Lecture

Logistics Information Systems

Questions:

- **1. Basics of "Information" and "data"**
- **2. Principles of Logistics information system**
- **3. Technologies in LIS**

The 800,000 sq ft DC is one the largest of Amazon's six in the UK

Amazon distribution center in
Swansea, south Wales

Monday will be the UK's busiest online shopping day of the year with over 2 million orders expected to be made
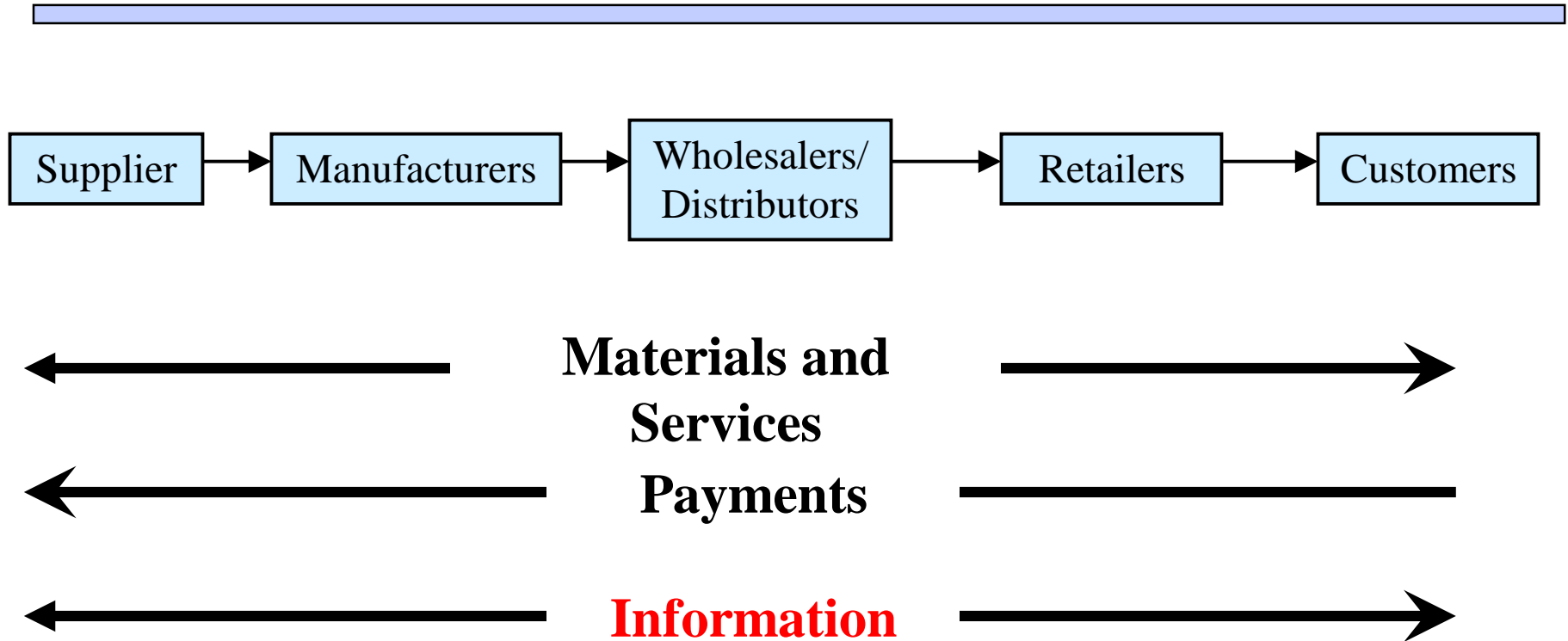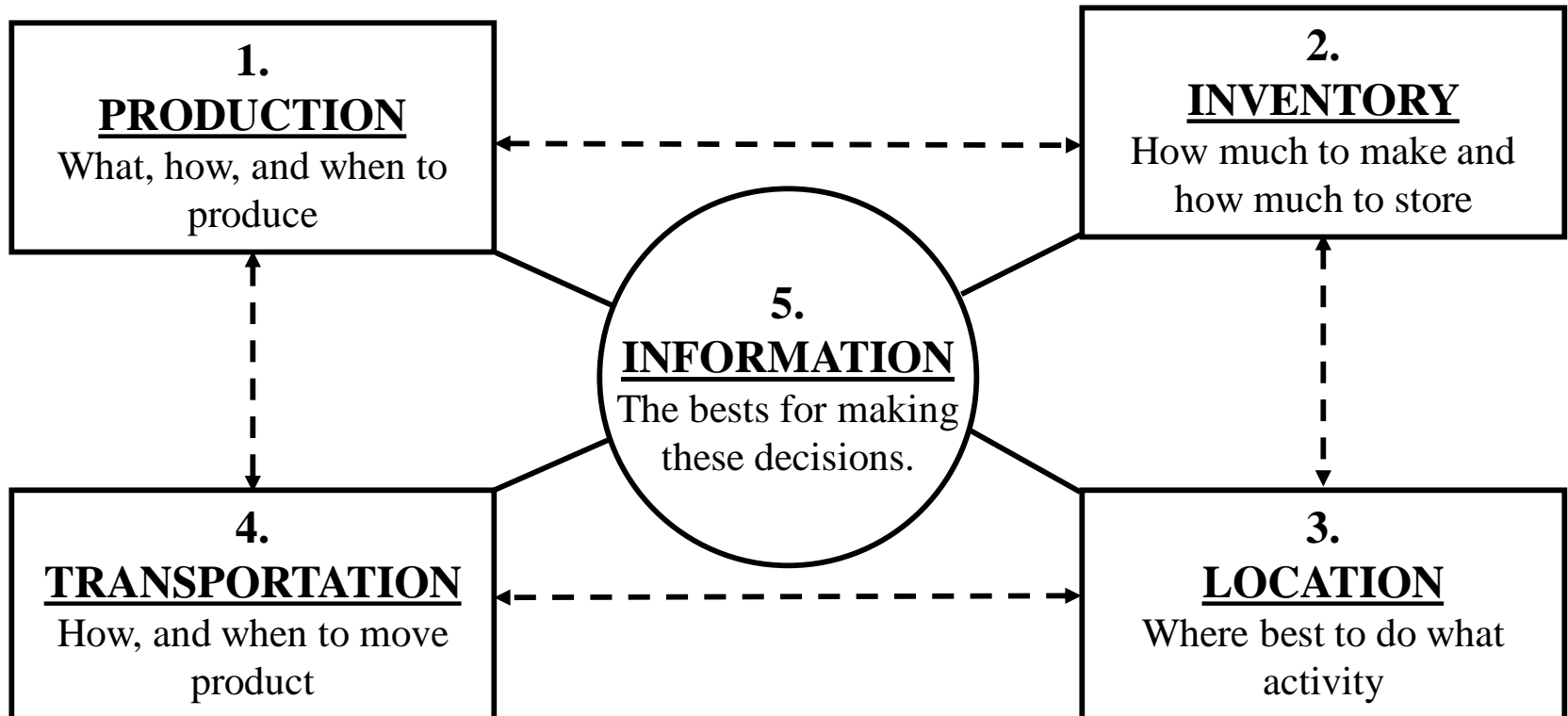

© Getty Images

Main Flows

- **Materials**
- **Services**
- **Information**
- *(Cash-Payment) Not main but supporting)*

Supply Chain

| Supplier | → | Manufacturers | → | Wholesalers/ Distributors | → | Retailers | → | Customers |

Materials and Services

← —————————————— ——————————————→

Payments

← —————————————— ——————————————→

Information

← —————————————— ——————————————→

The Five Major Supply Chain Drivers

1. PRODUCTION
What, how, and when to produce

2. INVENTORY
How much to make and how much to store

5. INFORMATION
The bests for making these decisions.

4. TRANSPORTATION
How, and when to move product

3. LOCATION
Where best to do what activity
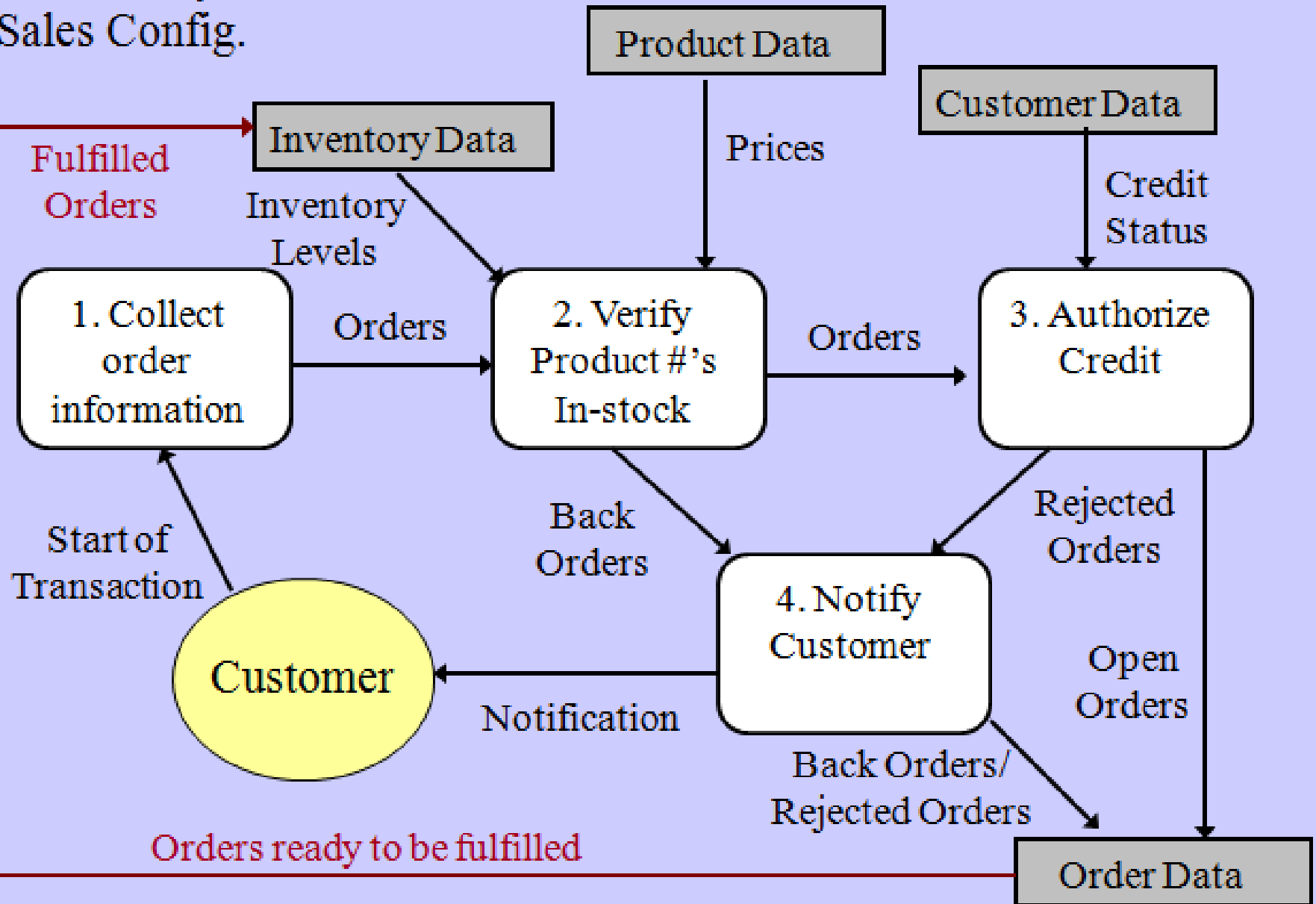
Information about ...

- **Purchasing order information**
- **Shipment status**
- **Invoice**
- **Freight details**
- **Transportation**

- **Production planning**
- **Customers**
- **Return goods**
- **Service and support**
- **Packaging**

all logistical activities

Data

Raw facts about people, places, events, and things that are of importance in an organization.

Order Entry Sales Config.

Fulfilled Orders →

Inventory Data

Inventory Levels

Product Data

Prices

Customer Data

Credit Status

1. Collect order information

Orders

2. Verify Product #'s In-stock

Orders

3. Authorize Credit

Start of Transaction

Back Orders

Rejected Orders

Customer

Notification

4. Notify Customer

Open Orders

Back Orders/ Rejected Orders

Orders ready to be fulfilled

Order Data

IT & Logistics

- **IT will affect the growth and development of logistics**

- **Computers are used to support logistics activities**

Data Quality Factors

- **Accuracy**
  - Whether the value of each item of data is correct
- **Timeliness**
  - Whether the data are up-to-date

Data Quality Factors

- **Transparency of meaning**
  - Whether the context for the data is clearly and commonly understood by all those with a legitimate interest
- **Availability**
  - Whether the people who need the data can actually access it

Information

- Data that has been processed or reorganized into a more *meaningful* form for someone.

- Information is formed from combinations of data that hopefully have *meaning* to the recipient.

Decision Support System (DSS)

DSS is an integrative system of subsystems that has the purpose of providing information to aid a decision maker in making better choices than would otherwise possible

15

Logistics Information System

An interacting structure of **people, equipment, and procedures** which together make relevant information available to the logistics manager for the purposes of planing, implementing and control.

*Information flow makes a logistical system **dynamic**. **Quality** and **timeliness of information** are key factors in logistical operations.*

Bowersox and Closs

16

Logistics Information System

LIS combine **hardware** and **software** to manage, control, and measure logistics activities.

Computers
Servers
Internet technologies
Input and output devices
Communication channels
Barcode, RF, storage media

System and application programs

Four Primary activities of Logistic Inf. System

- **i**-Data flow from external sources
- **ii**-Processing and storage of information within Firm
- **iii**-Communication of data for storage\processing the decision maker in the form of reports
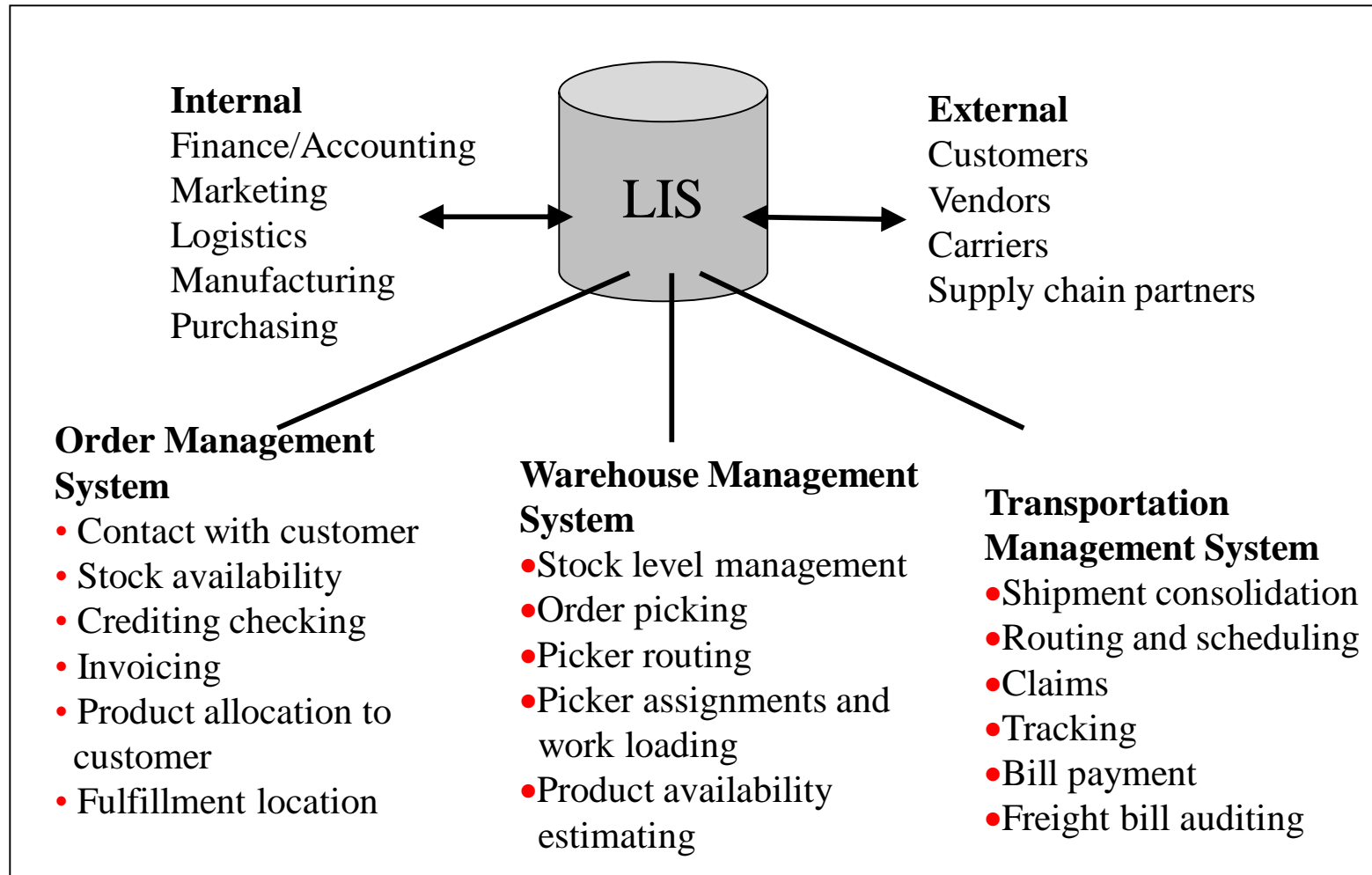- **iv**-Communication of decision to customers and their feedback.

How Information Systems Facilitate Logistics Management

- Decide when, what to produce, store, move

- Rapidly communicate orders

- Communicate orders, track order status

- Check inventory availability, monitor levels

- Track shipments

- Plan production based on actual demand

- Rapidly communicate product design change

- Provide product specifications

- Share information about defect rates, returns

Logistics Information System

- **LIS Benefits**
  - Increased **product visibility and control**
  - Improved knowledge of key logistics network component capabilities and capacity
  - **Enhanced economic value**
    - Cost reductions
    - Sales increases
  - Creation of **competitive advantage**
    - Direct linkages to customers

Overview of Logistics Information System

Internal
Finance/Accounting
Marketing
Logistics
Manufacturing
Purchasing

LIS

External
Customers
Vendors
Carriers
Supply chain partners

Order Management System
- Contact with customer
- Stock availability
- Crediting checking
- Invoicing
- Product allocation to customer
- Fulfillment location

Warehouse Management System
- Stock level management
- Order picking
- Picker routing
- Picker assignments and work loading
- Product availability estimating

Transportation Management System
- Shipment consolidation
- Routing and scheduling
- Claims
- Tracking
- Bill payment
- Freight bill auditing

21

Technologies in LIS

n **Bar code**

n **Point-of-Sale (POS)**

n **EDI**

n **RF-RFID**

Contemporary Logistics Information Technologies
Bar Coding

- barcodes stored data in series of parallel black and white bars of various widths and spacing. They can be read by <u>optical scanners</u> called <u>barcode readers</u> or <u>scanned from an image by special software</u>.

0 123456 789005

Fundamentals of
LOGISTICS MANAGEMENT

Country code	Firm code	Product code	Control digit
3 digits	4 digits (can change)	5 digits(can change)	1 digit
Exp:			
869	9567	90009	4

Lambert
• Stock
• Ellram

Contemporary Logistics Information Technologies
Point of Sales Data

- **Technology that allows firms, in _real time_, to know what and where an item is being sold through scanning of individual barcodes when an item purchased at the retail level.**

- **Using this information, product forecasting, make better purchase decision and customization, and reduce the chance that an item will be out of stock.**

- **Zara-POS usage**

RFID

n **RFID system consists of an antenna and a transceiver, which read the radio frequency and transfer the information to a processing device, and a transponder, or tag, which is an integrated circuit containing the RF circuitry and information to be transmitted.**

n **RFID systems can be used just about anywhere, from clothing tags to missiles to pet tags to food -- anywhere that a unique identification system is needed.**

Definition of EDI

- **Inter organizational,** *computer-to-computer* **exchange of business data in a standard, machine-processable format.**

Unstructured	Structured

Fax
E-Mail
Person-to-person

EDI
Order entry
Computer-to-computer

27