# LOGISTICS & SUPPLY CHAIN MANAGEMENT
# ISD252 BBA YEAR2

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# ISD252 INTRODUCTION TO LOGISTICS AND SUPPLY CHAIN MANAGEMENT

## UNIT 1

# UNIT OVERVIEW

After reading this unit you should be able to

- Differentiate between;
  - Logistics management
  - Supply chain and
  - Supply chain management.

# UNIT OVERVIEW CONT'D…

- List, explain and discuss the linkages among the Logistics Functions and Activities
- Understand the History and Evolution of Logistics

# Introduction

- In all facets of our lives, goods and services are transported from the place they are produced to the place they are consumed.
- In the case where there are many exchanges taken place between producers and consumers , the firms which are involved in bringing the products or services to the market are aligned in a network called '**Supply chain**'.

# Why do we have to move materials?

Let us try to answer this question by analysing a **cell phone/ Mobile phone manufacturer.**

- The research and development department (R&D) of the company conceptualises and tests a prototype of for example, a new handset

# Why do we have to move materials?...cont'd..

- They launch the new (version) phone.
- The company builds some parts itself, subcontracts some parts to its affiliates or buys some parts from other companies.
- It then assembles the phone, tests it before sending it to its dealers for onward sales to customers

## Why do we have to move materials? ...cont'd

- Imagine how many tangible and intangible goods have been moved in this case.
- All organisations have to move materials for even the smallest of their processes.
- Manufacturers have to procure raw materials from suppliers and distribute finished products to the customers
- The function that is responsible for controlling such movement is termed **'Logistics'**

# Definitions of Logistics Management?

The Council of Supply Chain Management Professionals (CSCMP), one of the leading professional organizations for logistics personnel, and formerly known as the Council of Logistics Management [CLM), defines logistics management as:

- *'that part of Supply Chain Management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirements'*

# Definitions cont'd...

- This definition includes the flow of materials and services in both the manufacturing and service sectors.
- Logistics is not confined to manufacturing operations alone. It also includes the service sector with entities such as the Government, Hospitals, Banking, Telecommunications, Educational institutions, Retailers and the Hospitality industry.

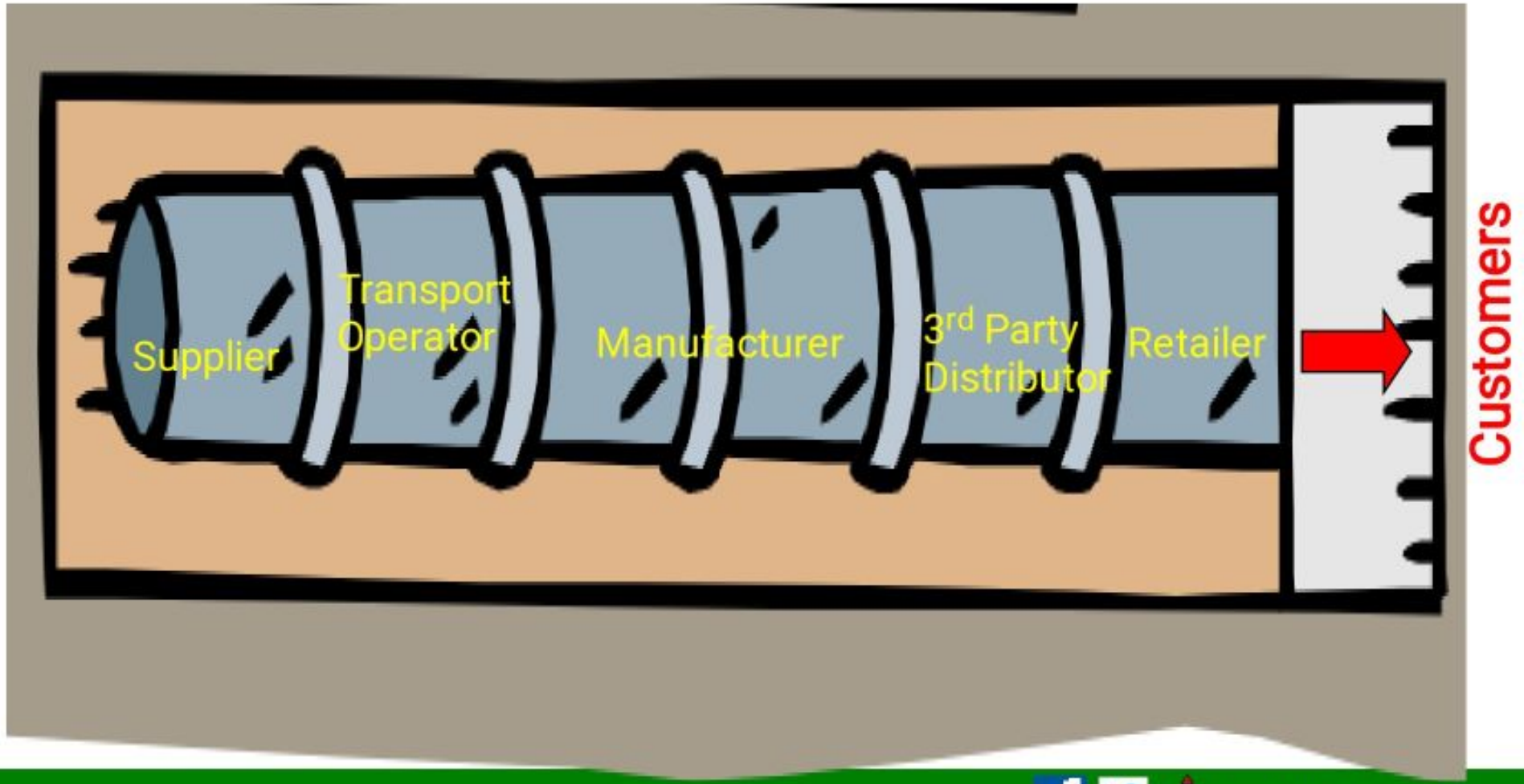
# Definitions cont'd...

- **Logistics** describes the entire process of materials and products moving into, through and out of firms/organizations.
- **Inbound logistics** covers the movement of material received from suppliers.

# Definitions cont'd...

- **Materials management** describes the movement of materials and components within a firm.
- **Physical distribution (PD)** refers to the movement of goods outward from the end of the assembly line to the customer.

# The Logistics Pipeline



# The Logistics System

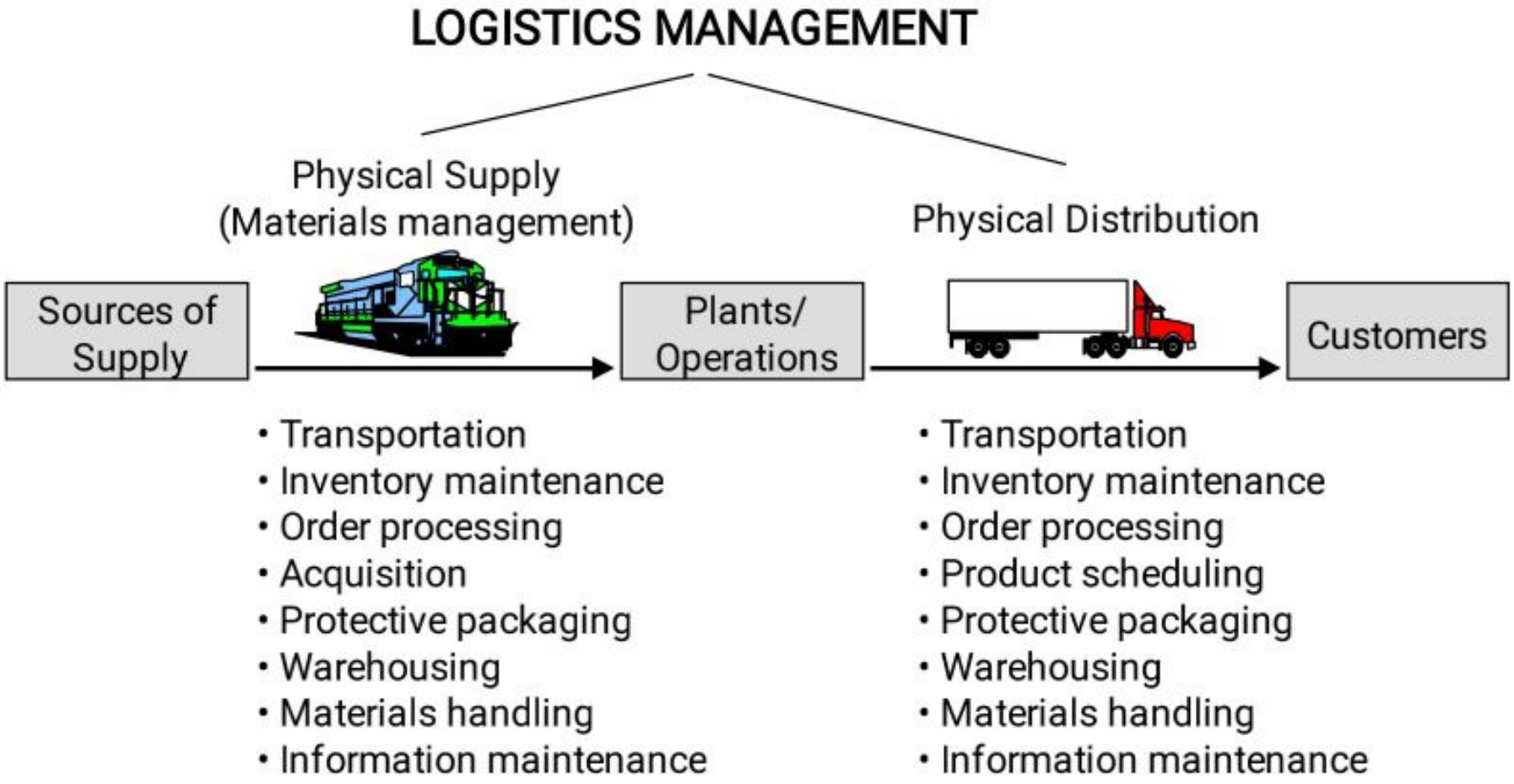
- Logistics is dependent upon **Resources** as its **Inputs**. These resources are;
  i. Natural,
  ii. Human,
  iii. Financial and
  iv. Information (resources for ***inputs***.)
- Suppliers provide raw materials, which logistics manage in the following forms; raw material, in-process inventory and finished goods.

# The Logistics System cont'd…

- Management actions provide the framework for logistics activities through the process of ***Planning***, ***Implementation*** and ***Control***.
- The **outputs** of the logistics system are;
  i. Competitive advantage,
  ii. Time and Place utility and
  iii. Efficient movement to the customer.

  These outputs are made possible by the effective and efficient performance of the logistics activities.

# The Logistics Process



# Component of Logistics

The component parts of logistics are:

1. Sourcing and Procurement
2. Manufacturing/Service package
3. Distribution
4. Storage and Warehousing
5. Information systems and management
6. Customer service

# LOGISTICS FUNCTIONS/ACTIVITIES

The activities of Logistics are:

- Customer service
- Logistics communication
- Purchasing/procurement
- Inventory control
- Transportation
- Warehousing
- Order processing
- Packaging
- Demand Forecasting
- Reverse logistics

# Elements of Logistics Cont'd...

## 1. Customer Service

- A service a firm provides to those who purchase its products or services. It's a feature of the amplified product that adds **value** for the buyer.

## 2. Logistics communication/Information System

- Information is needed for both long-range and day-to-day decision making.

# Elements of Logistics Cont'd...

## 2. Logistics communication/Information System.....Cont'd

- Information provides organisations with insight and visibility into the supply chain activities taking place from the distant supplier to customer locations.
- This information must effectively flow within the organization and between key participants/ stakeholders.

# Elements of Logistics Cont'd...

IT systems in logistics provide support in:

- **Order processing**

# Elements of Logistics Cont'd...

- Order processing


Source: Pegasus Book Club

# Elements of Logistics Cont'd...

IT systems in logistics provide support in:

- Warehousing management systems
- Fleet management systems
- Routing and Scheduling
- On-vehicle systems
- Payment systems
- Inventory systems

# Elements of Logistics Cont'd...

## 3. Procurement/Purchasing

- **Procurement:** It's the acquisition of goods and/or services at the best possible total cost of ownership, in the *right quantity*, *right quality*, at the *right time*, in the *right place* and from the *right source* for the direct benefit or use of corporations. *(5 R's).*
- **Purchasing:** It's the process of ordering and receiving goods. It is a subset of the Procurement process. Generally, purchasing refers to the process involved in ordering goods such as request, approval, creation of a purchase order record (a Purchase Order(P.O.), etc.

# Elements of Logistics Cont'd...

## 4. Inventory Control

- Inventory/Stock is a quantity or store of goods that is held for some intended purpose or use.
- Inventory may be kept "in-house," meaning on the premises or nearby for immediate use; or it may be held in a distant warehouse or distribution centre for future use.

# Elements of Logistics Cont'd...

## 5. Transportation

- **Transport** or **transportation** is the movement of people and goods from one location to another.
- Modes of transport include;
  - **Air,**
  - **Rail,**
  - **Road,**
  - **Water,**
  - **Cable,**
  - **Pipeline and**
  - **Space.**
- The field can be divided into *infrastructure, vehicles* and *operations.*

# Elements of Logistics Cont'd...

## 6. Warehousing

- Warehousing is that part of a firm's logistics system that stores products (raw materials, parts, goods-in-process, finished goods) at and between point of origin and point of consumption
- Provides information to management on the status, condition and disposition of items being stored
- The term Distribution Centre (DC) is sometimes used.

# Elements of Logistics Cont'd...

## 6. Warehousing

# Elements of Logistics Cont'd...

## 6. Warehousing

# Elements of Logistics Cont'd...

## 6. Warehousing

# Elements of Logistics Cont'd...

## 7. Order Processing

- Order processing is the term generally used to describe the process or the workflow associated with the picking, packing and delivery of the packed item(s) to a shipping carrier.

## 8. Packaging

- Packaging is the Science, Art, and Technology of enclosing or protecting products for distribution, storage, sale and use.
- Packaging can be described as a coordinated system of preparing goods for transport, warehousing, sales and end use.

# Elements of Logistics Cont'd...

## 8. Packaging cont'd...

- Packaging contains, protects, preserves, transports, informs, and sells.
- **Packaging Objectives:**
  - Protection (Physical, barrier,)
  - Containment or agglomeration
  - Information transmission
  - Marketing
  - Security, etc.

# Elements of Logistics Cont'd...

## 8. Packaging cont'd...(Valentines day Hamper)

# Elements of Logistics Cont'd...

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# Elements of Logistics Cont'd...

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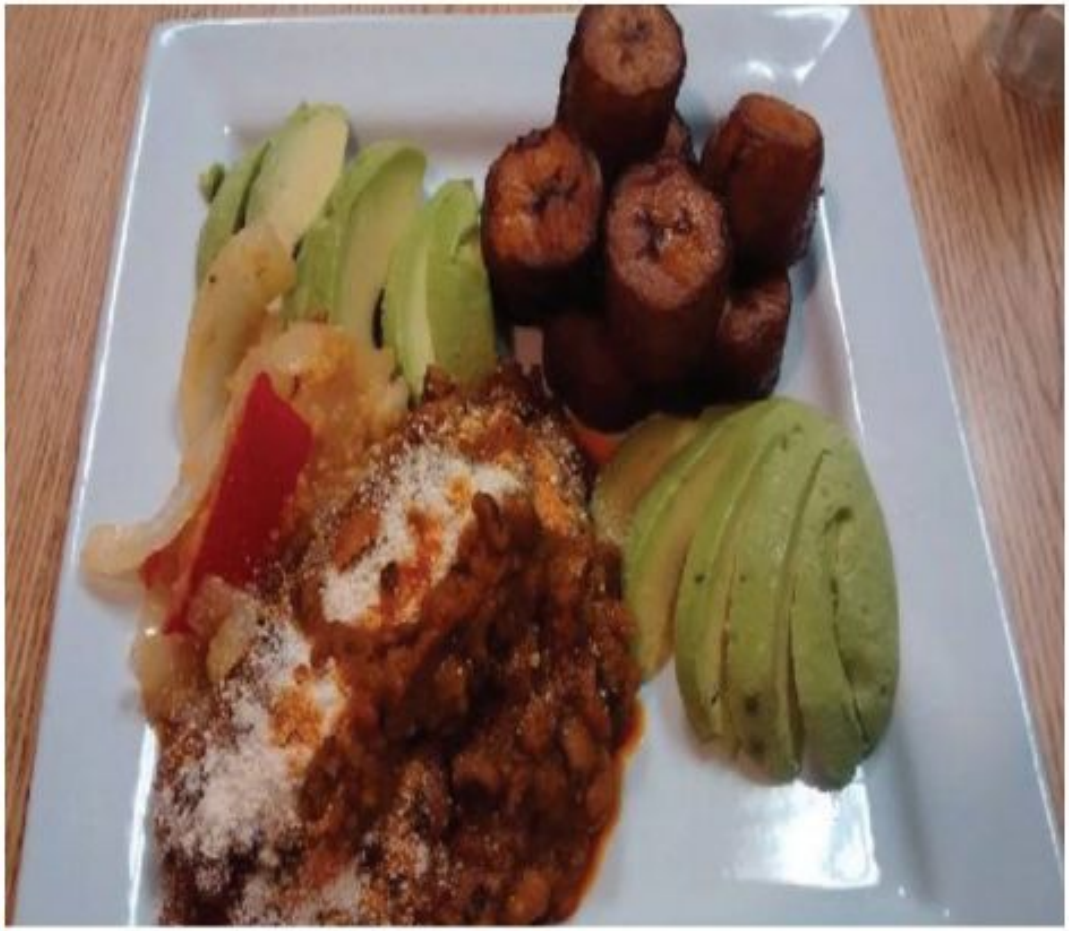

# Elements of Logistics Cont'd...

## 8. Packaging cont'd...



# Elements of Logistics Cont'd...

## 9. Demand Forecasting

- Activity of estimating the quantity of a product or service that consumers will purchase at specific times.
- Demand forecasting may be used in making pricing decisions, in assessing future capacity requirements, or in making decisions on whether to enter a new_market.

# Elements of Logistics Cont'd...

## 10. Reverse logistics

- It is the process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal.

# REVERSE LOGISTICS VIDEO

https://www.youtube.com/watch?v=FPPSn-M3JQk&t=177s

# Elements of Logistics Cont'd...

## 11. Materials Handling

- Handling and storing materials involve diverse operations such as hoisting tons of steel/rice/sugar with a crane; driving a truck loaded with same; carrying bags or materials manually; and stacking palletized bricks or other materials such as drums, barrels, lumber, etc
- Improper handling and storing of materials often result in costly spoilage and injuries.

# Elements of Logistics Cont'd...


# Elements of Logistics Cont'd...

## 11. Materials Handling


# Elements of Logistics Cont'd...

## 12. Logistics Strategic Planning

- The challenge for logistics managers nowadays is to constantly balance a need to perform well while responding to a constantly changing environment.
- Logistics managers must proactively and strategically plan for the future and therefore prepare for these changes

# Elements of Logistics Cont'd...

## 13. Service Support

- Parts and service support, or after-sale service support, provides repairs, spares and parts to dealers/customers and ensures the collection of defective or malfunctioning products from customers, and responding quickly to demands for repairs or assistance.

# EVOLUTION OF LOGISTICS

- The probable origin of the term is the Greek *logistikos*, meaning 'skilled in calculating'.
- The term, logistics, was initially developed in the context of military activities in the late $18^{th}$ and early $19^{th}$ centuries
- It was launched from the military logistics of World War II which was concerned with getting soldiers and weapons to the battlefront on time for a fight with victory as their goal.

# DEVELOPMENT OF LOGISTICS CONT'D...

- And now, a number of researches have adopted the military logistics applications to business activities.
- Business logistics was not an academic subject until the 1960s.
- A key element of logistics, the trade-off between transport and inventory costs, was formally recognized in economics at least as early as the mid-1880s. (BTRE, 2001).

# DEVELOPMENT OF LOGISTICS CONT'D…

- Development of logistics started 40-50 years ago with the integration of local level transport and warehousing operations into Physical Distribution systems
- This integration has transformed the way businesses move, store and handle their products.
- Businesses now use different types of transport to link suppliers & distributors across long distances
- PDM - Total Logistics - SCM

# EVOLUTION OF LOGISTICS

## i. Early 1960s: Physical Distribution Management (PDM)

Efforts were started in the USA to transform PDM. Separate Distribution unit created to coordinate the management of transport, warehousing, inventory management, materials handling and order processing. Outbound distribution integration helped firms to develop explicit customer service strategies and led to meeting customer needs at minimum cost.

## ii. Late 1970s: Logistics and "Total Logistics"

The era handled the overall responsibility for the movement, storage, and handling of both inbound & outbound products. Played a role in product development, recycling and after sales service.

# EVOLUTION OF LOGISTICS

## iii. Early 1990s: Logistics & Business Process Re-engineering (BPR)

Principles of BPR was adapted to logistics emphasizing 4 factors common to Logistics ReEng–Systems Integration, Benchmarking, Analysis of Logistics activities and Continuous Improvement

## iv. Last 20 Years

Supply Chain Management (SCM) and its optimization. The main motivation of this SCM era has been the desire to minimize inventory

# Review Questions

1. Analyze the logistics system of ;
   a. A nursery school
   b. A mobile-money operator
   c. A cement factory in Ghana
2. Is Logistics relevant to KSB's operations?

# End of Lecture
# Thank you

# LOGISTICS & SUPPLY CHAIN MANAGEMENT
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# INTRODUCTION TO SUPPLY CHAIN MANAGEMENT

## UNIT 2

# UNIT OVERVIEW

After reading this unit students should be able to understand:

- The concept of Value chain, Supply chain, and Supply Chain Management.
- Key issues in Supply Chain Management
- Components of Supply Chain Management
- Types of Supply Chain Management

# THE CONCEPT OF VALUE CHAIN

- Focuses on how a business creates customer value by examining contributions of different internal activities to that value.
- These activities include; production, marketing, and the provision of after-sales service.
- It divides a business into a set of activities within the business which starts with inputs a firm receives, finishes with firm's products or services and after-sales service to customers.

# THE CONCEPT OF VALUE CHAIN

- Retailers bring together a range of products and present them in a way that's convenient to customers, sometimes supported by services such as fitting rooms, personal shopper advice and online customer service/support.

# THE CONCEPT OF VALUE CHAIN

A value chain is the full range of activities, including;

- Design,
- Production,
- Marketing and
- Distribution,

That businesses go through to bring a product or service from conception to delivery to its customers.

# THE CONCEPT OF VALUE CHAIN CONT'D…

- The value chain is a model developed by *Michael Porter* in 1985 which is used to describe the process by which businesses;
  - Receive raw materials,
  - Add value to the raw materials through various processes to create a finished product, and
  - Then sell that end product to end users/ customers.

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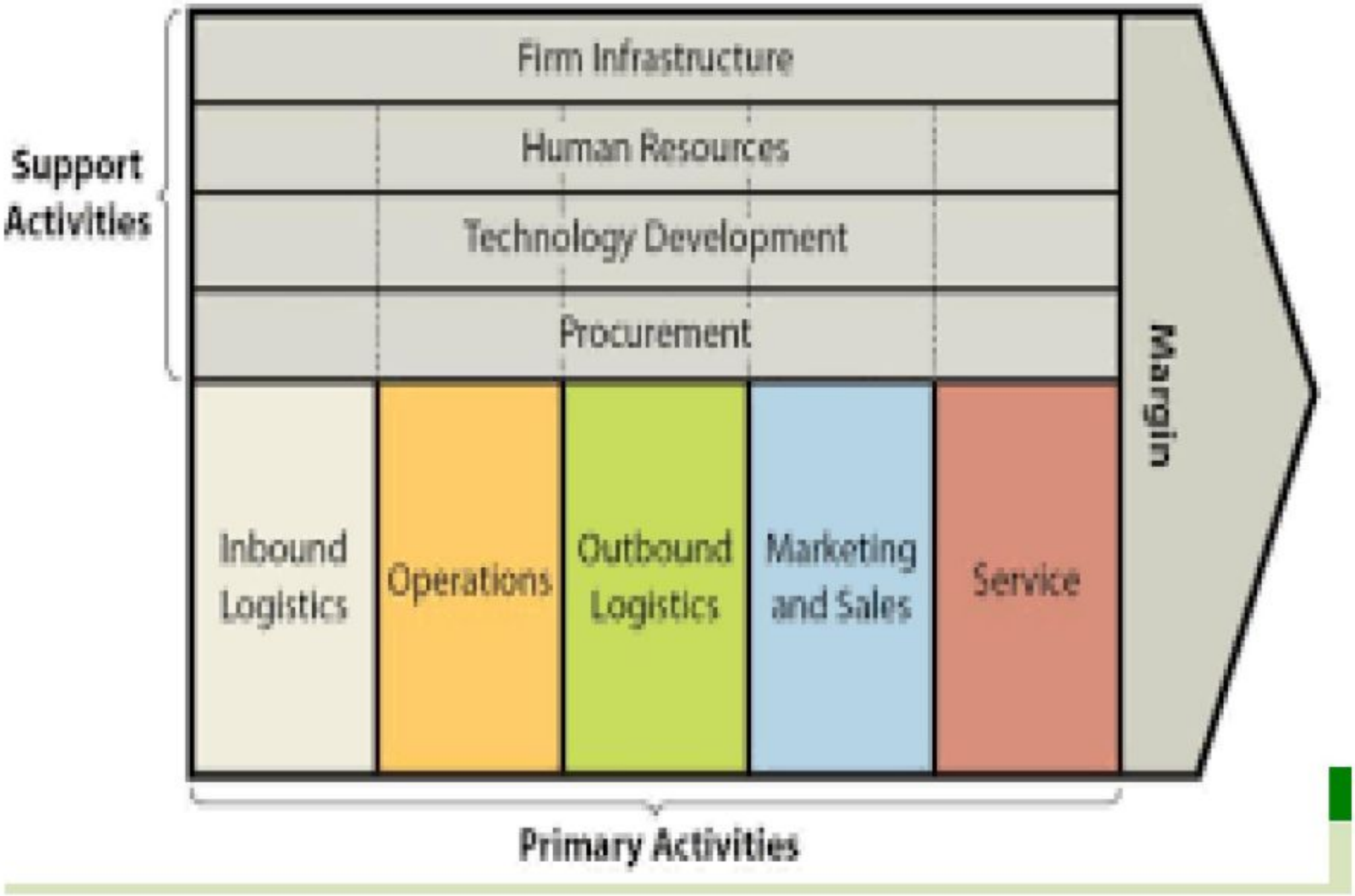
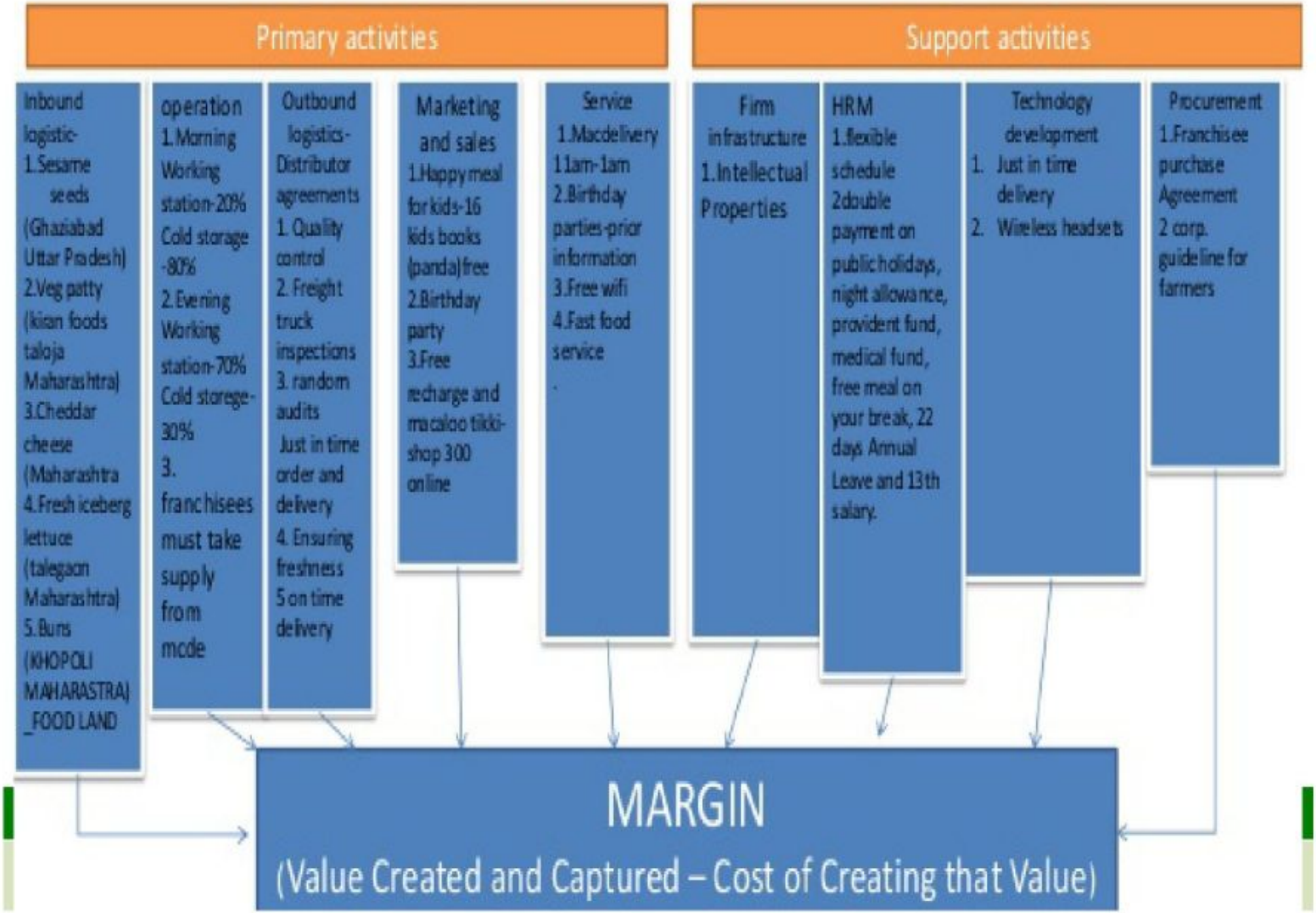
# PORTERS VALUE CHAIN



# MCDONALDS



# Value Chain of Pizza Hut:

| Support Activities | |
|---|---|
| **Infrastructure** | Funds collection |
| | Administrative tasks |
| **Human Resource Management** | Managing employees |
| | Training employees |
| | Appraisals and rewards |
| | Knowledge transfers |
| | Freedom of thoughts |
| | Conducting meetings |
| **Technology Development** | Feedback from customers |
| | Research work |
| | Improvising of their products |
| | Innovation |
| | Launch of new products |
| | Use of IT, databases |
| | Temperature controlled trucks |
| **Procurement** | Acquiring the resources |
| | Ingredients from local suppliers |
| | Special ingredients From Australia |
| **Primary Activities** | |
| **Inbound Logistics** | Purchasing raw materials like: |
| | Dough |
| | Cheese |
| | Sauce |
| | Fruits and vegetables |
| | Spaghetti |
| | Salt and pepper |
| **Operations** | Preparation of pizza base |
| | Customization of pizza |
| | Make pastas and salads |
| | On time delivery |
| **Outbound Logistics** | Transporting pizza bases |
| | Serving pizzas hot |
| **Marketing and Sales** | Segmentation |
| | Target Market |
| | Branding |
| | Redefining its menu |
| | Introduction of new products |
| | Pricing |
| | Distribution |
| | Advertising |
| | Promotional offers |
| **Service and Support** | Customer feels comfortable |
| | Online orders |
| | Home Delivery |

# VIDEO ON VALUE CHAIN

# DEFINITIONS OF SUPPLY CHAIN

- It is the sequence of processes involved in the production and distribution of a commodity.
- A supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request.
- The supply chain includes the manufacturer and suppliers, transporters, warehouses, retailers, and customers themselves.

# DEFINITIONS OF SUPPLY CHAIN

The Council of Logistics Management (CLM) defines Supply Chain (SC) as;

A global network of organizations that cooperate to improve the flows of material and information between suppliers and customers at the *lowest cost* and *the highest speed.*

# SUPPLY CHAIN MANAGEMENT

It is defined as;

- The management of materials, information, and finances as they move in a process from a supplier to manufacturer to wholesaler to retailer to consumer.
- The management of the flow of goods and services.

# SUPPLY CHAIN MANAGEMENT DEFINED

- It is the integration of key business processes from End user through original suppliers that provide products, services and information that add value for customers and other stakeholders. (Lambert et al, 1998)

# SUPPLY CHAIN MANAGEMENT

- The management of upstream and downstream relationships with suppliers and customers to deliver superior customer value.(Chritopher M, 1998)
- It involves the management of supply chain assets and products, information and funds flows to maximize total supply chain profitability. (Choppra and Meindl 2007)

# SUPPLY CHAIN MANAGEMENT CONT'D...

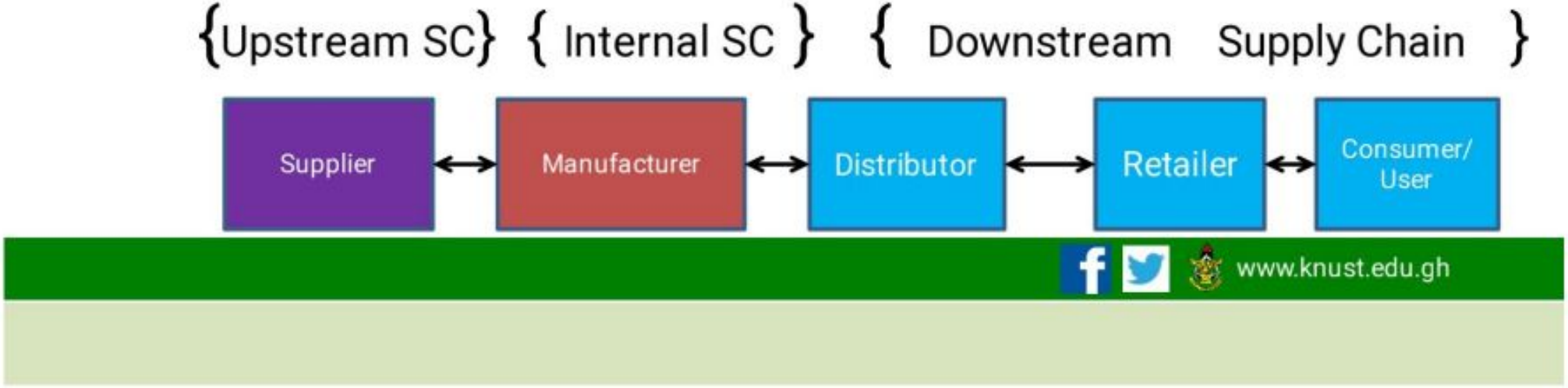
**SCM** involves **three main flows**:

- **The Product flow**: This includes the movement of goods from a supplier to a customer, as well as any customer returns or service needs.
- **The Information flow:** It consists of credit terms, payment schedules, consignment and title ownership arrangements.
- **The Finance flow**: It involves transmitting orders and updating the status of delivery.

# SUPPLY CHAIN ILLUSTRATED

From the definitions discussed, Supply Chain comprises the following;

- Suppliers
- Manufacturers
- Distributors
- Retailers and
- Consumers/Users



# COMPONENT OF SUPPLY CHAIN

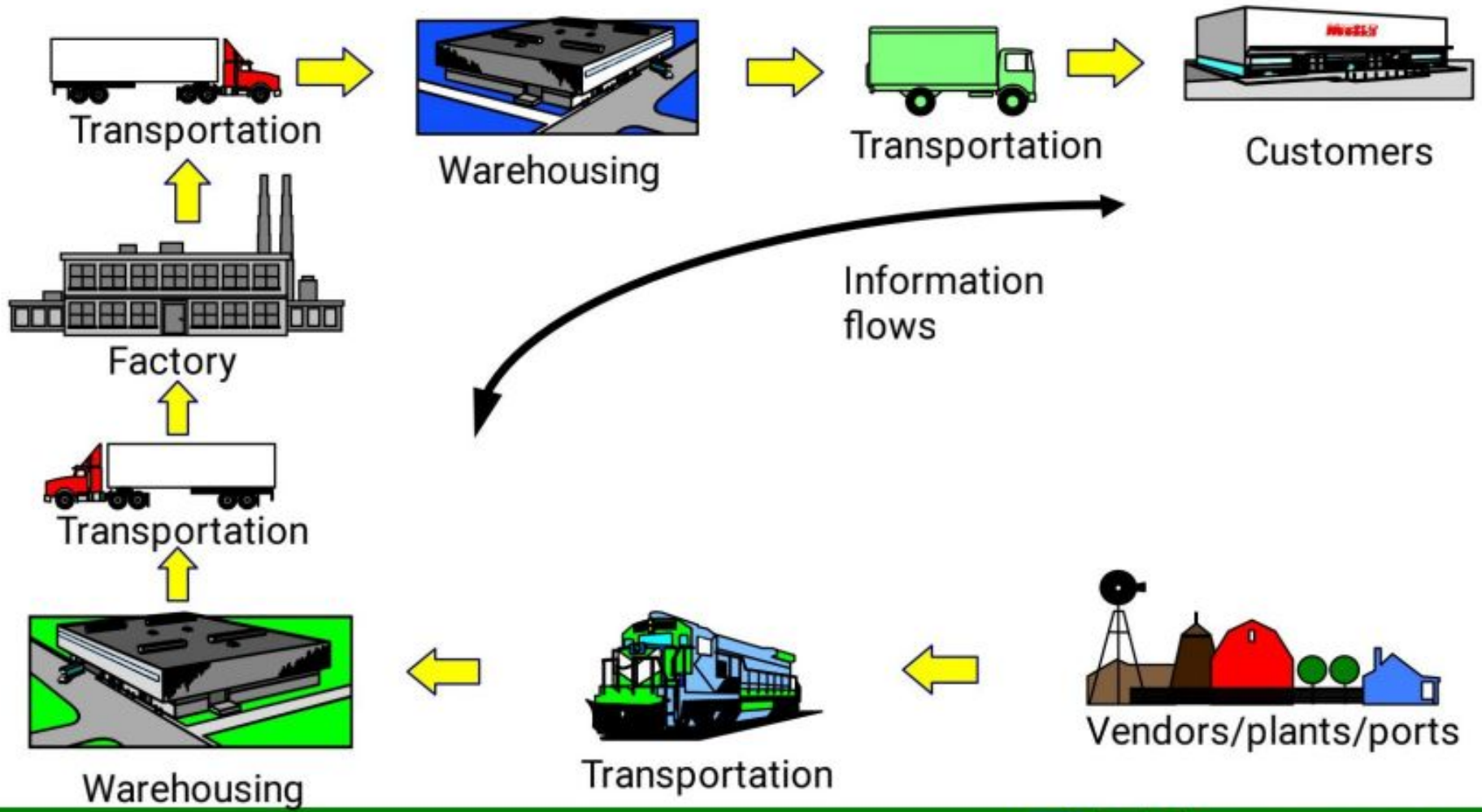
The supply chain can be broadly classified into three part: Upstream, Internal and Downstream (Turban et all., 2003, 2004).

- **Upstream supply chain:** This part of the supply chain is mainly concerned with the procurement of raw materials. It includes suppliers that could be manufacturers themselves

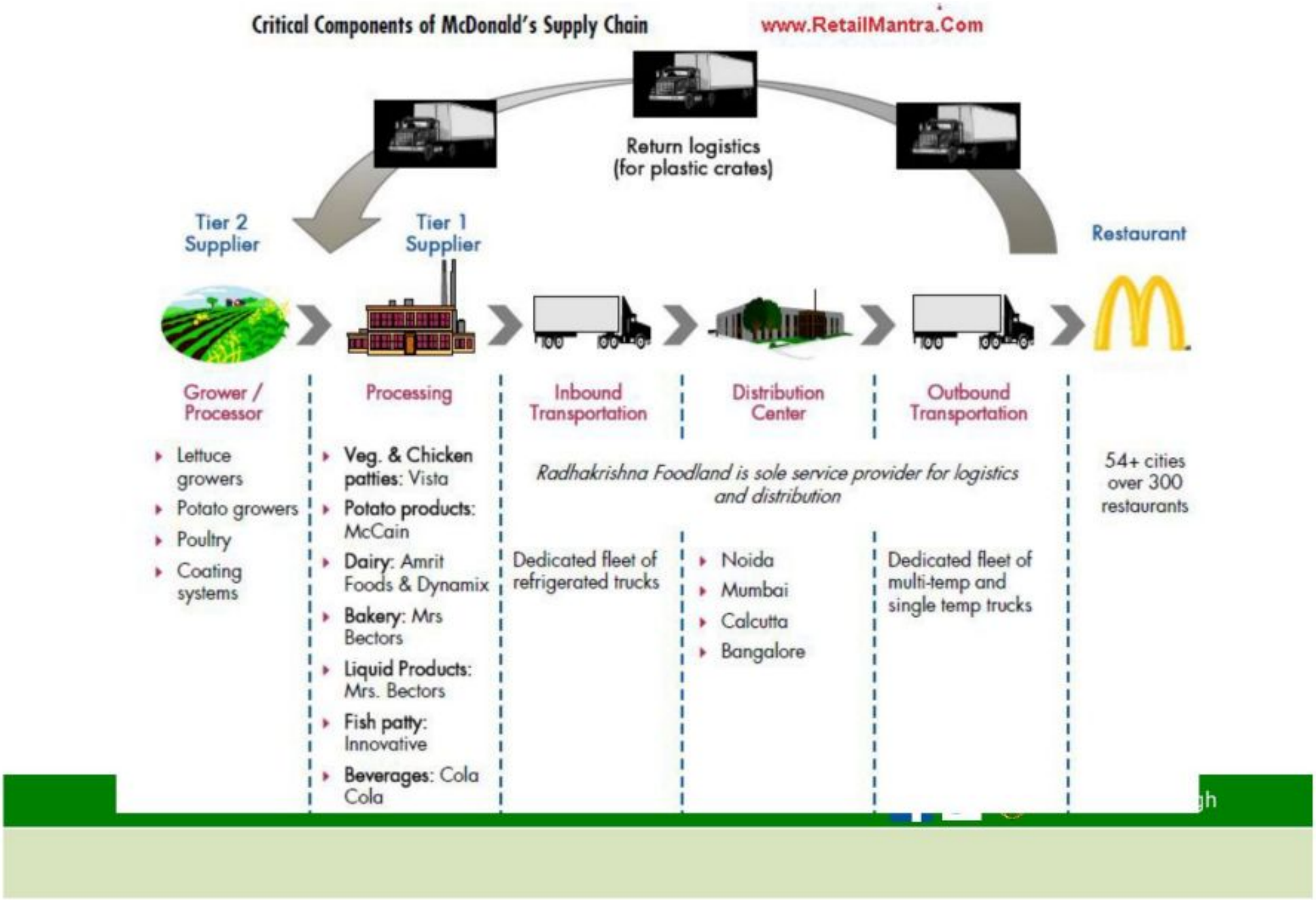
# COMPONENTS OF SUPPLY CHAIN MANAGEMENT

- **Internal supply chain:** This part is mainly concerned with transforming the inputs obtained in the upstream supply chain into outputs. It starts from the time raw material comes to an organization and continues till it gets transformed into finished goods and is sent for distribution.
- **Downstream supply chain:** This part is mainly concerned with the processes involved in delivering the finished products from the internal supply chain to the final customers.

# SUPPLY CHAIN FOR AN INDIVIDUAL FIRM



# KFC SUPPLY CHAIN



# SUPPLY CHAIN MODELS

The type of supply chains depend on the nature of the company(industry) in question. The complexity of the supply chain is also attributed to the processes of the company in question. The following are the types of supply chains that are generally found in business (Turban et al., 2003, 2004):

# SUPPLY CHAIN MODELS

- Integrated made-to-stock supply chain model
- Continuous replenishment supply chain
- Build-to-order supply chain
- Channel assembly supply chain

http://carl.sandiego.edu/itmg350/types_of_supply_chain.htm

# SUPPLY CHAIN MODELS

- **Build-to-order supply chain**

The build-to-order supply chain model begins processing a customer order as soon as it is received from the customer.

Typical of the computer and Technology Industry, specialist medical care and high end Jewelry makers.

# SUPPLY CHAIN MODELS

- **Channel Assembly supply chain**

The channel assembly supply chain model is an improvement on the build-to-order model. The parts of a product are assembled as the product moves through the distribution channel. It incorporates strategic alliances with third party logistics company.

# SUPPLY CHAIN MODELS

- **Integrated made-to-stock supply chain model**

The integrated made-to-stock supply chain model meets customer demand in real time. In this model, finished goods are stocked in the inventory and once a demand occurs, production stocks the goods again.

# SUPPLY CHAIN MODELS

- **Continuous replenishment supply chain**

The continuous replenishment supply chain model constantly replenishes the inventory by continuously interacting with suppliers. Real-time information is required regarding demand changes so that the desired replenishment schedules can be maintained. Used in businesses where demand is fairly stable.

# VIDEO ON SUPPLY CHAIN

# THE TACTICAL OBJECTIVES OF SUPPLY CHAIN

- The global objective of a Supply Chain is ***customers' satisfaction***.
- Additionally, individual components of the SC aim at maximizing their shareholder value by maximizing the Return on Investment (ROI) of their investors.

# DECISION MAKING IN SCM

Supply chain management issues concern activities of the firm at various levels of decision making, ranging from Operational level to Strategic level via Tactical level. Meaning it follows the organizational structure.

# DECISION MAKING IN SCM

- **The Strategic level**

The decision making at this level is made with long term objectives and with long lasting effects. These include decisions regarding;

- Location of various facilities, including the manufacturing/Production plant
- Distribution warehouses
- Sourcing
- The structure of the distribution channel.

# DECISION MAKING IN SCM

- **The Tactical level**

Decision making at this level is concerned with;

- Purchasing
- Production functions,
- Inventory policies and
- Transportation strategies.

These decisions will be usually updated on an annual basis.

# DECISION MAKING IN SCM

- **The Operational level**

Decision making at operational level will concern day to day management of activities such as;

- Scheduling,
- Routing and
- Vehicle loading

# KEY ISSUES IN SCM

- **Product design:**

This is concerned with the design of the product and its impact on total cost of the product.

- **Customer value:**

The key issue is the definition of customer value in an age of increasing consumer power.

# KEY ISSUES IN SCM

- **Information Technology and decision support systems:**

The concerns of contemporary supply chain management are the efficient use of modern technology including the Internet and computerised decision support systems.

# BENEFITS OF SCM

- Retailers get a choice of goods and also carry less stock and hence can offer good service to customers.
- Supply chains make movements simple, cost-effective and efficient as transport is simpler.
- Expertise can be developed in a particular type of operation.

# BENEFITS OF SCM

- Supply chains bridge the gaps between the suppliers and the customers.
- They allow business to conduct operations at an appropriate time and place for the benefits of suppliers and customers.

# DIFFERENCE BETWEEN LOGISTICS AND SCM

1. Logistics management is focused more on company-wide physical movement of products and materials
2. SCM encompasses logistics management in addition to having an overall view of materials, information, financial and operational processes.
3. SCM focuses on both internal and external sources and plans for the optimal outcomes.

# LOGISTICS & SCM JOBS

- Logistics Analyst
- Logistics Consultant
- Customer Service Manager
- International Logistics Manager
- Inventory Control Manager
- Logistics Engineer
- Logistics Manager
- Logistics Services Salesperson
- Logistics Software Manager

# LOGISTICS & SCM JOBS

- Materials Manager
- Production Manager
- Purchasing Manager
- Supply Chain Manager
- Systems Support Manager (MIS)
- Transportation Manager
- Vendor Managed Inventory Coordinator
- Warehouse Operations Manager

# End of Lecture
# Thank you

# LOGISTICS & SUPPLY CHAIN MANAGEMENT

# ISD252 BBA2

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# CUSTOMER SERVICE
## FROM THE LOGISTICS PERSPECTIVE

**UNIT 2**

# UNIT OVERVIEW

After reading this unit you should be able to:

- Conceptualize Customer Service(CS)
- Understand the levels of Customer Service
- Identify elements of Customer Service
- Establish the Performance measures of CS
- Understand the role of CS as a Competitive Strategy.

# DEFINING CUSTOMER SERVICE

Its considered as theassistance and advice provided by a company to those peoplewho intend to buy,buy or use its products or services.

Accordingto marketers, there arethree(3)levels ofproduct:

# DEFINING CUSTOMER SERVICE

1. The core benefit or service, which constitutes what the buyer is really buying;
2. The tangible product, or the physical product or service itself; and
3. The augmented product, which includes benefits that are secondary to, but an integral enhancement to the tangible product the customer is purchasing

# What are some of the forms Customer Service can take?

- ✓ Face to Face interaction/ In-person interaction
- ✓ Phone call
- ✓ Self service systems
- ✓ Email
- ✓ Live chat
- ✓ Social media platforms/handles,etc

# CUSTOMER SERVICE VIDEO

## DEFINING CUSTOMER SERVICE CONT'D..

- Logistical customerserviceisa feature of the augmentedproduct/service that can addvalue for thebuyer.
- These includesinstallation,warranties, after-sale service,etc

## THREE LEVELS OF CUSTOMER SERVICE INVOLVEMENT OR AWARENESS ARE:

1. Customerservice as anActivity.
2. Customer service as Performance measures.
3. Customerservice as a Philosophy.

# THREE LEVELS OF CUSTOMER SERVICE INVOLVEMENT OR AWARENESS

## 1. Customerservice as anActivity.

Thislevel treats customer service as aparticulartask that a firm must accomplish to satisfy the customer's needs.

Example, Order processing, billing and invoicing, product returns, claims handling, etc.

## 2. Customerservice asPerformancemeasures.

Thislevel emphasizescustomerservice in terms of specific performance measures, such as thepercentageof orders delivered ontimeand the number of orders processed within acceptable timelimits.

# THREE LEVELS OF CUSTOMER SERVICE INVOLVEMENT OR AWARENESS

## 3. Customerservice as aPhilosophy.

This level elevates customer service to a firm-wide commitment to providing customer satisfaction through superior customer service.

## CONTEXTUALIZED DEFINITION OF LCS

Customer Service is a process for providing**competitive advantage**and**adding benefits**to the supply chain in order**to maximize the total value to the ultimate custome**r

## CONTEXTUALIZED DEFINITION OF LCS

- High level of logistics customer service can easily become a strategic way for a company to differentiate itself from the its competitors

## CONTEXTUALIZED DEFINITION

- Customerservice is the outcome of all*logistics activities*and supplychain process. Therefore the design of the logistics systems sets the levels of customer serviceoffered.

# VIDEO ON

# LOGISTICS CUSTOMER SERVICE

## CLASS EXERCISE GROUP 2

1. What does the DHL center promise its client?
2. What is the unique attribute of this contact center?
3. Give two reasons why the DHL Center has high retention rate.
4. What is the focus/Objective of DHL's contact Center?

## CLASS EXERCISE GROUP 1

1. Where is the DHL Contact center located?
2. What is the focus/Objective of DHL's contact Center?
3. What is the unique attribute of this contact center?
4. Since 2001 DHL's Asia pacific center has grown from being a Logistics based contact center to a Logistics customer service contact center. Explain this statement.


## *Inventory Strategy.*

- Forecasting.
- Storage fundamentals.
- Inventory decisions.
- Purchasing and supply scheduling decisions.
- Storage decision

## *Transport Strategy.*

- Transport Fundamentals.
- Transport decisions.

## *Location Strategy.*

- Location decisions.
- The network planning process.

# Logistics Customer Services.

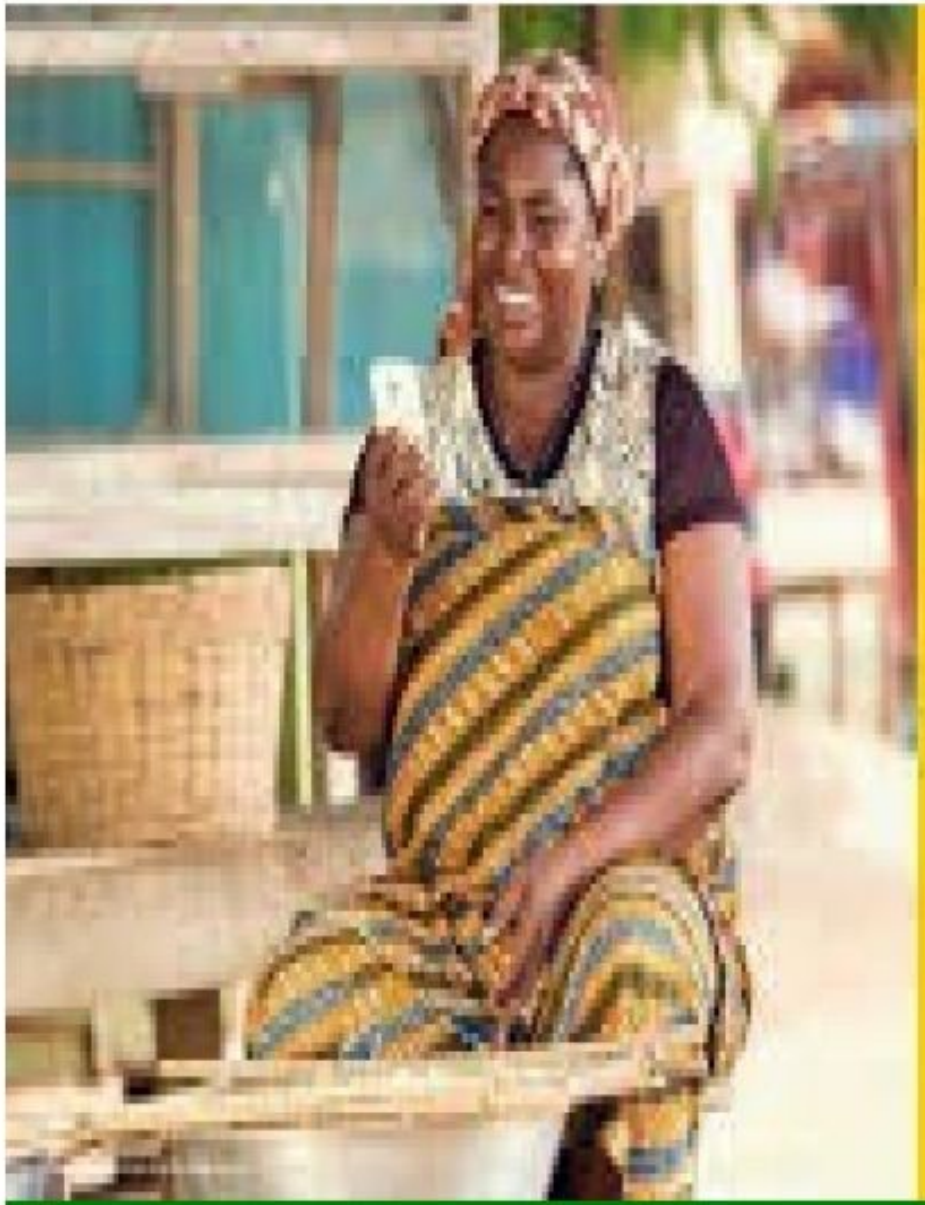
## FEATURES OF LCS

- Strategic process for providing value-added services to the customers
- Keepscustomer happy and loyal
- Bringsharmonious relationship between supply chain members
- Startswith order entry and ends with delivery of goods to customers
- Bringsabout competitive advantage to the market place, increases sales, andimproves profits.

# Examples of Customer Service

- Providing financial and credit terms
- Guaranteeing delivery within specified time periods
- Providing prompt and amiable sales representatives
- Providing material to aid in customer sales presentation
- Installation of products
- Maintaining satisfactory repair parts inventories

# Example of Customer Service



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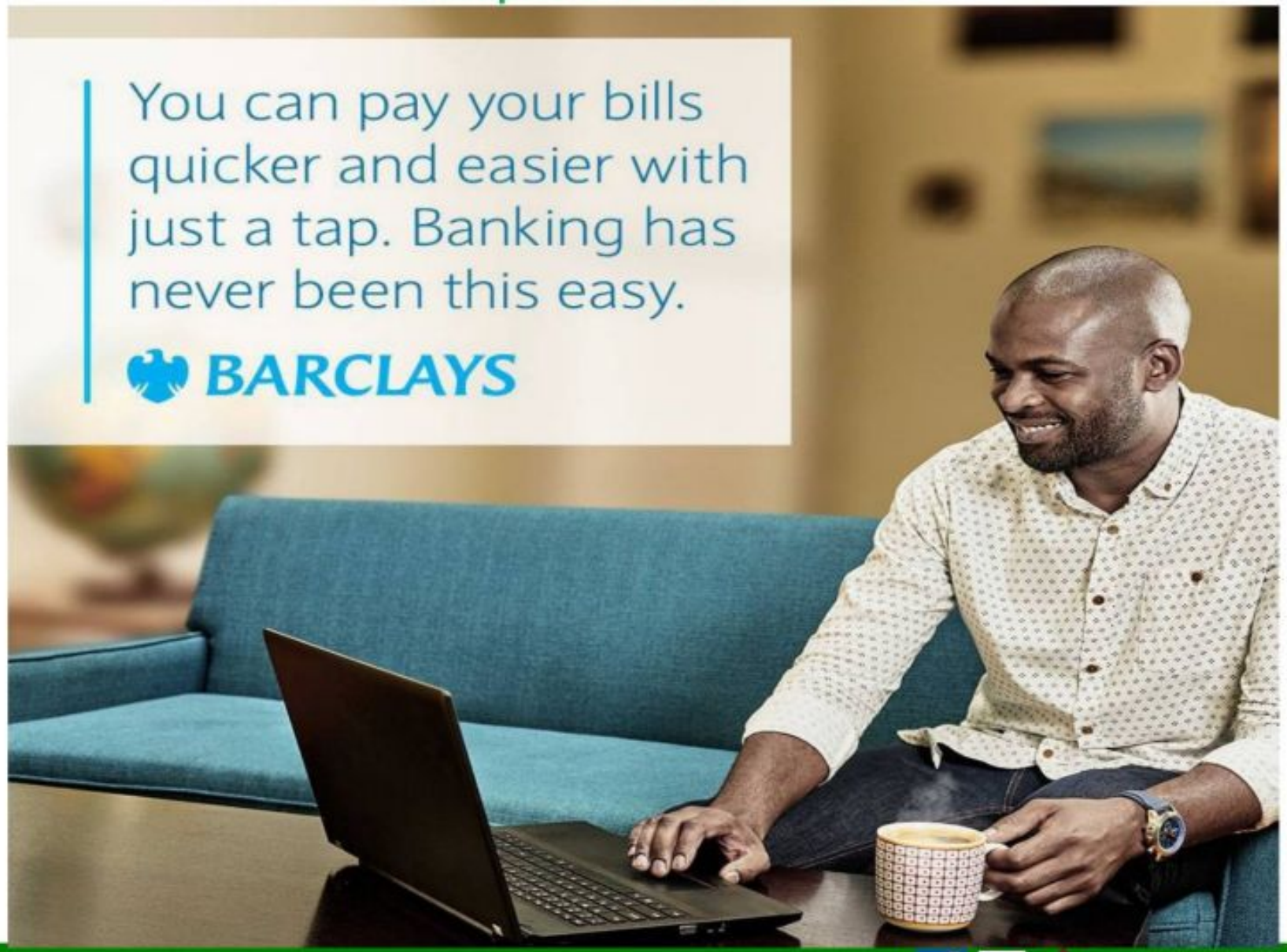
# Examples of Customer Service



## Elements of Customer Service

There are **four** elements of customer service they are;

1. **Time**
2. **Dependability**
3. **Communication** and
4. **Convenience**

## Elements of Customer Service

1. **Time.**

- It usually refers to **ordercycletime** fromthe perspective ofthe **seller (manufacturer/producer)** looking at customer service.
- Onthe other hand, the **buyer/end user** usually refers to the time dimension as the **lead time, or replenishment time.**

## ELEMENTS OF CUSTOMER SERVICE

**2. Dependability.**

- Tosome customers, dependability can be more important than lead time.Thecustomer can minimize its inventory level if lead time is fixed.
- Ensure businesses keep inventory levels knowing with 100% certainty lead-time is fixed or predetermined and reliable
- Safe delivery is also essential.

## Elements of Customer Service

### 3. Communications.

- Thetwo logistics activities vital to order filling are the communication of customer order information to the order-filling area and the actual processofpicking out of inventoryofitems ordered.
- Inthe order information stage, the useof Electronic Data Interchange (EDI)orInternet-enabled(Trading Partners)communications can reduce errors in transferring order information from the order to the warehouse receipt.

## ELEMENTS OF CUSTOMER SERVICE

**4. Convenience.**

- It emphasis the flexibility of logisticsservicelevels
- Standard service levels must vary to suit different types of customers (no homogeneity)
- Convenience recognizes customers' different requirement by factors like customer size, market area and the product line buyer is in for.

## ELEMENTS OF CUSTOMER SERVICE

**Time,Dependability,Convenience,**and**Communication**are;

- Essentialconsiderations indevelopinga sound and effective customer service program.
- Theyalso provide the underlying basis for establishing standards of performance for customer service in the logistics area.

## PERFORMANCE MEASURES FOR CUSTOMER SERVICE

The new supply chain environment for customer service has resultedin strict standardsof performance.

From the customers view they are;

- **Ordersreceived on time**
- **Orders received complete**
- **Orders received damage free**
- **Orders filled accurately**
- **Orders billed accurately**

# ELEMENTS AND MEASUREMENT OF CUSTOMER SERVICE

| ELEMENT | BRIEF DESCRIPTION | TYPICAL MEASUREMENT |
|---|---|---|
| **Product availability** | The most common measure of customer service. Usually defined as percent instock (target performance level) in somebase unit (i.e., order, product, dollars). | % availability in base units |
| **Order cycle time** | Elapsed time from order placement to order receipt. Usually measured in time units and variation from standard or target order cycle. Note: Frequently, productavailability and order cycle time are combined into onestandard. For example,"95 percent of orders delivered within 10 days." | Speed and consistency |

# Elements and Measurement of Customer Service

| ELEMENT | BRIEF DESCRIPTION | TYPICAL MEASUREMENT |
|---|---|---|
| **Distribution system flexibility** | Ability of system to respond to special and/ or unexpected needs of customer.Includes expedite and substitute capability. | Response time tospecial requests |
| **Distribution System:information** | Ability of firm's information system torespond in timely and accurate manner tocustomers' requests for information. | Speed, accuracy, andmessage detail of response |
| **Distribution System:malfunction** | Efficiency of procedures and time required to recover from distribution systemmalfunction (i.e., errors in billing, shipping, damage, claims). | Response and recoverytime requirements |
| **Post sale product Support** | Efficiency in providing product supportafter delivery, including technicalinformation, spare parts, or equipmentmodification, as appropriate | Response time, qualityof response |

# THE SERVICE ENVIRONMENT

Delivery of high levels of service depends on several factors relating tothe organizationand itspeople,and it is only when these factors arecorrectly establishedthat such service levels can be provided.

**1. KnowingtheMarket**

There are two important questions thatmanagersin anorganization, must always havea clear answer to.

A. Whois the Customer?

B. Whatare we selling?

## 1. Knowing the Market.

### A. Who is the Customer?

- The word “customer” can mean many different things and the first stepin understandingcustomers and meeting their needs must be tounderstand whois thecustomer. Thereare several ways in which customers can be classified:
  - ExternalandInternalcustomers
  - Intermediariesand End-users
  - Stakeholders:payee,beneficiaries and participants
  - Valuableandmorevaluable customers

## 1. Knowing the Market.

### B. Whatare we Selling?

- Itmay be common that customers and theorganizationhavedifferent viewson what is beingsold.
- These different views canlead to poor service delivery in the eyes of the customer, althoughthe organization might believethat it is performing well.

## Knowing the Market, Transport Operations example.

Passengertransport operators may find that their views differ widely from those of their customers if they believe that what they are selling is a ride on a bus or train. Aswe have seen, the basic product of transport issafe arrivalin accordance with the published schedule and we haveexpanded thisto the**six “rights”**that define the purpose of logistics:

## Knowing the Market, Transport operations example.

- the ***right*** people or goods,
- to the ***right*** place,
- at the ***right*** time,
- in the ***right*** quantity,
- in the ***right*** condition,
- at the ***right*** price.

## Knowing the Market,Transport operations example.

- This, then, is what customers in a sophisticated marketplace think they are buying
- Note,it is the customer who decides what is “right” in each case,not the operator.

## CLASS EXERCISE : GROUP 1

**Using the six 'rights' (6R's), indicate customer service expectations from the perspective of the customer to a hospital (Patient).**

**Note: specify the type of hospital and medical care/service sought.**

## The ServiceEnvironment cont'd…

### 2. EnablingCustomerService

Knowing the market is only the first step towards providing high levelsof customerservice.It is important that both managementand staff approach the task and the attributes that theyneed inorder to be able to carry it out.

This can be achieved through the***corporate mission***and***vision.***

## The ServiceEnvironment cont'd…

### 3. StaffRequirements

- Providing high levels of customer service demands that thepeople employedon it have certain special characteristics.Forthe bestperformance staffmust be empowered to make decisionsat thelowest possiblelevel.

## Customer Service throughServiceQuality

- In a situation, where competitors offer the same services and products at similar costs,**competition among them is, therefore byquality of service.**Therefore providinghigh levels of service quality enables businessesto:
  - Differentiate themselves from competitors

# Customer Service throughServiceQuality

- Improvetheir image with customers and potential customers
  - Minimize Pricesensitivity
  - Reducecosts and improve productivity and profitability
  - Retaincustomers through increased satisfaction
  - Increasecustomer numbers through personal recommendation

## Differentiation

- Differentiation of customer service focusing on dimensions that are significant to customers but have lowest competitiveness.
- Increase in the performance of such dimensions greatly add value for a customer.

## Differentiation

- Focus on less costly processes to improve dimensions but are more significant to customers.
- Differentiate customer service commitment by concentrating on profitable customers and products.
- This can be achieved by creating value addition to these important customers and products while reducing total logistics costs.

# Customer Service and Competitive Strategy

## Pricing

- It is very probable that a clever company can gain market sharewhile charginga premium price for essentially the same product asits competitorsby building-in a greater level of service quality.
- Surveys suggest that service-driven businesses can charge a price premium of up to 9% for their products and services
- If income falls, through higher taxation or interest rates, for example, the premium service product will be able to maintain a good profit margin even when competitors are reducing margins to maintain sales volume.

## Costs and Productivity

- Whileit does undoubtedlycostmoney to provide a high levelof customerservice the additional cost will be at least partly offset byreduced costselsewhereand increasedproductivity.
- There may be other costs associated with poor service too:Modification or Redeliverymay be required, which cannot be charged to the customer,or thecustomer may have to receive a refund.

## Costs and Productivity

- Ifa high level of quality is provided, less time will have to be spent on dealing with complaints and putting right whatever has gone wrong.
- This means that the company can deal with more customers in the same time and productivity will increase.

## Customer Retention

- Many businesses pay a great deal of attention, and spend a great dealof money, on attracting new customers yet devote little effort toretaining themonce they have them despite that fact that it can cost from 5 to20 timesas much to attract a new customer as to retain an existing one.

## Example

- This is common with mortgage lenders as well as creditcardcompanieswho offer very lowintroductory interestrates for a short initial period and charge no fees to take overan accountfrom another lender.
- Atthe end of the introductory low-rateperiod theinterest rate rises to a more standardrate; 4% to 25%
- Theresult is thatmany borrowersswitch their outstanding balance to a new lender every sixor twelvemonths to keep taking advantage of the low initial rate.

## Example cont'd...

- The cost of this is borne by long-term loyal customers who have to pay a higher rate of interest than would otherwise be necessary and receive no other service benefits in compensation
- The research has foundthat reasons forchanging productwere only 8% to do with issues of cost or actual productquality but40% due to dissatisfaction with customer service.

***Discuss other examples.***

## Implementing Customer Service Standards

- The first point is to be wary of adopting easily achievable performance standards; such standards may be too low to be of practicalvalue
- While setting and adhering to a meaningful standard should help to differentiate your firm from the competition,settingstandards at unrealistically low levels will not help to establish a competitive advantage.

## Implementing Customer Service Standards

- Thirdly,the firm should develop customer service policies and standards through customer consultation.(Interaction and feedback)
- After adopting these standards, the firm should formallycommunicatethem to customers.
- Certainfirms prefer to keep silent about their customer service standards and avoid letting their customers know their exact policies andperformancetargets.**(Reasons?)**
- Thebestapproachis to communicate these policies and standards to customers veryopenly,

## Implementing Customer Service Standards

- Fourthly,the firm should develop procedures to measure, monitor, and control the customer service quality called for by the firm's performance measures and standards.
- Usingtechniques such asStatisticalProcess Control(SPC), obtaining feedback, andtakingcorrective action are essential to success.
- Whencustomer service standards are ineffective, the firm should not hesitate to amend or discontinue them as appropriate.

## COMPONENET OF LCS

- **Pre-transaction elements:**customer service factors that arise prior tothe actualtransaction taking place.
- **Transactionelements**:elementsdirectly related to thephysical transactionand aredirectly related to logistics.
- **Post-transactionelements**: these involve those elements that occurafter thedelivery has taken place.

# CUSTOMER SERVICE

## PRETRANSACTION ELEMENTS

- Written statements.
- Statements in hand of customer.
- Organizational structure.
- Systems flexibility.
- Technical services.

## TRANSACTION ELEMENTS

- Elements of order cycle.
- Stockout levels.
- Time.
- Transship.
- Systems accuracy.
- Production substitution.
- Ability to back-order.

## POST-TRANSACTION ELEMENTS

- Installation, warranty, alterations, repairs, parts.
- Product tracking.
- Customer claims, complains.
- Temporary replacement of products during repairs.

# End of Lecture

# Thank You

LOGISTICS & SUPPLY CHAIN MANAGEMENT
ISD252 BBA 2

# Unit 4:
# PURCHASING & PROCUREMENT MANAGEMENT

Slides by Dr Matilda Kokui Owusu-Bio; Department Supply Chain & Information Systems; KNUST; email: mkobio.ksb@knust.edu.gh

Revised by Dominic Essuman, PhD; Department of Supply Chain & Information Systems, KNUST; email: dominic.essuman@knust.edu.gh.

# Lecture objectives

At the end of the lecture, students should be able to:

- appreciate why purchasing/procurement matters
- understand purchasing & procurement and related terms
- explain levels of purchasing and purchasing development
- appreciate supplier evaluation process
- explain the roles of the purchasing department
- understand purchasing performance management

# Lecture materials

**Kindly read relevant sections of the following articles:**


Patrucco, A. S., Walker, H., Luzzini, D., & Ronchi, S. (2019). Which shape fits best? Designing the organizational form of local government procurement. Journal of Purchasing and Supply Management, https://doi.org/10.1016/j.pursup.2018.06.003.

Murray, J. G. (2009). Towards a common understanding of the differences between purchasing, procurement and commissioning in the UK public sector. Journal of Purchasing and Supply Management, 15(3), 198-202. https://doi.org/10.1016/j.pursup.2009.03.003.

Trent, R. J., & Monczka, R. M. (2003). International purchasing and global sourcing-what are the differences?. Journal of Supply Chain Management, 39(3), 26-36. https://doi.org/10.1111/j.1745-493X.2003.tb00162.x.

Paulraj, A., Chen, I. J., & Flynn, J. (2006). Levels of strategic purchasing: impact on supply integration and performance. Journal of Purchasing and Supply management, 12(3), 107-122. https://doi.org/10.1016/j.pursup.2006.08.002 .

Coy, S., Adams, J., & Kauffman, R. (2020). Purchasing development in small and medium enterprises: Empirical research and managerial implications. Journal of Managerial Issues, http://web.a.ebscohost.com/ehost/detail/detail?vid=0&sid=469e432c-46c2-4d60-ad7d-7e4c5228e011%40sdc-v-sessmgr01&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#AN=144682677&db=ehh.

Montgomery, R. T., Ogden, J. A., & Boehmke, B. C. (2018). A quantified Kraljic Portfolio Matrix: Using decision analysis for strategic purchasing. Journal of Purchasing and Supply Management, 24(3), 192-203, https://doi.org/10.1016/j.pursup.2017.10.002.

# Purchasing/Procurement matters (1/2)

**It's so essential**: provides *inputs* for developing and running the organization


- Equipment/machines
- Raw materials
- Maintenance, repairs, & operating supplies
- Services
- Works

# Purchasing/Procurement matters (2/2)

- It's a source of competitive advantage:
  - A gatekeeper in quality improvements and environmental sustainability initiatives
  - It's a highly expensive activity, e.g.
    - represents about 20% to 45% of government expenditure (Patrucco et al. 2019)
    - accounts for about 6% to 21% of national GDP (Patrucco et al. 2019)
    - businesses are likely to spend over 50% of their turnover on acquiring materials and services (Morrissey and Pittaway 2006).
  - If purchasing is managed strategically and effectively, organizations can save about 10% to 20% times as much as it cost to operate it (Morrissey and Pittaway 2006).

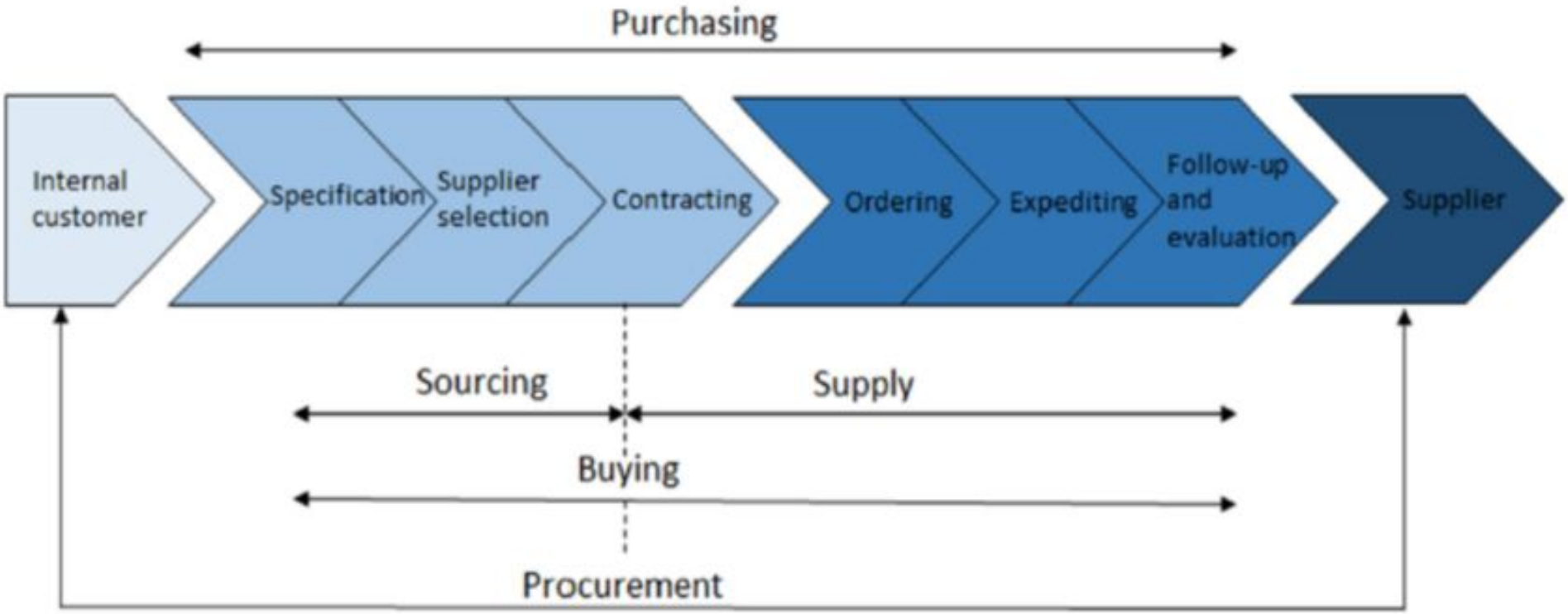
# Purchasing and related terms

- There is a lack of consensus on the meaning of purchasing and procurement
- Some academics:
  - think **procurement** is broader in scope and meaning than **purchasing**
  - limit **purchasing** to the process of **buying**: *learning of the need*, *locating and selecting a supplier*, *negotiating price and other pertinent terms*, and *following up to ensure delivery and payment*
  - **Purchasing**, **procurement**, and **supply management** can be used interchangeably to mean the integration of related functions to provide effective and efficient materials and services to the organization
  - think procurement applies to public organizational contexts while purchasing applies to private organizational contexts

(Source: Johnson, P.F. & Flynn, A.E. (2015). Purchasing and Supply Management (5ed). McGraw Hill, NY)

Watch some thoughts shared by a practitioner here: https://www.youtube.com/watch?v=hlkfLApTj-w

# Purchasing and related terms




Source: van Weele, A. J. (2010). Purchasing & supply chain management : analysis, strategy, planning and practice. Ceng

# Purchasing and related terms

- **International/global sourcing** – sourcing outside the home country

- Key industries into international/global sourcing:
  - Manufacturing
  - Skilled services
  - Telephone call centers

# Levels of purchasing/procurement

**Strategic level:**

- Purchasing research
- Long-range planning
- Establishing long-term contracts
- Supplier and sourcing strategies
- Major investments
- Policy determination

**Tactical level:**

- Selection of suppliers
- Negotiation
- Contracting

**Operational level:**

- Request handling
- Quotation
- Ordering
- Expediting
- Solving daily problems
  - Supplier claims
  - Returns
  - Invoices
- Monitoring and evaluation

*Source*: Ahmad, I. (2019). Understanding the procurement process and its critical success factors. https://www.researchgate.net/publication/338701128_UNIVERSITY_OF_VAASA_SCHOOL_OF_TECHNOLOGY_AND_INNOVATIONS_INDUSTRIAL_MANAGEMENT_Ibrar_Ahmad_UNDERSTANDING_THE_PROCUREMENT_PROCESS_AND_ITS_CRITICAL_SUCCESS_FACTORS_A_Case_Study_of_Woima_Corporation_in_G

# Purchasing/procurement development (1/2)

The purchasing function has evolved over the years. This is explained by purchasing maturity models (e.g.):

- Level 1: Passive/reacting purchasing
- Level 2: Independent, mechanical purchasing
- Level 3: Supportive, proactive purchasing
- Level 4: Integrative, strategic supply management

See for details Coy, S., Adams, J., & Kauffman, R. (2020). Purchasing development in small and medium enterprises: Empirical research and managerial implications. Journal of Managerial Issues, http://web.a.ebscohost.com/ehost/detail/detail?vid=0&sid=469e432c-46c2-4d60-ad7d-7e4c5228e011%40sdc-v-sessmgr01&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#AN=144682677&db=ehh

# Purchasing/procurement development (2/2)

| | TRADITIONAL PURCHASING | STRATEGIC SOURCING |
|---|---|---|
| **COST** | Lowest possible cost per unit | Best possible value and total cost of ownership |
| **QUALITY/ QUANTITY** | High volumes for generating mass discount | Highest possible quality for lowest possible cost |
| **SKILLS SET** | Negotiation, analytical, proficiency skills | Soft negotiating, solving, collaborating, cross-functional skills based on mutual respect and compromises |
| **LOCATION** | Locally known supplier base | Global supplier network |
| **PROCEDURE** | "what to buy and from whom" | Requesting and comparing for identifying best cost-quality-service-offer |
| **RELATIONSHIP** | Based on acquaintanceship | Intense and sustainable |
| **SUPPLIER PERFORMANCE** | Effective (completing activities and achieving goals, by doing the right things) | Efficient (lean approach: achieving high outputs with minimum inputs, by doing the things right) |
| **ADJUSTMENTS** | Reactive approaches for failure improvement | Proactive approaches for failure prevention |

# Supplier evaluation (1/6)

Involves assessing the *capability* and *viability* of potential suppliers.

**Carter's 10 Cs of supplier evaluation:**

- Competency
- Capacity
- Commitment
- Control
- Cash
- Cost
- Consistency
- Culture
- Clean
- Communication

See https://www.mindtools.com/pages/article/10-cs.htm

# Supplier evaluation (2/6)

Steps:

1. Shortlist potential suppliers
2. Develop *evaluation criteria* and *evaluation scale*
3. Develop *importance factors/weights* for each evaluation criterion, where necessary
4. Use the evaluation scale to score each supplier on each evaluation criterion
5. Derive the total evaluation score (unweighted or weighted) for supplier
6. Select supplier who obtains the highest score.

# Supplier evaluation (3/6)

**Example:**

MaDzepa Company is a growing Clothing business operating in Jamestown. MaDzepa aims at promoting the indigenous Ga clothing designs.

The management is searching for competent suppliers of their fabrics and accessories and and therefore placed a Request For Proposal (RFP) advertisement in the national dailies.

Five potential suppliers showed interest but only four fully responded to the advertisement.

In MaDzepa's bid to select the right supplier, management came up with the following selection criteria which it will use to evaluate the potential suppliers (see next slide):

# Supplier evaluation (4/6)

| Criterion | Weight |
|---|---|
| • Quality | 6 |
| • Delivery | 7 |
| • Cost | 5 |
| • Service | 3 |

Using a 1-5 scale; 5 representing 'excellent' score and 1, 'poor' score, MaDzepa's management came up with the following scores based on each supplier's proposals (see next slide):

# Supplier evaluation (5/6)

| *Criterion / Supplier* | *Supplier Nii* | *Supplier Naa* | *Supplier Nortey* | *Supplier D* |
|---|---|---|---|---|
| *Quality* | 4 | 5 | 3 | 2 |
| *Delivery* | 3 | 2 | 5 | 3 |
| *Cost* | 5 | 2 | 2 | 5 |
| *Service* | 3 | 1 | 5 | 4 |

**Question**

Based on the above selection criteria and scores of the suppliers, which supplier should MaDzepa's management select?

# Supplier evaluation (6/6)

## Suggested solution:

| Supplier | Criteria | Importance rating (n) | Score (m) | Weighted Score (n * m) |
|---|---|---|---|---|
| Nii | Quality | 6 | 4 | 24 |
| | Delivery | 7 | 3 | 21 |
| | Cost | 5 | 5 | 25 |
| | Service | 3 | 3 | 9 |
| | **TOTAL** | | | 79 |
| Naa | Quality | 6 | 5 | 30 |
| | Delivery | 7 | 2 | 14 |
| | Cost | 5 | 2 | 10 |
| | Service | 3 | 1 | 3 |
| | **TOTAL** | | | **57** |
| Nortey | Quality | 6 | 3 | 18 |
| | Delivery | 7 | 5 | 35 |
| | Cost | 5 | 2 | 10 |
| | Service | 3 | 5 | 15 |
| | **TOTAL** | | | **78** |
| D | Quality | 6 | 2 | 12 |
| | Delivery | 7 | 3 | 21 |
| | Cost | 5 | 5 | 25 |
| | Service | 3 | 4 | 12 |
| | **TOTAL** | | | **70** |

**Decision: Select Nii, other things being equal.**

# ROLES OF THE PURCHASING UNIT

- Finding and approving suppliers
- Purchasing at least total cost to the company
- Ensuring delivery of goods and services at the right time
- Warning all concerned if deliveries are not going to be met
- Verifying invoice presented by suppliers
- Organizing all discussions with suppliers
- Engaging in speculative buying is sometimes
- Advising on prices for materials/services to be used in new or modified designs
- Involved in new product development
- Participating in a make-or-buy analysis, where necessary

# Purchasing performance management

*Comprises a set of activities aimed at improving the contributions of the purchasing function to the overall performance of the organization. Such activities may include:*

**1. Setting performance objectives for the purchasing function.**

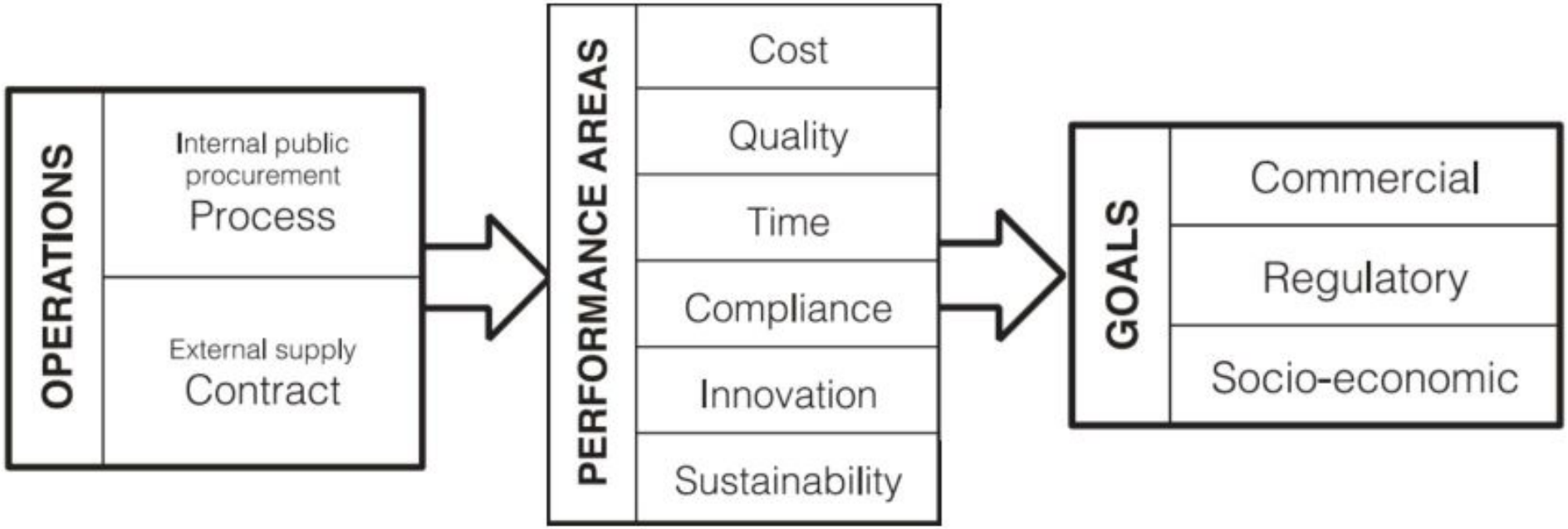
- The objectives should be consistent with the organization's overall strategy and other functional-level strategies.
- The objectives should be SMART (Specific, Measurable, Achievable, Realistic, and Timely).

**2. Taking courses of action that achieve the set objectives.**

**3. Evaluating performance** – monitoring and taking corrective actions, where necessary.

# Purchasing performance management

***Purchasing performance indicators:***




*Source*: Patrucco et al. (2016). https://doi.org/10.1080/03003930.2016.1181059 .

# Group discussion questions:

- A. In what ways may international sourcing be different from global sourcing?
- B. Why do companies engage in global/international sourcing? What risks tend to be associated with this strategy?

(see Trent, R. J., & Monczka, R. M. (2003). International purchasing and global sourcing-what are the differences?. Journal of Supply Chain Management, 39(3), 26-36. https://doi.org/10.1111/j.1745-493X.2003.tb00162.x)

- What factors affect the level of importance companies attach to the purchasing function when sourcing particular items? (see Montgomery, R. T., Ogden, J. A., & Boehmke, B. C. (2018). A quantified Kraljic Portfolio Matrix: Using decision analysis for strategic purchasing. Journal of Purchasing and Supply Management, 24(3), 192-203, https://doi.org/10.1016/j.pursup.2017.10.002)

# LOGISTICS & SUPPLY CHAIN MANAGEMENT
# ISD252

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# INTRODUCTION TO INVENTORY AND WAREHOUSING MANAGEMENT

## UNIT 4

# UNIT OVERVIEW

After reading this unit you should be able to:

- Understand the concept of inventory and reasons for holding Inventory.
- Explain the various types of inventory
- Outline and explain the methods of controlling inventory
- To show the importance of warehousing in the logistics system
- To identify the major types and forms of warehousing

# WHAT IS INVENTORY?

Inventory is an American and Stock is British terms.

- Inventory is a quantity or store of goods that is held for some purpose or use.
- The term may also be used as a verb, meaning to take inventory or to count all goods held in inventory.

# IN-HOUSE & OUT-HOUSE INVENTORY

- **IN-HOUSE:** Inventory kept on the premises or nearby for immediate use.
- **OUT-HOUSE**: Inventory held in a distant warehouse or distribution centre for future use.

# THE PURPOSE OF INVENTORY

- Balancing Supply and Demand
- Keep Operations Running (by using WIP inventory)
- Protection from Uncertainties
- Hedge against price increases
- Quantity Discount

# FORMS OF INVENTORY

Inventory may exist in three main forms namely;

- **Finished goods**
- **Work in progress and**
- **Raw materials.**

# TYPES OF INVENTORY

- Cycle Inventory
- In-Transit Inventory
- Safety/Buffer stock
- Speculative stock
- Seasonal
- Maintenance, Repair and Operating supplies (MRO)

# TYPES OF INVENTORY

## Cycle Inventory

- Cycle stock is inventory that results from replenishment of inventory sold or used in production.
- It is required in order to meet demand under conditions of certainty - that is, when the firm can predict demand and replenishment times (lead-times)

# TYPES OF INVENTORY

**In-transit Inventories**

Are items that are en route from one location to another.

**Safety or buffer stock**

It is held in excess of cycle stock due to uncertainty in demand or lead time.

**Speculative/Anticipatory stock**

This is inventory held for reasons other than satisfying current demand

# Types of Inventory

- **Seasonal stock:** It is a form of speculative stock that involves the accumulation of inventory before a seasonal period begins.
- **Maintenance, Repair, and Operating supplies (MRO)**: They are items that are used to support and maintain the production process and its infrastructure.
  - Examples of MRO goods include oils, lubricants, coolants, janitorial supplies, uniforms, gloves, packing material, tools, nuts, bolts, screws, etc.

# INVENTORY CONTROL METHODS

- **Min-Max Plan**: establishes two levels of inventory/stock
- When the items/materials/units, reach the minimum level, the order to replenish the stock is placed.
- The maximum level is the level that the stock quantity should not exceed, as it will put a considerable strain on the finances of the company.

# TWO BIN SYSTEM CONT'D…

- **Two Bin System:** sorts inventory into two bins or piles.
- Involves the storage of goods in two bins, one of which contains working stock and the other containing reserve stock.
- The amount of inventory kept in the reserve stock bin equals the amount the company expects to use during the ordering lead time associated with that item.

# TWO BIN SYSTEM CONT'D…

Mathematically the,

**Two Bin System** is;

(Daily usage rate × Lead time)
+ Safety stock =

**Reserve bin quantity**

# TWO BIN SYSTEM EXAMPLE

A company experiences weekly (5 working days) usage of 1500 units of a red cell battery. The lead time for the battery is three days. In addition, the company assumes that usage levels cannot vary so there is no buffer stock. What is the total reserve stock for the bin?

# INVENTORY CONTROL METHODS CONT'D…

- **Order Cycling System:** This system is based upon a reviewed timetable. According to this system, a review of the entire inventory is done at regular intervals, such as 30 days, 60 days or 90 days.

# ABC ANALYSIS

- Any stock is segregated into different sections
- These items are classified into 3 sections, **A, B** and **C.**
  - **Section A** consists of limited number of items that are very expensive.
  - **Section B** has items that are not expensive and the number of units that is to be ordered is also not very large.
  - **Section C** consists of numerous items that have a low monetary value.

# ABC Analysis cont'd…

- The logic behind such segregation is that every section is viewed based on cost, due to difference in order time, reorder time and delivery period.
- For example, though the units/volume in section **A** are less, their monetary value is very high
- Others methods include **FIFO** and **LIFO**.

# WAREHOUSING

Warehousing is an integral part of every logistics system.

- These include state-of-the-art, professionally managed warehouses, as well as company stockrooms, garages, self-store facilities and even garden and sheds.

# WAREHOUSING

- Warehousing plays a vital role in providing a desired level of customer service at the lowest possible total cost.
- Warehousing activity is an important link between the producer and the customer.

# WHAT IS WAREHOUSING?

We can define warehousing as;

That part of a firm's logistics system that stores products (raw materials, parts, goods-in-process, finished goods) at and between point of origin and point of consumption and provides information to management on the status, condition and disposition of items being stored.

# THE NATURE & IMPORTANCE OF WAREHOUSING

- Warehousing traditionally provides storage of products (referred to as inventory/stock) during all phases of the logistics process.
- Why do companies hold inventories in storage?

*(The reasons are similar to that of the inventory management.)*

# EXAMPLES OF WAREHOUSES

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# EXAMPLES OF WAREHOUSES

# TYPES OF WAREHOUSING

- **Cross-docking warehousing**:
  - warehouses serve primarily as distribution mixing centres.
- **Contract warehousing:**
  - a long-term mutually beneficial arrangement which provides unique and specially tailored warehousing and logistics services exclusively to one client, where vendor and client share the risks associate with the operation

# Types of Warehousing cont'd…

- **Public warehousing**:
  - General Merchandise Warehouse
  - Refrigerated Warehouses(cold storage, perishable
  - Bonded Warehouses (Under gov't controlled until sold and taxies and levies paid)
  - Household Goods Warehouses
  - Special Commodity Warehouses (Cotton, Grains, Wools, etc)
  - Bulk Storage Warehouses (BOST)

# Types of Warehousing cont'd....

- **Private warehousing**:

  This type of warehouse is owned and operated by channel suppliers and resellers and used in their own distribution activity.

# WAREHOUSE FUNCTIONS

- Storage of goods to permit managing product flow or to accommodate longer production runs.
- Serves as a mixing point where products from different suppliers are mixed and then distributed to fulfill customer orders;
- As a sales branch and customer service location;
- As a source of supplies for production;
- As a staging area for final packaging or finishing.

# TERM PAPER

- Kindly note the details for the term paper would be posted on schoology by *6pm on 31st March, 2019.*
- The term paper is due by *5pm on the 7th of May 2019*

# TERM PAPER

- The submission would consist of *four (4)* different components;
  - A recorded video presentation by all group members of their project
  - Slides used for the group presentation
  - Write up of the term paper and a
  - A portfolio of activities related to the project

# TERM PAPER

- Detailed instructions would be found on schoology.
- All rules apply on submissions of group assignments.

# End of Lecture
# Thank You

# LOGISTICS & SUPPLY CHAIN MANAGEMENT
# ISD252

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# TRANSPORTATION MANAGEMENT

## UNIT 6

# UNIT OVERVIEW

After reading this unit you should be able to:

- Understand the role of Transportation in LSCM
- Stakeholders in Transportation management
- Define and understand the modes of Transportation
- Examine Factors Influencing Transportation Cost

# INTRODUCTION

- Efficient transportation systems are the hallmark of industrialized societies.
- By moving goods from locations where they are sourced to locations where they are demanded, **transportation** provides the essential service of linking a company to its suppliers and customers.
- Transportation has a magnanimous impact on all economic activity.

# THE ROLE OF TRANSPORTATION IN LSCM

- Transportation moves products to markets that are geographically separated. (*Place utility*)
- It provides added value to customers when the products arrive on time (*Time utility*), undamaged and in the quantities required.
- In this way, transportation contributes to the level of customer service, which is one of the cornerstones of customer satisfaction and is an important component of the marketing concept.

# THE ROLE OF TRANSPORTATION IN LSCM Cont'd..

- Transportation is one of the largest logistics costs and may account for a significant portion of the selling price of some products. Examples are sand, gravels, basic raw materials which are low value-per-pound products
- Transportation costs for computers, business machines and electronic components may be only a small percentage of the selling price.

# Stakeholders in the Transportation Sector

*__Shipper__ – hires firm to transport freight

*__Carrier__ – firm that does the transporting

*__Consignee__ – firm that receives the freight

*__Owners__ and __Operators of transportation__ infrastructure such as roads, ports, canals, and airports

Note that actions by all the parties influence the effectiveness of transportation

# Modes or Means of Transport

- Transport modes are the means by which people and freight achieve mobility.
- They fall into one of three basic types, depending on over what surface they travel –
  - **Land** (road, rail and pipelines),
  - **Water** (River, lake, sea; shipping) and
  - **Air**.
- Each mode is characterized by a set of the following characters:
  - **Technical, Operational** and **Commercial**

# Modes of Transport

- The **modes of transport** describes the way goods are transported.

- There are basically five different modes;
  - * Rail
  - * Road
  - * Air
  - * Water
  - * Pipeline
  - * Multimodal

# Road Transportation

- Road transport systems have high maintenance costs, both for the vehicles and infrastructure.
- They are mainly linked to light industries where rapid movements of freight in small batches are the norm.
- Yet, with containerization, road transportation has become a crucial link in freight distribution.
- Virtually any product can be transported by trucks, including some that require equipment modifications.

# Road Transportation cont'd..

- Their flexibility and versatility have enabled them to become the dominant form of transport (based on the amount of freight transported as measured in tonnes) and in many other parts of the world.
- Many truck carriers, particularly those involved in just-in-time programmes, operate on a scheduled timetable.
- This results in very short and reliable transit times.

# Rail Transportation

- Heavy industries are traditionally linked with rail transport systems, although containerization has improved the flexibility of rail transportation by linking it with road and maritime modes.
- Rail is by far the land transportation mode offering the highest capacity as well as being the heaviest load ever carried.

# Rail Transportation

- **Gauges** (*rail gauge is the distance between the inner sides of the two parallel rails that make up a railway track.)*, however, vary around the world, often complicating the integration of rail systems.
- Rail transport lacks the versatility and flexibility of motor carriers because it is limited to fixed track facilities.

# Rail Transportation cont'd…

- As a result, railroads - like air, water and pipeline transport – provide terminal (node)-to-terminal (node) service rather than point-to-point service unless companies have a rail siding at their facility, in which case service would be point to point.
- Rail transport generally costs less (on a weight basis) than air and truck carriage.

# Rail Transportation cont'd...

- For many shipments, rail does not compare favourably with other modes in terms of loss and damage ratios.
- Compared to trucks, it has disadvantages in terms of transit time and frequency of service.

# Pipelines

- Pipeline routes are practically unlimited as they can be laid on land or under water.
- Pipeline construction costs vary according to the diameter and increase proportionally with the distance and with the viscosity of fluids (from gas of low viscosity, to oil of high viscosity).
- Pipeline terminals are very important since they correspond to refineries and harbors.
- Pipelines offer the shipper an extremely high level of service dependability at a relatively low cost.

# Pipelines cont'd...

- The advantages in cost and dependability that pipelines have over other transport modes have stimulated shipper interest in moving other products by pipeline.
- Certainly, if a product is, or can be, in liquid, gas or slurry form, it can be transported by pipeline.
- As the costs of other modes increase, shippers may give additional consideration to pipelines as a mode of transport for non-traditional products

# Pipelines cont'd...

***Read on the West African Gas Pipeline***

# Water (Maritime) Transportation

- Water carriage is perhaps the most inexpensive method of shipping high-bulk, low-value commodities.
- However, because of the inherent limitations of water carriers, it is unlikely that water transport will gain a larger role in domestic commerce, although international developments have made marine shipping increasingly important.

# Water (Maritime) Transportation

- Meanwhile, maritime transportation has high terminal costs, since port infrastructures are among the most expensive to build, maintain and improve.
- High inventory costs also characterize maritime transportation.

# Water (Maritime) Transportation Cont'd...

- More than any other mode, maritime transportation is linked to heavy industries, such as steel and petrochemical facilities adjacent to port sites.
- Other than in ocean transport, water carriers are limited in their movement by the availability of rivers, canals or intercostals waterways.

# Water (Maritime) Transportation Cont'd...

- Reliance on water carriage depends to a greater or lesser degree on the geography of the particular location

*Read about the Volta Lake Transports Authority*

# Air Transportation

- Although increasing numbers of shippers are using air freight for regular service, most view air transport as a premium, emergency service because of its higher cost.
- However, when an item must be delivered to a distant location quickly, air freight offers the quickest time-in-transit than any transport mode.
- For most shippers, however, these time-sensitive shipments are relatively few in number or frequency.

# Intermodal Transportation

- Concerns a variety of modes used in combination so that the respective advantages of each mode are better exploited.
- Although Intermodal transportation applies for passenger movements, such as the usage of the different, but interconnected modes of a public transit system
- Containerization has been a powerful vector of intermodal integration, enabling maritime and land transportation modes to more effectively interconnect.

# Factors Influencing Transportation Cost and Pricing

In general, factors influencing transportation costs or pricing can be grouped into two major categories:

1. **product-related factors** and
2. **market-related factors**.

# 1.Product-related factors

- **Density**: It refers to product weight to volume ratio
- **Stowability**: It is the degree to which a product can fill the available space in a transport vehicle
- Ease or difficulty of handling
- **Liability**: The high value-to-weight ratios, how they are easily damaged, are they subject to higher rates of theft or pilferage would therefore cost more to transport

# 2. Market Related Factors

- Location of markets, which determines the distance goods must be transported.
- Nature and extent of government regulation of transportation carriers.
- Seasonality of product movements.
- Whether the product is transported domestically or internationally.
- Degree of intra mode and intermode competition.

## 2. Market Related Factors Cont'd...

- The most important transportation service characteristics affecting customer service levels are:
- **Dependability** - consistency of service time-in-transit
- **Market coverage** - the ability to provide door-to-door service
- **Flexibility** - handling a variety of products and meeting the special needs of shippers - ability of the carrier to provide more than basic transportation service
- Each mode of transport - truck or road, rail, air, water and pipeline - has varying service capabilities.

| | Motor | Rail | Air | Water | Pipeline |
|---|---|---|---|---|---|
| **Economic characteristics** | | | | | |
| Cost | Moderate | Low | High | Low | Low |
| Market coverage | Point-to point | Terminal-to-terminal | Terminal-to-terminal | Terminal-to-terminal | Terminal-to-terminal |
| Degree of competition (number of competitors) | Many | Few | Moderate | Few | Few |
| Predominant traffic | All types | Low–moderate value, moderate high density | High value, low–moderate density | Low value, high density | Low value, high density |
| Average length of haul *(in kilometres)* | 350 | 1600 | 330 | 376 to 1,367 | 276 to 343 |
| Equipment capacity (tonnes) | 10 to 25 | 50 to 1200 | 5 to 125 | 1000 to 60,000 | 30,000 to 2,500,000 |
| **Service characteristics** | | | | | |
| Speed (time-in-transit) | Moderate to fast | Moderate | Fast | Slow | Slow |
| Availability | High | Moderate | Moderate | Low | Low |
| Consistency (deliver time variability) | High | Moderate | High | Low to moderate | High |
| Loss and damage | Low | Moderate | Low | Low to moderate | Low |
| Flexibility (adjustment to shipper's needs) | High | Moderate | Moderate to high | Low to moderate | Low |

# CLASS EXCERCISE

1. Identify one medium of transportation on campus.
2. Indicate four advantages of this medium.
3. Indicate two weakness of this medium of transportation and propose a solution for these weaknesses.

# End of Lecture
# Thank you

# LOGISTICS & SUPPLY CHAIN MANAGEMENT
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# ENSURING QUALITY

## UNIT 7

# UNIT OVERVIEW

After reading this unit you should be able to:

- Define Quality and Quality management
- Evaluate the key aspects of quality
- Appreciate the importance of quality of operations management
- List some areas of evaluating quality
- Understand and conceptualize Quality control, Total Quality Management, Quality assurance and Quality benchmarking

# What is Quality?

# What Is Quality?

According to Laudon and Laundon (1999), Quality can be defined from both; **Producer** and **Customer perspectives.**

- **Producer perspective:**

Quality signifies conformances to specifications (or the absence of variation from those specifications) and the manner in which such specifications are met.

# What Is Quality?

- **Customers Perspective:**

Customers are concerned with the quality of the physical product such as its Durability, Safety, Ease of use, and installation.

- **Quality** refers to how good something is compared to other similar things i.e its a degree of excellence.

# Quality Management

- Quality management is the systematic approach to managing and improving quality within an organization and it can relate to both internal processes as well as to products and services *(Chen, 2005)*.

# Importance of Quality

Quality helps determine a firm's success in a number of ways:

- Customer loyalty – customers return, make repeat purchases and recommend products and services.
- Known strong brand reputation for quality
- Retailers want to stock the product
- As the product is perceived to be better value for money, it may command a **premium/prestige price**
- Fewer returns and replacements lead to reduced costs
- Attracting and retaining good staff.

# Customer Loyalty

- Customer loyalty indicates the extent to which customers are devoted to a company's products or services and how strong is their tendency to select one brand over the competition.
- Customers buy specific product/services from one particular organization
- Customer loyalty is positively related to customer satisfaction as happy customers consistently favor the brands that meet their needs.
- Also known as Customer Reward Programs

# Customer Loyalty

1. Identify four loyalty Program in Ghana.
2. Identify four global Loyalty programs.

# Key aspects of Quality to the Customer

- **Good design** – looks and style
- **Good functionality** – it does the job/task well
- **Reliable** – acceptable level of breakdowns or failure
- **Consistency**
- **Durable** – lasts as long as it should
- **Good after sales service**
- **Value for money**

# Dimensions of Product Quality

1. Performance
2. Reliability
3. Conformance
4. Serviceability
5. Durability
6. Aesthetics
7. Features
8. Safety
9. Perceived Quality

# Areas for Evaluating Quality

- Quality Control
- Quality Assurance
- Total Quality Management (TQM)
- Quality Benchmarking

# Areas for Evaluating Quality cont'd…

- **Quality Control**

This method checks the quality of completed products for faults.

Quality inspectors measure or test every product using samples from each batch, or random samples – as appropriate to the kind of product produced.

# Areas for Evaluating Quality cont'd...

- **Quality Assurance**

This is an approach that aims to achieve quality by organizing every process to get the product 'right first time' and prevent mistakes ever happening.

This is also known as a '*zero defect*' approach.

# Areas for Evaluating Quality cont'd...

- **Quality Benchmarking**

Benchmarking is a general approach to business improvement based on best practice in the industry, or in another similar industry. It can provide a useful quality improvement target for a business.

# Areas for Evaluating Quality cont'd…

- **Total Quality Management (TQM)**

This is a specific approach to quality assurance that aims to develop a quality culture throughout the firm.

In TQM, organizations consist of 'quality chains' in which each person or team treats the receiver of their work as if they were an external customer and adopts a target of '*right first time*'

# Quality Standards

- Legislation
- British Standards
- ISO: International Organization for Standards.
- CE Mark : The letters "**CE**" are the abbreviation of French phrase "Conformité Européene" which literally means "European Conformity".

The term initially used was "EC **Mark**" and it was officially replaced by "**CE Marking**" in the Directive 93/68/EEC in 1993.

https://www.iso.org/management-system-standards-list.html

# Quality Standards- ISO 9001

# End of Lecture
# Thank you

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# INFORMATION TECHNOLOGY IN LSCM

## UNIT 8

# UNIT OVERVIEW

After reading this unit you should be able to:

- Understanding the importance of information and information technology (IT) in a supply chain.
- Appreciate the role of IT in logistics and supply chain management.
- Understand the major applications of supply chain information technology and the processes that they enable.

# INTRODUCTION

Supply chain management (SCM) is concerned with the flow of products and information between supply chain members' organizations.

Recent development in technologies enables the organization to avail information easily in their premises. These technologies are helpful to coordinate the activities to manage the supply chain.

# Introduction cont'd...

- Quick and effective information system helps manager to understand the customer response, their demands, inventory in the stock, how much to be produced and where and when to deliver.
- A wide variety of information is needed for a supply chain to perform
- Information technology offers many opportunities for companies to cut cost and improve responsiveness to customer's needs.
- ICT's definition :Information communication and technology or Information and Communication Technology)

This is the techniques used in the processing of **transmission information**, mainly computers, internet and **telecommunications**.

# Supply Chain Information Requirements

Information quality is a critical characteristic of the knowledge flowing across the supply chain. This relates to the 7 R's of giving information to:

- to the right *partners,*
- in the right *quantity*,
- in the right *format,*
- at the right *place*,
- at the right *time*, and
- at the right *cost*.

# Supply Chain Information Requirements cont'd..

To ensure that valuable, actionable knowledge readily flows across the supply chain, information must be:

- **Accessible,**
- **Relevant,**
- **Accurate,**
- **Timely,** and
- **Transferable**.

# Information Technology /ICT

- Information technology offers many opportunities for companies to cut cost and improve responsiveness to customer's needs.
- ICT's is Information and Communication Technology). This is the technique used in the processing of transmission information, mainly through computers, internet and telecommunications.
- It also enables firms to:
  - Be more effective
  - Deliver better to their customers
  - Communicate more with partners
  - Reduce waste and theft

# Information Technology /ICT Impact

ICT has impacted Logistics and supply chain by the use of applications and systems that improve all information flows and effective decision aids. Some applications are:

- E-Business
- E-Procurement
- Warehouse Management System
- Transport Management system
- Electronic Data Interchange
- Bar codes and scanners
- Radio Frequency Identification (RFID)
- Global Positioning System (GPS)
- Enterprise Resource Planning Tools
- Automated Warehouse

# WMS : Warehouse Management System

- WMS, means a category of software designed to manage the operations of a warehouse. The primary purpose of the WMS is not to take orders but to take them into account and to optimize the preparation. Advantages :

  * Decrease of labor costs
  * Increase in storage capacity
  * Increase in customer service

Disadvantages:

Limited and does not cover the entire supply chain, only Warehouses.

# Transportation Management (TMS)

Software solution for planning and execution of external flows especially the transport of goods (transport optimization), while taking into account the multimodal transport systems and International trade.

Advantages

# Electronic Data Interchange (EDI)

- EDI refers to computer-to-computer exchange of business documents (on transactions) in a standard format using networks.
- EDI describe both the capability and practice of communicating information between two organizations electronically instead of traditional form of mail, courier, and fax.

# EDI cont'd...

EDI presents the following benefits:

- Quick process to information.
- Better customer service.
- Reduced paper work.
- Increased productivity.
- Improved tracing and expediting.
- Cost efficiency.
- Competitive advantage.
- Improved billing

# Barcode and Scanning

**Barcodes** can be read by an optical scanner and they
control the flow of goods. This code specifies name of product and its manufacturer.
**Scanners** capture the information on Bar codes


**Advantages:**
Low cost of labelling
Distance in scanning is favorable

**Disadvantages:**
Relies fully on an integrated system, failure of the system reneders it unusable.
The Reading laser is sensitive and fragile
Influence of the environment (Spots on the label or the optics perturb strongly the reading)


# Global Positioning System (GPS)

A person equipped with this receiver can locate and move on land, sea, air or space around the Earth.

The GPS system has experienced great success in the civilian and created a huge commercial development in many areas: shipping, road, location of trucks. They work with tracking devices.

**Advantages:**

Locate at any time a vehicle (or person with a location enabled smart phone or device)

Anticipate delays in deliveries

Reduce theft

Find the best road (express or cost)

**Disadvantages:**

The acquisition cost is high.

# Radio Frequency Identification (RFID)

Its used to store and retrieve data remotely using markers called RFID transponder. Radio-labels are small objects, incorporated into objects or products. Radio-labels include an antenna to receive and to answer the radio requests emitted through the transmitter-receiver.

# Radio Frequency Identification (RFID)

**Advantages:**

Time savings in the operations of input and output material

Improved traceability

Reading of multiple labels

Ability to write on labels

More resistant to its environment (water, mud, shocks…)

Reduction of the thefts

**Disadvantages:**

They are costly

Problems of interferences of the materials (aluminum)


**Tag RFID HF**
*doc. Yalta*

# Automated Warehouse

It is a fully automated warehouse with rails and robots. There is no need for truck drivers or warehouse staff.

**Advantages :**

Gains storage space

Less than damaged goods

No problem inventory

**Disadvantages :**

Blackout

Extremely high cost

# SOCIAL MEDIA AND LSCM

Businesses must leverage the power of social media to optimize their supply chain operations.

For instance there are over 1.3 billion Facebook monthly active users (MAUs).

Sites like Twitter, Facebook, Google+, and LinkedIn can help organizations openly communicate with their customers, which will help them improve demand, increase customer service, and increase visibility.

# USES OF SOCIAL MEDIA AND LSCM

- It keeps in touch in real-time with all stakeholders in the supply chain.
- It is easy to respond to questions,
- Report in real-time about incidences in the supply chain
- Report price changes
- Enhance visibility of the company.
- Save time and increase productivity.
- It increases collaboration among the partners
- Track logistical updates,
- Share data and knowledge

# SOCIAL MEDIA AND LSCM

Access the information on the site below

https://www.peerbits.com/blog/drive-supply-chains-technologies-of-2018.html

# End of Lecture
# Thank You