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Sustainable Human Resource Development in logistics services for ASEAN Member States

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Sustainable Human Resource Development in logistics services for ASEAN Member States

Logistics Planning & Analysis

Chapter 2

Logistics Network



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Objectives

- Understand what logistics network is.
- Examine the factors involved in designing a logistics network.
- Examine the factors in determining the location of facilities.
- Understand the factors in determining the optimal number of DCs.



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Introduction

- Logistics network is concerned with the determination of the location and number of warehouses and production plants, location and number of customer demand points to warehouses.
- A logistics network design initiative typically covers three elements - the inbound and internal supply chain, outbound logistics, and reverse logistics.



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Logistics Network

- A logistics network is a system which is made up of a set of facilities linked by transportation services.
- Facilities are sites where materials are processed, e.g. manufactured, stored, sorted, sold or consumed.
- These include manufacturing and assembly centres, warehouses, distribution centres, trans-shipment points, transportation terminals, retail outlets and others.
- It seeks to minimize logistics cost while offering the right level of flexibility to meet service level requirements.



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Designing Logistics Network

- 2 major steps:
 - Key Issues
 - Strategic
 - Cost
 - Location
 - Information Requirements

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Designing Logistics Network

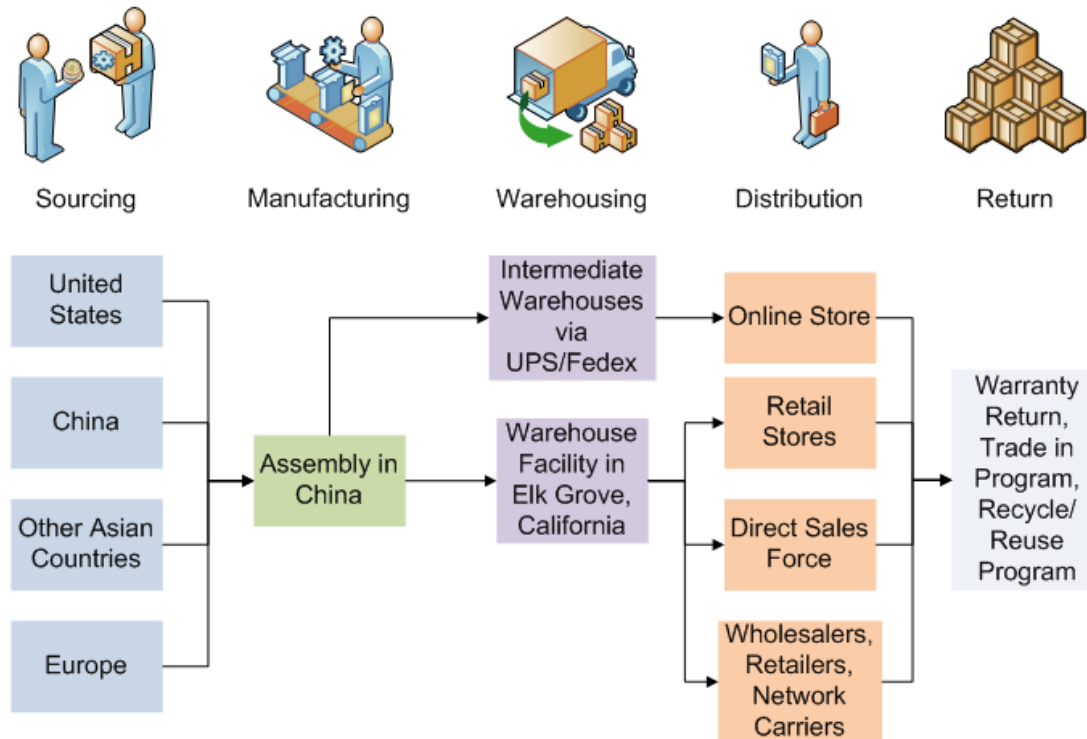


Figure 2-1: Logistics Network



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Distribution Costs

- Collection and storage of raw materials.
- Collection and storage of components from sub-contractors.
- Finished goods storage at the factory.
- Dispatch center costs at the factory.
- Transport to the DC.
- DC handling and inventory costs.
- Inter-DC transfer costs.
- DC dispatch costs (often part of sales cost).



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Distribution Costs

- DC to customer transport costs (often part of sales cost).
- Administration and documentation costs at each of the above cost centers.



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Total Distribution Costs

- Total distribution costs are the aggregate of the following costs:
 - In-plant movement and storage.
 - Plant-to-DC transport.
 - DC operating costs.
 - DC inventory costs.
 - DC-to customer costs.



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Location

- In particular, location decisions are often made when new products or services are launched, or outdated products are withdrawn from the market.
- The selection of the site of the facility will be the final stage of a sequence of decisions which begins with the selection of an appropriate region, then involves the selection of an appropriate area in that region, etc.



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Location

- Steps in choosing the exact location of facility:
 - Region
 - Area
 - Community
 - Site



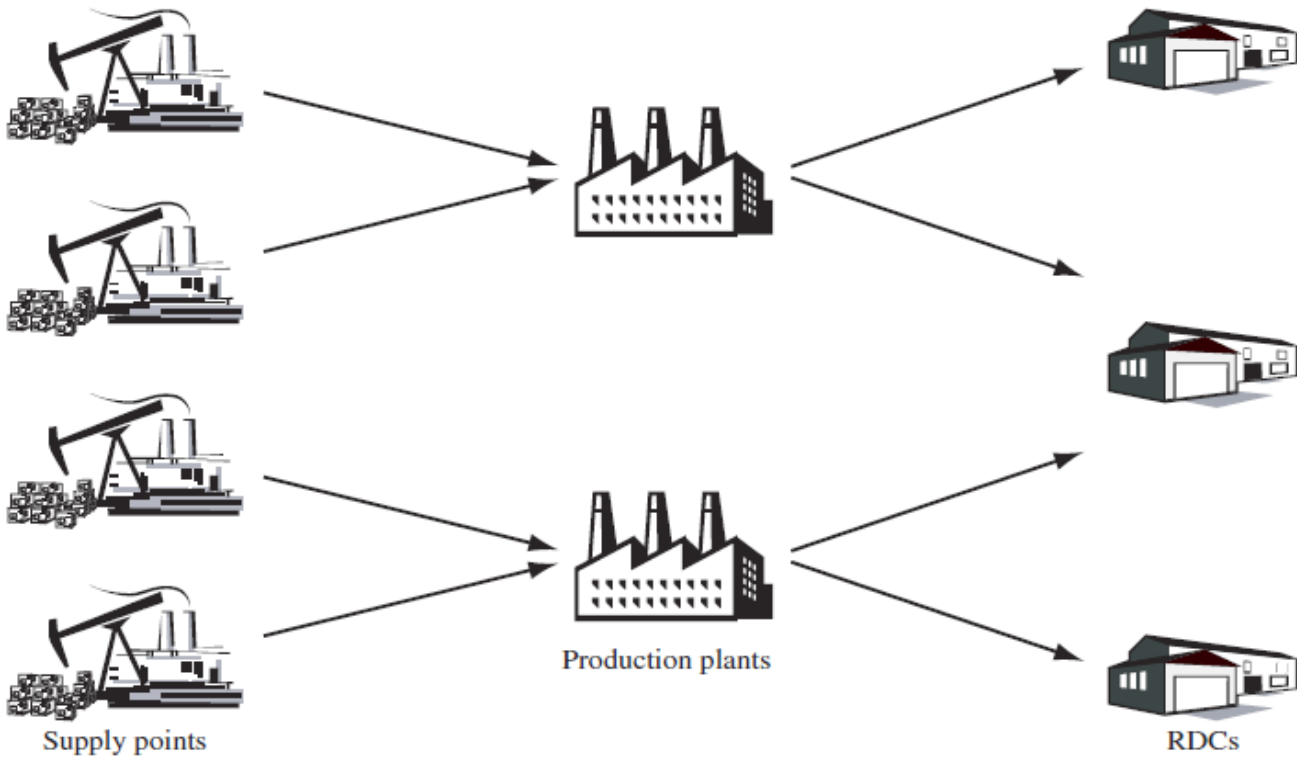
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Location Decisions May Be Strategic or Tactical

- Locations of facilities are places where there are:
 - Demand for goods.
 - Potential pool of employees.
 - Infrastructure such as transport network eg roads, trains and ports.
 - Utilities eg water, electricity.
 - Accessibility to resources eg raw materials.

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Location decisions May Affect Demand



Opening a new RDC may lead to the acquisition of customers who previously could not be served at a satisfactory level of service because they lived too far away.

Figure 2-2: Multi-DC Network



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Number of DCs

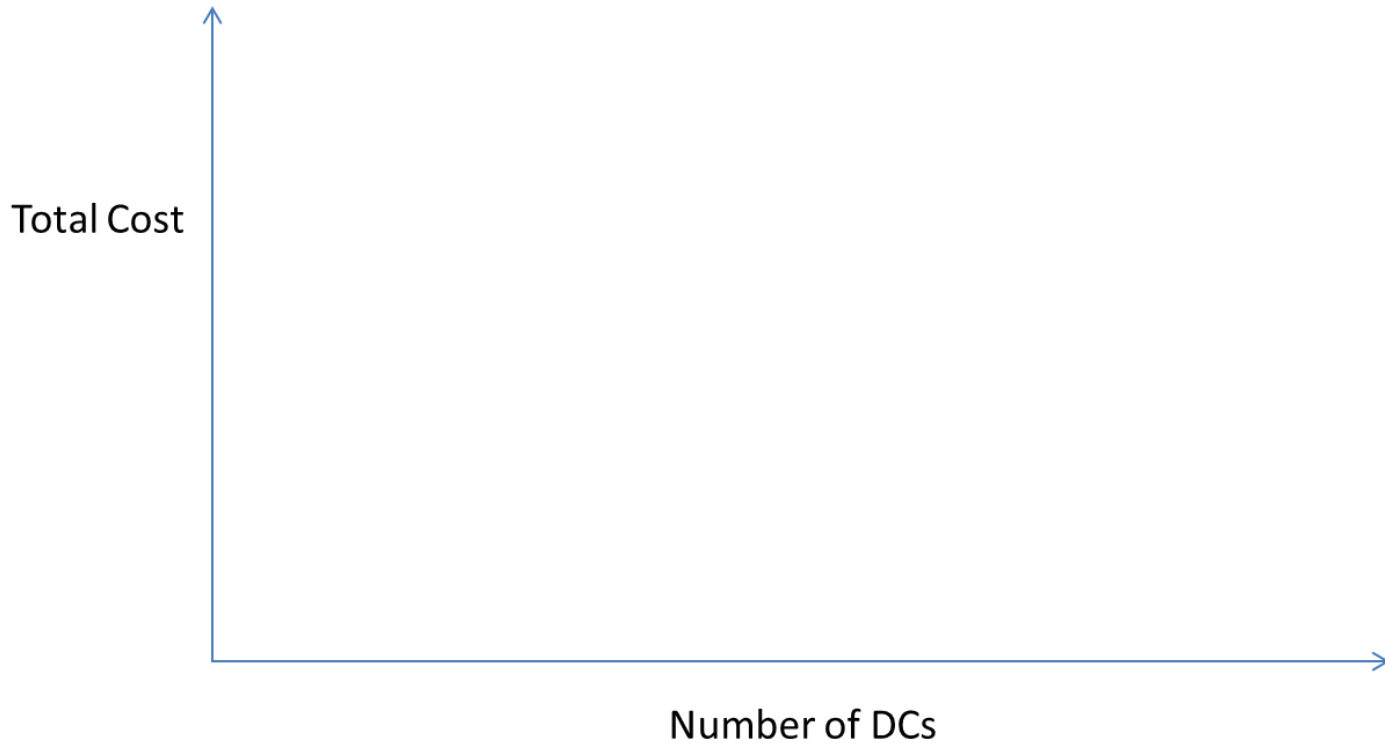


Figure 2-3: Optimal Number of DCs



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Conclusion

- Logistics network which is a system which interconnects all the facilities via transportation.
- The network is also linked by the physical movement of inventory and information flow.