

Track #08

Digital Logistics in industry 4.0

Track Description

The fourth industrial revolution also known as Industry 4.0 has affected businesses through their planning, sourcing, production and delivery processes. Logistics, a crucial function within these processes, is certainly affected by this new wave. Many opportunities are harnessed through adoption of I4.0 in the logistics function. Organizations could minimize operating expenses, increase productivity, improve traceability/visibility and enhance order fulfilment through adoption of digital logistics or yet to be known as logistics 4.0. Logistics 4.0 technological applications include robotics, AI, the IOT, automation, digital twinning and of course, the blockchain. The above tools are integrated into the logistics function solely, collaboratively or connected to other technological tools such as cloud computing, geographic information systems (GIS), 5G and Port Community Systems PCS).

Employing a well-modelled digital logistic platform has many requirements such as the involvement and collaborations between vendors and partners involved in the logistics function and the presence of a centralized information system, which all stakeholders could access. These requirements present barriers for implementation of 4.0 technologies within logistics functions. Furthermore, the effect of adopting industry 4.0 technologies on logistics performance is not well defined. Additionally, the organizational capabilities required to successfully adopt digital logistics is still unclear.

This track presents a step towards filling the academic gaps presented above through providing a mixture of theoretical, empirical and case studies addressing the stated gaps. The track welcomes original research promoting theoretical and innovative digital logistics applications, and constituting a valuable resource for researchers and top executives in the supply chain/logistics field.

Track Main Topics

Topics of interest include (but are not limited to):

- Case studies on value created through logistics 4.0 applications (AI-IOT-Blockchain-smart contracts-Drones-Digital twins-Robotics).
- Barriers and drivers of logistics 4.0 applications.
- Advances in the Robotics and Autonomous Systems in logistics and transportation
- Smart storage applications and their implications: smart shelves, smart containers.
- Real time data analytics and its effect on visibility, transparency and traceability of orders.
- Smart contracts and its effect on order security.
- Integration of 3PL and 4PL providers through digital platforms, barriers and drivers.

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- Challenges facing 3PL and 4PL providers in the industry 4.0 era: Towards economic and environmental efficiencies (Route optimization, Load consolidation, autonomous vehicles)
- Human factors in logistics 4.0
- Connected logistics: IOT, cloud and analytics
- Minimization of risk of disruptions using sensors, RFID, IOT and real time data.
- Cloud computing and edge computing: bringing intelligence to the edge across logistics.

Track Co-Chairs

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