Secondary Course

258 - LOGISTICS AND SUPPLY CHAIN MANAGEMENT

Book-2

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A Word with You

Dear Learners,

It gives me immense happiness to hand over a relevant course like "Logistics and Supply Chain Management" as per need and requirement in the present scenario of the global efficient communication networks of the business world.

The National Institute of Open Schooling (NIOS) has taken a path-breaking initiative by introducing a formal mainstream course on **"Logistics and Supply Chain Management"** for learners at the secondary level. Certainly the course will ensure that the idea of education and learning is not bereft of practical and professional exposure and experiences. The course structure will maintain a diversified mix of concepts, theories, and practical exercises to equip learners with useful skills.

The outbreak of the Pandemic has made it imperative to imbibe learners 'potential in managing skills to establish coordination between manpower and materials with changing dimensional and directional technical advancement in the 21st century. I must assure you that the course which consists of 5 Modules and 24 Chapters will serve as a platform to apply your acquired professional skills and efficiencies in the development of the 'Logistics & Supply Chain Management' network in the competitive global era of consumerism.

This course has five modules, namely Introduction to Logistics, Basics of Logistics Concepts-Its Sub- Sectors, Introduction -Supply Chain Management, Physical Supply. Each lesson has been designed keeping in view the requirements of self-motivated learners like you through Open and Distance Mode. It has a text written in simple language, supplemented by pictures/ figures to make it clear at a glance. All these will include In text Questions which will appear after every section of the lesson. They will normally be very short answer type questions consisting of objective type,true and false, fill in the blanks and Multiple Choice Questions which will help you to understand the extent to which you have learnt the section. You will find the key to these questions at the end of the lesson. If you are able to answer the questions, you can proceed further. Otherwise, you should learn the section again.

I hope you will find the lessons interesting and will be able to apply your knowledge in real-life situations. So, read all these lessons carefully and prepare well for the examinations. You ultimately have to enter the field of Internship and work and your success at the place of work will depend on how skillfully you have performed your assigned job. It is expected that project work will help you in developing the skills to understand the various aspects of Logistics and Supply Chain Management and make it a meaningful experience in your life.

To Sum up, I would like to suggest you avail the progressive opportunities provided by NIOS(An Autonomous Body of the Ministry of Education) at school-level education which will give you to give direction to pursue higher education and be a specialized professional. Nowadays the school education system is passing through a phase of transition. With the introduction of the National Education Policy 2020, to meet the expectations of a global economic era in the present context, The policy has envisaged nurturing a paradigm shift by inculcating skill-based learning materials in school education.

Any comments and suggestions will be welcome. I wish you success in your studies, career and life. Supply Chain Management and External Drivers of Change

NIOS Course Team

How to use the Study Material

Congratulations! You have accepted the challenge to be a self-learner. It means, you have to organize your study, learn regularly, keep up your motivation and achieve your goal. Here it is solely you, who is responsible for your learning. NIOS is with you at every step. It has developed the material in Logistics and Supply Chain Management keeping only you in mind. A format supporting independent learning has been followed. You can take the best out of this material if you follow the instructions given below.

Title: The title of the lesson will give a clear indication of the contents within. Do read it.

Introduction: This will introduce you to the lesson and also link it to the previous one.

Objectives: These are statements of outcomes of learning expected from you after studying the lesson. You are expected to achieve them. Do read them and check if you have achieved the same.

Content: Total content has been divided into sections and sub-sections. A section leads you from one content element to another and a sub-section helps you in comprehension of the concepts in the content element. The text in bold, Italics or boxes is important and must be given attention.

Intext Questions: Objective types self-check questions are asked after every section, the answers to which are given at the end of the lesson. These will help you to check your progress. Do solve them. Successful completion will allow you to decide whether to proceed further or go back and learn the unit again.

Notes: Each page carries empty space on the outer margins for you to write important points or make notes.

What You Have Learnt: It is the summary of the main points of the lesson. It will help in recapitulation and revision. You are welcome to add your own points to it also.

Terminal Questions: These are questions answered that provide you an opportunity to practice for better understanding of the whole topic.

Answers to Intext Questions: These will help you to know how correctly you have answered the Intext questions.

Activity: Activities, if done by you, will help you to understand the concept clearly.

Key Terms: The important terms used in the lesson are highlighted in this section. Do remember these terms.

Do and Learn: In this section certain activities have been suggested for better understanding of the concept.

QR Code: A quick response (QR) code is given in every lesson which is a type of barcode that stores information and can be read by a digital device, such as a cell phone.

Audio: For understanding difficult or abstract concepts, audio programmes are available on certain content areas. You may listen to these on Mukt Vidya Vani, Community Radio FM-91.2 or on YouTube channel "niosradiovahini".

Video: Video programmes on certain elements related to your subject have been made to clarify certain concepts.

You may watch these at NIOS live YouTube channel and also see live programs on PM e-vidya.

Overview of The Learning Material

Module Lesson Name of the Lesson Mode of Assignment No. TMA	Lesson No.	Name of the Lesson	Mode of Assignment TMA/PE	
Module 1 :	1	Logistics Management : An Introduction	TMA	
Introduction to Logistics	2	Logistics Functions		PE
	3	Importance of Logistics	TMA	
	4	Logistics—A System & Concept of Business		PE
	5	Technology in Logistics Management		PE
Module 2 :	6	Logistics Management - Its Sub-Sector		PE
Basics of	7	Logistics—Efficient Transportation System	TMA	
Logistics Concepts-	8	Logistics—Courier / Express Services		PE
Its Sub-Sectors	9	Logistics—E-Commerce: Business Expansion	TMA	
	10	EXIM-Freight Forwarding, Custom Clearance and Cold Chain		PE
	11	Liquid Logistics and Rail Logistics		PE
Module 3 :	12	Supply Chain Management : An Introduction	TMA	
Introduction-	13	Importance of Supply Chain Management		PE
Supply Chain Management	14	Activities of Supply Chain Management	TMA	
	15	Barriers to Supply Chain Management		PE
Module 4	16	Supply Chain Business Process		PE
Physical Supply	17	Distribution and Planning Strategy		PE
	18	Warehousing Operation Management	TMA	
	19	Transportation Management		PE
	20	Inventory Management	TMA	
Module 5	21	Components of Supply Chain Management		PE
Supply Chain Management	22	Distribution Strategy	TMA	
and	23	Choice of Market	TMA	
External Drivers of Change	24	Consignment Note		PE

Bifurcation of Syllabus in Logistics & Supply Chain Management for Secondary Class

S. No. Of Modules	Total No. Lessons - 24	
	TMA (40%) (No. of Lessons 10)	Public Examination (60%) (No. of Lessons 14)
Module 1 : Introduction to Logistics	L-1 Logistics : An Introduction L-3 Importance of Logistics	L- 2 Logistics Functions L- 4 Logistics - A System & Concept of Business L- 5 Technology in Logistics Management
Module 2 : Basics of Logistics Concepts- Its Sub-Sectors	L- 7 Logistics - Efficient transportation system L- 9 Logistics—E-Commerce in Business Expansion	L- 6 Logistic Management - Its Sub – Sector L-8 Logistics-Courier / Express Services L- 10 EXIM- Freight Forwarding, Custom Clearance and Cold Chain L- 11 Liquid Logistics and Rail Logistics
Module 3 : Introduction - Supply Chain Management	L- 12 Supply Chain Management : An Introduction l-14 Activities of Supply Chain Management	L- 13 Importance of Supply Chain Management L- 15 Barriers to Supply Chain Management
Module 4: Physical Supply	L-18 Warehousing Operation Management L- 20 Inventory Management	L-16 Supply Chain : Business Process L-17 Distribution and Planning Strategy L-19 Transportation Management
Module 5 Supply Chain Management and External Drivers of Change	L- 22 Distribution Strategy L- 24 Consignment Note	L- 21 Components of Supply Chain Management L-23 Choice of Market

Contents

12

SUPPLY CHAIN MANAGEMENT : AN INTRODUCTION

After liberalisation in 1991, the Indian government opened the door for multinational corporations to do business in India and for Indian companies to enter into foreign markets. The global business environment faces fierce competition today. Every organisation wants to create a unique sustainable competitive advantage. Historically, the concept of logistics has evolved through three phases. Firstly, Logistics was considered only as the study of transportation handling and motion of Goods from one place to another. Secondly, it was more like a coordinated process in different areas like purchase, manufacturing, storing, distribution and disposal. Thirdly, the combination of the above two areas of operations is comprehensively referred to as Supply Chain Management.

OUTCOMES

After completing this lesson, the learner will be able to

- summarizes the concept of supply chain management in the context of global business environment ;
- compiles the basic elements of supply chain management;
- examines the nature and scope of supply chain management;
- evaluates how the supply chain works to deliver goods;
- lists out the major goals of supply chain management.
- Compares between supply chain management and logistic management;
- Analyses the benefits of supply chain management for the growth of the business environment.

12.1 MEANING OF SUPPLY CHAIN

A supply chain entity consists of suppliers, producers, wholesalers, retailers, distributors, and end-users (customers) as shown in diagram 12.1. The manufacturers purchase raw materials from their network suppliers. They convert the un-processed materials into semi-finished and finished products for their customers. The wholesalers or distributors buy large quantities of products and sell them to customers. The wholesalers/ distributors act as middlemen between the manufacturer and customers. This chain process is not only the movement of materials from one starting point to another endpoint, it is also the movement of money as well as information in both directions that are upstream and downstream of the supply chain.

Fig.12.1: Understanding Supply Chain

In other words, Supply Chain is a comprehensive word that covers various activities from the movement of goods ending with distribution to final users.

1. It begins with purchasing raw materials and ends with the consumers using the finished products.

2. Flow money, material, and information exchange in the Process from acquisition of raw materials to the end of finished products to the final user. All suppliers, service providers, and consumers are linked in the supply chain.

12.2 SUPPLY CHAIN MANAGEMENT - DEFINITION

Supply chain management is connected with management functions. Management functions like planning, organising, staffing, leading, and controlling. Supply Chain Management is the network of interconnected business activities. The various parties involved like suppliers, manufacturers, wholesalers, distributors, retailers, transporters, and customers. The end users' (customers) requirements are fulfilled with the support of the above-mentioned parties.

For example;

The supply chain begins when a need arises from the customer. He wants to buy a detergent cake (Ex: Surf Excel cake. It has been supplied by a distributor. The distributor stocked the inventory of detergent cake from the manufacturer of HUL. HUL manufacturing plant receives raw material from different suppliers for making a detergent cake. For example, chemical manufacturers, plastic producers, and packing materials are the key suppliers of HUL for producing the detergent cake.

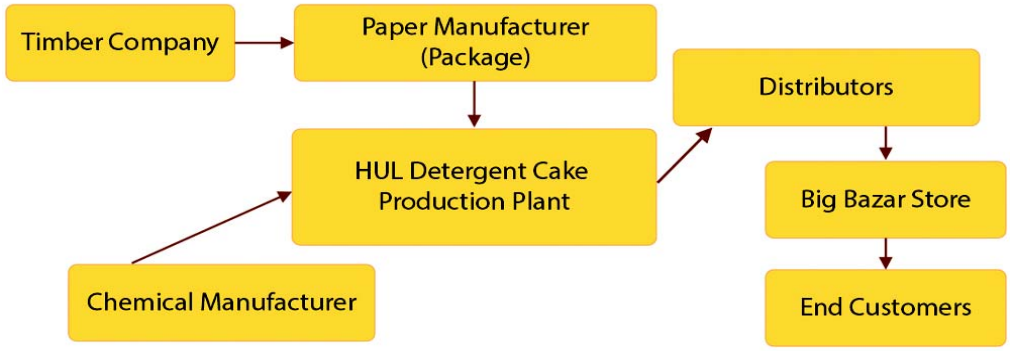


Fig.12.2: Stages of a Detergent Supply Chain

So that the product is available at the Right Time, at the Right Price, in the Right Quality & Right Quantity, and at the Right Place to the Right Customers.

INTEXT QUESTIONS 12.1

1. The sequence of a typical manufacturing supply chain is _____

   (a) Storage–Supplier–manufacturing–storage–distributor–retailer–customer

   (b) Supplier–Storage-manufacturing–storage–distributor–retailer–customer

   (c) Supplier–Storage-manufacturing– distributor–storage–retailer–customer

   (d) Supplier–Storage-manufacturing–storage– retailer–distributor-customer

2. An organisation's supply chain can be viewed from a system's perspective that starts with the acquisition of resources which are then transformed into products or services. Simply, Identify the sequence given below

   a) Inputs - process – outputs

   b) Inputs - outputs - process

c) Process - inputs – outputs

d) sourcing - input - process – output

3. The supply chain management philosophy emerged in which decade?

(a) 1960s

(b) 1970s

(c) 1980s

(d) 1990s

12.3 ELEMENTS OF SUPPLY CHAIN

There are four major elements in the supply chain such as

- Supply Chain Integration
- Supply Chain Operations
- Purchasing Process
- Distribution

Let's see all in detail below:

Fig.12.3: Elements of Supply Chain

• Supply Chain Integration

Fig.12.4: Supply Chain Integration

The supply chain can't function in an isolated manner. The key success of supply chain management is integrating with all supply chain members. It is a core element of the supply chain. Supply Chain Integration starts with strategic planning and better coordination and communication among the supply chain members to produce better results on time.

• Supply Chain Operations

Supply chain operations is an everyday basis of work such as planning, forecasting, sourcing, scheduling, manufacturing, inventory handling, storing, and distributing for the well running of the firm.

Fig.12.5: Supply Chain Operations

• Purchasing Process

The purchasing process is another key element in the supply chain. It is to identify the right sources of suppliers for procuring the raw materials. It also creates a long-term relationship with potential suppliers to procure the bulk quantity of materials in standard quality within the budget.

• Distribution

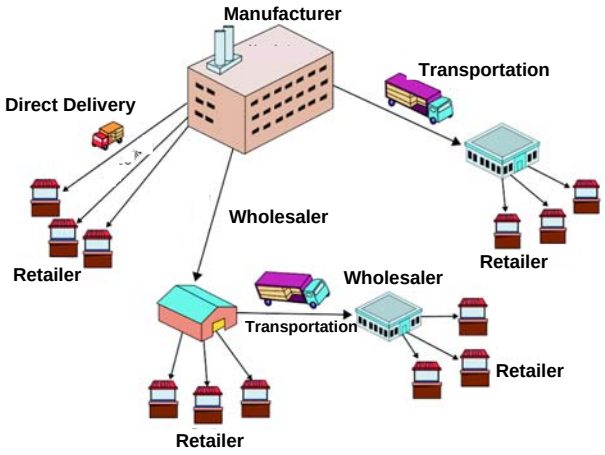


Fig.12.6: Distribution

Physical distribution is the delivery of products to customers on time. Distribution requires proper planning and coordination between the customers, retailers, wholesalers and transporters for delivering the final goods to customers at the right time with the lowest operational cost.

INTEXT QUESTIONS 12.2

1. Which of the following are not key attributes of supply chain management?

   (a) Inventory control

   (b) Leveraging technology

   (c) Customer power

   (d) Operation Cost

2. Which of the following is not a part of the supply chain management system?

   (a) Supplier

   (b) manufacturer

   (c) Information flow

   (d) competitor

12.4 SCOPE OF SUPPLY CHAIN MANAGEMENT

Fig.12.7: Scope of SCM

- **Reduce Operation Costs**

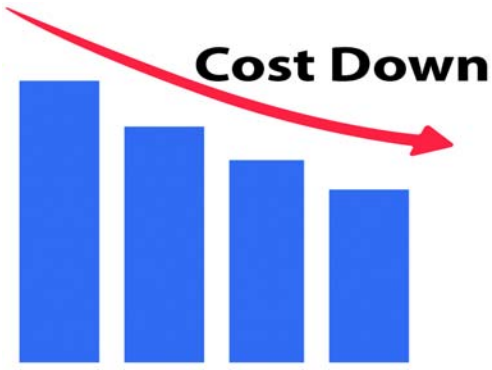


Fig.12.8: Enhance Customer Service

The prime goal of Supply chain management is to reduce operating costs. The help of proper design of the supply chain reduces the cost of procurement, production, and delivery. Reduction in supply chain operating costs brings higher efficiency and increases the profitability of the organisations.

- **Enhance Customer Service**

The value will be added in each stage of the supply chain. Suppliers procure raw materials in the right quantity from the right suppliers then the production unit

will utilise the best combination of resources for manufacturing the goods as per the customer requirements. Right products will be available at the right cost and delivered to the right customer at the right time. This will boost customer service.

Fig12.9: Enhance Customer Service

• Strengthen Financial Position

Fig12.10: Strengthen Financial Position

The Supply chain executive frames the strategies for cutting costs in operations by minimising the usage of fixed assets such as factory, logistics costs, material handling, and warehouse operations. Smooth functions of the supply chain and stable cash flows will strengthen the financial position of the firm.

• Effective Distribution

Physical distribution of products is a challenging task in supply Chain Management. Supply Chain managers ensure the coordination of warehouse operation and logistics channels for attaining the goods reach the right customers at the right location within the time limit.

• Coordination with Supply Chain Partners

Proper coordination and transparency are essential among all the supply chain partners. Supply chain partners like suppliers, manufacturers, wholesalers, retailers, distributors, and customers.

Fig12.11: Coordination with Supply Chain Partners

• Inventory Management

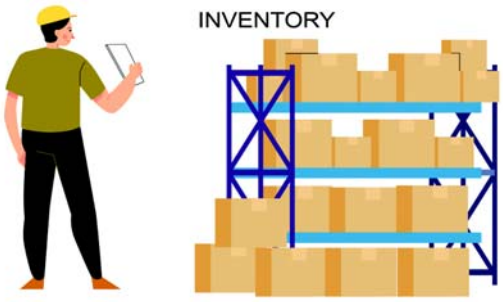


Fig12.12: Inventory Management

Inventory such as raw materials, semi-finished products, spare parts, and finished goods are to be maintained at an optimum level for smooth functioning of supply chain operations. Supply chain managers must maintain the right stock levels at all times in order to avoid overstock and non-availability of inventory situations. They have to control the inventory cost.

• Supplier Relationship Management

Fig12.13: Supplier Relationship Management

Supply chain management functions towards strengthening the relationship with key suppliers. One of the goals of the relationship with suppliers is to enhance product development, market positioning, and competitive advantage for the company. The closer ties between the buyers and suppliers should be transparent and effective interaction is required for the long-term purpose. For example, Toyota has extended positive relationships with potential suppliers to encourage sharing knowledge and to enhance organisational performance.

12.5 NATURE OF SUPPLY CHAIN MANAGEMENT

Fig.12.14: Nature of SCM

• Formulate Planning:

Supply chain managers develop effective planning and strategies for the long-term smooth functioning of supply chain operations. They consider all the controllable and uncontrollable factors for effective planning in order to achieve better results in supply chain operations.

• Procure Raw Materials

Raw materials are a vital part of supply chain operation. The procurement manager identifies the sources of raw materials suppliers and makes sure that raw materials reach on time in production units.

Fig.12.15: Procure Raw Materials

• Manage Production Process

It converts the raw materials into semi-finished/ finished products. Production managers develop production schedules and allocate the resources for controlling the entire production process.

• Delivery of Product

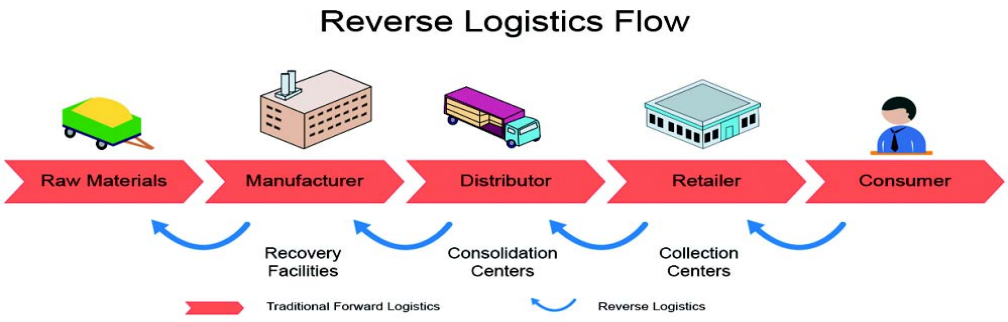


Fig.12.16: Delivery of Product

After production, the finished goods are delivered to the right customers at the right time. It requires the proper coordination of different modes of transportation and warehouses.

• Return (Reverse) Mechanism

Return system or Reverse Logistics functions from the demand side to the supply side from the customer end to the supplier. Returns like claims of customers, refunds and defective products moved from customers' side to distributors and suppliers.

INTEXT QUESTIONS 12.3

1. The purpose of supply chain management is to…….

   a) Provide customer satisfaction

   b) improve the quality of a product

   c) Integrate supply and demand management

   d) increase production

2. Which one is not part of the information flow in SCM?

   a) Invoice

   b) Specification

   c) orders

   d) Payments

12.6 HOW DOES THE SUPPLY CHAIN WORK?

Fig.12.17: Working of Supply Chain

Before understanding how the supply chain works, one needs to know where the supply chain actually begins with the customer's demand forecast. The organisation will forecast the demand based on various forecasting techniques such as historical trends, Delphi techniques, moving average method, etc. This demand forecast drives the entire supply chain.

• Raw Materials

Once we know the demand of customers, we can figure out how much quantity of the products is to be produced within the time period. They need to sort out what are all the raw materials needed for producing a product and where they would get them. For example, in the manufacturing of the iPhone, identify what are all the raw materials required to produce iPhone from chips, glass screen, software applications, to other components wires, etc. and what different sort of recipe is needed for creating an iPhone.

• Production

The next stage is Production or manufacturing. In this stage whatever the raw materials are procured to convert into semi-finished and finished goods. Before starting the production, how the raw materials will be transported to the factory and need to be considered the following factors, how much quantity is going to produce, production schedule, inventory handling, number of labour, resources utilised for manufacturing a product.

• Distribution

After production, the final products will be distributed to customers. Distribution requires coordination between logistics and warehouses. Products from the warehouses to various distribution centres and to reach the end customers. Distribution centres are more common for retailers or direct-to-consumer types of organisations like B2B.

• Retailers and Consumer

The final stage of the supply chain is retailer and consumer. The retailer receives products from the distributors and stocked them on their shelves. Customers visit the retail outlet and pick up the product and put it into the basket.

Fig 12.18: Key Benefits of Supply Chain Management

• Collaboration With Suppliers

An efficient supply chain gives better collaboration with key suppliers. Companies are not only procuring the raw materials from suppliers, inviting them to develop new products, sharing technical knowledge, and suppliers' involvement and commitment to the firm growth but also providing opportunities for employment to the young generation.

Fig.12.19: Collaboration with Suppliers:

• Sourcing and Procurement

Efficient sourcing and procurement make the supply chain more efficient.

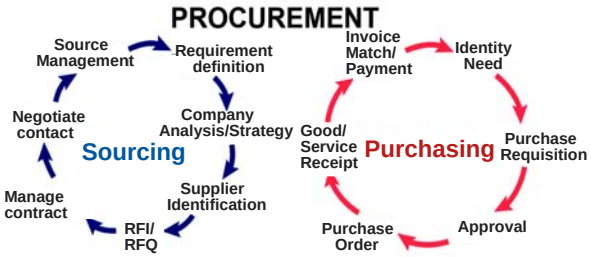
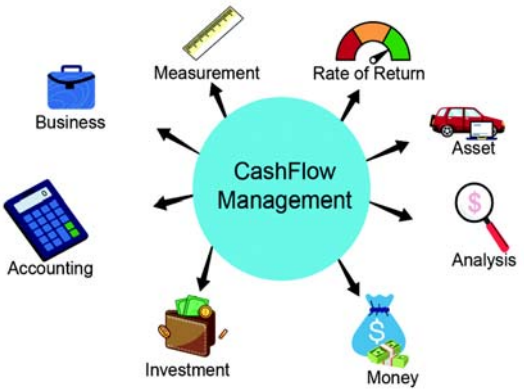


Fig.12.20: Sourcing and Procurement

• Reduce Operation Costs

Supply chain operation costs such as procurement cost, production cost, material handling cost, inventory cost, etc. An efficient supply chain ensures that it reduces operation costs and increases value-added in each stage of the supply chain.

• Improved Cash flow



An efficient supply chain improves the cash flow of the organisation and strengthens the financial position of the company. Uninterrupted cash flow maximises the firm's productivity and growth.

Fig.12.21: Benefits of SCM

• Better Inventory Management

Supply chain operation controls the inventory cost through better inventory management techniques. Inventory such as raw materials, semi-finished goods, spare parts and finished goods are available at any time. In simple terms, the Right product is available at the right time in the right quantity and quality at the right place.

Fig.12.22: Better Inventory Management

• Enhance Customer Satisfaction

Customers are at the centre of the supply chain. The benefit of the supply chain is customer satisfaction. Providing easy access to products, the right mode of

Fig.12.23: Enhance Customer Satisfaction

transportation at a reasonable price, no delays, and products that meet expectations can satisfy customers.

• Ethical and Legal Standards

Supply chain members should be transparent in their functions. They have to adopt sustainability in their supply chain operations.

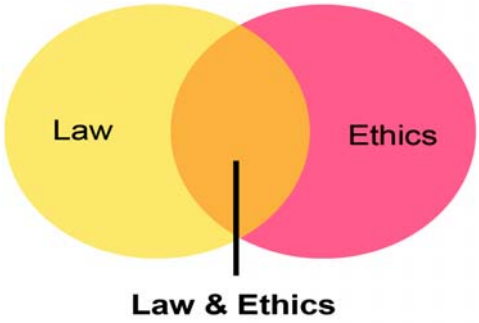
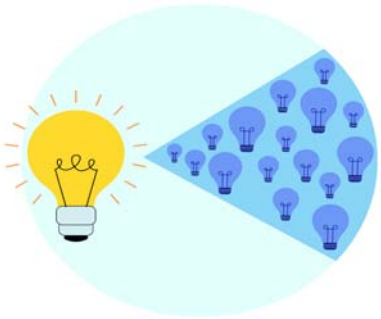


Fig.12.24: Ethical and Legal Standards

• Competitive Advantage



The supply chain is very unique and has complexities in operations. The organisation wants to be very competitive in its supply chain. Competitive factors such as flexibility, delivery on time, reduced operating cost and quality set the standard with their competitors.

Fig.12.25: Competitive Advantage

INTEXT QUESTIONS 12.4

1. _____ is the design of seamless value-added processes across organisational boundaries to meet the real needs of the end customer.

   (a) Operations (b) Supply chain management

   (c) Process engineering (d) Value charting

2. _____ focuses on converting these raw materials into finished products.

   (a) Manufacturing (b) Distribution

   (c) Logistics (d) Supply chain

12.7 GOALS OF SUPPLY CHAIN MANAGEMENT

Fig.12.26: Goals of SCM

• Improvement in Supply Chain Efficiency

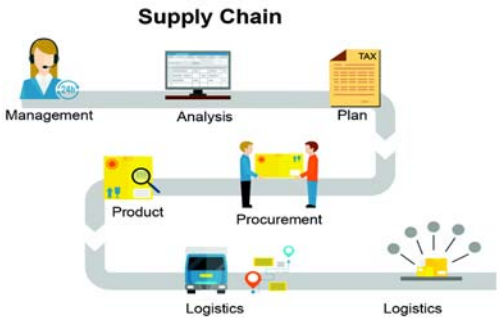


Fig.12.27: Improvement in Supply chain Efficiency

The term efficiency refers to the reduction of waste. Waste can be poor quality of raw materials, scarp, underutilised manpower, delay, and rework. Effective supply chain operation ensures that wastages can be minimised. The waste can be minimised by production planning and control, inventory control techniques, and reducing the cost of operations.

• Value Creation

The next goal of supply chain management is customer value creation. Customer's needs and expectations to be fulfilled at the right time. Value can be created in each stage of the supply chain beginning from suppliers, manufacturers, wholesalers, distributors, retailers, and customers.

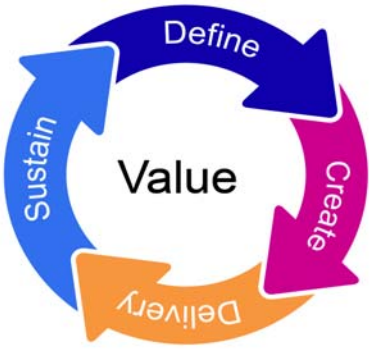


Fig.12.28: Value Creation

• Supply Chain Resilient

Supply chain resilience is managing and responding to supply chain risks. Supply chain risks exist on the supply side, operation side, demand side and external side. An efficient supply chain quickly recovers from major disruptions.

• Sustainability in Supply Chain

supply chain management practices towards the manufacturing of eco-friendly products, economic and social impacts, and a better governance system for the entire life cycle of products and services.

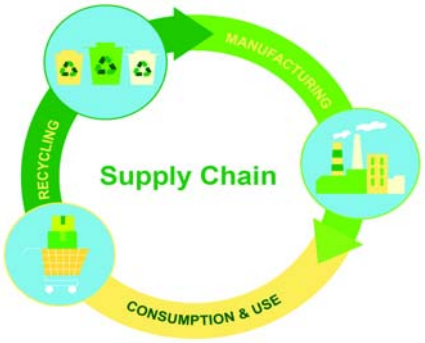


Fig.12.29: Sustainability in Supply Chair

• Improved quality

The supply chain ensures not only cutting down the cost, quality aspects improvised in each functional unit.

• Monitor Financial Performance

One of the vital goals of supply chain management is to contribute to the firm's financial performance. Cost reduction strategies have focused on the availability of stock to reduce inventory costs, semi and fully automated operations to reduce manpower, and consolidated orders to reduce logistics costs.

12.8 COMPARISON OF SUPPLY CHAIN AND LOGISTICS

S. No.	Supply Chain Management	Logistics Management
1.	Supply chain management is the coordination and integration of supply chain activities starting from suppliers to end customers.	Logistics is the subset of supply chain management. It indicates the coordination of the movement of goods.
2.	The key objective of SCM is to create a unique competitive advantage for the organisation.	The key objective of logistics is to deliver the products at the right time.
3.	The concept of supply chain management has evolved in recent times.	The concept of logistics has evolved since the early times
4.	The supply chain focuses on procurement, production, and demand management distribution from the point of origin to consumption	Logistics focus on transportation and forecasting
5.	SCM is a new version of logistics management	Logistics management is a fraction of supply chain management

12.9 OBJECTIVES OF SUPPLY CHAIN MANAGEMENT

Fig.12.30: Objectives of SCM

• To Maximise Overall Value Generated

To maximise the profitability of the company they have to add value in every stage of the supply chain. Supply chain value is the difference between the final product cost to the customer and the supply chain cost incurred for fulfilling the customer's need. Supply chain value is directly correlated to supply chain profitability.

• Cost Quality Improvement

To reduce the cost-cutting in supply chain operation and improvise the quality of the supply chain function. Cost and quality should be balanced and optimised in the supply chain.

• To Look for Sources of Cost and Revenue Generation

Supply chain managers ensure to identify the various sources of revenue generation in the supply chain. The flow of information, funds, and products should be transparent and find ways to generate revenue for the organisation.

• To Minimise Lead Time

Lead time is the time taken between placing the order and delivering the product. One of the major objectives of the supply chain is to minimise the lead time.

Fig.12.31: Minimise Lead Time

• To Optimise the Delivery

The purpose of supply chain management is to meet the customer requirements for a promised delivery of product on time with high quality and low cost.

• To Fulfil the Demand

Balancing supply and demand is one of the key challenges for supply chain personnel. The supply chain objective is to fulfil the customer demand through efficient utilisation of resources.

Fig.12.32: Fulfil The Demand

• Flexibility

Supply chain management activities provide flexibility and better control mechanisms.

• Better Distribution

Supply chain management aims to improve distribution efficiency by utilising all the resources effectively. Supply chain managers ensure to develop proper distribution strategies to deliver the products on time.

• Cost Reduction

SCM aims to reduce overall cost reduction in supply chain operations.

INTEXT QUESTIONS 12.5

1. Which flow includes moving goods from supplier to consumer, as well as dealing with customer service needs?

   (a) Product flow

   (b) Information flow

   (c) Financial flow

   (d) Materials flow

Note

2. One of the major objectives of SCM is _____.

   (a) Right Quality

   (b) Supplier selection

   (c) Transparency

   (d) Minimise total cost

3. What is the term given to the difference between what the cost supply chain incurs and the worth of the end product has to the customer?

   (a) Lead time

   (b) Sales revenue

   (c) Value

   (d) Supplier-based

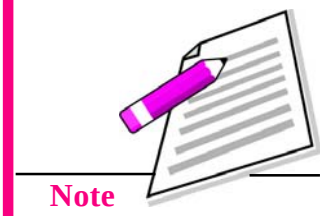
WHAT YOU HAVE LEARNT

- Supply chain management is an integrated system of business activities
- The four major elements of the supply chain are Supply Chain Integration, Supply Chain Operations, Purchasing Process, and Distribution.
- The supply chain works on the basis of customers' demands.

KEYWORDS- Supply Chain Management, Procurement, Production, Distribution, Supplier Relationship management

TERMINAL EXERCISE

1. Define the concept of Supply Chain Management.
2. Write the Scope of Supply Chain Management
3. Compare Supply Chain Management and Logistics Management
4. Elucidate the elements of Supply Chain Management
5. Explain the key benefits of Supply Chain Management
6. Enumerate the various objectives of Supply Chain Management.



ANSWERS TO INTEXT QUESTIONS

12.1

1. (b) Supplier–Storage-manufacturing–storage–distributor–retailer–customer
2. (a) Inputs - process– outputs
3. (c)1980s

12.2

1. (c) Customer power
2. (d) competitor

12.3

1. (c) integrating supply and demand management
2. (d) Payments

12.4

1. (b) Supply chain management
2. (a) Manufacturing

12.5

1. (a) Product flow
2. (d) Minimise total cost
3. (c)Value

ACTIVITY

- Do an analysis of your home kitchen supply chain? List out the various groceries that are kept on the Kitchen shelf? How does the supply chain work in your home Kitchen?

Note

13

IMPORTANCE OF SUPPLY CHAIN MANAGEMENT

Supply chain management is a complex system used by both small and big businesses to get items to customers, including procuring raw materials, manufacturing, and delivering the completed product to the client. Optimising operations functionality to be quick and efficient is part of a well-organised supply chain management system.

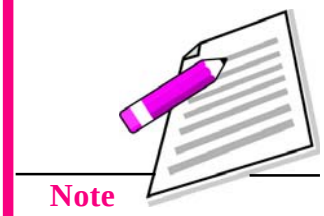
Supply chain management has become a vital aspect of business and is critical to any company's success and customer happiness now more than ever before. Supply chain management has the potential to improve customer service, save operational expenses, and improve a company's financial position.

To compete in the global market and networked economy, businesses are increasingly relying on effective supply chains or networks.

OUTCOMES

After completing this lesson, the learner-

- assesses the important role of SCM in achieving the company's goal;
- analyzes various techniques to control manufacturing processes;
- summarizes the contribution of principles of SCM techniques to initiate consumer brand development;
- classify different activities/functions of the SCM;
- analyzes the major challenges in Supply Chain Management in the future for consumer`s satisfaction.



13.1 WHY SUPPLY CHAIN MANAGEMENT IS IMPORTANT?

Supply chain management is critical since it may aid in the achievement of numerous company goals. Controlling manufacturing processes, for example, may enhance product quality while lowering the danger of recalls and litigation and assisting in the development of a strong consumer brand. Controlling shipping methods, on the other hand, may enhance customer service by preventing expensive shortages or periods of inventory overstock. Overall, supply chain management allows businesses to increase their profit margins in a variety of ways, and it is especially critical for businesses with big and multinational operations.

INTEXT QUESTIONS 13.1

1. _____ is very essential as it helps in the achievement of various goals of the company.

   a) SCM

   b) ERP

   c) Logistics

   d) Manufacturing

2. Supply chain management has the potential _____.

   a) Improve customer service,

   b) Save operational expenses,

   c) Improve a company's financial position,

   d) All of the above.

3. The birth of the digital era has not brought any change to the world of commerce in recent years.

   a) True

   b) False

4. The internal management control structure chosen has been shown to influence _____ business performance

   a) National

   b) local

Note

c) Multinational

d) International

5. SCM is especially essential for businesses with _____ operations.

a) National

b) local

c) Multinational

d) International

13.2 IMPORTANCE OF SUPPLY CHAIN MANAGEMENT

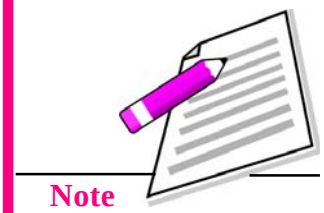
The supply chain management system is regarded to be the backbone of today's dynamic business organisations. This sentence alone demonstrates the importance of the supply chain and its management in the turbulent business world. A demand for a product is produced whenever it is presented and marketed. At this step, the consumer inquires about the product at the numerous retail/wholesale locations that are accessible.

At this stage, the product must be available in every market in the country as well as at all sales counters where customers may buy and get delivery. If a product is not available at the appropriate place and at the right time for any reason, it might cause a reduction in client interest and demand. This might harm the product's success.

As a result, as a support to the sales and marketing plan, efficient transportation network design and administration is critical. In fact, it is possible to argue that without effective transportation network design and administration, the sales and marketing plan would fail. As a result, efficient supply chain management is required to ensure effective Market Coverage and the availability of the correct product at the right time in diverse parts of the country.

Another reason for the importance of supply chain management is that inventory control and visibility are two crucial factors in every corporate operation. Inventory control and visibility have a direct influence on production costs and, as a result, on the organisation's profitability. The lower the amount of capital held in inventory, the higher the profitability, and vice versa.

Inventory visibility, on the other hand, is an important consideration. Both must be balanced, and the proper or optimal inventory turnaround must be determined. Every organisation has an inventory turnaround standard that is desirable or optimal for their business. The number of times inventory is sold and replaced



within a certain period is known as inventory turnaround. This is normally a twelve-month period.

Today, finished product inventory is maintained in a variety of distribution hubs, wholesale and retail locations around the country. The organisation may or may not be in charge of these. Third parties may be able to manage some of these. Transportation inventory might also be on the way. Any inventory loss, regardless of where it occurs in the supply chain, will result in a loss. As a result, inventory control is a key aspect of the supply chain management function.

INTEXT QUESTIONS 13.2

1. A reason for the importance of supply chain management is that inventory control and visibility are two crucial factors in every corporate operation.

   a) Yes

   b) No

2. _____ control and visibility have a direct influence on production costs and, as a result, on the organisation's profitability.

   a) Purchase

   b) Sale

   c) Inventory

   d) Supply Chain

3. _____ must be balanced, and the proper or optimal inventory turnaround must be determined.

   a) Inventory Control

   b) Inventory Visibility

   c) Both A & B

   d) Purchase

4. _____ is/are a crucial factor(s) in every corporate operation.

   a) Inventory Control

   b) Inventory Visibility

   c) Both A & B

   d) Purchase

Note

5. The _____ inquires about the product at the numerous retail/wholesale locations that are accessible.

   a) Consumer

   b) Retailer

   c) Distributor

   d) Manufacturer

13.3 SEVEN PRINCIPLES OF SUPPLY CHAIN MANAGEMENT

A study of more than 100 plus manufacturers, distributors, and retailers more than ten years ago found some frequently utilised supply chain techniques and initiatives. These concepts and methods were condensed into seven principles and published in Supply Chain Management Review, a publication popular among SCM experts.

Adapt Supply Chain to Customer's Needs

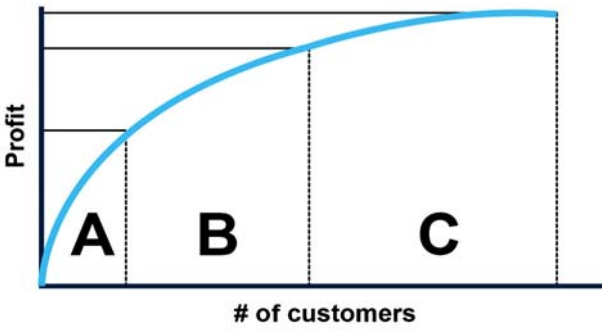


Fig.13.1: Adapt SCM To Customer's Needs

Customers' requirements are addressed in the training of both businesspeople and supply chain specialists. Firms separate clients into distinct categories to better understand them, which term "segmentation." ABC analysis, which divides customers based on sales volume or profitability, is the most basic method of segmenting customers. Product, industry, and trade channel segmentation are additional options.

Customers should be separated based on service demands, such as "sales and merchandising needs" and "order fulfilment needs," according to Anderson et al. at the time.

The organisation should concentrate on the demands of their customers, but this does not appear to be enough these days. The reason for this is that their clients may not realise what they require until their rivals provide it.

For example, Online Shopping was launched in 2011 as a subscription service (free 2-day shipping and discounted 1-day shipping). People are still debating

whether or not this program makes sense today. But one thing is certain: customers are increasingly turning to Online Shopping. The moral to this story is that you should also "anticipate" the wants of your customers.

Customise Logistics Network

The logistics network is the next item to personalise once you've divided your consumer base. To service various segments, you must customise distinct logistic networks. Companies must plan and manage their logistical, warehousing, and transportation activities to fulfil the unified standard.

Fig.13.2: Customise Logistics Network

For example, Organization has separate logistics networks for different customers if they were a contract manufacturer in China. Each client in the United States or the European Union may already have control over raw material sources and may request specialised manufacturing lines, as well as 3PL businesses and air/sea carriers. As a result, logistics network design is a customer-driven project.

Align Demand Planning Across the Supply Chain

Fig.13.3: Align demand planning across the supply chain

Supply chain professionals are educated to exchange demand data with business partners so that no unneeded inventory is kept on hand. This idea holds in general. Only Walmart, however, regularly shares demand data with trading partners.

Williams and Waller (2011) published an intriguing report in which the results of their investigation revealed that:

- Using own past order data rather than Point of Sale (POS) data from merchants is more accurate for forecasting demand at the Stock Keeping Unit(SKU)/Customer level.

Note

- Using POS data from retailers rather than their history order data for forecasting demand at the SKU/Store level is more accurate than using their historical order data.

Differentiate the Product by Bringing it Closer to the Client

Dell is well-known for storing components and assembling them until after the consumer has placed an order to boost product variation. This principle still holds true, but you should also examine another principle.

"Standardisation" is in the Opposite Polarity of "Differentiation"

For example, Some cosmetics companies create products and pick packaging and labelling that are compliant with the laws of numerous Asian nations. As a result, instead of one SKU per country, they only create one SKU that may be marketed in 15 countries. They can reduce costs significantly by standardising products adequately owing to economies of scale. As a result, uniformity is something you should think about.

Create it That Facilitates Multi-Level Decision-Making

To support the re-engineered business process, enterprise-wide systems are replacing several rigid and poorly integrated systems. It's improving people's knowledge of process flaws, and it's helping businesses figure out what kind of technology they need.

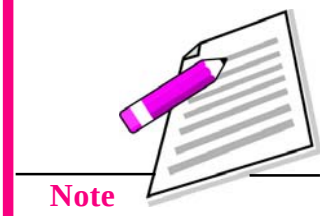
Strategically Outsource

Outsourcing entails enlisting the help of other parties to complete certain duties on the company's behalf. It is the quickest approach to saving money. However, while outsourcing work, several golden standards must be followed. It is recommended that businesses do not outsource their core competencies. Vendors for outsourcing the task should be selected accordingly. It is always preferable to retrain a small number of employees who have sufficient knowledge and experience to manage outsourced vendors.

Adopt Both Service and Financial Metrics

According to Anderson et al, Activity Based Costing (ABC) should be used to estimate client profitability. There is, however, an intriguing twist to the ABC principle.

Robert Kaplan stated that maintaining the ABC costing model to reflect changes in activities, processes, goods, and consumers is tough. Then he created Time Driven Activity Based Costing, a more refined idea.



INTEXT QUESTIONS 13.3

1. Concepts and methods were condensed into _____ principles in Supply Chain Management.

   a) 10

   b) 8

   c) 6

   d) 7

2. The _____ network is the next item to personalise once you've divided your consumer base.

   a) Supply Chain

   b) Logistics

   c) Consumer

   d) Transportation

3. _____ is in the opposite polarity of "Differentiation".

   a) Standardisation

   b) Configuration

   c) Restoration

   d) Rationalisation

4. ABC - Expand

   a) Activity-Based Charging

   b) Activity-Based Costing

   c) Analytics-Based Costing

   d) American-Based Costing

5. Which of the following is not a principle of Supply Chain Management?

   a) Create it that facilitates multi-level decision-making

   b) Strategically outsource

   c) Adopt both service and financial metrics

   d) Standardised logistics network

Note

13.4 SUPPLY CHAIN ACTIVITIES/ FUNCTIONS

Supply Chain Management is a cross-functional method to control the transfer of raw materials into and completed items out of a business to the end consumer.

To understand the tasks necessary to control material mobility across organisational and functional boundaries, several models have been presented. The supply chain council promotes Supply Chain Operations References (SCOR), a supply chain management approach. The Global Supply Chain Forum has proposed a paradigm called Supply Chain Management (GSCF). Activities in the supply chain may be divided into three categories: strategic, tactical, and operational.

The development and execution of a long-term supply chain plan is the foundation of a company's Supply Chain Management activities. This plan should include, among other things:

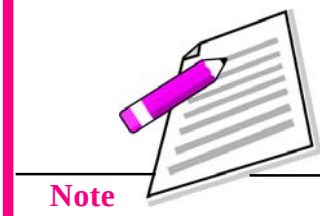
- Determine which supply chains the company wants to compete in.
- Assist managers in understanding how the company will provide value to the supply chain.
- Assist in the selection of supply chain partners such as suppliers, subcontractors, transportation companies, and distributors.

When companies are preparing to comprehend the supply networks in which they compete, it's helpful to map the physical and information flows that make up such supply chains. Firms may begin to understand how they offer value and what information is required to make the supply chain go as smoothly as possible using these maps.

The firm's supply chain strategy, of course, doesn't exist in a vacuum. It must be in line with the company's overall strategy as well as efforts in areas like buying, logistics, production, and marketing. For a specific firm, the Supply Chain operations must be clearly defined.

13.5 STRATEGIC ACTIVITIES OF SUPPLY CHAIN MANAGEMENT

- Optimization of the strategic network, including warehouses, distribution centres, and facilities in terms of quantity, location, and size.
- Creating communication channels for crucial information and operational enhancements including cross-docking, direct shipment, and third-party



Note

logistics through strategic partnerships with suppliers, distributors, and customers.

- Product design coordination, to integrate new and current goods into the supply chain as efficiently as possible, load management.

Fig.13.4: Strategic Activity of SCM

- Infrastructure for information technology to facilitate supply chain operations.
- Where to make and what to make or buy decisions.
- Align overall organisational strategy with supply strategy.

13.6 TACTICAL ACTIVITIES OF SUPPLY CHAIN MANAGEMENT

- Contracts for sourcing and other purchasing decisions.
- Contracting, location, scheduling, and the description of the planning process are all examples of production decisions.
- Quantity, location, and quality of goods are all factors to consider while making inventory decisions.
- Frequency, routes and contracts are all part of the transportation plan.
- All activities are benchmarked against competitors, and best practices are implemented across the board.
- Payments for milestones

13.7 OPERATIONAL ACTIVITIES OF SUPPLY CHAIN MANAGEMENT

- Daily production and distribution planning, encompassing all supply chain nodes.
- Each manufacturing site in the supply chain has its production schedule (minute by minute)
- Demand forecasting and planning, including coordinating all clients' demand forecasts and communicating the prediction with all suppliers.

- In coordination with all suppliers, sourcing planning, including current inventory and forecast demand.
- Transportation from suppliers and receiving inventory are examples of inbound operations.
- The use of materials and the flow of final goods are all part of the manufacturing process.
- Outbound operations include all fulfilment activities as well as customer transportation.
- All restrictions in the supply chain, including all suppliers, manufacturing facilities, distribution centres, and other customers, must be taken into account when placing an order.
- All activities are tracked in terms of performance.

INTEXT QUESTIONS 13.4

1. Activities in the supply chain may be divided into _____ categories.

   a) Five

   b) Three

   c) Two

   d) Four

2. Which of the following is not a category of supply chain management?

   a) Strategic

   b) Tactical

   c) Operational

   d) Rigid

3. _____ are tracked in terms of performance.

   a) Tactics

   b) Activities

   c) Strategies

   d) Operations

4. Transportation from suppliers and receiving inventory are examples of _____ operations.

   a) Inbound

   b) Outbound

   c) Rebound

   d) Misbound

5. The use of materials and the flow of final goods are all part of the _____. process.

   a) Production

   b) Distribution

   c) Manufacturing

   d) Marketing

6. GSCF - Expand

   a) Global Sales Chain Forum

   b) Global Supply Chain Forum

   c) Global Supply Charge Forum

   d) Global Sales Charge Forum

13.8 SUPPLY CHAIN MANAGEMENT MUST ADDRESS THE FOLLOWING PROBLEMS

Supply chain management must address the following problems:

Distribution Network Configuration

Number, location, and network missions of suppliers, production facilities, distribution centres, warehouses, cross-docks and customers.

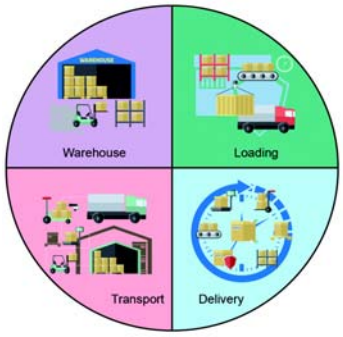


Fig.13.5: Distribution Network Configuration

Distribution Strategy

Operating control (centralised, decentralised, or shared); delivery scheme, e.g.,

direct shipment, pool point shipping, cross-docking, DSD (Direct Store Delivery), closed-loop shipping; mode of transportation, e.g., motor carrier, including truckload, LTL, and parcel; railroad; intermodal transport, including TOFC (Trailer On Flatcar) and COFC (Container On Flatcar); ocean freight; airfreight; replenishment strategy (e.g. (e.g., owner-operated, private carrier, common carrier, contract carrier, or3PL).

Trade-Offs in Logistical Activities

To obtain the lowest overall logistics cost, the aforementioned operations must be carefully integrated. If only one of the tasks is optimised, trade-offs may raise the entire cost. Full truckload (FTL) prices, for example, are less expensive per pallet than Less Than Truckload (LTL) shipments. If, on the other hand, a complete truckload of a product is bought to save money on transportation, inventory holding costs will rise, potentially raising overall logistics costs. When planning logistical tasks, it is therefore critical to use a systems perspective. These trade-offs are critical in building the most efficient and successful Logistics and Supply Chain Management strategy.

Information

Process integration across the supply chain to communicate useful information such as demand signals, projections, inventory, transportation, possible cooperation, and so on.

Inventory Management

Quantity and location of inventory, including raw materials, work-in-progress (WIP), and finished goods.

Cash-Flow

Creating payment conditions and techniques for transferring payments amongst supply chain participants. Managing and directing the movement of supplies, information, and cash across the supply chain is referred to as supply chain execution. The flow is bi-directional.

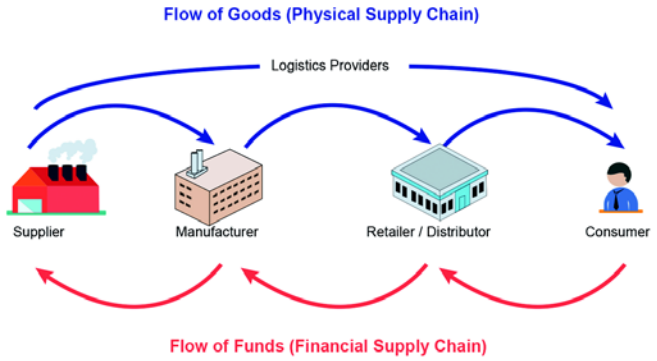
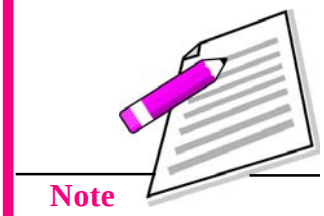


Fig.13.6: Cash Flow



INTEXT QUESTIONS 13.5

1. The flow in Supply chain management should be

   a) Single-Directional,

   b) Multi-Directional,

   c) Bi-Directional,

   d) Uni-Directional.

2. FTL - Expand.

   a) Full Load Truck,

   b) First Load Truck,

   c) Fast Load Truck,

   d) Food Load Truck.

3. LTL - Expand.

   a) Low Load Truck,

   b) Less than Load Truck,

   c) Light Load Truck,

   d) Labour Load Truck.

4. _____ integration across the supply chain to communicate useful information such as demand signals, projections, inventory, transportation, possible cooperation, and so on.

   a) Process

   b) Progress

   c) Product

   d) Packed

WHAT YOU HAVE LEARNT

- Supply chain management allows businesses to increase their profit margins.
- The Importance of Supply chain management.
- The seven Principles of SCM.

- Three major activities of Supply chain management; strategic, tactical, and operational activities.

KEYWORDS- Information,Inventory,Manufacturing,Transportation,Logistics, Standardisation,Inventory,Network, , Manufacturers, Distributor.

TERMINAL EXERCISE

1. What is Supply Chain?
2. Enumerate the importance of Supply Chain Management.
3. What are the principles of supply chain management?
4. List out the various activities of SCM.
5. Discuss the problems faced by SCM in today's context.

ANSWERS TO INTEXT QUESTIONS

13.1

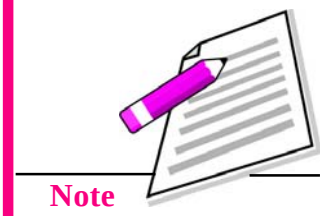
1. a) SCM
2. d) All of the above
3. b) False
4. b) Local
5. c) Multinational

13.2

1. a) Yes
2. c) Inventory
3. c) Both A & B
4. c) Both A & B
5. a) Consumer

13.3

1. d) 7
2. b) Logistics
3. a) Standardisation



Note

4. b) Activity-Based Costing
5. d) Standardised logistics network

13.4

1. b) Three
2. d) Rigid
3. b) Activities
4. a) Inbound
5. c) Manufacturing
6. b) Global Supply Chain Forum

13.5

1. c) Bi-Directional
2. a) Full Load Truck
3. b) Less than Load Truck
4. a) Process

ACTIVITY

- Assemble a Group and Explain the Seven Principles of Supply Chain Management in a SKID format.
- Debate Why Supply chain management is very important in a team of five members.

Note

14

ACTIVIIES OF SUPPLY CHAIN MANAGEMENT

Supply chain management (SCM) consists of five components: supply planning, production planning, inventory planning, capacity planning, and distribution planning.

Supply planning determines how to meet the demand generated by the demand plan. The goal is to balance supply and demand in such a way that the enterprise's financial and service goals are met.

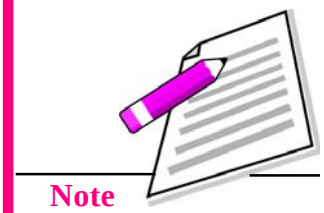
Production/supply planning entails the following steps:

- Management and coordination with suppliers
- Production planning and Scheduling
- Inventory planning is the process of determining the appropriate quantity, and quality, delivery of inventory in order to align it with production demands.
- The transportation of goods from a supplier or producer to the point of sale is overseen by distribution planning and network planning. Distribution management is a broad word that encompasses activities such as packaging, inventory, warehousing, material handling, and logistics.

OUTCOMES

After studying this lesson, the learner-

- analyzes the role of players involved in the supply chain process;
- illustrates the different flow of SCM components for regulating its functions;



Note

- evaluates the actions of the supply chain process of the corporation to turn raw resources into a finished product
- interprets the primary flow components of supply chain management.
- assesses the process view of supply chain management.
- classifies the supply chain process into a push and pull view of customers.

14.1 MAJOR PLAYERS INVOLVED IN SCM PROCESS

Supply chains are made up of more than a few functional teams. They include purchasing, manufacturing, shipping, marketing, sales, and management. All of these categories operate to fulfil consumer demand or to compensate for any gaps in supply or demand.

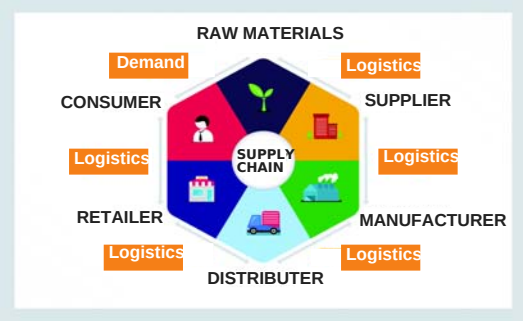


Fig.14.1: Major players involved in SCM Process

1. Supply

Suppliers deliver the raw materials in appropriate quantities and prescribed standards to manufacturers at the right mode of transportation. Supply companies may take use of bulk-buy discounts or seasonal supply-side surpluses to balance demand peaks or to protect against off-season pricing rises. However, the expense of holding and storing inventory items might offset any savings. Procurement teams work with both upstream and downstream functional teams. They make every effort to ensure material availability for processing activities while also keeping management and finance teams satisfied by preventing the building of surplus inventory stock.

2. Production

Fig.14.2: Production

The purpose of manufacturing and processing activities is to utilise existing resources such as man, machine, and materials as efficiently as possible. To meet the future anticipated demand, the operations team may access direct sales forecasting information from sales, distribution, and even point of sale. Sales data and seasonal peaks can cause modifications in manufacturing schedules,

Note

and a concentration on certain inventory units can also change procurement requirements.

3. Distribution

Distribution is to bring items to market through the most successful channels. Vendors and retailers must collaborate to identify when reordering is required to refill the distribution canter's depleted inventory.

Fig.14.3: Distribution

End-to-end supply chain performance is an interconnected, collaborative effort in which managing customer and supplier relationships are crucial to the efficacy of the supply chain.

Any inventory stock that is sitting in a warehouse might decay and become outdated. Distribution centres should only refill inventory supply when essential, not regularly

4. Point of Sales

Fig.14.4: Point of Sale

Point-of-sale data allows for continuous inventory control at the retail end of the supply chain. When another item of inventory is sold, the retailer tracks the information and shares it with upstream sales, distribution, production, and procurement organisations. Demand information is collected for identifying the time to replenish the orders in short lead times. It ensures the availability of products in-store and balances the supply and demand.

5. Management

The expectation of Shareholders keeps their eyes on a good return on investment. The organisation should enhance the sales and offer optimum service levels to their stakeholders.

As a result, an efficient supply chain relies on the management to interconnect with different functional units, departments, and partner organisations in all sectors. The efficient functioning of the whole supply chain becomes a primary goal for all stakeholders, especially during times of variable, seasonal, or unexpectedly high customer demand.

INTEXT QUESTIONS 14.1

1. _____ is the first stage of the supply chain process.

   a) Source

   b) Make

   c) Deliver

   d) Plan

2. Procurement teams work with both upstream and downstream of the supply chain.

   a) True

   b) False

3. _____ estimates the number of production workers and equipment required to produce the products in a day/week/month.

4. Point-of-sale data allows for continuous _____ at the retail end of the supply chain.

14.2 SCM PROCESS

The paramount goal of supply chain management in an organisation is to guarantee that its supply chain is efficient and cost-effective. A supply chain is the series of actions taken by a corporation to turn raw resources into a finished product.

SCM Process Flow

The five fundamental components of supply chain management are explained further below.

Fig.14.5: SCM Process flows

Plan

The planning stage is the first stage of the supply chain process. In order to address how the

Note

products and services will fulfil the expectations and necessities of consumers, we must design a plan or strategy. At this point, the planning should primarily focus on developing a strategy that maximises profit.

Companies must develop plans to manage all of the resources necessary for creating goods and offering services. The primary focus of supply chain management is on planning and generating a set of measurements.

Develop (Source)

Following the planning, the next phase is to develop or source. At this time, we are primarily concerned with developing strong relationships with potential suppliers of raw materials which are used in production. This includes not only just choosing reliable suppliers, but also determining alternative shipping, delivery, and payment options for the goods. Companies must choose suppliers to get the raw materials for uninterrupted production. So, at this level, supply chain managers must develop a set of pricing, delivery, and payment protocols with suppliers, as well as Key Performance Indicators (KPIs) for regulating and enhancing relationships. Finally, supply chain managers may integrate all of these procedures to manage their inventory of products and services. This includes receiving and inspecting shipments, as well as transporting them.

Make

The production or fabrication of items requested by the client is the third phase in the supply chain management process. The items are created, manufactured, tested, packaged, and synchronised for delivery at this step.

The supply chain manager's job here is to arrange all of the tasks necessary for production, testing, packing, and delivery preparation. This is the most metric-intensive step of the supply chain, where enterprises may assess quality standards, production output, and labour productivity.

Deliver

Fig.14.6: Deliver

The fourth and last stage is the delivery stage. The provider delivers the merchandise to the client at the designated place. This is essentially the logistics stage, when consumer orders are approved and product delivery is scheduled. The delivery step is typically referred to as logistics, in which organisations collaborate to take client orders, construct a network of

warehouses, choose carriers to transport items to customers, and set up an invoicing system to receive payments.

5. Return

The return is the last stage in supply chain management. The consumer returns defective or damaged items to the supplier/ manufacturer at this step. Companies must deal with client inquiries and concerns, among other things.

Fig.14.7: Return

This level of the supply chain is frequently a source of contention for many businesses. Supply chain planners must devise a responsive and adaptable network for receiving damaged, faulty, and additional items from customers and expediting the return procedure for customers who have concerns with products.

14.3 SCM FLOW COMPONENTS

Flow Types in Supply Chain Management

The product flow, the information flow, and the financial flow are the three primary flows of supply chain management.

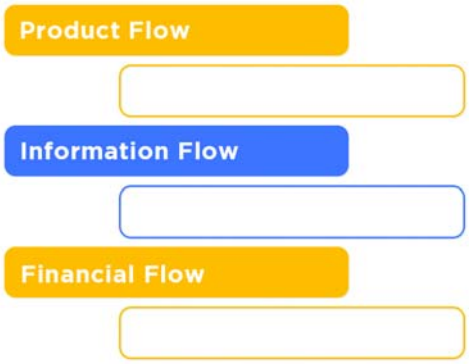


Fig.14.8: SCM Flow Components

- The Product Flow - The transfer of items from a supplier to a client is referred to as the product flow. This supply chain management flow also takes into account customer returns and service requirements.
- The Information Flow - The information flow focuses on conveying orders and updating delivery status.
- The Financial Flow - Credit terms, payment schedules, and consignment and title ownership agreements are all part of the financial flow.

Note

14.4 PROCESS VIEW OF SUPPLY CHAIN

A supply chain is a series of operations and flows that occur within and between stages to meet a customer's requirement for a product. There are two ways to look at supply chain processes.

- Cycles view and
- Push/pull view

A. Cycle View

It specifies the processes that are engaged as well as the owners of each process. A supply chain process is separated into a number of cycles. Cycles are carried out at the intersection of two subsequent phases in a supply chain.

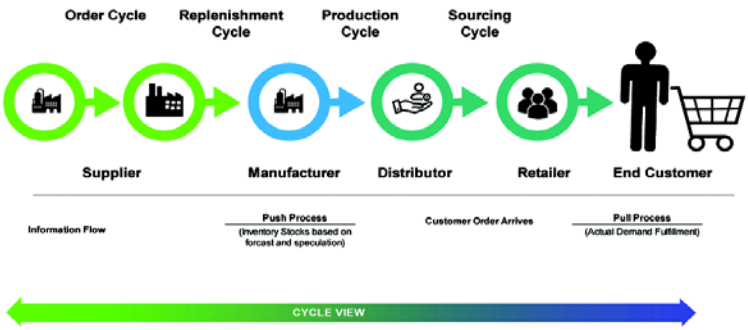


Fig.14.9: Cycle View

The supply chain process may be divided into four process cycles, which are as follows:

1. Customer order cycle
2. Replenishment cycle
3. Manufacturing cycle
4. Procurement cycle

Each cycle takes place at the intersection of two subsequent levels of the supply chain. When making operational choices, a cycle perspective of the supply chain is quite valuable. It precisely defines each supply chain member's duties and responsibilities. It aids the designer in thinking about the infrastructure needed to support the processes.

Customer Order Cycle

The customer order cycle takes place at the point of contact between the client and the store. It encompasses all of the procedures required in receiving and

Fig.14.10: Customer order cycle

fulfilling the customer's order. It starts when the client goes to a shop to fulfil his demand and concludes when the customer receives the order. The following processes comprise the client order cycle:

- **Customer Arrival**

The customer's arrival at the point of purchase, where he/she has access to product options and makes purchasing selections. This location might be a retailer's store, a mail - order company's Internet site, or even a call to a telemarketing centre.

- **Customer Order Entry**

The customer alerts the shopkeeper of the merchandise he/she wants to purchase. At a supermarket, the customer's loading of chosen items onto their carts or baskets might be regarded as a customer order entry.

- **Order Fulfilment for Customers**

The client's order is fulfilled and forwarded to the consumer throughout this procedure. In a supermarket, the client would complete this process on his or her own. The replenishment cycle begins here, and the replenishing of stockpiles is commenced. The goal here is to fulfil the customer's requirements as per his expectations at the lowest feasible cost.

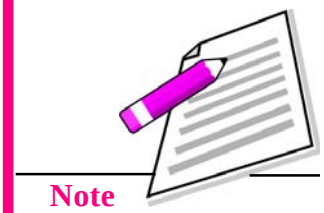
- **Receiving Customer Orders**

During this process, the consumer gets and accepts ownership of the desired product. Customer orders are received at the supermarket when they have been paid for and received at the checkout counter.

Replenishment Cycle

The replenishment cycle happens at the retailer/wholesaler interface and comprises all inventory update and replenishment procedures. A similar cycle may occur in an organisation that is out of supply of a specific product.

The replenishment cycle is made up of the following steps:



Note

- **Retail Order Trigger**

Following the fulfilment of the customer's demand, the inventories get reduced and must be refilled to meet future demand. As a result, the store must create an ordering Policy, which initiates an order from the previous step. The primary goal is to maximise profit by guaranteeing economies of scale and balancing product availability and inventory holding costs. This order must be forwarded to the wholesaler in order for the replenishment order to be generated.

- **Retail Order Entry**

The retailer placed an order with the wholesaler at this point. Like the client order input, this can be done electronically or manually, and inventory or production is allocated to fulfil the order. The goal here is for an order to be placed.

- **Retail Order Fulfilment**

The order size in this case is greater than that of a client ordering from a shop. The key goal here is to provide the necessary amount on time while minimising expenditures.

- **Retail Order Receiving**

As soon as the replenishment stock arrives at the shop, all inventory records must be physically updated. The movement of items from the wholesaler to the retailer, the flow of information updates at the retailer, and the flow of payments from the retailer to the wholesaler are all part of this process. The key goal here is to update inventory and present items at the lowest possible cost.

Manufacturing Cycle

This cycle is often initiated at the distributor-manufacturer interaction. It entails replenishing the distributor's inventory. The client's order, the replenishment of the distributor's inventory, or the prediction of consumer demand, as well as the availability of finished items at the manufacturer's warehouse, initiate this cycle.

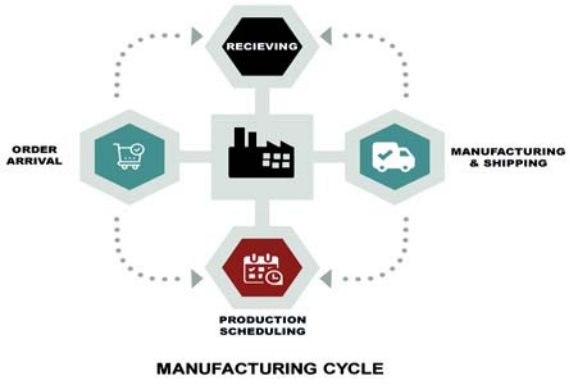


Fig.14.11: Manufacturing Cycle

The following are the processes involved in this cycle:

• **Order Arrival**

During this stage, the distributor creates a replenishment order based on future demand forecasts and existing product stockpiles. In some circumstances, the buyer may order straight from the manufacturer.

Production Scheduling

Forecasted orders are assigned to a manufacturing plan throughout this procedure. This strategy should be based on a detailed manufacturing sequence. The goal of this method is to maximise order fulfilment in proportion while keeping expenses low.

Manufacturing and Shipping

Products are made in accordance with the production schedule during the manufacturing phase of the process. During the shipping part of this process, the product is sent to the client, retailer, or wholesaler, or to the company's own completed product warehouse. The major goal of this phase is to create and transport the required product on time while simultaneously meeting quality standards and keeping costs low.

Receiving

The distributor gets the merchandise and then changes his inventory records during this procedure.

• **Procurement Cycle**

This cycle happens at the interface between the manufacturer and the supplier. This cycle is used to guarantee that the materials are accessible to the maker on schedule. Components and other raw materials necessary for the manufacturing process are often ordered from vendors who refill the relevant stocks. These orders are in accordance with the manufacturing schedule.

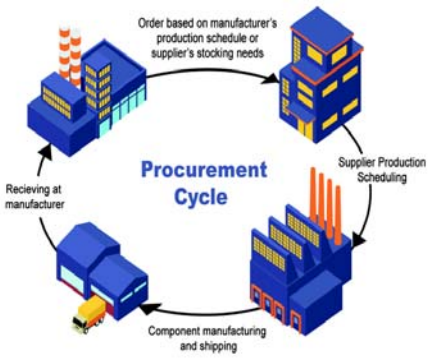


Fig.14.12: Procurement Cycle

i. Order by manufacturer's production schedule

ii. Supplier's production schedule

iii. Components manufacturing and shipping

iv. Receiving at the manufacturer's facility

Note

INTEXT QUESTIONS 14.2

1. The interface between Retailer and distributor is known as _____

   a) Manufacturing Cycle

   b) Replenishment cycle

   c) customer order cycle

   d) Procurement cycle

2. he connection between manufacturer and supplier is known as _____

   a) Manufacturing Cycle

   b) Replenishment cycle

   c) customer order cycle

   d) Procurement cycle

3. Customer order cycle is connected between _____ and _____

   a) Customer, Retailer

   b) Customer, Manufacturer

   c) Customer, Distributor

   d) Customer, supplier

4. Procurement cycle is connected between _____ and _____

   a) Customer, Retailer

   b) Distributor, Manufacturer

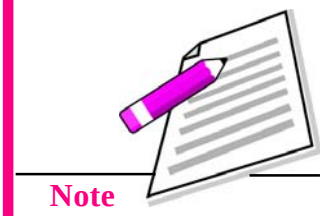
   c) Retailer, Distributor

   d) Manufacturer, supplier

5. Which of the following statements is false?

   a) Cycle view clearly defines processes involved and the owners of each process specify the roles and responsibilities of each member and the desired outcome of each process.

   b) The competitive strategy defines the set of customer needs which a firm seeks to satisfy through its products and services.



Note

c) Increasing inventory gives lower responsiveness but results in higher inventory carrying cost.

d) Supply chain drivers determine the supply chain performance.

14.5 PUSH/PULL VIEW

Processes in a supply chain are classified depending on whether they are launched in reaction to a customer order (pull) or in anticipation of a customer order (push). The time of process execution in relation to end-customer demand is used to categorise processes.

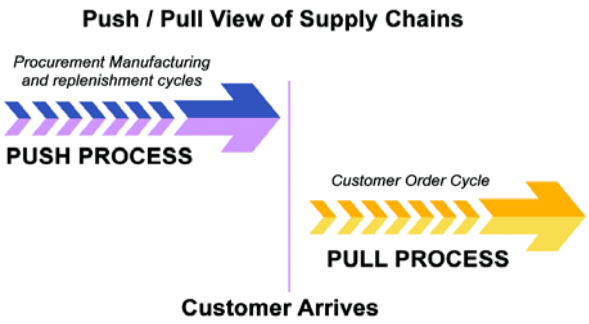


Fig.14.13: Push/Pull View

Customer demand is known with certainty at the time of execution of a pull procedure. In the event of a push process, the demand is unknown at the time of execution and must be projected.

Hence,

1. Pull process - reactive process
2. Push process - speculative process

A push/pull border in a supply chain divides the push and pull processes. When making strategic supply chain decisions, this tool comes in handy. This necessitates a more broad examination of supply chain procedures as they relate to client order. The Pull process operates based on the customer requirements, Push process works based on the make to stock.

The Difficulties of a Push Supply Chain Strategy

The following are the difficulties associated with a push supply chain strategy: Inaccurate forecasting can lead to discrepancies between what the firm planned to do and what the firm actually did.

- Uncertainty and unforeseen inventory
- Inability to fulfil a rapid increase in product demand or shifting expectations.
- Trading partners have a conflict of interest.
- Product obsolescence is a risk.

Examples of Push/Pull System

Note

INTEXT QUESTIONS 14.3

1. The transfer of goods from a supplier to a client is known as _____

   a) Information flow

   b) Product flow

   c) Financial flow

   d) material flow

2. Credit terms, payment schedules, and consignment and title ownership agreements are all part of the _____

   a) Information flow

   b) Product flow

   c) Financial flow

   d) material flow

3. The following one is Not a push process

   a) Customer order cycle

   b) Replenishment cycle

   c) Manufacturing cycle

   d) Procurement cycle

4. Choose the Correct Sequence:

   a) Plan- Source-Delivery-Make-Return

   b) Return-Plan- Source-Make-Delivery

   c) Return-Plan-Delivery-Source-Make

   d) Plan- Source-Make-Delivery-Return

WHAT YOU HAVE LEARNT

- The supply chain process.
- The major flow of supply chain components.
- A supply chain is a series of operations and flows.

- The supply chain process may be divided into four processes.
- Classifications in the processes of supply chain.

KEYWORDS- Delivery, Return, Customer order cycle, Replenishment cycle, Manufacturing cycle, Procurement cycle

TERMINAL EXERCISE

1. What are the five fundamental components of the supply chain process?
2. Write the major flow of the supply chain.
3. Elucidate the process view of the supply chain.
4. Draw the diagram of the supply chain process view.
5. Give an example of a Push and Pull view of the supply chain.

ANSWERS TO INTEXT QUESTIONS

14.1

1. d. Plan
2. a. True
3. Capacity Planning
4. Inventory Control

14.2

1. b. Replenishment cycle
2. d. Procurement cycle
3. a. Customer, Retailer
4. d. Manufacturer, supplier
5. c. Increasing inventory gives lower responsiveness but results in higher inventory carrying cost.

14.3

1. b. Product flow
2. c. Financial flow

Note

3. a. Customer order cycle

4. d.Plan- Source-Make-Deliver

ACTIVITY

- Collect and analyse the e-commerce (flipkart, Amazon) supply chain process view.

15

BARRIERS TO SUPPLY CHAIN MANAGEMENT

Supply chain is a collective activity involved in an organization in delivering a product from one place to another place in the required time. Its core function is to complete a product and deliver it to the right person with the correct flow of communication, and the workforce to complete a product from raw material to a finished product.

It all depends on the

- Size of organization
- Nature of the product you are manufacturing
- Location and routes of delivery
- Warehouse and its characteristics
- Mode of delivery
- Right information flow among the departments
- Method of operation

The entire above mentioned are the key factors or the collective characteristics involved in a supply chain organization. Framing the above key factors may look easy but without the performance of each and every department put together, cannot achieve the outcome as planned as its way more difficult to manage.

Fig. 15.1: Supply Chain Management

Note

OUTCOMES

After completing this lesson, the learner-

- assesses contributions of the key elements of SCM drivers;
- interprets the role of transportation, inventory and information in SCM;
- establishes relationship responsiveness and efficiency in the context of the key elements of SCM.
- identifies the key barriers that create obstacles in the way of successful operation of SCM
- lists out various points of strategy to compare responsiveness and efficiency of SCM drivers.

15.1 MAIN ELEMENTS OF SCM DRIVERS

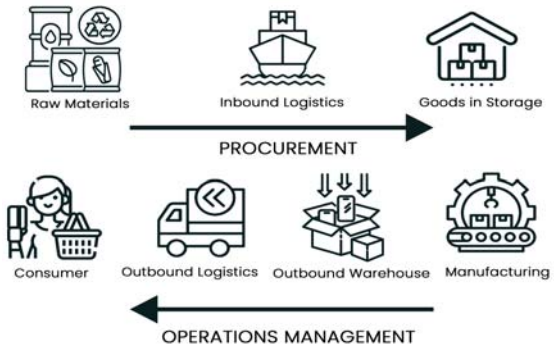


Fig.15.2: Elements of SCM drivers

As we saw earlier, each and every factor, components and department of supply chain management are interlinked. Thus, even a single mistake in any of the departments will put your workforce completely in disaster. And correcting the mistake in that pressure situation will not be an easy task.

The above factors will determine the output and effectiveness of your company by its timely action and performance, as

- Production holds the amount of raw materials to be used to produce and how many units to be produced
- Inventory holds the produced product on how much to stock on how much to sell
- Location decides the advantage of timely delivery to reach out to the end customer,
- Transportation decides the mode of transport to be used, at which time, the route, and the drivers.
- Information flows to all the departments to make a timely decision and above all, it's the key factor in managing the whole supply chain progress and its output

INTEXT QUESTIONS 15.1

1. How many elements are there in a supply chain driver?

   a) 3

   b) 4

   c) 5

   d) 6

2. _____ holds the produced product on how much to stock on how much to sell.

3. Right Information flow helps the internal organisation to bind and work efficiently.

   a) True

   b) False

4. It is difficult to produce a product for all seasons and a wide variety of people

   a) True

   b) False

5. Smooth flow of delivery is attained by right inventory

   a) True

   b) False

15.2 PRODUCTION

Production is the initial work department in the supply chain driver. There are many questions to be answered when comes to production which include

Fig.15.3 : Production

- What to produce?
- What do you have to sell in the market?
- How to produce the goods?

Note

- When to produce?
- Whom are you going to produce for?
- How much are you going to produce?
- What price are you selling?

With the right information, you are able to answer the above questions to start your production process and start manufacturing the goods and services which are able to sell in the market.

The above points may look easy but without answering the questions, you cannot get into production.

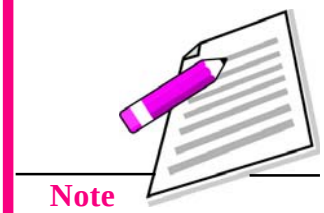
- If I don't know what to produce, I cannot plan the place of production, machinery needed, at what quantity will produce and it goes on.
- And for what I have to sell in my market, whether it is a product or service, there should be a need and demand for the product in the market, or else cannot sell the product.
- And how to produce goods, whether by the traditional way of production or by modern ways and with which machinery and how it should be preserved, etc.
- And finally comes the most important factor, the price of the product in the market, as for all the hard work they have done, if the price of the product does not fit into the market, people will not buy it which ends up in a loss for the company. So, the cost of raw material, the transportation, and production with labour charges are very crucial in the final product and it should be able to reach the end-user if not planned accordingly, all the efforts put in will be a complete failure and may not be able to run the company further.

? It is all about the right analysis, the right market area, the right people to target, and when and where the main aspects should be fully understood without all answers. I cannot manage the production cycle and with all answers to the above questions, can make a company long run in the competitive market.

15.3 INVENTORY

After production, the most important thing is

- Where to stock ?
- When to stock products?



Note

- How to stock products?
- How much to stock finished goods?

Fig.15.4: Inventory

Because with adequate data, they can start and complete the production and after completion, the biggest question falls under inventory. It will produce the product frequently and if there is no place to stock it, it will be in trouble. Inventory holds a share in

- Increasing the profit of a company
- Enabling smooth flow in delivery
- Cutting extra costs
- Reaching out to customers quickly
- Reversing logistics

Let us see the above in detail:

Imagine you have started and completed your manufacturing process and the product is ready to be sold in the market. If the product does not move or demand for that product is currently low or with some other issues arising where you will stock your product is a major difficulty.

Even with correct follow-up production, there are threats to the production sector including

- Repairs, maintenance and failures in production (machinery)
- Increase in raw material cost
- Demand in labour
- Slow movement in market
- Less supply of raw materials

If you have big warehouses with more outlets, the task is easy to

- Can stock a number of goods
- Need not worry about production issues
- The flow of delivery of the product is smooth in the market

Note

- Increased profit if sudden demand arises
- Easy to reach out customers
- Customer satisfaction is attained
- Reverse logistics will become easier if the number of warehouses (retail outlets)

But there are risks in pacing those warehouses which include

- Poor space utilisation
- High storage cost
- Poor inventory
- Damage to finished products
- Theft of products
- Long stock of goods
- High setup cost
- So right planning of how, when, where to stock holds the key and how much to stock and how much to move holds the other key in successful inventory.

15.4 LOCATION

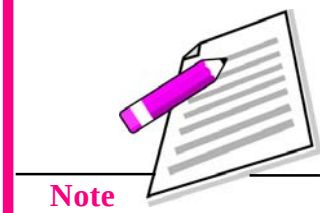
Fig.15.5: Location

Location is one of the major important factors for timely activities, which decides the efficiency of supply chain activities. It's very critical in choosing the right location as it should be balanced among the location of

- Production area
- Warehouse
- Retail outlets
- Customers

If not plan your location accordingly will end up in

- Improper delivery of goods



- Increased operating cost
- Increased delivery cost which does not suit to customer
- Loss of time
- Customer dissatisfaction
- Wrong delivery of goods in urgency
- Customer may cancel your product
- Loss of reputation of the company in the market

So, it must plan location points all around the city, should analyse the efficiency of it with the above factors and reasons to make it very effective among the day to day activities of the supply chain.

Let us see an example here:

Everyone knows Online Shopping is a giant in the retail industry. They have adopted a unique location strategy which differentiates it from other retail companies. They have fixed a location in the centre of the city and its retail outlets at a reachable distance all around its central location.

If the requirements are to be fulfilled, they can be able to do it in a time span of 24hrs to take the required product from its centre location to its outlets, which all the above discussed points are achieved easily. Different companies adopt different strategies for their business model to improve their delivery and efficiency.

Thus, companies improve their customer loyalty, increase market visibility, provide better information on what customers need, reduction in product failure rates, easy return and pick up of goods from the point of the customer.

But also holds the risk of ideas being copied easily, high implementation cost and operating cost, which may decrease the profit ratio of the company, and poor inventory management, which are some disadvantages of implementing diverse location points, which fits successfully to some companies but a total failure to others.

INTEXT QUESTIONS 15.2

1. Reverse logistics becomes harder if there are many outlets

   a) Yes

   b) No

Note

2. Location is one of the reasons for improving the profit margin of the company indirectly.

   a) True

   b) False

3. Walmart is a giant in the _____ industry.

4. Customer _____ is attained with proper delivery.

15.5 TRANSPORTATION

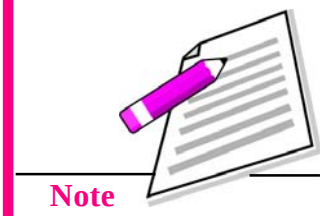
Fig. 15.6: Transportation

Transportation is the main driver of the supply chain apart from other drivers. Transportation holds the key to make the entire system complete and make it successful. Transportation uses many modes (multi-model transportation) to move a product from one place to the desired place on time. The mode of transportation varies from product to product, area to area and from time to time. Geographical factors and government policies play a major role in making it smooth. The different modes of usage fall under

- Landlocked areas use the road and railway transportation
- Bulk goods are preferred to be loaded in ships due to their low operating costs
- Perishable and medical items use air mode preferably due to its nature
- Local outlet delivery uses trucks for delivery
- Packages of small size are easy to carry and they use two-wheelers and mini trucks out for delivery.
- Reverse logistics also succeeded in managing the right transportation for the return pick-up goods.

The major factors to be noted in transportation are

- What mode of delivery you are going to use
- Size of that vehicle



- At what time you are operating
- When will it move out and when will it comes back to its next operation
- Routes
- Locality of drivers you hire, etc.

Needs of people have grown at a rapid speed which pushes transportation companies to work beyond the limit. Companies like FedEx are pledging their customers to deliver the product within 48 hrs of their request which is anywhere around the world.

Even the above statement cannot be achieved easily, e-commerce giant Amazon is delivering the products to its customers within 24 hrs of its order which is not even possible to think in this way for many companies. That's how the importance of delivery mode and time plays a crucial role in customer loyalty and the growth of a company. Being spoken of all the pros here, it has serious disadvantages. There are possibilities that

- Goods may be stolen
- High fuel and operating costs lower the profit ratio
- Cannot be able to reach the customer on time
- Can be affected by natural calamities and man made disasters.
- Duties and taxes
- Environmental responsibilities
- Labour force
- Limited area to be reached (rail and seaways)
- Seasonal factors

Thus, transportation plays a crucial role among all other supply chain drivers in a company and no wonder it's given the most priority and focus to be dealt with providing its operations and output.

15.6 INFORMATION

Information is the centre of activity among all the other supply chain drivers which act as a nervous system for the company. Without the right information, there will arise multiple problems in and around the organisation. High performance in the field can be brought out with sufficient information which is

Note

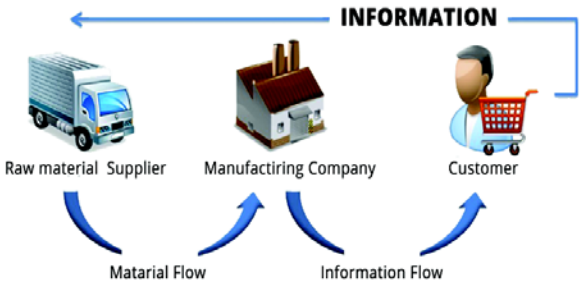


Fig.15.7: Information

collected from the suppliers, manufacturers and distribution based on

- Customer wants and needs
- Demands in the market
- Scheduling for production
- How to stock and how much to stock
- Able to meet the customer requirement on time.

Right data is equivalent to money which in terms when you invest your money in the right thing brings out more profit to you. And in the same way, the right data and information in the supply chain are equivalent to the power of money, which helps to meet all the requirements and brings the best out of it. Also, it helps to run the other supply chain drivers smoothly which is the toughest job here and the right information will make the job easy.

This type of collected data helps many companies to move to its further height quickly with the factors to

- Adapt new technology
- Respond quickly to market situations
- Categorise the customer needs
- Reduce the barrier between the company and the customer
- Planning the process

Thus, information plays a crucial role in drivers of supply chain management.

INTEXT QUESTIONS 15.3

1. Transportation is the main driver among other supply chain drivers.

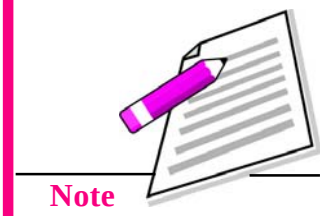
   a) True

   b) False

2. Timely delivery is affected by

   a) At what time you are operating

   b) Climatic factors



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c) Geographical factors

d) All the above

3. Information acts as a _____ system of the company.

4. Right information helps in adapting to market situation quickly

a) True

b) False

5. Categorization of customer needs is attained with the right information

a) True

b) False

15.7 RESPONSIVENESS

Responsiveness in the supply chain is an important factor which simply means being able to meet the customer requirement in a quick manner and should be able to deliver it on time. Organisations need a strong base of knowledge to act according to it and make the flow smooth. It depends on the below points:

- Order fills accuracy
- Scalable delivery
- Ongoing communication
- Customer satisfaction

• Order Fill Accuracy

Order fill accuracy is the percentage of wholesale orders that are successfully filled. This metric gives the status of how efficiently they have managed inventory.

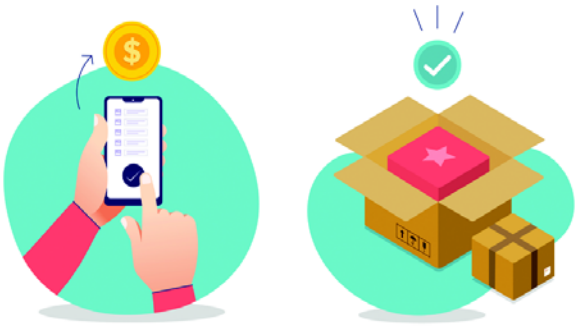


Fig.15.8: Order fill accuracy

It can be improved by means of tracking order accuracy rates, evaluating the picking and packing process, minimising the errors, correct weight calculation, automation in the documentation and right warehouse execution.

Note

• Scalable Delivery

Scalable delivery in the supply chain is the ability of the logistics provider who is in control of all the delivery activities and able to finish it on time which is the base to meet up with customer satisfaction.

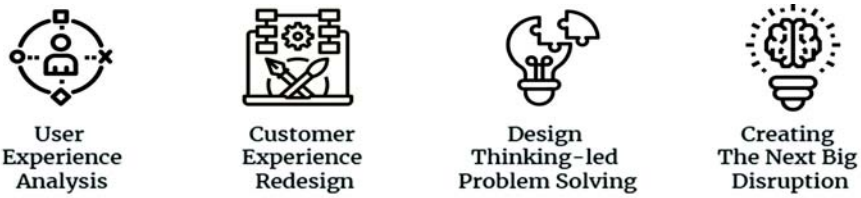


Fig.15.9: Scalable delivery:

It can be improvised by implementing the latest technologies, same-day delivery fulfilment, cost-effective supply chain model implementations, Cutting costs at inbound logistics, and being able to meet timely demands from the customers.

• Ongoing Communication

Fig. 15.10: Ongoing communication

Success of the company is defined by the success of the customers. To achieve that state, proper communication is the foundation for it. For better communication below points can be followed:

- Being transparent with the team
- Discussing key metrics
- Be proactive
- Using technology strategically

• Customer Satisfaction

By correct logistics and customer service, supply chain companies can meet customer expectations in a timely manner. One should have a positive attitude, creative thinking, fast action, proactive mind, patience, and complete knowledge about the product and service, which directly or indirectly improves the profit of the company.

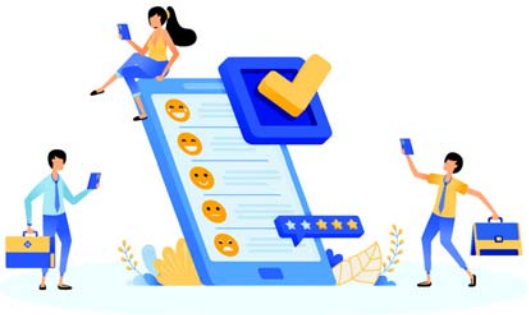


Fig.15.11: Customer satisfaction

15.8 EFFICIENCY

Efficiency in the supply chain means optimum usage of all the available resources to increase revenue and minimise the wastage of resources. It includes financial, human, raw materials and logistics providers.

Fig.15.12: Efficiency

Best practices to improve your supply chain efficiency:

- Implementing effective inventory management process
- Using proper warehouse management system
- Create a returns management system
- Using real-time data for steady improvement.

7 Steps to Improve Your Supply Chain Efficiency

1. ***Expand supply chain visibility*** which tends to implement strategies on inventory management, production department, warehouse management, tracking the overall process on regular intervals helps to improve business decisions and efficiency.
2. ***Developing Good Relationship With Customerstends*** to act as a key among the suppliers, where better communication helps in finding out what the customer exactly needs, avoids wrong delivery, avoids delays in delivery, improved customer satisfaction, etc.
3. ***Automation :*** Automation in shipping, warehouses, the production helps to bring out the best possible outcome, avoids errors and improved speed and reduces human consumption and time consumption.
4. ***Implementing a supply chain software with*** so many strategies implemented and followed in the firm, it is also important to use the right software for activities to make it more efficient and cost-effective.
5. ***Cultivate supply chain experts*** once laid up the platform for firm activities and departments, the next important job is to train employees in accordance with an SOP - Standard Operating Procedure to bring out the best performance.
6. ***Establishing Green Initiatives Across Supply Chain*** Even with all the internal factors being attained fully, customers will always look

Note

away from company activities, which here reduce plastic usage, using recycled products; biodegradable packages to improve the goodwill of the firm.

7. ***Optimising Supply Chain at Regular Intervals :*** It will not be over in a single step in a supply chain firm even with how perfectly set up the activities, it should be reviewed at regular intervals, data is collected and errors are rectified for better performance.

15.9 RIGHT MIX OF RESPONSIVENESS AND EFFICIENCY

Is there any possibility that a supply chain can be responsive and efficient at the same time? Yes, it is possible to plan with optimum resource usage and be responsive to market demand and customer needs.

The below tables show you how you can be able to achieve responsiveness and efficiency simultaneously.

Table no. 15.1

S. No.	Supply Chain Drivers	Responsiveness	Efficiency
1	Production	• Excess capacity • Flexible Manufacturing • Many Smaller Plant	• Little excess capacity • Narrow focus • Few Central Plants
2	Inventory	• High inventory level • Wide collection of goods	• Low inventory levels • Fewer goods
3	Location	• Proximity to customers	• Few central locations serve wide areas
4	Transportation	• Frequent shipments • Fast and Flexible modes	• Few large shipments • Slower and Cheaper modes
5	Information	• Collect and share timely and accurate data	• Cost of information drops while other costs rise

Note

Efficient Vs Responsive Supply Chains

Table no. 15.2

S.No.	Strategy	Efficient Supply Chains	Responsive Chains
1	Primary Goal	Meet demand at low cost	Respond quickly to demand
2	Product design	Maximum performance at low cost	Flexible design
3	Pricing	Margin is Low	Margin is high
4	Manufacturing	High facility utilisation	Capacity flexibility and Cushion
5	Inventory	Reduce inventory levels	Maintain buffer inventory to meet unexpected demand
6	Lead Time	Minimum lead time	Lead less lead time
7	Supplier	Selection of supplier based on cost and quality	Selection of supplier based in speed, flexibility and quality
8	Transportation	Low costs modes	Responsive and speedy modes

INTEXT QUESTIONS 15.4

1. Order fill accuracy is the percentage of _____that are successfully filled.
2. Scalable delivery mainly depends on the_____ provider of the company.
3. By correct logistics and customer service, customer expectations are fulfilled on time.
   a) True
   b) False
4. Efficiency in the supply chain means _____ of all the available resources.
5. Warehouse is a part of improved supply chain efficiency of a company
   a) True
   b) False

Note

6. Optimizing your supply chain at regular intervals helps in improving the efficiency of the company.

   a) True

   b) False

7. Match the following:

Responsiveness & Efficiency	SCM Drivers
A. Flexible manufacturing	(i) Transportation
B. Wide range of items	(ii) Production
C. Fast and flexible modes	(iii) Information
D. Collect & Accuracy of Data	(iv) Inventory

8. In a responsive supply chain, _____method is used to meet unexpected demand.

9. Installing many locations close to customers helps to attain high responsiveness in your supply chain activities.

   a) True

   b) False

15.10 BARRIERS OF SUPPLY CHAIN

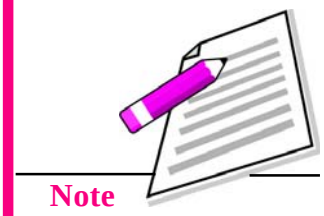
Despite all the advantages of being in supply chain -oriented areas all over the world, there are many barriers to be overcome and make it a successful SCM Company. It is not an easy task for any type of company to find a solution, but updation and adaptation help to minimize the time to overcome it. Let us look into some important barriers to SCM.

- **Lack of information technology**

  Without correct information technology, they cannot compete with other companies which are very efficient in framing their strategies and implementing new software to their companies to improve their efficiency and in other departments.

- **Unclear organizational objective**

  Even with all manpower, hard work and resources, if they don't have a common organisational goal among employees, it will not be possible to focus and work towards achieving that goal, which ends up in serious problems for the company.



Note

- **Lack of education and training**

  Another main reason for the failure of SCM flow in a company, employees are not aware of the activities that are happening in the company and if they do not know what should be done, it results in total failure to the company.

- **Lack of financial resources**

  If all the planning and strategies are made, if one lacks financial resources, one cannot proceed further because implementing software and updation costs high and if not done, efficiency and other activities can cause loss to the company.

- **Lack of information sharing**

  Another important factor to be noted is information sharing, which flows from all the participants of SCM and helps in knowing the demands, customer needs, stock and inventory, which is the base for successful SCM.

- **Lack of Customer Satisfaction index**

  Customer satisfaction index is the main key to successful SCM and a poor index here shows the unstable position of the company, not maintaining the Key Performance Indicator -KPI, where taking necessary steps on the above points helps to improve customer satisfaction index and overall performance of the company.

The above stated points are the major barriers in supply chain management companies and adapting to current market trends, adapting to new advanced technologies, educating the employees in the company and training them to use the new software, making the environment favourable for the workers, educating them to use new equipment, support from top management, lack of available resources to use, poor infrastructure, miscommunication among the employees in the company, unawareness about environmental and sustainability are also some of the major barriers.

INTEXT QUESTIONS 15.5

1. Elaborate KPI.
2. Lack of information sharing results in poor production and inventory.
   a) True
   b) False

Note

3. Increasing inventory gives _____ but results in higher inventory carrying cost.

   a) lower responsiveness

   b) lower efficiency

   c) higher efficiency

   d) higher responsiveness

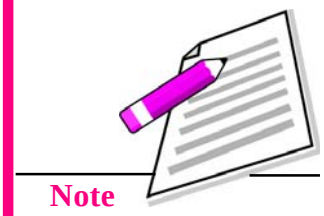
WHAT YOU HAVE LEARNT

- The major drivers of a supply chain.
- Production holds the amount of raw materials and finished goods.
- Inventory holds the produced product.
- Location advantage of timely delivery of goods and services.
- Transportation decides the mode of transport to be used.
- Information flow process to all the departments.
- Responsiveness in the supply chain.
- Barriers to Supply chain management.

KEYWORDS- Transportation, Inventory, Location, Production, Responsiveness, Efficiency, Barriers of SCM

TERMINAL EXERCISE

1. List out the drivers of Supply chain management.
2. Draw the diagram of the main elements of supply chain drivers.
3. Write a note on Inventory as a supply chain driver
4. What is the responsiveness of the supply chain?
5. Distinguish between Supply chain efficiency and Responsiveness
6. Explain the impact of responsiveness and efficiency on each of the major drivers of supply chain performance.
7. Without the right demand and market, you cannot sell your product. Justify
8. Elucidate the barriers to Supply chain management.



ANSWERS TO INTEXT QUESTIONS

15.1

1. c) 5
2. Inventory
3. a) True
4. a) True
5. a) True

15.2

1. b) No
2. a) True
3. Retail
4. Satisfaction

15.3

1. a) True
2. d) All of the above
3. Nervous
4. a) True
5. a) True

15.4

1. Wholesale orders
2. Logistics
3. a) True
4. Optimum Usage
5. a) True
6. a) True
7. A-ii, B-iv C-i, D-iii
8. Maintain Buffer Inventory
9. a) True

Note

15.5

1. Key Performance Indicator
2. a) True
3. d) higher responsiveness

ACTIVITY

- Identify the major supply chain drivers in any manufacturing industry.

Note

16

SUPPLY CHIAN : BUSINESS PROCESS

Supply Chain Management (SCM) is the process that speaks about the process of flow of materials from suppliers to manufacturer and finished goods from manufacturer to the customer. The Process has people, a chain of activities, Information and other resources in it. The Supply Chain Process starts from Sourcing Materials and ends with ensuring Proper Supply of items to the user. While carrying out the process, importance has to be given for storage of materials, safety of materials, choosing appropriate mode of transportation, choosing the correct way to deliver the product to the customer and ensuring that sufficient amount of items is in stock to meet out the demands.

OUTCOMES

After completing this lesson, the learner-

- explains the various key elements involved in supply chain business process;
- analyzes the importance and advantages of supply chain planning;
- Summarizes the concept of sourcing and sourcing process of business process and distribution.
- lists out various delivery models based on the company's inventory and real- time demand
- classifies the types of economy on the based on economic activity.
- evaluates the relevance of digital mode of payments in present day`s business process and distribution.
- lists out activities involved in managing material flow and distribution.

Note

16.1 SUPPLY CHAIN BUSINESS

Fig.16.1: Supply Chain Business

A Supply Chain is a network that consists of people, business entities, materials, activities and technology involved in the creating and selling a product. A supply chain consists of everything from collecting raw materials from the supplier to the manufacturer to the delivery of finished products to the customer through physical distribution.

Key Elements of Supply Chain Business Process

The Important elements of Supply Chain Business Process are as follows.

- Planning
- Sourcing
- Producing
- Distribution & Payments
- Managing flow of Materials

INTEXT QUESTIONS 16.1

1. _____ is the process that speaks about flow of goods from manufacturer to the customer.

2. Supply Chain Management starts with Sourcing Materials and ends with ensuring Proper Supply of items to the user.

   A. True

   B. False

3. The Key element of supply chain business is

   A) Sourcing

   B) Distribution

   C) Material Flow

   D) All the above

16.2 PLANNING

Meaning for Planning

It is a process for deciding on the future. In Business terms it is about deciding on what we are going to do in future to improve our business. The Planning process involves answering a set of questions.

Fig.16.2: Planning

Planning in Supply Chain Management

In Supply Chain Management Planning is the first & foremost process. It is the process of accurately deciding on flow of a material starting from the raw material stage to the final consumer. It Involves anticipating the demand and preparing according to the demand for the product. Proper planning helps to maintain the correct level of items thereby ensuring smooth and disturbance free business.

Levels of Planning in Supply Chain Management

There are basically three levels of planning in supply chain management they are

- Strategic Planning
- Tactical Planning
- Operational Planning.

Strategic Planning

Strategic Planning is the top most level of planning which involves long term decision-making (planning for a time horizon of usually 3 to 10 years). Strategic Planning Speaks about the creation of policies and procedures with regard to purchase, production, and transportation aspects of the company for a long term basis. The decision making at this level is carefully planned as their impact to the business is substantial. Examples of decisions made at this level include;

- Place & Number of Distribution Facilities
- Revenue Generation Methods
- Business Expansion
- Supply chain configuration

Note

Tactical Planning

Strategic Planning needs to be broken down in such a way that it is achievable. This is where tactical planning comes into existence. Unlike strategic planning, decisions at the tactical level usually span from 6 months to a year. At this stage, the goal is to maximise efficiency within short-term operations. In simple terms, short-term objectives must create value to support the strategic direction of the organisation. Examples of tactical decisions include;

- Periodic Forecasting
- Inventory Handling
- Supplier selection
- Deciding on Production schedules

Operational Planning

Fig.16.3: Operational Planning

The day-to-day or weekly activities needed to complete the work on time. At this level control policy is implemented to ensure daily activities are optimised and value is created. This is the most apparent process we see in the daily operations of the business. Examples of operational planning are;

- Taking customer order
- Weekly count of inventory
- Generate packing list
- Levels of planning can be summed up to the pyramided view.

16.3 KEY ELEMENTS OF SUPPLY CHAIN PLANNING

For an effective supply chain planning, there needs to be seamless coordination among the different elements. Below given are the key elements of supply chain planning.

Demand Planning

Demand planning is the foundation stone for the supply chain process.

Note

This involves analysis of information to accurately forecast the demand, which can then be used to decide on optimum inventory and avoid unnecessary costs. Demand planning is done by looking into historical data, projected sales, market conditions and other factors.

Today, demand planning is done with the help of advanced technology.

Powered by artificial intelligence and machine learning capabilities, advanced supply chain management software can predict demand with precision. It can 'sense' demand by looking at real-time data, market conditions and events and point-of-sale data.

The use of predictive analytics for demand forecasting has also increased. This helps to better understand consumer behaviour, buying patterns and other factors that influence demand.

Supply Planning

The next step is to come up with a supply plan that can synchronise with the demand plan and meet the overall requirements of the business.

The supply plan involves sourcing of raw materials, components and other goods needed for production. The goal is planning supply that can meet the demand for the product in the best possible way.

Production Planning

This involves resource allocation of employees, material and production capacity. The broad objectives of a production plan are reducing waste and only producing what is required to ensure the availability of optimum inventory. The latter of these is realised with a supply chain plan that increases cross-functional visibility through efficient inventory management.

Sales and Operations Planning (S&OP)

Often conducted once a month, sales and operations planning essentially brings diverse business teams working with different objectives on the same page. It helps sales and marketing leaders assess and merge their plans with operations.

The all-party meet of different team's aids in the coordination of supply assets and capabilities to meet demand requirements for the short and long term.

In some companies, S&OP is performed as part of a broader process called integrated business planning that incorporates plans of other departments, such as finance and HR, in a single, company-wide plan.

Note

16.4 IMPORTANCE OF SUPPLY CHAIN PLANNING

Decrease Costs

One advantage of good supply chain planning is the decrease in costs you'll see in key areas. The most significant will be :

- Improvements to your inventory system.
- Optimisation of storage space for completed goods, eliminating damage or deterioration of resources.
- Improvements to your system's responsiveness to customer requirements.
- Improvements to relationships with both vendors and distributors.

Improved Efficiency

Having the capacity to incorporate supply chains, innovative product strategies and integrated logistics put you in a position to predict demand and make appropriate actions. Without a doubt, this is one of the greatest benefits of supply chain planning. This is because when a solid supply chain plan is in place, it will be well positioned to adjust dynamically to fluctuations in demand, emerging markets and the short life cycles of certain products.

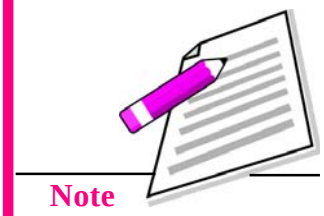
Increase Output

Improvements in the supply chain can also lead to improvements in communication. It leads to optimised coordination and collaboration with companies that handle shipping and transporting, as well as vendors and suppliers.

Better Cooperation

The most successful businesses often have superior communication as a fundamental feature. In fact, when communication is lacking, your vendors, distributors and employees will struggle to have an idea of what your plans are. Supply chain planning will yield the huge benefit of improved cooperation between different entities. Furthermore, when you open your doors to new technology like supply chain management software, you can take advantage of not even having to be in the same location with people to communicate and collaborate effectively.

Through improved communication between different areas of your business, you will have quicker access to accurate forecasts, reports, quotes, statuses and many other plans.



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Increased Profits

When you open up your business to state-of-the-art technologies and better collaboration between different business areas, it will improve efficiency and productivity, therefore leading to increases in your business profit level in the long-run.

Eliminate Delays

Through well planned and executed communication, companies can reduce or eliminate delays in supply chain processes. With everyone more aware of their role in the business, and what others are doing, issues like late shipments, logistical errors and hold-ups on the production lines can be avoided.

16.5 ACTIVITIES IN SUPPLY CHAIN PLANNING

The various activities associated with Supply Chain Planning include

- Forecasting- Identifying on Future Requirements
- Scheduling- Preparing a time table for list of activities in manufacturing and sales
- Distribution- Choosing the correct mode of delivery to deliver the product to customer
- Facility Location- Choosing the correct place for a warehouse

INTEXT QUESTIONS 16.2

1. There are _____ levels of planning in supply chain management.
2. The time horizon for strategic planning is 1- 2 years
   A) True
   B) False
3. The process of identifying the future requirements is known as
   A) Sourcing
   B) Forecasting
   C) Scheduling
   D) Locating

Note

16.6 SOURCING

Meaning

Sourcing is all about the various activities that are involved in finding out the best supplier for goods and services. The various activities in sourcing include identifying the supplier, discussing terms & conditions, finalising payments and ensuring timely delivery of required items.

Importance of Sourcing

- **Cost**

  This is the primary reason organisations are drawn to the idea of strategic sourcing. People negotiate lower unit prices for high-volume purchases thus reducing the cost of goods and services. This, in turn, allows the business to keep the price of their goods down and increase profit. Suppliers like this arrangement as well because they can sell a significant portion of their output, making it easier to make long-term plans and keep long-term cash flow visibility.

- **Supply Stability**

  The process helps build stable supply partnerships so organisations do not end up in a situation where they need something and do not have it. Not having the proper goods or services on time can leave businesses in a bind that could ultimately hurt the quality of their product and hurt relationships with customers.

- **Risk Management**

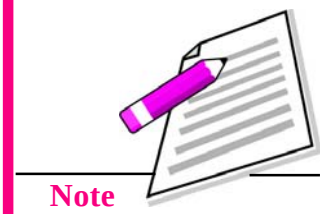
  It can help reduce the amount of risks companies face with their supply chain. Close supplier relationships can help companies identify and resolve potential problems quickly. For example, if a supplier is having cash problems, a primary customer may provide some money as advance to the supplier to allow them to continue operations. This type of working relationship is beneficial to both sides.

16.7 SOURCING PROCESS

The Process of Sourcing involves following steps

☐ Selecting a Supplier

Selecting a supplier as the source means the company needs to spend time and effort to get to know about the supplier and ask the tough questions. After all, it's



Note

the reputation of the business that's at stake. Companies need to do business with the suppliers that will ensure their products will deliver the best results.

Here are some characteristics to look for when choosing a supplier:

- Experience
- Flexibility
- Range of available products and/or services
- Price Negotiations
- Customer reviews
- Prompt delivery
- Accommodating customers
- Financial stability

☐ Securing a Supplier

If you can visit a supplier in person, your chances of securing that vendor grow exponentially. a few of the critical steps to consider when researching and securing a supplier are as follows:

1. Do a Proper Research

Securing a supplier starts by carrying out extensive research on the suppliers. It Starts by carrying out extensive analysis on the supplier's reputation. It can be done through Better Business Bureau, local Chambers of Commerce in areas where they do business, and online search engines for customer complaints. These can provide important clues and provide areas to probe.

Checking vendor social media accounts can be enlightening. Customers aren't shy about leaving negative comments online. Verification of registrations, business licences, and any required certifications has to be done The company needs to fully vet any supplier and verify their credibility. Once you have a strategy in place, you can be particular about which suppliers meet your needs and those that won't.

2. Negotiate a Fair Deal

A Manufacturer needs to strike a deal at a fair price that allows him/her to make the kind of profit they need. Everybody, however, deserves to get a fair deal and make money. Companies may find that the supplier they really want to do business with is unable to meet the price point. If that's the case, companies need to make a decision on whether they can accept their price or need to find other sources.

Note

Negotiation means more than just price. Payment terms, guaranteed delivery dates, and volume discounts are all part of the discussion. For example, some suppliers will have minimum order quantities (MOQs).

3. Determine Payment Terms

Every business entity needs to get money for the items they supply. The time and mode of payments for the goods to be supplied can make a difference in the cash flow of both companies. There are plenty of examples where two sides strike a deal on everything else, but get hung up on lines of credit or payment terms. Often, companies can get better deal points if they guarantee payments within shorter time periods.

Before getting to the numbers, companies need to start by establishing good communication and taking time to understand a supplier's business. This involves Making sure that the relationship will be mutually beneficial to both parties, and being honest about what is expected from the relationship.

"Don't be afraid to ask for better terms than what's offered. For example, if vendors expect payment in 30 days, you can certainly ask to extend credit for 60 or 90 days. You may not get it, but you might! Or, maybe you'll end up at 45 days which gives you 15 days' extra time to pay."

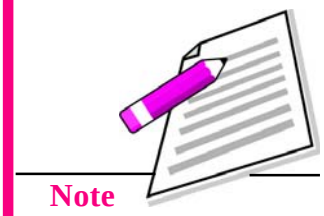
A Famous quote on payments says "Regardless of where you wind up, think carefully about what you want before you sign off on payment terms. You'll live with the consequences."

It's always better to have the discussion at the beginning and be transparent about the plan to do rather than going back to a supplier later and ask for changes.

4. Specify Delivery Expectations

The importance of a strong supplier-to-business relationship applies to delivery times as well. Depending on the business structure and needs, there are various options. In negotiating an agreement, discussing the needs fully is highly important. This discussion will help companies to find if the supplier is unable to meet the needs. Companies may also be able to negotiate better pricing or terms by adapting the delivery expectations to work the way the supplier prefers. If you have the flexibility in your supply chain or timeline, you may be able to conclude a better deal.

Managing your inventory effectively helps reduce your holding costs and tying up capital that could be used elsewhere in your business. Whether you choose



Note

continuous replenishment, just in time inventory, or on-demand delivery, all require the cooperation of reliable businesses and suppliers.

16.8 SUPPLIER DELIVERY MODLES

1. Continuous Replenishment Model

In the continuous replenishment model, suppliers make deliveries off a predetermined schedule, often in short periods, based on a company's inventory and real-time demand. When companies employ continuous replenishment, they encourage reduced inventory levels because they're ordering in small batches, rather than large batches which are costlier and reduce supplier's flexibility.

2. Just in Time Delivery Model

Under a just-in-time delivery model, companies receive supplies on a need basis. In doing so, they reduce inventory levels and costs because just in time delivers only what is needed to increase efficiency and decrease excess waste. With the help of inventory management software, you can better predict inventory demand with forecasting tools to have the right amount of goods.

3. On-Demand Delivery Model

In an on-demand delivery model, suppliers deliver goods when demanded by the customer.

In this model, one can choose a supplier who has plenty of products and can be flexible when order times change rapidly. If a company demands it, the supplier must be ready and on time with prompt delivery.

4. Create a Contract

Once you've negotiated the terms, it's time to prepare a contract. Oral agreements or invoices may lead to errors. While they may have some enforceability, it may be expensive and time-consuming to prove if you ever need to take legal action.

Writing up a written contract that includes all parties involved, establishing payment terms, and other important details, such as timely delivery. A standard contract should cover what's expected and what happens when one party fails to live up to the agreement.

A vendor contract should cover the following:

- Details of the work the supplier agrees to provide
- The quality of the supplied goods or provided services
- Length of the contract term

Note

- Payment terms
- Indemnity, in the event of loss arising from negligence
- What actions can be taken in case of a breach

A contract is only legally enforceable after the customer and supplier both sign it demonstrating an agreement to live up to the contract's terms and conditions. Besides legal reasons, it's also important to establish a relationship built upon mutual expectations.

Typically, the customer includes a statement within the agreement that describes the quality and quantity of goods. Payments made to the supplier are based on the successful fulfilment of this statement

INTEXT QUESTIONS 16.3

1. Identify the important characteristic required for a supplier

   A) Experience

   B) Financial Stability

   C) Prompt Delivery

   D) All the above

2. Before getting to the numbers, companies need to start by establishing good communication

   A) True

   B) False

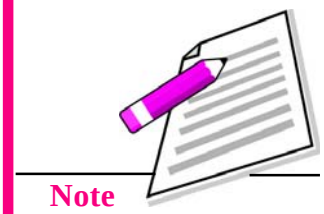
3. Expand MOQ

4. In _____ Model, suppliers make deliveries off a predetermined schedule.

16.9 PRODUCTION

Meaning

The process of bringing something into existence is called production. It is a process of combining various inputs to get an output which has a value and usage. In simple terms it can be stated as an organized activity to convert resources into finished products.



Note

Types of Production

Generally, the production activity is categorized under three types as

1. Primary Production
2. Secondary Production
3. Tertiary Production

Primary Production

The industries involved in primary production carry out activities like mining, oil extraction, agriculture(crop cultivations). It involves extracting the resources on the surface of the earth, below the earth and from seas and oceans.

Secondary Production

The process of converting the raw materials into finished products. The Secondary production uses the materials obtained from primary production to manufacture finished products. It has all forms of manufacturing industries (Ex; Building construction, Bike and Car Manufacturing)

Tertiary Production

It aims at ensuring the finished product reaches the customer for final usage. It includes industries like transportation, banks & insurance companies, legal services etc.

16.10 PRODUCTION & SCM

A Proper Supply Chain Mechanism is necessary to ensure continuous production activity. Proper Supply Chain Management involves creating a link between various activities in producing goods so that the final product reaches the customer on time.

Fig.16.4: Production & SCM

16.11 IMPORTANCE OF SCM IN PRODUCTION

By implementing an effective supply chain management, the companies can attain the following benefits.

- Time Saving
- Cost Saving
- Customer Satisfaction.

Note

Time Saving

When implemented properly, Supply Chain Management helps to reduce the manufacturing time as there will be tracking of items at all stages which will help the companies to prepare the products based on availability of materials and order the materials when required.

Cost Saving

A well designed Supply Chain Management Plan can help the companies to reduce various costs associated with the business including Distribution costs and Purchasing costs. It helps to determine the demands at early stages itself and get the required items on time so that unnecessary spending of money could be avoided.

Customer Satisfaction

A well planned supply chain management will ensure that the final product is delivered to the customer on time thereby increasing the customer satisfaction.

INTEXT QUESTIONS 16.4

1. Identify the number of types of production

   A) Three

   B) Four

   C) Five

   D) Two

2. The Secondary production uses the materials obtained from primary production to manufacture finished products

   A) True

   B) False

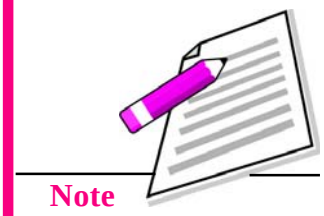
3. By implementing an effective supply chain management, the companies can attain

   A) Time Saving

   B) Cost Saving

   C) Customer Satisfaction

   D) All the above



Note

16.12 PAYMENTS & SUPPLY CHAIN

On receipt of goods the buyer has to initiate the payment

process. The payments can be donemanually or through electronic mode.

Fig,16.5: Payments & Supply Chain

ELECTRONIC INVOICE AND BILL PRESENTMENT

Integrating Electronic Invoice Presentment and Payment (EIPP) systems with supply chain management saves time and money. EIPP tools allow companies to view detailed invoice-level information and remittance details. This eliminates the errors common in the manual processes.

BENEFITS OF DIGITAL PAYMENTS

- Increasing Operational Efficiency
- Accommodating Customers
- Showcasing Transparency

Increasing Operational Efficiency

The fundamental aim of any business is to achieve and maintain operational efficiency. With the complexity of business increasing on a regular basis Digital payments help companies streamline their business by making it more accessible to all stakeholders thereby increasing efficiency.

Accommodating Customers

Customers are attracted towards digital payment options due to their simplicity and streamlined nature. The COVID-19 has further pushed more and more people to digital payments as it is much safer than traditional payments in which cash is exchanged. Moreover, according to a survey by Olympus Europa, 40% of customers don't follow through with a purchase if they aren't provided with their preferred payment option which is mostly digital.

Showcasing Transparency

The main benefit of using digital payments is increased financial transparency. Traditional methods of maintaining paper documents are costly, time consuming

Note

in nature while Digital receipts of payment allows for greater transparency and accountability from an organisation as online records of past transactions, payments can be traced with ease.

16.13 MANAGING MATERIAL FLOW & DISTRIBUTION

Material flow involves transporting and storage of materials or products. It involves forward flow (Raw materials to manufacturing facility, end product to customer) and reverse flow (Defective product back to the company).

Table 1.2: Set of activities for flow of materials

S.No.	Activity	Function
1	Planning	Setting the goals, indicating the sources of finance
2	Scheduling	Requirements specification, quantum and delivery schedules
3	Purchasing and Procurement	Vendor selection, vendor contracts
4	Inspection and Quality control	Conforming quality
5	Stores and Inventory control	Determining inventories, maintenance and upkeep
6	Materials handling and distribution logistics	Controlling flows, distribution, shipments

Source: Dutta A.K (1998), Materials Management: Procedures, Text and Cases

The above table indicates the various activities associated with the flow of materials in a manufacturing organisation. It is a complex process and involves a wide range of activities from planning to distribution.

For an efficient Supply Chain Management Business, the material flow should happen smoothly at all stages starting from planning to final distribution to the customer and even in reverse logistics.

INTEXT QUESTIONS 16.5

1. Expane EPIP
2. Digital Payments decreases operational efficiency
   A) True
   B) False

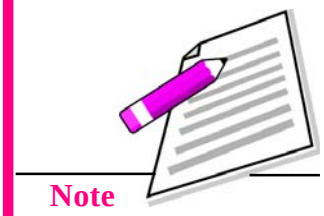
3. Material Flow involves Forward Flow and _____.

4. The process of collecting the defective items from customers is known as _____.

WHAT YOU HAVE LEARNT

- "The Supply Chain Process starts from Sourcing Materials and ends with ensuring of Proper Supply of items to the user"
- A Supply Chain is a network that consists of people, business entities, materials, activities and technology involved in the creating and selling a product
- Planning is the process of accurately deciding on flow of a material starting from the raw material stage to the final consumer.
- Strategic Planning speaks about the creation of policies and procedures with regard to purchase, production, and transportation aspects of the company for a long term basis.
- In Tactical Planning the goal is to maximise efficiency within short-term operations.
- Demand & Supply are the key elements in Supply Chain Planning
- Sourcing is all about the various activities that are involved in finding out the best supplier for goods and services.
- A Manufacturer needs to strike a deal at a fair price that allows him/her to make the kind of profit they need.
- A contract is only legally enforceable after the customer and supplier both sign it demonstrating an agreement to live up to the contract's terms and conditions.
- Production is an organised activity to convert resources into finished products
- Integrating Electronic Invoice Presentment and Payment (EIPP) systems with supply chain management saves time and money
- Material flow involves forward flow and reverses flow.

KEYWORDS- Strategic, Tactical, Operational, Sourcing, Distribution & Payments, Managing flow of Materials, Demand & Supply, Cost, Risk Management, Customers.



Note

Note

TERMINAL EXERCISE

1. List out the levels of Planning in SCM
2. Explain the importance of different types of planning in Supply Chain Management
3. Explain the steps involved in the process associated with Sourcing.
4. Mention the different types of supplier delivery models.
5. What do you mean by production process? Give a brief description of different types of production activity.
6. HHow does SCM support the production process of the economy?
7. "Digital payments provide a platform to regulate supply chain management processes at a faster rate". List out various benefits in the light of the statement.

ANSWERS TO INTEXT QUESTIONS

16.1

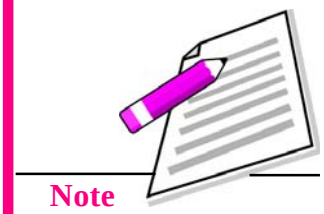
1. Supply Chain Management
2. True
3. All the Above

16.2

1. 3
2. False
3. Forecasting

16.3

1. All the above
2. True
3. Minimum Order Quantity
4. Continuous Replenishment



Note

16.4

1. Three
2. True
3. All the above

16.5

1. Electronic Invoice Presentment and Payment
2. False
3. Backward Flow
4. Reverse Logistics

ACTIVITY

- Collect the pictures on different types of production
- Prepare a contract for purchasing keeping in mind the key elements
- Identify the various digital payment avenues available for Business.

Note

17

DISTRIBUTION AND PLANNING STRATEGY

Physical distribution is a list of various activities involved in movement of finished goods from the company to the customer in an efficient way. It takes place with huge involvement of people, resources and involves decision making areas like inventory control, material handling, packaging, order processing, warehousing, transportation and customer service.

Fig.17.1: Distribution And Planning Strategy

Philip Kotler defined physical distribution as "Physical distribution involves planning, implementing and controlling the physical flow of materials and final goods from point of origin of use to meet consumer needs at a profit".

OUTCOMES

After studying this lesson, the learner-

- explains the meaning of physical distribution and planning strategy for the promotion of business enterprises;
- analyzes the general framework of distribution of goods through various channels
- evaluates components of the physical distribution of goods from the origin of production to end users;
- analyzes distribution strategies to improve business activity.

Note

- predicts forthcoming challenges in the physical distribution of goods and services.
- lists out the advantages and disadvantages of different channels of physical distribution

17.1 OBJECTIVES OF PHYSICAL DISTRIBUTION

The main objectives of physical distribution include;

- ensuring timely availability of goods
- to provide right product at the right place at the right time for the right price
- ensuring optimum inventory
- enabling for quick transportation
- gain competitive advantage over other companies.
- ensuring customer satisfaction

Example of Physical Distribution

According to statistics, around 1.9 billion products of coca cola are sold every day around the world. We all know coca cola has its presence and distribution throughout the world. Here is the best example of distribution.

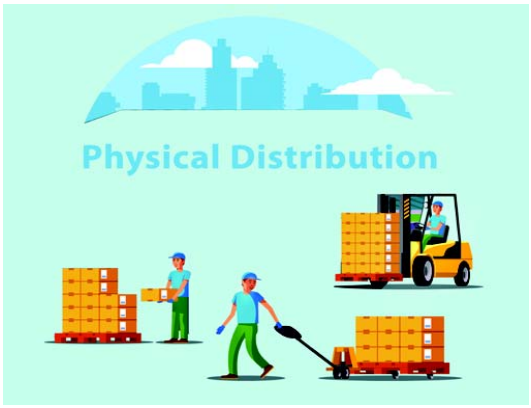


Fig.17.2: Example of Physical

Coca cola has its own production houses around the globe and after its production, as we discussed above the components of distribution, all the processes are carried out. The below image shows the flow of operations.

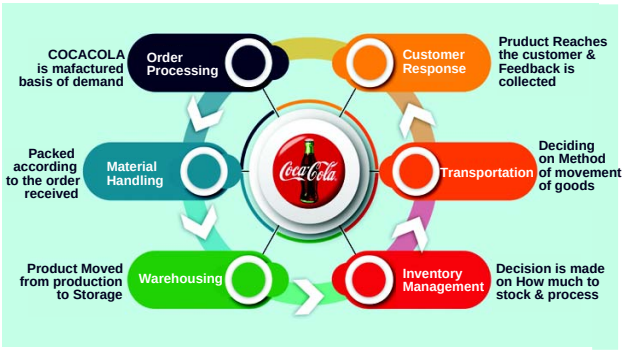


Fig.17.3: Flow of Operation

Note

17.2 GENERAL FRAMEWORK OF PHYSICAL DISTRIBUTION

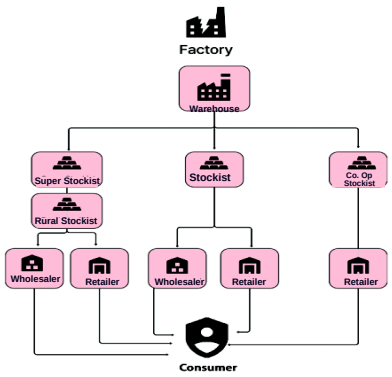


Fig.17.4: Framework of Physical Distribution

Companies frame their physical distribution network based on various aspects like product nature, money value of the product, seasonal issues and others. The flowchart below will help you in understanding the importance of physical distribution and how it functions.

The Process of Physical Distribution ensures that the product reaches the end user ultimately through various channels of distribution.

INTEXT QUESTIONS 17.1

1. The quote "Physical distribution involves the management of physical flow of products and establishment and operation of flow systems" is put forward by Philip Kotler.

   A) True

   B) False.

2. According to statistics, around _____ products of coca cola sold every day around the world

3. Distribution does not connect with the nature of the product you produce

   A) True

   B) False

17.3 COMPONENTS OF PHYSICAL DISTRIBUTION

The physical distribution is all about planning and execution of all activities to reach out to the customers. To achieve that process, the following elements will provide us an upper hand in execution of our activities.

- Customer Service – What is the level of customer service required?
- Transportation – Which mode of transportation has to be used to transport outside the company?
- Warehousing – How many warehouses do we need & Locations?
- Order processing – How orders will be/ are going to be handled?

Note

- Inventory control – How much of items should be maintained across locations?
- Materials handling – How products are packed and transported across departments.?

Customer Service

Fig.17.5: Customer Service

Customer service is the important department as it forms the bloodline of the company. It is the process of providing assistance and support to the customers who have availed the product or service from the company. Customer satisfaction is very important in any business and success of a business fully depends on timely customer service. Responding to customers in an effective way and providing the correct data to other departments to deliver the product in the right time to the right place and to the right person holds the key to the whole activity. With the right adaptive technology and tracking options it can be achieved.

Transportation

Transportation is concerned with movement of people and goods from one place to another and is one of the most concentrated factors in all the sectors of the world. The cost factor and mode of distribution is the base for other departments to operate, which basically functions on cost and commodity to be transported. There are wide variety of transportation models available with each one having its own advantages and limitations which are discussed below:

Trucking – Flexible and Growing

It is the most favoured transportation mode used by all business sectors and preferred by large scale companies too. It is beneficial in such a way that it is able to deliver the goods quickly to almost all the parts in the country, allowing fast and frequent movement from one place to another compared to any other mode. Trucks are majorly used for transactions that can carry large amounts of goods.

Fig.17.6: Trucking – Flexible And Growing

Note

Air Freight – Fast But Expensive:

Due to its high transportation cost, mostly perishable and high value items are shipped in air mode. Most of the medium business companies also use air mode for improved business sustainability

Fig.17.7: Air Freight – Fast But Expensive:

Water Carriers—Slow But Inexpensive

Ships can carry tons of load at a very low cost but the transit time from one place to another is high, only products that are durable loaded in ships and inland movements use small ships for transit.

Fig.17.8: Water Carriers—Slow But Inexpensive

Railroads – Long Distance Shipping

Railroads are efficient in transporting bulk goods for long distance purposes where mainly commodities like coal, chemicals, and food grains are transported.

Fig.17.9: Railroads - Long Distance Shipping

Pipelines—Specialised Transporters

Pipelines are used to transport natural gas, petrol and diesel, chemicals from ships to port and from port to remote areas in an efficient way.

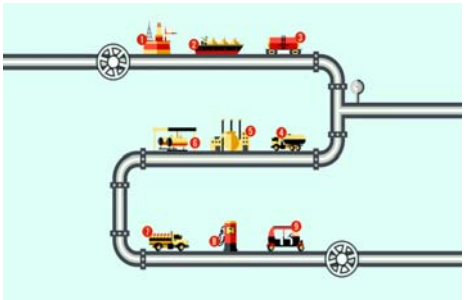
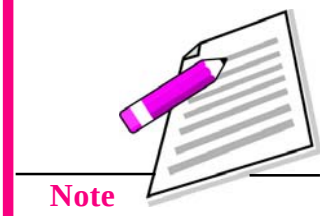


Fig.17.10: Pipelines—Specialised Transporters



Note

Warehousing

The process of storing the goods in a specific place for a duration is known as warehousing. Placing Warehouses at strategic locations helps in movement of goods easier and helps in delivery on time. Warehouses are the key to hold the finished goods safely and move out if demand arises and provide customers what they want on time. Goods are kept in warehouses to make more profits at the same time to meet customer demand, and maintain stock accordingly.

Fig.17.11: Warehousing

Order Processing

Order processing is crucial in distribution because wrong order processing and misconceptions will lead to wrong delivery and dissatisfaction to the customers. When order processing is done there are many things that come along with it which includes inventory, quantity and mode of transportation and so on, where any wrong information can lead to serious issues including bad customer satisfaction and reduced profits.

Fig.17.12: Order Processing

Protective Packaging and Materials Handling

Another important factor here is how you handle the materials and packaging. It differs on the quantity, nature of the product, size and weight of the product, mode of transportation involved during transit. Any wrong packaging or loose packing involved, it not only affects that particular product but also other goods in transit which is a total loss to the company.

Fig.17.13: Protective Packaging And Materials Handling

Note

INTEXT QUESTIONS 17.2

1. _____ is a key department as they are the nervous system of the company.
2. Water carriers are cost efficient but takes long transit time

   A) True

   B) False
3. _____ is a favoured transportation mode used by all business sectors.
4. Warehouses are the key to hold the finished safe and move out if _____ arises.

17.4 DIFFERENT CHANNELS OF DISTRIBUTION

Without the channels of distribution, one cannot move the product from his unit to reach the customer. The most important distribution channels are:

- Wholesalers
- Retailers
- Distributors
- E-commerce

Wholesalers

Wholesalers are the business people who purchase items in bulk from the manufacturers and sell them in retail. By purchasing bulk, wholesalers get the product at a discounted price and sell it to retailers which are the next channel of distribution. The above is the example of Adani Wilmar, which is a FMCG – Fast Moving Consumer Goods company whose products are sold on a wholesale basis.

Fig.17.14: Wholesalers

Retailers

Retailers are the customers of wholesalers, who do the same work as wholesalers but they provide various offers to their customers. The customers of retailers will buy in bulk but not like wholesalers. Best example of retail shops is Big Bazaar, where you can find all the products you wish under a single roof.

Fig.17.15: Retailers

Distributors

They are the closest one to the customers, where they sell their product to customers without any further intermediaries. The best examples are local petty shops and grocery shops where you are the direct consumer and they are the direct sellers. Here the product diversification is normal but the options of discounts are very low or at times they provide you offers and discounts less than wholesalers and retailers.

Fig.17.16: Distributors

E-Commerce

E-commerce companies are those who make use of software and technology, to directly sell the goods to the customers. Best example we all know is Amazon and Flipkart, where most of our products which we use currently will be bought from them.

Fig.17.17: E-Commerce

They sell the products to individual consumers whereas in other distribution channels, goods are procured for large consumers irrespective of any criteria. In E Commerce we can get offers for the products we purchase through festive sales, credit card and debit card offers and mostly Digital Transaction is done for the products we buy. The E Commerce companies also offer Cash on Delivery (CoD) option also.

Note

The Image below clearly explains the different channels of distribution.

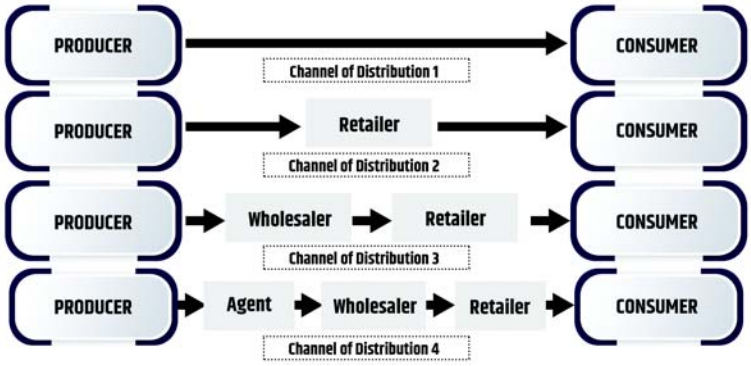


Fig.17.18: Channels of Distributors

INTEXT QUESTIONS 17.3

1. Expand FMCG.
2. The purchase of wholesalers and retailers are probably the same which differs in product quantity.

   A) True

   B) False
3. Distributors provide huge discounts to its customers.

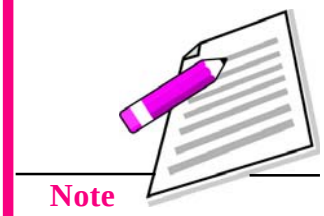
   A) True

   B) False
4. _____ payment is preferred in ecommerce businesses.

17.5 STRATEGIES IN DISTRIBUTION

Every company has its own distribution strategy in order to improve its business activity, reduce unwanted costs and increase the profits and customer base. There are some common distribution strategies which are helpful to many companies which are

- Direct Distribution strategy
- Indirect Distribution strategy
- Intensive Distribution strategy
- Exclusive Distribution strategy
- Selective Distribution strategy



Note

Direct Distribution Strategy

As the name explains, companies sell their products and services directly to the customers without any intermediaries. It also includes ecommerce platforms where the products are sold to customers directly. Most of the companies which use direct distribution strategy have a single manufacturer and they directly sell them to customers. The best example at recent times is Tesla, the electric car manufacturers, produce their cars and trucks and sell it directly to its customers.

Fig.17.19: Direct Distribution Strategy

Indirect Distribution Strategy

When the distribution channel is long and inter linked with various departments, it is termed as indirect distribution strategy. It's like a chain of various people involving wholesalers, retailers, distributors and finally the end customer. Most of the top branded companies follow this strategy because they cannot work on all the departments on their own. One of the best examples is Coca Cola where it comes through a lot of channels and finally reaches the customers.

Intensive Distribution Strategy

In this strategy, the company tries to sell the products starting from small shops to big shopping outlets, which covers most ground through which the customer can find their product everywhere they go. It not only establishes themselves as a brand but also boosts the overall sales of the product thus improving the sale and profit to the company. Best examples of this type of strategy are household products and automobile brands.

Fig.17.20: Intensive Distribution Strategy

Note

Exclusive Distribution Strategy

A brand does not need showrooms and outlets at all places. This is a unique type of distribution which is theoretically authorised to sell a product only to a specific area or within a particular region. In simple words, these types of companies have high market brand value and recognition for years, where they have minimum outlets compared with other companies to provide better service to their customers. Best example for this type of strategy is car maker BMW. They are a registered brand among people where they have minimum showrooms at specific regions alone.

Fig.17.21: Exclusive Distribution Strategy

Selective Distribution Strategy

This type of distribution strategy lies between intensive and exclusive business strategy. There are brands that have a number of outlets in the city, for example Domino's Pizzas, where you can find them in majority of the places but brands like Raymond have their outlets only in premium shopping centres, which is called a selective distribution strategy. One of the reasons is that premium brands are unlikely to be purchased in many areas, so that they have outlets in potential market areas such as metropolitan areas only.

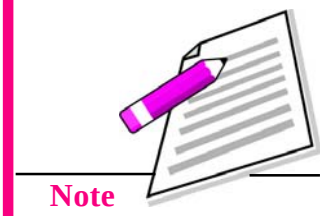
Fig.17.22: Selective Distribution Strategy

INTEXT QUESTIONS 17.4

1. E-Commerce platforms adapts direct distribution strategy

   A) True B) False

2. _____ distribution channel is long and inter linked with various departments.



Note

3. Which of the below options are examples of intensive distribution?

   A) Cooling Glasses

   B) Laptops and mobiles

   C) Watches

   D) All the above.

4. Companies using exclusive distribution has many outlets in the city

   A) True

   B) False

17.6 CHALLENGES IN DISTRIBUTION

Running a business is not an easy task as it involves various challenges. There are many challenges in the distribution sector also. Let us discuss the common challenges faced by the distributors.

1. Inventory management
2. Ecommerce Platforms
3. Shipping errors and returns
4. Slow and outdated reporting
5. Outdated Software

Inventory Management

Fig.17.23: Inventory Management

Inventory management is the process of ordering, storing, and movement of finished goods. It is one of the major challenges faced by the distributors where miscalculation of data, wrong data entry, less movement in particular type of product and other factors put together plays a crucial role. Maintaining a poor inventory leads to failure in the movements of goods already in stock and not maintaining the goods that are to be shipped immediately resulting in poor customer satisfaction and loss to the company.

Note

E-commerce Platforms

Fig.17.24: E-commerce Platforms

To reduce the commission among the intermediaries, manufacturers are selling their goods directly to their customers through E Commerce Platforms in order to increase their reach and revenue, which is a threat to the distribution and wholesale network. But it requires a greater web presence and backend team to manage all the work which all companies cannot adapt to.

Shipping Errors and Returns

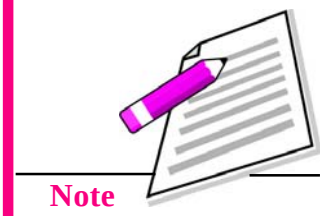
Customer service department plays a main role here. With e-commerce booming and competitors increasing day by day, it is necessary to maintain a good customer service department and keep a track on records in order to survive in the market. Improper customer service leads to wrong product delivery, late delivery, etc which may reduce the potential of the company in market.

Fig.17.25: Shipping Errors and Returns

Slow and Outdated Reporting

Fig.17.26: Slow And Outdated Reporting

To run the business smoothly, one must have the right stock and inventory planning. Excessive inventory makes the product unsold and covers the area not allowing other goods to enter which are in need to be delivered. Those simple aspects may cause serious errors resulting in huge losses and not meeting the demands of the customer. This error can be rectified through periodical reporting and updates.



Note

Outdated Software

With ecommerce and IT sector booming, one should update the company software and adapt to new technologies on a periodic basis in order to reduce the error and improve the profit margin. It is not easy to make change overnight but companies trying to update themselves will definitely sustain the competition in the current scenario. Adapting WMS – warehouse management software, ERP – Enterprise Resource Planning and so other software are available and choosing the right software for your companies improves the performance.

INTEXT QUESTIONS 17.5

1. E-commerce platforms reduce the participation of intermediaries.

   A) True B) False

2. To reduce the shipping error_____ department plays an important role.

3. _____ cause huge loss to the company

4. Expand ERP.

17.7 ADVANTAGES & DISADVANTAGES WITH DIFFERENT CHANNELS OF DISTRIBUTION

1.Wholesalers

Advantages

- Discount and allowances are high
- Advertisement and marketing costs are low
- Fixed profit margin
- Competition is less
- Link between manufacturers and retailers

Disadvantages

- Huge investment is required
- More space is required
- Profit margin is less

Note

- High possibility of loss
- No Direct Interaction with Customers

2. Distributors

Advantages

- Well established network
- High returns
- Fulfilling market requirement
- Reduced cost of sales
- Control in market

5 ***Disadvantages***

- Increase in costs of product
- Fewer market coverage
- More time required for market coverage
- Lack of customer service
- Loss of profit margin

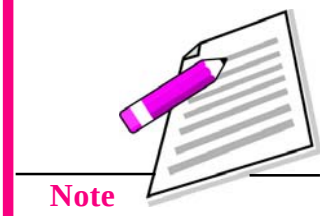
3. Retailers

Advantages

- Convenience to customers
- Builds relationships with customers
- Easy returns
- High customer satisfaction
- No shipping costs

Disadvantages

- High costs to space
- Delay in orders
- Inventory issues
- High operating costs
- Labour costs



Note

4. E-Commerce

Advantages

- Large market coverage
- Tracking options
- Lower investment costs
- Can sell a large number of diversified products
- Increased profit

Disadvantages

- Need internet access
- Theft of product
- Payment frauds and issues
- High complexities during order
- Security issues.

In the above chapter, the advantages and disadvantages of various distribution channels are discussed. Each of the distribution channels has its own advantages and disadvantages which it changes to various factors in adapting to it. One should have to analyse the situation of the market at a regular interval in order to alter his/her distribution channel and updating to current market trends gives you an upper hand with the competitors in the market and helps you to reach the customers at ease.

INTEXT QUESTIONS 17.6

1. As a wholesaler, which are the following factors?

   A) Discounts

   B) Allowances

   C) Less competition

   D) All the above

2. Market fulfilment can be achieved by right distribution.

   A) True

   B) False

Note

3. Easy returns option is one of the advantage of distributors

   A) True

   B) False

4. Without internet and backup software, you cannot adopt to _____

5. In e-commerce, Theft of products is one of the major risk factors.

   A) True

   B) False

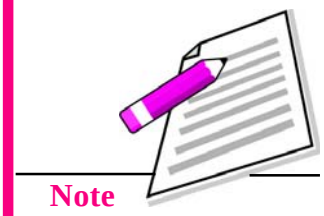
WHAT YOU HAVE LEARNT

- "Physical distribution of materials and goods.
- The main aim of Distribution .
- The Process of Physical Distribution.
- Transportation is concerned with movement of people and goods from one place to another.
- Placing Warehouses at strategic locations helps in movement of goods
- E-Commerce business requires a greater web presence and backend team to manage

KEYWORDS - Physical Distribution, Customer Service, Transportation, Distribution, E- Commerce, Wholesaler, Retailer, Distributor, Cash on Delivery(CoD), Software, Cost.

TERMINAL EXERCISE

1. Explain the Physical Distribution Process
2. List out the components of Physical Distribution
3. Mention the different modes of Transportation.
4. Prepare a chart on various functions of physical distribution.
5. Explain on different channels of distribution.
6. Outline the different stages in distribution.
7. What are the challenges in distribution?
8. Explain advantages & disadvantages of different channels of distribution.



Note

ANSWERS TO INTEXT QUESTIONS

17.1

1. False
2. 1.9 billion
3. False

17.2

1. Customer Service
2. True
3. Trucking
4. Demand

17.3

1. Fast Moving Consumer Goods
2. True
3. False
4. Digital Transactions

17.4

1. True
2. Indirect
3. All the above
4. False

17.5

1. True
2. Customer Service
3. Excessive Goods
4. Enterprise resource planning

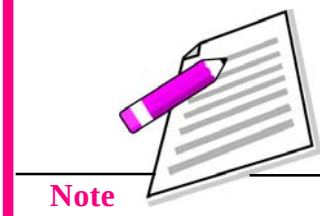
Note

17.6

1. All the above
2. True
3. False
4. E-Commerce
5. True

ACTIVITY

- Collect the pictures on different modes of transportation.
- Collect the details of different E Commerce Companies
- Identify any two shops in your locality and find out their channel of distribution.



Note

18

WAREHOUSING OPERATION MANAGEMENT

A warehouse is a pre-planned storage area which has an open space or racks, and is supported by cranes and lifting machines for the operations involved. The name should have come from either Dutch Warenhuis or German warenhouse meaning a 'large impersonal institution'. In the case of raw materials, a warehouse is used to meet the sudden demand for production of a product and in the case of a finished product, it helps to meet the sudden demand for a product in the market with profit on time. Whether it is logistics or supply chain, uninterrupted supply of raw materials and finished goods is the key factor to achieve success.

OUTCOMES

After completing this lesson, the learner-

- explains the meaning of warehouse operation management ;
- classifies various types of warehouses;
- illustrates the various functions of the warehouse from different sources of your surrounding;
- Collects different types of documents from various sources;
- analyzes the importance of warehouses to preserve raw materials and finished goods;
- prepares a list of warehouses of different locations with its operation;
- lists out safety measures to protect warehouses from any damage;
- predicts challenges in Warehouse & Operation Management in future.

Note

18.1 WAREHOUSE - MEANING

Fig.18.1: Warehouse

Warehouses are used by all the participants whether it is trade or supply chain activities which includes manufacturers, suppliers, retailers, wholesalers, logistics companies, clearing companies, customs and the list goes further. Each of the participants have their unique requirement which is fulfilled by the function of their respective warehouses.

Warehouses have its importance in local land areas and also plays a crucial role in railways, airports and seaports where the goods and cargos are loaded and unloaded with the help of cranes and forklifts for storage, where it is put on holding for seasonal sales and helps in satisfying the day to day needs of everyone all around the world.

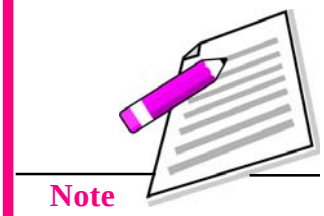
Warehouses are designed or constructed by the companies in relation to the distance with the factory or manufacturing unit and distance between the company's sale points and to reach the target customers quickly. Apart from distance the type and functions of a warehouse is decided by

- Nature of the product
- The type of the building (with and without racks, cold storage option,etc)
- How is the material flow happening?
- At which location it is situated

And thus, the above factors help an individual in designing the right warehouse for his operations required for his product and services. According to historical facts and data, Ancient Romans built the first ever warehouse around the 2nd Century BC. Evidence shows that they have stored grains, olive oil, clothing, food stuffs and even marble stones, which has the common purpose of storing it and distributing it later.

Warehouse Near to Sea and Coastal Areas

Warehouses in sea areas help in storage and bulk movements of goods across the country, where a huge load of cargo is loaded and unloaded from the ships. The



Note

main aim of these warehouses is to help in the export and import process.

Container freight stations are located with Warehouses in Sea Areas to enable the movement of goods.

Fig.18.2: Warehouse-Sea & Coastal Area

Warehouse in Airports

Fig.18.3: Warehouse in Airports

As like the activities involved in other warehouse, airports have their own warehouse where cargo planes make use of it, to deliver and pick up high cost and perishable goods most of the time, which are moved quickly to the next functioning area.The various functions in airport warehouse includes collection of consignments, Re packing, palleting, labelling, fumigation, documentation and inspection.

Airport warehouses are very efficient in moving the goods quickly from one place to another which is very crucial in the period of natural calamities and other emergencies.

Warehouses & Railways

Cargos such as coal, food grains, fertilisers, machineries, chemical components and other dry goods are moved from one place to another in a land locked area which is transported by train and the goods thus moving is loaded and unloaded with local workers mostly by lorries and vans, where its directly loaded/unloaded in trucks or stored in the warehouse

Fig.18.4: Warehouse & Railways

Note

Warehouse in Defence Forces

Apart from trade activities, one of the major sectors which uses warehouses is the defence sector for storing ammunition, aircrafts, tanks and trucks to withstand surprise and counter strike activities.

Fig.18.5: Warehouse in Defence Forces

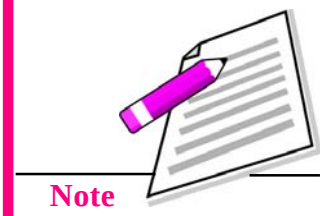
INTEXT QUESTIONS 18.1

1. Warehouse is derived from German warenhausemeaning _____.
2. According to historical facts and data, Greeks built the first ever warehouse
   A) True
   B) False
3. Warehouse is normally used by
   A) Manufacturer
   B) Distributor
   C) Wholesaler
   D) All the above
4. In which warehouse type, goods are moved quickly.
   A) Coastal areas
   B) Airports
   C) Trains
   D) Defence forces.

18.2 TYPES OF WAREHOUSES

As we saw the purpose of warehouses in different mediums of transportation, let us discuss the types of warehouses that are available and used around the world.

- Public Warehouse
- Private Warehouse



Note

- Bonded Storage
- Co-operative Warehouse
- Distribution Centres
- Cold Storage Warehouse

Public Warehouse

Fig.18.6: Public Warehouse

This type of warehouse is built and managed by the government and semi government bodies in order to help the small and medium business people who do not have enough financial power to build their own warehouses and most probably small business people do not require their own warehouse as their requirement is very low. To promote industrial movement of goods and inland trade, it helps the retailers/traders to utilise it and helps in improving their trade activities further by paying normal amount of fee for their usage. At times, those who have warehouses on their own will also use these types of warehouses to meet sudden demands. This type of warehouses is mainly used by manufacturers, importers and exporters to meet sudden demands like festival season, to avoid an out of stock of raw material they use these warehouses to manage.

Private Warehouse

Fig.18.7: Private Warehouse

This type of warehouse is used by individuals who manage their own chain of activities. The flow of raw materials and finished goods is high which requires more space to keep the products. By renting or by using government and other types of warehouses, one should build their own because the cost incurred will be high which you can build your own and regulate which can improve your profit margin. And location plays a crucial role as it differs from the industry you are into as a farmer requires a warehouse, small or medium

Note

nearby his fields, wholesalers/retailers look to keep their warehouse close to customer area, etc. which holds its difference among the work carried out.

Bonded Warehouse

Fig.18.8: Bonded Warehouse

Bonded Warehouse is managed and controlled by the government as well as private firms. Bonded warehouses are mostly used to store imported goods and cargo for which import duty is still to be paid and cleared. To run a bonded storage warehouse, private companies should obtain a licence to run. The main purpose is to control the taxes to be paid by private firms to the government on time. Bonded warehouses are subject to two types of taxes: (a) Excise duty and (b) Custom duty.

Co-Operative Warehouse

As the name implies, it is built and managed by co-operative societies which provide their services to small and medium based companies for their goods movement. Without considering much on the profit margin, they provide rates at an affordable price for their members. Major beneficiaries of these types of warehouses are farmers, who store their food grains, vegetables, fruits and others.

Fig.18.9: Co-Operative Warehouse

Distribution Centres

Fig.18.10: Distribution

This type of warehouse has a large storage area where goods of multiple customers go in and out within a short period of time, whereas in other cases of warehouses, goods are kept for weeks and even for months. In order to reach the customers quickly,

This type of warehouse acts as a distribution centre where perishable

and food items are moved out as soon as it comes in and stored. It is fully computerised as the movements are so quick to control the activities carried out. Mostly goods taken into the warehouse in the morning will be moved out by evening.

Cold Storage Warehouse

As the name implies, goods that are sensitive to temperature are stored here, mostly the goods to be kept at a low temperature are stored here. Medicines, fresh vegetables, cosmetics, and at times chemical products are kept here in order to maintain the nature of the goods. The cost incurred in cold storage is very high compared to other warehouses as the work and amount spent to manage it is very high, as machinery and labour cost are high in operating, maintaining temperature, etc where the goods are kept in refrigerated containers and racks.

Fig.18.11: Cold Storage Warehouse

INTEXT QUESTIONS 18.2

1. _____ warehouses are built and managed by the government and semi government bodies.

2. Private warehouses are built by the individuals to improve the margin of the company.

   A) True

   B) False

3. Who are the major beneficiaries of cooperative warehouses?

   A) Manufacturers

   B) Exporter

   C) Wholesalers

   D) Farmers.

4. Movement in distribution centres is high compared to other warehouse characteristics.

   A) True

   B) False

Note

18.3 FUNCTIONS OF WAREHOUSE

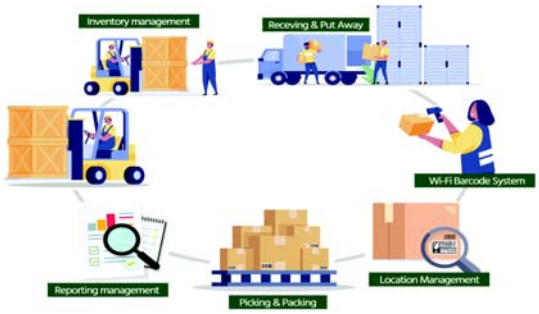


Fig.18.12: Functions of Warehouse

The basic function of a warehouse is to store goods and take back later based on the sales, movement of goods and demands.

Apart from that, there are several functions that a warehouse offers. Let us see in detail.

Storage

Storage is the basic function of a warehouse which provides space for goods, inventory and equipment. Appropriate Storage Helps in minimising the wastage, gives you profit when demand arises and ensures the safety of the goods. It is divided into two types:

- **Planned Storage :** Estimated storage time which framed perfectly to meet the customer demands
- **Extended Storage :** It refers to the extra time taken than planned storage where seasonal demands, bulk purchases are the major reasons behind this extra storage time.

Safeguarding of Goods

Second most important function of a warehouse is safeguarding of goods from natural and weather conditions and also from theft and damage. It is monitored by the appointed person who takes care of the responsibilities involved. It has all the precautionary measures to safeguard the products such as from fire, floods and other climatic factors.

Movement of Goods

Movement of goods consists of the following activities:

- **Inbound Activity :** which refers to unloading of goods from the vehicle into the warehouse
- **Transfer to Storage :** which refers to transferring of goods from inbound area to storage area

Note

- **Order Selecting :** which refers to selecting the items required to be shipped from the storage area
- **Outbound Activity :** which refers to inspecting the goods and loading the goods for shipment.

To manage the above activities smoothly, better infrastructure and software is required.

Financing

Warehouse financing is a type of inventory financing that involves a loan provided by a financial institution to a manufacturer or to a company. Here, goods and commodities stored in the warehouse are used as collateral security to get the loan offer.

When the goods are transferred to the warehouse, the depositor of the goods gets a receipt which acts as a proof that the total value of goods is stored in the warehouse. The warehouse can issue a certificate in the name of the depositor, which is called a 'Warehouse keeper's warrant'. So, while the goods are in the warehouse, you can use this certificate to get a loan.

Value Added Service

Value added is some extra work involved apart from actual warehouse functions such as packing, repacking, labelling and so on. Some major value-added services are discussed below:

Processing : which refers to the process that certain goods are involved in to make it consumable. Seasoning of timber and polishing of paddy are the best examples here where at times warehouse owners perform this on behalf of the actual owner of goods.

Grading and Branding : warehouses at times undertake the function of grading and branding of goods on behalf of actual owners of goods. They provide services like mixing, co-packing and repacking of goods.

Other Services : other value-added services include labelling, stamping, barcode printing, gift packing, quality checking, invoice printing, etc.

Information Management

Warehouse tracks all the in and out movement of goods which helps you in knowing the exact position and stock of goods and data. It helps the actual shipper/ owner of goods to read the data in a precise manner, helping in planning the upcoming goods to be stored and moved out. Error free and precise and timely information is required to make it happen.

Note

INTEXT QUESTIONS 18.3

1. _____ is the basic function of a warehouse.
2. Goods and commodities stored in the warehouse are used as collateral security to get the loan offers.

   A) Yes B) No
3. The warehouse can issue a certificate in the name of the depositor, which is called as _____.
4. Identify the Value Added Services provided in the warehouse.

   A) Labelling

   B) Barcoding

   C) Quality Checking

   D) All the above

18.4 DIFFERENT DOCUMENTS USED IN WAREHOUSE

The following documents are majorly used in warehouse operations, which is classified into five, is discussed below. Warehouse Warrants

The warehouse keeper issues a document in the favour of the actual owner of goods i.e, importer/exporter/wholesaler/retailer whoever is using the warehouse. This is a document of the title of goods that can be transferred during delivery.

To move all the goods from the goods, this document is enough. If only a particular amount or product is to be moved, y DO – Delivery Order is required which is to be accompanied by the warehouse warrant.

Warehouse Keeper's Receipt

This is a document issued by the warehouse keeper acknowledging the goods from the depositor. It also shows the agreement and conditions to keep the goods in the warehouse. It is not the title of goods, cannot be transferable and cannot be used as collateral security.

Dock Warrant

The place where goods are kept to load into ships is called a dock. It is the document of title of goods issued by dock authorities. It shows that the dock authorities hold the goods. To take the delivery, this document should be submitted to the dock authorities. It is transferable to third parties also.

Note

Dock Receipt

It is the acknowledgment of receipt of goods which is issued by dock authorities to the actual owner of the goods. It does have the power of title of goods thus the authority of taking the delivery of goods is not transferable.

Delivery Order

It delivers a specific type or quantity of product and goods which the depositor mentions all the details to deliver to the person mentioned in DO and make the process as per instruction written in it. Transfer of ownership is possible in case of DO.

Sample Warehouse Receipt

INTEXT QUESTIONS 18.4

1. The warehouse keeper issues a document in the favour of the actual owner of goods.

   A) Yes B) No

2. Expand DO.

3. The place where goods are kept to load into ships is called as_____.

4. Transfer of ownership is possible in case of DO.

   A) Yes B) No

18.5 IMPORTANCE OF WAREHOUSE

We have discussed the functions of a warehouse previously and apart from that there are many important factors that a warehouse contributes to in the current world. Let us see them in detail:

Fig.18.13: Importance of Warehouses

Central Location for Storage

Location must be prioritised while choosing a warehouse for your company because the production gap and movement of goods from one place to another is

Note

reduced significantly. Also distributing the goods to warehouses, warehouses to customers becomes easy when the location is favourable to all the departments.

For example, a warehouse which is located in the centre of the city is very advantageous to the shipper in moving the goods from one place to another and helps in delivery of goods to the customer in time.

Improved Order Processing

Timely delivery of the goods to customers is the basic goal of any company in the world. To achieve this, warehouses play an important role. Availability of a warehouse gives you the upper hand in storing the goods and products, ready and safe and also available to move at any time. This allows the shipper to deliver the goods to the customer immediately when he places an order. This reduces the movement time more and the order is made in time. Loss of customers and business due to late delivery is avoided by the help of warehouses.

Extra Space

Even though you have your own warehouse, to match up the demand and when you increase your production, you will need an extra space. Thus, warehouses provide you an advantage during busy times. You can store your goods by giving a storage fee to the warehouse until your customer starts ordering your goods.

Improved Production Quality

Basically, the quantity of goods is monitored by warehouses. Adding a point extra, by effective tracking system, working along with suppliers and other participants, you can regulate and monitor the quality of raw materials and finished goods.

This can be possible by identifying and isolating the defective ones during storage and production and making necessary adjustments, which helps in improving the standard of the final product.

Risk Management

Rise in prices or price fluctuations are common in any type of business. This mainly happens when the supply is more than the required demand which incurs huge losses to the company.

Warehouses can be efficient and helpful during these times, where you can store your goods when there is less demand and sell it in the market when the demand arises, thus improving the profit margin of the company. Not only for normal goods, you can also perishable goods thus avoiding damage and wastage of products.

Note

Task Delegation

You can manage the company by making production, sales and marketing, inventory, transportation and customer satisfaction on your own.

With the warehouse option available you can divide your work and responsibilities among your company staff which saves you from spending too much money and time and each one the employees can look into their work effectively.

Faster Shipping and Delivery

Customers expect delivery on time irrespective of any factors. To achieve this, warehouses help in making the deliveries on time by providing a list of goods available to ship and goods to be kept in stock.

Safety for Products

Warehouses have highly specified security measures and close monitoring of goods stored, which ensures the safety of your products from theft, damage and also from natural calamities as warehouses are built effectively to withstand all those disasters, fire accidents and other man-made disasters included.

INTEXT QUESTIONS 18.5

1. _____ must be prioritised while choosing a warehouse for your company.
2. Timely delivery of the goods to customers is the basic goal of any company.

   A) True

   B) False
3. Order processing is not improved by the availability of goods on time.

   A) True

   B) False
4. Dividing the responsibilities among the employees is called as_____.

18.6 LOCATION OF WAREHOUSE

Location of the warehouse decides how efficiently the company is going to perform all the activities in improving the profit ratio. When it comes to location, right analysis is to be done on various areas before choosing it. Let us discuss the basic criteria for choosing a warehouse.

Note

Fig. 18.14: Location of Warehouses

Rent, Rates and Taxes

Cost factor will be the major point to look at as when you make any mistake here, it will affect your profit level. The basic rents and rates differ from place to place according to the warehouse located in the city area or in outer of the city, owners of the warehouse, size and facility of the warehouse. If the warehouse avails tax benefits and incentives from the government, it will be helpful for the users.

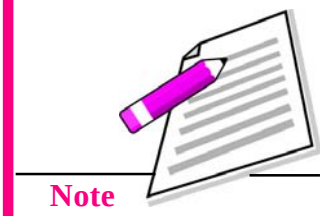
Workforce Availability, Labour Skills and Costs

Workforce availability, labour skills and costs are directly associated with local demographics. You cannot find the right skills at the right price everywhere in your surroundings. There should not come a workforce gap during the activities as it may reduce the customer satisfaction level and productivity of the company in major.

Roads, Highways and Traffic Flow

Accessibility to roads was also to be considered mainly as you concentrated more on location and workforce alone, and if you cannot move the product in and out on time, the business will be lost. When it comes to warehouses, trucking will be the major transportation medium for all purposes. Considering to below points may be helpful in choosing a warehouse location:

- Average traffic in the city
- Access to highways
- Condition of the roads
- Safety measures used for transportation.
- Number of Traffic Signals
- Tolls



Note

Proximity to Airport, Railway Stations and Ports

It may not be required for all the warehouse users. If the main consignment is to be imported by airlines, you should have your warehouse nearest to the airport to carry out the activities. For that, you have to find the best possible route to reach the airport quickly, traffic level, condition of the roads, at what time you are going to take your goods and so on. Same conditions should be adapted when you export/import via rails and ships. It helps in moving the goods as quickly as possible by cutting down the extra time & cost incurred, when the distance to reach the customer is less and it is done on time.

Market and Local Environment Factors

Location which is nearby to reach suppliers, manufacturers and customers is also one of the basic points to be considered along with local environmental factors. It helps delivery to customers on time, decreased transportation costs and improved responsiveness. Local environmental factors such as weather conditions (whether the area is exposed to volcanos, floods, tornadoes and earthquakes) and local conditions (traffic congestion, noise pollution) also to be analysed.

Building Availability and Utility Costs

In case you are shifting from one location to another due to less business, you should be aware of moving from the current warehouse location another on time nearby which helps in carrying the workforce and enhancing the responsiveness as before. And when it comes to utility costs, the activities are dependent on one another. For example, refrigerated warehouses are dependent on water and electricity, which are demanding and may incur high costs for your operations.

INTEXT QUESTIONS 18.6

1. Location of the warehouse decides how efficiently the company is performing.

   A) True B) False

2. Workforce availability, labour skills and costs are directly associated with_____.

3. When it comes to warehouses, _____ will be the major transportation medium.

4. When it comes to utility costs, the activities are dependent on one another.

   A) Yes B) No.

Note

18.7 WAREHOUSE SAFETY ASPECTS

Warehouses are required to Implement a safety plan but it should be executed and checked regularly, which avoids injuries and disasters. Here are some safety aspects to be noted down during warehouse activities,

Ensure Safe Equipment Usage

Forklifts and hydraulic equipment should only be used to transport bulk volume of goods. The handlers should be provided with adequate training for handling the equipment and periodic overhauling of equipment has to be done.

Eliminate Potential Safety Hazards

Keeping the floors free from slips, liquid spillage and cracks are also important as other factors as this may end in serious injuries to workers as well as to machineries too. Good housekeeping is required to maintain the condition of the floor regularly to avoid any mishaps happening.

Providing Proper Training

Providing proper training on the activities carried out creates a safe environment for the worker and awareness of the consequences helps to follow the SOP-Standard Operating Procedures.

Proper Clothing

Improper clothing may cause huge injuries and consequences such as getting caught in the machinery, racks and shelves, etc. are some of the common mistakes happening but the outcome is too dangerous. It may be caught with fire, electric shock which results in serious injuries to self and others. It is always advisable to wear safety helmets, shoes and reflector jackets inside warehouses.

Shelf Safety

It is very essential in analysing the weight and capacity of the racks and shelves it can hold. When you place the product or goods more than its weight holding capacity, it may fall on the workers, machinery, or even to the ground causing damage to both the goods and area it falls. It is very mandatory to check it regularly.

Identification and Marking of Hazardous Zones

Signs and stickers are the easy and cost efficient way to keep your warehouse organised and keep you safe from disasters. Labelling of racks, materials and equipment helps to identify the nature of it and easy to carry out the operations by the workers, avoids them from causing injuries and loss to the company.

Fig.18.15: Hazardous Zones

Vehicle Safety

Workers who are operating the vehicles should be trained well in order to avoid accidents and injuries during operations. Operating with minimal speed, avoiding unnecessary reversing whether it is trucks or forklifts, helps in avoiding injuries.

Carrying Out Fire Safety Drills

Testing fire and smoke alarms, installation of emergency lights during evacuation and carrying out safety drills helps the workers to maintain a safe environment.

Ventilation

Limited air supply results in affecting the health of employees and vehicle exhaust which is to be checked at regular intervals, helps you to find out if any hindrances in ventilation areas around the warehouse. Having enough ventilators around helps you to work even more efficiently.

INTEXT QUESTIONS 18.7

1. Good housekeeping is required to maintain the condition of the floor regularly to avoid issues.

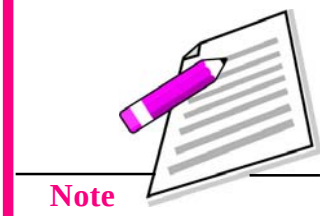
   A) Yes B) No

2. _____ are the easy and cost efficient way to keep your warehouse organised by identifying the nature of the workplace and products.

3. Expand SOP

4. Fire alarms and smoke alarms should be tested regularly.

   A) Yes B) No



Note

Note

18.8 CHALLENGES IN WAREHOUSING

Fig.18.16: Challenges in Warehousing

The various challenges in managing warehouse which are listed below:

Communication

Lack of communication is the basic challenge in warehousing, which is the base for planning and executing the shipments quickly. Proper communication with all the departments is required to ensure smooth movement of activities.

Time Management

Effective time management should be done in picking, packing and shipping of goods to avoid delays which may impact on business.

Inventory Tracking

Tracking of goods and maintaining the record of inventory which is updated regularly helps in control over stock and shipped items. Inventory Tracking also forms the basis for identifying stock out situations in advance and avoiding it.

Customer Satisfaction

It is always a tough task to satisfy the customers by meeting their expectations. Maintaining right product, inventory, quick response to customers and timely action for delivery helps in attaining customer satisfaction.

Repeated Process

Repeated process in movement of goods and inventory inside the organisation consumes more time and cost which could be avoided by assigning the right person to monitor.

Product Diversification

Eliminating the products which are out of field and updating to current trends in producing the products and maintaining it helps in improved profit.

Note

Inaccurate Purchase Orders

Having inaccurate orders makes the process complex and costs high, resulting in losing the customer base of the company due to late and wrong delivery of products.

Handling Product Damages

Damages are inevitable in warehouse operations but can be minimised by maintaining a clean environment, regular checking of products, packages, loading permitted volume of products in the shelves, etc.

Managing Demands

Seasonal products, government policies, weather conditions are common factors in deciding the movement of products and if proper analysis is not made before stocking, products end up in warehouses which is a huge loss for the company.

Space Limitations

When the space for the goods to be stored is limited, it becomes difficult to store all your product in a single warehouse, where you should choose one or more other warehouses to store your goods, which ends in transportation costs and other operating costs to the company which lowers the profit margin.

INTEXT QUESTIONS 18.8

1. _____ is the basic challenge in warehousing.
2. Tracking inventory helps you in getting control over stock.

   A) Yes

   B) No
3. Inaccurate purchase order results in losing _____of the company.
4. Which are the below factors that decide the demand and movement of goods?

   A) Seasonal products

   B) Weather conditions

   C) Government policies

   D) All the above.

Note

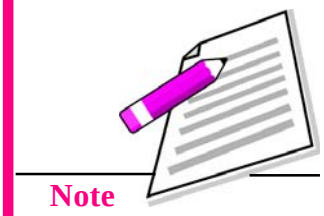
WHAT YOU HAVE LEARNT

- A warehouse is a pre-planned storage area which has an open space or racks, and is supported by cranes and lifting machines for the operations involved.
- According to historical facts and data, Ancient Romans built the first ever warehouse around the 2nd Century BC
- Apart from trade activities, one of the major sectors which uses warehouses is the defence sector for storing ammunition, aircrafts, tanks and trucks.
- Public Warehouses are useful for the small and medium business people who do not have enough financial power to build their own warehouses.
- Bonded warehouses are mostly used to store imported goods and cargo for which import duty is still to be paid and cleared.
- Value added is some extra work involved apart from actual warehouse functions such as packing, repacking, labelling and others.
- Location must be prioritised while choosing a warehouse as it impacts on cost, time and customer satisfaction.
- Warehouses are required to Prepare and Implement a safety plan and it has to be checked on a periodic basis to avoid accidents from happening.
- Maintaining right product, inventory, quick response to customers and timely action for delivery helps in attaining customer satisfaction.

KEYWORDS- Warehouse, Storage, Distribution, Inbound, Outbound, Cold Storage, Documents, Warrant, Safety, Distance, Customer, Challenges, Location

TERMINAL EXERCISE

1. What are the various types of warehouses? Explain
2. Explain the various functions of a warehouse
3. List out the various documents to be maintained in Warehouse.
4. Enumerate on the importance of warehouses in business
5. Explain various factors associated with the location of a warehouse.
6. Explain in detail about warehouse safety aspects
7. Give a brief description of the various challenges in warehouse operations.



Note

ANSWERS TO INTEXT QUESTIONS

18.1

1. "Large Impersonal Institution"
2. False
3. All the above
4. Defence Forces

18.2

1. Public warehouse
2. True
3. Farmers
4. True

18.3

1. Store goods and take back later
2. Yes
3. Warehouse keeper's warrant
4. All the above

18.4

1. True
2. Delivery Order
3. Dock
4. Yes

18.5

1. Location
2. True
3. False
4. Task delegation

Note

18.6

1. True
2. Local demographics
3. Trucks
4. Yes

18.7

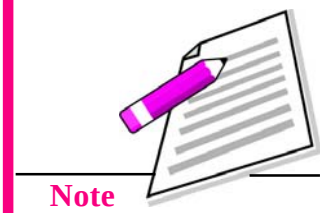
1. Yes
2. Signs & Stickers
3. Standard Operating Procedure
4. Yes

18.8

1. Lack of Communication
2. Yes
3. Customer Base
4. All the above

ACTIVITY

- Collect the Pictures of various equipments used in warehouses
- Visit a warehouse in your Locality and try to understand the activities carried out there.



Note

19

TRANSPORTATION MANAGEMENT

Air transport is an imperative enabler to achieving economic expansion and development. Air transport assists integration into the worldwide economy and offers vital linkage on a national, regional, and global scale. It assists to create a business, supporting tourism, and generating employment opportunities. Aviation assists drive the development of the current world. A system of airlines, airports and air traffic administration organisations connect major metropolitan cities and little communities 24 hours a day with increasingly modernised aircraft. Air transport is an imperative enabler to achieving economic expansion and development. Air transport assists integration into the worldwide economy and offers vital linkage on a national, regional, and global scale. It assists to create a business, supporting tourism, and generate employment opportunities. Aviation assists drive the development of the current world. A system of airlines, airports and air traffic administration organisations connect major metropolitan cities and little communities 24 hours a day with increasingly modernised aircraft.

OUTCOMES

After completing this lesson, the learner-

- summarizes the concept of utilizing transportation system in business ;
- establishes the complementary relationship between transportation & logistics management;
- analyzes the various modes of transport & technologies used in transportation management;
- classifies different types of roads and vehicles to collect a brief descriptions about each category;
- evaluates the main functions of transportation management systems;
- predicts about challenges in transportation management in future

Note

19.1 TRANSPORTATION MEANING

Fig.19.1: Transportation System

Transportation is simply defined as the movement of goods from one place to another. In specific, it is the particular movement of a product from point A to point B for various reasons. The modes of transportation include Air, Land (Rail and Road), Water, Cable, Pipeline, and Space. Transport enables trade between people, which is essential for the development of people.

Transportation basis can be divided into infrastructure, vehicles and operations. Transport infrastructure consists of fixed installations which include roads, railways, waterways, airways, canal and pipelines and terminals such as airports, railway stations, bus stations and seaports. Terminals may be used both for interchanging cargo and passengers. For transportation of goods or people, different means of transportation are used which include riding animals and vehicles. In the case of vehicles, there are many types which are bicycles, automobiles, buses, trucks, trains, aeroplanes, helicopters, ships and spacecraft.

Transportation has grown rapidly in recent times with the technology booming everywhere, even the impossible is possible with the growth of transportation. From bullock carts to bullet trains, from steam engines, ships to container ships, from two-man aircraft to Boeing planes transportation has come a long way where we are landing in space with space crafts.

INTEXT QUESTIONS 19.1

1. _____ is simply defined as the movement of goods from one place to another.

2. Transportation is divided into _____.

   A) 2

   B) 3

   C) 4

   D) None of the above

Note

3. Terminals may be used for interchanging cargo only

A) True

B) False

19.2 DIFFERENT MODES OF TRANSPORTATION

Fig.19.2: Different Modes Of Transportation

Different modes of transportation are practised all around the world. The mode of transportation depends on the geographical factors, development of the country, economic status of the country, and at times climatic factors decide the mode of transportation to be used by the people. Every transportation mode has its own advantages and disadvantages in adopting it.

Currently, transportation helps to improve the lifestyle and satisfy the basic needs of the people by large amounts of transportation of goods mainly by ships and by means of air in order to fulfil the demands meanwhile enhancing trade and business opportunities among the countries of the world. It not only generates the revenue but all helps in improving the overall economy of the country and provides various job opportunities among the country.The basic and specific modes of transportation are defined below:

- Road Transportation
- Maritime Transportation
- Air Transportation
- Rail Transportation
- Intermodal (Multimodal) Transportation
- Pipeline

19.3 ROAD TRANSPORTATION DIFFERENT TYPES OF VEHICLES-DIFFERENT TYPES OF ROADS

It is the common mode of transportation which is practised among, where walking from one area to another to complete a task has evolved to cars, trucks and super bikes to do the task at present. It's the best mode of transportation with less

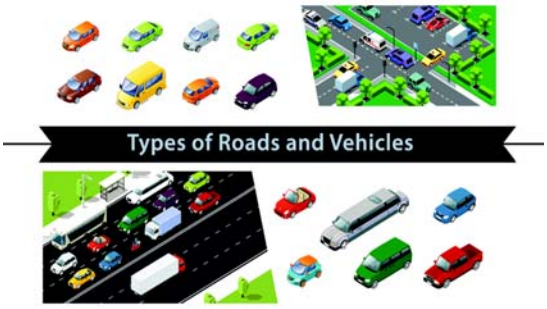


Fig.19.3: Types of Roads and Vehicles

constraints. And due to geographical factors around the world, most of the people use road transportation, particularly to short distance areas. In olden days, road transportation carried out by means of walking and with the help of animals to carry the goods and peoples and thanks to the technological invention of engines, which frees them from overloading and work and still some of the villages use animals as their transportation medium as some places requires this still which are mountains, hills and slopes.

Apart from using animals as a medium of transportation, the most common means of road transportation are cycles, two wheelers, cars, buses, trucks, vans and lorries. All the above mentioned transportation means have evolved significantly in recent years in terms of style, comfort, and speed.

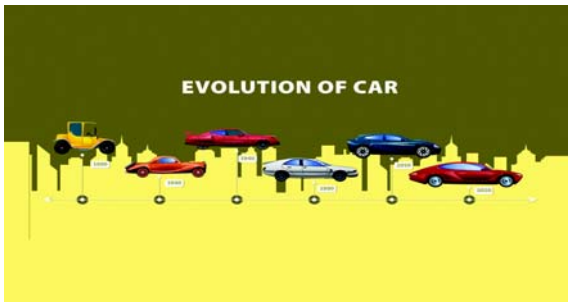


Fig.19.4: Evolution of Cars

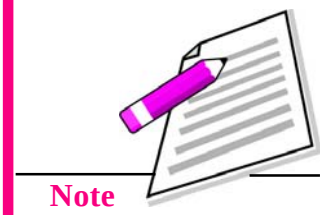
Below is an example of the evolution of cars in the means of road transportation, which significantly improved from using animals initially to automated electric cars at current generation.

Different Types of Vehicles in Road

There are various vehicles which are used all over the world based on its resources and availability of technology. Let us see some of the most used transport vehicles on the road which are used in common.

Two Wheelers

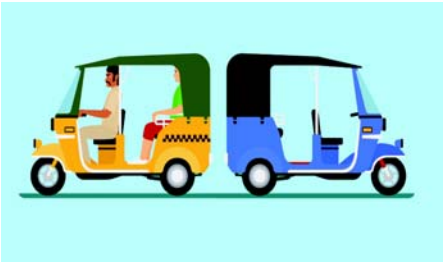
The most common mode of road transportation where without is day to day activities will be very difficult. India is one of the largest producers and users of motorcycles. Commonly used for short and long distance travel, some use it for trips and race purposes. People working in E Commerce, Food Delivery and Courier Industries use Two Wheelers for delivering the products to the customers.



Note

Auto

It is the most common public transport in India used in almost all the cities in India for short distance purposes, mostly for working people, school children and aged people.



It is an efficient way to carry out short distance work and availability of more autos helps the task completion easier.

3 Wheel Pickup Vehicle

Also called as three wheeled car, Pickup Vehicles are efficient in carrying lighter goods, cargo, cylinder and water cans where mostly small and medium companies use this to carry out their operations.

Car – Passenger Vehicles

There are different types of cars available such as Hatchback,

Sedan, SUV, Sedan etc. which are selected based on the usage of the individual and cars have become a symbol of status and luxury in recent times and no doubt they play a massive role in transportation of human beings and items on a daily basis.

Pick Up – Commercial Vehicles

They are used to carry loads and goods which are heavy and light, for short distance which is done for commercial purposes. Most of the company's own this to reduce the cost which is to be given to third parties and manage it on their own.

Bus

It is one of the most common type of transportation vehicle which is used for transportation of passengers from one location to another. Both Government and private operators run buses to meet the passenger requirements.

Trucks

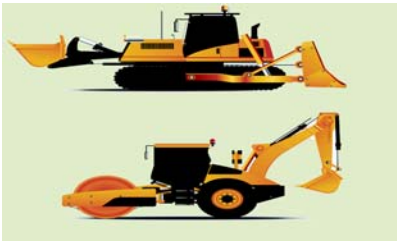
The most preferred mode for transporting cargoes from one location to another location. Trucks are used to transport bulk and voluminous goods from one place to another. There are different types of trucks which are widely used for cargo movement.

Tractor – Agricultural Vehicle

Mainly used for agricultural purposes, tractors have reduced the olden ploughing method by bulls, which is very

difficult to carry out and have made the work easier for farmers.

Backhoe – Heavy Duty Vehicles



Mostly used for construction purposes, they have a huge contribution in making the work easier and time saving factor. JCB and Bulldozers are the common ones which are used in India.

Defence Vehicle

Mostly defence trucks are seen and apart from that, jeeps, tanks and other armed vehicles are used by all the armed forces around the world to tackle the operations and rescue purposes are also carried out at emergency time provided its strength and movement.

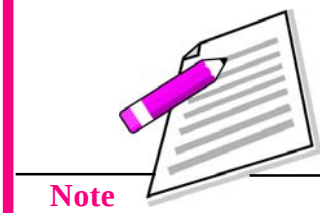
DIFFERENT TYPES OF ROADS:

The different types of roads are classified based on the below classifications:

1. Classifications Based on Speed and Accessibility

Expressways

Expressways, as the name suggests it is that features two or more traffic lanes in each direction, with opposing traffic



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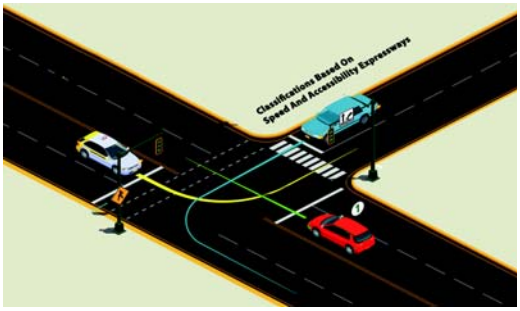


separated by a median strip it has controlled entries and exits and advanced designs eliminates steep grades, sharp curves, and other hazards and inconveniences to driving.Currently, the longest expressway in India is the Purvanchal Expressway at 340.8 km (211.8 mi) and the widest expressway is the Delhi–Meerut Expressway at 14 lanes.

Highways

Highways connect villages to cities or cities to cities or state to state or the roads connecting the state capital to the national capital are called highways. Generally laid in two lanes, it can be extended up to 6 lanes and are classified as National highway, State highways,Urban Highways and Rural highways.

Street Roads

With permitted minimum speed, street roads have various functions, where local markets function more, pedestrians moving in and out, loading and unloading proc are carried out, street roads are generally busiest one in short distance.

2.Based on Materials Used

Earthen roads

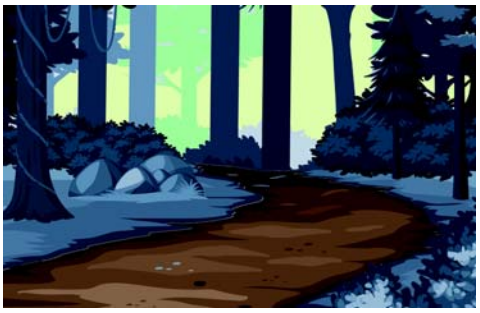
They are designed for low volume work operation, they are made by the soil available around the area. Soil is laid for two three layers and later compacted and used, which is the cheapest one.

Note

Gravel roads

It is the second cheapest road, which is better than earthen roads. In this, mixture of soil and gravel is paved and compacted, also called as metal roads. Generally, these types of roads are built in villages.

Murram Roads



It is gravelly lateritic material which occurs during the disintegration of igneous rocks by weathering agencies. The road is laid by Murram, so it gets this name and provides greater finish life compared to earthen and gravel roads.

Bituminous Roads

Bituminous is a black viscous and adhesive material that occurs during the distillation of petrol. It provides greater finish than any of the type and provides smoothness for a longer period.

Generally, it is laid in two layers for long life.

Concrete Roads

These roads are laid in cement concrete material and its costlier among all types of roads. These roads are recommended for high traffic places and take more time to construct. The average life of concrete roads is 40 years whereas the bituminous roads have an average life of 3 years.

INTEXT QUESTIONS 19.2

1. Road transportation is the common mode of transportation which is practised all over the world.

   A) True B) False

2. _____ is also called a three wheeled car?

3. On which road, pedestrians are not allowed?

   A) Highway

   B) Express way

   C) Street road

   D) None of the above

Note

4. _____ is a black viscous and adhesive material occurs during the distillation of petrol.

5. The average life of bituminous roads in 40 years

   A) True B) False.

19.4 RAIL TRANSPORTATION-MEANING

Rail transport, which is also termed as train transport, which runs on tracks. It is the cost efficient means of transport for movement of goods for long and short distance areas. Initially, trains are operated by coal and then steam engines and at present, with the technological improvement, the operations are carried out by petrol and diesel and with electricity also. Movement of goods and passengers are carried out all over the world in rail transport.

Fig.19.5: Rail Transportation-Meaning

Fig.19.6: Evolution of Transport

India is the largest country in rail network connection in terms of distance covered and population of people using it and it's the cheapest among all the transportation means in India in terms of cost, time taken to reach the destination and comfort.

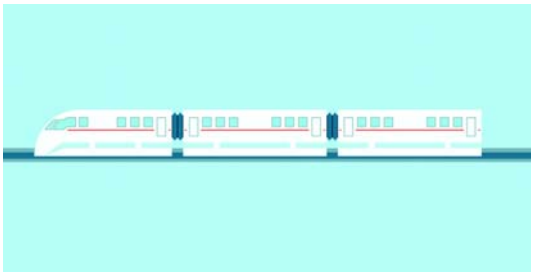
Below is the short evolution of rail transportation:

Types of Rails

Metro Rail:

It is the underground railway system in a city covering the range from 12 to 20kms. It's also called subway trains. The time taken to reach the destination is very quick with great comfort.

Mono Rail



It is a railway system that travels on a single metal track. Usually built where the space is less and used for shorter distance areas.

Passenger Train

This type of train carries only passengers and does not carry any goods of high volume. Carrying out large distance movement, it is the cheapest one in ways of cost and time saving one.

Freight Trains

It carries only goods which include coal, containers, sand, rocks, grains and pulses. It's the cheapest one with a large amount of goods carried from one place to another.

Regional Trains

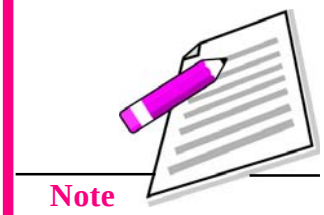
Also called as local trains, is carried out for small distances inside big cities with less train compartments.

Types of Train Wagons

Train wagons which are also called Freight Cars are used for transporting various types of goods. Let us see the various types of train wagons.

Open Wagons

It is mainly used to transport weather resistant goods. Examples of this type of wagons are coal, sand, rocks, etc.



Note

Covered Wagons

It is mainly used to transport goods that have to be protected from weather conditions and make the goods secure during the transit. Packaged products, fertilisers, and food grains are the major goods transported in closed wagons.

Covered Wagon

Flat Wagons

They generally have a full length and flat floor and are open at the top. It is designed to transport weather resistant goods. Rolled coils, containers, steel plates and sheets are the major goods transported in this type.

Container Wagons

Specifically used to transport containers from one place to another where ships cannot be able to travel.

Tank Powder Wagons

Used for the transportation of petroleum, oil, lubricants, LPG, alumina powder and fly ash.

Special Purpose Wagons

It is developed for transporting military items mainly where tanks and military equipment are loaded which is designed to carry a high amount of cargo.

INTEXT QUESTIONS 19.3

1. In initial stages, trains are operated by coal and steam engines.

   A) True

   B) False

2. Metro trains are also called as _____.

Note

3. _____ trains carry out for a small distance inside big cities with less train compartments.

   A) Freight Trains

   B) Passenger Trains

   C) Regional Train

   D) Metro Train

4. Train wagons which are also called as _____.

5. _____ wagon is used for the transportation of petroleum, oil, lubricants and LPG.

   A) Special Purpose Wagons

   B) Tank Wagons

   C) Covered Wagons

   D) None of the above

19.5 AIR TRANSPORT

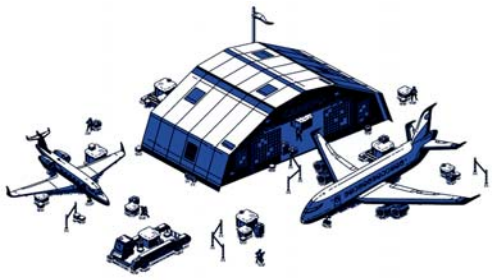
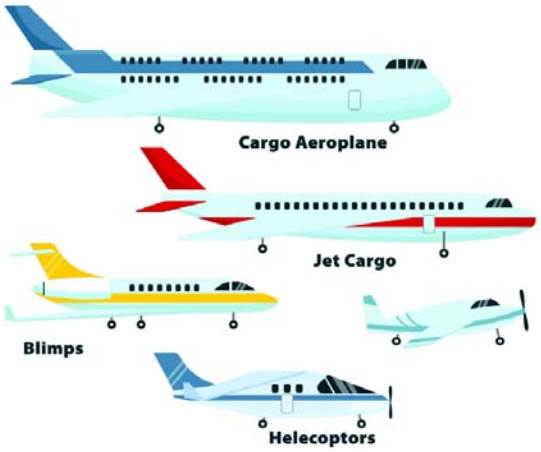


Fig.19.7: Air Transportation

The movement of passengers and goods by the means of aircraft is called air transportation. The various means of air transportation are aeroplanes, helicopters, jets and cargo planes, which differ from one another on the basis of carrying capacity, speed, time taken to reach the destination, etc.

Various Means of Air Transportation



Note

Major & Minor Airports in India

The Airport Authority of India is the body that manages both the International Airports in India as well as the Domestic Airports in India.

Airports Authority of India (AAI) manages a total of 137 Airports, which includes 103 Domestic Airports, 24 International Airports, and 10 Customs Airports. AAI is responsible for creating, maintaining, upgrading, and managing civil aviation infrastructure in India and works under the Ministry of Civil Aviation. Below photo shows the airports in India

Category of Airport

CATEGORY	DESCRIPTION
Customs	Airports with customs checking and clearance facilities handling international flights but not elevated to international airport status
Defence	Indian Armed Forces handled airport
Domestic	Handles domestic flights
Proposed	Proposed or under construction
International	Handles international flights
Private	Private airport for specific purposes

Role of Airport

ROLE	DESCRIPTION
Air Force Station	Military Airbase
Civil enclave	Civil enclave in a military airport. But also handles commercial flights
Closed	No longer operational for commercial flights
Commercial	Handles commercial flights
Flying School	Airport/Airship used to train commercial and/or fighter pilots

Important Points to be Noted

- There are 34 operational International Airports in India.
- Indira Gandhi International Airport is the largest International airport

Note

constructed in 5495 acres. It is also the busiest airport in India followed by the Chhatrapati Shivaji International Airport.

- Cochin International Airport, Kerala is the first international airport in India developed under PPP- Public-Private Partnership Model.
- Calicut International Airport, Kerala was recently added to the list of International Airports in India.
- Juhu Aerodrome, Mumbai is the first and oldest Airport in India founded in 1928
- Airport of Trichy is the smallest airport in India.
- Kushok Bakula Rimpochee, Ladhak is the 23rd highest commercial airport in the world at 3256 metres

INTEXT QUESTIONS 19.4

1. Expand AAI
2. India has 24 International Airports

   A) Yes

   B) No
3. How many Customs Airports India manages?

   A) 8

   B) 9

   C) 10

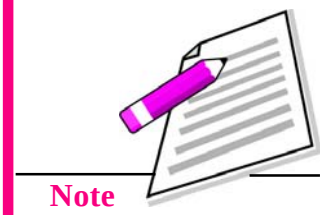
   D) 11
4. Civil enclave is a military airport but also handles commercial planes.

   A) True

   b) False
5. _____ Airport is the largest International airport constructed in 5495 acres.

19.6 WATER TRANSPORTATION

Water transportation is the process of moving people and cargo by means of ships, barges, boats over the sea, canal, river and lake. This is the most efficient



Note

way of transporting cargo and people for longer distances with cheaper price and being able to carry tons of cargo compared to other transport means.

Fig.19.8: Water Transportation

From the olden days, water transport played a crucial role in trade among the countries of the world which is the initial purpose of water transport. People of ancient days used rivers which happened naturally, for their purposes and then huge canals were built for trade options and ships rule over the seas in the current world. Today 95% of world's trade is done by water transport which is where without water transport movement, the day to day life of mankind is totally affected. The goods thus carried via ship are termed as Cargo, which can be everything loaded in the ship.

There are various mediums where you can travel in water which is done for trade, sports activities, daily transportation and movement of people, war and security purposes, etc. which is explained in the below picture.

Types of Water Transport

- Inland Water Transport
- Ocean Water Transport

Inland Water Transport

The inland water transport is the system of transport through all navigable rivers, lakes and man-made canals. Barge and medium ships are used for this kind of transportation where there is adequate space for the big ships to enter and operate. One of the main rivers where inland water transport is important is the Nile in Africa.

Canals are mostly built to link up two navigable Seas or Oceans. Example: the Suez Canal which links the Red Sea and the Mediterranean Sea Nile river Suezcanal

Ocean Water Transport

Ocean water transport carries people and cargo through ocean waterways from one country to another country at cheaper cost. This includes Passenger Liner which carry people and high valued goods, operates on scheduled routes, Cargo liner, which carry tons of goods, operates on a scheduled route, Oil tankers and

Note

refrigerated ships, which carries oil and perishable goods.Passenger LineTankers Reefer Ships

Different Types of Containers

Dry storage container

The most common type of container used across, which comes in the size of 10ft,20ft,40ft.

Flat rack container

With collapsible sides and the sides can be folded, it is used to load a wide variety of goods, automobiles and machineries.

Open top container

With the option if convertible top, materials of any height can be easily loaded in this type of containers

Reefer containers

With the temperature regulation option, perishable goods such as fruits and vegetables are loaded in this type of container.

Tanks

Made up of strong steel and anti-corrosive materials which provide long life and protection of materials, liquid materials are loaded in this type of container.

Car carriers

With a collapsible side, cars are loaded in this type of container for long distance travel without any damage.

One door Open container

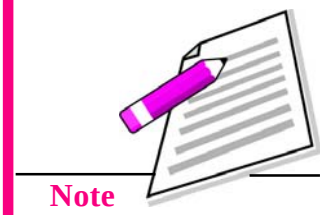
Mainly agricultural products which include onions and chillies which need air ventilation are loaded in this type of container.

OOG – Out of gauge:

This type of container is used where the cargo cannot fit into the containers. According to its dimensions and space holding in the ship, extra charge is collected from the shipper.

Types of Carriers

Apart from container ships, cruise ships and barges, the carriers in use are stated below:



Note

Bulk Carriers

Dry cargo such as coal, grain and ore are mainly loaded in this type of carrier.

RO-RO Carriers

Automobiles like cars and machinery are loaded in this vessel.

Chemical carrier

Chemical items are carried in this type of vessel

Fishing Vessel

Mainly used for fishing purposes.

INTEXT QUESTIONS 19.5

1. _____ are mostly built to link up two navigable Seas or Oceans.
2. The most common type of container used across, which comes in the size of 10ft, 20ft, 40ft

   A) Flat rack container

   B) Open top container

   C) Dry Storage container

   D) None of the above
3. Automobiles like cars and machinery are loaded _____ carrier.
4. Agricultural commodities are loaded in One door open containers for air ventilation

   A) Yes B) No
5. Today _____ percentage of world's trade is done by water transport.

19.7 IMPORTANCE OF TRANSPORTATION- RELATIONSHIP BETWEEN TRANSPORTATION & LOGISTICS

Transportation as discussed earlier is carrying goods and people from one place to another. It helps enable trade, commerce, communication and establish civilization. The major importance of transportation are:

Note

1. 1.It helps in mass production and stability of prices
2. 2.It helps in economic development
4. It offers numerous opportunities
5. It helps in social development
6. It helps in industrial and agricultural development
7. It helps in growth of business organisation

RELATIONSHIP BETWEEN TRANSPORTATION & LOGISTICS:

Transportation and logistics look similar but they do have their differences across various factors. Let us see the basic differences among the two.

- Transportation is the movement of goods and logistics is the movement of inward and outward transportation of goods from manufacturer to end user.
- Logistics is obtaining, producing and distributing materials in right quality to the end user whereas transportation is simply the movement from one place to another
- Logistics requires planning and other factors to move a product whereas transportation is executing the planning.

INTEXT QUESTIONS 19.6

1. Transportation helps in social development

   A) Yes B) No

2. _____ is the movement of inward and outward transportation of goods.

3. Logistics requires planning and other factors to move a product

   A) Yes B) No

19.8 NEW TECHNOLOGIES IN TRANSPORTATION

New technological inventions are popping up day by day in each and every sector. Here are the top five technologies in transportation that may rule the future.

THE INTERNET OF THINGS

Assuming all the people are connected through vast network, it could potentially

Note

influence many aspects in our daily driving which includes route planning(GPS Global Positioning System - comes into action choosing the best route), accident prevention(sensors alerting the drivers to prevent collision) and safety(sensors that track driver's physiological indicators and if failed in sensory tests, the vehicle becomes inoperable)

AUTONOMOUS CAR

Tesla already started to make autonomous cars resulting in alternatives to human drivers, less fuel consumption and less gas consumption.

HYPERLOOP

By using Hyperloop, you can travel to long distances in no time resulting in advantage in various factors

DRONE DELIVERY

Amazon is already making delivery by drones for shorter distances, which will definitely rule the future world.

LIGHT WEIGHT VEHICLES

By reducing the weight by 10% will improve the fuel efficiency by 6%, one of the future ways to reduce the fuel is by the automobile sector working out the best possible way to make it happen.

INTEXT QUESTIONS 19.7

1. Expand GPS
2. Accidents are stopped by alert given by sensors

   A) True B) False
3. _____ stared to make autonomous cars resulting in alternative to human drivers.

19.9 CHALLENGES IN TRANSPORTATION

As the technology grows day by day in improvising the aspects of transportation, the challenges also grew on the other side. Here are the major challenges faced in transportation.

- 1.Cost Factor
- Rising fuel prices

Note

- Impact on economy
- Driver shortages
- Pandemic situations
- Complex government regulations
- The growing need for sustainable logistics operations
- Inability to not deliver it on time
- Not able to achieve customer satisfaction
- The rise of automation
- Industry demand for digital transformation.

19.10 TRANSPORTATION MANAGEMENT SYSTEM

A transportation management system (TMS) is a logistics platform that uses technology to help companies to plan, execute, and optimise the physical movement of goods, both incoming and outgoing, and make sure that proper documentation is done.

Transportation management systems are primarily used by businesses that need to ship, move, and receive goods on a regular basis, including:

- Manufacturers
- Distributors
- Ecommerce companies
- Retail businesses
- Companies that provide logistics services, such as third-party and fourth-party logistics (3PL and 4PL) companies and logistics service providers (LSPs).

Advantages of TMS

- Reduced costs for the business
- Simplification of supply chain processes.
- Automation of business operations for faster and more accurate billing and documentation
- Improvement in visibility and security, especially in transit

Note

- Time saving.
- The ability to track freight, both locally and globally, on a single platform
- Better import and export compliance minimising penalties and shipment delays
- Improvements in customer service and customer satisfaction with real-time updates and fewer shipment delays
- The ability to scale the business by meeting and exceeding customer demands for fast, on-time shipments

WHAT YOU HAVE LEARNT

- The various modes of transportation include Air, Land (Rail and Road), Water, Pipeline.
- The mode of transportation depends on the geographical factors, development of the country, economic status of the country, and at times climatic factors.
- The most commonly used vehicle to transport bulk goods through roads is trucks.
- India has both the longest and the widest expressways.
- India is the largest country in rail network connection in terms of distance covered and population of people using it and it's the cheapest among all the transportation.
- Train wagons which are also called Freight Cars are used for transporting various types of goods.
- The movement of passengers and goods by the means of aircraft is called air transportation.
- The various means of air transportation are aeroplanes, helicopters, jets and cargo planes
- The Airport Authority of India is the body that manages both the International Airports in India as well as the Domestic Airports in India.
- Water transportation is the most efficient way of transporting cargo and people for longer distances with cheaper prices.
- Transportation helps enable trade, commerce, communication and establish civilization.

Note

- New technological inventions are popping up periodically in the transportation sector.
- From fulfilling an individual's need to supporting the economy of the country, transportation plays a crucial part in each and every one's life.

KEYWORDS- Transportation,Technology,Roads, Rails, Wagons,Airport, Enclave,shipping, Containers, Carriers, Logistics, Challenges, Advancements

TERMINAL EXERCISE

1. Explain about the different vehicles used in road transportation for delivery of goods
2. Classify on different types of roads
3. What are the different types of rail wagons used for cargo transportation?
4. Differentiate between Inland Water Transportation & Ocean Transportation.
5. Sketch out the different types of containers used in the shipping industry.
6. Mention the relationship between transportation & Logistics.
7. Make a note on new technologies used in transportation.
8. Give a brief description of challenges in the operation of transportation towards proper functioning of logistic and supply chain management.

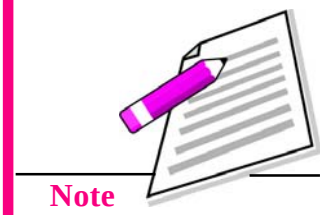
ANSWERS TO INTEXT QUESTIONS

19.1

1. Transportation
2. 3
3. False

19.2

1. True
2. Tempo
3. B
4. Bituminous
5. False



Note

19.3

1. True
2. Subway trains
3. C
4. Freight Cars
5. B

19.4

1. Airports Authority of India
2. Yes
3. C
4. Yes
5. Indira Gandhi International Airport

19.5

1. Canals
2. C
3. RO-RO carrier
4. Yes
5. 95%

19.6

1. Yes
2. Logistics
3. No

19.7

1. Global Positioning System
2. True
3. Tesla.

Note

ACTIVITY

- Prepare a chart on the National Highways and Expressways that connect India
- Visit the webpage of Indian Railways Freight Service and prepare a report on their activities
- Collect the Pictures of Major Ports in India and prepare a description on goods handled.
- Visit the website of IATA and prepare a note on their areas of work.

20

INVENTORY MANAGEMENT

Inventory management is the process of keeping control over the flow of inventory. The process starts from warehousing till the final product is completed and ready to sell in the market. The tracking of the above operations can be done either manually or by an automated system.

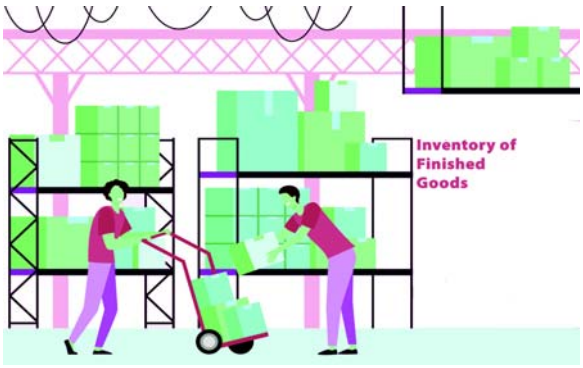


Fig.20.1: Inventory of Finished Goods

When the goods arrive in the respective areas, inventory ensures receiving, accounting, maintaining and storage of raw materials, tools, finished products, etc.

OUTCOMES

After completing this lesson, the learner-

- explains the concept & objectives of inventory management;
- classifies various types of inventory on the based on the requirements of storage;
- analyzes the need for maintaining inventory to provide better customer services;
- estimates the various costs associated with inventory.
- evaluates various formulas for the types of inventory analysis methods of business enterprises.
- assesses the need for maintaining inventory for the protection of finished goods.

Note

20.1 MEANING OF INVENTORY MANAGEMENT

Inventory management is the process of keeping control over the flow of inventory.

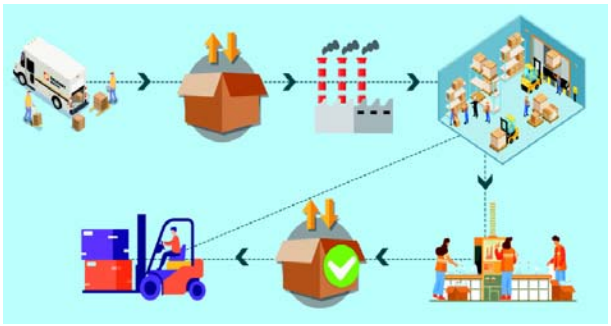


Fig.20.2: Inventory Management

The process starts from warehousing till the final product is completed and ready to sell in the market. The tracking of the above operations can be done either manually or by an automated system.

The below diagram shows the flow of goods in inventory management in an organisation -

Here, the goods stored in the warehouse are used for two major purposes.

- Directly distributed in the market to wholesalers, dealers, retailers and customers.
- Sent to the manufacturing unit to make the product complete and then distributed in the market.

There are many inventory management techniques available for organisations where the common ones are

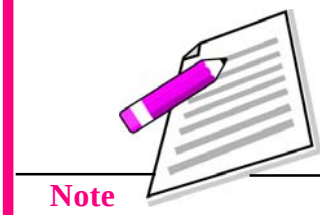
- EOQ (economic order quantity),
- ABC analysis,
- Just-in-time management,
- EQR model,
- VED analysis,
- LIFO (last in last out) and FIFO (first in first out).

The main role of inventory management is to maintain the right stock level of raw materials and finished goods for all types of business premises to reduce the storage and inventory cost to the company and to increase the profit of the business by right tracking the above activities.

Objectives of Inventory Management

Preventing Dead Stock or Perish ability

With optimal inventory practices, you can able to reduce the wastage of goods from spoiling and not being able to use in production and distribution



Note

Optimising Storage Cost

It helps in maintaining excessive stock getting into the warehouse, which helps in reducing the raw materials stored in the warehouse which makes you pay the additional warehouse charges.

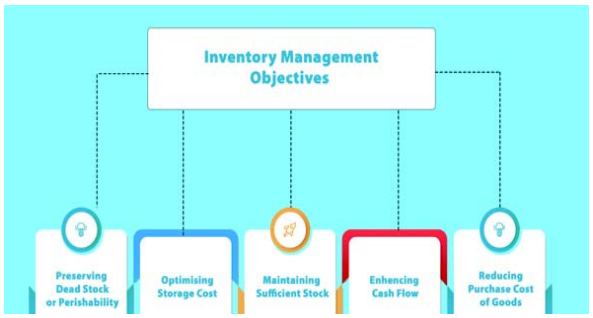


Fig.20.3: Objectives Of Inventory Management

Maintaining Sufficient Stock

When you have the data of the right amount of supply of raw materials, the flow of raw materials is smooth in the production department, where there will be no issues in the supply of raw materials.

Enhancing Cash Flow

It has a great impact on the cash flow of the company. With effective inventory management, the cash flow of the company is maintained and regulated liquid cash for all operational activities is achieved.

Reducing Inventories' Cost Value

When you maintain the purchase of raw materials for your organisation regularly, the company may ask for discounts, which enables you to get the materials at a very reasonable cost.

INTEXT QUESTIONS 20.1

1. The process of warehousing starts from warehousing till the final product is completed.

   A) True

   B) False

2. Expand FIFO -

   LIFO -

3. Effective inventory management helps in enhancing the cash flow of the company.

   A) True

   B) False

Note

4. Which are the below objectives of inventory management?

   A) Preventing Dead Stock

   B) Optimising Storage Cost

   C) Maintaining Sufficient Stock

   D) All the above

20.2 TYPES OF INVENTORY

What is Inventory?

Inventory is the term for the goods available for sale and raw materials used to produce goods available for sale. Inventory represents one of the most important assets of a business.

The Most Common Definition is

Inventory refers to all the items, goods, merchandise, and materials held by a business for selling in the market to earn a profit.

For a Manufacturing Industry

In a manufacturing business, inventory is not only the final product manufactured and ready to sell, but also the raw materials used in production and the semi-finished goods in the warehouse or on the factory floor. For Example: For a cookie manufacturer, inventory will include the packets of cookies that are ready to sell, the semi-finished stock of cookies that haven't been cooled or packed yet, the cookies set aside for quality checking, and raw materials like sugar, milk, and flour.

Inventory Types

The different types of Inventory are as follows:

- Raw materials
- Work in progress
- Finished goods
- MRO inventory
- Buffer inventory
- Decoupling inventory
- Transit inventory
- **Raw Materials**

Raw materials consist of all the items that are processed to make the final product. In a cookie manufacturing company, the raw materials are items like milk, sugar,

Note

and flour that are used in the different stages of production.

When we talk about raw materials, it is essential to understand that raw materials used by a manufacturing company can either be sourced from a supplier or be a by-product of a process. In our cookie manufacturing company, the raw materials will be mostly sourced from various suppliers. However, in a sugar manufacturing company, only the sugarcane is brought in from different farmers.

- **Work in Progress**

When raw materials have been sent for processing but have not yet been approved as finished goods, this stage is known as work in progress. In a cookie manufacturing company, after the raw materials have been processed and the cookies have been moulded, they go for a quality check before they are passed for final packaging. All the cookies which are waiting for their quality check are considered work in progress. To put it in simple words, the work-in-progress category consists of all the items that have been processed but not sent for sale.

- **Finished Goods**

Finished goods are the final items that are ready for sale in the market. These goods have passed through all stages of production and quality checking. So for the cookie manufacturer, the final packets of cookies that are sent to the market for selling after undergoing quality checks will be the finished goods.

Raw materials, semi-finished goods, and finished goods are the three main categories of inventory that are accounted for in a company's financial accounts. There are other types as well which are maintained as a precautionary measure or for some other specific purpose.

- **MRO Inventory**

MRO stands for Maintenance Repairing and Operating supplies, this type of inventory is mostly relevant for manufacturing industries. MRO items are not accounted for as inventory items in books of accounts, however, they play a crucial role in the day-to-day working of an organisation. MRO supplies are used for the maintenance, repair, and upkeep of the machines, tools, and other equipment used in the production process. Some examples of MRO items are lubricants, coolants, uniforms and gloves, nuts, bolts, and screws.

- **Buffer Inventory**

In the manufacturing or trading business, fluctuations and market movements cannot always be predicted. Such changes can have a negative impact on the sales or production process, which can lead to out-of-stock situations. Buffer

Note

inventory attempts to compensate for this by following the adage that prevention is better than cure. Buffer inventory (also known as safety stock), consists of the items stored in the warehouse of a store or a factory to cushion the impact of unexpected shocks.

- **Decoupling Inventory**

Most manufacturing is carried on by multiple machines. The output of one machine is fed into the next machine for further processing. However, the process only works smoothly if all the machines work in tandem. A breakdown in any of the machines can derail the entire process, which is when decoupling inventory comes into the picture. Decoupling inventory consists of items which are kept in reserve to be processed by another machine if the previous machine fails to produce its usual output.

- **Transit Inventory**

Transit inventory refers to items that are being moved from one location to another, such as raw materials being transported to the factory by railway or finished goods being transported to the store by truck.

Basis Type of Inventory Management

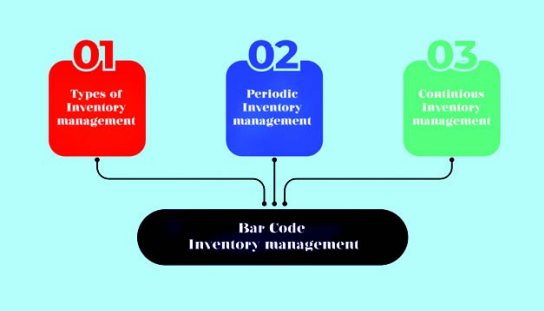


Fig.20.4: Basis Type of Inventory Management

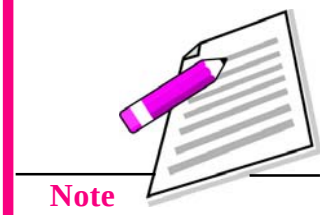
Installation of inventory management platforms is not an easy task to implement in an organisation where various factors including cost, budget, utility and accessibility are taken as the main considerations.

The basic inventory management types are classified as below.

- **Bar-Code Inventory Management**

It is the automated and simplified version of the management types. It helps in finding out the remaining stock with a click in the system. Thus, the barcodes are enabled by the system help to track the quantity of stock and maintain inventory.

Fig.20.5: Bar-Code Inventory Management



Note

- **Continuous Inventory Management**

It links the barcode and radio frequency identification number - RFID with the accounting inventory system, inventory received, and point of sales systems along with the production system which helps in tracking the inventory movement. It is mostly used for accounting purposes and it is also called the Perpetual Inventory System.

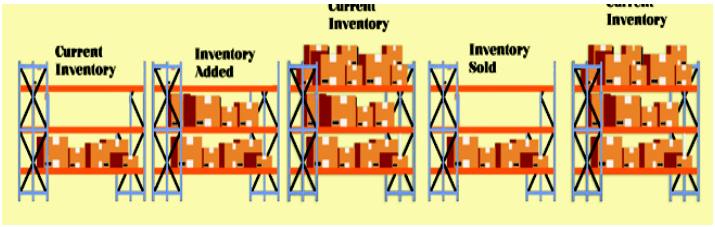


Fig.20.6: Continuous Inventory Management

- **Periodic Inventory Management**

This is a manual process, which is used for determining the closing inventory value, for recording it up in the ledger at the end of a financial year. Depending on the organisational need, it can also be analysed quarterly. It is time-consuming way since the inventory has to be physically counted.

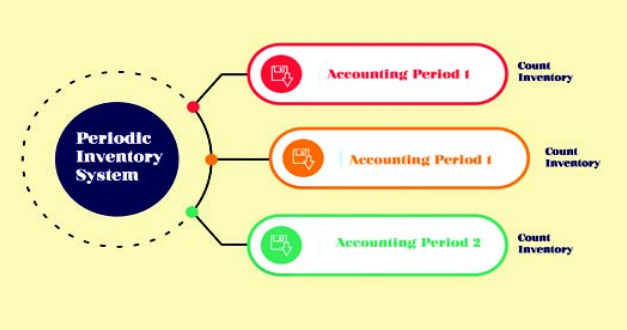


Fig.20.7: Periodic Inventory Management

- **Inventory Management Process**

The steps given below help an organisation improve its inventory management system.

Fig.20.8: Inventory Management Process

INTEXT QUESTIONS 20.2

1. There are _____ types in basic inventory management.

2. _____ is the automated and simplified version of the management types.

Note

3. Expand RFID

4. Continuous inventory management is also called as_____

5. Periodic Inventory Management is a manual process of inventory management.

   A) Yes B) No

20.3 NEED FOR MAINTAINING INVENTORY

In today's fast-moving world, the implementation of inventory management in an organisation helps a company in various ways including efficient and fast operations at affordable cost, able to provide better customer service and helping to keep finance operations under control.

- **Tracking Inventory**

Implementing a good inventory management system helps you to keep track of stock at regular intervals and gives you control over the operations carried out. It gives you information on where to stock and how much to stock, to which warehouse you should move the goods, which helps you reduce operational costs and enables an uninterrupted flow of goods and improved customer service.

- **Control Your Costs**

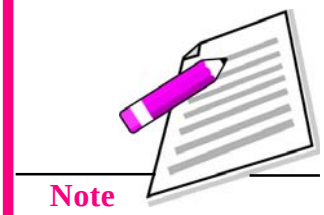
Keeping reports of your inventory helps you in analysing the performance of your products which are doing good, which are not moving well, which are holding place for so long in inventory and so on. It reduces the operational and storage costs and also helps in identifying the right product to deliver in the market.

- **Improve Your Delivery**

Late delivery is a serious issue when it comes to business which creates a bad impression on the company and may lead to loss of customers eventually. Proper Inventory Management Systems help in delivering the product to the customers on time.

- **Manage Planning and Forecasting**

Inventory software helps in improving demand forecasting by analysing the data and helps you in finding better-performing products and stocks which helps in minimising the holding and handling cost and improves the revenue. With the right planning, you are also able to deliver the product to customers on time.



Note

- **Reduce the Time for Managing Inventory**

With good inventory management, you can reduce the time taken to keep track of all the products, analyse their performance regularly and how many you have in stock and how many orders you have currently to produce the product and also reduce the inventory recounts process.

INTEXT QUESTIONS 20.3

1. Implementing a good inventory system helps you to check your stock at regular intervals.

   A) True

   B) False

2. _____ gives you the data, where to stock and how much to stock.

3. Keeping reports of your inventory helps you in analysing the performance of your products

   A) True

   B) False

4. finding the better performing product and stocks which helps in minimising the _____.

20.4 COSTS ASSOCIATED WITH INVENTORY

There are 5 categories of costs which are associated with inventory which are explained below in detail:

Ordering Costs

Ordering costs include payroll taxes, benefits and the wages of the procurement department, labour costs etc. These costs are typically included in an overhead cost pool and allocated to the number of units produced in each period.

- Transportation costs
- Cost of finding suppliers and expediting orders
- Receiving costs
- Clerical costs of preparing purchase orders
- Cost of electronic data interchange

Note

Inventory Holding Costs

It is the amount paid as storage costs to keep your products safe and secure, which can be either rental or you can get as a lease, which may be the direct rent or to the particular area in which the products are stored.

- Inventory services costs
- Inventory risk costs
- Opportunity cost - money invested in inventory
- Storage space costs
- Inventory financing costs

Shortage Costs

Shortage costs which are also known as stock-out costs, when you are out of stocks to run your business for various reasons, some of which are included below:

- Emergency shipments costs
- Disrupted production costs
- Customer loyalty and reputation

Spoilage Costs

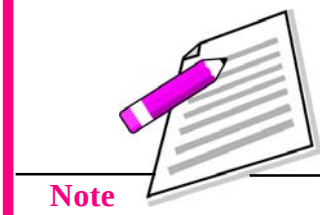
Perishable goods kept in inventory for a long time may get rotten and spoiled, so you have to be careful on keeping those items in stock including Food and beverage pharmaceutical &Healthcare products cosmetics and Agricultural products

The above-mentioned products are affected by the expiration and use-by dates of their products.

Inventory Carrying Costs

Fig.20.9: Inventory Carrying Costs

This is the lesser-known aspect of inventory cost. This cost requires a certain amount of calculations to understand the extent of its impact on your P&L statement. Inventory carrying costs refers to the amount of interest a business loses out on the unsold stock value lying in the warehouses.



Note

INTEXT QUESTIONS 20.4

1. Ordering costs include payroll taxes, benefits and the wages of the procurement department, labour costs etc

   A) True B) False

2. Shortage costs are also known as _____.

3. Which of the below products are spoilage products?

   A) Food and beverages

   B) Cosmetic products

   C) Healthcare products

   D) All the above

4. _____ is the lesser-known aspect of inventory cost

5. Storage space costs are a part of _____.

20.5 INVENTORY STORAGE PRACTICES

If you don't concentrate on the areas of inventory, it ends up in high cost to the company. The below practices help in improving the efficiency of your business.

Fig.20.10: Inventory Storage Practices

- **Categorise Your Inventory Using Abc Analysis**

ABC analysis helps you in segregating and ranking your products which is the most important one and which is the less important one. For example:

Items in A are the best sold, most prioritised and have demand from the customers which require regular delivery.

Items in B are valuable, have demand but not regularly and can be kept on hold for a month for selling purposes.

Items in C are the least valuable in the hierarchy and have very minimal demand and holdings.

Note

Thus, organising your products helps in managing the inventory storage costs and getting better outcomes from the company.

- **Optimise Your Pick and Pack Process**

It is the set of procedures which helps you to fulfil the customer orders quickly and efficiently by the employees. Some types of pick and pack processes are,

A. Discrete order picking

B. Batch picking

C. Wave picking

D. Zone picking

Below are five ways to manage the pick and pack process efficiently:

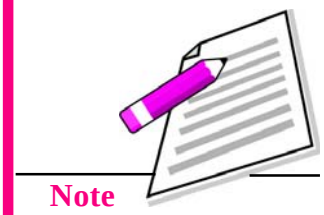
1. Designing your warehouse for efficiency by placing the most sold product in the nearest warehouse.
2. Keeping your warehouse well organised by cleaning every area
3. Programming a warehouse management system (WMS) and implementing it so that the items picked are listed and the order picker finds them.
4. Double checking for accurate counting
5. Use barcodes and RFIDs on every item for easing counting.

- **Establish Your Inventory KPIs**

Inventory KPIs measure your performance in a particular area over a specific amount of time to reach the goal fixed. They help you in eliminating unwanted work and help you in getting the milestones achieved which are set every week/ month.

Below are 6 inventory KPIs that you should focus on:

- Inventory carrying costs
- Inventory write-off and inventory write-down
- Rate of inventory turnover
- Cycle Time
- Order Status and Tracking
- Fill Rate



Note

- **Use Batch Tracking**

Batch tracking which is sometimes referred to as Lot tracking is the process of efficiently tracing the goods along with the distribution chain using batch numbers. A 'batch' here refers to a particular set of goods produced together and which use the same material. Using an automated batch tracking system helps you to remember the information quickly in case of any product recall.

- **Use of Accurate Reorder Point Formula**

A reorder point formula tells you when you should order the stock, and when you reach the lowest amount of inventory which you can sustain. With market spikes, you cannot predict easily how to order your stock but by the clear mathematical formula, you can order consistently each month right on time. The equation is called reorder point formula. Here is a reorder point formula you can use today.

(Average Daily Unit Sales x Average Lead Time in Days) + Safety Stock = Reorder Point.

- **Carry Safety Stock Inventory**

Safety stock inventory is a surplus amount of inventory you can keep on hand to manage sudden demands. Without safety stock inventory you may end up

- Loss of customers
- Loss in revenue
- Loss in market share

Safety stock thus helps in

- Protection against sudden demands and preventing from out of stock
- Compensation for inaccurate market forecasts
- A buffer for longer than expected time.

- **Optimise Your Inventory Turnover Rates**

The rate of inventory turnover is a measurement of the number of times your inventory is sold or used in a given time period, usually per year. By calculating your inventory turnover rate, you will have a better market research scenario with how much your stock is performing, how much to order and how much to hold, depending on your turnover rate. Below is the simple formula you can use:

Note

Cost of Goods Sold (COGS) Divided by Average Inventory

Here are some ways to increase your inventory turnover rate:

1. Experiment with pricing
2. Liquate outdated stock
3. Forecasting customer demand
4. Redistributing your inventory to other warehouses.

- **Reduce Your Inventory**

Most medium and small business companies use inventory for their operations and mostly they contribute 40% on average. If this takes a long time, you will end up with so many costs that can reduce the profit share of the company. The main aim is to reduce the inventory and cost which comes along with it. Here are some of the ways you can reduce your inventory:

- Lower lead times by tracking your existing lead times, sharing sales data with suppliers and reducing minimum order quantities (MOQs).
- Eliminate the products in stock for a longer period by reworking them or by selling them at a discount to clear it
- Improve real-time tracking and reporting, integrated communication and large volume inventory management tools

- **Use a Cloud-Based Inventory Management System**

One of the best options to manage your activities efficiently is to stop using excel inventory systems and start using cloud-based inventory systems. It gives you the clearest update, helps you to keep your data safe and all the activities are done smoothly.

INTEXT QUESTIONS 20.5

1. Expand WMS
2. Batch tracking is also called as _____.
3. Complete the formula Average Daily Unit Sales x _____) + Safety Stock = _____.
4. Expand MOQ

Note

5. Carrying safety stock helps in

   A) Protection against sudden demands

   B) Compensation for inaccurate market forecasts

   C) Preventing from out of stock

   D) All the above.

20.6 INVENTORY ANALYSIS - MEANING

Inventory analysis helps you in giving the data of the right amount of stock to be kept on hold by minimising the inventory cost occurring in warehouses and other areas. The main aim of inventory analysis is to lower the overall costs, reduce theft, manage the flow of cash and get the goods delivered to the customers on time.

Fig.20.11: Inventory Analysis

Goal of Inventory Analysis

- **Increase the Profit**

By keeping the right amount of stock in the inventory will have a smooth flow in sales with an increased profit margin

- **Decrease Storage and Related Expenses**

By avoiding keeping more stock in inventory, you can reduce the storage costs and damage caused to the products by keeping them for a long time.

- **Finding Areas to Improve**

Having a close watch on inventory helps in finding out the best selling product and the least selling and helps you to get an idea of which one and how much to stock and sell.

- **Stop Project Delays**

When using inventory to build products for a special project, analysis of the inventory level is very crucial. You have to make sure you have enough material to complete the project on time.

Note

- **Diminish Wasted Inventory**

If you buy and store too many products in stock, their value is reduced and if not sold in the market quickly, it ends up in storage costs for the product, which is a loss for the company. Inventory Analysis helps you to identify the correct amount of stock needed and plan accordingly.

How do You Analyse Inventory?

Companies use stock and sales numbers to analyse the inventory, some use ratios and metrics sometimes called KPIs - Key Performance Indicators to analyse how the organisation manages its stocks.

INTEXT QUESTIONS 20.6

1. Inventory analysis helps you in giving the data of the right amount of stock to be kept on hold by minimising the inventory cost

   A) True

   B) False

2. When you avoid excess money flowing into inventory, you have an excessive amount to be used for _____.

3. Customer satisfaction is attained by minimising stockouts and backorders.

   A) True

   B) False

4. When using inventory to build products for a special project, analysis of the inventory level is very crucial.

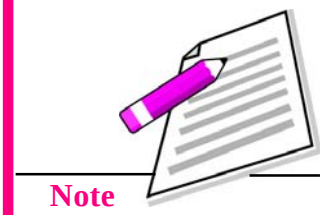
   A) True

   B) False

5. If you buy and store too many products in stock and not sold in the market quickly, it ends up in _____.

20.7 FORMULAS WITH INVENTARY ANALYSIS

Inventory analysis helps you in determining the right amount of stock on hand and avoids storage and other costs. There are numerous ways to analyse the inventory and optimising for better inventory which is explained below:



Note

- **Average Inventory**

Average inventory helps you to measure the average volume of inventory kept in hand throughout a given period. It comes from adding the beginning inventory (BI) value at the start of a period and the ending inventory (EI) value at the end of the period. The average between the two gives you the answer.

Fig.20.12: Average Inventory

- **Inventory Turnover**

Fig.20.13: Inventory Turnover

Inventory turnover measures the selling ratio of a product in a particular period, which shows how effectively the inventory is managed and used. The formula for this metric is the cost of goods sold(COGS) over a specific time and divided by its average inventory over the same period.

This is affected by two key factors:

1. ***Purchasing :*** Getting forecast and buying the inventory to ensure the right amount of stocks is purchased
2. ***Sales :*** Ensuring the marketing and conversion side to meet up the sales projections are done right and products are sold in the market accordingly.

Poor inventory performance makes this scenario even worse.

- **Inventory Write-off**

Inventory write-off is the measure of the unsold inventory that does not have value any longer over a given period of time. Loss, theft, damage, or goods kept for a long time being unsold and unsellable comes under this category. It is identifying the inventory and writing it off in accounts, which does not require any formula but takes some and it's worth doing it.

Continuous write-off and increase of amount in it indicate there are issues in the inventory that need to be rectified soon.

Note

- **Gross Margin Return on Investment**

Fig.20.14: Gross margin return on investment

GMROI is the simple ratio to measure the profit of your inventory over a certain period. Below is the formula:

(Note: gross margin is found by subtracting COGS from net sales)

Any GMROI ratio below 1.0 means the business is not profitable and is losing invested money and a ratio above 1.0 means a business is selling goods for more than what it costs the firm to acquire them.

- **Sell Through Rate**

Sell through rate takes the amount of inventory a retailer receives and compares it against what is sold over a given period of time. It is usually expressed as a percentage. The formula is:

This can be used on a 'per product' or even 'per variant' basis to analyse how quickly the investment is paying off.

Fig.20.15: Sell through rate

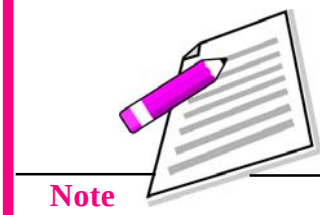
It is very helpful in comparing one product with the other or with another variant. Or when comparing the sell-through of a product from one month to another.

Low sell-through rates indicates to you that the price is too high while high sell-through rates indicate that you have bought the product at a very low price.

- **Days Inventory Outstanding**

DOI - Days inventory outstanding is the time taken to make a product complete from inventory to make it available for sale. The formula involves dividing the average cost of inventory over a period by COGS over the same period, then multiplying by the number of days in the time period(all usually a year).

Fig.20.16: Days inventory outstanding



Note

It's not easy to get an answer in a single draw. Increased and/or poor performance could indicate a problem with manufacturing/purchasing and/or the sales process.

- **Back Order Rate**

Back order rate shows the percentage of your total orders over a given period that ended up being placed on backorder

A high back order has its reasons because of

- Not buying the right amount of inventory
- Not re-ordering at the right time
- Not tracking the activities efficiently.

Fig.20.17: Back order rate

INTEXT QUESTIONS 20.7

1. Expand COGS
2. Inventory turnover is affected by _____ factors.

   A) 2

   B) 3

   C) 4

   D) 5
3. Sell through rate = _____.
4. Any GMROI ratio below 1.0 means the business is not profitable and its losing invested money

   A) True

   B) False
5. The main reasons for back order are

   A) Not tracking the activities efficiently

   B) Not re-ordering at the right time

   C) Not buying the right amount of inventory

   D) All the above

Note

20.8 VARIOUS TYPES OF INVENTORY ANALYSIS

There are several methods you can perform your inventory analysis. The main thing you should consider is what type of inventory and business you are doing. Let's see the common methods of inventory analysis.

- **ABC Analysis**

ABC analysis is the most commonly used inventory technique especially, for retail sectors which segregates the products based on the movement of goods and profit earnings into three categories: A, B, and C.

- **VED Analysis**

This method is based on how important it is to have an inventory item in stock. Most of the manufacturing companies use this type of analysis to have the basic items in stock all the time to carry out the operations based on their important inventory. The analysis is based on

- Vital: Inventory that must be in stock all the time
- Essential: Have at least a small number of the items in inventory
- Desirable: It is not always necessary to keep these items in stock

- **HML Analysis**

Mostly this type of analysis is used in manufacturing companies, which analyse the inventory based on high, medium and low costs.

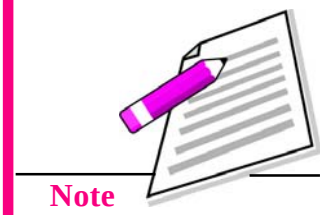
This accounting type is based on whether the company uses FIFO or LIFO. First In First Out companies sell the inventory that they bought first and Last In First Out companies sell the inventory that they bought last firstly. FEFO- First Expiry First Out which is based on expiration date is moved first. As mentioned earlier, it is based on the type of the company.

- **SDE Analysis**

This type of inventory analysis considers how scarce an item is and how easily you can acquire it. The company measures the inventory based on

- Scarce: A component that can take time to get it
- Difficult: Little scarce but takes some time to get
- Easily Available: Components that are easy to acquire.

For example, to make a dining room table using marble inlays, one should



Note

concentrate on the marble inlay supplier which is scarce, wood components which are somewhat difficult to get and to join the parts, we need screws which are easily available anytime at the store.

- **Material Requirement Planning**

Inventory is based on the sales and market forecasts of the company. Here, inventory is ordered on the time before the demand increases. It makes use of Software to make decisions

- **Economic Order Quantity**

This method analyses the sales rate of an item, along with ordering and storage costs. The goal is to keep the ordering and storage costs low in meeting up with the customer demands and orders.

- **Fast, Slow and Non-moving**

Companies which use this technique always order fast-moving goods. The company categorises the inventory into three: fast-moving, slow-moving and non-moving inventory and orders the next batch based on this report.

- **Custom Par Levels**

This type of analysis sets an inventory amount which the company must re-order each time. It takes some time to process it initially but ensures there is no out-of-stock situation in the company.

- **Just-in-Time Inventory**

It is a technique that arranges raw materials from suppliers in direct connection to the production schedule. It is the most efficient way to reduce the inventory and storage cost, where companies order the inventory based on the needs and helps in reducing the dead stocks which end up stacked in the inventory for a long time, and cannot be sold in the market and ends in loss to the company also.

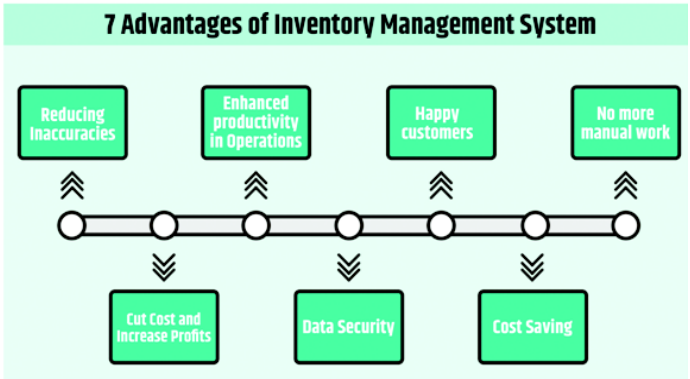


Fig.20.18: Just-in-time inventory

Note

INTEXT QUESTIONS 20.8

1. _____ analysis is the most commonly used inventory techniques
2. Expand VED analysis
3. _____ inventory is based on expiration date is moved first
4. _____ is based on the sales and market forecasts of the company.

   A) Just-in-time

   B) Economic Order Quantity

   C) Material requirement planning

   D) None of the above.

5. SDE type of inventory analysis considers how scarce an item is and how easily you can acquire it.

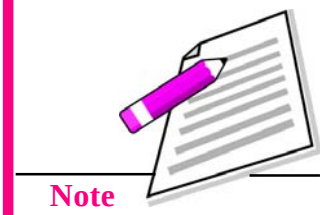
   A) True

   B) False.

WHAT YOU HAVE LEARNT

- Role of inventory management .
- Installation of inventory management platforms.
- Factors affected installation of inventory management platforms.
- Categories of costs which are associated with inventory.
- Pick & Pack helps to fulfil the orders quickly.
- Cloud-based system for Inventory Management.
- Inventory management is a very complex work.
- Effective inventory management in improves the overall performance of the company

KEYWORDS- Inventory, Management, Platforms, Tracking, Delivery, Forecasting, Analysis, Ordering, Holding, Shortage, Storage, KPI, WMS, Average Inventory, ABC, VED, HML, SDE, FSN, Metrics.



Note

TERMINAL EXERCISE

1. Mention the objectives of Inventory Management
2. What are the various types of Inventory?
3. List out the needs for maintaining inventory.
4. Make a note of various costs associated with Inventory.
5. Explain in detail about Inventory Management Process,
6. Explain the goals of Inventory Analysis.
7. Outline various types of Inventory Analysis.
8. List out various advantages & disadvantages of Inventory Management Systems.

ANSWERS TO INTEXT QUESTIONS

20.1

1. True
2. FIFO - First In First Out

   LIFO - Last In First Out
3. True
4. All the above

20.2

1. 3
2. Barcode inventory management
3. Radio frequency identification number
4. Perpetual Inventory System
5. yes

20.3

1. Yes
2. Tracking inventory

Note

3. True
4. Holding and Handling cost

20.4

1. True
2. stock-out costs
3. all the above
4. Inventory carrying cost
5. inventory holding cost

20.5

1. warehouse management system
2. Lot tracking
3. (Average Daily Unit Sales x Average Lead Time in days) + Safety Stock = Reorder Point
4. minimum order quantities
5. All the above.

20.6

1. True
2. capital
3. True
4. True
5. Storage costs

20.7

1. Cost of Goods Sold
2. 2
3. (No.of sales/Stock on hand)x100
4. False
5. All the above

20.8

1. ABC analysis
2. vital, essential and desirable
3. FIFO
4. Economic Order Quantity
5. True

ACTIVITY

- Choose your Industry and Identify Various Inventories used
- Prepare a chart on formulas associated with Inventory Analysis

Note

21

COMPONENTS OF SUPPLY CHAIN MANAGEMENT

Supply Chain Management can be described as the control of the flow of goods and services from the point of manufacture to the point of consumption. It also includes the transportation and storage of raw materials used in work-in-progress, inventories, and fully furnished goods.

Supply chain management's major goal is to keep track of and connect the production, distribution, and shipment of goods and services. Companies having a good and tight grip over internal inventory, production, distribution, internal productions, and sales can do this. the manufacturer, who then sends it to the distributor for distribution. The distributor then sends it to the wholesaler or retailer, who then distributes the items to various stores where customers can easily obtain them.

It's important to understand that supply chain management and supply chain event management are not the same things. Supply Chain Event Management addresses the reasons that could disrupt an efficient supply chain's flow; various situations are evaluated, and remedies are designed appropriately.

Supply chain management has become a vital aspect of business and is critical to any company's success and customer happiness now more than ever before. Supply chain management has the potential to improve customer service, save operational expenses, and improve a company's financial position.

OUTCOMES

After completing this lesson, the learner-

- assesses the various models of Supply Chain Management in the expansion of business firms;

Note

- applies the usage of the key components-Plan, source, location, make and return in businesses;
- examines the principles of techniques and initiatives in the context of the present day scenario of SCM;
- analyzes the key features of effective SCM for the movement of commodities

21.1 MAJOR COMPONENTS OF SCM

Keith Oliver created the phrase "supply chain" management (SCM)" in 1982 and introduced it in a public interview with the Financial Times. Following that, many domain specialists all over the world redesigned SCM by establishing integrated systems that expanded specialized supply-chain alliances via Original Equipment Manufacturers (OEM). Because of these platforms, we now have a variety of supply-chain models that meet the firm's business needs. These models, along with their uses, are listed below.

- The Agile Model is suitable for companies that deal with custom orders.
- In a high-demand market, the Continuous Flow Model provides stability with little variation.
- At the production and assembly levels, the bespoke Configured Model allows for custom configurations.
- The Efficient Chain Model is designed for organizations that operate in competitive marketplaces and require end-to-end efficiency.
- The Fast Chain Model is for companies that have trendy products with a short life cycle.
- Flexible Model allows for strong demand peak stone met while also managing long periods of low volume movement.
- The Supply Chain Operations Reference (SCOR) Model is used to measure waste, set standards, and enhance the SCM system over time.

The SCOR Model is one of the most promising models for strategic decision-making. It has divided business into multiple processes, resulting in

Fig.21.1: Score Model

Note

a management environment that is always engaged. It assists businesses in improving operations at both the macro and micro levels.

The top, configuration, and process elements of supply chain management are defined by the model. When it comes to the lookouts on each level,

- The supply chain's scope and content have been determined at the highest level.
- The supply chain strategy of the organization has been configured at the configuration level.
- Process element definitions, process performance data, and best practices are all found at the third level, which fine-tunes the company's operations strategy.

Moreover, this methodology yellows businesses to deploy new designs or modify existing ones with a mix of standard-cum-custom designs.

This model's top level comprises five separate processes that are also known as Supply Chain Management components:

- Plan
- Source
- Location
- Make
- Return

Plan

Controlling inventory and production operations requires meticulous planning. Companies are constantly attempting to align supply with aggregate demand by building a strategy based on analytics. The term 'Source' refers to the process of obtaining what has been planned. 'Make' is the process of planning what is sufficient for production, and 'Deliver' is the process of achieving significant service levels by delivering

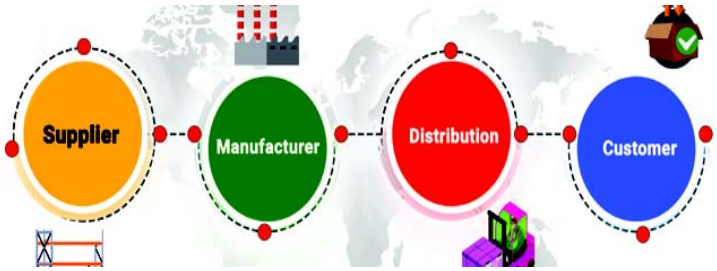
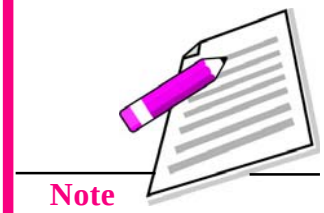


Fig.21.2 : Plan



on schedule and within the specified lead time. To avoid the Bullwhip effect, it's also a good idea to keep an eye on demand changes throughout the value chain. Firms, for example, use analytical tools to forecast market demand and use material planning systems like Material Requirement Planning to plan the required raw materials (in SAP ERP system) Supply chain managers must plan ahead to satisfy client demands. Forecasting demand, designing the supply chain intentionally, and deciding how the organization will measure the supply chain to ensure it is performing as expected in terms of efficiency, delivering value to customers, and assisting in the achievement of organizational goals are all examples of this.

Source

Sourcing is the process of discovering vendors who will procure goods and services in the most cost-effective and efficient manner to meet planned/actual demand. Suppliers must meet specific requirements in order for the company to deliver high-quality goods to the customer. Perishable and non-perishable products can both be sourced. In the

case of perishable goods, a minimum lead time from the supplier is required to enable a low-inventory strategy. In the case of non- perishable products, on the other hand, the supplier's quoted lead time must be shorter than the number of days before inventory hits zero, resulting in no revenue loss. An important component of the supply chain is selecting suppliers who will deliver the items, raw materials, or services needed to generate the product. This includes not just the creation of supplier contracts, but also the management and monitoring of existing connections. Supply chain managers must control the processes for ordering, receiving, managing inventories, and authorizing invoice payments for suppliers as part of strategic sourcing.

Location

Another crucial aspect of supply chain management is assisting with direct and indirect consumer integration. It has made a substantial contribution to the firm's brand image. Consumers' expectations for finished goods and services must be met through the company's delivery channels and logistics services. The company uses a variety of freight modes, including road, air, and rail, to ensure a seamless delivery.

Make

The firm will undertake all actions associated with the transition of raw material to the end product based on the consumer's preferences. This section of Supply Chain Management is where activities like assembling, testing, and packing take

Note

place. Consumer feedback produces a win-win situation for both the producer and the end-user, as it allows the company to continuously improve their production procedures. Supply chain managers must also assist in the coordination of all phases involved in the production of the product In general, companies assess quality, output, and personnel productivity to ensure that overall requirements are met.

Return

Fig.21.3: Return

It's a type of post-delivery customer service method that's linked to all kinds of returned items. It's also referred to as 'Reverse Logistics.' To avoid potential customer relationship deterioration, it is one of the most critical components of supply chain management. On the other hand, this approach ensures that the firm's suppliers receive the same treatment. Low-quality, damaged, expired, or excessive raw materials are returned to suppliers/vendors.

Managers of supply chains must also create a network to assist the return of products. This could involve scrapping or re-producing a defective product in some situations, or simply returning a product to the warehouse in others. To meet client expectations, this network must be responsible and adaptable. A solid network of supporting procedures that can efficiently monitor information across the supply chain and ensure conformity to rules and regulations is the foundation for each of these components. HR, IT, quality assurance, finance, product design, and sales are among the departments involved.

INTEXT QUESTIONS 21.1

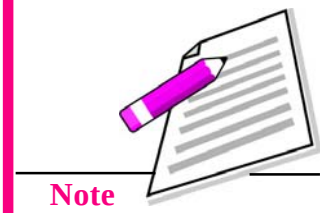
1. _____ can be described as the control of the flow of goods and services from the point of manufacture to the point of consumption.

   a) Logistics

   b) Warehousing

   c) Supply Chain Management

   d) E- Commerce Business



Note

2. The _____ is designed for organizations that operate in competitive marketplaces and require end-to-end efficiency.

   a) Agile Model

   b) Efficient Chain Model

   c) Continuous Flow Model

   d) Flexible Model

3. _____ is for companies that have trendy products with a short life cycle.

   a) Fast Chain Model

   b) Flexible Model

   c) Efficient Chain Model

   d) Configured Model

4. Expansion of SCOR:

   a) Supply Chain Organization Research

   b) Supply Chain Operations Research

   c) Supply Chain Organization Reference

   d) Supply Chain Operations Reference

5. _____ is one of the most promising decision-making. models for strategic

   a) Flexible model

   b) SCOR Model

   c) Efficient Model

   d) Configured Model

21.2 PRINCIPLES OF SUPPLY CHAIN MANAGEMENT

A study of more than 100+ manufacturers, distributors, and retailers more than ten years ago found some frequently utilized supply chain techniques and initiatives. These concepts and methods were condensed into seven principles and published in Supply Chain Management Review, a publication popular among SCM experts.

Note

Principles of SCM

Adoptation

Logistics Network Demand Planning Differentiation

Decision Making Outsource

Services & Finaincial Metrics

1. Adapt Supply Chain to Customer's Needs.
2. Customize logistics networks.
3. Align demand planning across the supply chain.
4. Differentiate the product by bringing it closer to the client.

Fig.21.4: Principal of SCM

5. Create it that facilitates multi-level decision-making.
6. Strategically outsource.
7. Adopt both service and financial metrics.

Adapt Supply Chain to Customer's Needs

Customers' requirements are addressed in the training of both businesspeople and supply chain specialists. We separate clients into distinct categories to better understand them, which we term "segmentation." ABC analysis, which divides customers based on sales volume or profitability, is the most basic method of segmenting customers. Product, industry, and trade channel segmentation are additional options.

Customers should be separated based on service demands, such as "sales and merchandising needs" and "order fulfilment needs," according to Anderson et al. at the time.

We should concentrate on the demands of our customers, but this does not appear to be enough these days. The reason for this is that your clients may not realize what they require until your rivals provide it.

For example, X online Prime was launched in 2011 as a subscription service (free 2-day shipping and discounted 1-day shipping). People are still debating whether or not this programme makes sense today. But one thing is certain: customers are increasingly turning to X online. The moral to this story is that you should also "anticipate" the wants of your customers.

Customize Logistics Network

The logistics network is the next item to personalize once you've divided your consumer base. To service various segments, you must customize distinct logistic networks. Companies must plan and manage their logistical, warehousing, and transportation activities to fulfil the unified standard.

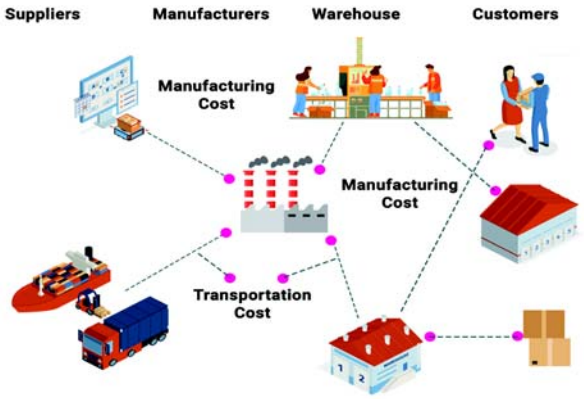


Fig.21.5: Customer Logistic Network

For example, you may already have separate logistics networks for different customers if you were a contract manufacturer in China. Each client in the United States or the European Union may already have control over raw material sources, and may request specialized manufacturing lines, as well as 3PL businesses and air/sea carriers. As a result, logistics network design is a customer-driven project.

Align Demand Planning Across Supply Chain

Supply chain professionals are educated to exchange demand data with business partners so that no unneeded inventory is kept on hand. This idea holds true in general.

Williams and Waller (2011) published an intriguing report in which the results of their investigation revealed that:

Using your own past order data rather than POS data from merchants is more accurate for forecasting demand at the SKU/Customer level.

Using POS data from retailers rather than your own history order data for forecasting demand at the SKU/Store level is more accurate than using your own historical order data.

Differentiate the Product By Bringing it Closer to the Client

Dell is well-known for storing components and assembling them until after the consumer has placed an order in order to boost product variation. This principle still holds true, but you should also examine another principle.

"Standardization" is in the opposite polarity of "Differentiation".

For example, Some cosmetics companies create products and pick packaging

Note

and labeling that are compliant with the laws of numerous Asian nations. As a result, instead of one SKU per country, they only create one SKU that may be marketed in 15 countries. They can reduce costs significantly by standardizing products adequately owing to economies of scale. As a result, uniformity is something you should think about.

Create it That Facilitates Multi-level Decision-making

If you search for vital success factors on Google, you will get a wealth of material. You can also learn how to properly deploy ERP (Enterprise Resource Planning) in your present company. To support the re- engineered business process, enterprise-wide systems are replacing several rigid and poorly integrated systems. It's improving people's knowledge of process flaws, and it's helping businesses figure out what kind of technology they need.

Strategically Outsource

Outsourcing entails enlisting the help of other parties to complete certain duties on the company's behalf. It is the quickest approach to saving money. However, while outsourcing work, there are several golden standards that must be followed. It is recommended that businesses do not outsource their core competencies. Vendors for outsourcing the task should be selected accordingly. It is always preferable to retrain a small number of employees who have sufficient knowledge and experience to manage outsourced vendors.

Adopt Both Service and Financial Metrics

According to Anderson et al, Activity Based Costing (ABC) should be used to estimate client profitability. There is, however, an intriguing twist to the ABC principle.

In his book "Accounting and Management: A Field Study Perspective," Robert Kaplan and W. Bruns established activity based costing in 1987. In 2003, however, Robert Kaplan stated that maintaining the ABC costing model to reflect changes in activities, processes, goods, and consumers is tough. Then he created Time Driven Activity Based Costing, a more refined idea.

21.3 KEY FEATURES OF EFFECTIVE SUPPLY CHAIN MANAGEMENT

Trade is booming, and once-linear supply networks have evolved into a web of interdependent partners. The movement of commodities and data from the point of origin to the point of consumption is managed by supply chain management

software. It does, however, improve supply chain management operations by automating repetitive tasks and allowing for a more efficient flow of data. As a result, there are more trustworthy relationships between value chain partners, more revenue- generating opportunities, and happier end users.

It was identified as eight qualities that are vital to supply chain management software-properties that can help firms build a strong digital supply chain and look at it strategically rather than merely functionally.

1. Ability to integrate throughout the supply chain
2. Real-time and collaboration capabilities
3. Process optimization abilities
4. Analytics and forecasting
5. Customization
6. Cloud-based access and mobility
7. Security
8. Scalability

Ability to Integrate Throughout the Supply Chain

A digital system should include functions that cover the whole supply chain, integrating numerous organizations such as suppliers, OEMs, shippers, warehouse centres, and customers. Technology is an enabler. It should work with all of your other apps, including business software, legacy systems, third-party apps, help desk, and email, independent of the information source, operating system, or platform. This can solve connectivity problems and allow for efficient information flow throughout a chain.

This also reduces the costs of maintaining various applications and eliminates feature overlaps. This leads to improved production planning, more effective logistics, and the avoidance of stock-outs and excess inventory. Integration with core systems is achievable thanks to APIs, data connectors, and SDKs, which leverage existing infrastructure.

The ability to create orders and bill clients from a single, central location, for example, makes operations managers' jobs easier. It removes duplicates as well as the possibility of miscommunication or incorrect orders. Flexible order management and billing tools can be utilized to tailor the system to different consumer segments or product categories, as well as to meet specific needs.

Note

Real-time and Collaboration Capabilities

Bottlenecks, missing goods, and dissatisfied customers can all be avoided with real-time information. Organizations with real-time capabilities are better able to adapt to changes in the supply chain as they occur.

Multiple stakeholders should be able to collaborate on a project using effective supply chain management software, eliminating the need for frequent back-and-forth communication or manual updates. This can be done through,

Personalized dashboards - A customized dashboard puts vital information at the fingertips of stakeholders. It facilitates governance by allowing for real-time status monitoring of all processes.

Real-time notifications - Real-time notifications keep you up to date on all aspects of your supply chain. They keep stakeholders up to date so that they can react quickly to changes.

Self-service portals - Many parties are involved in a supply chain network, and they all rely on one another to thrive. However, they aren't all connected, which can lead to misunderstandings. A portal is a password-protected website that allows members to share information and organize operations based on each other's activity, removing communication barriers.

Role-based authorization - Everyone should be able to use your program, but not all of the data it contains. That should choose supply chain management software with roles and permissions that allow vendors, consumers, and other stakeholders access to exactly the data they require.

Process Optimization Abilities

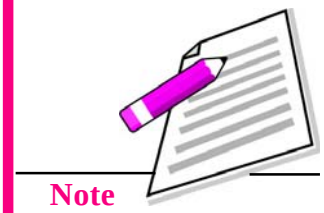
When normal, repetitive operations are automated, employees can focus on higher-paying duties.

Businesses can use AI and machine learning to optimize additional tiresome operations in addition to automating operational duties with bespoke rules.

For example, software can be programmed to only accept a product if it is in its best-finished state, removing the need for human interaction. Organizations can use this strategy to experiment with more agile

working methods, better manage high levels of complexity, and only use human intervention in exceptional circumstances.

Logistics and transportation optimization technologies assist businesses in moving items as efficiently as feasible at the lowest potential cost. This is critical in light



Note

of rising fuel costs and continuously changing national and regional restrictions that might create uncertainty or stifle shipment mobility.

Analytics and Forecasting

Along with automating day-to-day chores, good supply chain management software should also assist you in evaluating your organization, with built-in analytics and forecasting tools to:

- Recognize your company's health and performance.
- Bottlenecks should be identified.
- Make the most of your current abilities.
- Prepare for future manufacturing by anticipating customer demand.
- Identify inefficiencies in your system and forecast occurrences that are likely to happen.

Predictive analytics is a feature of some advanced software that helps balance supply and demand imbalances by providing data on both internal (demand) and external (weather, industry, and regulation) trends.

Managers can use new procedures such as predictive dispatch, which anticipates future demand, and executives can use precise data and insights to better plan future demands and execute what-if simulations to avoid risks. To put it another way, analytics assists firms in leveraging existing data to improve future processes and systems.

Customization

Prebuilt application components and bespoke business rule configurations provide flexibility, allowing organizations to quickly adjust to changes and get to market with tailored solutions for customers. Developers can enhance the functionalities of some supply chain

solutions using programming languages like Java and Python. Open architecture also encourages businesses to create their own applications to meet their specific needs, such as creating various versions of a product to appeal to different client segments and therefore increasing revenue.

Cloud-Based Access and Mobility

Authorized users can access cloud-based supply chain software from anywhere, at any time, so they can continue to manage, track, and monitor transaction status while on the go. Another advantage is that a cloud-based solution can be

Note

implemented at a lesser cost, in less time, and with less risk than an on-premise system.

Organizations that use a mobile app to manage their supply chain and logistics functions have a higher chance of staying on top of things like order status and shipping. Real-time warnings can be provided straight to users' mobile phones, enhancing collaboration between various parties and allowing for fast action in the event of a problem.

Fig.21.6: Cloud-based access and mobility

Security

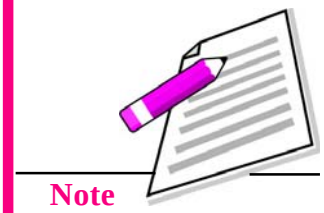
Any business software must have data security at its core. Companies should consider the following factors when selecting a supply chain management solution:

- Encrypting data
- Virus-scanning
- Monitoring of the network
- A trail of audits
- Tolerance to faults

They should also guarantee that all technology-related compliance is maintained, as well as the essential requirements for secure communications between authorized parties.

Scalability

Any programme must be able to scale with the needs of the company. A supply chain system should be able to handle the increased volume that comes with expanding into new regions, expanding product portfolios, and acquiring new customers. It must also be able to support many apps and additional channels without slowing down the system.



INTEXT QUESTIONS 21.2

1. Which of the following is not a Supply Chain Management component?

   a) Order

   b) Plan

   c) Source

   d) Location

2. Expand - ERP

   a) Entrepreneurship Research Planning

   b) Enterprise Regional Planning

   c) Enterprise Resource Planning

   d) Enterprise Research Planning

3. "Standardization" is in the opposite polarity of

   a) Diversification

   b) Differentiation

   c) Dissatisfaction

   d) Dissolution

4. _____ can access cloud-based supply chain software from anywhere, at any time, so they can continue to manage, track, and monitor transaction status while on the go.

   a) Authorized users

   b) Specified users

   c) Both A & B

   d) Restricted users

5. _____ is the process of discovering vendors who will procure goods and services in the most cost-effective and efficient manner to meet planned/ actual demand.

   a) Collecting

   b) Locating

   c) Procuring

   d) Sourcing

Note

WHAT YOU HAVE LEARNT

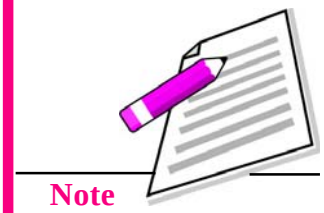
- Supply Chain Management can be described as the control of the flow of goods and services from the point of manufacture to the point of consumption.
- The major models of Supply Chain Management are the Agile Model, Continuous Flow Model, Configured Model, Efficient Chain Model, Fast Chain Model, Flexible Model and Supply Chain Operations Reference (SCOR) Model.
- The SCOR Model is one of the most promising models for strategic decision-making. It has divided business into multiple processes, resulting in a management environment that is always engaged. It assists businesses in improving operations at both the macro and micro levels.
- SCOR Model to p level comprises five separate processes that are also known as Supply Chain Management components: Plan, Source, Location, Make and Return.
- There are Seven Principles of Supply Chain Management which are adaptation, logistics networks, demand planning, Differentiation, decision-making, outsourcing, service and financial metrics.
- There are eight qualities that are vital to supply chain management software-properties that can help firms build a strong digital supply chain and look at it strategically rather than merely functionally.

KEYWORDS

Key Components of Supply Chain Model, SCOR Model, Plan Source, Delivery Logistics Network, Cloud Based Access, Enterprise Resource Planning, Scalability

TERMINAL EXERCISE

1. List out the Major Components of Supply Chain Management.
2. Draw the diagram of the SCOR Model of SCM.
3. Explain the SCOR Model of SCM in today's Business context.
4. Elucidate the key principles of Supply Chain Management.
5. Discuss the features of effective supply chain Management.



ANSWERS TO INTEXT QUESTIONS

21.1

1. c) Supply Chain Management
2. b) Efficient Chain Model
3. a) Fast Chain Model
4. d) Supply Chain Operations Reference
5. b) SCOR Model

21.2

1. a) Order
2. c) Enterprise Resource Planning
3. b) Differentiation
4. a) Authorized users
5. d) Sourcing

ACTIVITY

- Apply the SCOR model of supply chain management to an organisation of your choice to discuss how you would measure supply chain performances.

Note

22

DISTRIBUTION STRATEGY

Distribution (location) is an important part of the Marketing Mix, alongside product, pricing, and promotion. Tourism has unique qualities, and because of this, it necessitates the use of channels to contact customers. The distribution system is the method or means by which a tourist supplier can reach out to the potential customers. We discussed the role of the distribution system in tourism marketing in this unit. Other topics covered in the Unit include how to choose a distribution strategy and channels, as well as the importance of intermediaries in selling tourism products.

OUTCOMES

After completing this lesson, the learner-

- explains the concept of distribution channels from the origin of production to end consumers;
- illustrates the roles of distribution strategy for movements of goods from producers to consumers;
- analyzes the importance of distributional strategy producing and delivering commodities;
- classifies the types of distribution strategy to regulate SCM effectively;
- evaluates various factors affecting distribution strategy process; ;
- classifies different types of distribution channels;
- determines the criteria of selection of distributional channels and intermediaries .

22.1 DEFINITION OF DISTRIBUTION

The incapacity of travel and tourism to build physical stocks of things, according to Victor T C Middleton, "increases rather than diminishes the importance of the

distribution process." One of the primary approaches to regulate demand for extremely perishable products in marketing practice is to create and manipulate customer access." As a result, when it comes to travel and tourism, Middleton offers the following definition:

A distribution channel is defined as "any organised and serviced system built or used to give convenient points of sale and/or access to consumers away from the point of production and consumption and paid for with marketing budgets."

He went on to say that, in addition to this definition,

- Producers develop and service channels meticulously, leaving nothing to chance.
- Each channel becomes a pipeline for the flow of sales to the target market once it is organised and serviced.

We are aware that the tourism product or service is rented out, consumed, or experienced, but that ownership does not move.

22.2 CONCEPT OF DISTRIBUTION STRATEGY

A product or service's distribution is a collection of procedures and organisations that make the product or service available to the final user. It refers to the movement of goods and services from the producer to the consumer. In fact, these characteristics have aided in the establishment of specialised distribution channels for tourism products and services.

Certain critical characteristics of tourism distribution have been identified by Chris Cooper eta1:

- 'There isn't even a physical thing being supplied.' Only hints about the goods are provided through persuasion."
- The method of distribution, the method of sale, and the setting in

  which the transaction is made all become part of the tourist experience."
- In terms of distribution channels and direct delivery to clients,

travel agents control the system by making their own decisions about what to display and recommend to customers, while producers play a crucial role in persuasive communication.

There are also other types of distribution requirements. For example, no reservations are necessary for museums and monuments, but waiting is employed

Note

as a technique of allocating the available supply. In the case of railroads or aircraft, on the other hand, bookings are made in advance due to high demand or to assure that one receives a seat. Depending on the nature of the service product, the advance distribution procedure can take anywhere from 2 hours to 2 years or even longer. Intermediaries or middlemen, often known as the distribution channel, facilitate and manage the flow of goods. Bucklin described the distribution channel as "a group of institutions that conducts all of the operations (functions) used to move a product and its title from production to consumption" as early as 1966. Over time, service providers have felt compelled to solve the problem of making their products and services available to their target markets.

INTEXT QUESTIONS 22.1

1. The is the method or means by which a tourist supplier can reach out to potential customers

   A) Distribution Channel.

   B) Distribution System.

   C) Networking System.

   D) Networking Channel.

2. According to Middleton, Each channel becomes a pipeline for the flow of sales to the target market once it is organised and serviced.

   A) Yes. B) No.

3. Intermediaries or middlemen, often known as the, facilitate and manage the flow of goods.

   A) Distribution Channel.

   B) Distribution System.

   C) Networking System.

   D) Networking Channel.

22.3 IMPORTANCE OF DISTRIBUTION STRATEGY

A company's distribution plan ensures that a product or service reaches the greatest number of potential customers at the lowest possible cost of distribution. A solid distribution strategy can increase your sales and profits, but a bad or haphazard distribution strategy can result in not only losses, but also in competitors taking advantage of the market opportunity you generated.

Procurement, storage, shipping, servicing, finance, and counselling are just a few of the functions that these distribution channel members do. Physical items are transported from the producer to the consumer via channel members. Service distribution, on the other hand, is vastly

different from that of products. In fact, unlike things, services do not pass

through the hands of customers.The Ccustomers are the ones who benefit from the intermediaries' facilitation of their movements towards services. In the distribution of services, there is no physical movement or transfer of ownership. The body of 'knowledge' available today

Goods Distribution

- Goods are moved physically.
- The ownership of the channel is transferred to the channel members.
- Profit from reselling
- The product is moving closer to the customer.
- The product manufacturing plant has also been relocated closer to the market.

Services Distribution

- There is no actual movement of services.
- The service provider retains ownership.
- Commission earned from sales
- Consumers are gravitating toward services.
- Suppliers of services bring services closer to the market.

INTEXT QUESTIONS 22.2

1. Who is/are the ones who benefit from the intermediaries' facilitation of their movements towards services.

   A) Suppliers.

   B) Service Providers.

   C) Customers.

   D) Middlemen.

Note

2. Physical items are transported from the consumer to the producer via channel members.

   A) True

   B) False

3. A company's distribution plan ensures that a product or service reaches the greatest number of potential customers at the lowest possible cost of .

   A) Production.

   B) Distribution.

   C) Marketing.

   D) Networking.

22.4 TYPES OF DISTRIBUTION STRATEGY

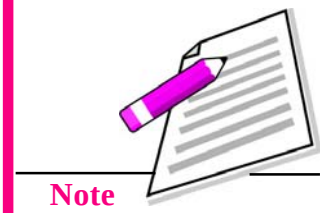
For the distribution of the services product, a marketing manager has two possibilities. Direct contact with customers and indirect contact with customers through middlemen as a result, the distribution mix selection entails deciding whether to use Direct Marketing, Indirect Marketing, or both.

If the following conditions are met, indirect marketing will be a good strategy:

- There are a lot of buyers.
- The buying frequency is high.
- The amount of money spent per purchase is modest.
- The market is fragmented.
- The manufacturer's financial situation is precarious.
- When a company wants to share risk, and
- When a company wants to grow.

The use of intermediaries is a part of the indirect marketing strategy. They aid in the availability of the product to consumers by sharing risk and providing financial and information support. Airlines, for example, use indirect marketing via GSAs (General Sales Agents), ABAs (Authorized Book Agents), and travel agencies. In the words of Philip Kotler:

'The justification for using middlemen would be based on the efficiency of their suppliers in performing basic marketing activities and functions.' Marketing



intermediates provide the producing organisation with more than it can achieve on its own, thanks to their knowledge, specialisation, contacts, and size."

Direct marketing entails contacting clients directly.

There are more specialised alternatives within these two basic types of distribution strategy, such as:

Exclusive Distribution

When a manufacturer selects a few sales channels to generate exclusivity for an item or brand, such as luxury products or exotic vehicles, exclusive distribution is used.

Intensive Distribution

Intensive distribution occurs when a company attempts to break into a market by selling its products to as many sales outlets as possible in

order to reach clients, most commonly for low-cost items like candy bars, household goods, and beverages.

Selective Distribution

Selective distribution is a hybrid of exclusive and intensive distribution, allowing you to sell a product in more places while remaining selective about which stores or partnerships to sell in, such as a high-end rug producer choosing a single retail department store to reach more customers.

INTEXT QUESTIONS 22.3

1. Indirect marketing will be a good strategy, wWhen

   A) tThe buying frequency is Low.

   B) lLimited Number of Buyers.

   C) A company wants to share risk.

   D) tThe market is Intact.

2. Expand ABAs.

   A) Applied Book Agency.

   B) Authorized Book Agents.

   C) Applied Behaviour Analysis.

   D) Authorized Behaviour Analysis.

Note

3. The use of intermediaries is a part of the marketing strategy.

   A) Indirect.

   B) Intermediate.

   C) Direct

   D) Middlemen.:

22.5 FACTORS AFFECTING DISTRIBUTION STRATEGY

Distribution strategy is also influenced by the following factors:

Location of Business

This is a critical consideration when deciding on a distribution plan. If the firm is located in an area where distribution is easily accomplished, such as near a port or railway lines, we can rely on that means of distribution and save money.

Location of Target Market

The manufacturer/distributor/retailer now distributes to the final client. If the end client is in a specific place or is dealing with similar products there, the distribution plan must account for that. If the target market is professionals, the product should be provided near or inside offices through partnerships, ensuring that the product is available where it is needed.

Reaching the Target Market

A product's ultimate purpose is to reach the intended audience when it is needed. The product must reach potential buyers when they are looking for it, according to the distribution plan. During the summer, for example, a beverage business would ensure that it is available in sufficient quantities in all retail outlets.

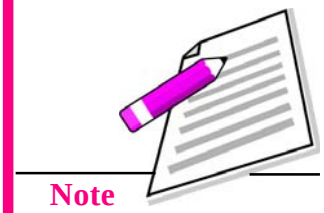
Warehousing

When deciding on a distribution strategy, properly keeping material in appropriate locations is critical. Inventory management and warehousing come into play.

Transportation and Logistics

One of the most critical aspects of a distribution plan is transportation. Without proper transportation, the product would either fail to reach the

target market on time or will be of poor quality.For example, if a corporation deals in frozen items, it must ensure that transportation and logistics take care of it through cold storage and temperature control.



INTEXT QUESTIONS 22.4

1. Distribution strategy is also influenced by

   A) Transportation and Logistics.

   B) Warehousing.

   C) Location of Business and Market.

   D) All of the Above.

2. According to the distribution plan, the product must reach potential when they are looking for it.

   A) Sellers.

   B) Distributors.

   C) Intermediates.

   D) Buyers.

3. Without proper the product would either fail to reach the target market on time or will be of poor quality.

   A) Transportation.

   B) Warehousing.

   C) Marketing.

   D) Sales Strategy.

22.6 DISTRIBUTION CHANNLES

Distribution channels come in a variety of shapes and sizes, and an organisation can use any one, a mix of them, or all of them. All of this is dependent on the sort of service supplied by the company. We will

familiarise you with the various tiers of distribution channels in this section.

Single Level Channel

The service is supplied directly to the customers here. For example, airlines may buy tickets directly for customers, and hotels may book rooms directly for guests.

One Level Channel

It suggests that only one type or category of middlemen is utilised at a single level. This channel is mostly used by the service industry. Airlines, for example,

Note

use travel agents, ticketing agents to book tickets on air trawls. Between the service provider and the service user, there is just one middleman.

The graphic below depicts the numerous choices for using a single level channel.

TRAVEL AGENT
TICKETING AGENT
TOUR OPERATOR
CORPORATE
TRAVEL DEPARTMENT

Two Level Channel

In this situation, services are distributed through two middlemen. GSA and travel agents, for example, are two levels of distribution channels in the airline industry.

Multi Level Channel

In the service sector, more than two types of intermediaries are frequently utilised at the same time, which is especially true in the tourist and trawl industries. For example, hotels, attractions, and carriers may offer their services to incentive travel planners, who then market the services to convention meeting planners or corporate travel managers. A wholesale tour planner, on the other hand, sells itstheir services to travel agents and tour operators.

INTEXT QUESTIONS 22.5

1. When services are distributed through two intermediaries, then it is called as

   A) One level channel.

   B) Two level channel.

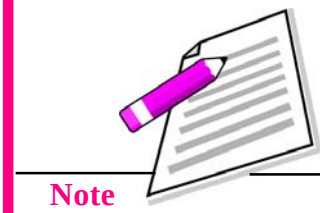
   C) Bi–channel.

   D) Multi Level Channel.

2. When the service is supplied directly to the customers.

   A) Single level channel.

   B) One level channel.



C) Uni-level channel.

D) None of the above.

3. In the Single level channel between the service provider and the service user, there is just one middleman.

A) True.

B) False.

22.7 SELECTION OF DISTRIUTION CHANNEL AND INTERMEDIARIES

For the main suppliers, channel decisions include a long-term commitment and cost. When compared to any other marketing decision, this one takes the most time and money. As a result, deciding on the channel level and the type of intermediaries to use is important to an enterprise's performance. These decisions are influenced by the following factors:

- Desired distribution intensity,
- End-user accessibility,
- Distribution practises that are currently in use,
- Cost Analysis, Revenue,
- The amount of time it takes for a channel to develop,
- Desired level of control,
- Participant availability in the channel,
- Choosing the best middleman,
- Participant’s ability to participate in the channel,
- Participant in the channel provides customer service,
- Desired geographic coverage,
- The channel participant's market position, and
- The channel participant's financial situation, etc,

Different distribution decisions, such as channel levels, channel member selection, and so on, can only provide results if smooth and professional relationships with intermediaries are created and maintained. Airlines and their intermediates, such as GSAs, Ticketing Agencies, and Tour Operators, or Hotels and their intermediaries, such as travel agents,

Note

Corporate Meeting Planners, and so on, have a strong interdependency. Roles and responsibilities should be defined and defined clearly. These should be clearly stated to avoid any potential for conflict between the organisation and its intermediaries.The percentage of commissions or royalties, form of payment, credit facilities, credit time, and other factors are all set early on. In this case, it's also a good idea to have contracts/agreements signed. Commissions and credit facilities, among other things, are usually determined based on the volume of business to be handled. In order to maximise their profits through increased business volume, the major suppliers offer incentives and rebates to their distributors.

The decision to use middlemen necessitates a number of additional decisions on the part of the organisation. The first is the challenge of selecting the best intermediaries from a huge pool of candidates.

However, it's possible that a preferred distributor will decline the assignment. Alternatively, the distributor may only handle the goods if it is granted exclusive distribution. Alternatively, the distributor may only handle the product if it is offered better financial terms. Following that, the organisation must carefully determine the conditions and duties of the distributors. This is referred to as the trade-relations mix, and it consists of each party's price policies, terms of sale, geographical rights, and specific services to be provided." Philip Kotler.

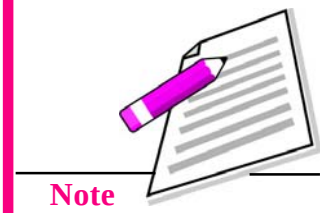
The concept of 'Relations Marketing' describes the necessity for

improved relationships with diverse groups involved in an organization's operation. There is a strong requirement to establish, develop, and maintain good relationship interactions among the many p levels in the tourism and travel business.

Both sides must have a strong commitment and unwavering trust in order to establish a successful relationship. This determines the organization's efficiency and, in certain situations, its survival. In order to keep intermediaries interested in the product, the organization must continually motivate them. Motivation tactics include things like regular interaction, sales incentives, bonuses, and so forth.

Finally, the performance of the intermediaries must be evaluated or assessed by the organization. This exercise should be done on a regular basis. According to the organization's aims and requirements, each company must develop its own performance metrics for distributors.

Performance review also necessitates strategic decisions such as dismissing employees whose performance falls short of expectations or encouraging them



to focus even more on their product or service. A company that wants to succeed should acquire regular feedback from

intermediaries on market trends, consumer needs, competition, and so on, as well as image feedback on the efficiency and quality of its own products and services.

22.8 ROLE OF DISTRIBUTION STRATEGY IN SUPPLY CHAIN MANAGEMENT

Supply and demand must be balanced, which calls for supply chain distribution. Your distribution plan should be able to adapt to changes in the market, such as disruptions in the supply chain and an increase in demand. Reducing the amount of interactions required to move a product from supplier to customer is the goal of the distribution chain.

Distribution is the process of moving and storing a product through the supply chain from the supplier stage to the customer stage.

Every pair of stages in the supply chain have distribution in between them. While completed goods are transported from the producer to the end user, raw materials and components are transported from suppliers to manufacturers. Because distribution directly influences both the cost of the supply chain and the value of the customer, it is a major factor in a company's total profitability. Distribution network selection may help a supply chain accomplish goals ranging from low cost to high responsiveness.

Examples include Wal-Mart and Seven-Eleven Japan, whose whole businesses are based on excellent distribution planning and execution. While businesses like HP sold through resellers, Dell supplied its PCs directly to end users.

While forcing smaller players to purchase P&G products via wholesalers, Procter & Gamble (P&G) has decided to distribute directly to major grocery chains.

There are two main stages to developing a distribution network. The supply chain network's general structure is illustrated in the first phase. Decisions like whether the product will be offered directly or via an intermediary are made during this phase. The general framework is then transformed into particular locations and their capability, capacity, and demand allocation in the second step.

The right distribution network option expands the supply chain surplus by meeting customer demands as cheaply as feasible.

Note

INTEXT QUESTIONS 22.6

1. The concept of describes the necessity for improved relationships with diverse groups involved in an organization's operation.

   A) Relations Marketing.

   B) Distribution Marketing.

   C) Performance Marketing.

   D) Supply Marketing.

2. For the main suppliers, channel decisions include a commitment.

   A) Short-term.

   B) Long-term.

   C) Organizational.

   D) Monetary.

3. Finally, the performance of the intermediaries must be evaluated or assessed by the organisation.

   A) Yes.

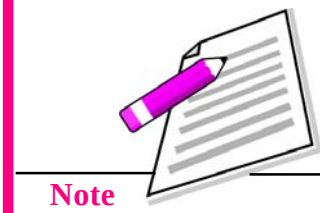
   B) No.

   C) May be.

WHAT YOU HAVE LEARNT

- The method of distribution.
- Direct Marketing, Indirect Marketing, or both.
- Exclusive Distribution & Intensive Distribution
- SelectiveDistribution.

KEYWORDS- Distribution, Distribution Strategies, Types of Distribution Strategies, Exclusive Distribution, Intensive Distribution, Selective Distribution, Distribution Channel, Multilevel Channel.



TERMINAL EXERCISE

1. Define Distribution
2. What is a DistributionStrategy?
3. List out types of Distribution.
4. What is Intensive Distribution?
5. What is a DistributionChannel?
6. Distinguish the services distribution with goods distribution.
7. Pen down the need for distribution.
8. Explain the concept of Distribution Strategy.
9. Discuss the various types of distribution.
10. Explain the various forms of distribution channels.
11. Enumerate the importance of distribution strategy.
12. Elucidate the factors affecting the distribution strategy.
13. Discuss the selection of distribution channels and intermediaries.

ANSWERS TO INTEXT QUESTIONS

22.1

1. b) Distribution System.
2. a) Yes.
3. a) Distribution Channel.

22.2

1. c) Customers.
2. b) False
3. b) Distribution.

22.3

1. c) A company wants to share risk.
2. b) Authorized Book Agents.
3. a) Indirect.

Note

22.4

1. d)All of the Above.
2. d) Buyers.
3. a) Transportation.

22.5

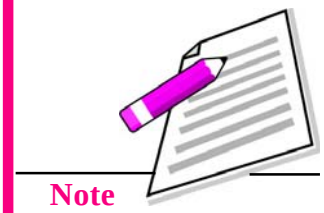
1. b) Two level channel.
2. a) Single level channel.
3. b) False.

22.6

1. a) Relations Marketing.
2. b) Long-term.
3.
4. a) Yes.

ACTIVITY

- List some channels that can be used in retail marketing.
- List four factors which influence the selection of distribution channels.



Note

23

CHOICE OF MARKET

The nature of the demand (buyer concentration, number and size of buyers), is relevant to Buyers' market i.e. upstream supply chain markets, impacts upon volume of work for downstream construction supply chain firms. The entry/exit barriers depend on Movement of firms also impacts upon degree of competition and ability to develop innovative products and processes and make long term technological improvements. The government intervention in relevance to regulation affects competition 'rules' within a market.

Market structure refers to the different types of structure that may exist in a supply market such as monopoly, oligopoly, duopoly, imperfect competition, and oligopsony and monopsony, each of which has different implications for competitive behaviour.

OUTCOMES

After completing this lesson, the learner-

- summarizes the concept of choice of market to the process of logistics & supply chain management;
- classifies the types of markets based on its features according to theoretical principle of economics;
- lists out the various aspects of segmentation of buyers based on their purchasing capacity;
- analyzes the need, importance and parameters of segmentation of consumers

23.1 BASIC CONCEPT

From acquiring raw materials and making it to finished goods and delivering it to the customer with the logistics sector, supply chain industry has its growth all

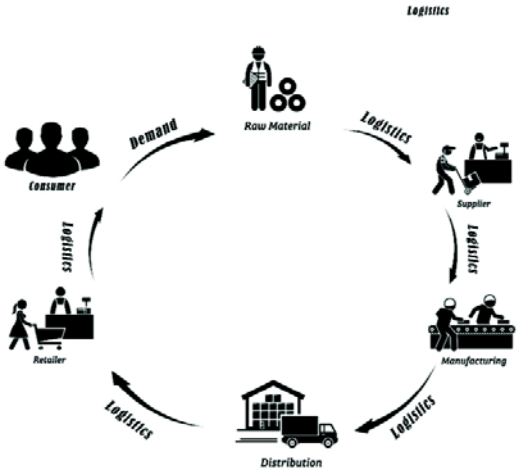


Fig.23.1:Components of Market Structure

over the world but the entrance of Covid breakout has completely stunned all the industries which includes supply chain industry which results in complete downfall of growth level. The benefits of the supply chain which includes reduced operational costs, higher rate of efficiency, boosting consumer experience, enhanced risk management, improving financial performance, enhanced quality, all put together affects the manufacturing sector resulting in huge loss to the manufacturing companies. But the growth of the ecommerce industry has pulled the radar up and now India is a big market for supply chain and logistics operations, especially reverse logistics is now becoming a huge investment platform in the country till date.

Fact:

As per research reports, the estimated size of the Indian logistics market is pegged at US$ 215 billion and is growing at a CAGR of 10.5% and only 10-15 percent of the overall market is owned by organised players. Out of the aforesaid amount, the online vertical is estimated between US$ 20 and US$30 billion by 2025.

As per a recent report by Arthur D. Little India in collaboration with the CII, India's Logistics and supply chain costs currently amount to a staggering US$400 billion, up to 14% of the GDP, compared to the global average of 8%, raising a competitiveness gap of approximately US$ 180 billion.

With the potential and population India has, it is said to become a hub for logistics and supply chain activities which will be a benchmark in the future compared to the developed nations across the world. Let us see the market, its segmentations, importance and benefits in an elaborated way.

INTEXT QUESTIONS 23.1

1. Identify the statements whether they are true or false.

   An effective supply chain framework with a good flow of logistics operation helps to ease the business flow.

2. As per research reports, the estimated size of the Indian logistics market is pegged at US$ 215 billion and is growing at a CAGR of _____

3. The benefits of supply chain include

   A) Higher rate of efficiency

   B) Boosting consumer experience

   C) Reduced operational costs

   D) All the above

23.2 TYPES OF MARKETS

In the market economies, there are a variety of market systems that will be depending within the industry on two factors.

- Industry
- Company

It is very important for small and medium level companies two clearly analyse the types of markets while making the decisions which includes pricing, operations and labour force before entering into it. Let us see the different types of markets that exist in the current scenario, its characteristics, its pros and cons in detail.

Types of Market Structure

Fig.23.2:Types of Market Structure

• Perfect Competition

In perfect competition, buyers and sellers will be in large numbers. There will be no big sellers in particular, all of them will be small and medium level sellers. So,all firms in such a market are price takers.

Fig.23.3: Perfect Competitive Market

Note

Assumptions of a perfect competition market:

1. Products are completely identical i.e. homogeneous products
2. Profit maximisation will be the only motive of the firms
3. There is no barrier which means free entry and exit option in the market
4. No concept of consumer preference.

Examples :

Agriculture products, stock markets, oil markets were the perfect examples of a perfect competition market.

• Monopolistic Competition

Fig.23.4: Monopolistic Market

In monopolistic competition, the buyers and sellers are there in large numbers which the world thinks that it has only one among the sellers which is wrong. But they do not sell homogeneous products. The products will be similar but all the sellers sell it differently among the others.

Here, the customer has the choice to pick up what he wants as the products are uncommon and differ from each other. It results in favour of the seller, where he can increase and decrease the price of the product according to the demand and movement, which all the products succeed on high level. So, the seller becomes the price setter to a certain level.

Examples:

Here the products or services shown in the picture have the same process but are done differently by different companies to attract the customers.

• Oligopoly Market

In oligopoly, there are only a few companies which will be existing in the market. There is no exact count on the criteria but buyers are very more in comparison with the sellers. They use the tactics to compete with its competitors or

Fig.23.5: Oligopoly Market

they will collaborate with the companies in order to maximise their profits.Here the consumers become the price takers. Provided the difficulties, it is very difficult to establish themselves in this market for new firms Television, automobile, gas, cell phones, air lines, tyre companies are the best examples.

- **Monopoly Market**

In the monopoly market, there is only one seller, which is only one company that has its reins all over the market. Here, the customer has no other alternative to purchase the product for the price which is fixed by the company. The company will be setting up the price which has no fear of competition.

Fig.23.6: Monopoly Market

Monopolies are extremely undesirable. Consumers will lose their power against the companies, market forces become irrelevant and however a pure monopoly is very rare in reality.

Examples

CONCOR (Cargo carrier) and IRCTC(Railway service provider) are the two best examples of a monopoly market.

INTEXT QUESTIONS 23.2

1. In _____ competition, buyers and sellers will be in large numbers.
2. Identify the statements whether they are true or false.

   In oligopoly, there are only few companies which will be existing in the market

23.3 MARKET SEGMENTATION MEANING

It is the marketing term which is used to segregate the customers or buyers which are of large numbers in order to categorise the demands, buying capacity, movement of products on various heads. It enables the companies to target the customers on different categories and utilise its sales and products.

Thus, the segmentation is classified into basically 4 types which are

Note

- Demographic Segmentation
- Geographic Segmentation
- Psychographic Segmentation
- Behaviouristic Segmentation

Other ways of segmenting markets are

- Volume Segmentation
- Product – Space Segmentation
- Benefit Segmentation

• Demographic Segmentation

It is the most common form of segmentation which all the companies use, where it refers to splitting up the customers based on observable, people-based differences which includes age, gender, marital status, family size, occupation, education level, income, religion, and nationality.

Age : Teenagers, Adults, Retired

Gender : Male, Female, Trans-gender

Marital Status : Married, Unmarried

Family Size : Joint family, Nuclear family

Occupation : Profession, Labour, etc.

Education Level : Student, Undergraduate, Post Graduate, etc.

Income level : Below 50,000, 50,000- 2,00,000, above 2,00,000

Religion : Hindu, Muslim, Christianity, etc

Nationality : Indian, Australian, etc.

• Geographic Segmentation

It is the simplest form of segmenting people, where people living in a region have a purchasing and consuming habit, which differs from people living in another region. It differs based on the needs of the customer, the population in an area, climatic factors, whether it is a rural or urban area, flow of income, number of villages in that area etc.

• Psychographic Segmentation

In this method, the consumers are classified based on their psychological factors which are personality, attitude, life style, etc.

Rogers has identified five groups of consumer personalities according to the way they adopt new products:

A. Innovators

They are the people who are eager to try new ideas and products. They are very wealthy in most of the cases and willing to take the risk of bad experience of the new product experience

B. Early Adopters

These are the people with whom the average person checks out an innovation

C. Early Majority

They do various analyses before buying it and after all the categories are cleared, they tend to buy that product.

D. Late Majority

This group is very cautious and wishes to choose new ideas after receiving various feedbacks from customers and others.

E. Laggards

They won't show interest in new innovation and they are satisfied with the product that they have now.

• Behaviouristic Segmentation

In this method, customers are classified based on their knowledge, attitude and use of their actual products.

A. Purchase Occasion

Customers are differentiated on the basis of when they use the product or services. Example: Business people use airlines occasionally so one airline promotes itself as a business flyer with benefits according to it whereas another airline promotes itself as a tourist flyer where you can find customers according to it.

B. Benefits Sought

High quality, low price, taste, speed and time are the criteria where you can categorise people. Example: some people prefer flying in economy class where the price and comfort are good whereas some tend to fly in business class where it is a status issue for them and prefer luxury.

Note

C. User Status

Customers are classified as regular users, occasional users, and non-users. Marketers can develop new products or new uses of old products by targeting one or another of these groups.

- **Volume Segmentation**

Consumers are classified as light, medium, and heavy users of the product. At times, 80% of the product is sold to only 20% of the people. Sellers wish to produce the products which the heavy users most and everyone tends to do that. At the same time non-user has two users – those who do not use the products and those who wish to use their product, where some changes from non-user to user which the sellers should notIgnore it.

Regular advertisement may push the non-user to persuade and make them use the product, gradually converting the non-user to regular users of the product.

- **Product – Space Segmentation**

It is when a company or business changes its product slightly so that it appeals to satisfy the needs of a different group of customers. It is simply finding new variations under a brand which helps in boosting the profit of the company. Car manufactures are the best example of product space segmentation where different models with slight differences tends to increase the sale of cars.

- **Benefit Segmentation**

Even with all the market segmentation factors, customer behaviour depends on how he gets the benefits which he is in need now. It differs from user to user and product to product as it is stated above. If you take toothpaste as an example, one needs whitening and another needs freshness which falls under the benefits of the two users but the product is the same.

INTEXT QUESTIONS 23.3

1. Market segmentation is basically classified into _____ types.
2. Geographic segmentation is the toughest form of segmenting people.

   A) True

   B) False

23.4 NEED FOR MARKET SEGMENTATION

All the customers do not have the same wants and needs. It depends on various bases where the difference in need is on gender, profession, income level, etc. Segmentation helps to collect those individuals and bring them into a common platform.

- Market Segmentation helps the marketers to devise appropriate marketing strategies and promotional schemes according to the tastes of the individuals of a particular market segment
- Market segmentation helps the marketers to understand the needs of the target audience and adopt specific marketing plans accordingly.
- Market segmentation also gives the customers a clear view of what to buy and what not to buy. A Rado or Omega watch would have no takers amongst the lower income group as they cater to the premium segment
- Market segmentation helps the organisations to target the right product to the right customers at the right time. Geographical segmentation classifies consumers according to their location
- Segmentation helps the organisations to know and understand their customers better. Organisations can now reach a wider audience and promote their products more effectively.

Identify the target market, identify expectations of Target Audience, Create Subgroups, Review the needs of the target audience, Name your market Segment, Marketing your Strategies, Review the behaviour, calculate the Size of the Target Market and these are the steps you require to segment the market and make your company successful.

23.5 PARAMETERS OF SEGMENTATION

Based on Article Published on Supply Chain Minded.Com by Bharati Mathur

Today's supply chains – challenged continuously by globalisation, outsourcing, product configurations, demand volatility, costs and varied SKUs (Stock keeping units) – are increasingly complex. These pressures drive companies to find ways to satisfy customer needs in the most timely, efficient and profitable manner. But different products, customers and logistics flows require different strategies and objectives. There is no one supply chain strategy that will meet unique requirements of a wide range of customers from different segments and markets. It is very difficult to operate on a 'one-size-fits-all' supply chain strategy which over serves some customers and under serves others, affecting profitability and

Note

sales. The future belongs to companies who can match their supply chains to the specific needs of their customer segments, and therefore supply chain segmentation remains one of the key interests of supply chain leaders.

Gartner defines Supply Chain Segmentation as "Designing and operating distinctly different end-to-end value chains (from customers to suppliers) optimised by a combination of unique customer value, product attribute, manufacturing and supply capabilities, and business value considerations."

Segmentation is about maximising customer service and company profitability, by having different supply chain strategies in place for serving different customers associated with different channels and different products, based on their value to the organisation. Here value may be defined by volume, revenue, profit margin, strategic importance or a combination of these factors. The goal is to find the best supply chain processes and policies to serve each customer and each product at a given point in time, while also maximising both customer service and company profitability.

There are multiple methodologies for approaching supply chain segmentation. Here are a few parameters to address segmentation.

Table No.23.1: Market Segmentation

Parameter	**Segmentation**
Product	• Product Complexity (No. of product variants)
	• Volume Complexity (high-volume/low-mix,low-volume/high-mix) • Pricing • Life Cycle • Quality expectations • Innovative products
Customers	• Large highly profitable customer Vs. Small unprofitable customer
Production & Service strategies	• Large highly profitable customer Vs. Small unprofitable customer
Market Driven	• Make to Stock (MTS), Make to Order(MTO), Engineer to Order, Service Level Agreements (SLAs)
Lead time requirements Multi source Vs. Single source Channels	• Retail, Web, Distributors

Supply chain segmentation is an iterative process as there is a constant change in customer requirements. To maximise effectiveness of supply chain segmentation, it is important to:

- Perform regular Cost-to-Serve and demand analysis: Cost-to-Serve is the cost of all supply chain activities from taking the customer order upto delivering the order. For successful implementation of segmentation strategy, companies must monitor cost, profitability and demand.
- Assess suppliers: Periodic supplier evaluations will help in segregating top contributing trading partners from the less contributing ones. It will help in identifying the low performing suppliers and providing assistance to them.
- Keep up with Technology and Big Data: Companies should have the right tools in place in order to maintain visibility within multiple segments, so that decision makers get the right business intelligence and real-time insights, much needed to evaluate the segmentation strategy.

In short, supply chain segmentation is a powerful strategy to mitigate supply chain complexity. Companies that successfully deploy segmentation strategies will have improved customer service and sales, higher growth and margins and a deeper multi-channel penetration. However, in absence of the right decision-support tools, segmentation strategies will not yield the expected benefits.

INTEXT QUESTIONS 23.4

1. Expand SKU
2. Identify the statements whether they are true or false

   Segmentation is about maximising customer service and company profitability, by having different supply chain strategies
3. Expand MTS

23.6 REASONS FOR SEGMENTATION

As we discussed earlier, market segmentation is categorising and segregating the customers to find out the exact need of the customer and fulfil them in order to make the business grow and sustain in the market and generate more income.

Segmenting the customer and market can be more effective in identifying the

Note

customer needs, better communication enhancement, creating more opportunities and diversified options will help in improving the profit of the company. Here are some reasons which justify the need for market segmentation.

• Better Satisfy Customer Needs and Wants

By segmentation, you can find customer needs and wants. Each one has their own wants and needs which are diversified and that should be handled in a diversified way in order to fulfil them. Segmentation helps in identifying customer needs and preferences which creates the demand for a product in the market. If you find a solution for each of the segments, you will be able to make the company successful.

As customers grow older, their preferences keep changing, and if you are able to make the segmenting cycle flow, you are able to keep the customer satisfied till his final days which is a great way to retain the customers for a long period of time.

• Better Communication

To make the segmentation effective, messages should be sent to the customers directly. Since each of the customers has different wants and needs, messages should be sent in that way in communicating the solutions to the customer separately. When you target the mass customers alone, you may miss some targeted customers where your message is not yet delivered to them. Many companies spent huge amounts of money on advertisements which most of the customers won't buy. Through segmentation, customers can be reached with a marketing message which solves their individual's problem, which also costs very less to the company.

• Opportunity for Growth

Segmentation helps in identifying the customers who would not buy the product normally. By segmenting, you can find out those customers, where you create your own attractive niche that may be the solution for them. If such unique problems are identified, companies are able to solve the problem, meanwhile helping in improving the sales of the company, which helps the customers upgrade from current product to a new version, where this cycle continues, will be profitable for the company.

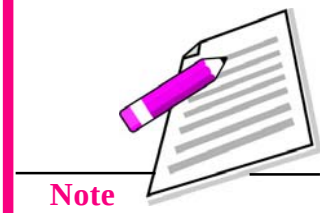
• Increased Innovation

With segmentation, the smaller segments with similar needs and wants can be identified. Mainly traditional customers fall under this category, but identifying new needs can stimulate innovative ideas to solve new problems. When both the

problem and new innovative solutions meet, premium charges can be implied which customers would not hesitate to buy and the market is sustained.

• Higher Profits/ Market Share

All customers cannot have the potential to pay the same price. So, prices can be changed accordingly to sort out the issue of price sensitivity, and most surplus money is extracted, which increases the profit margin of the company. It is accomplished by niche strategies and innovation and thus market leadership is attained. It helps in improved relationships and brand presence and helps to put a competitive position in the market. Also, competitive production and marketing costs which are involved here are also reduced, which in turn improves the profit margin of the company.



Note

INTEXT QUESTIONS 23.5

1. Identify the statements whether they are true or false

   Segmenting the customer and market can be more effective in identifying the customer needs

2. Many companies sent huge money on _____ which will not work all the time

3. Higher price for your product is accomplished by,

   A) Traditional strategy

   B) Niche strategy

   C) Sales strategy

   D) None of the above.

23.7 IMPORTANCE OF SEGMENTATION IN SCM

Case Study

In the 1990s Dell revolutionised both the computer industry and supply chain management with its direct-to-consumer business model. For the past several years, however, the company has been transforming its supply chain into a multichannel, segmented model, with different policies for serving consumers, corporate customers, distributors, and retailers. Through this transformation, Dell has saved US $1.5 billion in operational costs and has moved to the number two spot on Gartner's "Top 25 Supply Chains" list.

Note

Dell is one of a number of enterprises that are benefiting from supply chain segmentation, a process by which companies can create profitable one-to-one relationships between their customers and their supply chains. Under this model, different customers associated with different channels and different products are served through different supply chain processes, policies, and operational modes. The goal is to find the best supply chain processes and policies to serve each customer and each product at a given point in time while also maximising both customer service and company profitability.

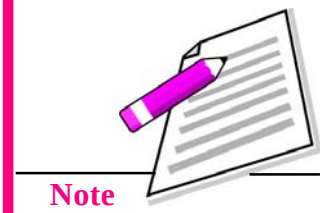
By understanding the profit profiles of their customers and products, companies can tailor a more profitable supply chain strategy to each of them and thus increase the overall profitability of their portfolios. Many companies today, however, still use "one size fits all " supply chain processes and policies, overserving some customers and undeserving others—a practice that leads to significant profitability and cash-flow leakages and potentially lost sales. Indeed, research shows that on average, 30-40 percent of a company's customer and product portfolio is unprofitable.

Segmentation can also help supply chain managers address some of their biggest problems. One example is demand variability, cited by respondents to a recent survey of chief supply chain officers as the biggest challenge driving the supply chain agenda.Properly structured segmentation policies for customers and products can significantly reduce the impact of demand variability

Another significant challenge for supply chain managers is to simultaneously provide high levels of responsiveness and efficiency. Again, segmentation can provide a solution. In order to maximise sales and profits, some products within a portfolio could be served through an efficient supply chain while others are served through a responsive supply chain. For example, companies that make both basic and fashion clothing will want to deliver their basic products through an efficient supply chain and deliver their fashion products through a highly responsive supply chain. This creates one segment for standard (predictable) products and another for fashion (unpredictable) products. Each segment will have different forecasting and stocking policies.

Key Practices in Supply Chain Segmenation

Segmentation is not just a network strategy, or an inventory strategy, or a fulfilment or manufacturing strategy. Rather, it is an end-to-end strategy for the supply chain that has implications for many areas, from the customer through to the supplier. To achieve maximum value from segmentation for both the customers and the enterprise, companies must have policies in each area that are coordinated to the



value proposition offered to each customer/product combination. Below are 10 key practices that supports a successful segmentation strategy. The discussion that follows describes these practices and their importance in aligning the supply chain to the unique value propositions offered to customers.

1. Perform Regular Demand and Cost-to-Serve Analysis

The foundation of segmentation is data-driven analysis of demand dynamics and the profitability of customers and products. This analysis provides the information needed to tailor service agreements and supply chain policies in order to raise the overall profitability of the portfolio while providing reliable and suitable service. Because the dynamics of demand and profitability change frequently, particularly in today's rapidly changing business landscape, this analysis must be institutionalised and performed on a standard cadence.

There are a number of ways to perform demand and cost-to-serve analyses. Financial systems typically do not provide an accurate view of profitability by customer and product, so other tools may be needed. It's important, however, to avoid complex costing models for the purpose of setting appropriate supply chain policies. Leading companies have started with a simple model that assigns transportation, inventory, and ordering costs to products based on their volume and other ordering dynamics.

2. Implement Differentiated Demand Policies in Core Functions

It was not too long ago that demand was thought of as a single requirement to which the supply chain reacted. Today, we know that demand signals can come in the form of orders, forecasts, and safety stock, and that they can come from different channels (retail, Web, distributors, and enterprise) and from different sources (original equipment manufacturers [OEMs], aftermarket/spares). Furthermore, demand signals can come from different customer types, as discussed in the previous section (large, highly profitable customers versus small, unprofitable customers).

In order for the supply chain to align with segmentation strategies, the demand signals within core supply chain management functions—such as master planning, transportation planning, distribution planning, and factory planning—must be prioritised in a way that aligns with those strategies. The demand priorities must be driven by the overall segmentation strategy that is tied to the service/profitability framework discussed in the previous section. Supply chain management systems for these core functions must be intelligent enough to incorporate and make decisions using these priorities. The systems must also be easy to configure and be able to adapt to changing priorities.

Note

3. Implement Differentiated Inventory Policies

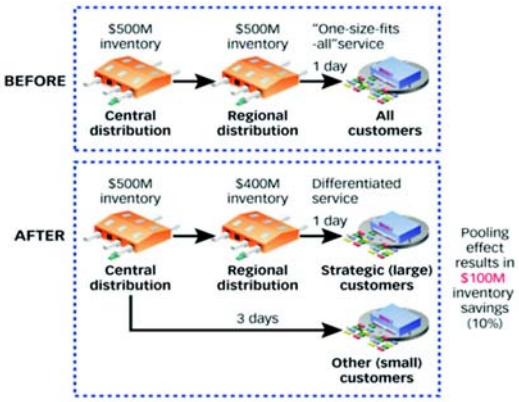


Fig.23.7: Differentiated Inventory Policies

Inventory may be the area where supply chain segmentation has been employed most often in the past five years. Inventory optimization has progressed during that period to become a process-driven discipline of regularly determining what inventories to carry, where, in what form, and in what quantities across a multi echelon network. Once again, this starts with the foundational step of understanding the value propositions offered for each customer/product intersection. Based on this information, companies use analytic tools to evaluate the entire network and determine the stocking policies for each product at each stocking location.

This process will include determining how much finished-goods inventory to carry downstream at regional distribution centres (DCs), upstream at central DCs, and at factory locations. It will also include deciding where to incorporate postponement strategies by determining how much inventory to carry in semi finished mode or as components to help offset higher demand variability or to reduce costs for products that have different service requirements.

Above example is a simplified example of a company moving away from a one-size-fits-all fulfilment strategy to multiple strategies for different customer/product profiles. This simple example illustrates the ability to reduce downstream inventories by serving some customer/product segments from upstream sources, thus taking advantage of the pooling effect.

4. Implement Differentiated Customer Replenishment Programs

Different customers will have different replenishment relationships, based on the service required, the volume and profitability of that customer, and the channel used to support that customer. For example, a high-tech consumer electronics company typically deals with multiple channels: retail, distributor, enterprise, and Web. Each of these channels should have different replenishment programs. Enterprise customers might be served through a combination of configure-to-order and build-to-stock strategies. Retail customers, meanwhile, could be served through build-to-stock along with a combination of distribution resource planning (DRP); vendor-managed inventory (VMI); collaborative planning, forecasting,

and replenishment (CPFR); and emerging point-of-sale (POS), analytics-driven collaboration. Further segmentation within each of these channels would provide differentiated service based on customer/product dynamics. The type of replenishment relationship between a manufacturer and a giant, big-box retail chain will be different than that with smaller retailers.

An emerging trend in retail replenishment is the increasing use of analytical information based on point-of-sale data to drive orders from the retailer to the manufacturer. This is part of a larger trend toward manufacturers looking further downstream to leverage independent demand (demand for an actual end product that is bought and used by a consumer or customer) to drive their upstream operations. The intention is to reduce the "bullwhip effect" that comes from using dependent demand, which is derived from independent demand.

Sony Electronics has successfully used this POS-analytic-driven replenishment approach with its customer Wal-Mart Stores to improve its in-store availability while reducing channel inventories. These sophisticated approaches are appropriate for certain segments, but other replenishment approaches are necessary for other segments.

5. Implement Differentiated Supplier Replenishment Programs

Similar to customer replenishment programs, supplier replenishment programs should be segmented based on supplier/component dynamics.Many of the companies today use a combination of owned and outsourced factories as well as a combination of shorter-lead-time, nearshore capacity and longer-lead-time, offshore capacity. These different supply modes must also be synchronised with the ordering and customer replenishment programs on the front end of the supply chain.

For example, nearshore capacity can be used for enterprise customers requiring configure-to-order capabilities with short lead times, while offshore capacity with longer lead times can be used for make-to-stock retail channels. Lead-time responses using offshore capacity will be driven by the transportation mode—ocean freight (long lead times, low cost) versus air freight (short lead times, high cost). A company with high-gross-margin products can afford the flexibility provided by air freight; however, for low-gross-margin, commodity products, moving from ocean freight to air freight will mean the difference between making and losing money.

6. Implement Regular Total-Landed-Cost Sourcing Analysis

One of the challenges confronting supply chain managers is that supply chain cost structures have become very dynamic. Labour costs, fuel costs, and currency

Note

exchange rates for low-cost countries all fluctuate significantly, causing profitable sourcing strategies to turn unprofitable much more quickly than they have in the past.

Historically, sourcing strategies were largely based on unit price, and they were executed that way for years. Leading companies today have integrated workflows across engineering, procurement, and supply chain organisations to incorporate total-landed-cost analysis into engineering and procurement decisions. These decisions are based on a holistic view of cost, including:

- Unit price
- Transportation costs, including fuel surcharges
- Expediting costs
- Handling costs
- Inventory carrying costs
- Inventory obsolescence costs
- Duties and taxes
- Product rework and damage costs
- Customer service penalties

Furthermore, sourcing decisions have a large impact on the cost to serve discussed earlier. Accordingly, supply chain managers are ensuring that sourcing decisions are made within the overall segmentation strategy for serving customers profitably.

7. Implement Differentiated Allocation and Order Promising

Allocation and order promising are critical areas for implementing policies that enable segmented and profitable customer service strategies. Allocation is the process of reserving inventory and/or capacity for certain customers or groups of customers, or for other entities, such as sales groups or geographies. The intention is to provide preference for certain customers based on objective criteria such as volume, profit, and service-level agreements. Order promising is the process of providing a date by which a product will be delivered, with a high level of reliability.

With integrated allocation and order promising, companies can achieve many of the operational goals of supply chain segmentation. Leading companies, in fact, have employed integrated allocation and order-promising techniques to provide highly reliable and profit-driven customer service.

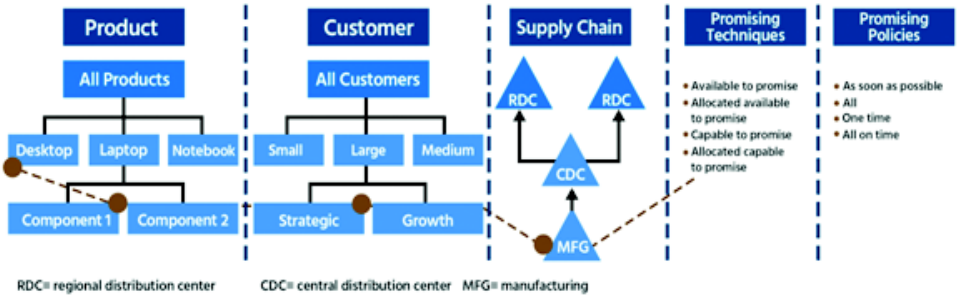


Fig.23.8: Regular Total-landed-Cost Sourcing Analysis

In the above picture, companies have employed a multidimensional approach to create sophisticated, differentiated customer service strategies for individual customers. These leaders are creating a specific approach for each product/ customer intersection, and they have integrated this with configurable search mechanisms that define how to examine the entire supply chain network to determine the best fulfilment point.

The picture also indicates, allocation can occur at different levels of product and customer hierarchies. Promising will then respect these allocations and promise from an appropriate fulfilment point within the supply chain in order to achieve the desired level of service for a given customer. This provides a tailored allocation and promising technique at each intersection of a customer/product hierarchy, integrated with a tailored fulfilment program for that intersection. It shows a thread that connects the product, customer, and supply chain. This is an example of a tailored allocation and promising approach in which large, strategic customers can get preferential allocation of a critical component for desktop computers, with fulfilment coming from the manufacturing location within the supply chain. This is an example of what is called allocated capable-to-promise (ACTP).

8. Incorporate Monthly and Weekly Tradeoff Into S&OP

Sales and operations planning (S&OP) is a tactical process for end-to-end coordination, collaboration, and alignment with a single plan for the enterprise. The process occurs over a monthly cycle, with weekly updates and adjustments. S&OP is critical to the success of a segmentation strategy because it is the process by which an enterprise aligns its decisions with profit and customer service plans. These plans are then executed within the policies that have been deployed to support the segmentation strategy.

S&OP is critical to segmentation in the following respects:

It enables financial and operational alignment with customer/product service and profitability.

Note

Note

It provides a monthly forum for discussion about what is working and not working in regard to segmentation strategies.

It includes what-if and scenario analysis to identify policy anomalies.

Leading companies are now using demand-shaping strategies and are linking their monthly S&OP processes to their weekly CPFR channel processes for a closed-loop feedback system. For example, some are using S&OP to synchronise back-end supply to front-end allocation and order promising. Supply that is slated for channels with excess inventory can be diverted to channels that can absorb it, or channel pricing changes can be made in anticipation of the incoming excess supply. Thus, excesses and shortages are immediately identified, and demand-shaping and cross-channel coordination strategies can be put in place to synchronise demand with supply.

9. Implement a Business Optimization Centre for Continuous Learning

Leading companies have implemented "business optimization centres" or "supply chain centres of excellence" whose mission includes establishing, implementing, and monitoring segmentation policies, and then continuously learning as such policies are executed over time. This type of centre typically comprises a small team that is responsible for creating the analytics behind segmentation and then sharing and gaining approval for the deployment of associated policies. The centre is also responsible for the workflows associated with deploying these policies to the appropriate functional business processes. At a high level, this means maintaining the customer service and profit strategies behind each customer/product intersection and the various segmentation policies associated with each intersection.

The business optimization centre typically reports to a high-level executive, in most cases the chief operating officer (COO). In some companies the centre reports to the chief executive officer (CEO).

10. Automate Policy Management

The business optimization centre described above is responsible for policy analysis, deployment, and management. The centre is also responsible for ensuring that the various policies related to promising, fulfilment, inventory, transportation, manufacturing, and sourcing are coordinated, aligned, and synchronised in time.

Leading companies today are starting to automate the administration of segmentation policy. In such cases, the business optimization centre gains approval for a certain strategy for a customer/product intersection, along with a deployment

date. The policy is then automatically deployed into the relevant systems on that date. Concurrently, various automated workflows ensure proper communication and approval.

Segmentation Gains Ground

In previous generations, companies that wanted to create unique ways of serving customers or unique capabilities for a product would add physical assets. Today, they must utilise the same physical assets to serve customers and differentiate service, segmenting their supply chains by means of information and decision making within a management framework. Supply chain segmentation, therefore, advances a continuing macro trend toward information replacing the need to add physical assets.

Companies that successfully deploy segmentation strategies will improve the reliability of their customer service while increasing profitability across their product portfolio. Segmentation does so through better alignment of supply chain policies to customer/product value propositions. It also increases asset turnover (both fixed and inventory) through inventory positioning and aligning manufacturing and distribution assets to customer value propositions and profitability. Finally, it improves customer service and sales by increasing the reliability of delivering on promises. With so many financial and service benefits, it's no wonder that Dell and other highly successful companies are adopting supply chain segmentation strategies today.

Notes

1. Gartner Inc., "Case Study for Supply Chain Leaders: 1.Dell's Transformative Journey Through Supply Chain Segmentation" (November 2010).

2. eyefortransport, "Chief Supply Chain Officer Strategy Survey 2011" (June 2011).

INTEXT QUESTIONS 23.6

1. Identify the statements whether they are true or false.

   Research shows that on average, 30-40 percent of a company's customer and product portfolio is unprofitable.

2. Expand OME

3. Expand VMI.

WHAT YOU HAVE LEARNT

- Need of Supply Chain Management in present days` global business.
- Types of market - Perfect Competition. Monopolistic Competition, Monopoly and Oligopoly and its features with examples.
- Concept of market segmentation and its basis of classification and also its need and parameters for the benefits of logistics and supply chain management.
- Reasons for segmentation and its importance of in SCM.
- Key practices of market segmentation in supply chain management.

TERMINAL EXERCISE

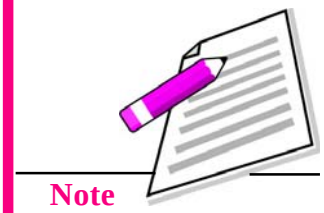
1. What are the factors which the variety of market systems depends on?
2. Mention some examples of Oligopoly
3. Define A. Early Adopters

   B. Laggards
4. How segmentation is classified?
5. How behaviouristic segmentation is classified?
6. Explain Perfect competition and Monopolistic competition
7. Give a brief on demographic segmentation
8. Name any two needs for market segmentation
9. Mention any three parameters for segmentation
10. Name the types of markets
11. Explain market segmentation and its types
12. State the reasons for segmentation

ANSWERS TO INTEXT QUESTIONS

23.1

1. True
2. 10.5%
3. All the above



23.2

1. Perfect
2. True

23.3

1. 4
2. False

23.4

1. Stock keeping units
2. True
3. Make to Stock

23.5

1. True
2. Advertisement
3. Niche Market

23.6

1. True
2. Original equipment manufacturers
3. Vendor-managed inventory

Note

24

CONSIGNMENT NOTE

In the early days of road transport, regulations were unclear and differed from country to country. In order to standardise a widely-accepted contract of carriage, the CMR was enacted through the Convention of The Contract for The International Carriage of Goods in Geneva on May 19, 1956.

A consignment note (CMR) is transport documentation used for liability and compensation across 29 member states for cargo moved by road. The CMR acts as a contract of carriage and is a standardised transport document between the consignor, consignee and carrier. CMR borrows its abbreviation from the French convention relative au Contract de transport international de Marchandises par Route.

OBJECTIVES

After completing this lesson, the learner-

- explains the meaning for consignment notes as important documents to coordinate supply chain management process;
- collects sample documents of consignment note;
- analyzes various contents and dynamic functions of consignment notes to regulate the process of l & SCM;
- collects various sample documents in the process of channelizing logistics & SCM network;
- analyzes the utilization of new technologies in logistics & SCM for reshaping the organization to conduct business.

24.1 BASIC CONCEPT

Supply chain and logistics relies on paper work most of the time to ensure smooth flow of goods from one place to another without any hindrance. Documentation

under various departments and heads required at various places is strictly followed when comes to supply chain to ensure the goodness and correctness of the type of cargo travelled, at correct state and matter by correct packaging method by correct mode of delivery not only ensuring the safety and security of that one particular cargo but also for the other consignment which is put together travelling along the other consignments.

The importance of decision making concerning financial, commercial, technical, operational matters about shipments arise at various times in the cycle, which demands that the 3PL, the logistics carrier, the buyer, the supplier who are actively engaged and have visibility to information and documentation for the smooth flow across various transit points. Here, documentation plays a crucial role in ensuring the free flow of goods. Documentation acts as a control mechanism of the supply chain.

To ensure all these things are in check and ensuring the safety, documentation and documents helps the individual who are in charge of inspection of these goods and make his work easier and quicker meanwhile he ensures the goods will be in safe condition during transit. Thus, documents and documentation are a very important factor when it comes to supply chain logistics.

24.2 CONSIGNMENT NOTE - MEANING

Fig.24.1:Meaning of Consignment-Note

In the early days of road transport, regulations were unclear and differed from country to country. In order to standardise a widely-accepted contract of carriage, the CMR was enacted through the Convention of The Contract for The International Carriage of Goods in Geneva on May 19, 1956.

Consignment Note which is also known as CMR consignment note, constitutes a proof of the contract of carriage by road, determines the scope and responsibility for the operation performed and identifies the parties involved and the goods being transported. Its use implies adherence to the CMR that governs this document. This document includes the instructions that the exporter or the importer gives to the carrier, so it necessarily has to accompany the goods in road shipments.

The issue of this document should be made by the carrier (the driver of the truck) with all the necessary information to formalise the collection of the goods; however, it will normally be the exporter (sender), who completes the document on the arrival of the truck to his store, always in case of full loads; in case of groupage this document is normally handled by the forwarding agent because there is an internal transport to collect the goods grouped with other goods from different exporters to send them jointly to the final destination in a foreign country. A CMR is unmarketable.

In simple words, A consignment note is a document issued by a goods transportation agency against the receipt of goods for the purpose of transporting the goods by road in a goods carriage. If a consignment note is not issued by the transporter, the service provider will not come within the ambit of the goods transport agency.

If a consignment note is issued, it means that the lien on the goods has been transferred to the transporter. Now the transporter is responsible for the goods till it is safely delivered to the consignee.

GOODS TRANSPORTATION IN INDIA

The most popular form of goods transport in India is via road. As per the National Highways Authority of India, about 65% of freight and 80% passenger traffic is carried by the roads. Transportation of goods by road is done by transporter or courier agency. This article will discuss the transporter, i.e, the GTA.

Services by way of transportation of goods are exempted:

- by road except the services of;
- a goods transportation agency;
- a courier agency;
- by inland waterways.

Therefore, the service of transportation of goods by road continues to be exempt even under the GST regime. GST is applicable only on goods transport agencies, GTA.

What is GTA?

As per Notification No. 11/2017-Central Tax (Rate) dated 28th June, 2017, "goods transport agency" or GTA means any person who provides service in relation to transport of goods by road and issues consignment note, by whatever name called. This means, while others might also hire out vehicles for goods transportation, only those issuing a consignment note are considered as a GTA. Thus, a consignment note is an essential condition to be considered as a GTA

Note

What Are the Services Provided by a GTA?

The service includes not only the actual transportation of goods, but other intermediate/ancillary service provided such as-

- Loading/unloading
- Packing/ unpacking
- Trans-shipment
- Temporary warehousing etc.

If these services are included and not provided as independent activities, then they are also covered under GTA.

Below sample photos of consignment note formats are attached for better understanding about the requirements and important things while issuing and getting consignment notes for your goods movement.

MODEL CONSIGNMENT NOTES

Channel Islands U.K.& Spanish Transport

TELEPHONE: KIDDERMNSTER	EMAIL:	FAX: KIDDERMNSTER
01562 755494	john@breakwells.com tony@breakwells.com	01562 755495

CONSIGNMENT NOTE & CUSTOM DECLARATION FOR GOODS CARRIED BY BREAKWELLS TO/FROM THE CHANNEL ISLANDS

INSTRUCTION TO THE SENDER

This form must be compliend & signed by the sender or the authorised representative below the goods can be accepted for shipment. Incompleted information will delay shipment of your goods and there are sever penalties for making a false declation to customers

Console fill name and address	REF:	Console fill name and address	TEL:
Charges handle by lender/		Goods Insurance Yes/No	

Member of packages	Detailed description of goods	Weight of goods	Cubic meters	Value	Country of Orign

Answer the following questions Yes or No

(a) Are the goods community Goods ie: goods odering in the CDC or in free circulation with in the EEC?

(b) Are the goods community Goods ie: goods odering in the CDC or in free circulation with in the EEC?

(c) Are the Goods in UK Bond

SHIPPING DETAILS			
	CERTIFICATE OF SHIPMENT		

Fig.24.2:Model Consignment-Note

Order form Consignment Notes/ Prepaid/Bulkshipper

Please email order to connect.orders@alliedexpress.com.au or fax to (02) 88378378

BILLING DETAILS	DATE:	
Account Code:	CLient Purchase Order:	
Company Name		
Address:		
Suburb	State:	Post Code:
Order Placed By:	Phone#:	
Delivery Adress If Different:		

Consignment Notes/Non Prepaid (Red) **Office USE ONLY**

CONNOTES ONLY	
CONNOTES ONLY	

PREPAID CONSIGNMENT NOTE (Blue)

CODE	DESCRIPTION	PRODUCT	CONNOTES & BAGS	CONNOTE ONLY	BAGS ONLY
E3	EASTERN SEABORD	3 KG			
A3	AUSTRALIA WIDE	3 KG			
E5	EASTERN SEABORD	5 KG			
A5	AUSTRALIA WIDE	5 KG			

DESCRIPTION NAME

EASTERN SEABORD — EASTERN SEABORD Prepaid with restrrictions

AUSTRALIA WIDE — AUSTRALIA WIDE Prepaid with remote destination surcharge

Bulk SHippers Labels (White)

DESCRIPTION	# OF BOXES	REFERENCE of required
FANFOLD LABELS (FLAT PACK)		

OVERPRINT DETAILS (Fill in sections to be preprinted)

SENDER	RECEIVER

Fig.24.3:Model Consignment-Note

INTEXT QUESTIONS 24.1

1. Identify the statement whether they are true or false.

   A CMR is unmarketable.

2. The Convention of The Contract for The International Carriage of Goods in Geneva on May 19, _____.

3. Expand GTA.

24.3 CONSIGNMENT NOTE CONTENTS

A consignment note is serially numbered and contains –

(a) The date of the consignment note and the place at which it is made out;

Note

(b) The name and address of the sender;

(c) The name and address of the carrier;

(d) The place and the date of taking over of the goods and the place designated for delivery;

(e) The name and address of the consignee;

(f) The description, regarding common use, of the nature of the goods and the method of packing, and, in the case of dangerous goods, their generally recognized description;

(g) The number of packages and their special marks and numbers;

(h) The gross weight of the goods or their quantity otherwise expressed;

(i) Charges relating to the carriage (carriage charges, supplementary charges, customs duties and other charges incurred between the making of the contract and the time of delivery);

(j) The requisite instructions for customs and other formalities;

(k) A statement that the carriage is subject, notwithstanding any clause to the contrary, to the provisions of this Convention.

(l) Person liable to pay GST – consignor, consignee, or the GTA.

The above are the necessary details which should be mentioned in the consignment note and as mentioned at the end, a particular transaction may have other documents that may be attached during the transit.

24.4 CONSIGNMENT NOTE FUNCTIONS

- To outline the terms of the transaction,
- who will get paid how much when and how certain facts are handled
- It is also a record that the transaction occurred in case the consigned goods are lost or stolen and how that situation is handled.
- The consignment note shall constitute "prima facie evidence" for the existence of the carriage contract, terms and conditions of the contract and acceptance of the goods by the carrier
- It is the proof that the contract of carriage has been made between the sender and the carrier within scope of the CMR.
- It is the proof that a consignment note signed by both the sender and

Note

the carrier shall also be considered a receipt for the goods taken over by the carrier.

- The consignment note is used to prove that goods whose quantity, type, coding, etc is specified therein have been delivered to the carrier and were in good condition during delivery unless the carrier inserts a reservation clause in the consignment note.

The above points are some of the common functions of consignment note.

24.5 VARIOUS DOCUMENTS IN LOGISTICS & SCM

In today's logistics environment, EDIs (electronic data interfaces) and the Internet are the most used tools to transfer documents among buyers, sellers, vendors, banks, customers and government entities. However, most documentation is still handled manually in some countries. They are listed below:

1. Proforma Invoice

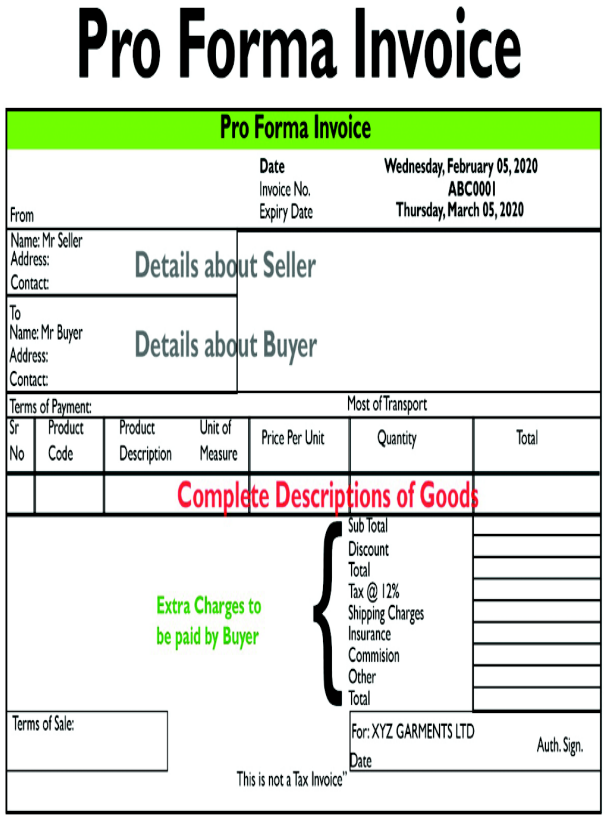


Fig.24.4:Performa Invoice

It's like a trial bill of confirming all the necessary details like quantity, quality, price, time taken to make the delivery, terms of trade, etc, and then after that the consignment is confirmed. A proforma invoice is editable by both the parties.

Note

With the help of the proforma invoice, the buyer starts manufacturing the products which are required by the consignee.

2. Commercial Invoice

#1 COMPANY'S NAME
#2 COMPANY'S ADDRESS

Page No._____of_____Pages

#3 COMMERCIAL INVOICE

#4 Seller/Shipper/Exporter:	#7 Invoice No.:	#8 Invoice Date:
#5 Buyer/Importer (Sold to):	#9 Customer P.O. No:	#10 Terms of Sale (Incoterm):
	#11 B/L AWB No.:	#12 Carrier:
#6 Consignee(Shipped to):	#13 Port of Loading:	#14 FInal Destination:

#15 Marks and Numbers	#16 Description of goods	#17 Quantity	#18 Unit Price	#19 Extended Price
	Description of goods Manufacturer Part Number Google Part Number Country of Origin HTS Code			
	#20 Total Quantity		#21 Total Quantity	
			#22 Total Adjustments	
			#23 Invoice Total	

#24 Signed by:_____
I declare all the information contained in this invoice to be true and correct

#if the invoice covers samples or test devices that being recieved free of charge, include the following statement here:" SAMPLES OR TESTING DEVICES WITH NO COMMERCIAL VALUE/ VALUES LISTED ARE FOR CUSTOMS PURPOSE ONLY"

Fig.24.5: Commercial Invoice

It is the final bill where you cannot make the changes once the commercial bill is prepared. It acts as an official proof document for the consignment. It has the complete non editable details about the shipment agreed after the proposal of proforma invoice.

3. Packing List

A packing list is a document containing a detailed list of the cargo, including weight, dimensions, safety measures, and packaging type. The packing list should be included in carton or package, and can be attached to the outside of a package with a copy inside.he packing list should be included in carton or package, and can be attached to the outside of a package with a copy inside. In simple terms, it is used to inform the transportation companies about what they are transporting.

Example of packing list

Packing list for invoice no.. 123456

Gross weight 125kgs

Net weight 117.5kgs

Cube 5.63M3

Consignee Address OR a Shipping Mark.
A Shipping Mark the following 5 lines normally provided by the customer:

- ✓ Name of consignee
- ✓ Some distinctive symbol like a triangle and order no or reference
- ✓ destinations Port
- ✓ Country
- ✓ 1 of 5 cartons 2 of 5 cartons

Carton No.	Gross Wt.Kg	Nett WT	H cm	W	L	Said to contain:
1	25 Kg	23.5	46	70	35	10 traysX 16 cola drinks
2	25	23.5	46	70	35	5 boxes of chocolates
						3 trays of Orange Juice
3	25	23.5	46	70	35	Productline 3Xqty 10
						- --- 4Xqty 6
4	25	23.5	46	70	35	Productline 5 X qty 3
						- --- 6Xqty 6
5	25	23.5	46	70	35	Productline 7 X qty 2
						- --- 0Xqty 12

Fig.24.6:Packing List

Note

4. Bill of lading (b/l)

A bill of lading (BOL) is the official contract between the shipper or owner of goods and the freight carrier. A BOL will include detailed information about the shipping destination, the goods included, and how they should be handled. It is the document used to confirm receipt of goods for shipment and can only be signed by an authorised representative of the carrier upon receipt in order for the shipment to be released. It is the most important document in the shipping industry, where its functions are

A. Evidence of Contract of Carriage

B. Receipt of Goods

C. Document of Title to the goods

Below is a sample document of the Bill of Lading, which is still the most important document in the shipping industry.


EVERGREEN LINE
A Joint Service Agreement

BILL OF LADING
ORIGINAL

(2) Shipper/Exporter (complete name and address)

(3) Consignee

(4) Notify Party (complete name and address)

(5) Document No.

(6) Export References

(7) Forwarding Agent

(8) Point and Country of Origin (for the Merchant's reference only)

(9) Also Notify Party (complete name and address)

(12) Pre-carriage by

(13) Place of Receipt/Date

(14) Ocean Vessel/Voy. No.

(15) Port of Loading

(16) Port of Discharge

(17) Place of Delivery

(10) Onward Inland Routing/Export Instructions (which are contracted separately by Merchants solely for their own account and risk)

Particulars furnished by the Merchant

CONTAINER NO./SEAL NO.

(20) Description of Goods

(22) TOTAL NUMBER OF CONTAINERS OR PACKAGES (IN WORDS)

ON

(24) FREIGHT & CHARGES

Revenue Tons

Rate

Per

Prepaid

Collect

(25) B/L NO.

EGLV
142901

FCL/FCL O/O

0118006686

(27) Number of Original Bs/L

(28) Place of B(s)/L Issue/Date

(29) Prepaid at

(30) Collect at

(31) Exchange Rate

(32) Exchange Rate

(33) Laden on Board

As agent for the Carrier and the Vessel Provider Italia Marittima S.p.A.

FORM NO. DOC400407

Fig.24.7: Bill of lading (b/l)

Note

5. Certificate of inspection

It gives the buyer that the goods he purchased met the necessary standards where the seller provides this certificate by himself or by inspection agency.

M TEST

M-TEST
5750 North Sam Houston Parkway East
Suites 1016
Houston-TX-77032

MLevins@m-testco.com
(281)359-2215

CERTIFICATE OF INSPECTION

CERTIFICATE NO:	43901.1		
ISSUE DATE	11-Mar-20		
CUSTOMER NAME or PO NO.	M-Test		
GAUGE MODEL NO:	Positector 6000		
PROBE MODEL NO	FNS	SERIAL NO:	NA
TEMPERATURE:	75.0DEG.F	SERIAL NO:	163597
		RH%	40.00%

FERROUS READINGS AS Shipped:

STANDARD	HIGH	LOW	1st	2nd	3nd
2.90	3.0	2.8	2.9	2.9	2.9
9.71	10.0	9.4	9.8	9.8	9.8
59.13	60.9	57.4	59.1	59.1	59.1

NOM FERROUS READINGS AS Shipped:

STANDARD	HIGH	LOW	1st	2nd	3nd
2.90	3.0	2.8	2.8	2.8	2.9
9.71	10.5	9.9	10.1	10.1	10.1
59.13	61.2	57.6	59.3	59.3	59.3

ACCEPTANCE CRITERIA MANUFACTURER TEST AND FINAL INSTRUCTIONS FOR THE Elcometer 456 or the POISTEST 60000.

TEST EQUIPMENT:
COATING THICKNESS STANDARDS Serial No.5506955 / 19333, 19345, 19322
5508145 / 16744, 16775, 16732
TRACEABILITY: CERTIFICATE NO. 11-243952
NIST CERTIFICATE NO. 3659PTB02, 66 PTB 05,67 PTB 05
Accuracy of Standards is +/- 0.017 mils

NOTE: THE CALIBRATION OF THIS INSTRUMENT CAN BE AFFECTED BY THE OPERATOR. PRIOR TO USE. THE CALIBRATION SHOULD BE VERIFIED USING THICKNESS STANDARDS OF KNOWN VALUE ON METAL SIMILAR TO THAT OF THE SAMPLE TO BE EVALUATED.

THE ELCOMETER 456 OF Poistector 6000 CAN BE USED IN ACCORDANCE WITH THE FOLLOWING TESTING STANDARDS; BS 5411 PART 11, BS 3900 PART C5, ISO 2178, ISO 2808, BS EN ISO 1461, DIN 50981, ASTM 8499 & PRen ISO 19840.

Signed _____
Quality Control

Fig.24.8: Certificate of inspection

Note

6. Insurance certificate

An Insurance Certificate is issued by an insurance company and certifies that the exporter has purchased an insurance policy for the shipment of goods. It covers for liability and in the event of a loss of the goods shipped. Certain risks are carried by exporters so having an insurance policy is critical to avoid monetary losses.

Energy Medicine Professional Association

Certificate of Insurance
Energy Medicine Professional Association Liability Program
For Members and Associate Members of Energy Medicine Professional Association

CERTIFICATE HOLDER:
Member Name: Stephanie Flores
Member Address: 273 Berwick Dr
Aurora, IL 60506
Member Number: 3,940
Member Type: Standard Level- HTPA Member rate

Policy Number: PPK1763183
Certificate Number: 1407
Insurance Co: Tokio Marine Specialty Insurance Co
Umbrella Policy Number: PUB614376
Insurance Issue Date: April 1, 2018
Insurance Expiration Date: April 1, 2019

Additional Insured:
1. Jeff Mankin/ High Ho Gems & Crystals, 17247 Oak Park Ave, Tinley park, IL 60477
2. Emily Beau, 6 W. Downers Place, Aurora
3. , ,
4. , ,
5. , ,

This policy is in effect until April 1st 2019 and your premium is prorated based on the month you enroll. Coverage renews for a full year each April 1st. It is understood and agreed that the certificate holder is named as additional insured, but only as respects it's liability arising out of activities of the named insured.

LIABILITY LIMITS *(per member)*	
COMMERCIAL GENERAL LIABILITY / PROFESSIONAL LIABILITY	
General Aggregate all coverages *(except products/comp ops)*	$3,000,000
Products/Completed Operations Aggregate	$3,000,000
General Liability Each Occurrence Limit	$1,000,000
Professional Liability each Occurrence Limit	$1,000,000
Personal and Advertising Injury	$1,000,000
Damage to Premises Rented To You	$ 100,000
Deductible	None
Umbrella Liability	$1,000,000

MASTER POLICY EFFECTIVE DATE: 4/1/2018

INSURED MAILING ADDRESS:
Energy Medicine Professional Association
15439 Pebble Gate
San Antonio, TX 78232-4164

ADMINISTRATOR: Carver and Associates

"This policy is issued by an insurance company that is not regulated by the Colorado Division of Insurance. The insurance company may not provide claims service and may not be subject to service of process in Colorado. If the insurance company becomes insolvent, insureds or claimants will not be eligible for protection under the Colorado insurance law."

COVERAGES: THE POLICIES OF INSURANCE LISTED ABOVE HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOT WITHSTANDING REQUIREMENT, TERM, OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICY DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS, AND CONDITIONS OF SUCH POLICIES. EXCLUDES ALL PRODUCTS INGESTED OR TAKEN INTERNALLY AND COVER APPLIES ONLY TO THE MODALITIES SHOWN ON THE APPLICATION.

CANCELLATION: Should any of the above described policies be cancelled before the expiration date thereof, the issuing insurer will endeavor to mail 10 days written notice to the certificate holder named above, but failure to do so shall impose no obligation or liability of any kind upon the insurer, its agents or representatives.

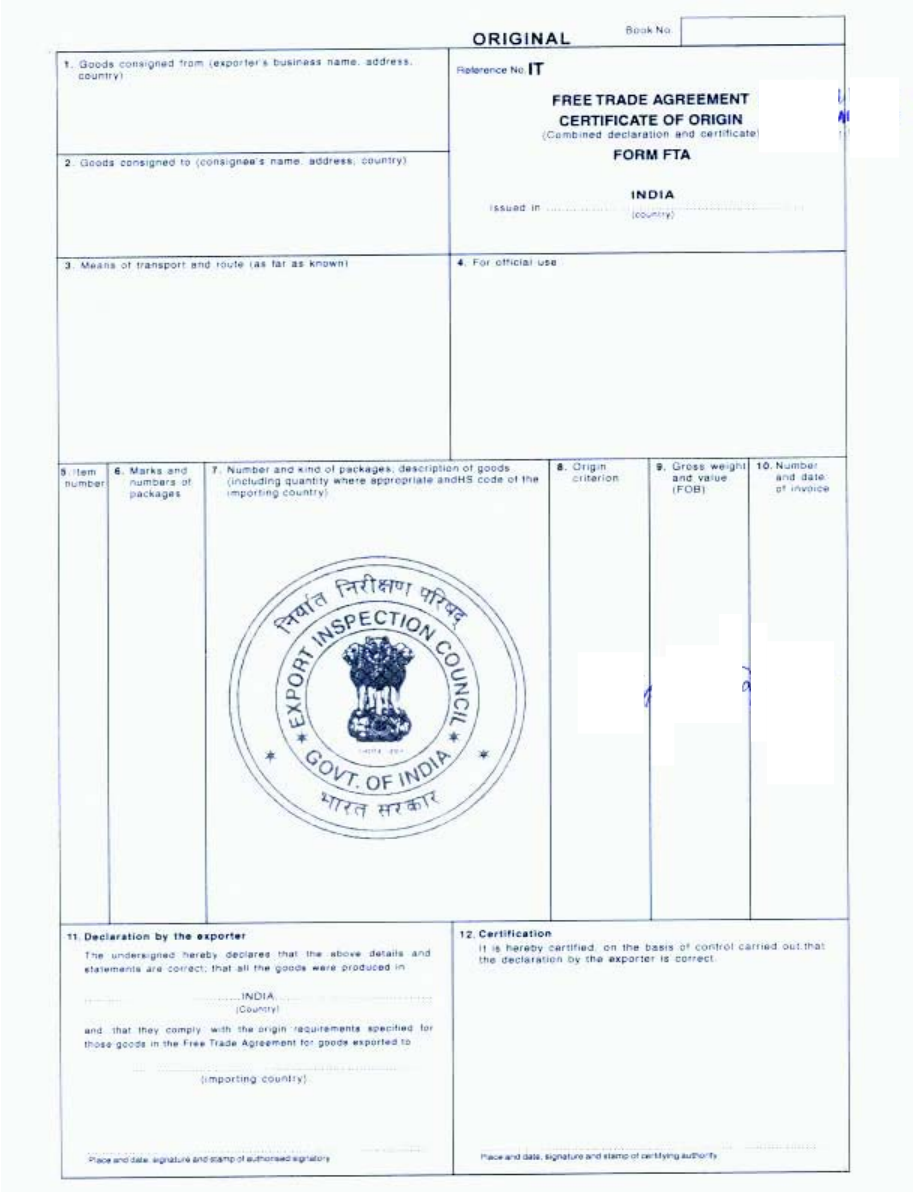
Authorized Representative

To verify information on this certificate contact EMPA at (210)-960-8807

Fig.24.9: Insurance certificate

7. Commercial invoice

A Certificate of Origin (C/O) is a document that declares the country of origin for manufactured goods, usually certified by the consulate or chamber of commerce. It is required by many treaty agreements for international trade to assure the goods are eligible for export. The exporter is responsible for providing the certificate of origin according to the laws and regulations of the destination country. Since a rate of duty is determined by the country where the goods originated, it is critical shippers include this document to guarantee it meets all free trade agreements.



ORIGINAL

Book No.

1. Goods consigned from (exporter's business name, address, country)

Reference No. IT

FREE TRADE AGREEMENT
CERTIFICATE OF ORIGIN
(Combined declaration and certificate)
FORM FTA

INDIA

2. Goods consigned to (consignee's name, address, country)

(issued in ..... (country))

3. Means of transport and route (as far as known)

4. For official use

5. Item number	6. Marks and numbers of packages	7. Number and kind of packages, description of goods (including quantity where appropriate and HS code of the importing country)	8. Origin criterion	9. Gross weight and value (FOB)	10. Number and date of invoice

निर्यात निरीक्षण परिषद्
EXPORT INSPECTION COUNCIL
GOVT. OF INDIA
भारत सरकार

11. Declaration by the exporter

The undersigned hereby declares that the above details and statements are correct; that all the goods were produced in

.....INDIA.....
(Country)

and that they comply with the origin requirements specified for those goods in the Free Trade Agreement for goods exported to

.....
(importing country)

Place and date, signature and stamp of authorised signatory

12. Certification

It is hereby certified, on the basis of control carried out, that the declaration by the exporter is correct.

Place and date, signature and stamp of certifying authority

Fig.24.10: Certificate of origin

8. Import export code (iec)

It is a unique code 10-digit alphanumeric code issued on the basis of PAN of an entity. IEC is issued in electronic form (e-IEC) by Directorate General of Foreign Trade (DGFT) which is under Ministry of Commerce, Government of India.No export or import shall be made by any person without obtaining an IEC unless specifically exempted.

भारत सरकार
GOVERNMENT OF INDIA

MINISTRY OF COMMERCE AND INDUSTRY
OFFICE OF JT. DIRECTOR GENERAL OF FOREIGN TRADE
6TH FLOOR, RESHAM BHAWAN LAL DARWAJA SURAT-395003

CERTIFICATE OF IMPORTER-EXPORTER CODE (IEC)

1. Name

2. Address

3. Name and Designation of the person whose photograph has been affixed on the Bank Certificate

4. Address of the Branch/Div./Unit if any

5. IEC Number

6. Date of Issue

7. PAN

Place :
Date :

Foreign Trade Development Officer

Fig.24.11: Import export code (iec)

Note

9. Air waybill

An Air Waybill (AWB) is used when carrying goods via air transport. This document acts as a receipt of goods and reports the condition of the goods.

This is a non-negotiable document that must name a recipient (may be the buyer). The AWB indicates acceptance of goods for carriage. It is prepared by IATA agents or airlines

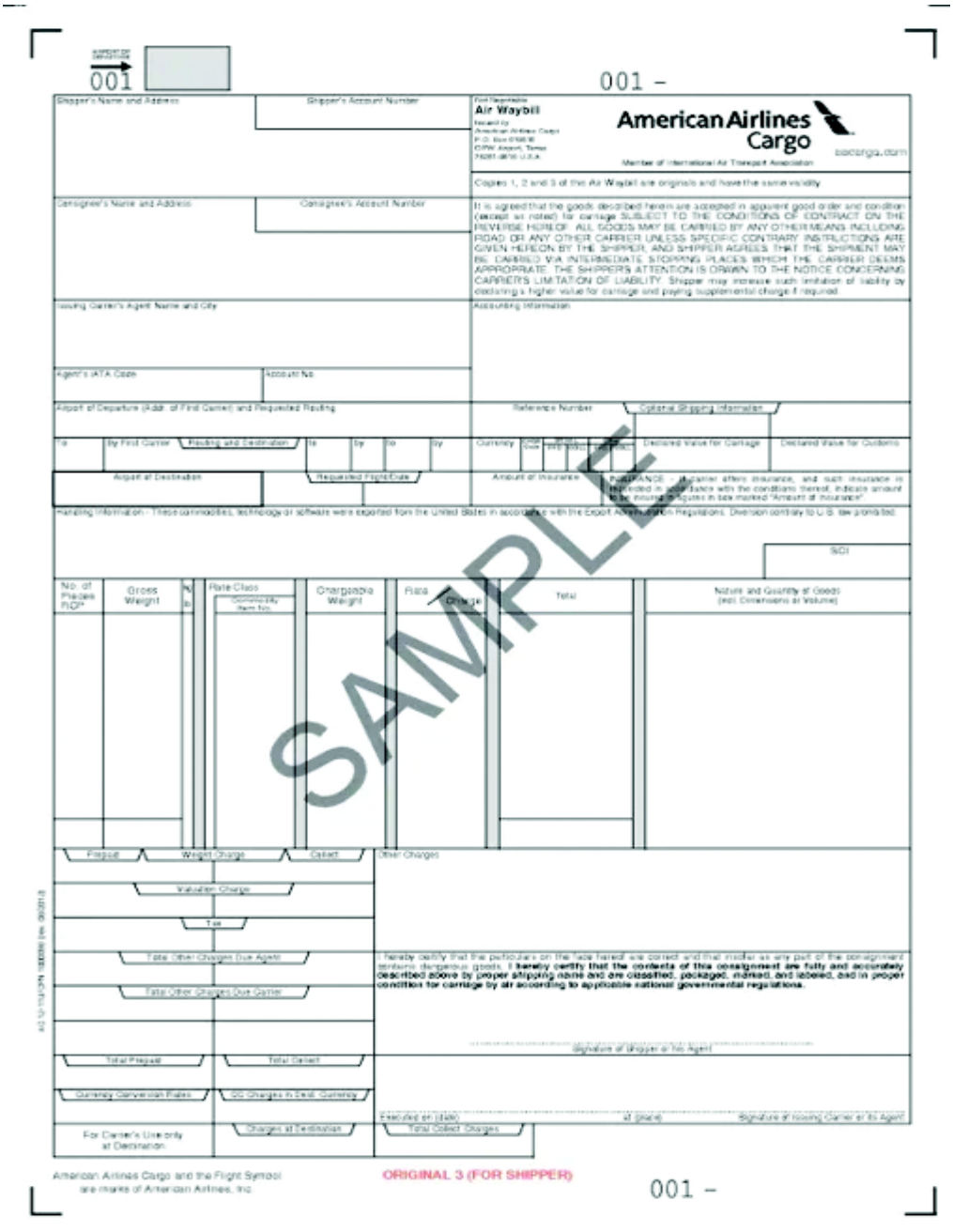


Fig.24.12: Air waybill

Note

10. Sea waybill

A Sea Waybill is a contract that is not needed for cargo delivery and is only issued as a cargo receipt. This document of title is used on a trust basis between the shipper and importer, which means that no Bill of Lading is necessary and goods are automatically authorised to be released once they arrive at the destination.

MAERSK LINE

NON-NEGOTIABLE WAYBILL

SCAC: MAEU
B/L No.: 967943340

Shipper
DT SPECIALTY PRODUCTS USA, LLC
CHESTNUT PLAZA
994 CENTRE ROAD
WILMINGTON, DE 19805 US

Booking No.
967943340

Export references

Svc Contract
297433551

Consignee
DT COMPANY(SINGAPORE)
28 BIOPOLIS ROAD #08-24 NUCLEOS SOUTH TOWER
SINGAPORE 138567 SINGAPORE

This contract is subject to the terms, conditions and exceptions, including the law & jurisdiction clause and limitation of liability & declared value clauses, of the current Maersk Line Bill of Lading (available from the Carrier, its agents and at terms.maerskline.com/carriage), which are applicable with logical amendments (mutatis mutandis). To the extent necessary to enable the Consignee to sue and to be sued under this contract, the Shipper on entering into this contract does so on his own behalf and as agent for and on behalf of the Consignee and warrants that he has the authority to do so. The shipper shall be entitled to change the Consignee at any time before delivery of the goods provided he gives the Carrier reasonable notice in writing.
Delivery will be made to the Consignee or his authorised agent on production of reasonable proof of identity (and, in the case of an agent, reasonable proof of authority) without production of this waybill. The Carrier shall be under no liability whatsoever for misdelivery unless caused by the Carrier's negligence.

Notify Party (see clause 22)
DT COMPANY (SINGAPORE) PTE LTD
C/O SAN (SINGAPORE) PTE LTD MAPLETREE PIONEER
LOGISTICS HUB LEVEL 5 77 PIONEER ROAD SINGAPORE 639577
SINGAPORE

Onward inland routing (Not part of Carriage as defined in clause 1. For account and risk of Merchant)

Vessel	Voyage No.	Place of Receipt. Applicable only when document used as Multimodal Waybill
MAERSK SEMAKAU	907E	
Port of Loading	**Port of Discharge**	**Place of Delivery. Applicable only when document used as Multimodal Transport B/L. (see clause 1)**
Newark	Singapore	

PARTICULARS FURNISHED BY SHIPPER

Kind of Packages; Description of goods; Marks and Numbers; Container No./Seal No.	Weight	Measurement
SHIPPED ON BOARD MAERSK SEMAKAU \ 907E ON 2019-02-17 AT Newark 1 Container Said to Contain 216 SHT 40' CONTAINER THAT CONTAINS 216 SHEET(S) ON 18 PLTS Methacrylic Resin Building Mat erials AESX20190208531017 NLR FOR A DISTRIBUTION INCIDENT (SPILL, LEAK, EXPOSURE, FIRE OR ACCIDENT) INVOLVING ANY DUPONT (E.I. DU PONT DE NEMOURS AND COMPANY) SHIPMENT, IN USA CALL CHEMTREC AT (800) 424-9300 (TOLL FREE FOR USA CALLERS) OR (703) 527-3887. FOR INCIDENTS OUTSIDE THE USA, CALL LOCAL OPERATOR & REQUEST COLLECT CALL TO USA AT 703-527- 3887. FOR INCIDENTS IN EUROPE, CALL CHEMTREC VIA THE IN-COUNTRY DIAL NUMBERS OR THE TOLL FREE IN-COUNTRY NUMBER. DUPONT'S REGISTRATION NUMBER WITH CHEMTREC IS CCN7442 IT IS DECLARED THAT THE PACKING OF THE GOODS INTO THE CONTAINER/VEHICLE HAS BEEN CARRIED OUT WITH THE APPLICABLE PROVISIONS, ANDREW MCLOONE 07-FEB-2018 "ALL DESTINATION CHARGES SHOULD APPEAR ON THE BL AS COLLECT EXCEPT THE THC TO EUROPE, VENEZUELA, AND BANGLADESH." SHIPPING MARKS: DT CORIAN PROD	13163.388 KGS	15.1900 CBM

Above particulars as declared by Shipper, but without responsibility of or representation by Carrier

Freight & Charges	Rate	Unit	Currency	Prepaid	Collect

Carrier's Receipt. Total number of containers or packages received by Carrier	Place of Issue of Waybill
1 container	Charlotte
Shipped on Board Date (Local Time)	**Date Issue of Waybill**
2019-02-17	2019-02-22

Declared Value Charges (see clause 7.3 of the Maersk Line Bill of Lading) for Declared Value of US$

Shipped, as far as ascertained by reasonable means of checking, in apparent good order and condition unless otherwise stated herein the total number or quantity of Containers or other packages or units indicated in the box opposite entitled "Carrier's Receipt"

Forwarder
BDP INTERNATIONAL INC PHILADELPHIA
WALNUT ST FL 3
Philadelphia PA
19106
FMC# 001127

Signed for the Carrier Maersk Line A/S

Maersk Agency U.S.A., Inc - Charlotte CRC
As Agent(s)

This transport document has one or more numbered pages

Fig.24.13: Sea waybill

Note

11. Delivery order (do)

A Delivery Order (D/O) is a document from a consignee, an owner or an agent of a freight carrier that orders the release of the transportation of cargo to another party. A delivery order should be differentiated from the bill of lading. The delivery order is not a negotiable document and it does not act as evidence or receipt of goods.The Delivery Order is issued by the carrier of the cargo directly if they have their own office at the destination or by their authorised destination agent on behalf of the main carrier.

MEDITERRANEAN SHIPPING COMPANY (AUST) PTY LIMITED A.B.N. 12003760638
as agent for MSC Mediterranean Shipping Company S.A. (MSC)

Import Delivery Order

Date: 18/12/2015
Time: 11:46:54AM

Consignee	Bill Of Lading Number :
	Container Number Type Seal No. Gross Container Weight
Discharging Vessel & Voyage / Arrival Date	Port of Load Port of Discharge Final Destination
Hazardous Info: Reefer Info:	Container Place of Availability Status:
Over Dimension Details :	E-IDO PIN NUMBER:
ERRANE AN SHIPP S AGENTS ST.) PTY .LIM (AU ABN 12003760 63	Signature of driver (Container received in apparent good order)
Date of Issue	OR Container received damaged-refer damage report
Shipping Company/Agent to overstamp these 2 items of information	
Transport Co. Truck Co.	Date Time

MEDITERRANEAN SHIPPING COMPANY (AUST) PTY LTD acts, unless expressly indicated otherwise, always on behalf and in the name of MSC Mediterranean Shipping Company S.A. (the "Carrier"). The Contract of Carriage and all services of the Carrier are subject to the Carrier's Terms and Conditions (either, when a bill of lading is issued subject to the "BL Standard Terms & Conditions", or, in all other cases subject to the "Sea Waybill Terms & Conditions"), the booking terms and the local Agency Terms & Conditions at the ports of Loading, transshipment and discharge.

- **MSC** or Carrier means MSC Mediterranean Shipping Company S.A.,12-14 Chemin Rieu, 1208 Geneva, Switzerland.
- **MSCA** means **MEDITERRANEAN SHIPPING COMPANY (AUST) PTY LTD**, 15 McCabe Street, North Fremantle, Western Australia, Australia including all its branch offices in Australia and acting as agent of MSC Mediterranean Shipping Company S.A. only.
- **Merchant** includes the Booking Party, Shipper, Consignee, holder of a Bill of Lading, the receiver of the Goods and any Person owning, entitled to or claiming the possession of the Goods or the corresponding Bill of Lading or anyone acting on behalf of this Person and when the context so requires means those persons jointly and severally.

1. Your goods, shipped under the Bill of Lading or Sea Waybill referred to in the Import Delivery Order, are or shortly will be available for collection at the Container Place of Availability noted in same. If your goods are not collected within three (3) days of the date of availability, MSC reserves the right to place them in bond store at your risk and expense. You must then pay all storage and associated charges before taking delivery of your goods. If after 30 calendar days from the date of discharge the goods have not been collected, MSC may exercise its rights under the Bill of Lading to dispose of the goods to recover any outstanding charges.

2. For your convenience, as an additional service beyond the physical carriage of the goods, and strictly on the terms set out in this document, the Arrival Notice, and the Bill of Lading and/or Sea Waybill, as applicable, except insofar as inconsistent with this agreement, you may make use of MSC's container-free of charge, for the maximum period set out below commencing on and including the day after the date of discharge as the first free day. This is defined as the "Hire Free Period". Your collection of the container will signify your acceptance of the terms of the offer contained in this document for the use of the container.

3. Ultimately, the empty container must be returned to the container depot specified below, clean, undamaged, and completely free of cargo residues, chemicals, Dangerous Goods labels (in accordance with applicable regulations), fumigation labels, stowage aids and lashings. Failure to comply with this requirement may result in the container being rejected by the depot, or in action being taken against you to recover the costs of repairs, cleaning, disposal of residue contamination and any other costs arising as a result, including fines imposed by authorities, recovery costs and interest.

4. You are liable for and shall indemnify MSC for all costs, loss and damages arising from any accidents or incidents involving the container provided to you under this agreement which cause injury or death of persons or loss of or damage to property. MSC makes no warranties, express or implied with respect to the condition of the container (including any accessory equipment) or its fitness for any particular purpose.

5. After the Hire Free Period, you have the option of retaining the container, and the container hire charges as set out below will apply. If after 30 calendar days from the date of discharge the container has not been returned to the location specified below MSC may: (a) demand the immediate return of the container; and / or (b) elect to proceed with legal action to recover the container, or the replacement value as recorded in the books of MSC, in addition to all accrued container hire and administration charges. Failure to pay invoiced container hire charges and replacement costs may result in legal proceedings. This responsibility, including in respect of legal and court fees and collection expenses, at all times remains jointly and severally with the parties comprising the Merchant under the Bill of Lading and/or Sea Waybill, and with the person by whom or on whose behalf the container is collected, notwithstanding delegation of container collection or transportation to a third party contractor.

6. Please note containers are the property of MSC and that time is of the essence in relation to the return of empty containers.

7. A total of 7 (Seven) free calendar days including the day after the date of discharge (day one) is allowed for all containers. The empty container must be returned clean and undamaged to the return location nominated on this notice. After the elapse of free time, container hire charges as set out below will apply (exclusive of GST - Goods and Services Tax).
Below container hire charges are effective 1 January 2016

Container Type	Free Days	1st Period	Rate for each day thereafter
20ft Dry	7 Calendar Days	7 Calendar Days A$75 per Calendar Day	A$110 per Calendar Day
40ft Dry	7 Calendar Days	7 Calendar Days A$120 per Calendar Day	A$200 per Calendar Day
40ft High Cube Dry	7 Calendar Days	7 Calendar Days A$120 per Calendar Day	A$200 per Calendar Day
20ft Special	7 Calendar Days	7 Calendar Days A$70 per Calendar Day	A$160 per Calendar Day
40ft Special	7 Calendar Days	7 Calendar Days A$140 per Calendar Day	A$300 per Calendar Day
20ft Reefer	7 Calendar Days	6 Calendar Days A$100 per Calendar Day	A$200 per Calendar Day
40ft Reefer	7 Calendar Days	6 Calendar Days A$200 per Calendar Day	A$400 per Calendar Day

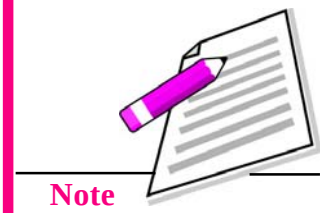
8. The above rates and/or policy may be varied at MSC's discretion and will incur GST. For any enquires please contact your local port agent.

Please Return Empty Container to any of the following Depot :

9. A "calendar day" is a day, calculated from midnight to midnight (or any part of that day) including, without limitation, weekends and holidays. The above rates and/or policy may be varied at MSC's discretion and will incur GST. For any enquires please contact your local port agent.

*** The weight shown on this document is as declared by the shipper. Mediterranean Shipping Company (Aust) Pty Limited and its Principal**

Fig.24.14:Delivery order (do)



INTEXT QUESTIONS 24.2

1. _____ is the most important document in the shipping industry.
2. Expand EDI
3. What are the functions of Bill of Lading?
   - A) Evidence of Contract of Carriage
   - B) Receipt of Goods
   - C) Document of Title to the goods
   - D) All the above
4. Expand IEC.

24.6 NEW TECHNOLOGIES IN LOGISTICS & SCM

The unwritten rule across any industry is that disruptive forces are constantly at play, reshaping the way organisations think about technology, conduct business, and look to the future. Let us witness some new technologies in logistics and SCM which is not off course waiting to implement new technologies.

1. RFID

For over a decade, Radio-frequency Identity (RFID) chips have promised to provide real-time tracking information. By comparison, RFID implementation can be a high-cost addition to the logistics supply chain. Some estimate a 10X cost factor for implementing RFID tags versus bar codes. RFID in logistics has potential particularly in route optimization, and the real-time tracking of goods. When effectively integrated, RFID systems can provide precise location and quantity data in real-time. For instance, tagging trucks, pallets, and inventory provides multi-lateral views of what is happening across the supply chain. But you need that level of computers and system to implement and run it.

2. Integrated 3pl services

As e-commerce continues to expand beyond epic proportions, many companies are also seeing quite a bit of potential in integrated 3PL services. Businesses are seeing this by bringing in heavy assets in trucking and adding freight brokerage capabilities and warehouse facilities to provide deep integration into customers' systems.

Note

3. Re-optimized service lines

When COVID-19 first struck, one of the ways logistics companies started to recover was to re-optimize service lines in order to focus on industries that thrived the most during the pandemic, such as food, paper, and packaging.

This allowed these logistics enterprises to have more of a regular fleet, rather than a non-dedicated, irregular fleet. No, it certainly is not easy for companies to transition and pivot their strategic initiatives, but the end result is one that will prove beneficial for years to come.

4. Internet of Things

Physical devices are linked to the Internet of Things (IoT), which monitors and transfers data without human involvement. The use of IoT in logistics increases inventory management efficiency by increasing visibility across the supply chain.

The Internet of Things (IoT) has transformed supply chain management (SCM). There are significant improvements in the ability to comprehend where products are located, how they are kept, and when they may be anticipated at a particular place.

5. Warehouse automation

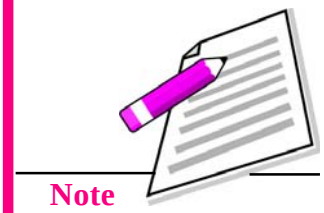
Automation of inventory movement into, within, and out of warehouses to consumers with little human intervention is known as warehouse automation. By automating repetitive physical tasks and manual data input and analysis as part of a business' operations, the company saves time and money.

Humans are still involved in warehouse automation systems that span everything from unloading trucks to completing orders. It helps in decreasing the number of human mistakes.

INTEXT QUESTIONS 24.3

1. Expand RFID
2. Physical devices are linked to the _____, which monitors and transfers data without human involvement, Air waybill
3. Identify the statements whether they are true or false.

   Automation of inventory movement into, within, and out of warehouses to consumers with little human intervention is known as warehouse automation.



WHAT YOU HAVE LEARNT

- Meaning and concept of consignment note with its process of services & network of GTA for delivery of of goods also.
- Process of filling up of contents consignment note provided by GTA.
- Importance, roles and functions of consignment note.
- Various types of document used in Logistics and supply chain management like - Performa invoice, Commercial invoice, Packing list, Bill of lading, Certificate of inspection, Insurance certificate, Certificate of origin, Import export code, Air waybill, Sea waybill, Delivery order,
- Application of new technology in logistics and supply chain management - RFID, Integrated 3pl services, Re-optimized service lines, Internet of Things, Warehouse automation

KEYWORDS- Consignment, Sea waybill, Bill of lading, Commercial invoice, Consignment Note, Commercial invoice, Radio-frequency Identity, Loading/ unloading.

TERMINAL EXERCISE

1. Define Consignment Note
2. Name the services by which the transportation of goods are exempted
3. What is meant by GTA?
4. Define Proforma Invoice
5. State the importance of IEC.
6. What are the services provided by GTA?
7. Mention the contents in Packing List
8. What is Bill of Lading and mention its functions
9. Explain the importance of Certificate of Origin
10. How RFID helps in transit?

Note

11. What are the contents of the Consignment Note?
12. State the functions of Consignment Note
13. Name any 4 documents in SCM and Logistic

ANSWERS TO INTEXT QUESTIONS

24.1

1. True
2. 1956
3. Goods Transportation Agency

24.2

1. Bill of Lading
2. Electronic Data Interfaces
3. All the above
4. Import Export Code

24.3

1. Radio-frequency identity
2. IoT
3. True