2.1.2 ICT in Transport Sector

Smart Logistics

Smart Logistics is a term that refers to logistics that comprise a range of software and hardware tools that monitor, optimise and manage operations. Smart Logistics is aimed at reducing storage space required for inventory purpose and fuel consumption. This is because the current logistics of many companies, which include packaging, transport, storage, consumer purchasing and waste, are not efficient. An illustration is cited in the case of transportation vehicles which are either unloaded or only partially loaded on return journeys. This results in increased demand for fuel which would translate to greater burning of fossil fuels, thereby releasing more greenhouse gases into the atmosphere and worsening global warming. The transport sector is a big contributor to greenhouse gases, accounting for 14% of global emissions.

How ICT can help:

ICT can improve the efficiency of logistics operations in various ways:

Monitoring Operations

1. Tag and track inventory, stock and other items throughout the supply chain
2. Track local terrain and information for understanding of optimal routes
3. Information systems to provide the driver with real time information about the vehicle's efficiency and behaviour

Technologies involved:
• Radio frequency identification (RFID) for asset tracking
• Geographical information systems (GIS) to combine sensing with geographical terrain
• Data recorders for vehicles
• Onboard driver information and data logging
• Real time fleet tracking
• Global Positioning Systems (GPS)

Optimizing Operations

1. Increase communication between devices and between logistics providers and suppliers
2. Optimise and control inventory to reduce vehicle miles in delivery or returning stock to the manufacturer
3. Model and optimise distribution network design throughout supply chain design
4. Conduct stock repair tasks on behalf of the manufacturer
5. Manage day to day operations with real time data
6. Track efficiency against business performance

Technologies involved:
• Broadband networks
• Messaging platforms enable notifications between system components
• Telematics
• Supply chain design and modelling software
• Real time route optimisation (RTRO) software
• Collaborative planning, forecasting and replenishment (CPFR) systems
• Installed base management platforms
• Vendor managed repair (VMR) platforms; also known as maintenance, repair and operating (MRO)
• Business and operational support systems (BSS) (OSS)

Managing Operations

1. Vehicle and load management systems to identify unused capacity within the supply chain
2. Reverse logistics to allow the back-loading of vehicles on the network and for the return of unsold/damaged goods to the supplier
3. Apply systems thinking from production to consumer to end of life

Technologies involved:
• CO2e emissions tracking platforms
• Electronic freight exchanges (EFX) to allow for the "auction" of spare space on vehicles
• Reverse logistics platforms
• Protocols for system interoperability
• CO2e route optimisation standards and software
• E-commerce and other e-services

1.	**Climate Change**
1.1	Definition
1.2	Causes
	1.2.1 Natural Factors
	1.2.2 Human Factors
1.3	Impacts of Climate Change
2.	**ICT as a Solution to Climate Change**
2.1	Achieving a Green Business through ICT
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	2.1.4 ICT in Power Sector
	2.1.5 Case Studies
2.2	Role of the Internet in Promoting Green Awareness
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2.3	Other Spinoffs from the Advancement in ICT
	2.3.1 Change in Working Styles
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	2.3.3 Change in Teaching and Learning Styles
3.	**Limitations of ICT in Fighting Climate Change**
3.1	Freedom of Expression
3.2	ICT's Two-fold Role
3.3	Inability of ICT to stand as an Independent Solution
4.	**Ongoing Research and Development of ICT in fighting Climate Change**
4.1	Symposium
4.2	Conference Talk
4.3	Progress
5.	**Quotes on ICT and Climate Change**
5.1	Quotes
6.	**References**

References

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