

Logistics 244

Student**Summaries**

Chapter 6: Producing Goods and Services

Operations focus on the make/build of the supply chain involving the production of goods and services to fulfil customer requirements. Production involves transformation of inputs into outputs that customers demand.

In the execution of these processes, production facilities must interact with supply chain functions.

- Manufacturers and service providers need ready access to inventories of key inputs from their suppliers.
- There is a critical link between supply management, inventory, inbound transportation and production operation.
- Operations create the outputs that are distributed through supply chain networks.
- Production schedules must be coordinated with delivery schedules and transportation methods to ensure that inventory is received when promised.

All activities in the purchase, production, and delivery of goods and services need to be synchronised to ensure consistent, efficient product and service flows.

The focus is on balancing flexibility and responsiveness with efficiency during the transformation process as well as the critical links between production processes and other supply chain activities.

The Role of Production Operations in Supply Chain Management (SCM)

Manufacturing and service production supplies an economic utility called form utility. Effective production operations are supported by, and support, the supply chain simultaneously.

Production Process Functionality

The production process uses resources such as facilities, equipment, knowledge, labour and capital to support the transformation of inputs into outputs. The basic principles apply to all production processes, but no two processes are the same. Process functionality helps the success of an organisation.

Assemble-to-order (ATO) methods tend to be more complex, be more labour intensive, and require longer processing time than the mass-production-orientated, make-to-stock (MTS) approaches.

SCOR Model Level 1 Process

SCOR represents the Supply Chain Operations Reference Model. This model describes your process architecture in a way that makes sense to key business partners.

SCOR is organised around 5 primary management processes (PSMDR). The five characteristics management processes link seamlessly from supplier to client.

Chapter 10: Distribution – Managing Fulfilment Operations

In the past, distribution was focused on long-term storage of inventory in static warehouses. Today, the focus is on a continuous flow of products. The aim of distribution operations is to fulfil customer requirements at the lowest cost, serve the supply chain quickly, accurately and cost effectively.

The Role of Distribution Operations in SCM

In a perfect world, supply and demand is balanced, products are assembled when needed and delivered directly to the point of use.

In the real world, production and consumption are not synchronized, individual unit transport is very costly, and there are a large number of origin/destination points.

To overcome these issues, distributions operations are established within supply chains and they create form utilities (place, time, quality, etc.).

The main roles of distribution operations are:

- Balancing supply and demand
- Protecting against uncertainty
- Allowing quantity purchase discounts
- Supporting production requirements
- Fulfilling omni-channel demand
- Promoting transportation economies

Distribution Facility Functionality

Distribution facilities can provide a wide range of services. In traditional distribution operations, four primary functions are carried out:

→ Accumulation

Accumulation involves the receipts of goods from a variety of sources. Distribution centers (DCs) serve as a collection point for products coming from multiple origins. They provide transfer storage or processing services. DCs allow organisations to consolidate orders and shipments, and this results in fewer deliveries to be scheduled and managed (also saving on transportation costs).

→ Sortation

Sorting refers to separating similar products together for storage and delivery to customers. DCs segment goods on arrival according to key characteristics. Proper sortation is essential for the effective management of inventory and fulfilment of customer orders.

→ Allocation

Allocation refers to matching available inventory to customer orders. The DCs compare orders to inventory levels, and available units are then retrieved from storage according to the quantity requested. This promotes product availability for multiple customers and reduces undesired excess volume.

Chapter 11: Transportation – Managing the Flow of the Supply Chain

Transportation involves the movement of people and goods between origin and destination points. Transportation facilitates the creation of place and time utility in the supply chain.

From a personal point of view, it surrounds us on a daily basis. From a business point of view, it links geographically separated partners and facilities in a company's supply chain. Transport is one of the most visible functional areas of SCM and one of the most expensive (57% of total logistics expenditure in SA in 2014).

The Role of Transportation in Supply Chain Management

A supply chain is a network of organisations separated by distance and time. Transportation provides the critical links between these organisations, permitting goods to flow between their facilities. It also extends the reach of supply chains.

Transportation service availability is critical to demand fulfilment in the supply chain. The need for transport is derived from customer demand for products and services, so providers of transport need to match their capacity (supply) to demand.

Transportation efficiency promotes supply chain competitiveness – it allows products to be competitive in multiple markets. Transportation service capabilities must also be aligned with customer demand, as they have a direct impact on the 7 Rs.

Transportation also influences facility location, company goals, trade-offs between transportation and related activities. Transportation must play a key role in supply chain design, strategy development, and total cost management. It cannot be just an afterthought to production and marketing.

Role Inhibitors

Transportation roles cannot always easily be fulfilled. There are numerous issues – supply chain complexity, competing goals among supply chain partners, changing customer requirements, and limited information availability – that inhibit the synchronization of transportation with other supply chain activities.

There are 5 specific, major, external issues that must be addressed by the organisation:

- Offshore Manufacturing
 - The reliance on global supply chains that extend between countries leads to greater expenses, longer transit times, and higher risk of supply chain disruptions.
 - Responses to this include holding higher levels of inventory and shifting manufacturing operations closer to markets.
- Changing Customer requirements
 - Growing demand for smaller, more frequent deliveries limits the opportunities to move product in economical container load quantities.

Vehicle Costing and Fleet Management

Vehicle costing is the process of identifying, calculating and recording every item of expenditure incurred in the purchase, hire, maintenance and operation of vehicles (i.e. total operating cost).

Vehicle costing provides essential information for management and helps guides decision-making. Decision making under competitive circumstances requires factual information – vehicle costing provides this basis.

Costing VS Accounting

Accounting is done from a historical point of view and takes place after the events have occurred. Costing systems aim to show how much each part of an operation costs and how much it will cost to carry out each specific transport job (prior to the actual event).

Individual Vehicle Costing

There are 3 main reasons for vehicle costing:

- To critically examine expenses against revenue, when increasing operating costs.
- To justify financial performance.
 - Capital loans from banks
 - Expansion of business
 - Vehicle and equipment replacement
 - Authorization for capital expenditure from boards of directors
- To provide valid reasons for rate increases.

There are a variety of questions to be asked to transport firms which require carefully formulated answers. Some of these questions can include:

- What is your basis for operating cost calculations?
- What is your annual mileage?
- What is your forecast for future business development?

Costing System

A costing system is a system for budgeting anticipated costs in advance and monitoring actual costs later. The requirements of a costing system are:

- Take account of all costs
- Be kept up to date
- Correctly interpreted
- Studied and reviewed

Standard and Actual Costs

Standard costs refer to the estimated cost of an operation, calculated before doing a job or buying a new vehicle. Historical costs refer to actual costs observed after a haulage job has been completed or when a vehicle has been in operation for a