

A

PROJECT REPORT

ON

LOGISTICS AND SUPPLY CHAIN MANAGEMENT

UNDERTAKEN AT

APEEJAY INFRA LOGISTICS PVT LTD, HALDIA

IN PARTIAL FULFILMENT OF

POST GRADUATE DIPLOMA IN

LOGISTICS AND SUPPLY CHAIN MANAGEMENT

MIT SCHOOL OF DISTANCE EDUCATION, PUNE.

GUIDED BY

SUBMITTED BY

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MIT SCHOOL OF DISTANCE EDUCATION,

PUNE - 411 038

YEAR 2022-2023



TO

The Director,

MIT School of Distance Education.

Respected Sir,

This is to request you to kindly exempt me from submitting the certificate from my organisation for Project Work due to the reason mentioned below:

Tick the right option

1. As per the Rules of the Organisation
2. Self Employed
3. Working in Public Sector ✓
4. Full-time Student

Thanking you in anticipation of your approval to my request.

Regards

Student Sign: - 

Student Name: - Ram Pada Dinda

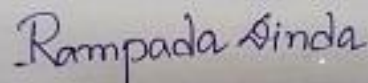
Student ID: - MIT202102097

DECLARATION

I hereby declare that this project report entitled Logistics and Supply Chain Management is a bonafide record of the project work carried out by me during the academic year 2022-2023, in fulfilment of the requirements for the award of POST GRADUATE DIPLOMA IN Logistics and Supply Chain Management (PGDSCM) of MIT School of Distance Education.

This work has not been undertaken or submitted elsewhere in connection with any other academic course.

(Students' Name and Signature)



Rampada Dinda

RAM PADA DINDA

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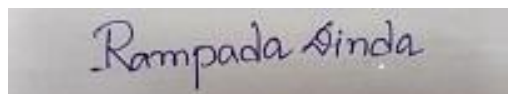
ACKNOWLEDGEMENT

I would like to take this opportunity to express my sincere thanks and gratitude to (Mr. Ram Krishna Sai) of (Apeejay Infralogistics, Haldia) for giving me an opportunity to do my project work in your esteemed organization and it has indeed been a great learning and enjoyable experience.

I would like to express my deep sense of gratitude and profound thanks to all staff members of (Apeejay Infralogistics, Haldia) for their kind support and cooperation which helped me in gaining lots of knowledge and experience to do my project work successfully.

At last but not least, I am thankful to my Family and Friends for their moral support, endurance and encouragement during the course of the project.

(Students' Name and Signature)

A rectangular box containing a handwritten signature in blue ink that reads "Rampada Dinda".

RAM PADA DINDA

Student ID: MIT202102097

Introduction: -

In the recent years, Supply Chain, Transportation, Procurement and Logistics have played an increasingly important role within the corporate world. It holds the potential for creating value for the end customer and differentiating the company strategically in terms of services rendered. SCM and logistics have now become the pulse of business.

PGDSCM program provides an opportunity for vertical growth. Students acquire professional competencies in materials management & logistics, leading to an improvement in their job skills and self-enrichment. The program begins by laying the ground work for a comprehensive understanding of what supply chain management is and how it can be effectively used to increase an organisation's efficiency and profitability.

The program further examines different Supply Chain Management strategies and methods of forecasting demand, aggregate planning and network design. The program spans through the whole gamut of Supply Chain strategies, processes, operations management and imbibes in the learner professional skills to add value to the organisation.

Career Opportunities: - Purchase Manager, Strategic Planner, Purchase Analyst/Assistant, Materials Analyst, Materials Manager, Procurement Manager, Supply Chain Manager, Commodity Manager, Inventory Manager, Strategic Sourcing Manager, Operations Manager, Sourcing Manager, Warehousing Manager, etc.

Supply Chain Management (SCM) deals with the network of organizations that are involved, through upstream and downstream linkages, in different processes and activities that produce value in the form of products and services in the hands of the ultimate consumer.

It encompasses all activities associated with the flow and transformation of goods and services through to the end-users. SCM also deals with the information and financial flows associated with these processes. Logistics is an integral part of SCM and is defined as the process of strategically managing procurement, movement and storage of materials, parts and finished inventory and the Related information flows through the organisation and its marketing channels for the cost effective fulfilment of customers' orders.

Organizational Profile: -

We introduce ourselves as Apeejay Infralogistics Private Limited (AILPL), creating industry infrastructure projects for facilitating integrated logistics business facility (an integrated logistics park with CFS & ICD along with EXIM, BONDED & Domestic Warehouse). It will be providing multi-functional facilities for handling, storage and ancillary support services for trade facilitation infrastructure for EXIM & Domestic Trade under one roof.

The objective of the project is to convert our aspirations of an integrated logistics park into a reality and roll out its Business Operations at strategically suitable locations. Its common frame work broadly includes: -

- To build and operate a state of the art Logistics park with multifunctional activities like ICD & CFS Operations, Warehousing, Material Handling, consolidation / break bulking, Project Cargo Handling etc.
- An integrated approach to Create and Develop support facilities like parking yards, Business centres, Office parks, Food courts, weighbridges, security services etc, capable of providing an "end to end" logistics support to the customers.

Apeejay Infralogistics Private Limited has established Haldia Integrated Logistics Park.

Haldia Logistics Park is situated in at Brojalalchak near Haldia ; about 7 kms from Haldia Port, 120 kms from Kolkata ; Located on NH 41 free from Traffic Congestion at any given time.

Best 24 x 7 Security & Surveillance of Facilities with CCTV ; Fire Fighting & Lightning systems covering all Yard , Roads , Warehouses & Office area ; 04 Lane Roads within Facilities for two-way Traffic Communication along with separate Entry and Exit into Bonded / Notified area ; Complete Activities are managed and monitored with advanced IT Technologies ; Customs – ICES EDI Connectivity : 24 X 7 Power Backup; Separate Entry and Exit Gates with Automated Boom Barrier : 100 MT Electronic Weighbridge ; Total CFS is well Illuminated with High Mast lights : Paved Container Yard – 1100 TEUS Ground Slot ; EXIM Warehouse ; Well Ventilated Domestic Covered Warehouse and Open Yard for Storage of Project Cargo ;Empty Depot and EMR Facilities.

Service cover Import and Exports; Customs Clearance and EDI, RKEM Facility; Storage of Cargo in Open and Covered; DE stuffing and Stuffing; Mechanized and Manual

Cargo Handling; Lashing, Chocking and Palletisation; Fumigation; Survey and Weighment; EMR Facility.

Provides Value Added Services such as Fumigation, Repair & Maintenance of Sea Containers, Packaging, and Palletisation etc.

Houses Cargo Handling Equipment (which includes Reach Stackers, Hydra, Forklifts, and Cranes) with trained Manpower for handling and operations.

MSC Shipping Agency India, the Largest Main Line Operator in terms of throughput of Containerised Cargo handling at Haldia Port at present is its first and so far largest client in Haldia Integrated Logistics Park.

What is Container Freight Station (CFS / ICD):

A CFS (container freight station) is a warehouse that specializes in the consolidation and deconsolidation of cargo. An LCL (less than container load) shipment will be taken to a CFS at origin to be consolidated into a container with other cargo.

ICD means Inland Container Depot situated at inland points away from sea ports. ICD is a term used in India in the field of Imports and Export of sea shipments. ICD is formed to help importers and exporters to handle their shipments near their place of location. If the sea port is away from the places of importers and exporters Inland Container Depot (ICD) helps them to save time and money in the procedures and formalities. In Inland Container Depot (ICD), a combination of services of sea custodian, customs department, carriers, freight forwarders, customs brokers etc. are carried out to facilitate exporters and importers for smooth handling of cargo.

CFSs function as an off-dock facility of the main/mother ports and their function is to help decongest the main ports by shifting cargo and Customs related activities outside the port area. CFSs are largely expected to deal with break-bulk cargo originating/terminating in the immediate hinterland of a mother port and may also deal with rail borne traffic to and from inland locations. A comparative analysis of imports which were handled through CFS vis-à-vis the mother port shows imports handled through mother ports far exceeded the imports handled at concerned CFSs. On the other hand, value of exports effected through CFSs was much higher than the exports through mother ports. Thus it is clearly seen that CFSs are the preferred destination for handling of export consignments while imports through the main ports continue to predominate in comparison to the imports made through CFSs.

DEFINITION OF ICD/CFS/AFS

An Inland Container Depot / Container Freight Station may be defined as :- A common user facility with public authority status equipped with fixed installations and offering services for handling and temporary storage of import/export laden and empty containers carried under customs control and with Customs and other agencies competent to clear goods for home use, warehousing, temporary admissions, re-export, temporary storage for onward transit and outright export. Transshipment of cargo can also take place from such stations. An Air Freight Station (AFS) is an off-airport Common user facility equipped with fixed installations of minimum requirement and offering services for handling and temporary storage of import and export cargo etc. An AFS is a counterpart of ICD / CFS for maritime cargo.

DISTINCTION BETWEEN AN ICD & CFS

An ICD is a place where containers are aggregated for onward movement to or from the ports whereas CFS is a place where containers are stuffed, unstuffed and aggregation/segregation of cargo takes place. ICDs are normally located outside the port towns whereas no site restrictions apply to CFS. An ICD may have a CFS attached to it. CFS is treated as an extension of a port/ICD/air-cargo complex.

Functionally there is no distinction between an ICD/CFS as both are transit facilities, which offer services for containerization of break bulk cargo and vice-versa. These could be served by rail and/ or road transport. An ICD is generally located in the interiors (outside the port towns) of the country away from the servicing ports. CFS, on the other hand, is an off dock facility located near the servicing ports which helps in decongesting the port by shifting cargo and Customs related activities outside the port area. CFSs are largely expected to deal with break-bulk cargo originating/terminating in the immediate hinterland of a port any may also deal with rail borne traffic to and from inland locations. Keeping in view the requirements of Customs Act, and need to introduce clarity in nomenclature, all containers terminal facilities in the hinterland would be designated as "ICDs".

FUNCTIONS OF ICDs/CFSs/AFS

The primary functions of ICD/CFS/AFS may be summed up as under: 1. Receipt and dispatch/delivery of cargo. 2. Stuffing and stripping of containers. 3. Transit operations by rail/road to and from serving ports. 4. Customs clearance. 5. Consolidation and desegregation of LCL cargo. 6. Temporary storage of cargo and containers. 7. Reworking of containers. 8. Maintenance and repair of container units.

The operations of the ICDs/CFSs revolve around the following centres of activity:-

Rail Siding (in case of a rail based terminal) The place where container trains are received, dispatched and handled in a terminal. Similarly, the containers are loaded on and unloaded from rail wagons at the siding through overhead cranes and / or other lifting equipment. 2. Container Yard Container yard occupies the largest area in the ICD.CFS. It is stacking area where the export containers are aggregated prior to dispatch to port, import containers are stored till Customs clearance and where empties await onward movement. Likewise, some stacking areas are earmarked for keeping special containers such as refrigerated, hazardous, overweight/over length, etc. 3. Warehouse: A covered space/shed where export cargo is received and import cargo stored/delivered; containers are stuffed/stripped or reworked; LCL exports are consolidated and import LCLs are unpacked; and cargo is physically examined by Customs. Export and import consignments are generally handled either at separate areas in a warehouse or in different nominated warehouses/sheds. 4. Gate Complex the gate complex regulates the entry and exit of road vehicles carrying cargo and containers through the terminal. It is place where documentation, security and container inspection procedures are undertaken.

BENEFITS OF ICDs/CFSs/AFSs

The benefits as envisaged from an ICD/CFS/AFS are as follows: - 1. Concentration points for long distance cargoes and its unitisation. 2. Service as a transit facility. 3. Customs clearance facility available near the centres of production and consumption 4. Reduced level of demurrage and pilferage. 5. No Customs required at gateway ports. 6. Issuance of through bill of lading by shipping lines, hereby resuming full liability of shipments. 7. Reduced overall level of empty container movement. 8. Competitive transport cost. 9. Reduced inventory cost. 10. Increased trade flows.

EQUIPPING THE ICD/CFS/AFS

The ICD/CFS would select most modern handling equipment for loading, unloading of containers from rail flats, chassis, their stacking, movement, cargo handling, stuffing / DE stuffing, etc. Following minimum equipment should be made available at ICDs/CFSs (Reach stacker may not be mandatory):

1. Dedicated equipment such as lift truck (front end loader, side loader or reach stacker), straddle carrier, rail mounted yard gantry crane, rubber tyred yard gantry crane, etc. of reputed make and in good working condition (not more than 5 to 8 years old) and equipped with a telescopic spreader for handling the 20 ft and 40 ft boxes. The equipment must have a minimum residual life of 8 years duly certified by the manufacturer or a recognized inspection agency. An additional unit of equipment should be provided when the throughput exceeds 8000 TEUs per annum or its multiples for lift truck based operations.
2. Terminals resorting to purely chassis-based operations do not require dedicated box handling equipment. However, chassis-based operations should be restricted to CFSs proposed to be set up near ports.
3. Small capacity (2 to 5 tonnes) forklifts must be provided for cargo handling operations in all terminals. Equipment in respect of AFS shall be as indicated in the detailed guidelines for AFS as issued by Ministry of Civil Aviation.

What is supply chain management (SCM)

Supply chain management (SCM) is the broad range of activities required to plan, control and execute a product's flow, from acquiring raw materials and production through distribution to the final customer, in the most streamlined and cost-effective way possible.

Supply chain management is the handling of the entire production flow of a good or service — starting from the raw components all the way to delivering the final product to the consumer. To accomplish this task, a company will create a network of suppliers (the “links” in the chain) that move the product along from the suppliers of raw materials to the organizations who deal directly with users.

According to CIO, there are six components of traditional supply chain management:

- **Planning:** – Plan and manage all resources required to meet customer demand for a company’s product or service. When the supply chain is established, determine metrics to measure whether the supply chain is efficient, effective, delivers value to customers and meets company goals.
- **Sourcing:** – Choose suppliers to provide the goods and services needed to create the product. Then, establish

processes to monitor and manage supplier relationships. Key processes include ordering, receiving, managing inventory and authorizing supplier payments.

- **Making:** – Organize the activities required to accept raw materials, manufacture the product, test for quality, package for shipping and schedule for delivery.

- **Delivering (or logistics):** – Coordinating customer orders, scheduling delivery, dispatching loads, invoicing customers and receiving payments.

- **Returning:** – Create a network or process to take back defective, excess or unwanted products.

- **Enabling:** – Establish support processes to monitor information throughout the supply chain and assure compliance with all regulations. Enabling processes include: finance, human resources, IT, facilities management, portfolio management, product design, sales and quality assurance.

SCM encompasses the integrated planning and execution of processes required to optimize the flow of materials, information and financial capital in the areas that broadly include demand planning, sourcing, production, inventory management and storage, transportation -- or logistics -- and return for excess or defective products. Both business strategy

and specialized software are used in these endeavours to create a competitive advantage.

Supply chain management is an expansive, complex undertaking that relies on each partner -- from suppliers to manufacturers and beyond -- to run well. Because of this, effective supply chain management also requires change management, collaboration and risk management to create alignment and communication between all the entities.

In addition, supply chain sustainability -- which covers environmental, social and legal issues, in addition to sustainable procurement -- and the closely related concept of corporate social responsibility -- which evaluates a company's effect on the environment and social well-being -- are areas of major concern for today's companies.

Logistics vs. supply chain management

The terms supply chain management and logistics are often confused or used synonymously. However, logistics is a component of supply chain management. It focuses on moving a product or material in the most efficient way so it arrives at the right place at the right time. It manages activities such as packaging, transportation, distribution, warehousing and delivery. In contrast, SCM involves a more expansive range of activities, such as strategic sourcing of raw materials, procuring the best prices on goods and materials, and coordinating supply chain visibility (SCV) efforts across the supply chain network of partners, to name just a few.

Benefits of supply chain management

Supply chain management produces benefits such as new efficiencies, higher profits, lower costs and increased collaboration. SCM enables companies to better manage demand, carry the right amount of inventory, deal with disruptions, keep costs to a minimum and meet customer demand in the most effective way possible. These SCM benefits are achieved through the appropriate strategies and software to help manage the growing complexity of today's supply chains.

Importance of supply chain management

It is well known that supply chain management is an integral part of most businesses and is essential to company success and customer satisfaction.

Supply chain management



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Boost Customer Service

- Customers expect the correct product assortment and quantity to be delivered.

- Customers expect products to be available at the right location. (i.e., customer satisfaction diminishes if an auto repair shop does not have the necessary parts in stock and can't fix your car for an extra day or two).

- Right Delivery Time – Customers expect products to be delivered on time (i.e., customer satisfaction diminishes if pizza delivery is two hours late or Christmas presents are delivered on December 26).

- Right After Sale Support – Customers expect products to be serviced quickly. (i.e., customer satisfaction diminishes when a home furnace stops operating in the winter and repairs can't be made for days).

Reduce Operating Costs

- **Decreases Purchasing Cost:** – Retailers depend on supply chains to quickly deliver expensive products to avoid holding costly inventories in stores any longer than necessary. For example, electronics stores require fast delivery of 60” flatpanel plasma HDTV’s to avoid high inventory costs.

- **Decreases Production Cost:** – Manufacturers depend on supply chains to reliably deliver materials to assembly plants to avoid material shortages that would shut down production. For example, an unexpected parts shipment delay that causes an auto assembly plant shutdown can cost \$20,000 per minute and millions of dollars per day in lost wages.

- **Decreases Total Supply Chain Cost:** – Manufacturers and retailers depend on supply chain managers to design networks that meet customer service goals at the least total cost. Efficient supply chains enable a firm to be more competitive in the market place. For example, Dell’s revolutionary computer supply chain approach involved making each computer based on a specific customer order, then shipping the computer directly to the customer. As a result, Dell was able to avoid having large computer inventories sitting in warehouses and retail stores which saved millions of dollars. Also, Dell avoided carrying computer inventories that could become technologically obsolete as computer technology changed rapidly.

Improve Financial Position

- **Increases Profit Leverage:** – Firms value supply chain managers because they help control and reduce supply chain costs. This can result in dramatic increases in firm profits. For instance, U.S. consumers eat 2.7 billion packages of cereal annually, so decreasing U.S. cereal supply chain costs just one cent per cereal box would result in \$13 million dollars saved industry-wide as 13 billion boxes of cereal flowed through the improved supply chain over a five-year period.

- **Decreases Fixed Assets:** – Firms value supply chain managers because they decrease the use of large fixed assets such as plants, warehouses and transportation vehicles in the supply chain. If supply chain experts can redesign the network to properly serve U.S. customers from six warehouses rather than ten, the firm will avoid building four very expensive buildings.

- **Increases Cash Flow:** – Firms value supply chain managers because they speed up product flows to customers. For example, if a firm can make and deliver a product to a customer in 10 days rather than 70 days, it can invoice the customer 60 days sooner.

Lesser known, is how supply chain management also plays a critical role in society. SCM knowledge and capabilities can be used to support medical missions, conduct disaster relief operations, and handle other types of emergencies. Whether dealing with day-to-day product flows or dealing with an unexpected natural disaster, supply chain experts roll up their sleeves and get busy. They diagnose problems, creatively work around disruptions, and figure out how to move essential products to people in need as efficiently as possible.

The impact of benefits, such as those discussed above, are what make SCM important to both the enterprise and consumer.

SCM activities can improve customer service. Effective supply chain management has the ability to ensure customer satisfaction by making certain the necessary products are available at the correct location at the right time. SCM can also increase customer satisfaction by delivering products to consumers on time and providing fast service and support whenever needed. By increasing customer satisfaction levels, enterprises are able to build and improve customer loyalty, making the boost in customer service important for both the customer and business.

SCM also provides a major advantage for companies by decreasing the overall operating costs. SCM activities can reduce purchasing cost, production cost and total supply chain cost. By lessening operating costs, SCM is also able improve a company's financial position. The reduced supply chain costs can greatly increase a business's profits and cash flow. Furthermore, SCM can diminish the use of large fixed assets - - such as warehouses and transportation vehicles -- by allowing supply chain experts to redesign their network in order to properly serve and operate with five warehouses instead of eight, reducing the cost of owning an additional three facilities.

The lesser known importance of SCM can be found in its critical role in society. SCM can help ensure human survival by improving healthcare, protecting humans from climate extremes and sustaining human life. Humans rely on supply chains to deliver necessities like food and water as well as medicines and healthcare. The supply chain is also vital to the delivery of electricity to homes and businesses, providing the energy needed for light, heat, air conditioning and refrigeration.

SCM can also improve the overall quality of life by fostering job creation, providing a foundation for economic growth and improving standards of living. A multitude of job opportunities are opened up since supply chain professionals design and control all of the supply chains in a society as well

as manage inventory control, warehousing, packaging and logistics. Furthermore, one commonality between most poor nations is their lack of a developed supply chain. Societies with strong, developed supply chain infrastructures -- such as large railroad networks, interstate highway systems and an array of airports and modern ports -- can efficiently exchange goods at lower costs, allowing consumers to buy more products, thus providing economic growth and increasing the standard of living in the respective society.

Supply chain complexity

The most basic version of a supply chain includes a company, its suppliers and the customers of that company. The chain could look like this: raw material producer, manufacturer, distributor, retailer and retail customer.

A more complex, or extended, supply chain will likely include a number of suppliers and suppliers' suppliers, a number of customers and customers' customers -- or final customers -- and all the organizations that offer the services required to effectively get products to customers, including third-party logistics providers, financial organizations, supply chain software vendors and marketing research providers. These entities also use services from other providers.

The totality of these organizations, which evokes the metaphor of an interrelated web rather than a linear chain, gives insight into why supply chain management is so complex. That complexity also hints at the types of issues that can arise, from demand management issues, such as a release of a new iPhone that chokes demand for old iPhone cases; to natural supply chain disruptions, such as the halt of transportation in the U.S. in 2015 due to extreme winter weather, or California's drought and its effect on crops; to political upheaval, such as the strikes in India that throttled movement at its largest container port.

The role of supply chain management software

Technology is critical in managing today's supply chains, and ERP vendors offer modules that focus on relevant areas. There are also business software vendors that focus specifically on SCM. A few important areas to note include:

- Supply chain planning software for activities such as demand management.
- Supply chain execution software for activities such as day-to-day manufacturing operations.
- Supply chain visibility software for tasks such as spotting and anticipating risks and proactively managing them.
- Inventory management software for tasks such as tracking and optimizing inventory levels.
- Logistics management software and transportation management systems for activities such as managing the transport of goods, especially across global supply chains.
- Warehouse management systems for activities related to warehouse operations.

- Infor, JDA Software, Oracle and SAP are well-known vendors of supply chain software.

- The increasingly global nature of today's supply chains and the rise of ecommerce, with its focus on nearly instant small deliveries straight to consumers, are posing challenges, particularly in the area of logistics and demand planning. A number of strategies -- such as lean -- and newer approaches - - such as demand-driven material requirements planning -- may prove helpful.

- Technology -- especially big data, predictive analytics, internet of things (IoT) technology, supply chain analytics, robotics and autonomous vehicles -- is also being used to help solve modern challenges, including in the areas of supply chain risk and disruption and supply chain sustainability.

- As just two examples, IoT can help with transparency and traceability to help boost food quality and safety by using sensors to monitor the temperature of perishable food while it's in transit. And analytics can help determine where to put smart lockers in densely populated areas to cut the number of single-item deliveries and lower greenhouse gas emissions.

Societal Roles of SCM

Ensure Human Survival

- **SCM Helps Sustain Human Life:** – Humans depend on supply chains to deliver basic necessities such as food and water. Any breakdown of these delivery pipelines quickly threatens human life. For example, in 2005, Hurricane Katrina flooded New Orleans, LA leaving the residents without a way to get food or clean water. As a result, a massive rescue of the inhabitants had to be made. During the first weekend of the rescue effort, 1.9 million meals and 6.7 million liters of water were delivered.

- **SCM Improves Human Healthcare:** – Humans depend on supply chains to deliver medicines and healthcare. During a medical emergency, supply chain performance can be the difference between life and death. For example, medical rescue helicopters can save lives by quickly transporting accident victims to hospitals for emergency medical treatment. In addition, the medicines and equipment necessary for treatment will be available at the hospital as a result of excellent supply chain execution.

- **SCM Protects Humans from Climate Extremes:** – Humans depend on an energy supply chain to deliver electrical energy to homes and businesses for light, heat,

refrigeration and air conditioning. Logistical failure (a power blackout) can quickly result in a threat to human life. For example, during a massive East Coast ice storm in January 1998, 80,000 miles of electrical power lines fell resulting in no electricity for 3,200,000 Montreal, Quebec residents. Due to extreme cold, 30 died and 25% of all Quebec residents left home to seek heated shelter. In addition, economic costs included \$3 billion in lost business, \$1 billion in home damage and \$1 billion in government expenditures.

Improve Quality of Life

- **Foundation for Economic Growth:** – Societies with a highly developed supply chain infrastructure (modern interstate highway system, vast railroad network, numerous modern ports and airports) are able to exchange many goods between businesses and consumers quickly and at low cost. As a result, the economy grows. In fact, the one thing that most poor nations have in common is no or a very poorly developed supply chain infrastructure.

- **Improves Standard of Living:** – Societies with a highly developed supply chain infrastructure (modern interstate highway system, vast railroad network, numerous modern ports and airports) are able to exchange many goods between businesses and consumers quickly and at low cost. As a result, consumers can afford to buy more products with their income thereby raising the standard of living in the society. For instance, it is estimated that supply chain costs make up 20% of a product's cost in the U.S. but 40% of a product's cost in China. If transport damage is added in, these costs make up 60% of a product's cost in China. The high Chinese supply chain cost is a major impediment to improving the standard of living for Chinese citizens. Consequently, China has embarked on a massive effort to develop its infrastructure.

- **Job Creation:** – Supply chain professionals design and operate all of the supply chains in a society and manage

transportation, warehousing, inventory management, packaging and logistics information. As a result, there are many jobs in the supply chain field. For example, in the U.S., logistics activities represent 9.9% of all dollars spent on goods and services in 2006. This translates into 10,000,000 U.S. logistics jobs.

- **Opportunity to Decrease Pollution:** – Supply chain activities require packaging and product transportation. As a by-product of these activities, some unwanted environmental pollutants such as cardboard waste and carbon dioxide fuel emissions are generated. For example, paper and paperboard accounted for 34% of U.S. landfill waste in 2005. Only 50% of the 84 million tons of paper and paperboard waste were recycled. Also, carbon dioxide emissions from transportation accounted for 33% of total U.S. CO₂ emissions in 2005. As designers of the network, supply chain professionals are in a key position to develop more sustainable processes and methods.

- **Opportunity to Decrease Energy Use:** – Supply chain activities involve both human and product transportation. As a by-product of these activities, scarce energy is depleted. For example, currently transportation accounts for 30% of world energy use and 95% of global oil consumption. As designers of the network, supply chain professionals have the role of developing energy-efficient supply chains that use fewer resources.

Protect Cultural Freedom and Development

- **Defending Human Freedom:** – Citizens of a country depend on military logistics to defend their way of life from those who seek to end it. Military logisticians strategically locate aircraft, ships, tanks, missiles and other weapons in positions that provide maximum security to soldiers and other citizens. Also, superior logistics performance yields military victory. For example, the B-2 Stealth Bomber is able to deliver bombs to target without being detected by enemy radar.

- **Protects Delivery of Necessities:** – Citizens of a country depend on supply chain managers to design and operate food, medicine and water supply chains that protect products from tampering. Sophisticated packaging techniques, state of the art surveillance cameras, global positioning systems and RFID inventory tracking are some of the methods used to deter terrorists from accessing these vital logistics systems.

Objectives Scope of Logistics & SCM Management: -

The primary objective of Logistics management is to move the inventory in a supply chain effectively and efficiently to extend the desired level of customer service at the least cost as done parallel with waste management.

To achieve this, the following subsets of the above broader objective need to be achieved in supply chain management.

Session Objectives

To understand the scope of Supply Chain Management.

To compare different activities of Supply Chain Management.

Session Outline

Functions of Supply Chain Management,

Strategic activities,

Tactical activities,

Operational activities,

Session Summary,

Scope of SCM

monitoring and controlling the activities right from supplier's supplier to customer's customer.

Management of supply chain is equivalent to management of various functions.

Activities carried out in a continuous supply chain environment.

–demand forecasting,

–production planning,

–procuring raw materials for production, manufacturing,

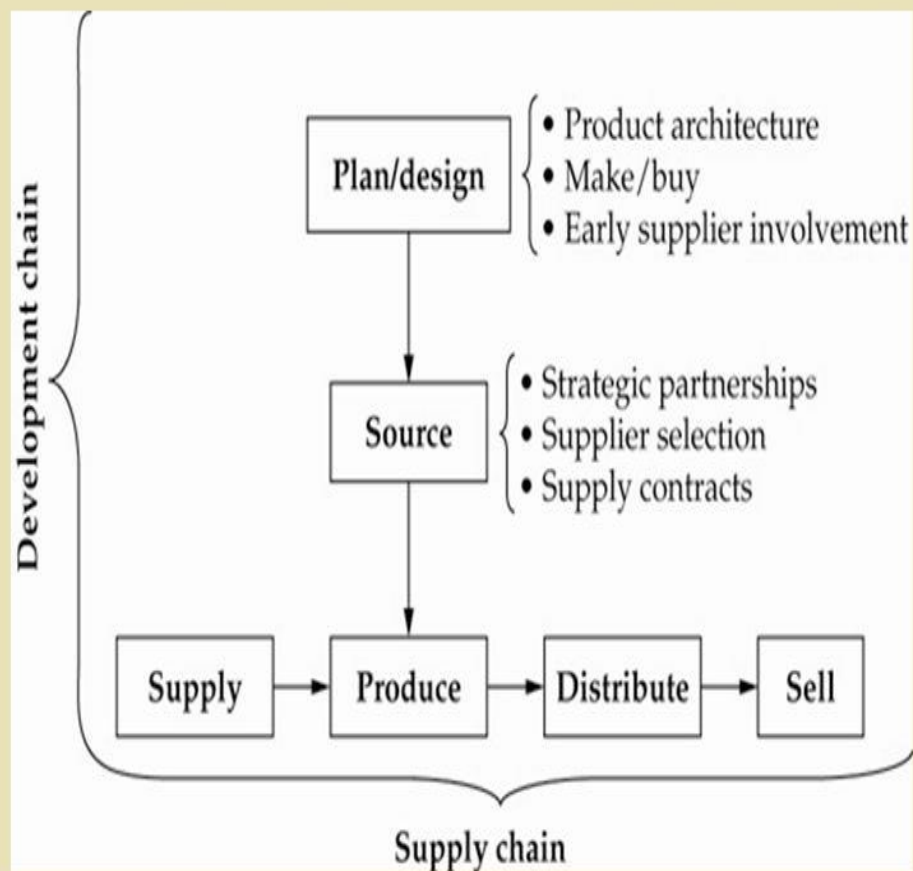
–managing inventory,

–processing input to convert into output and,

–finally arranging smooth distribution of the finished product to the retailers.

SCM in Development chain

Development and Supply Chain



Activities/Functions

- Cross-functional approach-Transformation. •Focus on core and non-core competencies & become more flexible.

- By Outsourcing, reduce the ownership of raw material sources and distribution channels.

- The purpose of supply chain management is to improve trust and collaboration among supply chain partners, thus improving inventory visibility and improving inventory velocity.

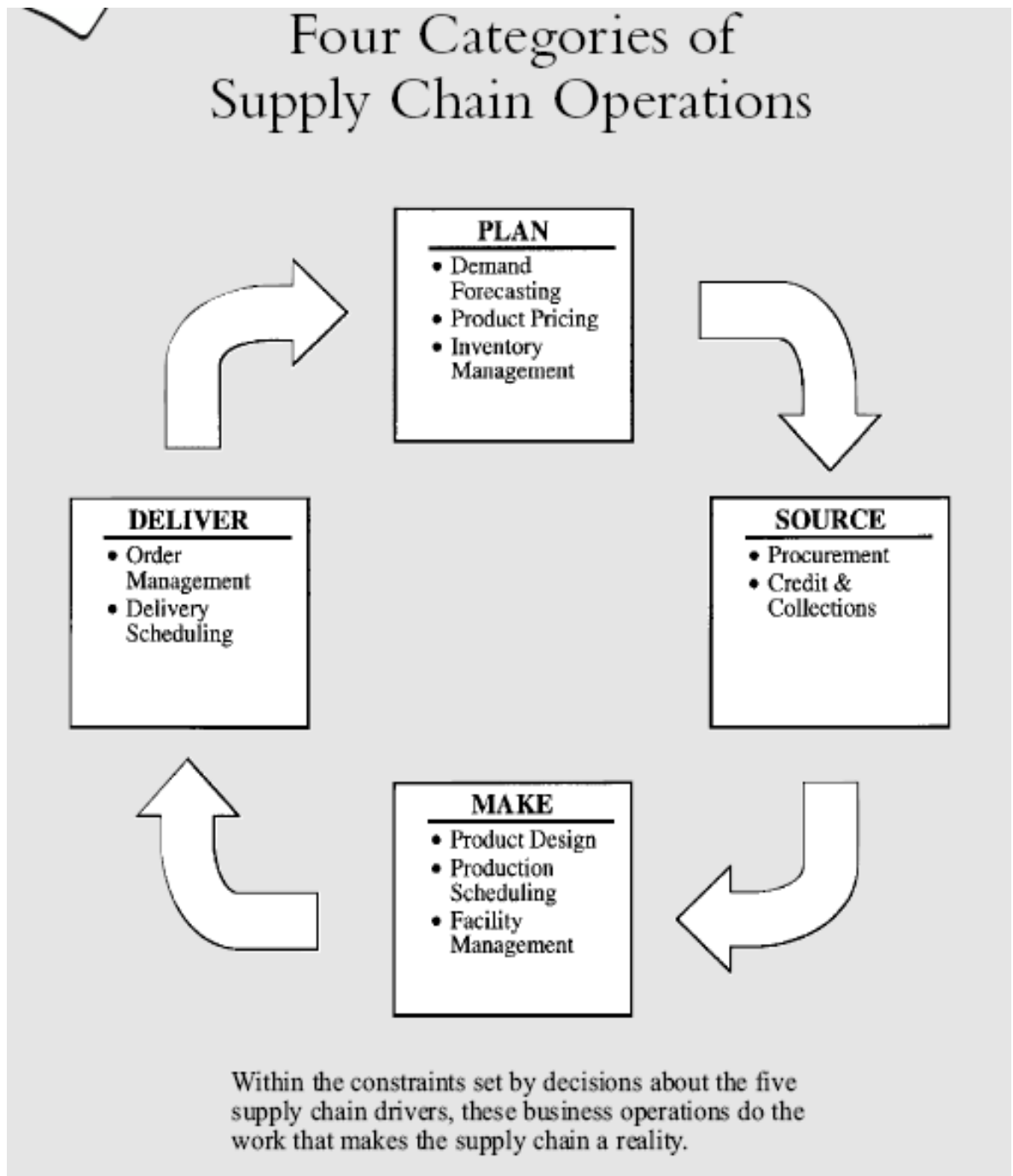
- Supply chain management is a cross-functional approach to manage the movement of raw materials into an organization and the movement of finished goods out of the organization toward the end-consumer. As corporations strive to focus on core competencies and become more flexible, they have reduced their ownership of raw materials sources and distribution channels. These functions are increasingly being outsourced to other corporations that can perform the activities better or more cost effectively.

- Several models have been proposed for understanding the activities required to manage material movements across organizational and functional boundaries. SCOR is a supply chain management model promoted by the Supply-Chain

Management Council. Another model is the SCM Model proposed by the Global Supply Chain Forum (GSCF). Supply chain activities can be grouped into strategic, tactical, and operational levels of activities.

SCOR Framework

There are four categories of Supply Chain Operations,



Inbound Supply Management

- It is a process by which companies acquire raw material, parts, components, products and services from various suppliers in order to carry out their operations.

- It involves procurement and inbound logistics (Transportation, receipt, taking into stock, storing, issue from store, internal transport).

- Scope includes supplier selection, supplier contracts, product design collaborations, and procurement & performance evaluation of suppliers.

Inward Supply Management

•Inward supply chain can contribute to profit in following ways:

- Combining orders to get economy of scale.
- Reduction of purchase cost by efficient transactions.
- Better forecasting & planning.
- Reduction of Inventories.
- Distribution of risk by better co-ordination.

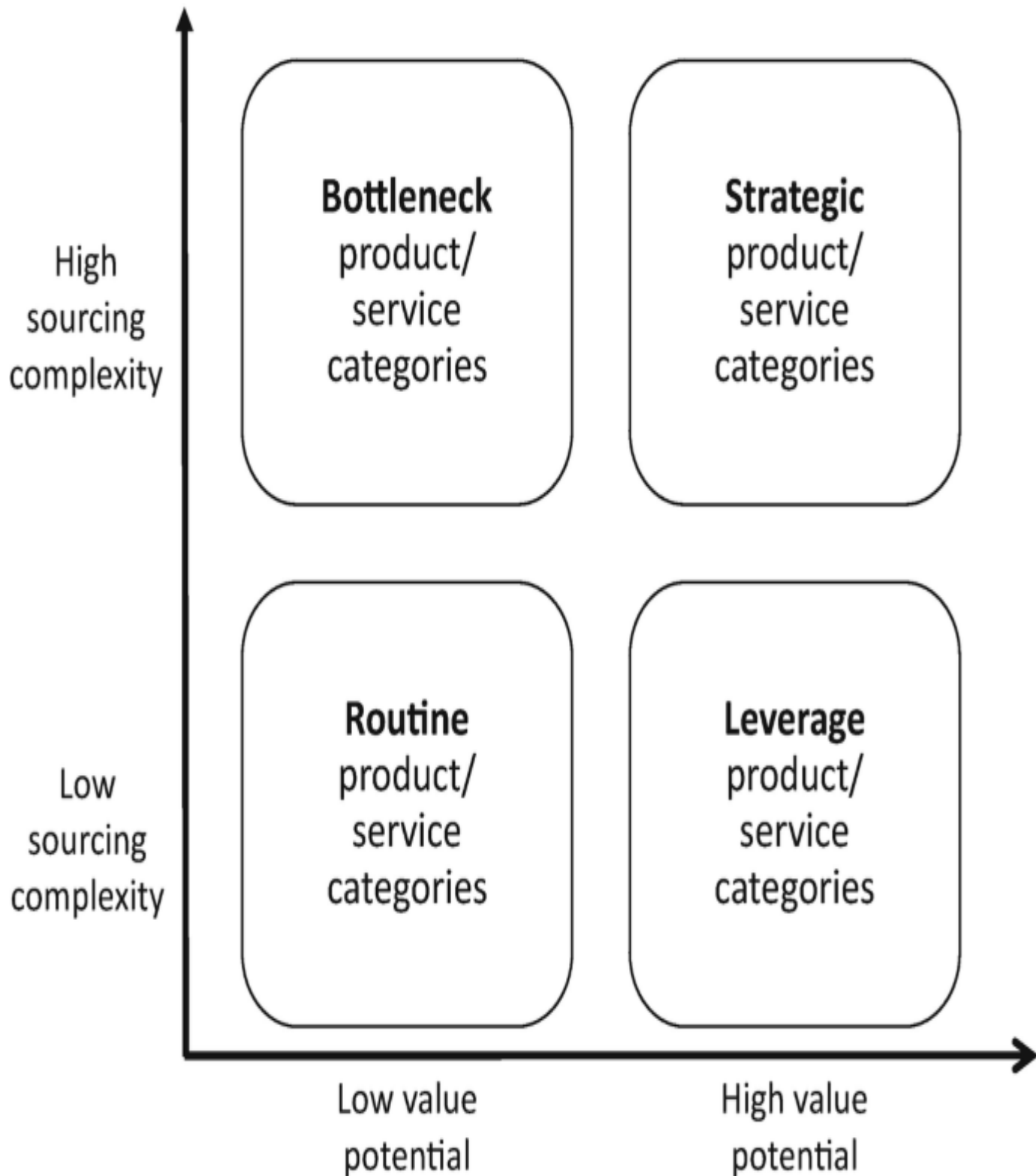
Suppliers are assessed keeping mainly following criteria:

- Replenishment lead time,
- Delivery performance,
- Supply flexibility,
- Supply quality,
- Delivery frequency,
- Transportation costs,
- Pricing,
- Product design capability,
- Supplier viability,

Inward Supply Management Supply Contracts:

- Address issues that arise between a buyer and supplier.
- Buyer and Supplier may agree on:
 - Pricing and volume discounts,
 - Minimum and Maximum purchase quantities,
 - Delivery Lead times,
 - Product or material quantity,
 - Product return policies,
 - Revenue sharing.

Inward Supply Management



Product Design collaboration

- Product costs can be lowered if Manufacturer collaborates with the suppliers during design stage.
- Collaboration helps in developing varieties, order size, packing, customization etc.
- Design for logistics attempts to reduce transportation, handling inventory, stock points etc.

Outbound supply Management

- Outward supply Management includes what products to produce, which plants should produce, allocation of suppliers to plant, logistics from plants to distribution centres, warehouses and to customers.
- All these have impact on revenue, cost and service level to customer.
- Operations include production scheduling, scheduling of machines, work load balancing etc
- Capacity and facilities are presumed to be available.

Material Handling in Supply chain

•It includes movement of parts, handling and storage during full supply chain

•It includes:

•Unloading goods at inward stores,

•Loading onto internal transport,

•Movement for storing,

•Movement from store to place of use,

•Movement between work stations,

•Movement to and from finished stores,

•Movement to and from dispatch department,

•Loading on to external transport,

Decision phases in supply chain

- Strategic
- Tactical/Planning
- Operational

Strategic

- Strategic network optimisation, including the number, location, and size of warehouses, distribution centres and facilities.

- Strategic partnership with suppliers, distributors, and customers, creating communication channels for critical information and operational improvements such as cross docking, direct shipping, and third-party logistics.

- Long term (next several years) horizon.

- Product design coordination, so that new and existing products can be optimally integrated into the supply chain, load management.

- Information Technology infrastructure, to support supply chain operations.
- Where to make and what to make or buy decisions.
- Align Overall Organisational Strategy with supply strategy.

Tactical

- Sourcing contracts and other purchasing decisions.
- Production decisions, including contracting, locations, scheduling, and planning process definition.
- Inventory decisions, including quantity, location, size of warehouse and quality of inventory.
- Transportation strategy, including frequency, routes, and contracting.
- Benchmarking of all operations against competitors and implementation of best practices throughout the enterprise.

- Typically quarter to a year time horizon.

Operational

- Daily or weekly production and distribution planning, including all nodes in the supply chain.
- Production scheduling for each manufacturing facility in the supply chain (minute by minute).
- Demand planning and forecasting, coordinating the demand forecast of all customers and sharing The forecast with all suppliers.
- Sourcing planning, including current inventory and forecast demand, in collaboration with all suppliers. •Inbound operations, including transportation from suppliers and receiving inventory.
- Production operations, including the consumption of materials and flow of finished goods. •Outbound operations, including all fulfilment activities and transportation to customers.

- Order promising, accounting for all constraints in the supply chain, including all suppliers, manufacturing facilities. Distribution centres, and other customers.

- Performance tracking of all activities.

Risk in supply chain

- Known

- Unknown

- Controllable

- Not controllable

- Natural disasters

- Political risks

- Epidemics

- Terrorist attacks

- Volatile fuel price
- Currency fluctuation
- Port delays
- Market changes
- Supplier performance-Delivery, quality
- Forecasting accuracy
- Execution problems

Managing risk in supply chain

- Invest in redundancy
- Increase velocity in sensing and responding
- Create an adaptive supply chain community Or resilient supply chain

- Speculative strategies
- Hedge strategies
- Flexible strategies

GIST: -

A supply chain is the network of individuals, companies, resources, activities, and technologies used to make and sell a product or service. A supply chain starts with the delivery of raw materials from a supplier to a manufacturer and ends with the delivery of the finished product or service to the end consumer.



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End of Project Report