

## Digital Innovations & Technology in Supply Chain Management

**No of Sessions-** (15)-30 hours course || 5 Modules, 6hrs each

**Target Audience-** Front line executives and Middle level Managers

**Relevant Industry –** All industry sectors with supply chain as critical aspect

**Introduction:** Digital technologies have penetrated every aspect of modern business. The ability to execute any business model depends heavily on the approach adopted by firms in organizing their information architecture. This course will explore the role of information architecture on Supply Chain and Logistics functions. The course will discuss dominant technologies traditionally used in planning, forecasting, scheduling and managing supply chains.

### Objectives-

- To understand the current state and challenges in supply chain and Logistics
- To gain understanding on Information and Enterprise systems for managing supply chain effectively
- To design the network planning for logistics
- To identify the risk in modern supply chain and design appropriate strategies of successful implementation

### Course learning outcomes

- Understanding of existing supply chain and its challenges
- Ability to identify opportunities for supply chain transformation
- Application of innovation and IT frameworks in the supply chain context of their domain
- Designing appropriate strategies to mitigate the cyber risk towards efficient modern supply chain

**Pedagogy –** Lectures, Videos, Case studies and Discussions

## Session Plan:

MODULE	TOPICS	Case Studies/Readings
<b>Module 1 (6hrs)</b>	<p>Session 1: VUCA Environment &amp; Business Needs</p> <p>Session 2: Understanding IT challenges and integrated business processes in supply chain and logistics.</p> <p>Session 3: Opportunity Identification for Digital Transformation</p>	<p>HBR case (2019).HungryPet: Challenges to Digital Supply Chain Innovation</p> <p>HBR case (2020)-A Perfect Storm: Examining the Supply Chain for N95 Masks during COVID-19</p>
<b>Module 2 (6hrs)</b>	<p>Session 4: Business models and Innovation frameworks for supply chain</p> <p>Session 5: Enterprise Systems for Supply chain</p> <p>Session 6: Data Lake and Data Integration</p>	
<b>Module 3 (6hrs)</b>	<p>Session 7: Emerging technologies for Digital Transformation of supply chain</p> <p>Session 8: Application of AI, ML, IOT, Block chain, Robotics &amp; Automation.</p> <p>Session 9: Platform Economy and Eco Systems</p>	<p>HBR (2018). Coda Coffee and Bext360 Supply Chain: Machine Vision, AI, IoT, and Blockchain</p> <p>Bhargava, H. K. (2021). The creator economy: Managing ecosystem supply, revenue sharing, and platform design. <i>Management Science</i>.</p>
<b>Module 4 (6hrs)</b>	<p>Session 10-11: Product life cycle management for supply chain.</p> <p>Session 11-12: Technology life cycle for supply chain management</p>	<p>Aitken et al., (2003). The impact of product life cycle on supply chain strategy, <i>International Journal of Production Economics</i>, Volume 85, Issue 2</p> <p>Rest, B., Gaiardelli, P., Cavalieri, S., &amp; Dotti, S. (2017). Enhancing the design and management of the product-service system supply chain: an application to the automotive sector. <i>Service Science</i>, 9(4), 302-314.</p>
<b>Module 5 (6hrs)</b>	<p>Session 13: Understanding Risk &amp; Cyber-attacks in supply chain; Security Controls and Information Security Posture</p> <p>Session 14: Analyzing and assessing the risks.</p> <p>Session 15: Strategies for successful implementation and use-cases.</p>	<p>Sawik, T. (2022). A linear model for optimal cybersecurity investment in Industry 4.0 supply chains. <i>International Journal of Production Research</i>, 60(4), 1368-1385.</p> <p>Sawik, T. (2022). Balancing cybersecurity in a supply chain under direct and indirect cyber risks. <i>International Journal of Production Research</i>, 60(2), 766-782.</p>

## Reading Material:

- MacCarthy, B.L., Blome, C., Olhager, J., Srari, J.S. and Zhao, X. (2016), "Supply chain evolution – theory, concepts and science", *International Journal of Operations & Production Management*, Vol. 36 No. 12, pp. 1696-1718.
- Aitken, J., Childerhouse, P., & Towill, D. (2003). The impact of product life cycle on supply chain strategy. *International Journal of Production Economics*, 85(2), 127-140.

- Nasiri, M., Ukko, J., Saunila, M., & Rantala, T. (2020). Managing the digital supply chain: The role of smart technologies. *Technovation*, 96, 102121.
- Wu, F., Yenyurt, S., Kim, D., & Cavusgil, S. T. (2006). The impact of information technology on supply chain capabilities and firm performance: A resource-based view. *Industrial Marketing Management*, 35(4), 493-504.
- Tan, A., & Shukla, S. (2021). *Digital Transformation of the Supply Chain: A Practical Guide for Executives*.
- Gerd J. Hahn (2020) Industry 4.0: a supply chain innovation perspective, *International Journal of Production Research*, 58:5, 1425-1441.