



The Digital Supply Chain:

Technologies, Systems, Platforms, and Models

Part 1. The Digital Supply Chain - Historical Development

The discipline of Supply Chain Management has co-evolved with Information Technology over the last three decades. Digital and communication technologies are all pervasive – in products, in factories, and between purchasers and suppliers. Potentially, all entities can now interact digitally across a supply chain. Chapters will examine the antecedents of the Digital Supply Chain, showing how and where the virtual and physical supply chain worlds interact.

Topics include:

- 1.1. Supply Chains and Supply Chain Management - Emergence of Concepts
- 1.2. Global Sourcing, Global Markets, and International Transportation Networks
- 1.3. Globalization and China - Growth in World Trade in Manufactured Goods
- 1.4. ERP Systems
- 1.5. JIT & Lean Supply Chains
- 1.6. Quality, Risks, and Vulnerabilities in Global Supply Chains
- 1.7. Sustainability Issues in Global supply Chains
- 1.8. Virtual v Physical – What is Digitizable in the Supply Chain?
- 1.9. Defining the Digital Supply Chain

Part 2. Digital Building Blocks and Enabling Technologies

The technologies, systems, platforms, and algorithms that underpin and enable digital supply chains are transforming the business landscape with rapid and continuing developments, particularly over the last ‘connected’ decade. Chapters will review the technological and systems building blocks for the Digital Supply Chain.

Topics include:

- 2.1. Cloud-based Systems
- 2.2. Platform Technologies





- 2.3. Automation and Interoperability
- 2.4. Smart Factories, IoT/Physical Internet and I4.0
- 2.5. Smart Warehouses
- 2.6. Digital Twins
- 2.7. Algorithms, Analytics, and AI
- 2.8. Logistics Platforms, Crowdsourcing and Sharing
- 2.9. Blockchain Technologies

Part 3. Conceptualizing the Digital Supply Chain

How does digital change the theory and conceptualization of supply chains and their management? Chapters will address how supply chains can be re-conceptualized for supply chain research and supply chain practice in the digital era.

Topics include:

- 3.1. Supply Chain Data and Information – Types, Provenance and Accuracy
- 3.2. Supply Chain Mapping – Transparency and Traceability
- 3.3. Supply Chain Models and Conceptualizations
- 3.4. Supply Chain Network Analysis
- 3.5. Digital Architectures - Conceptual Models, Data Models and Frameworks
- 3.6. Re-theorizing Supply Chains in the Digital Network Era
- 3.7. Digital Collaboration and Coordination

Part 4. Managing the Digital Supply Chain

Digital affects all aspects of supply chain management, from supply chain design to managing quality, compliance and performance. Chapters will address how the discipline of supply chain management is and will be affected by digital connectivity.





Topics include:

- 4.1. Digital Supply Chain Design and Scalability
- 4.2. Network Governance - The Control Tower and Supply Chain Platforms
- 4.3. Purchasing and Procurement in the digital age
- 4.4. Supply Chain Forecasting, Planning and Capacity Management
- 4.5. Marketing with the Digital Supply Chain
- 4.6. Managing Compliance and Quality Digitally
- 4.7. Performance Measurement Across the Digital Supply Chain
- 4.8. Digital Services and Servitization
- 4.9. Security in Digital Supply Chains and Cyber-Physical system

Part 5. Digital Supply Chain Sectoral Cases

In some sectors, digital supply chain concepts and practices have advanced strongly, building on existing infrastructure and embedded routines. In others, digital supply chain practice is emerging but the potential exists to go beyond isolated pockets of digitalization to embrace full connectivity. Chapters will consider current and future digital practice and challenges across different industrial and business sectors.

Topics include:

- 5.1. Food supply – digital from farm to fork
- 5.2. Pharmaceuticals
- 5.3. Automotive
- 5.4. Aerospace
- 5.5. Clothing
- 5.6. Luxury/retail
- 5.7. Digital service supply chains
- 5.8. Digital Transformation - Benefits & Challenges in Supply Chain Digitalization





Part 6. Research Frontiers in the Digital Supply Chain

Chapters will introduce and debate critical research frontiers, both academic and industrial, to enable future adoption of, and engagement in digital supply chains.

Topics include:

- 6.1. Business Models, Competition and Disruption in Digital Supply Chains
- 6.2. Virtual Integration, Innovation and Technology Transfer
- 6.3. Digital Service Supply Chains
- 6.4. IS/IT & Blockchain
- 6.5. Business Intelligence and Analytics
- 6.6. Geo-politics and the Digital Supply Chain
- 6.7. Ethics, Security, and Legal Issues
- 6.8. Sustainability and the Digital Supply Chain
- 6.9. Circular Economy and Reverse Logistics
- 6.10. Social impact and consequences of digitalization of global supply networks.

