Chapter Three

Management Information System

Outline

- Management Information System
- Trends in Information System
- The Role of e-Business in Business
- MIS and Information requirements of decision makers
  - Barriers to good decision making
  - Types of Management Information System
  - Transaction Processing Systems
  - Decision Support Systems
  - Executive information
  - Expert Systems

Management Information System

- Management Information System is about creating, capturing, storing, and disseminating data in the form of information needed to carry out the functions of management.
  - **Creating Information:**
    - Generate new information
    - Devise solutions to existing problems
    - Identify new explanations for events
  - **Capturing and Storing information**
    - Enables the organization to:
      - Codify new knowledge
      - Maintain an organizational memory
  - **Disseminating Information**
    - Information can be formatted and easily accessible.

Trends in Information System

1960's

- ✔ Electronic Data Processing (EDP)
- ✔ Management Information Systems (MIS)

1970's

- ✔ Decision Support Systems (DSS)

1980's

- ✔ End User Computing
- ✔ Executive Information Systems (EIS)
- ✔ Enterprise Resource Planning (ERP)

1990's

- ✔ The Internet
- ✔ Intranets and extranets
- ✔ Global networks

Cont.

2000's

- ✔ **Business Intelligence (BI)** – all applications and technologies focused on gathering and analyzing data/information for strategic business decisions
- ✔ **Internet-based/Web-enabled enterprises** – dramatically changed the capabilities of IS in business
- ✔ **Global e-business and e-commerce** – now common place
- ✔ **IS** is now solidly rooted as a strategic resource in the modern organization

Cont.


The Expanding Roles of IS in Business and Management
Enterprise Resource Planning and Business Intelligence: 2000s–2010s
Enterprisewide common-interface applications
Data mining and data visualization, customer relationship management, supply-chain management
Electronic Business and Commerce: 1990s–2000s
Internet-based e-business and e-commerce systems
Web-enabled enterprise and global e-business operations and electronic commerce on the Internet, intranets, extranets, and other networks
Strategic and End-User Support: 1980s–1990s
End-user computing systems
Direct computing support for end-user productivity and workgroup collaboration
Executive information systems
Critical information for top management
Expert systems
Knowledge-based expert advice for end users
Strategic information systems
Strategic products and services for competitive advantage
Decision Support: 1970s–1980s
Decison support systems
Interactive ad hoc support of the managerial decision-making process
Management Reporting: 1960s–1970s
Management information systems
Management reports of prespecified information to support decision making
Data Processing: 1950s–1960s
Electronic data processing systems
Transaction processing, record-keeping, and traditional accounting applications

The Role of e-Business in Business

E-Business:

- ✔ Use of Internet technologies to empower business processes, e-commerce, and enterprise collaboration within a firm and its customers, suppliers, and stakeholders

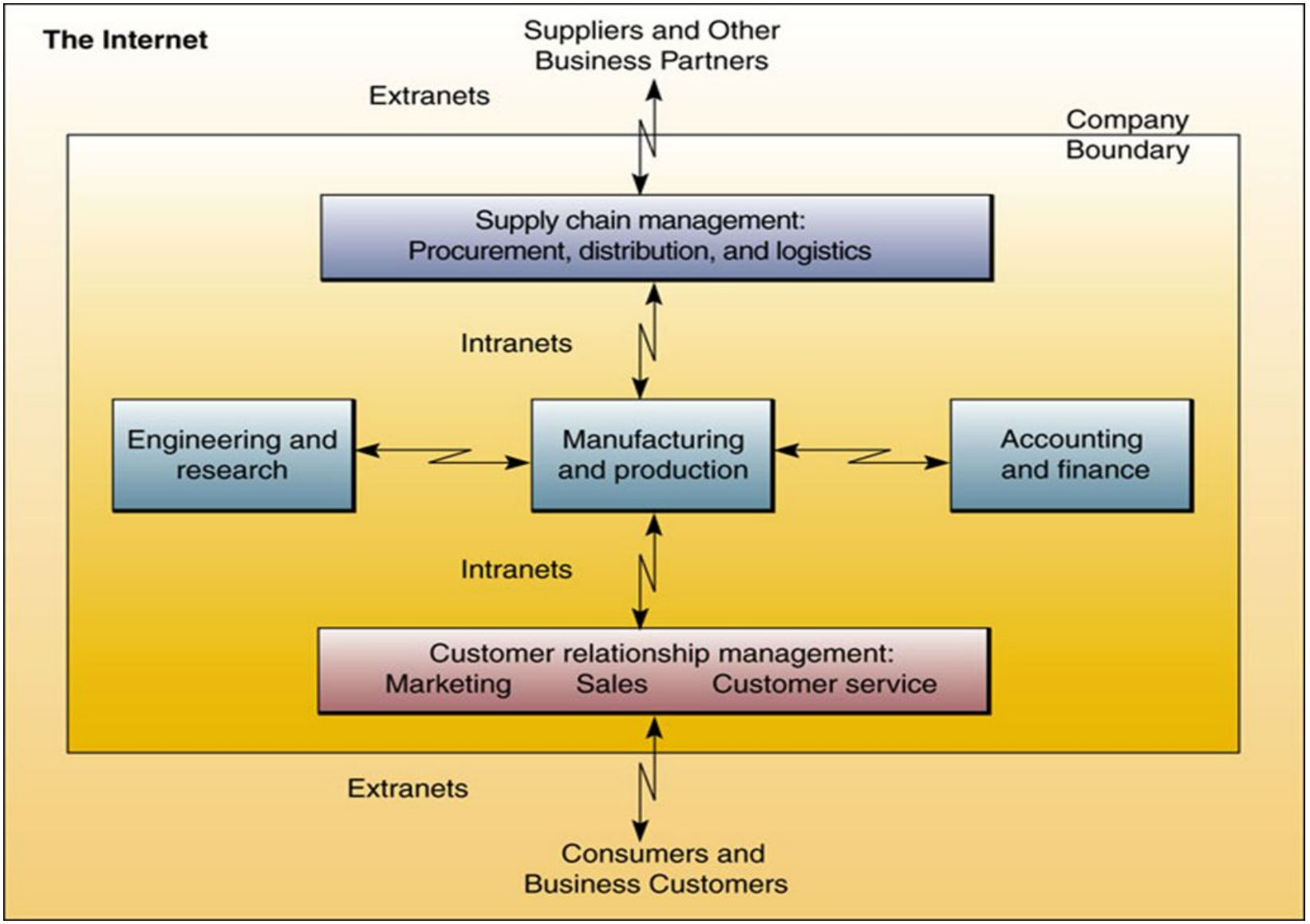
Enterprise Collaboration Systems:

- ✔ Support communication, coordination, and collaboration among networked teams/workgroups.

E-Commerce:

- ✔ Buying, selling, marketing and servicing products, services, and information over computer networks.

Cont.


The Internet
Suppliers and Other Business Partners
Extranets
Company Boundary
Supply chain management: Procurement, distribution, and logistics
Intranets
Engineering and research
Manufacturing and production
Accounting and finance
Intranets
Customer relationship management: Marketing Sales Customer service
Extranets
Consumers and Business Customers

MIS and Information requirements of decision makers

- Business decisions are increasingly difficult to make
  - Dramatic increase in the internal business data available to managers
  - Managers must keep current on vast amounts of data resources on the Internet
  - Globalization
  - The speed of commerce
  - The increased number of business choices available
  - Group decision making
    - ✔ Teams may include members from many companies
    - ✔ Members may have different backgrounds and opinions
    - ✔ Difficult to reach consensus

Barriers to Good Decision Making

- Human cognition
  - Our mental ability to comprehend and understand something
- Human perception
  - Difficulty isolating problems
  - Tend to think of only narrow range of possible solution
- Human bias
  - Tendency to shape responses based on stereotypes, memory, and current position

How to Overcome the barriers

- Decision support systems (DSS) are one tool
  - A computer-based system that supports and improves human decision making
  - Helps analyze complex problems
  - Process vast amounts of analytical data
- Group decision support systems (GDSS)
  - Tool for supporting team decision making(e.g. Brainstorming tools, Commenter tools, Categorizing tools, Idea-ranking tools, Electronic-voting tools, Group facilitator)
- Executive information system (EIS)
  - Computer-based system that supports the decision-making processes of senior managers

Types of Management Information System

Four basic types of Management Information System

1. Transaction Processing Systems
2. Decision Support Systems
3. Executive information
4. Expert Systems

Transaction Processing System (TPS)

- Their objective is to process transactions in order to update records and generate reports.
  - Example
    - Payroll system
    - Bank transaction system
- Are designed to process day to day and routine transactions efficiently and accurately.

Cont.

- A business will have several TPS; for example:
  - Billing systems to send invoices to customers
  - Systems to calculate the weekly and monthly payroll and tax payments
  - Production and purchasing systems to calculate raw material requirements
  - Stock control systems to process all movements into, within and out of the business

Cont.

- Transaction processing systems are faster and more accurate than the manual system.
- Deals with well-structured processes including record keeping applications.
- The form and format of the data input and the information output of the systems are highly structured.
- TPS processing transaction into two ways:
  - ❖ Batch Processing:-Data is accumulated over a period time and processed periodically. Ex. payroll system
  - ❖ Real Time Processing: Data is immediately processed after a transaction occurs.
    - ✔ Ex1: Sales and Inventory Processing ,
    - ✔ Ex2 transfers funds from a customer's bank account to a retail outlet's account after scanning a customer's debit card.

Cont.

- Transaction processing system output may take the form of transaction documents or database queries.

A. Transaction documents

- Many transaction processing systems produce transaction documents, such as purchase orders or payroll lists.
- These documents may be classified as
  - **Action documents**
    - ✔ Action documents imply that some kind of action is taken.
    - ✔ For example, an airline ticket guarantees that a seat on an airplane is reserved, or a bank has to pay out money when a cheque is presented.
  - **Information documents**
    - ✔ Information documents confirm that a transaction has taken place or informs about one or various transactions.
    - ✔ For example, a bank transfer slip with details of the transfer.

Cont.

B. **Database queries**

- A wide variety of information can be extracted from a database using a database management system.
- These queries can provide lists of all transactions processed during a specific time period.
  - ex1. dashboard information from many tables

Management Information System(MIS)

- MIS is generally defined as an integrated user-machine system for providing information to support operations, management and decision-making functions in an organization.
- Information is viewed as a resource much like land, labor and capital.
  - It must be obtained, processed, stored, manipulated and analyzed, distributed in and out the organization.
- An organization with a well-defined information system will generally have a competitive advantage over organization with poor MIS and no MIS.

Decision Support System(DSS)

- A system used to support problem-specific decision making
- Decision support systems provide interactive information support to managers and business professionals during the decision making process.
- It provides managerial end user with information in an interactive manner i.e., analytical modeling, data retrieval information presentation capability.
  - End-users are more involved in creating a DSS than an MIS
  - Ex: Product pricing, Risk Analysis
- DSS systems are specifically designed to help management make decisions in situations where there is uncertainty about the possible outcomes of those decisions.
  - e.g. Simulations and emulator analysis tools, modeling tools, sales region analysis by spreadsheet

Executive Information System (EIS)

- An Information System that provides Strategic information tailored to the needs of executives and other decision makers (top management).
- It gathers, analyses and summarizes the key internal and external information used in the business.
- It provides top management with immediate and easy access to select information about key factors that are critical to organizational strategic objectives.
  - Ex: The top level executives may use the touch screen to instantly view text and graphics that display the key areas of the organization.

Expert System

- Expert Systems are knowledge-based systems that provides expert advice and act as expert consultants to the users
  - A system that gives a computer the ability to make suggestions and act like an expert in a particular field.
  - Knowledge Base system: The collection of data, rules, procedures, and relationships that must be followed to achieve value or the proper outcome/goal.
- End user computing systems support the direct, hands on use of computers by end users for operational and managerial applications.
  - Expert advice for operational decisions

Thank you !!!!