0**
- **The Impact of Emerging Information Technologies on Financial Sectors in the Era of Industry 5.0**
- **Sustainability in the Era of Industry 5.0: Adverse Impacts and Issues**
- **Data Integrity, Integration, and Security Issues for Consumer Data in Industry 5.0**
- **Emerging Information Technologies for End-to-End Supply Chain**
- **Data-driven Digital Transformation for Sustainable Development of the Supply Chain**
- **Towards the Smart and Sustainable Transformation of Reverse Logistics 5.0**
- **Social and Behavioural Consideration in Industry 5.0 for Supply Chain Management**

The topics listed above are indicative in nature, and authors are encouraged to submit papers that broadly align with the issue's theme, even if the topic is not strictly represented above.

The editors encourage the potential authors to submit their papers to the ICOSCM 2023 Conference held at Symbiosis Institute of Operations Management (SIOM), Nashik, India. This would enable the authors to get preliminary feedback on their paper. The editors would invite the best papers from the conference for submission to this special issue. The special issue will also accept submissions from authors whose work is aligned with the topics in this call, even if they cannot submit their work to the conference. This call for paper should thus be seen as an open call for all authors.

Please refer to the Guide for Authors link to prepare your manuscript and submit your paper via the journal's submission portal, Editorial Manager, before the due date of 30th December 2023.

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