CHAPTER 1 INFORMATION SYSTEM

MARKS DISTRIBUTION

Topics to Cover

Information system (3 hours)

- **Classification and evolution of IS [IT vs IS]**
- **IS in functional area**
- **Information system architecture**
- **Qualities of information systems**
- **Managing Information System resources**
- **Balanced scorecard – case studies**

Data: Meaningless, Unstructured, Unorganized Characters, Numbers, Symbols, etc.

For example-

1600, CA, Google, HQ, 94043, USA, Mountain, Parkway, Amphitheatre, View, 6502530000

Information: Meaningful, Structured, Organized, Processed Raw Data

For example-

Google HQ
1600 Amphitheatre Parkway
Mountain View, CA 94043, USA
(650) 253-0000

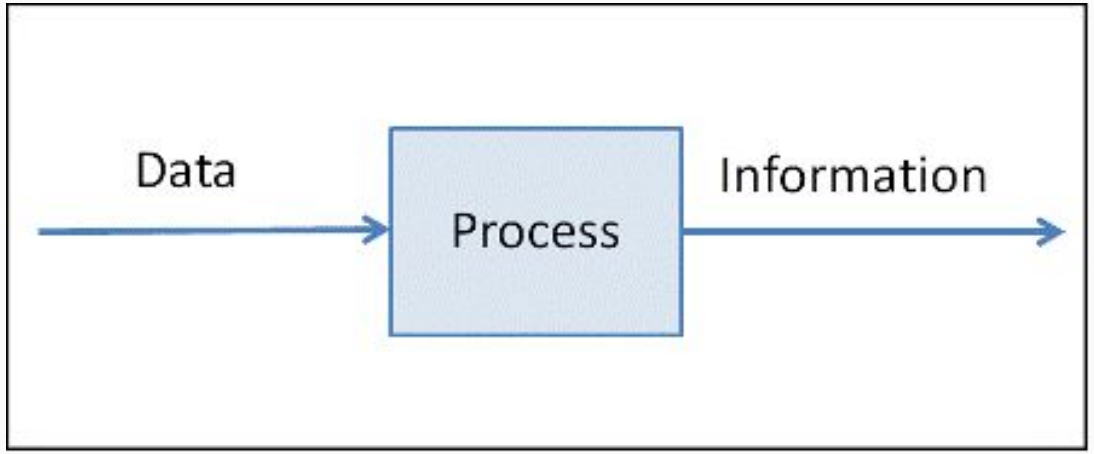
DATA

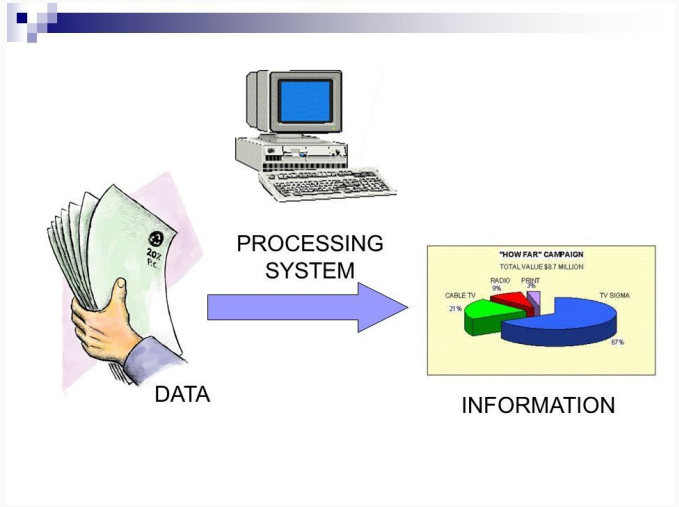
- raw and unorganized fact
- required to be processed to make it meaningful
- data comprises facts, observations, numbers, characters, symbols, image, etc. in raw form
- is always interpreted, by a human or machine, to derive meaning
- Eg: collecting weather data for 25 years in raw form is data but using the same data for weather forecast is information.

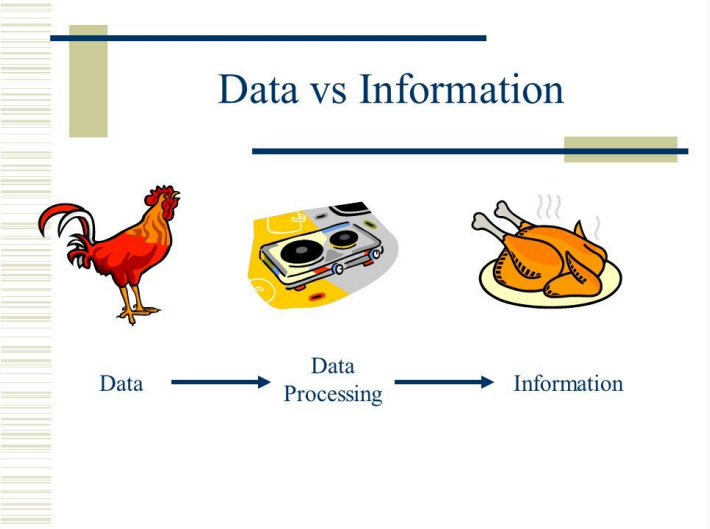
INFORMATION

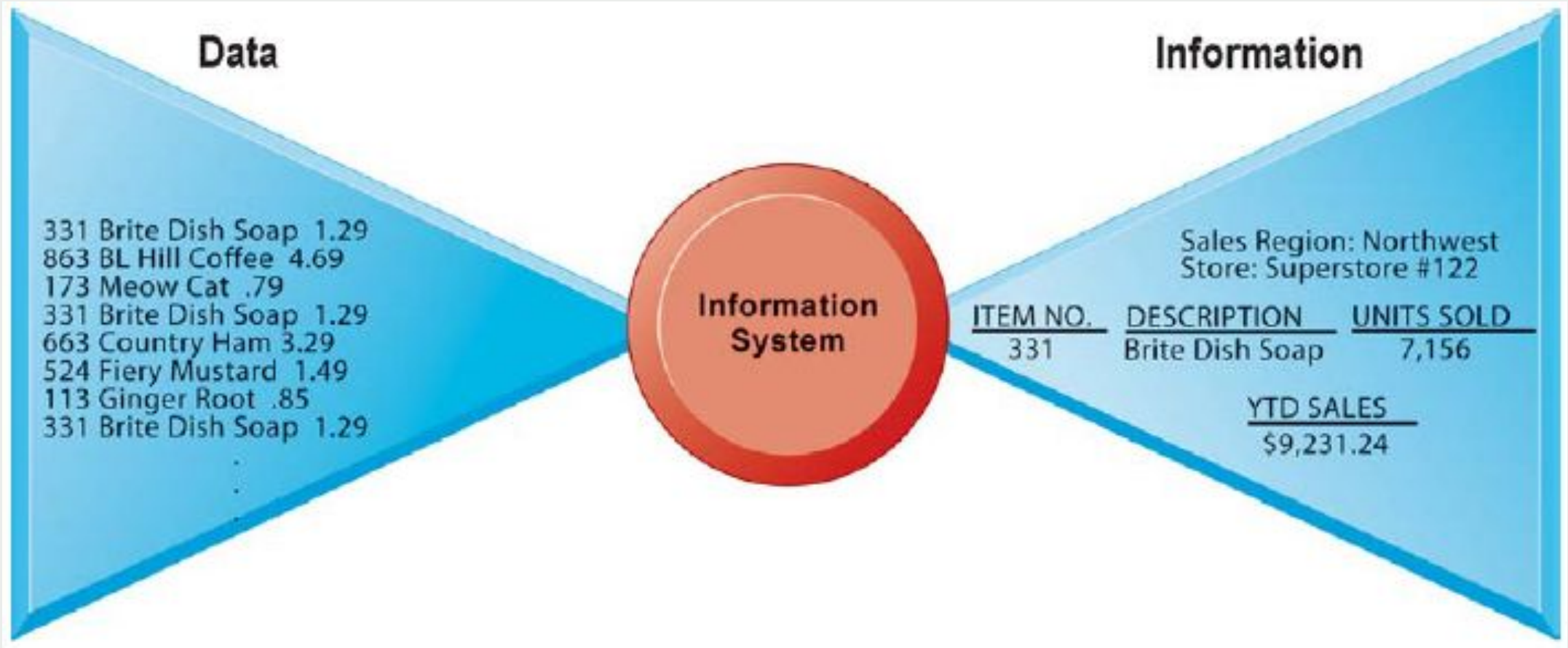
- data which is processed in a meaningful way according to the given requirement
- Information is processed, structured, or presented in a given context to make it meaningful and useful
- involves manipulation of raw data
- Information assigns meaning and improves the reliability of the data
- when the data is transformed into information, it never has any useless details.

DATA & INFORMATION








Data
331 Brite Dish Soap 1.29
863 BL Hill Coffee 4.69
173 Meow Cat .79
331 Brite Dish Soap 1.29
663 Country Ham 3.29
524 Fiery Mustard 1.49
113 Ginger Root .85
331 Brite Dish Soap 1.29
Information System
Information
Sales Region: Northwest
Store: Superstore #122
ITEM NO.
331
DESCRIPTION
Brite Dish Soap
UNITS SOLD
7,156
YTD SALES
$9,231.24

DATA	INFORMATION
Data are simply facts or figures.	Processed data is called information.
Measured in bits and bytes.	Measured in meaningful units like time, quantity, etc.
It never depends on Information	It depended on Data.
It can't be used for decision making	It is widely used for decision–making.
The data collected by the researcher, may or may not be useful.	Information is useful and valuable as it is readily available to the researcher for use.
Data is the property of an organization and is not available for sale to the public.	Information is available for sale to the public.

Information System

"Information systems are interrelated components working together to collect, process, store, and disseminate information to support decision making, coordination, control, analysis, and visualization in an organization."

The Five Primary Components

Hardware

Hardware is the part of an information system you can touch eg. Computers, keyboards, disk drives, drives etc.

Software

Software is a set of instructions that tells the hardware what to do. Examples of the application software include: MS Word, spreadsheet, various database management system etc.

Data

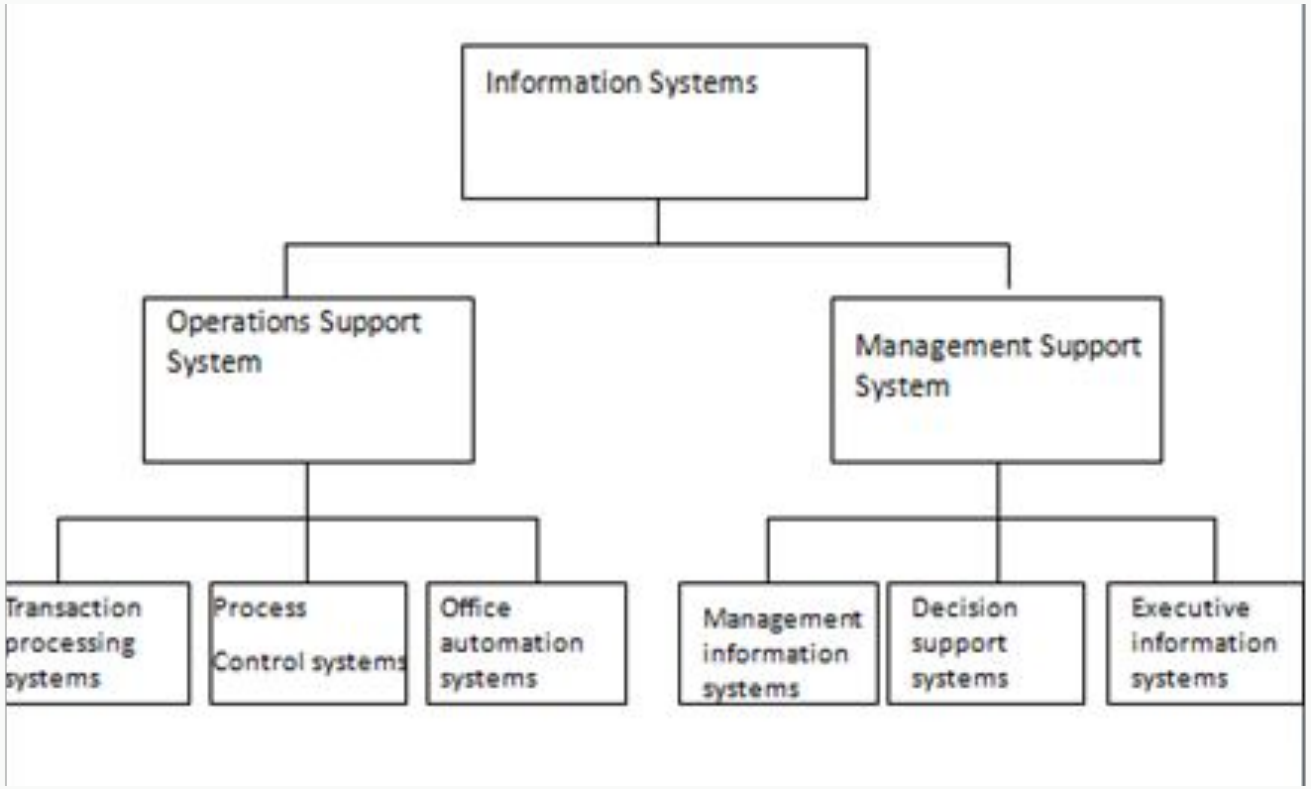
Data is defined as a collection of facts. For example, your street address, the city you live in, and your phone number are all pieces of data.

Network

These are computing devices that communicate with each other to share information and resources.

People

These are users who combine the hardware, software, data, and networks with procedures to produce quality information. Eg. front-line help-desk workers, to systems analysts, to programmers, all the way up to the chief information officer (CIO),ed.



CLASSIFICATION OF IS

1

Information system can be classified based on the usage of the information

2

Information system in an organization can be divided into operations support system and management support system.

Operation Support System

- In an organization, data input is done by the end user
- which is processed to generate information i.e. reports,
- which are utilized by internal and or external users. **Such a system is called operation support system.**
- **Purpose:**

to facilitate business transaction, control production, support internal as well as external communication and update organization central database.

The operation support system is further divided into **a transaction-processing system, processing control system and office automation system.**

Transaction Processing System (TPS)

- In manufacturing organization, there are several types of transaction across department.
- Typical organizational departments are Sales, Account, Finance, Plant, Engineering, Human Resource and Marketing.
- Following transaction may occur: sales order, sales return, cash receipts, credit sales; credit slips, material accounting, accounting, etc.

Process Control System(Industrial Control System)

- function as pieces of equipment along the production line during manufacturing and return data for monitoring and troubleshooting.
- In a manufacturing organization, certain decisions are made by a computer system without any manual intervention.
- In this type of system, critical information is fed to the system on a real–time basis thereby enabling process control.
- This kind of systems is referred as process control systems.
- Eg: A petroleum refining center uses electronic sensors which are linked to the computer to continuously monitor chemical processes and make instant adjustment.

Office Automation System

- *Office Automation Systems are computer-based information systems whose primary purpose is to facilitate oral and written communication.*
- Example of Office Automation System are word processing,voice mail, e-mail, videoconferencing, and multimedia systems.

Management Support System

- Managers require precise information in a specific format to undertake an organizational decision.
- A system which facilitates an efficient decision making process for managers is called **Management Support System.**
- Management support systems are essentially categorized as **management information system, decision support system, executive information system.**

Management Information System

- A management information system is an information system used for decision-making, and for the coordination, control, analysis, and visualization of information in an organization.
- managers use this system to make **routine business decisions in response to problems.**
- All this is done to increase the efficiency of managerial activity.
- Some common functions of MIS software include employee record keeping, invoicing, project planning, customer relationship management, and business analysis.

Decision Support System

- **Decision support systems** (DSS) are interactive software-based **systems**
- intended to help managers in **decision** -making
- by accessing large volumes of information generated from various related information**systems** involved in organizational business processes
- This system gives support rather than replacing a manager's judgment while improving the quality of a manager's decision.
- **examples** include a bank loan officer verifying the credit of a loan

Executive Information System

- An **Executive information system** (**EIS**), also known as an **Executive support system** (**ESS**), is a type of management support system
- that facilitates and supports senior executive information and decision–making needs.
- It provides easy access to internal and external information relevant to organizational goals.
- It is commonly considered a specialized form of decision support system (DSS).
- to provide sales performance or market research statistics for decision makers, such as, marketing directors, chief executive officer

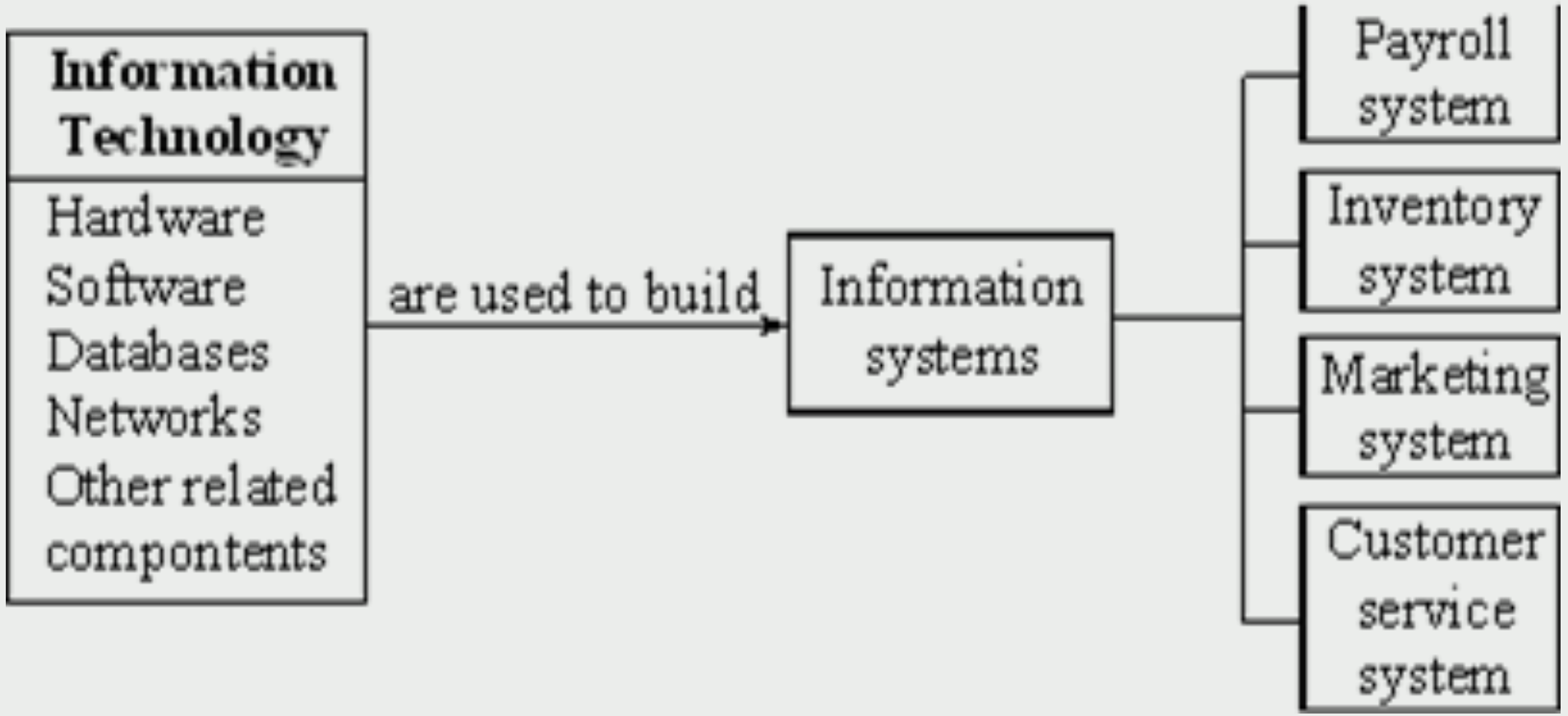
CLASS DISCUSSION

Application of these Information System

Software used for these IS

IS VS IT

- Information technology can be considered as a subset of information systems.
- It deals with the technology part of any information system, and as such deals with hardware, servers, operating systems and software etc.


Information Technology
Hardware
Software
Databases
Networks
Other related compontents
are used to build
Information systems
Payroll system
Inventory system
Marketing system
Customer service system

Sl. No.	Information System (IS)	Information Technology (IT)
1	Information system (IS) is a system or process that provides the information necessary to manage an organization effectively	Information technology is a subset of information systems. Specifically, it can be defined as the study, design and implementation for computer-based information systems.
2	Information system is always a combination of people, machines, processes and technology.	It deals with the technology part of any information system, and as such deals with hardware, servers, operating systems and software etc.
3	Information system is essence for bridging the gap between business and the ever growing field of computers.	Information technology is all about managing technology and making use of it for the betterment of business.
4	Designing of a system takes much more than technology as people and processes are also involved.	Information technology also often governs the acquisition, processing, storage and dissemination of information, or data, generated through the disciplines of computing and telecommunications.

Functional areas of IS

Financial Information System

- supports the decision-making process of financial functions at the level of an organization.

Marketing Information System

- provides information about various functions of the marketing system of an organization
- engaged in marketing (selling) of its products to its customers.

Production /manufacturing Information System

- provides information on production /operation activities of an organization
- facilitates the decision-making process of production managers of an organization.
- The main decisions to be taken in manufacturing system are: Product Design

Human Resources Information System

- supports the functions of human resource management of an organization.
- The function involves:

· Manpower planning.
· Staffing
· Training and development
· Performance evaluation, and

HISTORY OF IS

- Data Processing: 1950s–1960s
- Management Reporting: 1960s–1970s
- Decision support: 1970s–1980s
- Strategic and End User Support: 1980s–1990s
- Global Internetworking: 1990s–2000s

Data Processing: 1950s–1960s

The first business application of computers (in the mid- 1950s) performed repetitive, high-volume, transaction-computing tasks.

Summarizing and organizing transactions and data in the accounting, finance, and human resources areas.

Management Reporting: 1960s–1970s

Management Information Systems (MISs): these systems access, organize, summarize and display information for supporting routine decision making in the functional areas.

Office Automation Systems(OASs): such as word processing systems were developed to support office and clerical workers.

Decision support: 1970s–1980s

Decision Support Systems: were developed to provide computer based support for complex, non–routine decision.

Strategic and End User Support: 1980s–1990s

The use or development of information systems by the principal users of the systems' outputs, such as analysts, managers, and other professionals.

Intelligent Support System (ISSs): Include expert systems which provide the stored knowledge of experts to non–experts, and a new type of intelligent system with machine– learning capabilities that can learn from historical cases.

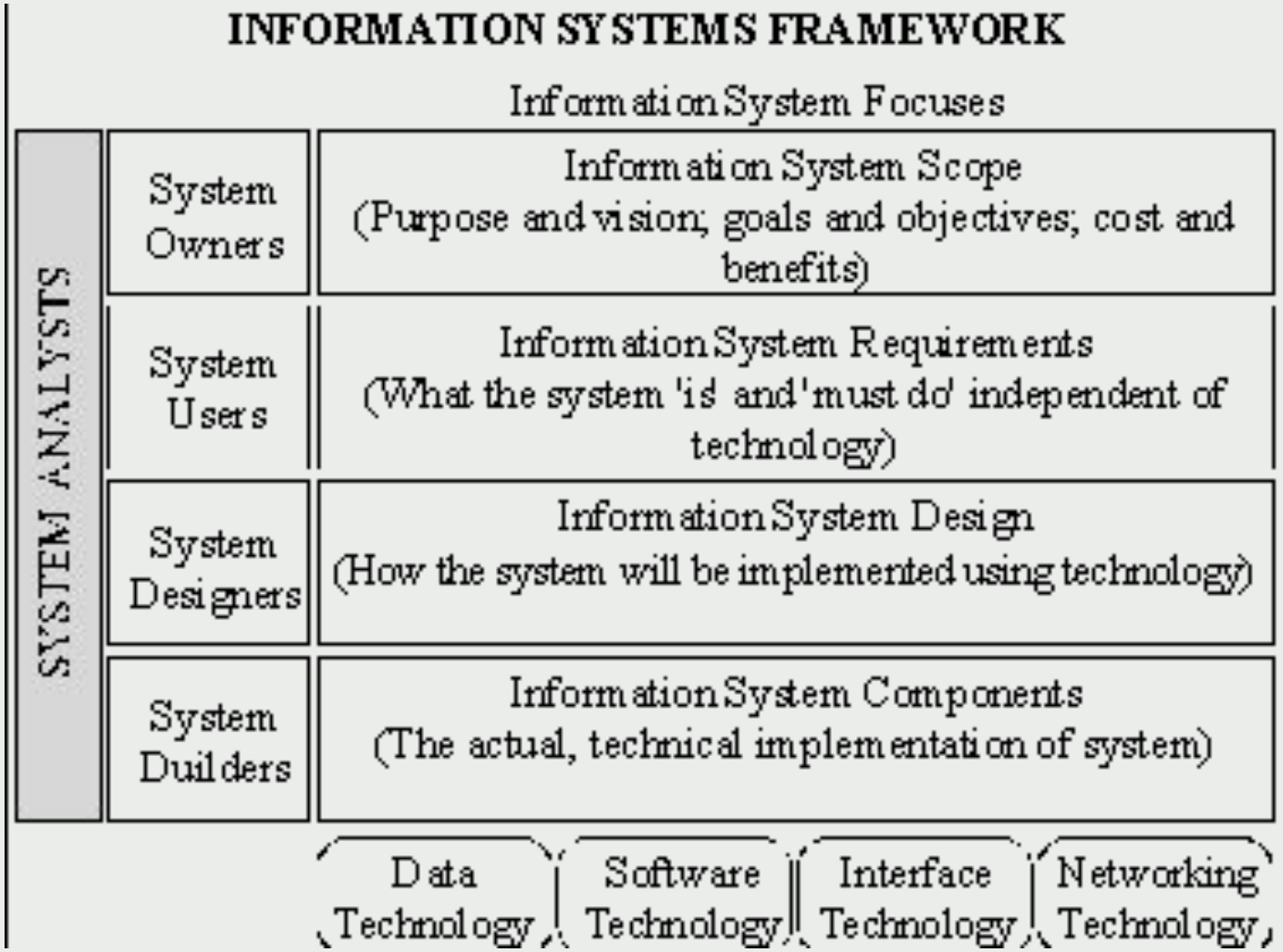
Knowledge Management Systems: Support the creating, gathering, organizing, integrating and disseminating of organizational knowledge.

Global Internetworking: 1990s–2000s

Information systems that support employees who are working with customers or business partners outside the physical boundaries of their company; can be done over wire or wireless networks.

A Framework for Information Systems Architecture

Information systems architecture provides a unifying framework into which various people with different perspectives can organize and view the fundamental building blocks of information systems


INFORMATION SYSTEMS FRAMEWORK
Information System Focuses
SYSTEM ANALYSTS
System Owners
Information System Scope
(Purpose and vision; goals and objectives; cost and benefits)
System Users
Information System Requirements
(What the system 'is' and 'must do' independent of technology)
System Designers
Information System Design
(How the system will be implemented using technology)
System Duilders
Information System Components
(The actual, technical implementation of system)
Data Technology
Software Technology
Interface Technology
Networking Technology

- Stakeholders have different views of the system and each has something “at stake” in determining the success of the system.
- Stakeholders can be broadly classified into four groups:

System owners pay for the system to be built and maintained. They own the system, set priorities for the system, and determine policies for its use.

System users are the people who actually use the system to perform or support the work to be completed.

System designers are the technical specialists who design the system to meet the users requirements. .

Systems builders are the technical specialists who construct, test, and deliver the system into operation.

Qualities of Information System

Relevance: Information should be relevant to the strategic decision that company management is currently reviewing. .

Accuracy: MIS information should be accurate and avoid any probable costs.

Timely: Many management decisions are based on information from a certain time period, such as quarterly or annual periods.

Exhaustive: MIS information gathering should resemble an upside-down triangle. The early stages of information gathering should be exhaustive, including all types of company information. As management narrows its decision-making process, the information is refined to include only the most relevant pieces.

·**Cost-Effective:** The MIS needs to be a cost-effective and efficient system for gathering information.

IS Resources

- HARDWARE
- SOFTWARE
- DATA
- NETWORK
- PEOPLE

Balanced Scorecard

The balanced scorecard is a management tool that provides stakeholders with a comprehensive measure of how the organization is progressing towards the achievement of its strategic goals.

Balances financial and non–financial measures.

Balances short and long–term measures.

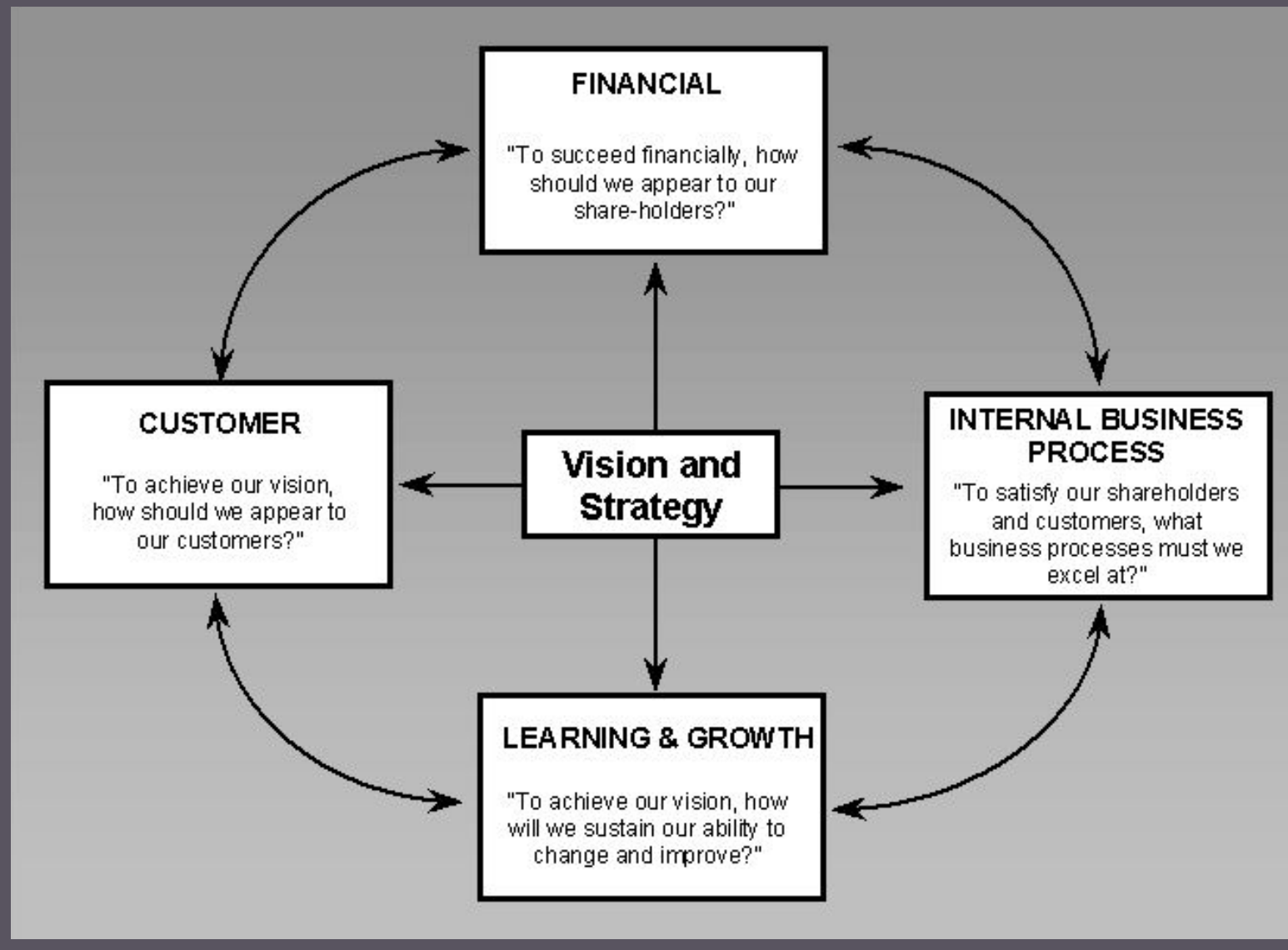
Should contain just enough data to give a complete picture of organizational performance.

Leads to strategic focus and organizational alignment.

WHY?

- To achieve strategic objectives.
- To provide quality with fewer resources.
- To eliminate non-value added efforts.
- To track progress.
- To align customer priorities.
- To evaluate process changes.

Perspectives of Balanced Scorecard



Measures

■To determine how effectively and efficiently the process or service satisfies the customer.

■To identify improvement opportunities.

■To make decisions based on FACT and DATA.

Measurements should

■Evaluate the quality of processes.

■Track our improvements.

■Focus our effort on our customers.

■Support our strategies.

Balanced Scorecard Importance

■Key performance helps to measure strategy at all levels of an organization.

■The methodology facilitates communication and understanding of business goals and strategies at all level of an organization.

■It enables executives to truly execute their strategy by identifying what should be done and measured.

ASSIGNMENT

1.What is an Information System? Explain the different types of Information System that supports operations and management decision-making.

2.Why does Organization need Information System? Differentiate IS and typical DBMS?

3.Differentiate Information System and Information Technology.

4.Explain relationship between balanced Scorecard and Information System.

5.Explain IS architecture with proper diagram.

6.What are the various IS component? Also discuss about IS resources.

7.What are various quality of IS.

8.Explain different types of IS with proper classification. Also give real world application and example of each.

9.How does IS help in managing Decision making?

10. What is MIS? What are the benefit and component of MIS?

11.Among the classification of IS, which IS is used in production line during manufacturing? Explain with proper example.

CASE STUDY

- Each group must have 4–5 members.
- For every case study topic each group should prepare a case study report and a presentation slide and should be presented by each group members.

CASE STUDY 1

PREPARE A BALANCED SCORECARD FOR ANY ORGANIZATION.

FOR SAMPLE CASE STUDY

CHANNEL NAME : EASY EXPLANATION

https://www.youtube.com/playlist?list=PLYwrDCC_pg4GWbtP7-vBiIWH9DE9yvUXd