Asia-Pacific
Economic Cooperation

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Ten Technologies That Can Enhance Supply Chain Efficiency and Integrity

Submitted by: Australia

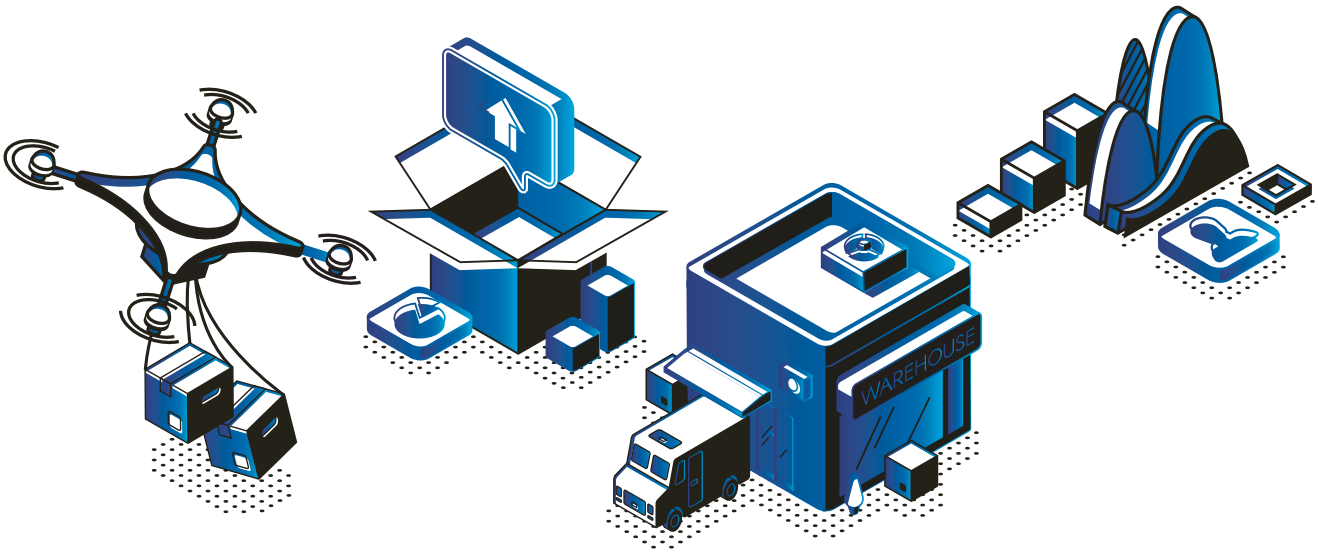
Fostering Greater SME Participation in Global Value Chains - Phase 2: Digitalisation and Utilisation of Emerging Technologies - Session 1: Introduction to a Framework for Digitalisation and Adoption of Technologies
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10 TECHNOLOGIES THAT CAN ENHANCE SUPPLY CHAIN EFFICIENCY AND INTEGRITY

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Supply chains are complex networks involving the flow of goods, services, information, and finances across various stages from raw material sourcing to the delivery of finished products to customers.

Adopting the right technology in the supply chain can significantly improve efficiency, visibility, and responsiveness.



10 KEY TECHNOLOGIES USED IN SUPPLY CHAINS AND LOGISTICS ARE:

1 Supply Chain Management (SCM) Systems

- Description: SCM systems are software solutions designed to optimise and manage the end-to-end supply chain processes, including inventory management, demand forecasting, procurement, order fulfillment, and distribution.
- Benefits: Enhanced visibility, better demand planning, reduced inventory holding costs, streamlined supplier management, and improved customer satisfaction through faster and accurate deliveries.

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2 Radio Frequency Identification (RFID) and Track and Trace Technologies

- Description: RFID and traceability-related technologies are used for automatic identification and tracking of goods, assets, and inventory throughout the supply chain.
- Benefits: Improved inventory accuracy, real-time tracking of shipments and assets, enhanced supply chain visibility, and improved validation of origin, quality, safety and environmental claims.

3 Transportation Management Systems (TMS)

- Description: TMS is a software solution for managing and optimising transportation operations, including route planning, carrier selection, shipment tracking, and freight payment.
- Benefits: Increased transportation efficiency, reduced freight costs, improved on-time delivery performance, and enhanced carrier collaboration.

4 Warehouse Management Systems (WMS)

- Description: WMS is a software solution that manages and optimises warehouse operations, including inventory control, order picking, packing, and shipping.
- Benefits: Streamlined warehouse operations, improved order accuracy, reduced picking errors, increased inventory turnover, and better space utilisation.

5 Internet of Things (IoT) in Logistics

- Description: IoT devices, such as sensors and beacons, are used in logistics to track assets, monitor temperature and humidity in transit, and gather real-time data.
- Benefits: Real-time asset tracking, proactive maintenance, improved route optimisation, enhanced supply chain visibility, and better risk management.

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6 Blockchain in Supply Chain

- Description: Blockchain technology is used to create secure and transparent records of transactions, contracts, and supply chain events across multiple parties.
- Benefits: Increased transparency and trust among supply chain partners, secure and tamper-proof record-keeping, efficient traceability of products, and reduced risk of counterfeiting.

7 Autonomous Vehicles and Drones

- Description: Autonomous vehicles, including self-driving trucks and drones, are being explored for last-mile deliveries and transportation within warehouses and distribution centres.
- Benefits: Faster and more efficient deliveries, reduced labour costs, improved safety, and increased flexibility in delivery operations.

8 Predictive Analytics and Artificial Intelligence

- Description: Predictive analytics and AI-powered tools are used to forecast demand, optimise inventory levels, and make data-driven supply chain decisions.
- Benefits: Accurate demand forecasting, reduced inventory costs, enhanced production and procurement, and proactive issue resolution.

9 Supplier Relationship Management (SRM) Systems

- Description: SRM systems help businesses manage their relationships with suppliers, track supplier performance, and collaborate effectively.
- Benefits: Improved supplier performance, better negotiation capabilities, reduced supply chain risks, and increased efficiency in supplier collaboration.

10 Digital Twins

- Description: Digital twins are virtual replicas of physical assets or processes, allowing for real-time monitoring and simulation to improve performance.
- Benefits: Real-time performance monitoring, predictive maintenance, reduced downtime, and improved decision-making for better supply chain management.