

# INFORMATION SYSTEMS

**Sub Code: 10IS72**  
**Hrs/Week : 04**  
**Total Hrs : 52**

**IA Marks :25**  
**Exam Hr:03**  
**Exam marks:100**

## PART – A

### UNIT – 1

#### **Foundation Concepts – 1 7 Hours**

Information Systems in Business: Introduction, The real world of Information Systems, Networks, What you need to know, The fundamental role of IS in business, Trends in IS, Managerial challenges of IT. System Concepts: A foundation, Components of an Information System, Information System Resources, Information System activities, Recognizing Information Systems.

### UNIT – 2

#### **Foundation Concepts – 2 6 Hours**

Fundamentals of strategic advantages: Strategic IT, Competitive strategy concepts, The competitive advantage of IT, Strategic uses of IT, Building a customer-focused business, The value chain and strategic IS, Reengineering business processes, Becoming an agile company Creating a virtual company, Building a knowledge-creating company.

### UNIT – 3

#### **Electronic Business Systems 6 Hours**

Enterprise Business Systems: Introduction, Cross-functional enterprise applications, Enterprise application integration, Transaction processing systems, Enterprise collaboration systems. Functional Business Systems: Introduction, Marketing systems, Manufacturing systems, Human resource systems, Accounting systems, Financial management systems.

### UNIT – 4

#### **Enterprise Business Systems 7 Hours**

Customer relationship management: Introduction, What is CRM? The three phases of CRM, Benefits and challenges of CRM, Trends in CRM Enterprise resource planning: Introduction, What is ERP? Benefits and challenges of ERP, Trends in ERP. Supply chain Management: Introduction, What is SCM? The role of SCM, Benefits and challenges of SCM, Trends in SCM

## PART – B

### UNIT – 5

#### **Electronic Commerce Systems 6 Hours**

Electronic commerce fundamentals: Introduction, The scope of ecommerce, Essential e-commerce, processes, Electronic payment processes. e-Commerce applications and issues: E-commerce application trends, Business-to- Consumer e-commerce, Web store

requirements, Business-to-Business e-commerce, e-commerce marketplaces, Clicks and bricks in ecommerce.

### UNIT – 6

### **Decision Support Systems 7 Hours**

Decision support in business: Introduction, Decision support trends, Decision support systems (DSS), Management Information Systems, Online analytical processing, Using DSS, Executive information systems, Enterprise portals and decision support, Knowledge management systems, Business and Artificial Intelligence (AI), An overview of AI, Expert systems.

### **UNIT – 7**

#### **Security and Ethical Challenges 7 Hours**

Security, Ethical and societal challenges of IT: Introduction, Ethical responsibility of business professionals, Computer crime, Privacy issues, Other challenges, Health issues, Societal solutions. Security management of IT: Introduction, Tools of security management, Internetworked security defenses, Other security measures, System Controls and audits.

### **UNIT – 8**

#### **Enterprise and Global Management of IT 6 Hours**

Managing IT: Business and IT, Managing IT, Business / IT planning, Managing the IS function, Failures of IT management. Managing global IT: The International Dimension, Global IT Management, Cultural, Political and Geo - Economic challenges, Global Business/ IT strategies, Global Business / IT applications, Global IT Platforms, Global data access issues, Global Systems development.

# INFORMATION SYSTEMS

## PART – A

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<b>Foundation Concepts – 1</b>	<b>3-14</b>

- 2.1 Information Systems in Business
  - 2.1.1 Introduction
  - 2.1.2 The real world of Information Systems
  - 2.1.3 Networks
  - 2.1.4 What you need to know
  - 2.1.5 The fundamental role of IS in business
  - 2.1.6 Managerial challenges of IT
- 2.2 System Concepts
  - 2.2.1 A foundation
  - 2.2.2 Components of an Information System
  - 2.2.3 Information System Resources
  - 2.2.4 Information System activities
  - 2.2.5 Recognizing Information Systems.

<b>UNIT – 2</b>	
<b>Foundation Concepts – 2</b>	<b>15-31</b>

- 2.1 Fundamentals of strategic advantages
  - 2.1.1 Strategic IT
  - 2.1.2 Competitive strategy concepts
  - 2.1.3 The competitive advantage of IT
  - 2.1.4 Strategic uses of IT
  - 2.1.5 Building a customer-focused business
  - 2.1.6 value chain and strategic IS
  - 2.1.7 Reengineering business processes
  - 2.1.8 Becoming an agile company Creating a virtual company
  - 2.1.9 Building a knowledge-creating company.

<b>UNIT – 3</b>	
<b>Electronic Business Systems</b>	<b>32-42</b>

- 3.1 Enterprise Business Systems
  - 3.1.1 Introduction
  - 3.1.2 Cross-functional enterprise applications
  - 3.1.4 Enterprise application integration
  - 3.1.5 Transaction processing systems
  - 3.1.6 Enterprise collaboration systems
- 3.2 Functional Business Systems
  - 3.2.1 Introduction
  - 3.2.2 Marketing systems
  - 3.2.3 Manufacturing systems
  - 3.2.4 Human resource systems
  - 3.2.5 Accounting systems
  - 3.2.6 Financial management systems.

## **UNIT – 4**

### **Enterprise Business Systems**

**43-52**

- 4.1 Customer relationship management
  - 4.1.1 Introduction
  - 4.1.2 What is CRM?
  - 4.1.3 The three phases of CRM
  - 4.1.4 Benefits and challenges of CRM
- 4.2 Trends in CRM Enterprise resource planning:
  - 4.2.1 Introduction,
  - 4.2.2 What is ERP?
  - 4.2.3 Benefits and challenges of ERP
  - 4.2.4 Trends in ERP.
- 4.3 Supply chain Management:
  - 4.3.1 Introduction
  - 4.3.2 What is SCM
  - 4.3.3 The role of SCM,
  - 4.3.4 Benefits and challenges of SCM
  - 4.3.4 Trends in SCM

## **PART – B**

## **UNIT – 5**

### **Electronic Commerce Systems**

**53-61**

- 5.1 Electronic commerce fundamentals
  - 5.1.1 Introduction
  - 5.1.2 The scope of ecommerce
  - 5.1.3 Essential e-commerce processes
  - 5.1.4 Electronic payment processes.
- 5.2 e-Commerce applications and issues
  - 5.2.1 E-commerce application trends
  - 5.2.2 Business-to- Consumer e-commerce
  - 5.2.3 Web store requirements
  - 5.2.4 Business-to- Business e-commerce
  - 5.2.5 e-commerce marketplaces
  - 5.2.6 Clicks and bricks in ecommerce.

## **UNIT – 6**

### **Decision Support Systems**

**62-73**

- 6.1 Decision support in business
  - 6.1.1 Introduction
  - 6.1.2 Decision support trends
  - 6.1.3 Decision support systems (DSS)
  - 6.1.4 Management Information Systems
  - 6.1.5 Online analytical processing
  - 6.1.6 Using DSS, Executive information systems
  - 6.1.7 Enterprise portals and decision support
  - 6.1.8 Knowledge management systems
  - 6.1.9 Business and Artificial Intelligence (AI)
  - 6.1.10 An overview of AI
  - 6.1.11 Expert systems.

**UNIT – 7**  
**Security and Ethical Challenges**

**74-86**

- 7.1 Security
- 7.2 Ethical and societal challenges of IT
  - 7.2.1 Introduction, Ethical responsibility of business professionals
  - 7.2.2 Computer crime, Privacy issues
  - 7.2.3 Other challenges
  - 7.2.4 Health issues
  - 7.2.5 Societal solutions.
- 7.3 Security management of IT
  - 7.3.1 Introduction
  - 7.3.2 Tools of security management
  - 7.3.3 Internetworked security defenses
  - 7.3.4 Other security measures
  - 7.3.5 System Controls and audits.

**UNIT – 8**

**Enterprise and Global Management of IT**

**87-98**

- 8.1 Managing IT
  - 8.1 Business and IT
  - 8.2 Managing IT
  - 8.3 Business / IT planning
  - 8.4 Managing the IS function
- 8.2 Failures of IT management
  - 8.2.1 Managing global IT
  - 8.2.2 The International Dimension
  - 8.2.3 Global IT Management
  - 8.2.4 Cultural, Political and Geo - Economic challenges
  - 8.2.5 Global Business/ IT strategies
  - 8.2.6 Global Business / IT applications
  - 8.2.7 Global IT Platforms
  - 8.2.8 Global data access issues
  - 8.2.9 Global Systems development.

**UNIT 1****Foundations concepts-1****2.1 Information Systems in Business****2.1.1 Introduction**

- Information technology can help all kinds of businesses improve the efficiency and effectiveness of their business processes, managerial decision making, and workgroup collaboration, thus strengthening their competitive positions in a rapidly changing marketplace.
- Internet-based systems have become a necessary ingredient for business success in today's dynamic global environment.
- Information technologies are playing an expanding role in business.

**2.1.2 The Real World of Information system**

An information system(IS) can be any organized combination of people,hardware,software communications networks and data resources that stores and retrieves,transforms and disseminates information in an organization. people have relied on information systems to communicate with each other using an variety of physical devices(hardware),information processing instructions and procedures(software),communication channels(network)and stored data(data resources)

**Systems vs. Information Technology**

- Information Systems (IS) – all components and resources necessary to deliver information and information processing functions to the organization
- Information Technology (IT) – various hardware components necessary for the system to operate

**Types of Information Technologies**

- **Computer Hardware Technologies**  
Including microcomputers, midsize servers, and large mainframe systems, and the input, output, and storage devices that support them
- **Computer Software Technologies**  
Including operating system software, Web browsers, software productivity suites, and software for business applications like customer relationship management and supply chain management
- **Telecommunications Network Technologies**  
including the telecommunications media, processors, and software needed to provide wire-based and wireless access and support for the Internet and private Internet-based networks
- **Data Resource Management Technologies**  
including database management system software for the development, access, and maintenance of the databases of an organization



### Conceptual Framework of IS Knowledge

An IS framework for business professionals above fig illustrates a useful conceptual framework that organizes the knowledge presented in this text and outlines what you need to know about information systems.

**Foundation concepts.** Fundamental behaviour, technical, business and managerial concepts about the components and roles of information system. examples include basic information system concepts derived from general systems theory.

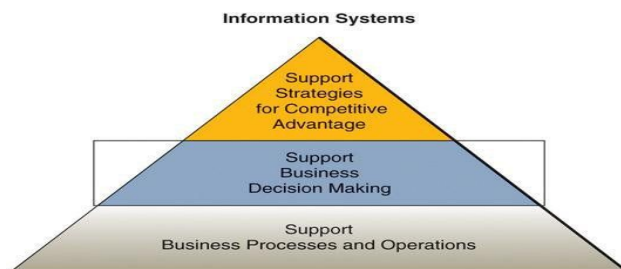
**Information technologies.** major concepts, developments and management issues in information technology that is hardware, software, networks data management and many internet based technologies.

**Business applications.** the major uses of information systems for the operations, management, and competitive advantage of a business.

**Development process.** how business professionals and information specialists plan, develop, and implement information systems to meet business opportunities

**Management challenges.** The challenges of effectively and ethically managing information technology at the end user, enterprise and global levels of a business

### Roles of IS in Business



There are three fundamental reasons or all business applications of information technology

Support of its business processes and operations

Support of decision making by employees and managers

Support of its strategies for competitive advantages

### Trends in Information Systems

Until the 1960s, the role of most information systems was simple: transaction processing, record-keeping, accounting, and other electronic data processing (EDP) applications.

Then another role was added, as the concept of management information systems (MIS) was conceived.

By the 1970s, it was evident that the prespecified information products produced by such management information systems were not adequately meeting many of the decision-making needs of management. So the concept of decision support systems (DSS) was born. The new role for information-making processes.

In the 1980s, several new roles for information systems appeared. First, the rapid development of microcomputer processing power, application software packages, and telecommunications networks gave birth to the phenomenon of end user computing. End users could now use their own computing resources to support their job requirements instead of waiting for the indirect support of centralized corporate information services departments.

Executive's information systems (EIS) were developed. These information systems were created to give top executives an easy way to get the critical information they want, when they want it, tailored to the formats they prefer.

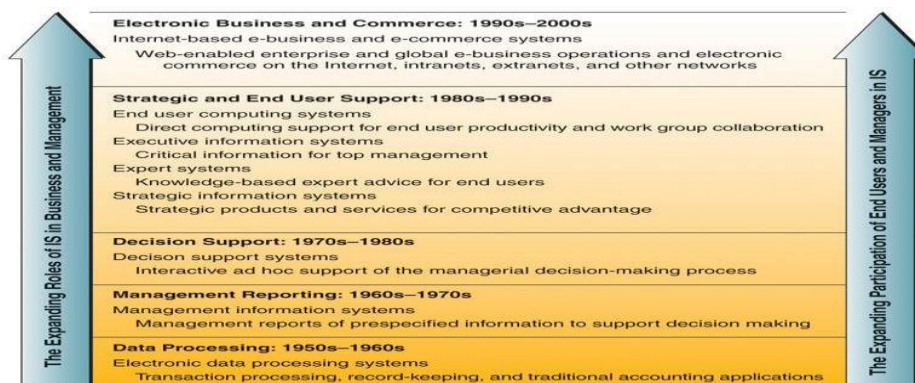
Expert systems (ES) and other knowledge-based systems also forged a new role for information systems. Today, expert systems can serve as consultants to users by providing expert advice in limited subject areas.

This is the concept of a strategic role for information systems, sometimes called strategic information systems (SIS), in this concept; information technology becomes an integral component of business processes, products, and service that help a company gain a competitive advantage in the global marketplace.

The mid -to late 1990s was the revolutionary emergence of enterprise resource planning (ERP) systems. This organization - specific form of strategic information systems integrates all facets of a firm, including its planning, manufacturing , sale, resources, and marketing—virtually every business function .

ERP systems lies in their common interface for literally all computer-based organizational function and tight integration and data sharing necessary for flexible strategic decision making.

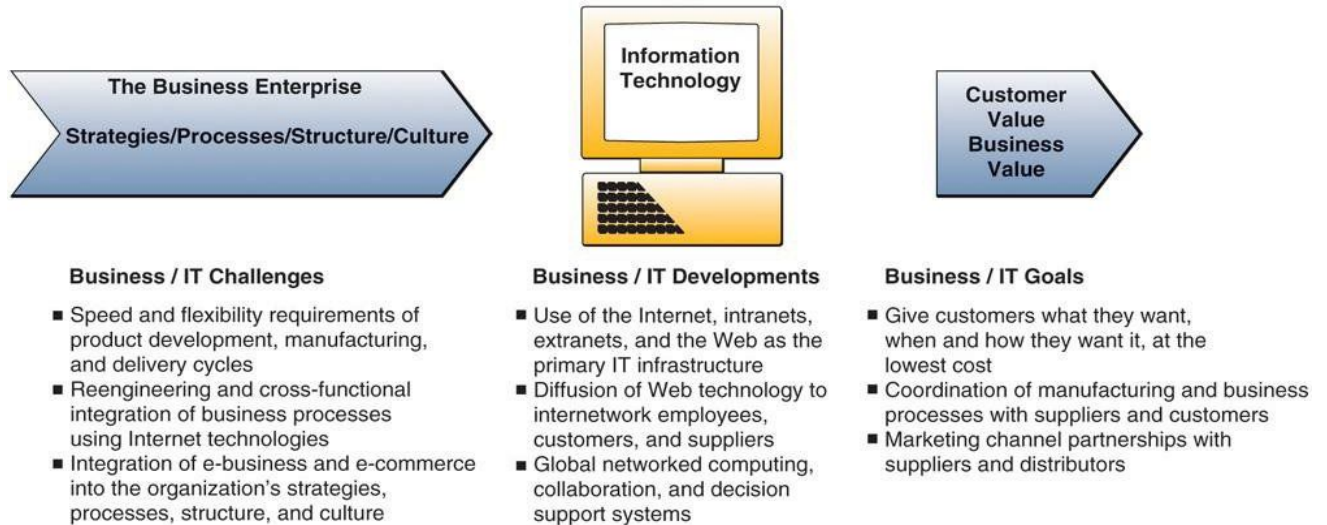
Finally, the rapid growth of the internet, intranets, extranets, and other interconnected global networks in the 1990s dramatically changed the capabilities of information systems in business at the beginning of the twenty-first century. Internet-based and Web-enabled enterprise and Global electronic business and commerce systems are becoming commonplace in the operations and management of today's business enterprises.





**Management Challenges & Opportunities**

Below fig illustrates the scope of the challenges and opportunities facing business managers and professionals in effectively managing information systems and technologies. Also emphasis that information systems and their technologies must be managed to support the business strategies, business process and organizational structures and culture of a business enterprise. the goal of many companies today is to maximize their customer and business value by using information technology to support their employees in implementing cooperative business process with customer ,suppliers and others.



**Measures of Success**

IS SHOULD NOT BE MEASURED ONLY BY ITS EFFICIENCY

- Efficiency
  - Minimize costs
  - Minimize time
  - Minimize the use of information resources

Success should also be measured by its effectiveness of IT

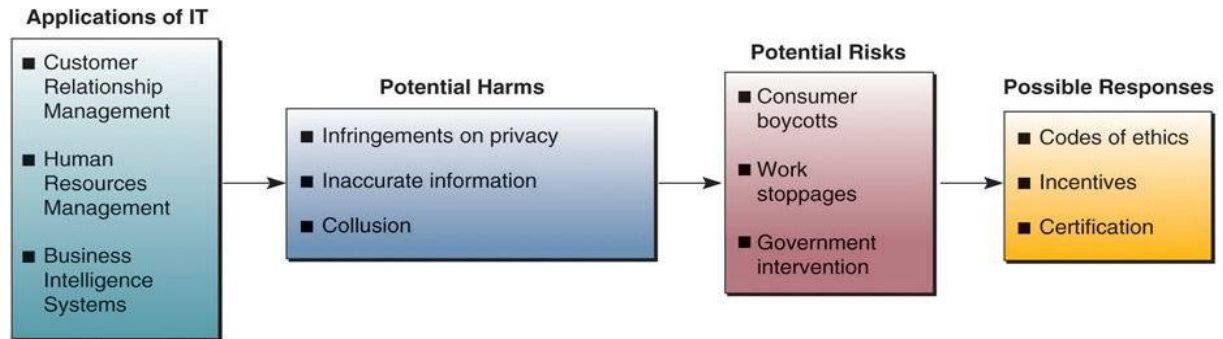
- Effectiveness
  - Support an organization's business strategies
  - Enable its business processes
  - Enhance its organizational structure and culture
  - Increase the customer business value of the enterprise

**Developing IS Solutions**



The several major activities must be accomplished and managed in a complete IS development cycle. In this development process, end users and information specialists design information system application based on an analysis of the business requirements of an organization. Examples of other activities include investigating the economic or technical feasibility of proposed application, acquiring and learning how to use the software required implementing the new system, and making improvements to maintain the business value of a system

### Ethical Challenges of IT



As a prospective managers order you will be challenged by the ethical responsibilities by the use of information technology. For example what uses of IT might be considered improper ,irresponsible or harmful to other individuals to society.

### IT Career Trends

- Rising labor costs have resulting in large-scale movement to outsource programming functions to India, the Middle East and Asia-Pacific countries.
- More new and exciting jobs emerge each day as organizations continue to expand their wide-scale use of IT.
- Frequent shortages of qualified information systems personnel.
- Constantly changing job requirements due to dynamic developments in business and IT ensure long-term job outlook in IT remains positive and exciting.

### The IS Function represents

- A major functional area of business equally as important to business success as the functions of accounting, finance, operations management, marketing, and human resource management.
- An important contributor to operational efficiency, employee productivity and morale, and customer service and satisfaction.
- A major source of information and support needed to promote effective decision making by managers and business professionals.
- A vital ingredient in developing competitive products and services that give an organization a strategic advantage in global marketplace.
- A dynamic, rewarding, and challenging career opportunity for millions of men and women.

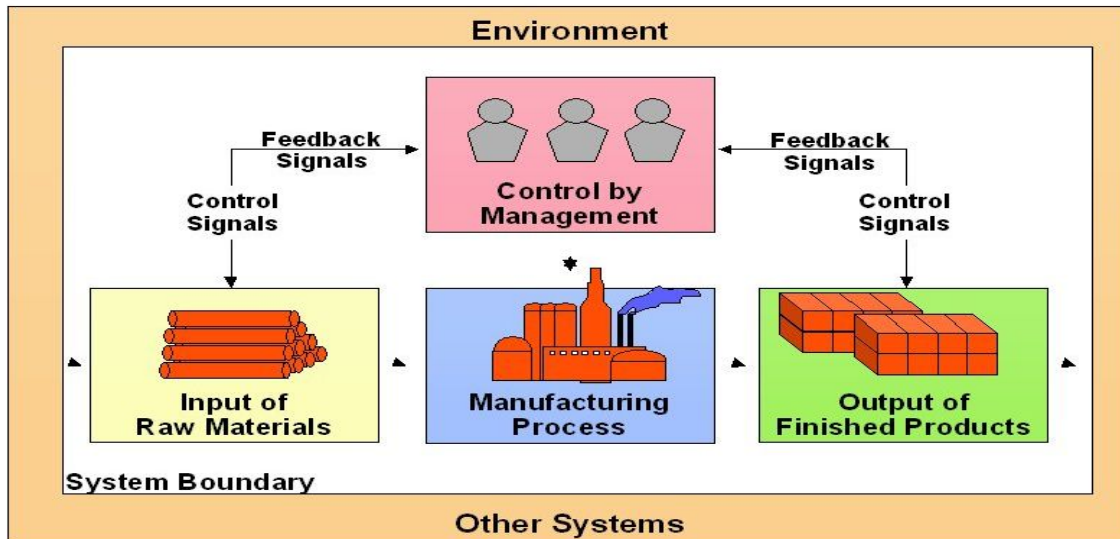
- A key component of the resources, infrastructure, and capabilities of today's networked business enterprise.

## What is a System?

### Definition:

A group of interrelated components, with a clearly defined boundary, working together toward a common goal by accepting inputs and producing outputs in an organized transformation process.

## What is a System?



### System Components

- Input – capturing and assembling elements that enter the system to be processed for example raw materials must be secured and organized for processing.
- Processing – transformation steps that convert input into output examples are a manufacturing process, human breathing process
- Output – transferring elements that have been produced by a transformation process to their ultimate destination for example finished products

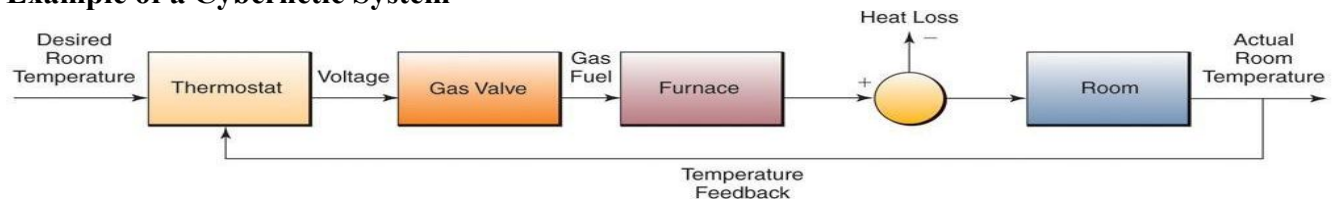
### Cybernetic Systems

#### Definition:

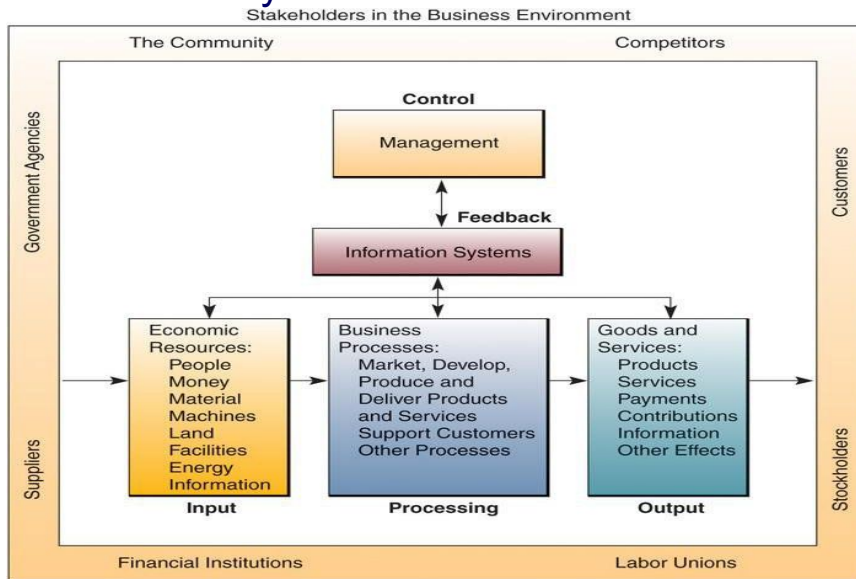
a self-monitoring, self-regulating system.

- Feedback – data about the performance of a system
- Control – monitoring and evaluating feedback to determine whether a system is moving toward the achievement of its goal

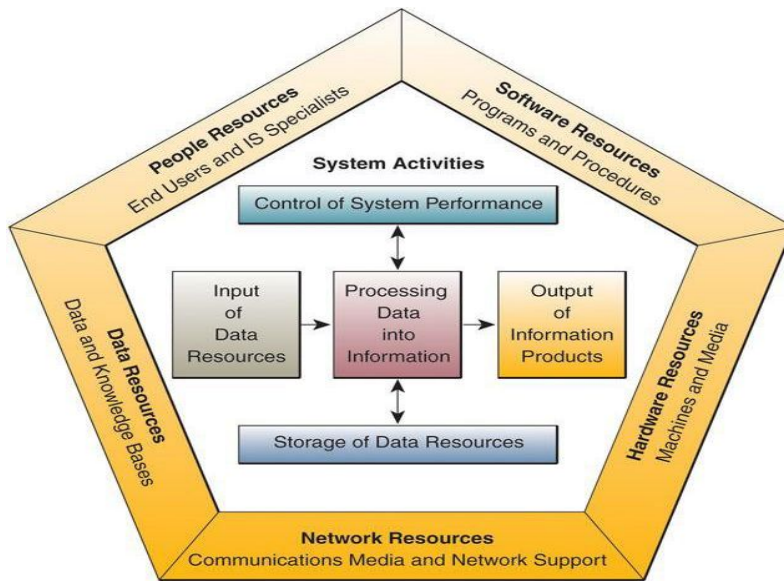
### Example of a Cybernetic System



## A Business System



## Resources & Activities IS Resources & Activities



### Information System Resources

- People – end users and IS specialists
- Hardware – physical devices and materials used in information processing including computer systems, peripherals, and media
- Software – sets of information processing instructions including system software, application software and procedures
- Data – facts or observations about physical phenomena or business transactions
- Network – communications media and network infrastructure

### People resources

#### End users

People are the essential ingredient for the successful operation of all information system

End users (also called users or clients) are the people who use an information system or the information it produces. They can be customers, salespersons, engineers, clerks, managers. Most end users are knowledge workers that is people who spend most of their time communicating and collaborating in teams and workgroups and creating using and distributing information

**IS specialist**

People who develop and operate information systems. they include systems analysts, software developers, system operators and other managerial, technical and clerical IS personnel. Software developers create computer programs based on the specifications of system analysts

**Hardware resources**

The concept of hardware resources includes all physical devices and materials used in information processing, it includes not only machines such as computers and other equipment but also data media data are recorded from sheets of paper to magnetic disk

**Computer systems** which consist of central processing units containing microprocessors and a variety of interconnected peripheral devices. Example laptop

**Computer peripherals** which are devices such as a keyboard or electronic mouse for input of data and commands

**Software resources**

The concept of software resources includes all sets of information processing instructions. this concept includes not only the sets of operating instructions called programs which direct and control the hardware but also sets the information processing instructions called procedures

The following are the examples of software resources

**System software.** Such as an operating system program, which controls and supports the operation of a computer system

**Application software** which are the programs that direct processing for a particular use of a computer by end users

**Procedures** which are operating instructions for the people who will use an information system

**Data resources**

Data are more than a raw material of information systems

Data that were previously captured as a result of common transaction are now stored, processed and analyzed using sophisticated software applications that can reveal complex relationships about sales, customers, competitors and market.

Text data consisting of sentences and paragraphs used in written communications image data, such as graphic shapes and figures and video images and audio data, the human voice and other sounds are also important forms of data

- Data – raw facts or observations typically about physical phenomena or business transactions
- Information – data that have been converted into a meaningful and useful context for specific end users.



Data resources of IS are typically organized, stored, and accessed by a variety of data resources management technologies into:

Databases that hold processed and organized data

Knowledge bases that hold knowledge in a variety of form such as facts, rules

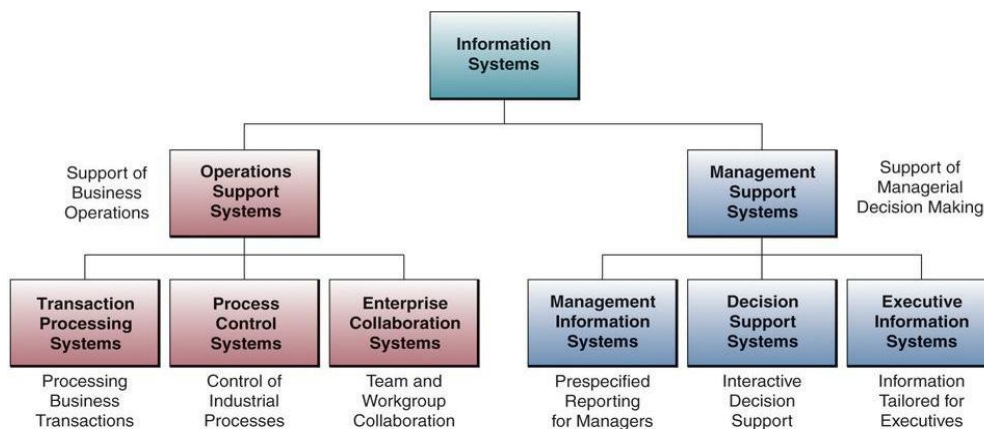
Data versus Information



Network Resources

- Communications Media – examples include twisted-pair wire, coaxial and fiber-optic cables, microwave, cellular, and satellite wireless technologies
- Network Infrastructure – examples include communications processors such as modems and internet work processors, and communications control software such as network operating systems and Internet browser packages.

Types of Information Systems



Operation Support Systems

- Information systems that process data generated by and used in business operations
- Goal is to efficiently process business transactions, control industrial processes, support enterprise communications and collaboration, and update corporate databases

**Examples of Operations Support Systems\**

- Transaction Processing Systems (TPS) – process data resulting from business transactions, update operational databases, and produce business documents. They process data in two ways .In batch processing, transactions data are accumulated over a period of time and processed periodically. In real time processing data are processed immediately after a transaction occurs
- Process Control Systems (PCS) – monitor and control industrial processes. for example, a petroleum refinery uses electronic sensors linked to computers to continually monitor chemical processes and make instant adjustments that control the refinery process.
- Enterprise Collaboration Systems – support team, workgroup, and enterprise communications an collaboration. for example ,knowledge workers in a project team may use electronic mail and receive electronic messges,and videoconferencing to hold electronic meetings to coordinate their activities.

**Management Support Systems**

Information systems that focus on providing information and support for effective decision making by managers

- Management Information Systems (MIS) – provide information in the form of pre-specified reports and displays to support business decision making.
- Decision Support Systems (DSS) – provide interactive ad hoc support for the decision making processes of managers and other business professionals. for example ,an advertising managers may use a DSS to perform a what if analysis as a part of a decision to determine where to spend advertising dollars
- Executive Information Systems (EIS) – provide critical information from MIS, DSS, and other sources tailored to the information needs of executives. for example top executives may use touch screen terminals to instantly view text and graphics displays that highlights key areas of organizational and competitive performance

**Operational & Managerial IS**

- Expert Systems – provide expert advice for operational chores or managerial decisions example: credit application advisor, process monitor
- Knowledge Management Systems – support the creation, organization, and dissemination of business knowledge to employees and managers Example: Internet access to best business practices, and customer problem resolution system

**IS Classifications by Scope**

- Functional Business Systems – support basic business functions. Examples information systems that support applications in accounting,finance,marketing,operations management and human resource management
- Strategic Information Systems – support processes that provide a firm with strategic products, services, and capabilities for competitive advantage
- Cross-functional Information Systems – integrated combinations of information systems

**Information Systems Activities**

- Input of Data Resources
- Processing of Data into Information

- Output of Information Products
- Storage of Data Resources
- Control of System Performance

**Input of data resources** data about business transactions and other events must be captured and prepared for processing by the input activity. Input typically takes the form of data entry activities such as recording and editing. end user typically enter data directly into a computer system. This usually includes a variety of editing activities to ensure that they have recorded data correctly. Once entered, data may be transferred onto a machine-readable medium such as magnetic disk until needed for processing.

**Input of data resources** data about business transactions and other events must be captured and prepared for processing by the input activity. Input typically takes the form of data entry activities such as recording and editing. end user typically enter data directly into a computer system. This usually includes a variety of editing activities to ensure that they have recorded data correctly. Once entered, data may be transferred onto a machine-readable medium such as magnetic disk until needed for processing.

#### **Processing of data into information**

Data are typically subjected to processing activities such as calculating, comparing, sorting, classifying and summarizing. These activities organize, analyze, and manipulate data, thus converting them into information for end users.

For example. Data received about a purchase can 1) added to a running total of sales results 2) compared to a standard to determine eligibility for a sales discount 3) sorted in numerical order based on product identification numbers 4) classified into product categories 5) summarized to provide a sales manager with information about various product categories and finally 6) used to update sales record

#### **Output of information products**

Information in various forms is transmitted to end users and made available to them in the output activity. the goal of information systems is the production of appropriate information products for end users common information products include messages, reports, forms, and graphic images. for example, a sales manager may view a video display to check on the performance of a sales persons .

#### **Storage of data resources**

Storage is basic system component of information systems. storage is the information system activity in which data and information are retained in an organized manner for use. For example text material is organized into words, sentences, paragraphs and documents, stored data are commonly organized into a variety of data elements and databases

**Control of system performance control of system performance.** An information system should produce feedback about its input, processing, output, and storage activities. This feedback must be monitored and evaluated to determine if the system is meeting established performance



Questions

- 1 a Define Information system and information technology (06 Marks)(2009 jun/jul)
- 1 b Describe in detail IS framework for Buisness Professionls(06Marks)(2009 jun/jul)
- 1 c Explain in detail the types of Information system (08 Marks)(2009 jun/jul)
- 2 a What is an information system? what are the classifications of information systems  
(10 Marks)(2010 may/jun)
- 2 b Explain the different modules in a systematic development process for developing information system solutions  
(10 Marks) (2010 may/jun)
- 3 a Explain the various factors that help a retail web site to become successful.  
(20 Marks)(2011 may/jun)
- 4 a What are the fundamental roles of Information System? Explain these roles w. r. t. computer based Information System used in a retail store. (05 Marks)(2012 may/jun)
- 4 b List any four reasons for success and failure of IT projects(05Marks)(2012 may/jun)
- 5 a Define Information system and information technology(6 Marks)(2012 dec)
- 5 b Describe in detail IS framework for Buisness Professionls(12 Marks) (2012 dec)

## UNIT-2

### FOUNDATION CONCEPTS-2

#### Competing with Information Technology

To know the role of information systems applications in business to provide effective support of companies strategies for gaining competitive advantage. This strategic role of information systems involve using information technology to develop products, services, and capabilities that give a company major advantages over the competitive forces it faces in the global marketplace.

#### Need of Strategic IT

- Technology is no longer an afterthought in forming business strategy, but the actual cause and driver.
- IT can change the way businesses compete.

#### Strategic View of Information Systems

Strategic information system can be any kind of information system, that uses information technology to help an organization gain a competitive advantage, reduce a competitive disadvantage, or meet other strategic enterprise objectives.

- Information systems are vital competitive networks.
- Information systems are a means of organizational renewal.
- IS are a necessary investment in technologies that help a company adopt strategies and business processes that enable it to reengineer or reinvent itself in order to survive and succeed in today's dynamic business environment

#### Information Technology: definition

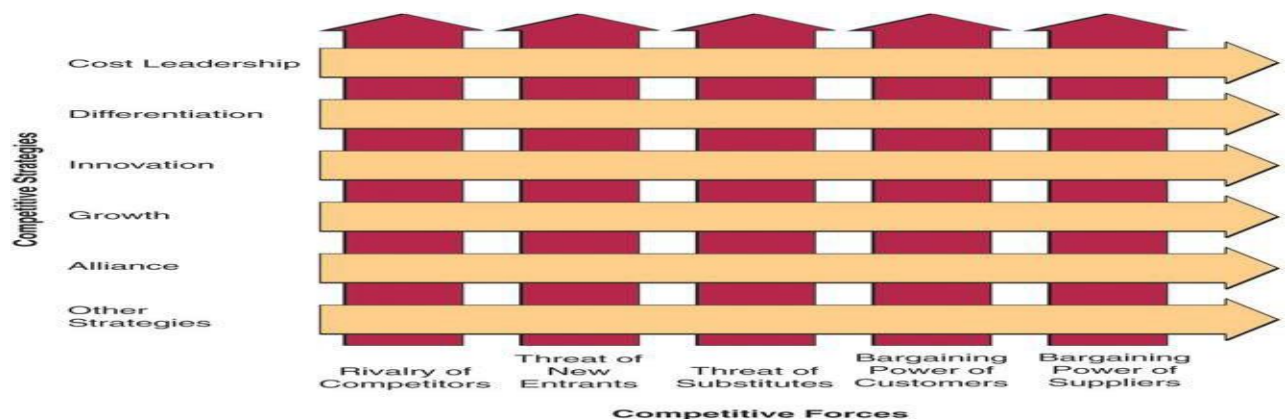
- An information technology can be defined as. A bunch of networks and computers or It is a group of Hardware plus the software that mediates and manages human knowledge or information..

#### Strategic Information Systems

##### Definition:

- Any kind of information system that uses information technology to help an organization gain a competitive advantage, reduce a competitive disadvantage, or meet other strategic enterprise objectives.

**Competitive Forces Strategies:** This important conceptual frame work for understanding and applying competitive strategies.



**Competitive Forces:** A company can survive and succeed in the long run only if it successfully develops strategies to confront five competitive forces.

Definition:

- These forces Shape the structure of competition in its industry.

### **Porter's Competitive Forces Model**

To survive and succeed, a business must develop and implement strategies to effectively counter the:

- Rivalry of competitors within its industry
- Threat of new entrants into an industry and its markets
- Threat posed by substitute products which might capture market share
- Bargaining power of customers
- Bargaining power of suppliers

**Competitive Strategies:** There are five different strategies to gain competitive advantages in business.

- 1)Cost Leadership
- 2)Differentiation
- 3)Innovation
- 4)Growth
- 5)Alliance

#### **1)Cost Leadership Strategy**

- Becoming a low-cost producer of products and services in the industry, or finding ways to help its suppliers or customers reduce their costs or to increase the costs of their competitors.

#### **2) Differentiation Strategy**

- Developing ways to differentiate a firm's products and services from its competitors'
- Reduce the differentiation advantages of competitors

#### **3)Innovation Strategy**

- Development of unique products and services
- Entry into unique markets or market niches
- Making radical changes to the business processes for producing or distributing products and services that are so different from the way a business has been conducted that they alter the fundamental structure of an industry

#### **4)Growth Strategy**

- Significantly expanding a company's capacity to produce goods and services
- Expanding into global markets
- Diversifying into new products and services
- Integrating into related products and services

#### **5)Alliance Strategy**

- Establishing new business linkages and alliances with customers, suppliers, competitors, consultants, and other companies

**Competitive Strategy Examples:** this example shows how companies have used information technology to implement five competitive strategies for strategic advantage.

Strategy	Company	Strategic Use of Information Technology	Business Benefit
Cost Leadership	Dell Computer	Online build to order	Lowest cost producer
	Priceline.com	Online seller bidding	Buyer-set pricing
	eBay.com	Online auctions	Auction-set prices
Differentiation	AVNET Marshall	Customer/supplier e-commerce	Increase in market share
	Moen Inc.	Online customer design	Increase in market share
	Consolidated Freightways	Customer online shipment tracking	Increase in market share
Innovation	Charles Schwab & Co.	Online discount stock trading	Market leadership
	Federal Express	Online package tracking and flight management	Market leadership
	Amazon.com	Online full-service customer systems	Market leadership
Growth	Citicorp	Global intranet	Increase in global market
	Wal-Mart	Merchandise ordering by global satellite network	Market leadership
	Toys 'R' Us Inc.	POS inventory tracking	Market leadership
Alliance	Wal-Mart/Procter & Gamble	Automatic inventory replenishment by supplier	Reduced inventory cost/increased sales
	Cisco Systems	Virtual manufacturing alliances	Agile market leadership
	Staples Inc. and Partners	Online one-stop shopping with partners	Increase in market share

**Other Competitive Strategies:** there are other competitive strategies in addition to the five basic strategies. They are locking in customers or suppliers, building switching costs, raising barriers to entry and leveraging investment in information technology.

- Locking in customers or suppliers by building valuable new relationships with them.
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#### **Advantage vs. Necessity**

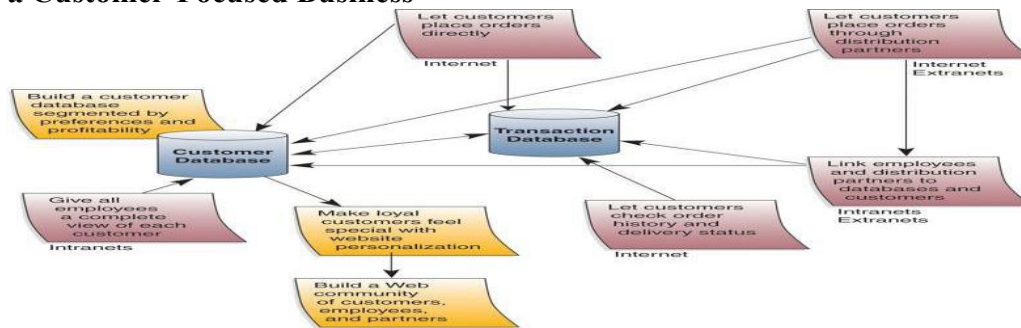
- Competitive Advantage – developing products, services, processes, or capabilities that give a company a superior business position relative to its competitors and other competitive forces
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This strategic focus on customer value recognizes that quality, rather than price, so companies need to keep track customer preferences, keep up their market trends, supply products and information anytime.

Internet technologies can make customers the focal point of customer relationship management and other e-business applications

**IS in a Customer-Focused Business**



This diagram illustrates the interrelationships in a customer focused business. Intranets, extranets, e-commerce websites, and web enabled internal business processes from the invisible IT platform that supports this e-business model.

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The value chain concept was developed by Michael porter. This framework can highlight where competitive strategies can best be applied in a business. Managers and business professionals should try to develop a variety of strategic uses of internet and other technologies for those basic processes that add the most value to a company’s products or services.

**Definition:**

View of a firm as a series, chain, or network of basic activities that add value to its products and services, and thus add a margin of value both to the firm and its customers.



This gives a view of value chain of a firm. Note the examples of the variety of strategic information systems that can be applied to a firm’s basic business process for competitive advantage.



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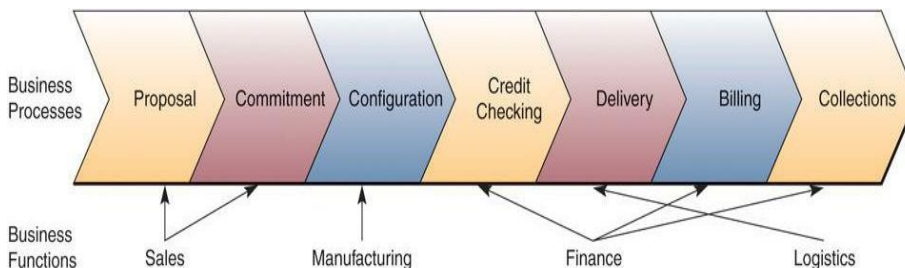
- Fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in cost, quality, speed, and service.

**BPR vs. Business Improvement**

	Business Improvement	Business Process Reengineering
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Participation	Bottom-up	Top-down
Path to Execution	Cultural	Cultural, structural
Primary Enabler	Statistical control	Information technology
Risk	Moderate	High

The above list shows some of the ways that BPR differs from business improvement. Cross-Functional Processes: Information technology plays a major role in BPR. The speed, information processing capabilities, and connectivity of computers and internet technologies can substantially increase the efficiency of business processes, as well as communications and collaboration among the people for their operation and management.

Example: the order management process.





**Agility**Definition:

- The ability of a company to prosper in rapidly changing, continually fragmenting global markets for high-quality, high performance, customer-configured products and services.

**Agile Company**Definition:

- A company that can make a profit in markets with broad product ranges and short model lifetimes, and can produce orders individually and in arbitrary lot sizes.

**Mass Customization****Definition:**

- Providing individualized products while maintaining high volumes of production

**Agile Competitor**

Type of Agility	Description	Role of IT	Example
<b>Customer</b>	Ability to co-opt customers in the exploitation of innovation opportunities <ul style="list-style-type: none"> <li>• as sources of innovation ideas</li> <li>• as cocreators of innovation</li> <li>• as users in testing ideas or helping other users learn about the idea</li> </ul>	Technologies for building and enhancing virtual customer communities for product design, feedback, and testing	eBay customers are its de facto product development team because they post an average of 10,000 messages each week to share tips, point out glitches, and lobby for changes.
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<b>Operational</b>	Ability to accomplish speed, accuracy, and cost economy in the exploitation of innovation opportunities	Technologies for modularization and integration of business processes	Ingram Micro, a global wholesaler, has deployed an integrated trading system allowing its customers and suppliers to connect directly to its procurement and ERP systems.

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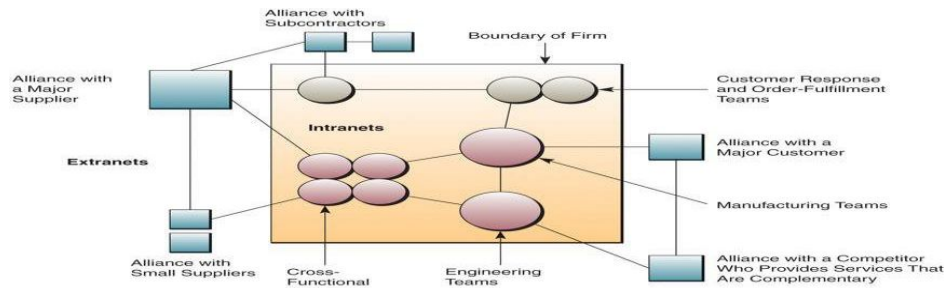
Definition:

- An organization that uses information technology to link people, organizations, assets, and ideas.

**Inter enterprise Information Systems**Definition:

- Information systems implemented on an extranet among a company and its suppliers, customers, subcontractors, and competitors with whom it has formed alliances.

**Virtual Company:** It illustrates that virtual companies typically form virtual workgroups and alliances with business partners that are interlinked by the internet, intranets, and extranets. This company has organized internally into clusters of process and cross functional teams linked by intranets. It also developed alliances and extranet links that form inter enterprise information systems with suppliers, customers, subcontractors, and competitors.



### Virtual Company Strategies

- Share infrastructure and risk with alliance partners.
- Link complementary core competencies.
- Reduce concept-to-cash time through sharing.
- Increase facilities and market coverage.
- Gain access to new markets and share market or customer loyalty.
- Migrate from selling products to selling solutions.

### Knowledge-Creating Companies

Definition:

- Consistently creating new business knowledge, disseminating it widely throughout the company, and quickly building the new knowledge into their products and services.

Types of Knowledge

- Explicit Knowledge – data, documents, things written down or stored on computers
- Tacit Knowledge – the —how-tos of knowledge, which reside in workers

Knowledge Management

Definition:

- Techniques, technologies, systems, and rewards for getting employees to share what they know and to make better use of accumulated workplace and enterprise knowledge.

Knowledge Management Systems – manage organizational learning and business know

### Levels of Knowledge Management



- Information technologies can support many competitive strategies including cost leadership, differentiation, innovation, growth and alliance.
- IT can help
  - Build customer-focused businesses
  - Reengineer business processes
  - Businesses become agile companies
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  - Build knowledge-creating companies



## Competing with Information Technology

To know the role of information systems applications in business to provide effective support of companies strategies for gaining competitive advantage. This strategic role of information systems involve using information technology to develop products, services, and capabilities that give a company major advantages over the competitive forces it faces in the global marketplace.

### Need of Strategic IT

- Technology is no longer an afterthought in forming business strategy, but the actual cause and driver.
- IT can change the way businesses compete.

### Strategic View of Information Systems

Strategic information system can be any kind of information system, that uses information technology to help an organization gain a competitive advantage, reduce a competitive disadvantage, or meet other strategic enterprise objectives.

- Information systems are vital competitive networks.
- Information systems are a means of organizational renewal.
- IS are a necessary investment in technologies that help a company adopt strategies and business processes that enable it to reengineer or reinvent itself in order to survive and succeed in today's dynamic business environment

### Information Technology: definition

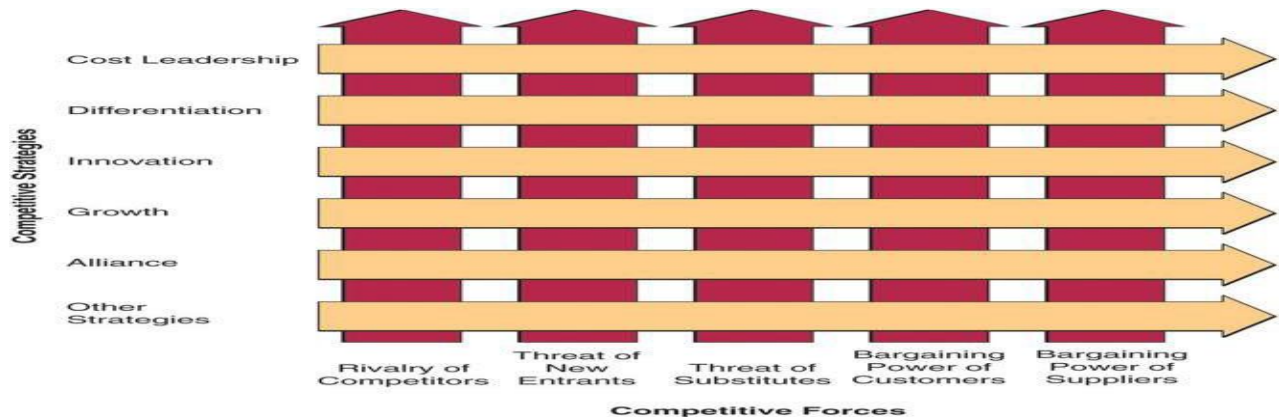
- An information technology can be defined as. A bunch of networks and computers or It is a group of Hardware plus the software that mediates and manages human knowledge or information..

### Strategic Information Systems

#### Definition:

- Any kind of information system that uses information technology to help an organization gain a competitive advantage, reduce a competitive disadvantage, or meet other strategic enterprise objectives.

**Competitive Forces Strategies:** This important conceptual frame work for understanding and applying competitive strategies.



**Competitive Forces:** A company can survive and succeed in the long run only if it successfully develops strategies to confront five competitive forces.

Definition:

- These forces Shape the structure of competition in its industry.

**Porter's Competitive Forces Model**

To survive and succeed, a business must develop and implement strategies to effectively counter the:

- Rivalry of competitors within its industry
- Threat of new entrants into an industry and its markets
- Threat posed by substitute products which might capture market share
- Bargaining power of customers
- Bargaining power of suppliers

**Competitive Strategies:** There are five different strategies to gain competitive advantages in business.

- 1)Cost Leadership
- 2)Differentiation
- 3)Innovation
- 4)Growth
- 5)Alliance

**1)Cost Leadership Strategy**

- Becoming a low-cost producer of products and services in the industry, or finding ways to help its suppliers or customers reduce their costs or to increase the costs of their competitors.

**2) Differentiation Strategy**

- Developing ways to differentiate a firm's products and services from its competitors'
- Reduce the differentiation advantages of competitors

**3)Innovation Strategy**

- Development of unique products and services
- Entry into unique markets or market niches
- Making radical changes to the business processes for producing or distributing products and services that are so different from the way a business has been conducted that they alter the fundamental structure of an industry

**4)Growth Strategy**

- Significantly expanding a company's capacity to produce goods and services

- Expanding into global markets
- Diversifying into new products and services
- Integrating into related products and services

### 5) Alliance Strategy

- Establishing new business linkages and alliances with customers, suppliers, competitors, consultants, and other companies

**Competitive Strategy Examples:** this example shows how companies have used information technology to implement five competitive strategies for strategic advantage.

Strategy	Company	Strategic Use of Information Technology	Business Benefit
Cost Leadership	Dell Computer Priceline.com eBay.com	Online build to order Online seller bidding Online auctions	Lowest cost producer Buyer-set pricing Auction-set prices
Differentiation	AVNET Marshall Moen Inc. Consolidated Freightways	Customer/supplier e-commerce Online customer design Customer online shipment tracking	Increase in market share Increase in market share Increase in market share
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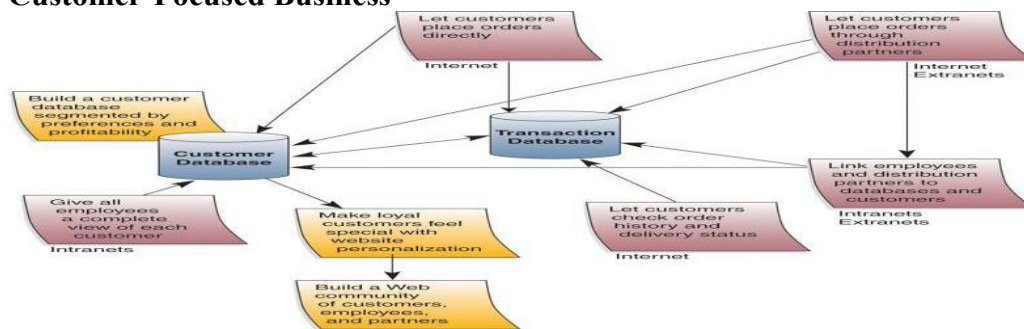
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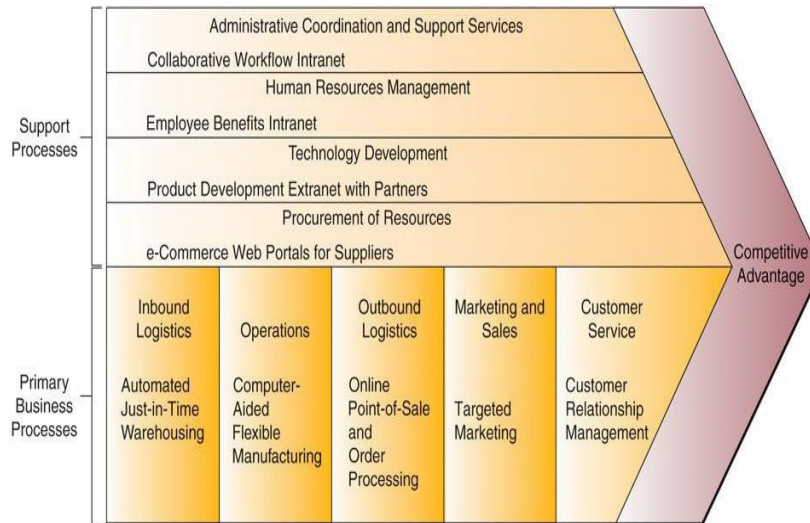
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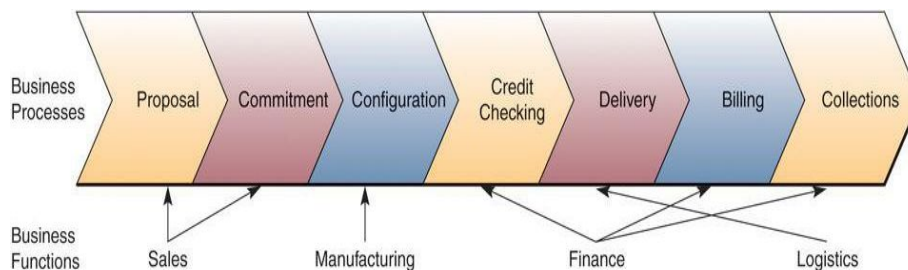
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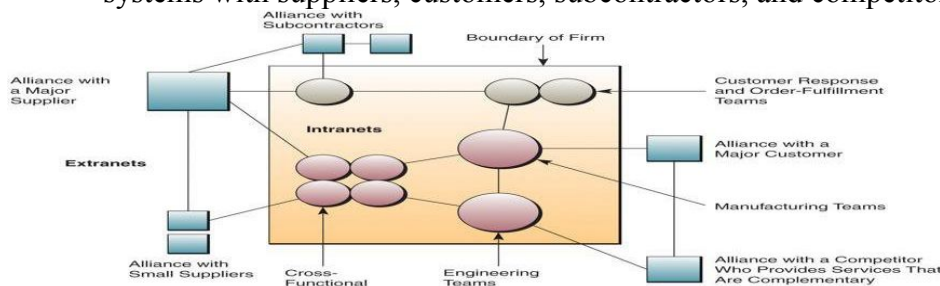
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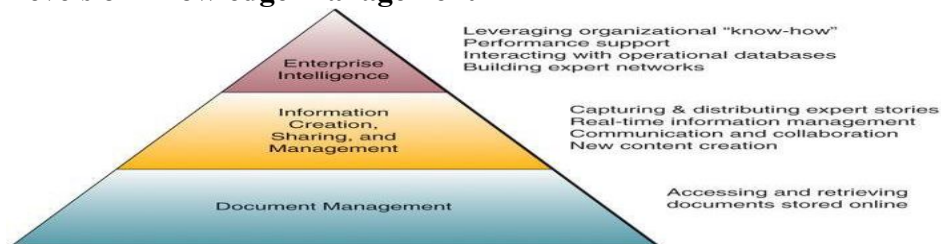
#### Knowledge Management

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**Questions**

- 1 a How customer focused business builds a customer value and loyalty using internet technology (10 Marks)(2009 jun/jul)
- 1 b What is the role IT in reengineering most business processes? explain with an example(04 Marks)(2009 jun/jul)
- 1 c What is knowledge management system? How it is view?(06 Marks)(2009 jun/jul)
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- 3 b List the three business activities of Supply Chain Management as proposed by Advanced Manufacturing Council. (02 Marks)(2011 may/jun)
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**UNIT 3  
ELECTRONIC COMMERSE SYSTEM**

**What is E-Business**

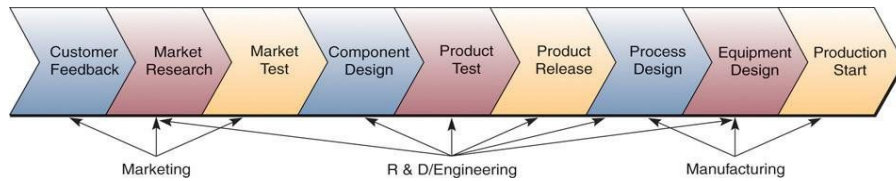
The use of the Internet and other networks and information technologies to support electronic commerce, enterprise communications and collaboration, and Web-enabled business processes, both within a networked enterprise and with its customers and business partners.

**Cross-Functional Enterprise Systems**

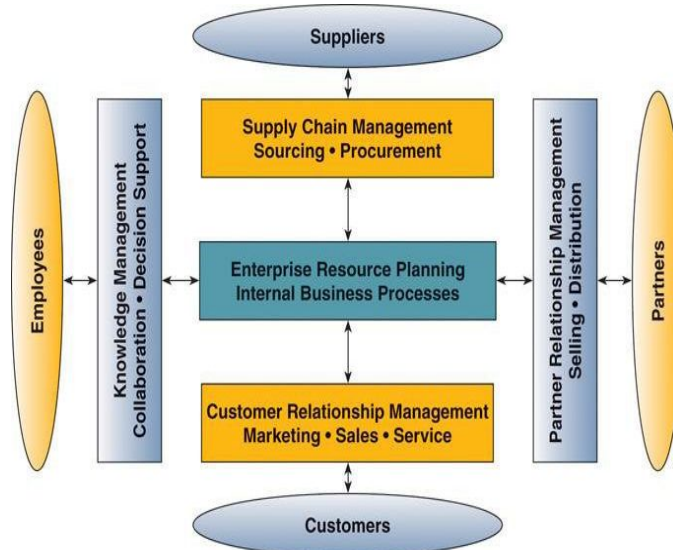
Definition:

Information systems that cross the boundaries of traditional business functions in order to reengineer and improve vital business processes all across the enterprise

Cross-Functional Information Systems



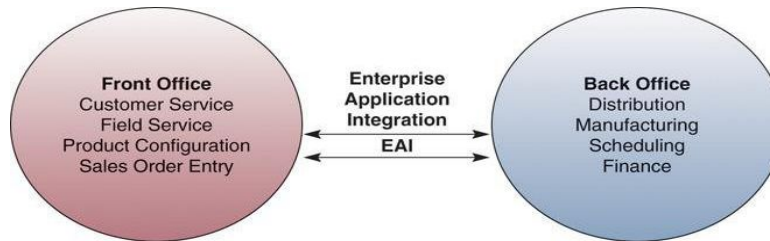
**Enterprise Application Architecture**



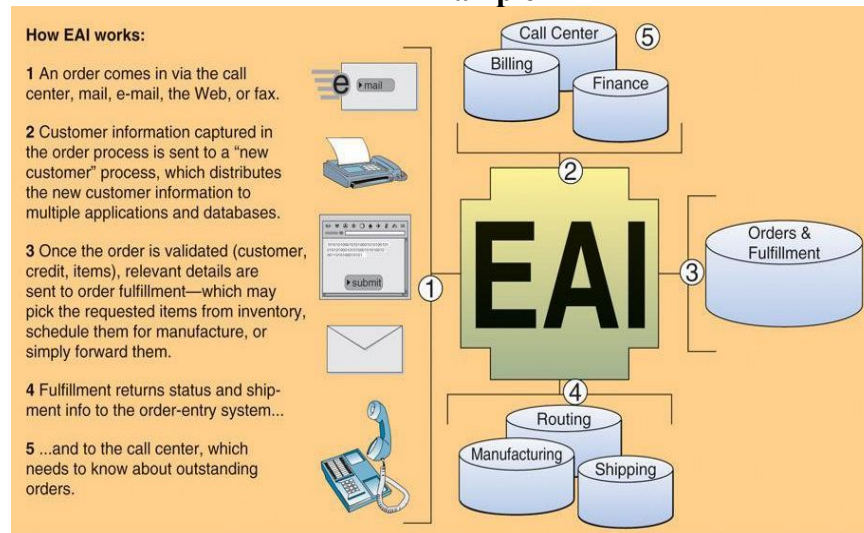
## Enterprise Application Integration (EAI)

### Definition:

- Software that integrates a variety of enterprise application clusters by letting them exchange data according to rules derived from the business process models developed by users



### EAI Example



## Transaction Processing Cycle

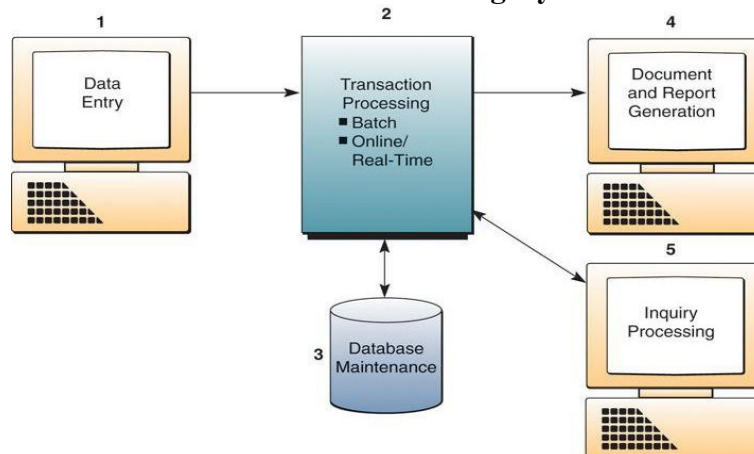
### Definition:

- Cross-functional information systems that process data resulting from the occurrence of business transactions
- Transactions – events that occur as part of doing business
- Online Transaction Processing Systems (OLTP) – real-time systems that capture and process transactions immediately

## Transaction Processing Cycle

- **Data Entry** – capture of business data for example transaction data may be collected by point of sale terminals using optical scanning bar codes and credit card readers at a retail stores. the proper recording and editing of data so they quickly and correctly captured for processing is one of the major design challenges of IT.
- **Transaction Processing**  
Transaction processing systems process data in two basic ways
  - Batch – transaction data are accumulated over a period of time and processed periodically
  - Real-Time – data are processed immediately after a transaction occurs. all online transaction processing systems incorporate real-time processing capabilities. Many online systems also depend on the capabilities of fault tolerant computer systems that can continue to operate even if parts of the system fail.
- **Database Maintenance** – updating corporate databases of an organization to reflect changes resulting from day-to-day business transactions for example credit sales made to customers will cause customers account balances to be increased and amount of inventory on hand to be decreased. Document and Report Generation – including transaction documents, transaction listings and error reports example purchase order, paychecks etc
- **Inquiry Processing** – making inquiries and receiving responses concerning the results of transaction processing activities for example you might check on the status of a sales order, balance in an account, or the amount of stock in inventory and receive immediate responses at your pc.

### Transaction Processing Cycle

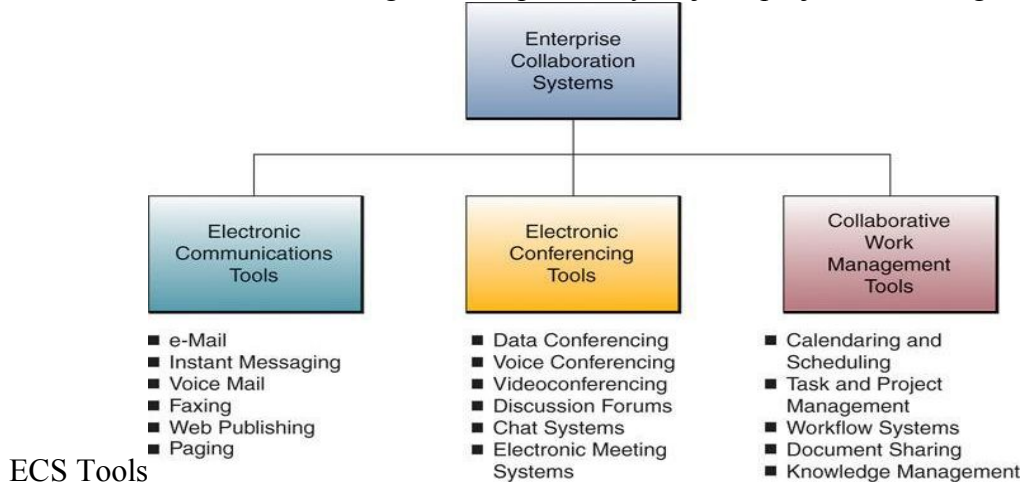


### Enterprise collaboration system

Cross-functional information systems that enhance communication, coordination, and collaboration among the members of business teams and workgroups. Internet technologies tools to help us to collaborate to communicate ideas, share resources and coordinate our cooperative work efforts as members of the many formal informal process and projects teams and workgroups that make up many of today's organizations.

- Communicate – share information

- Coordinate – coordinate individual work efforts and share resources
- Collaborate – work together cooperatively on joint projects and assignments



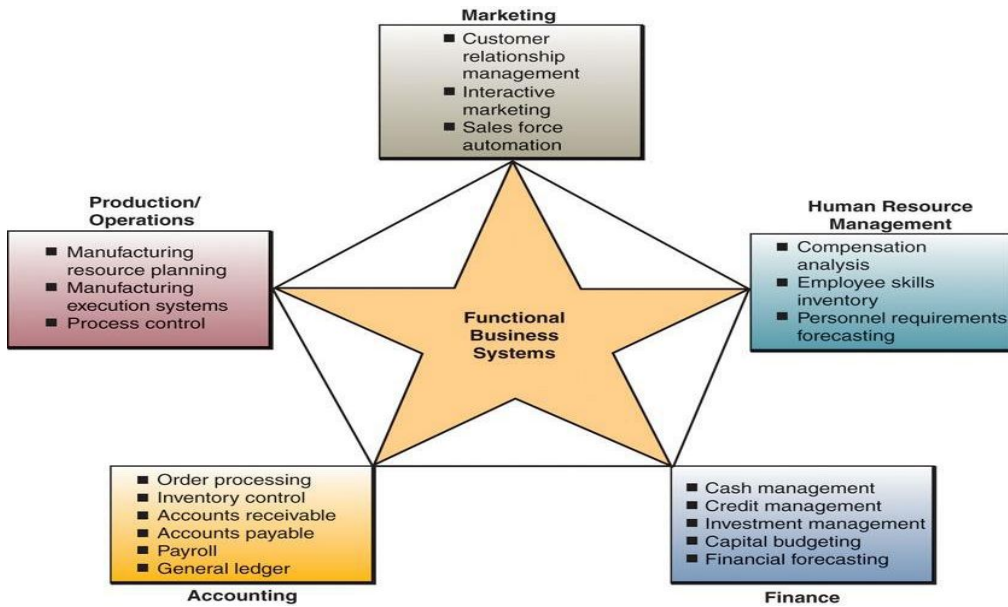
**Electronic communication tools** include electronic mail, voice mail, faxing web publication bulletin boards systems, paging, and internet phone systems. These tools enable us to electronically send messages, documents and files in data, text, voice or multimedia over computer networks. These help you to share everything from voice and text messages to copies of project documents and data files with team members.

**Electronic conferencing tools** help people communicate and collaborate while working together. A variety of conferencing methods enables the members of teams and workgroups at different locations to interact ideas interactively at the same time, or at different times at their convenience. Electronic conferencing tools include electronic meeting systems and group support systems where team members can meet at the same time and place in a decision room setting.

**Collaborative work management tools** help people accomplish or manage group work activities. This category of software includes calendaring and scheduling tools, task and project management, workflow systems and knowledge management tools.

### Functional Business IS

Functional business systems that is a variety of types of information systems (transaction processing, management information, decision support etc) that support the business functions of accounting, finance, marketing operations management and human resource management.



**Marketing Systems**

The business function of marketing is concerned with the planning, promotion and sale of existing products markets, and the development of new products and new markets to better attract and serve present and potential customers



**Interactive Marketing**

Definition:

- Customer-focused marketing process that is based on using the Internet, intranets, and extranets to establish two-way transactions between a business and its customers or potential customers

Goal:

- Use networks to attract and keep customers who will become partners with the business in creating, purchasing, and improving products and services.



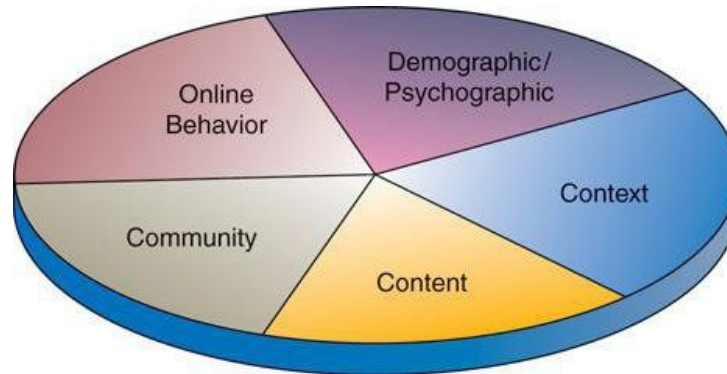
In interactive marketing, customers are just participants who receive media advertising prior to purchase but are actually engaged in network enabled proactive and interactive process. Interactive marketing encourages customers to become involved in product development, delivery and service issues.

### Targeted Marketing

#### Definition:

Tool for developing advertising and promotion strategies to strengthen a company's e-commerce initiatives, as well as its traditional business venues

#### Targeted Marketing Components



- **Community** – customize advertising to appeal to people of specific virtual communities
- **Content** – advertising placed on a variety of selected websites, in addition to a company's website. An ad for a product campaign on the opening page of an internet search engine is a typical example.
- **Context** – advertising placed on web pages that are relevant to the content of a product or service. so advertising is target only at people who are already looking for information about a subject matter that is related to company's product
- **Demographic/Psychographic** – web marketing efforts aimed at specific types or classes or people
- **Online Behavior** – promotion efforts tailored to each visit to a site by an individual. This strategies is based on a tracking techniques such as web —cookie□ files recorded on the visitors disk drive from previous visits.

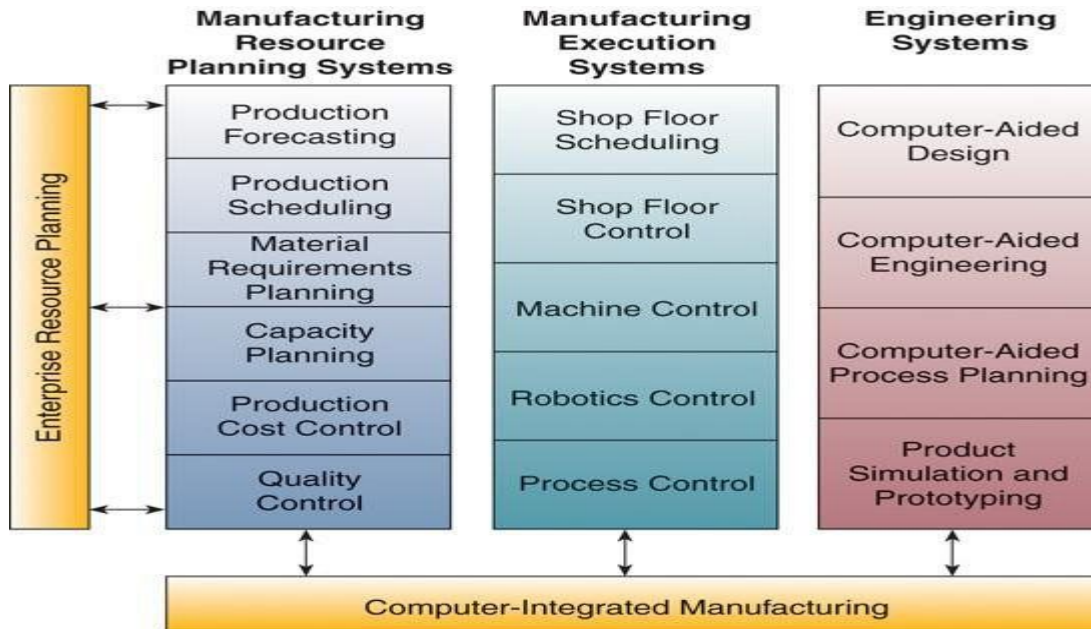
**Sales Force Automation** Information systems that improve the delivery of information and support to salespeople with the goal of improving sales productivity and marketing responsiveness

### Manufacturing Systems

#### Definition:

- Information systems that support the production/operations function that includes all activities concerned with the planning and control of the processes producing goods and services.
- The production/operation s function is concerned with the management of the operational processes and systems of all business firms.

## Manufacturing Systems



### Computer-Integrated Manufacturing (CIM)

#### Objectives:

- **Simplify** production processes, product designs, and factory organization as a vital foundation to automation and integration
- **Automate** production processes and the business functions that support them with computers, machines, and robots
- **Integrate** all production and support processes using computer networks, cross-functional business software, and other information technologies

The overall goal of CIM and such manufacturing information systems is to create flexible, agile and manufacturing processes that effectively produce products of the highest quality. The CIM supports the concepts of flexible manufacturing systems, agile manufacturing, and total quality management. Implementing such manufacturing concepts enables a company to quickly respond to and fulfill customer requirements with high quality products and services.

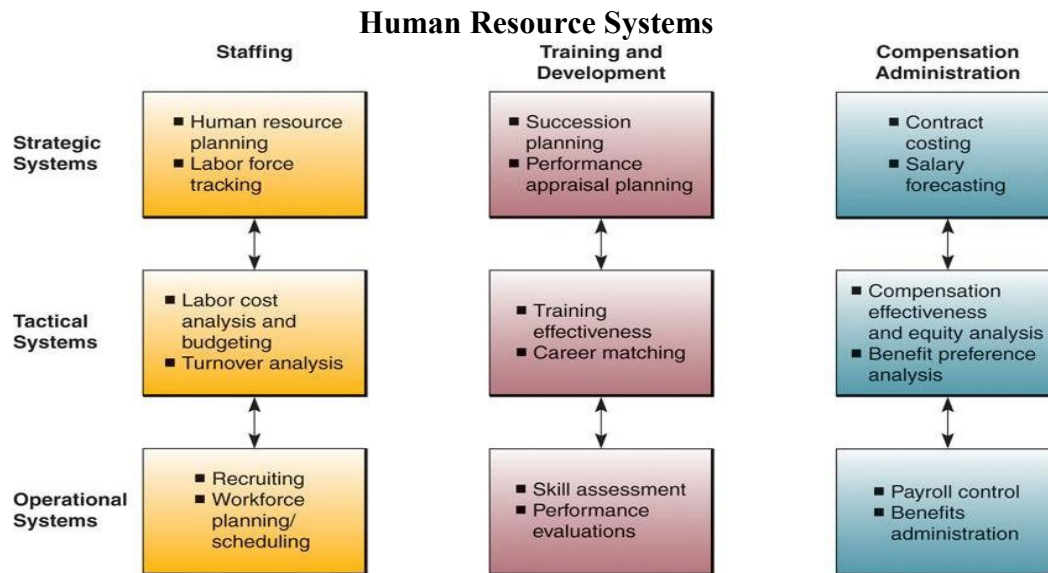
Computers are used to help engineers design better products using both **computer-aided engineering (CAE)**, and **computer-aided design (CAD)** systems and better production processes with **computer-aided process planning**.

They are also used to help plan the types of material needed in the production process, which is called **material requirements planning (MRP)**, and to integrate MRP with production scheduling and shop floor operations **manufacturing resource planning**

- **Computer-aided manufacturing (CAM)** - Information systems that automate the production process



- **Manufacturing execution systems (MES)** – performance monitoring information systems for factory floor operations. They monitor, track, and control the five essential components involved in production process: materials, equipment, personel, instructions and specification, and production facilities
- **Process Control** – use of computers to control ongoing physical processes. Process control computers control physical processes in petroleum refineries, cement plants. process control computer system requires the use of special sensing devices that measures physical phenomena such as temperature or pressure changes
- **Machine Control** – use of computers to controls the actions of machines. this is also called numerical control.



### HRM and the Internet

The human resource system function involves the recruitment, placement, evaluation, compensation and development of the employees of an organization.

The goal of HRM system is designed to support

Planning to meet the personal needs of a business

Development of employees to their full potential

Controls of all personal policies and programs computer based IS to produce paychecks and payroll reports, maintain personal records, analyze the use of personnel in business operations. Human resource information systems that also support 1) recruitment, selection, and hiring 2) job placement 3) performance appraisals 4) employee benefits analysis 5) training and development and 6) health safety and security

- Recruiting employees through recruiting services and databases on the World Wide Web
- Posting messages in selected Internet newsgroups
- Communicating with job applicants via e-mail

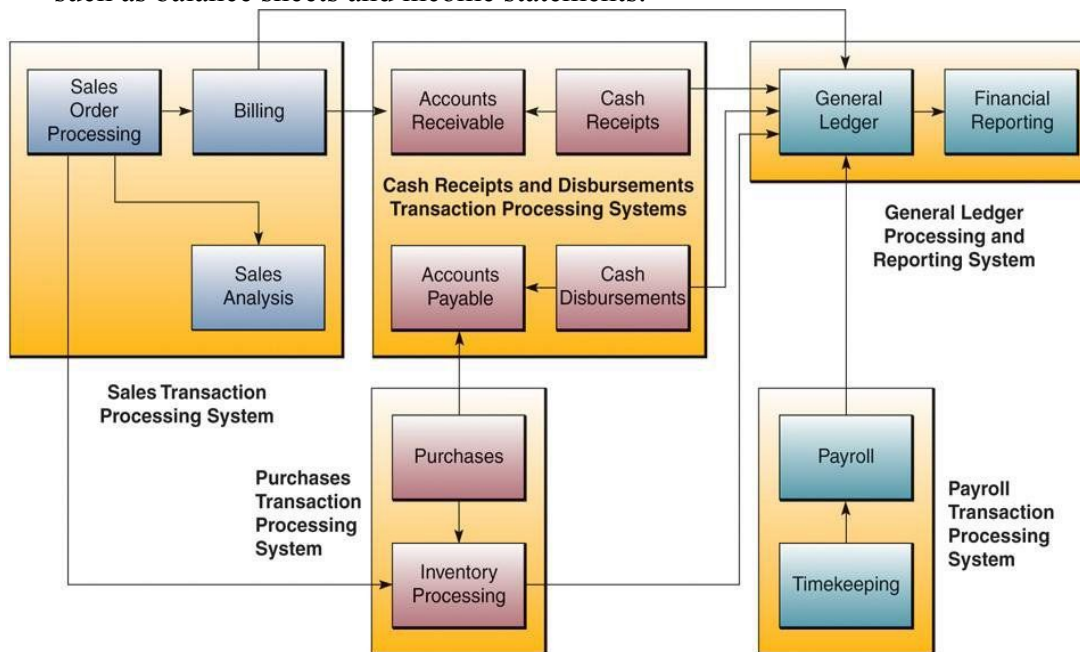
### HRM and Corporate Intranets

- Process common HRM applications
- Allow HRM department to provide around-the-clock services
- Disseminate valuable information faster than through previous company channels
- Collect information from employees online
- Allow managers and other employees to perform HRM tasks with little intervention by the HRM department

For example employee self service intranet applications allow employees to view benefits enter travel and expense reports, verify employment and salary information access and update their personal information and enter the data that has time constraints to it

### Accounting Information Systems

Accounting system they record report business transactions and other economic events. computer based accounting system record and report the flow of funds through an organization on a historical basis produced important financial statements such as balance sheets and income statements.



- Order Processing – Captures and processes customer orders and produces data for inventory control and accounts receivable
- Inventory Control – Processes data reflecting changes in inventory and provides shipping and reorder information
- Accounts Receivable – Records amounts owed by customers and produces customer invoices, monthly customer statements, and credit management reports
- Accounts Payable – Records purchases from, amounts owed to, and payments to suppliers, and produces cash management reports
- Payroll – Records employee work and compensation data and produces paychecks and other payroll documents and reports

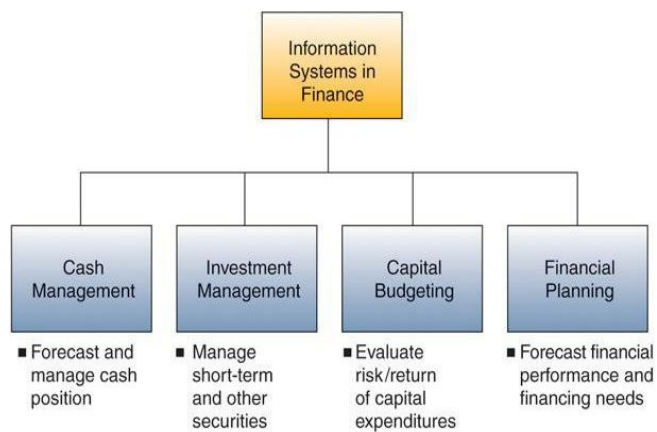
- General Ledger – Consolidates data from other accounting systems and produces the periodic financial statements and reports of the business

### Financial Management Systems

Financial management system support business managers and computer professionals in decisions concerning 1)the financing of a business and 2)the allocation and control of financial resources within a business. major financial management system categories include cash and investment management, capital budgeting, financial forecasting, and financial planning.

Capital Budgeting – evaluating the profitability and financial impact of proposed capital expenditures

Financial Planning – evaluating the present and projected financial performance of a business



- 1 a Define e-buisness.Explain with a neat sketch the transaction processing cycle in detail (10 Marks)(2009 jun/jul)
- 1 b Explain accounting information system with an example(06 Marks)(2009 jun/jul)
- 2 a With the help of neat figure, explain the enterprise application architecture illustrating the major cross functional enterprise application and their interrelationship (10 Marks)(2010 may/jun)
- 2 b Explain the case study of introduction of on Q on Q system at Hilton hotels corporation data driven hospitality (10 Marks) (2010 may/jun)
- 3a Explain with the basic applications of intranet. (20 Marks)(2011 may/jun)
- 4 a With a neat diagram explain the different Information System resources. (10 Marks)(2012 may/jun)
- 5 a Define e-buisness.Explain with a neat sketch the transaction processing cycle in detail (10 Marks) (2012 dec)
- 5 b Explain accounting information system with an example(06 Marks) (2012 dec)

## UNIT 4 ENTERPRISE BUSINESS SYSTEMS

### Customer Relationship Management?

- It is easier than ever for customers to comparison shop and, with a click of the mouse, to switch companies. As a result, customer relationships have become a company's most valued asset.

### Customer Relationship Management?

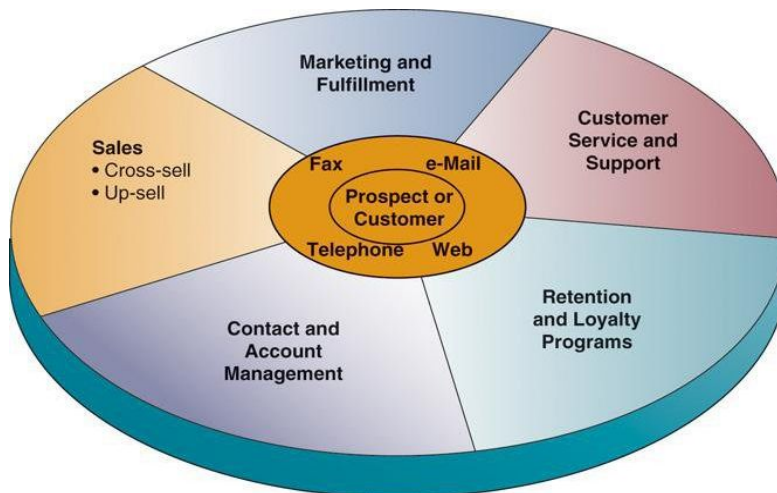
- It is easier than ever for customers to comparison shop and, with a click of the mouse, to switch companies. As a result, customer relationships have become a company's most valued asset.

### Customer Relationship Management (CRM)

#### Definition:

- The use of information technology to create a cross-functional enterprise system that integrates and automates many of the customer-serving processes in sales, marketing, and customer services that interact with a company's customers

### CRM Application Clusters



### CRM Application Components

- Contact and Account Management – helps sales, marketing, and service professionals capture and track relevant data about every past and planned contact with prospects and customers, as well as other business and life cycle events of customers
- Sales – provides sales reps with tools and company data sources needed to support and manage sales activities, and optimize cross-selling and up-selling

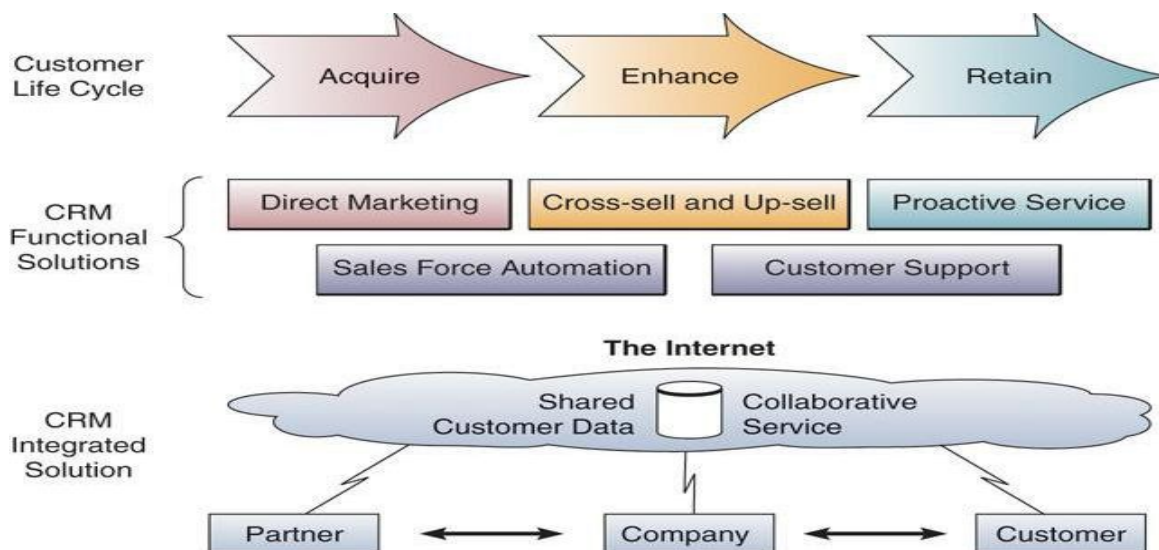
### CRM Application Components

- Marketing Fulfillment – help marketing professionals accomplish direct marketing campaigns by automating such tasks as qualifying leads for targeted marketing, and scheduling and tracking direct marketing mailings
- Customer Service and Support – provides service reps with software tools and real-time access to the common customer database shared by sales and marketing professionals

### CRM Application Components

- Retention and Loyalty Programs – help a company identify, reward, and market to their most loyal and profitable customers

### Three Phases of CRM



### Three Phases of CRM

- Acquire new customers by doing a superior job of contact management, sales prospecting, selling, direct marketing, and fulfillment
- Enhance relationship with customer by supporting superior service from a responsive networked team of sales and service specialists and business partners
- Retain and expand business with customers by proactively identifying and rewarding the most loyal and profitable customers

### Benefits of CRM

- CRM allows a business to identify and target their best customers so they can be retained as lifelong customers for greater and more profitable services.
- CRM makes possible real-time customization and personalization of products and services based on customer wants, needs, buying habits, and life cycles.



**Benefits of CRM**

- CRM can keep track of when a customer contacts the company, regardless of the contact point.
- CRM systems can enable a company to provide a consistent customer experience and superior service and support across all the contact points a customer chooses.

**CRM Failures**

- Lack of understanding and preparation
- Rely on CRM to solve business problem without first developing the business process changes and change management programs that are required
- CRM projects implemented without the participation of the business stakeholders involved

**Trends in CRM**

- Operational
- Analytical
- Collaborative
- Portal-based

**Operational CRM**

- Supports customer interaction with greater convenience through a variety of channels.
- Synchronizes customer interactions consistently across all channels
- Makes your company easier to do business with

**Analytical CRM**

- Extracts in-depth customer history, preferences, and profitability information from your data warehouse and other databases
- you to analyze, predict, and derive customer value and behavior and forecast demand
- Lets you approach your customers with relevant information and offers that are tailored to their needs

**Collaborative CRM**

- Enables easy collaboration with customers, suppliers, and partners
- Improves efficiency and integration throughout the supply chain
- Allows greater responsiveness to customer needs through sourcing of products and services outside of your enterprise

**Portal-based CRM**

- Provides all users with the tools and information that fit their individual roles and preferences
- Empowers all employees to respond to customer demands more quickly and become truly customer-focused

- Provides the capability to instantly access, link, and use all internal and external customer information

### **Partner Relationship Management (PRM)**

#### Definition:

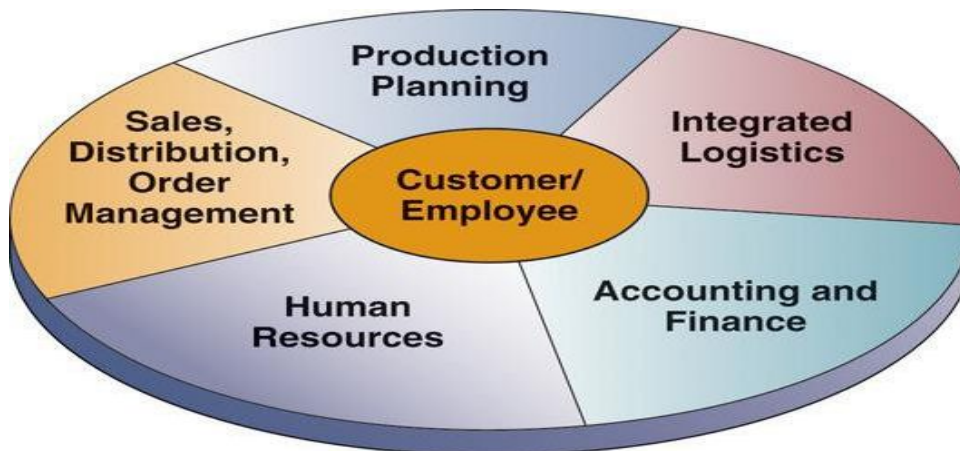
- Applications that apply many of the same tools used in CRM systems to enhance collaboration between a company and its business partners, such as distributors and dealers, to better coordinate and optimize sales and service to customers across all marketing channels

### **Enterprise Resource Planning (ERP)**

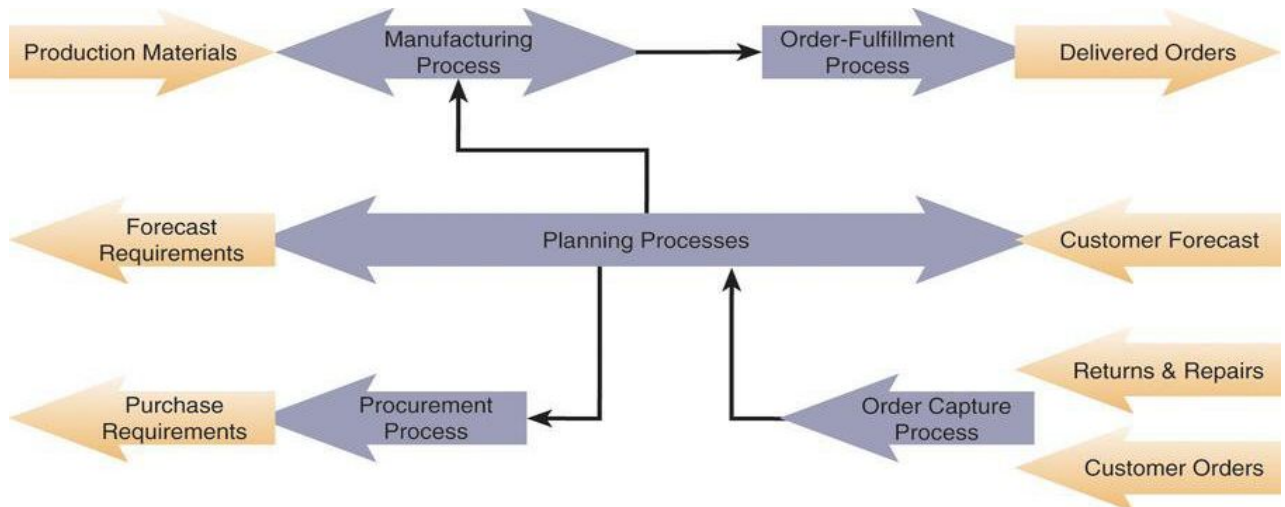
#### Definition:

- A cross-functional enterprise system driven by an integrated suite of software modules that supports the basic internal business processes of a company

### **ERP Application Components**



### **ERP Process & Information Flows**



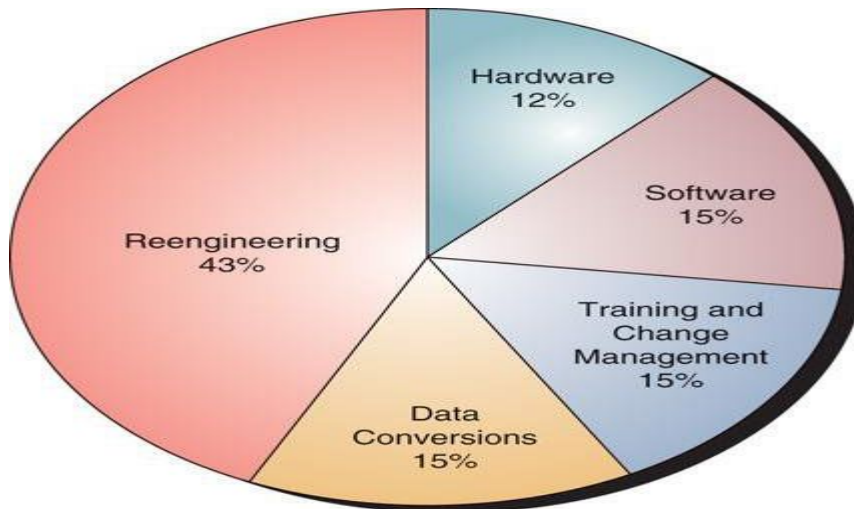
### ERP Benefits

- Quality and Efficiency – ERP creates a framework for integrating and improving a company’s internal business processes that results in significant improvements in the quality and efficiency of customer service, production, and distribution
- Decreased Costs – Significant reductions in transaction processing costs and hardware, software, and IT support staff

### ERP Benefits

- Decision Support – Provides vital cross-functional information on business performance quickly to managers to significantly improve their ability to make better decisions in a timely manner
- Enterprise Agility – ERP breaks down many former departmental and functional walls of business processes, information systems, and information resources

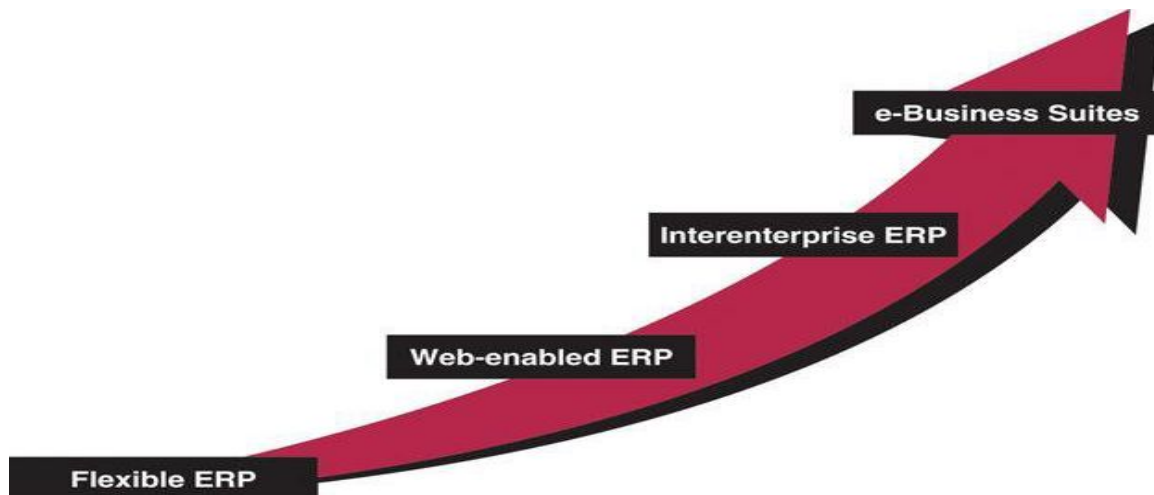
### Costs of ERP



### Causes of ERP Failures

- Business managers and IT professionals underestimate the complexity of the planning, development, and training needed
- Failure to involve affected employees in the planning and development phases
- Trying to do too much too fast in the conversion process
- Failure to do enough data conversion and testing

### Trends in ERP

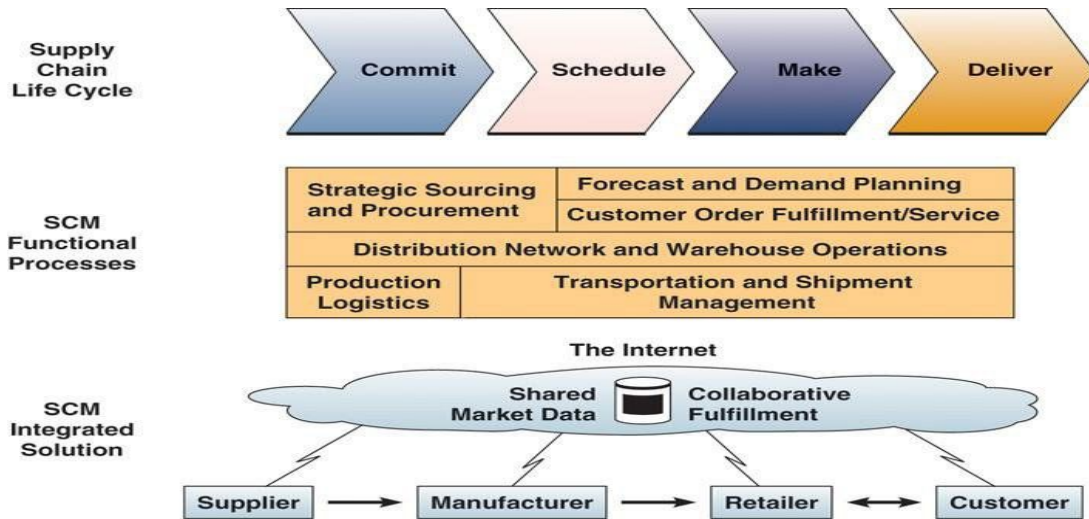


### Supply Chain Management (SCM)

Definition:

- A cross-functional interenterprise system that uses information technology to help support and manage the links between some of a company’s key business processes and those of its suppliers, customers, and business partners

**SCM Life Cycle**

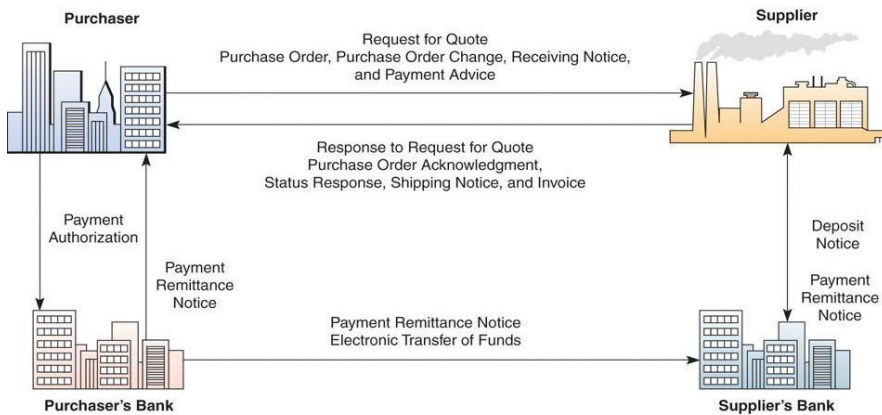


**Electronic Data Interchange (EDI)**

Definition:

- Involves the electronic exchange of business transaction documents over the Internet and other networks between supply chain trading partners

**EDI Activities**



**Role of SCM**

SCM Objectives		SCM Outcomes
<p><b>What?</b> Establish objectives, policies, and operating footprint</p>	Strategic	<ul style="list-style-type: none"> <li>• Objectives</li> <li>• Supply policies (service levels)</li> <li>• Network design</li> </ul>
<p><b>How much?</b> Deploy resources to match supply to demand</p>	Tactical	<ul style="list-style-type: none"> <li>• Demand forecast</li> <li>• Production, procurement, logistics plan</li> <li>• Inventory targets</li> </ul>
<p><b>When? Where?</b> Schedule, monitor, control, and adjust production</p>	Operational	<ul style="list-style-type: none"> <li>• Work center scheduling</li> <li>• Order/inventory tracking</li> </ul>
<p><b>Do</b> Build and transport</p>	Execution	<ul style="list-style-type: none"> <li>• Order cycle</li> <li>• Material movement</li> </ul>

### SCM Planning Functions

- Supply Chain Design – optimize network of suppliers, plants, and distribution centers
- Collaborative Demand and Supply Planning – develop an accurate forecast of customer demand by sharing demand and supply forecasts instantaneously across multiple tiers

### SCM Execution Functions

- Materials Management – share accurate inventory and procurement order information, ensure materials required for production are available in the right place at the right time, and reduce raw material spending, procurement costs, safety stocks, and raw material and finished goods inventory
- Collaborative Manufacturing – optimize plans and schedules while considering resource, material, and dependency constraints

### SCM Execution Functions

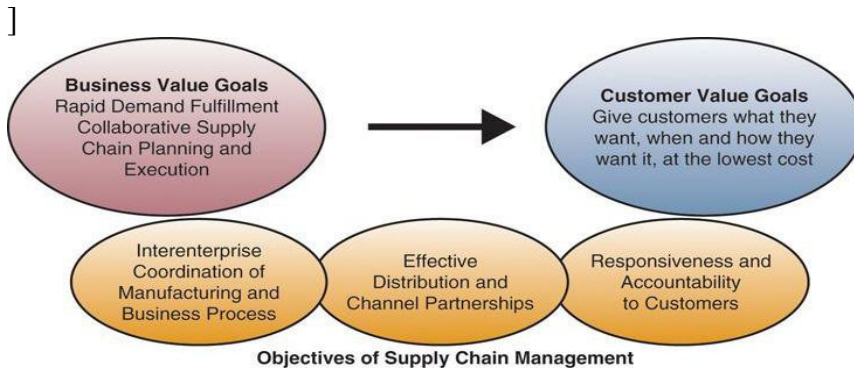
- Collaborative Fulfillment – commit to delivery dates in real time, fulfill orders from all channels on time with order management, transportation planning, and vehicle scheduling, and support the entire logistics process, including picking, packing, shipping, and delivery in foreign countries
- Supply Chain Event Management – monitor every stage of the supply chain process, from price quotation to the moment the customer receives the product, and receive alerts when problems arise



**SCM Execution Functions**

- Supply Chain Performance Management – report key measurements in the supply chain, such as filling rates, order cycle times, and capacity utilization

**SCM Objectives**



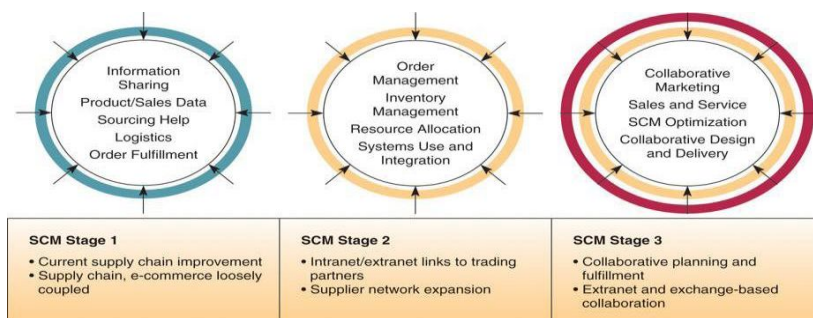
**SCM Benefits**

- Faster, more accurate order processing
- Reductions in inventory levels
- Quicker times to market
- Lower transaction and material costs
- Strategic relationship with suppliers

**Causes of SCM Failures**

- Lack of proper demand planning knowledge, tools and guidelines
- Inaccurate or overoptimistic demand forecasts
- Inaccurate production, inventory and other business data provided by a company’s other information systems
- Lack of adequate collaboration among marketing, production, and inventory management departments within a company
- Immature, incomplete or hard to implement SCM software tools

**Trends in SCM**



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**UNIT 4**  
**ENTERPRISE BUSINESS SYSTEMS**

- 1 a Define CRM.explain the major application clusters in CRM  
(12 Marks)(2009 jun/jul)
- 1 b Define ERP.Explain the major application components of ERP system in manufacturing company.  
(08 Marks)(2009 jun/jul)
- 2 a What is CRM?explain the three phases of CRM. (08 Marks)( (2010 may/jun)
- 2 b What is ERP? what are the benefits and challenges of ERP?  
(06 Marks)( (2010 may/jun)
- 2 c What is SCM what are the objectives of SCM (06 Marks) (2010 may/jun)
- 3a Explain any two electronic communication tools and any two electronic conferencing tools.  
(20 Marks)(2011 may/jun)
- 4 a Explain transaction processing system with an example.  
(06 Marks)(2012 may/jun)
- 4 b List few attributes of time and content dimension of information quality.  
(04 Marks)(2012 may/jun)
- 5 a Define CRM.explain the major application clusters in CRM  
(12 Marks) (2012 dec)
- 5 b Define ERP.Explain the major application components of ERP system in manufacturing company.  
(08 Marks) (2012 dec)

**PART - B**  
**UNIT-5**  
**ELECTRONIC COMMERCE SYSTEMS**

**Electronic Commerce Systems**

- Identify the major categories and trends of e-commerce applications.
  - Identify the essential processes of an e-commerce system, and give examples of how they are implemented in e-commerce applications.
  - Identify and give examples of several key factors and Web store requirements needed to succeed in e-commerce.
  - Identify and explain the business value of several types of e-commerce marketplaces.
  - Discuss the benefits and trade-offs of several e-commerce clicks and bricks alternatives.
- What is Electronic Commerce?

•Electronic commerce encompasses the entire online process of developing, marketing, selling, delivering, servicing, and paying for products and services transacted on internet worked, global marketplaces of customers, with the support of a worldwide network of business partners.

Case #1: Success in an Online Marketplace

**Evolution of eBay:**

- Consumer auction market for small segment of population to sell collectibles
- 30 million users listing 12 million items daily with own laws, feedback system, enforcement, payment processing unit

Case #1: Success in an Online Marketplace

**Reasons for Success:**

- Voice of the Customer program
- Customer take initiative to expand eBay economy
- Industrial products marketplace
- e-Bay motors
- Wholesale business

Case #1: Success in an Online Marketplace

•Why has eBay become such a successful and diverse online marketplace? Visit the eBay website to help you answer, and check out their many trading categories, specialty sites, international sites, and other features.

Case #1: Success in an Online Marketplace

•Why do you think eBay has become the largest online/off-line seller of used cars, and the largest online seller of certain other products, like computers and photographic equipment?

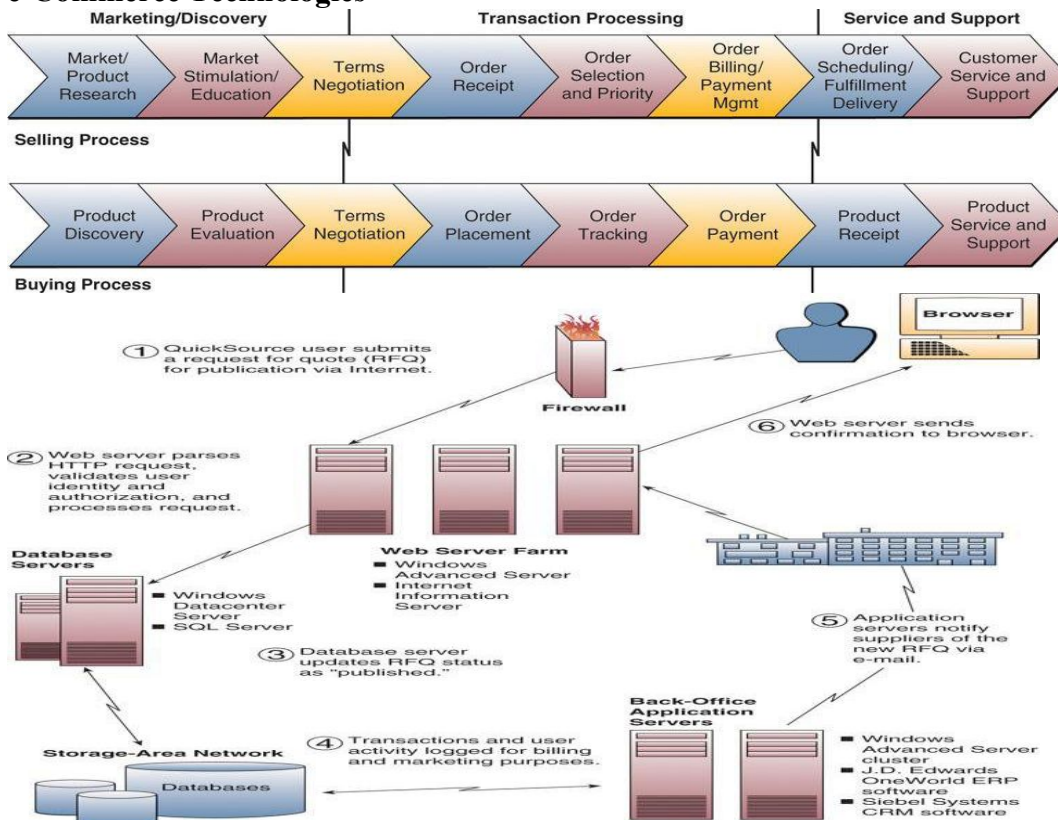
Case #1: Success in an Online Marketplace

•Is eBay's move from a pure consumer-to-consumer auction marketplace to inviting large and small businesses to sell to consumers and other businesses, sometimes at fixed prices, a good long-term strategy? Why or why not?

•What are the benefits and limitations of being an eBay Power Seller or Trading Assistant?

Scope of e-Commerce

**e-Commerce Technologies**



**Categories of e-Commerce**

- Business-to-Consumer (B2C) – businesses develop attractive electronic marketplaces to sell products and services to consumers
- Business-to-Business (B2B) – involves both electronic business marketplaces and direct market links between businesses
- Consumer-to-Consumer (C2C) – includes auction websites and electronic personal advertising

**Categories of e-Commerce**

**Essential e-Commerce Processes**

**Access Control and Security**

Definition:

- E-commerce processes must establish mutual trust and secure access between the parties in an e-commerce transaction by authenticating users, authorizing access, and enforcing security features

**Profiling and Personalizing**

Definition:

- Processes that gather data on you and your website behavior and choices, and build electronic profiles of your characteristics and preferences. These profiles are then used to recognize you as an individual user and provide you with a personalized view of the contents of the site, as well as product recommendations and personalized Web advertising

**Search Management**

Definition:

- Efficient and effective search processes provide a top e-commerce website capability that helps customers find the specific product or service they want to evaluate or buy  
Content and Catalog Management

- Content Management – software that helps e-commerce companies develop, generate, deliver, update, and archive text data and multimedia information at e-commerce websites

- Catalog Management – software that helps generate and manage catalog content

**Workflow Management**Definition:

- Software that helps employees electronically collaborate to accomplish structured work tasks within knowledge-based business processes

**Event Notification**Definition:

- Software that notifies customers, suppliers, employees, and other stakeholders of their status in a transaction based on events initiated by one of the parties

**Collaboration and Trading**Definition:

- Processes that support the vital collaboration arrangements and trading services needed by customers, suppliers, and other stakeholders

**Electronic Payment Processes**

- Web Payment – credit card payment processes

- Electronic Funds Transfer (EFT) – use IT to capture and process money and credit transfers between banks and businesses and their customers

- Secure Electronic Payments – security measures including encrypting data passing between customer and merchant, encrypting data passing between customer and company authorizing the credit card transaction, and taking sensitive information off-line

Case #2: Lean Manufacturing

- Lean manufacturing is a methodology that seeks to eliminate all waste from the manufacturing process.

- The goal is to create a production environment driven by demand that holds only a small amount of inventory and products at any given time

Case #2: Lean Manufacturing

**Modern Practices Employed:**

- Just-in-time processes ensure that goods arrive when needed for production

- Kaizen calls on everyone to look for ways to improve quality, cycle times, safety and other aspects of an operation

- Kanban establishes a pull instead of a push system of moving goods through the factory

Case #2: Lean Manufacturing

- What are the major business advantages of lean manufacturing? Provide some specific examples.

- Does a company's size have an effect on the advantage gained from lean manufacturing and integrations of the various procurement systems?

Case #2: Lean Manufacturing

•Should all manufacturing businesses begin a process of integration toward a lean-manufacturing posture? Explain.

•What are some of the business and IT challenges faced by companies striving for lean manufacturing by integrating their procurement, customer, and supplier systems? What types of solutions might you propose to overcome these challenges?

e-Commerce Trends

Business-to-Consumer e-Commerce

e-Commerce Success Factors

•Selection and Value – attractive product selections, competitive prices, satisfaction guarantees, and customer support after the sale

•Performance and Service – fast, easy navigation, shopping, and purchasing, and prompt shipping and delivery

**e-Commerce Success Factors**

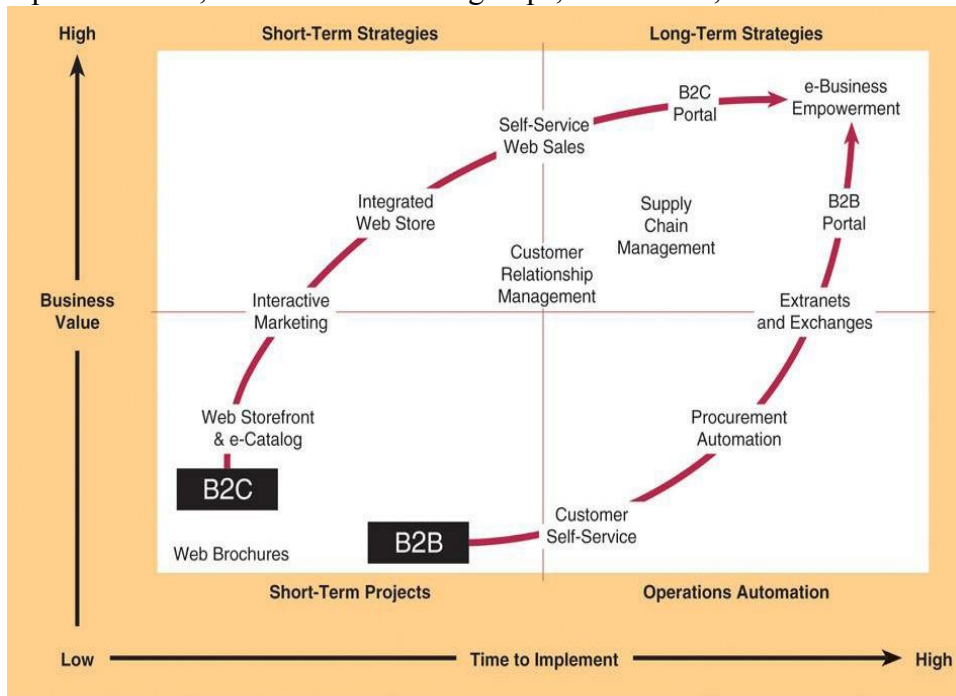
•Look and Feel – attractive web storefront, website shipping areas, multimedia product catalog pages, and shopping features

•Advertising and Incentives – targeted web page advertising and e-mail promotions, discounts and special offers, including advertising at affiliate sites

e-Commerce Success Factors

•Personal Attention – personal web pages, personalized product recommendations, Web advertising and e-mail notices, and interactive support for all customers

•Community Relationships – virtual communities of customers, suppliers, company representatives, and others via newsgroups, chat rooms, and links to related sites



**e-Commerce Success Factors**

**Web Store Requirements**



Developing a Web Store		
<ul style="list-style-type: none"> <li>• <b>Build</b> <ul style="list-style-type: none"> <li>Website design tools</li> <li>Site design templates</li> <li>Custom design services</li> <li>Website hosting</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Market</b> <ul style="list-style-type: none"> <li>Web page advertising</li> <li>E-mail promotions</li> <li>Web advertising exchanges with affiliate sites</li> <li>Search engine registrations</li> </ul> </li> </ul>	
Serving Your Customers		
<ul style="list-style-type: none"> <li>• <b>Serve</b> <ul style="list-style-type: none"> <li>Personalized Web pages</li> <li>Dynamic multimedia catalog</li> <li>Catalog search engine</li> <li>Integrated shopping cart</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Transact</b> <ul style="list-style-type: none"> <li>Flexible order process</li> <li>Credit card processing</li> <li>Shipping and tax calculations</li> <li>E-mail order notifications</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Support</b> <ul style="list-style-type: none"> <li>Website online help</li> <li>Customer service e-mail</li> <li>Discussion groups and chat rooms</li> <li>Links to related sites</li> </ul> </li> </ul>
Managing a Web Store		
<ul style="list-style-type: none"> <li>• <b>Manage</b> <ul style="list-style-type: none"> <li>Website usage statistics</li> <li>Sales and inventory reports</li> <li>Customer account management</li> <li>Links to accounting system</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Operate</b> <ul style="list-style-type: none"> <li>24x7 website hosting</li> <li>Online tech support</li> <li>Scalable network capacity</li> <li>Redundant servers and power</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Protect</b> <ul style="list-style-type: none"> <li>User password protection</li> <li>Encrypted order processing</li> <li>Encrypted website administration</li> <li>Network firewalls and security monitors</li> </ul> </li> </ul>

•Security and Reliability – security of customer information and website transactions, trustworthy product information, and reliable order fulfillment

#### Web Store Requirements

##### Developing a Web Store

- Build website using simple website design tools
- Market website to attract visitors and transform them into loyal Web customers

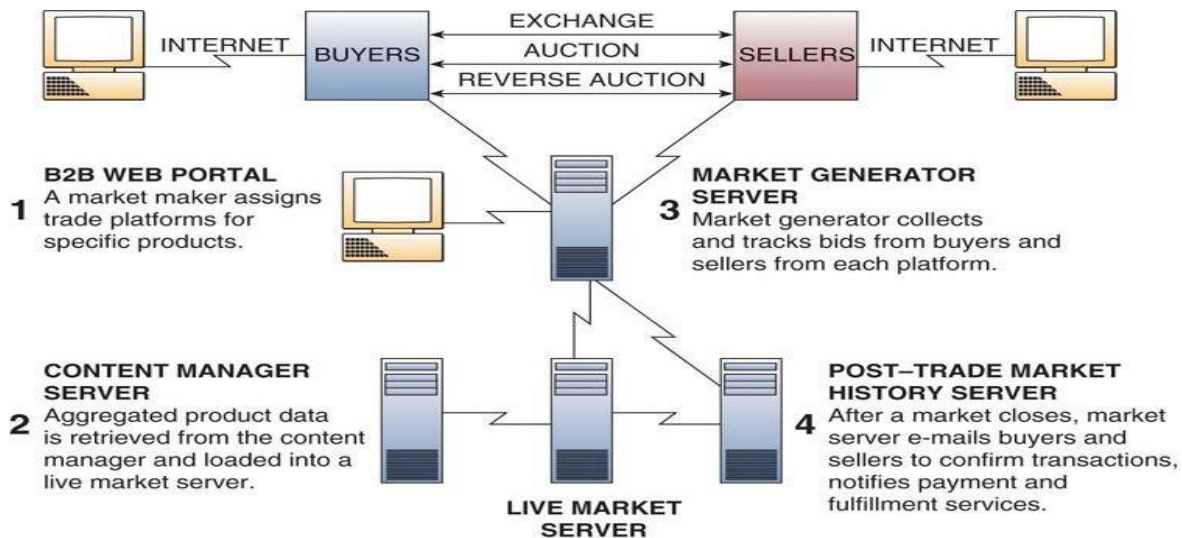
##### Serving Customers

- Serve customers by creating user profiles, customer files, personal Web pages and promotions that help develop a one-to-one relationship
- Transact with customers by providing dynamically changing catalog, fast catalog search engine, and convenient shopping cart system integrated with promotions, payment, shipping, and account information
- Support customers with help menus, tutorials, FAQs and e-mail correspondence with customer service representatives

##### Managing a Web Store

- Manage both the business and the website
- Operate twenty-four hours a day, seven days a week
- Protect Web store transactions and customer records, and repel hacker attacks and other security threats

#### Business-to-Business e-Commerce



- B2B e-commerce is the wholesale and supply side of the commercial process, where businesses buy, sell, or trade with other businesses.

- All factors for building a successful retail website also apply to wholesale websites for B2B e-commerce.

#### e-Commerce Marketplaces

- One to Many – sell-side marketplaces host one major supplier who dictates product catalog offerings and prices

- Many to One – buy-side marketplaces attract many suppliers that flock to these exchanges to bid on the business of a major buyer

- Some to Many – distribution marketplaces unite major suppliers who combine their product catalogs to attract a larger audience of buyers

#### e-Commerce Marketplaces

- Many to Some – procurement marketplaces unite major buyers who combine their purchasing catalogs to attract more suppliers and thus more competition and lower prices

- Many to Many – auction marketplaces used by many buyers and sellers that can create a variety of buyers' or sellers' auctions to dynamically optimize prices

#### e-Commerce Portals

##### Definition:

- Websites developed and hosted by third-party market-maker companies who serve as infomediaries that bring buyers and sellers together in catalog, exchange, and auction markets.

#### B2B e-Commerce Web Portal

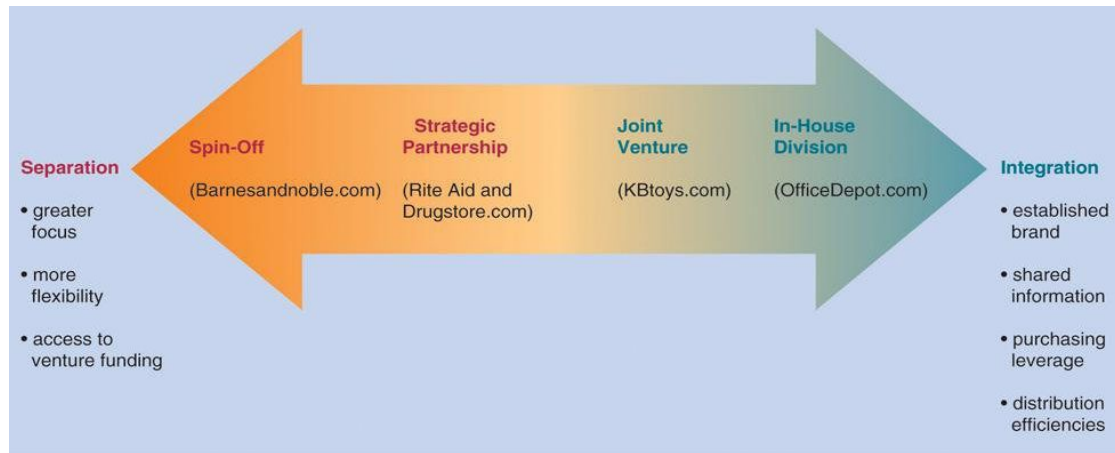
##### **Infomediaries**

##### Definition:

- Companies that serve as intermediaries in e-business and e-commerce transactions  
Provide e-commerce marketplace software products and services to power business Web portals for e-commerce transactions

#### Clicks and Bricks in e-Commerce

##### **Clicks and Bricks in e-Commerce**



### E-Commerce Channel

#### Definition:

•The marketing or sales channel created by a company to conduct and manage its chosen e-commerce activities

#### Checklist for Channel Development

- What audiences are we attempting to reach?
- What action do we want those audiences to take?
- Who owns the e-commerce channel within the organization?
- Is the e-commerce channel planned alongside other channels?

#### **Checklist for Channel Development**

- Do we have a process for generating, approving, releasing, and withdrawing content?
- Will our brands translate to the new channel or will they require modification?
- How will we market the channel itself?

Case #3: Clicks and Bricks e-Commerce

#### **Benefits of E-Trade's Diversification:**

- Allowed E-Trade to offer customers risk-free alternatives
- Online banking's overhead is low so E-Trade can offer higher savings yields and lower loan rates

Case #3: Clicks and Bricks e-Commerce

#### **Cross Selling on the Web:**

- The longer a customer has been online, the more of our products he is likely to have.
- Regular Web users are exposed to all products when they log on.
- Customers access new services through the same familiar interface

Case #3: Clicks and Bricks e-Commerce

- What lessons in business strategy can be applied to development of the e-commerce channels of other companies from the experience of E-Trade?
- What is the business value of the C.E.O. online wholesale banking portal to Wells Fargo?
- What can other companies learn from the successes and mistakes of the Wells Fargo e-commerce system?

Case #4: WWW not Business as Usual

- Microsoft is building community features for Microsoft.com including interactive Webcasts, newsgroups, and online chat forums that can better explain its software and even influence product design.

- Microsoft is also adding interactive features to help it tailor upcoming products based on input from influential customers.

Case #4: WWW not Business as Usual

- Dell has launched a redesign of its e-commerce site intended to make it easier for customers to navigate complex custom orders and for Dell to deliver fine-tuned promos anywhere on the site based on the products a customer bought or looked at in the past.

- Dell will attempt a worldwide consolidation of the back-end data center and applications that power Dell's site in 80-plus countries.

Case #4: WWW not Business as Usual

- What is the primary driver behind the Web upgrade activities of Microsoft and Dell?

- What is the business value of Microsoft's web-based, live feedback program?

- What lessons on developing successful e-commerce projects can be gained from the information in this case?

Summary

- Electronic commerce encompasses the entire online process of developing, marketing, selling, delivering, servicing, and paying for products and services.

- The basic categories of e-commerce include B2C, B2B and C2C.

Summary

- Many e-business enterprises are moving toward offering full service B2C and B2B e-commerce portals supported by integrated customer-focused processes and internetworked supply chains.

- Companies must evaluate a variety of e-commerce integration or separation alternatives and benefit trade-offs when choosing a clicks and bricks strategy and e-commerce channel.

Summary

- Businesses typically sell products and services to consumers at e-commerce websites that provide attractive Web pages, multimedia catalogs, interactive order processing, secure electronic payment systems, and online customer support.

Summary

- Business-to-business applications of e-commerce involve electronic catalog, exchange, and auction marketplaces that use Internet, intranet, and extranet websites and portals to unite buyers and sellers.

**Questions`**

- 1 a With a neat diagram explain the essential e-commerce process architecture in detail (06 Marks)(2009 jun/jul)
- 1 b What are the key factors for success in e-commerce in detail? (08 Marks)(2009 jun/jul)
- 2 a Explain the key factors for success in E-commerce (14 Marks)(2010 may/jun)
- 2 b Differentiate between B2C E-commerce and B2B E-commerce (06 Marks) (2010 may/jun)
- 3 a List any five electronic commerce technology services with an example for each (05 Marks)(2011 may/jun)
- 3 b List any five benefits and limitations of intranets (05 Marks)(2011 may/jun)
- 4 a Explain the various Management Support Systems. (20 Marks)(2012 may/jun)
- 5 a With a neat diagram explain the essential e-commerce process architecture in detail (06 Marks) (2012 dec)
- 5 b What are the key factors for success in e-commerce in detail? (08 Marks) (2012 dec)

## UNIT 6 Decision Support Systems

**Introduction:** we identify the following key roles in this unit.

- Identify the changes taking place in the form and use of decision support in business.
- Identify the role and reporting alternatives of management information systems.
- Describe how online analytical processing can meet key information needs of managers.

Learning Objectives

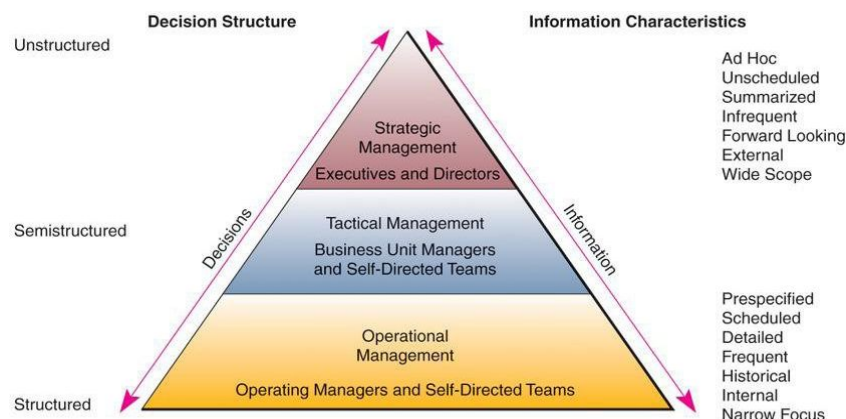
- Explain the decision support system concept and how it differs from traditional management information systems.
- Explain how the following information systems can support the information needs of executives, managers, and business professionals:
  - Executive information systems
  - Enterprise information portals
  - Knowledge management systems
- Identify how neural networks, fuzzy logic, genetic algorithms, virtual reality, and intelligent agents can be used in business.
- Give examples of several ways expert systems can be used in business decision-making situations.

### Decision Support Systems

- As companies migrate toward responsive e-business models, they are investing in new data-driven decision support application frameworks that help them respond rapidly to changing market conditions and customer needs.

### Information, Decisions and Management

This figure emphasizes that the type of information required by decision makers in a company is directly related to the level of management decision making and the amount of structure in the decision situations they face. levels of management decision making still exist, but their size, shape, and participants continue to change as todays fluid organizational structures evolve. but their size, shape, and participants continue to change as todays fluid organizational structures evolve.





**Levels of Management Decision Making**

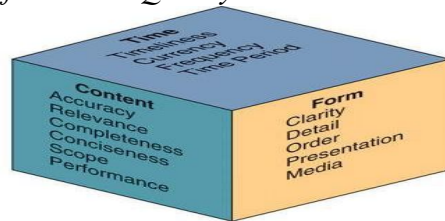
- Strategic – group of executives develop overall organizational goals, strategies, policies, and objectives as part of a strategic planning process
- Tactical – managers and business professionals in self-directed teams develop short- and medium-range plans, schedules and budgets and specify the policies, procedures and business objectives for their subunits
- Operational – managers or members of self-directed teams develop short-range plans such as weekly production schedules

**Information Quality**

Definition:

- Information products whose characteristics, attributes, or qualities make the information more value

*•Attributes of Information Quality*



<b>Time Dimension</b> Timeliness Currency Frequency Time Period	Information should be provided when it is needed. Information should be up-to-date when it is provided. Information should be provided as often as needed. Information can be provided about past, present, and future time periods.
<b>Content Dimension</b> Accuracy Relevance  Completeness Conciseness Scope  Performance	Information should be free from errors. Information should be related to the information needs of a specific recipient for a specific situation. All the information that is needed should be provided. Only the information that is needed should be provided. Information can have a broad or narrow scope, or an internal or external focus. Information can reveal performance by measuring activities accomplished, progress made, or resources accumulated.
<b>Form Dimension</b> Clarity  Detail Order Presentation  Media	Information should be provided in a form that is easy to understand. Information can be provided in detail or summary form. Information can be arranged in a predetermined sequence. Information can be presented in narrative, numeric, graphic, or other forms. Information can be provided in the form of printed paper documents, video displays, or other media.

**Decision Structure**

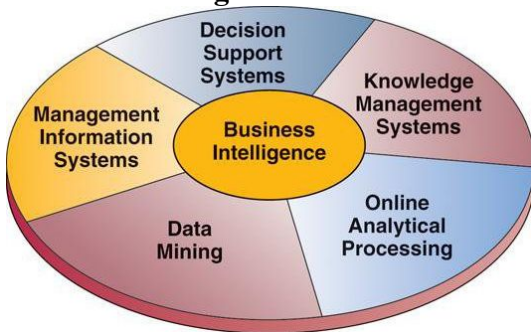
- Structured – situations where the procedures to follow when a decision is needed can be specified in advance
- Unstructured – decision situations where it is not possible to specify in advance most of the decision procedures to follow
- Semi structured - decision procedures that can be prespecified, but not enough to lead to a definite recommended decision

**Decision Support Trends**

- This emerging class of applications focuses on personalized decision support, modeling, information retrieval, data warehousing, what-if scenarios, and reporting.
- MIS vs. DSS

	Management Information Systems	Decision Support Systems
• Decision support provided	Provide information about the performance of the organization	Provide information and decision support techniques to analyze specific problems or opportunities
• Information form and frequency	Periodic, exception, demand, and push reports and responses	Interactive inquiries and responses
• Information format	Prespecified, fixed format	Ad hoc, flexible, and adaptable format
• Information processing methodology	Information produced by extraction and manipulation of business data	Information produced by analytical modeling of business data

**Business Intelligence**



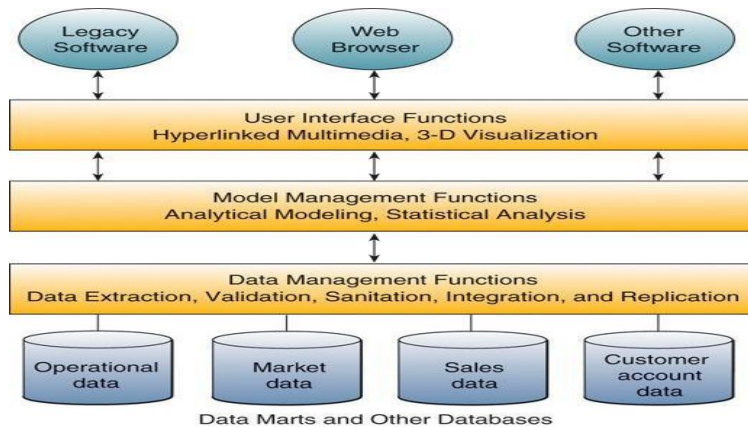
- Executive class information delivery and decision support software tools used by lower levels of management and by individuals and teams of business professionals

**Decision Support Systems (DSS)**

Definition:

- Computer-based information systems that provide interactive information support to managers and business professionals during the decision-making process using the following to make semi structured business decisions
- Analytical models
- Specialized databases
- A decision maker’s own insights and judgments
- An interactive, computer-based modeling process

**DSS Components**

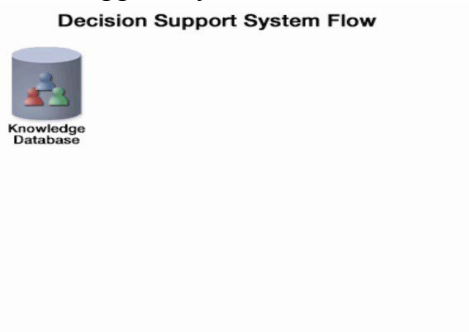


### Model Base

#### Definition:

- Software component that consists of models used in computational and analytical routines that mathematically express relationships among variables

#### Decision Support System



### Management Information Systems (MIS)

#### Definition:

- An information system that produces information products that support many of the day-to-day decision-making needs of managers and business professionals

#### Management Reporting Alternatives

- Periodic Scheduled Reports
- Exception Reports
- Demand Reports and Responses
- Push Reporting

### Online Analytical Processing (OLAP)

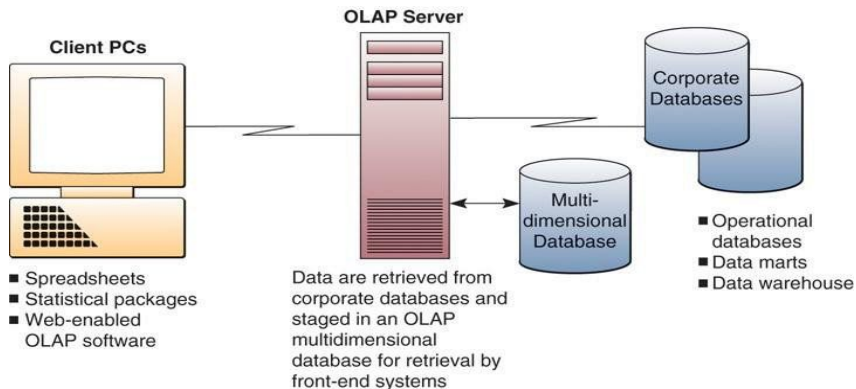
#### Definition:

- Enables managers and analysts to interactively examine and manipulate large amounts of detailed and consolidated data from many perspectives

#### Analytical Operations

- Consolidation – aggregation of data
- Drill-down – detail data that comprise consolidated data
- Slice and Dice – ability to look at the database from different viewpoints

## OLAP Technology



## Geographic Information Systems (GIS)

### Definition:

•DSS that uses geographic databases to construct and display maps and other graphics displays that support decisions affecting the geographic distribution of people and other resources

## Data Visualization Systems (DVS)

- DVS represent complex data using interactive three-dimensional graphical forms such as charts, graphs, and maps
- DVS tools help users to interactively sort, subdivide, combine, and organize data while it is in its graphical form.

## Using DSS

- What-if Analysis – end user makes changes to variables, or relationships among variables, and observes the resulting changes in the values of other variables
- Sensitivity Analysis – value of only one variable is changed repeatedly and the resulting changes in other variables are observed
- Goal-Seeking – set a target value for a variable and then repeatedly change other variables until the target value is achieved
- Optimization – goal is to find the optimum value for one or more target variables given certain constraints then one or more other variables are changed repeatedly until the best values for the target variables are discovered

## Data Mining for Decision Support

- Data mining software analyzes the vast stores of historical business data that have been prepared for analysis in corporate data warehouses, and tries to discover patterns, trends, and correlations hidden in the data that can help a company improve its business performance.
- Data mining software may perform regression, decision tree, neural network, cluster detection, or market basket analysis for a business.

## Market Basket Analysis (MBA)

### Definition:

•The purpose is to determine what products customers purchase together with other products

## Executive Information Systems (EIS)

### Definition:

•Information systems that provide top executives, managers, analysts, and other knowledge workers with immediate and easy access to information about a firm's key factors that are critical to accomplishing an organization's strategic objectives.

### **Features of an EIS**

Information presented in forms tailored to the preferences of the executives using the system

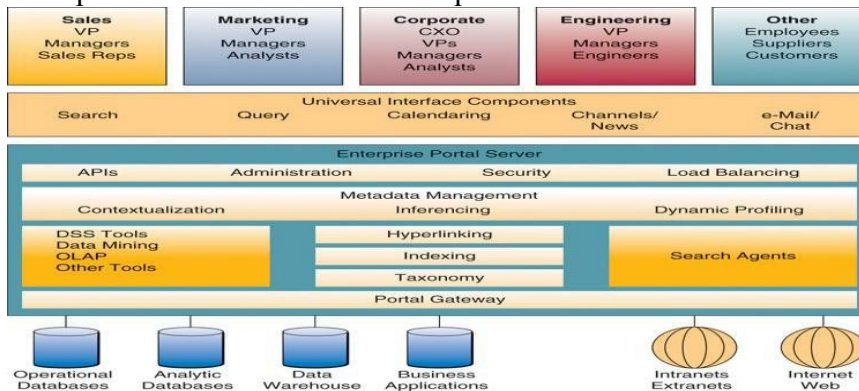
- Customizable graphics displays
- Exception reporting
- Trend analysis
- Drill down capability

## Enterprise Portals and Decision Support

### Definition:

A Web-based interface and integration of MIS, DSS, EIS, and other technologies that gives all intranet users and selected extranet users access to a variety of internal and external business applications and services

### Enterprise Information Portal Components



## Knowledge Management Systems

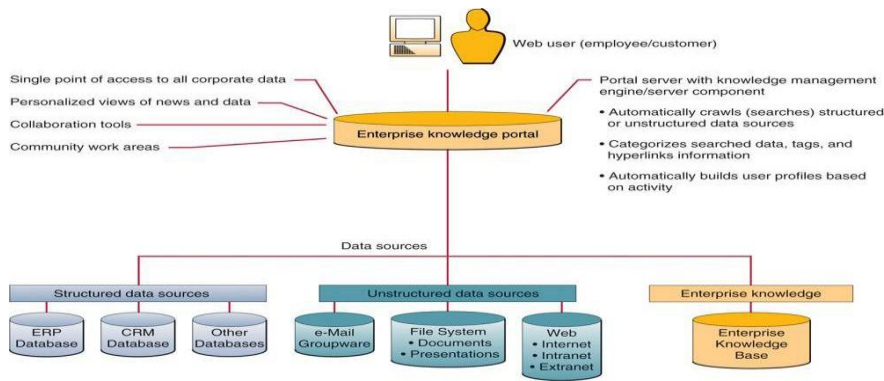
### Definition:

The use of information technology to help gather, organizes, and share business knowledge within an organization

### **Enterprise Knowledge Portals**

### Definition:

Entry to corporate intranets that serve as their knowledge management systems



## Business Value of AI

### Artificial Intelligence Uses:

- Design jet engines
- Monitor factory equipment and signal when preventative maintenance is needed
- Gain insights into human genome for pharmaceutical research
- Detect credit card fraud

### Case #2: Business Value of AI

#### AI Benefits:

- Data mining systems sift instantly through a deluge of data to uncover patterns and relationships that would elude an army of researchers
- Companies can predict sales and other customer behaviors

#### Challenges in AI Systems:

- Getting transaction data
- Dealing with disparate sources of data
- What is the business value of AI technologies in business today? Use several examples from the case to illustrate your answer.
- What are some of the benefits and limitations of data mining for business intelligence? Use Bank Financials experience to illustrate your answer.

## Artificial Intelligence (AI)

### Definition:

- A field of science and technology based on disciplines such as computer science, biology, psychology, linguistics, mathematics, and engineering
- Goal is to develop computers that can simulate the ability to think, as well as see, hear, walk, talk, and feel.

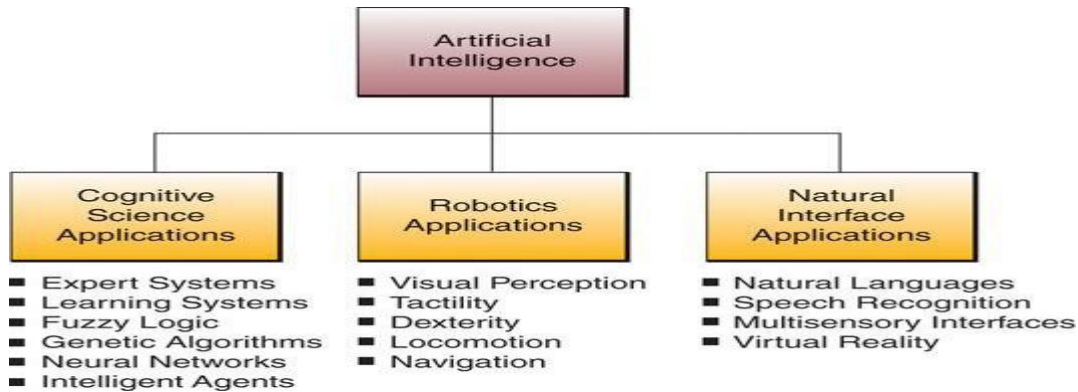
### *Attributes of Intelligent Behavior*

- Think and reason
- Use reason to solve problems
- Learn or understand from experience



- Acquire and apply knowledge
- Exhibit creativity and imagination
- Deal with complex or perplexing situations
- Respond quickly and successfully to new situations
- Recognize the relative importance of elements in a situation
- Handle ambiguous, incomplete, or erroneous information

### Domains of Artificial Intelligence



### Cognitive Science

#### Definition:

- Focuses on researching how the human brain works and how humans think and learn

### Robotics

#### Definition:

- Robot machines with computer intelligence and computer controlled, humanlike physical capabilities

### Natural Interfaces

#### Definition:

- Includes natural language, speech recognition, and the development of multi sensory devices that use a variety of body movements to operate computers

### Expert Systems

#### Definition:

- A knowledge-based information system that uses its knowledge about a specific, complex application to act as an expert consultant to end users

### Expert System Components

- Knowledge Base – facts about specific subject area and heuristics that express the reasoning procedures of an expert
- Software Resources – inference engine and other programs refining knowledge and communicating with users

### Methods of Knowledge Representation

- Case-Based – examples of past performance, occurrences and experiences
- Frame-Based – hierarchy or network of entities consisting of a complex package of data values
- Object-Based – data and the methods or processes that act on those data
- Rule-Based – rules and statements that typically take the form of a premise and a conclusion

### Expert System Benefits

- Faster and more consistent than an expert
- Can have the knowledge of several experts
- Does not get tired or distracted by overwork or stress
- Helps preserve and reproduce the knowledge of experts

### Expert System Limitations

- Limited focus
- Inability to learn
- Maintenance problems
- Developmental costs

### Suitability Criteria for Expert Systems

Suitability Criteria for Expert Systems
<ul style="list-style-type: none"><li>• <b>Domain:</b> The domain, or subject area, of the problem is relatively small and limited to a well-defined problem area.</li><li>• <b>Expertise:</b> Solutions to the problem require the efforts of an expert. That is, a body of knowledge, techniques, and intuition is needed that only a few people possess.</li><li>• <b>Complexity:</b> Solution of the problem is a complex task that requires logical inference processing, which would not be handled as well by conventional information processing.</li><li>• <b>Structure:</b> The solution process must be able to cope with ill-structured, uncertain, missing, and conflicting data, and a problem situation that changes with the passage of time.</li><li>• <b>Availability:</b> An expert exists who is articulate and cooperative, and who has the support of the management and end users involved in the development of the proposed system.</li></ul>

### Knowledge Engineer

#### Definition:

- A professional who works with experts to capture the knowledge they possess

### Neural Networks

#### Definition:

- Computing systems modeled after the brain's mesh-like network of interconnected processing elements, called neurons

**Fuzzy Logic**Definition:

•Method of reasoning that resembles human reasoning since it allows for approximate values and inferences and incomplete or ambiguous data instead of relying only on crisp data

**Genetic Algorithms**Definition:

•Software that uses Darwinian, randomizing, and other mathematical functions to simulate an evolutionary process that can yield increasingly better solutions to a problem

**Virtual Reality (VR)**Definition:

•Computer-simulated reality that relies on multisensory input/output devices such as a tracking headset with video goggles and stereo earphones, a data glove or jumpsuit with fiber-optic sensors that track your body movements, and a walker that monitors the movement of your feet.

**Intelligent Agents**Definition:

•A software surrogate for an end user or a process that fulfills a stated need or activity by using built-in and learned knowledge base to make decisions and accomplish tasks in a way that fulfills the intentions of a user

**User Interface Agents**

- Interface Tutors – observe user computer operations, correct user mistakes, and provide hints and advice on efficient software use
- Presentation – show information in a variety of forms and media based on user preferences
- Network Navigation – discover paths to information
- Role-Playing – play what-if games and other roles to help users understand information and make better decisions

**Information Management Agents**

- Search Agents – help users find files and databases, search for desired information, and suggest and find new types of information products, media, and resources
- Information Brokers – provide commercial services to discover and develop information resources that fit the business or personal needs of a user
- Information Filters – receive, find, filter, discard, save, forward, and notify users about products received or desired

**Note**

•Information systems can support a variety of management decision-making levels including strategic, tactical and operational as well as structured, semi structured and unstructured.

- Decision support in business is changing, driven by rapid developments in end user computing and networking.

Summary

- Management information systems provide prespecified reports and responses to managers on a periodic, exception, demand, or push reporting basis, to meet their need for information to support decision making.

- Online analytical processing interactively analyzes complex relationships among large amounts of data stored in multidimensional databases.

Summary

- Data mining analyzes the vast amounts of historical data that have been prepared for analysis in data warehouses.

- Decision support system are interactive, computer-based information systems that use DSS software and a model base and database to provide information tailored to support semi structured and unstructured decisions faced by individual managers.

- Executive information systems are easy to use and enable executives to retrieve information tailored to their needs and preferences.

- Enterprise information and knowledge portals provide a customized and personalized Web-based interface for corporate intranets to give their users easy access to a variety of internal and external business applications, databases, and information services that are tailored to their individual preferences and information needs.

- The goal of artificial intelligence is the development of computer functions normally associated with human physical and mental capabilities.

- Expert systems are knowledge-based information systems that use software and a knowledge base about a specific, complex application area to act as expert consultants to users in many business and technical applications.

**Questions**

- 1 a Define MIS.Explain the four major reporting alternatives provided by the MIS  
(08 marks)(2009 jun/july)
- 1 b Define DSS with example (06 Marks)(2009 jun/jul)
- 1 c Using DSS explain the 4 basic types of analytical modeling activity  
(06 Marks)(2009 jun/jul)
- 2 a What is DSS ?with a neat block diagram, explain the web enabled marketing DSS  
(10 Marks)(2010 may/jun)
- 2 b Using DSS explain the 4 basic types of analytical modeling activity  
(10 Marks)(2010 may/jun)
- 3a What is batch processing? What are the steps involved in batch processing? List  
any two advantages & disadvantages of batch processing.  
(10 Marks)(2011 may/jun)
- 4 a Define MIS.Explain the four major reporting alternatives provided by the MIS
- 4 b Define DSS with example (06 Marks) (2012 dec)
- 4 c Using DSS explain the 4 basic types of analytical modeling activity  
(06 Marks) (2012 dec)

## UNIT 7

### Security and Ethical Challenges

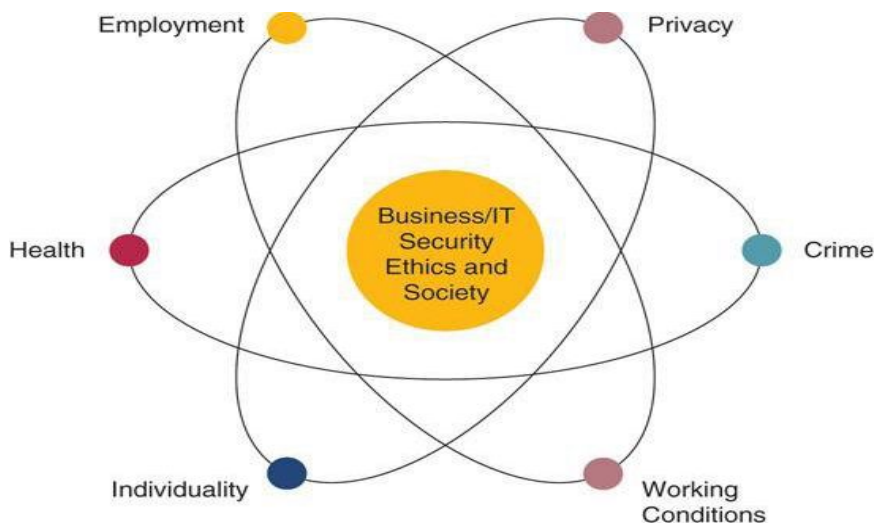
#### Introduction

- Identify several ethical issues in how the use of information technologies in business affects employment, individuality, working conditions, privacy, crime, health, and solutions of societal problems.
- Identify several types of security management strategies and defenses, and explain how they can be used to ensure the security of business applications of information technology.
- Propose several ways that business managers and professionals can help to lessen the harmful effects and increase the beneficial effects of the use of information technology.

#### Challenges of IT

Information technology in business presents major security challenges, poses serious ethical questions, and affects society in significant ways.

#### IT Security, Ethics and Society



#### Ethical Responsibility

- Business professionals have a responsibility to promote ethical uses of information technology in the workplace.

#### Business Ethics

##### Definition:

- Questions that managers must confront as part of their daily business decision making including:
  - Equity
  - Rights
  - Honesty
  - Exercise of Corporate Power



**Ethical Business Issues Categories**

Equity	Rights	Honesty	Exercise of Corporate Power
Executive Salaries	Corporate Due Process	Employee Conflicts	Product Safety
Comparable Worth	Employee Health	of Interest	Environmental Issues
Product Pricing	Screening	<b>Security of Company</b>	Disinvestment
<b>Intellectual</b>	<b>Customer Privacy</b>	<b>Information</b>	Corporate Contributions
<b>Property Rights</b>	<b>Employee Privacy</b>	Inappropriate Gifts	Social Issues Raised by
Noncompetitive	Sexual Harassment	Advertising Content	Religious Organizations
Agreements	Affirmative Action	Government Contract	Plant/Facility Closures and
	Equal Employment	Issues	Downsizing
	Opportunity	Financial and Cash	Political Action Committees
	Shareholder Interests	Management Procedures	<b>Workplace Safety</b>
	Employment at Will	Questionable Business	
	Whistle-Blowing	Practices in Foreign	
		Countries	

**Corporate Social Responsibility Theories**

•Stockholder Theory – managers are agents of the stockholders, and their only ethical responsibility is to increase the profits of the business without violating the law or engaging in fraudulent practices

•Social Contract Theory – companies have ethical responsibilities to all members of society, which allow corporations to exist based on a social contract  
Corporate Social Responsibility Theories

•Stakeholder Theory – managers have an ethical responsibility to manage a firm for the benefit of all its stakeholders, which are all individuals and groups that have a stake in or claim on a company

**Principles of Technology Ethics**

•Proportionality – the good achieved by the technology must outweigh the harm or risk

•Informed Consent – those affected by the technology should understand and accept the risks

•Justice – the benefits and burdens of the technology should be distributed fairly

•Minimized Risk – even if judged acceptable by the other three guidelines, the technology must be implemented so as to avoid all unnecessary risk

AITP Standards of Professional Conduct

**AITP Standards of Professional Conduct****In recognition of my obligation to my employer I shall:**

- Avoid conflicts of interest and ensure that my employer is aware of any potential conflicts.
- Protect the privacy and confidentiality of all information entrusted to me.
- Not misrepresent or withhold information that is germane to the situation.
- Not attempt to use the resources of my employer for personal gain or for any purpose without proper approval.
- Not exploit the weakness of a computer system for personal gain or personal satisfaction.

**In recognition of my obligation to society I shall:**

- Use my skill and knowledge to inform the public in all areas of my expertise.
- To the best of my ability, ensure that the products of my work are used in a socially responsible way.
- Support, respect, and abide by the appropriate local, state, provincial, and federal laws.
- Never misrepresent or withhold information that is germane to a problem or a situation of public concern, nor will I allow any such known information to remain unchallenged.
- Not use knowledge of a confidential or personal nature in any unauthorized manner to achieve personal gain.

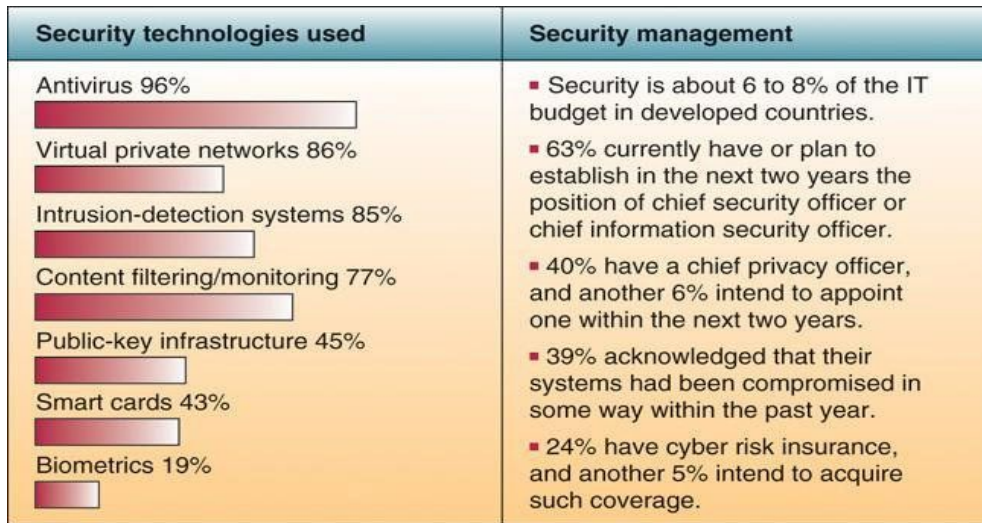
**Ethical Guidelines**

- Acting with integrity
- Increasing professional competence
- Setting high standards of personal performance
- Accepting responsibility for one's own work
- Advancing the health, privacy, and general welfare of the public

**Computer Crime**

- The unauthorized use, access, modification, and destruction of hardware, software, data, or network resources
- The unauthorized release of information
- The unauthorized copying of software
- Denying an end user access to his or her own hardware, software, data, or network resources
- Using or conspiring to use computer or network resources illegally to obtain information or tangible property

**Cyber Crime Safeguards**



## Hacking

### Definition:

•The obsessive use of computers, or the unauthorized access and use of networked computer systems

#### Common Hacking Tactics

- Denial of Service – hammering a website’s equipment with too many requests for information, effectively clogging the system, slowing performance or even crashing the site
- Scans – widespread probes of the Internet to determine types of computers, services, and connections

#### Common Hacking Tactics

- Sniffer – programs that covertly search individual packets of data as they pass through the Internet, capturing passwords or entire contents
- Spoofing – faking an e-mail address or Web page to trick users into passing along critical information like passwords or credit card numbers
- Trojan Horse – a program that, unknown to the user, contains instructions that exploit a known vulnerability in some software
- Back Doors – a point hidden point of entry to be used in case the original entry point has been detected or blocked
- Malicious Applets – tiny programs that misuse your computer’s resources, modify files on the hard disk, send fake e-mail, or steal passwords
- War Dialing – programs that automatically dial thousands of telephone numbers in search of a way in through a modem connection
- Logic Bombs – an instruction in a computer program that triggers a malicious act
- Buffer Overflow – a technique for crashing or gaining control of a computer by sending too much data to the buffer in a computer’s memory
- Password Crackers – software that can guess passwords

#### Common Hacking Tactics



- Social Engineering – a tactic used to gain access to computer systems by talking unsuspecting company employees out of valuable information such as passwords
- Dumpster Diving – sifting through a company’s garbage to find information to help break into their computers

### Cyber Theft

#### Definition:

- Computer crime involving the theft of money

#### Unauthorized Use

#### Definition:

- Time and resource theft may range from doing private consulting or personal finances, or playing video games, to unauthorized use of the Internet on company networks

#### Internet Abuses in the Workplace

Internet Abuses	Activity
<b>General e-Mail Abuses</b>	Include spamming, harassments, chain letters, solicitations, spoofing, propagations of viruses/worms, and defamatory statements.
<b>Unauthorized Usage and Access</b>	Sharing of passwords and access into networks without permission.
<b>Copyright Infringement/Plagiarism</b>	Using illegal or pirated software that costs organizations millions of dollars because of copyright infringements. Copying of websites and copyrighted logos.
<b>Newsgroup Postings</b>	Posting of messages on various non-work-related topics from sex to lawn care advice.
<b>Transmission of Confidential Data</b>	Using the Internet to display or transmit trade secrets.
<b>Pornography</b>	Accessing sexually explicit sites from workplace as well as the display, distribution, and surfing of these offensive sites.
<b>Hacking</b>	Hacking of websites, ranging from denial-of-service attacks to accessing organizational databases.
<b>Non-Work-Related Download/Upload</b>	Propagation of software that ties up office bandwidth. Use of programs that allow the transmission of movies, music, and graphical materials.
<b>Leisure Use of the Internet</b>	Loafing around the Internet, which includes shopping, sending e-cards and personal e-mail, gambling online, chatting, game playing, auctioning, stock trading, and doing other personal activities.
<b>Usage of External ISPs</b>	Using an external ISP to connect to the Internet to avoid detection.
<b>Moonlighting</b>	Using office resources such as networks and computers to organize and conduct personal business (side jobs).

#### Piracy

- Software Piracy – unauthorized copying of computer programs

- Piracy of Intellectual Property – unauthorized copying of copyrighted material, such as music, videos, images, articles, books and other written works especially vulnerable to copyright infringement

Virus vs. Worm

- Computer Virus – a program code that cannot work without being inserted into another program

- Worm – distinct program that can run unaided

### **Privacy Issues**

- Accessing individuals' private e-mail conversations and computer records, and collecting and sharing information about individuals gained from their visits to Internet websites and newsgroups

- Always knowing where a person is, especially as mobile and paging services become more closely associated with people rather than places

- Using customer information gained from many sources to market additional business services

- Collecting telephone numbers, e-mail addresses, credit card numbers, and other personal information to build individual customer profiles

### **Privacy on the Internet**

- E-mail can be encrypted

- Newsgroup postings can be sent through anonymous retailers

- ISP can be asked not to sell your name and personal information to mailing list providers and other marketers

- Decline to reveal personal data and interests on online service and website user profiles

### **Computer Matching**

#### Definition:

- Using physical profiles or personal data and profiling software to match individuals with data

### **Privacy Laws**

#### Definition:

- Rules that regulate the collection and use of personal data by businesses

#### Censorship

- Spamming – indiscriminate sending of unsolicited e-mail messages to many Internet users

- Flaming – sending extremely critical, derogatory, and often vulgar e-mail messages or newsgroup postings to other users on the Internet or online services

### **Other Challenges**

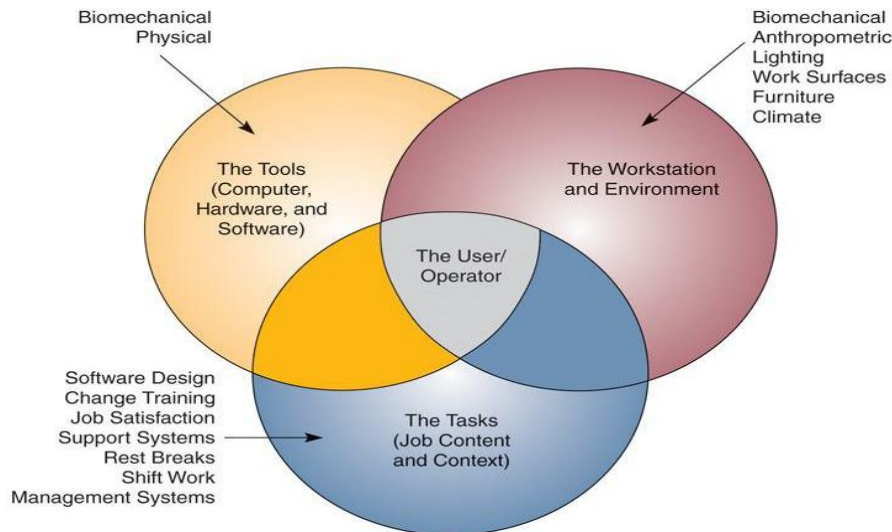
- Employment – significant reductions in job opportunities as well as different types of skills required for new jobs

- Computer Monitoring – computers used to monitor the productivity and behavior of employees as they work

- Working Conditions – jobs requiring a skilled craftsman have been replaced by jobs requiring routine, repetitive tasks or standby roles

- Individuality – dehumanize and depersonalize activities because computers eliminate human relationships

## Ergonomics



### Definition:

- Designing healthy work environments that are safe, comfortable, and pleasant for people to work in, thus increasing employee morale and productivity

### Ergonomic Factors

### Societal Solutions

- Many of the detrimental effects of information technology are caused by individuals or organizations that are not accepting the ethical responsibility for their actions.
- Like other powerful technologies, information technology possesses the potential for great harm or great good for all human kind.

### Security Management

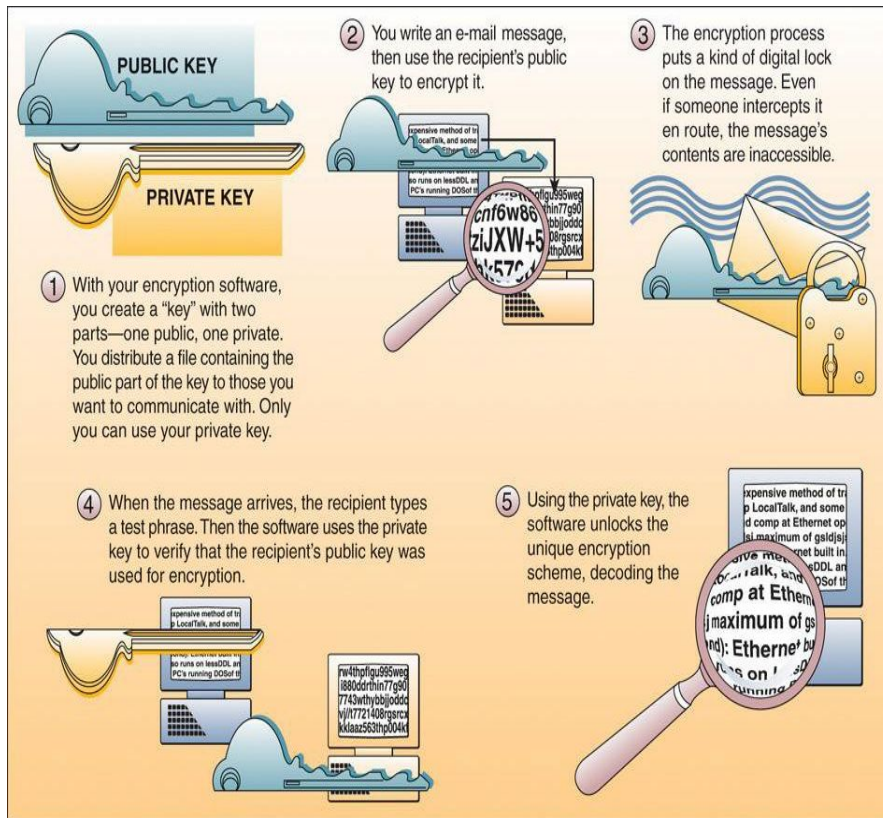




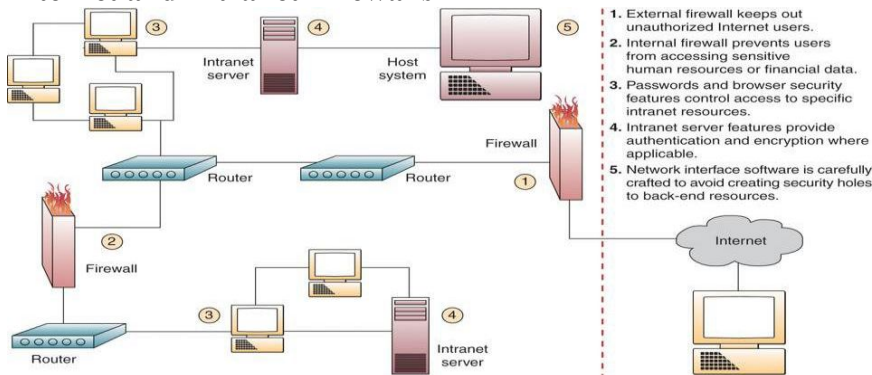
•The goal of security management is the accuracy, integrity, and safety of all information system processes and resources.

### **Internet worked Security Defenses**

- Encryption – data transmitted in scrambled form and unscrambled by computer systems for authorized users only
  - Firewalls – a gatekeeper system that protects a company’s intranets and other computer networks from intrusion by providing a filter and safe transfer point for access to and from the Internet and other networks
- Public/Private Key Encryption



**Internet and Intranet Firewalls**



**Denial of Service Defenses**

- At the zombie machines – set and enforce security policies
  - At the ISP – monitor and block traffic spikes
  - At the victim’s website – create backup servers and network connections
- Internet worked Security Defenses

- E-mail Monitoring – use of content monitoring software that scans for troublesome words that might compromise corporate security
- Virus Defenses – centralize the distribution and updating of antivirus software

**Other Security Measures**

- Security Codes – multilevel password system used to gain access into the system
- Backup Files – duplicate files of data or programs
- Security Monitors – software that monitors the use of computer systems and networks and protects them from unauthorized use, fraud, and destruction
- Biometrics – computer devices that measure physical traits that make each individual unique
- Computer Failure Controls – devices used to prevent computer failure or minimize its effects

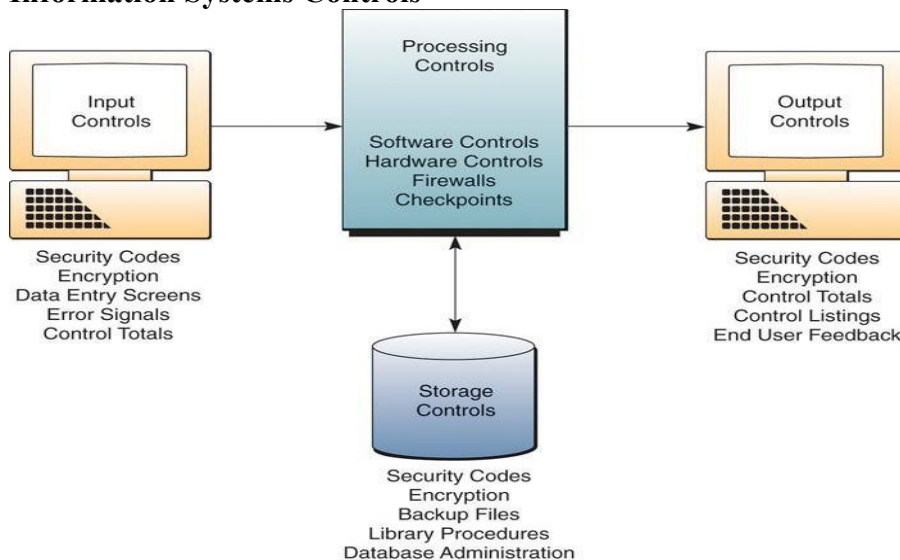
### Fault Tolerant Systems

- Systems that have redundant processors, peripherals, and software that provide a:
- Fail-over capability to back up components in the event of system failure
- Fail-safe capability where the computer system continues to operate at the same level even if there is a major hardware or software failure

### Disaster Recover

- Formalized procedures to follow in the event a disaster occurs including:
- Which employees will participate
- What their duties will be
- What hardware, software, and facilities will be used
- Priority of applications that will be processed
- Use of alternative facilities
- Offsite storage of an organization's databases

### Information Systems Controls



### Definition:

- Methods and devices that attempt to ensure the accuracy, validity, and propriety of information system activities

### Information Systems Controls

### Auditing IT Security

•IT security audits review and evaluate whether proper and adequate security measures and management policies have been developed and implemented.

•This typically involves verifying the accuracy and integrity of the software used, as well as the input of data and output produced by business applications.

#### Security Management for Internet Users

Security Management for Internet Users	
<ol style="list-style-type: none"> <li>1. Use antivirus and Firewall software and update it often to keep destructive programs off your computer.</li> <li>2. Don't allow online merchants to store your credit card information for future purchases.</li> <li>3. Use a hard-to-guess password that contains a mix of numbers and letters, and change it frequently.</li> <li>4. Use different passwords for different websites and applications to keep hackers guessing.</li> <li>5. Install all operating system patches and upgrades.</li> </ol>	<ol style="list-style-type: none"> <li>6. Use the most up-to-date version of your Web browser, e-mail software, and other programs.</li> <li>7. Send credit card numbers only to secure sites; look for a padlock or key icons at the bottom of the browser.</li> <li>8. Use a security program that gives you control over "cookies" that send information back to websites.</li> <li>9. Install firewall software to screen traffic if you use DSL or a cable modem to connect to the Net.</li> <li>10. Don't open e-mail attachments unless you know the source of the incoming message.</li> </ol>

•Security event management suites automate the process of gathering, consolidating, correlating, and prioritizing data from various security tools including

- Antivirus software
- Firewalls
- Intrusion detection systems
- Intrusion prevention systems
- Operating systems
- Application software

#### Case #4: Network Security Systems

•Security information management tools typically normalize the security events data they collect by converting them into a common format and automatically filtering out duplicate data.

•The normalized data are then dumped into a central database where correlation software can match data from different systems and look for patterns that might indicate an attack.

#### Note

•The vital role of information technologies and systems in society raises serious ethical and societal issues in terms of their impact on employment, individuality, working conditions, privacy, health, and computer crime.

- Business and IT activities involve many ethical considerations. Basic principles of technology and business ethics can serve as guidelines for business professionals when dealing with ethical business issues that may arise in the widespread use of information technology in business and society.
- One of the most important responsibilities of the management of a company is to assure the security and quality of its IT-enabled business activities.
- Security management tools and policies can ensure the accuracy, integrity, and safety of the information systems and resources of a company, and thus minimize errors, fraud, and security losses in their business activities.

**Questions**

- 1 a List out the ethical guidelines provided by AITP standards for professional conduct (06 Marks)(2009 jun/jul)
- 1 b What are the other security measures that are commonly used to protect business system and network explain in detail (06 Marks)(2009 jun/jul)
- 1 c Define computer crime virus and worms (06 Marks)(2009 jun/jul)
- 2 a Briefly explain the most important technology ethics, software piracy and issues. (10 Marks)(2010 may/jun)
- 2 b Explain the important security measures adopted in several companies in today's business enterprise (10 Marks)(2010 may/jun)
- 2 c Define computer crime virus and worms (10 Marks)(2010 may/jun)
- 3 a Explain in brief any two types of documents and reports that are generated by transaction processing system? (4 Marks)(2011 may/jun)
- 3 b What are the different components involved in targeted marketing? (10 Marks)(2011 may/jun)
- 4 a What is feasibility study? In which phase of system development cycle is it done? What are the different types of feasibility studies? (05 Marks)(2012 may/jun)
- 4 b What is prototyping? With a neat diagram list the different stages involved in developing applications using prototyping. (05 Marks)(2012 may/jun)
- 5 a List out the ethical guidelines provided by AITP standards for professional conduct (06 Marks) (2012 dec)
- 5 b What are the other security measures that are commonly used to protect business system and network explain in detail (06 Marks) (2012 dec)
- 5 c Define computer crime virus and worms (06 Marks) (2012 dec)



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## UNIT-8

### ENTERPRISE AND GLOBAL MANAGEMENT OF IT

#### Introduction

We learn the following issues in this unit.

- Identify each of the three components of information technology management and use examples to illustrate how they might be implemented in a business.
- Explain how failures in IT management can be reduced by the involvement of business managers in IT planning and management.
- Identify several cultural, political, and geo-economics challenges that confront managers in the management of global information technologies.
- Explain the effect on global business/IT strategy of the trend toward a transnational business strategy by international business organizations.
- Identify several considerations that affect the choice of IT applications, IT platforms, data access policies, and systems development methods by a global business enterprise.

#### IT Management

As the 21<sup>st</sup> century unfolds, many companies throughout the world are intent on transforming themselves into global business powerhouses via major investments in global e-business, e-commerce, and other IT initiatives.

#### Reasons for Failure:

- Ancient, unreliable, undocumented infrastructure
- Lacking project and budget controls
- Substandard quality control
- IT full of silos and fiefdoms
- No economies of scale

#### Case #1: Managing IT

- What were several major reasons the IT organization had failed at the Chicago Board of Trade? Explain the impact of each on CBOT.
- What were several key management changes and initiatives that Bill Farrow implemented to make IT successful at CBOT? Explain the impact of each on CBOT.

Case #1: Managing IT

- Does the experience of CBOT prove that —IT is a business function that needs to be managed like any other business function?  Why or why not?
- What role should a company's executives and business unit managers play in managing the IT function in a business? Why?

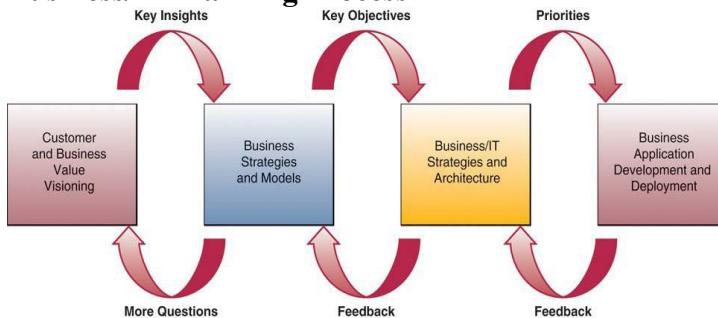
**Components of IT Management**



**Conventional vs. E-business IT Management**

IT Management	Conventional Practices	Avnet Marshall's Business/IT Practices
<b>Technology Management</b>	<ul style="list-style-type: none"> <li>Approach to IT infrastructure may sacrifice match with business needs for vendor homogeneity and technology platform choices</li> </ul>	<ul style="list-style-type: none"> <li>Best-of-breed approach to IT infrastructure in which effective match with business needs takes precedence over commitment to technology platform choices and vendor homogeneity</li> </ul>
<b>Managing the IT Organization</b>	<ul style="list-style-type: none"> <li>Hire "best by position" who can bring specific IT expertise</li> <li>Departments organized around IT expertise with business liaisons and explicit delegation of tasks</li> <li>IT projects have separable cost/value considerations. Funding typically allocated within constraints of yearly budget for IT function</li> </ul>	<ul style="list-style-type: none"> <li>Hire "best athletes" IS professionals who can flexibly integrate new IT and business competencies</li> <li>Evolving workgroups organized around emerging IT-intensive business initiatives with little explicit delegation of tasks</li> <li>IT funding typically based on value proposition around business opportunity related to building services for customers. IT project inseparable part of business initiative</li> </ul>

**Business/IT Planning Process**



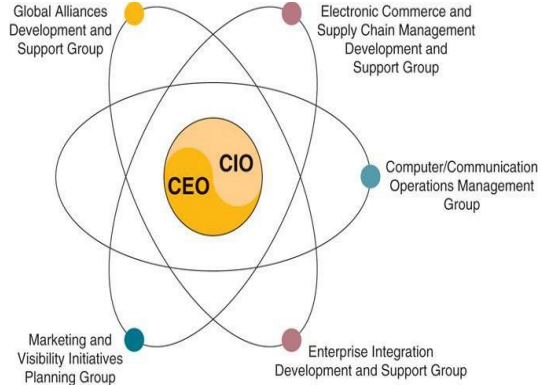
**Components of Business/IT Planning**

- Strategy Development – developing business strategies that support a company’s business vision
- Resource Management – developing strategic plans for managing or outsourcing a company’s IT resources
- Technology Architecture – making strategic IT choices that reflect an information technology architecture designed to support a company’s business/IT initiatives  
Information Technology Architecture
- Technology Platform – Networks, computer systems, system software and integrated enterprise application software provide a computing and communications infrastructure, or platform, that supports the strategic use of information technology for e-business, e-commerce, and other business/IT applications
- Data Resources – operational and specialized databases store and provide data and information for business processes and decision support  
Information Technology Architecture
- Applications Architecture – integrated architecture of enterprise systems that support strategic business initiatives as well as cross-functional business processes
- IT Organization – organizational structure of the IS function within a company and the distribution of IS specialists are designed to meet the changing strategies of a business

**Strategic vs. Application Planning**

Conventional IT Planning	Avnet Marshall’s Business/IT Planning
<ul style="list-style-type: none"> <li>• Strategic alignment: IT strategy tracks specified enterprise strategy</li> <li>• CEO endorses IT vision shaped through CIO</li> <li>• IT application development projects functionally organized as technological solutions to business issues</li> <li>• Phased application development based on learning from pilot projects</li> </ul>	<ul style="list-style-type: none"> <li>• Strategic improvisation: IT strategy and enterprise business strategy coadaptively unfold based on the clear guidance of a focus on customer value</li> <li>• CEO proactively shapes IT vision jointly with CIO as part of e-business strategy</li> <li>• IT application development projects colocated with e-business initiatives to form centers of IT-intensive business expertise</li> <li>• Perpetual application development based on continuous learning from rapid deployment and prototyping with end user involvement</li> </ul>

## Organizational Components of IT



## Application Development Management

### Definition:

- Managing activities such as systems analysis and design, prototyping, applications programming, project management, quality assurance, and system maintenance for all major business/IT development projects

## IS Operations Management

### Definition:

- Use of hardware, software, network, and personnel resources in the corporate or business unit data centers of an organization

## System Performance Monitors

### Definition:

- Software packages that monitor the processing of computer jobs, help develop a planned schedule of computer operations that can optimize computer system performance, and produce detailed statistics that are invaluable for effective planning and control of computing capacity

## Chargeback Systems

### Definition:

- Output of a system performance monitor that allocates costs to users based on the information services rendered

## Process Control Capabilities

### Definition:

- Performance monitoring systems that not only monitor but automatically control computer operations at large data centers

## Human Resource Management of IT

- Recruit qualified personnel and develop, organize, and direct the capabilities of existing personnel

- Continually train employees to keep up with the latest developments in a fast-moving and highly technical field
- Continually evaluate employee job performances and reward outstanding performances with salary increases and promotions
- Set salary and wage levels and design career paths so individuals can move to new jobs through promotion and transfer as they gain in seniority and expertise

Chief Information Officer

Job Description:

- Oversees all uses of information technology in many companies, and brings them into alignment with strategic business goals.

### **Technology Management**

Definition:

- Information technologies managed as a technology platform for integrating internally focused or externally facing business applications

### **Managing User Services**

Definition:

- Business units that support and manage end user and workgroup computing
- IT Management Failures
- Information technology is not being used effectively by companies that use IT primarily to computerize traditional business processes, instead of developing innovative e-business processes
  - Information technology is not being used efficiently by information systems that provide poor response times and frequent downtimes, or IS professionals and consultants who do not properly manage application development projects

### **Management Involvement and Governance**

- Extensive and meaningful managerial and end user involvement is the key ingredient of high-quality information systems performance
- Involving business managers in the governance of the IS function and business professionals in the development of IS applications should shape the response of management to the challenge of improving the business value of information technology

Case #2: Offshore Systems Development

**Offshore IS Development Challenges:**

- Loss of control over foreign technology workers
- Loss of control over quality of IT projects

Case #2: Offshore Systems Development

**Solutions to Offshore IS Development:**

- Use employees rather than contractors
- Keep workers informed of plans for distributing various IT projects
- On-site management a by local national



- Ensure the economies of the local environment are sustainable

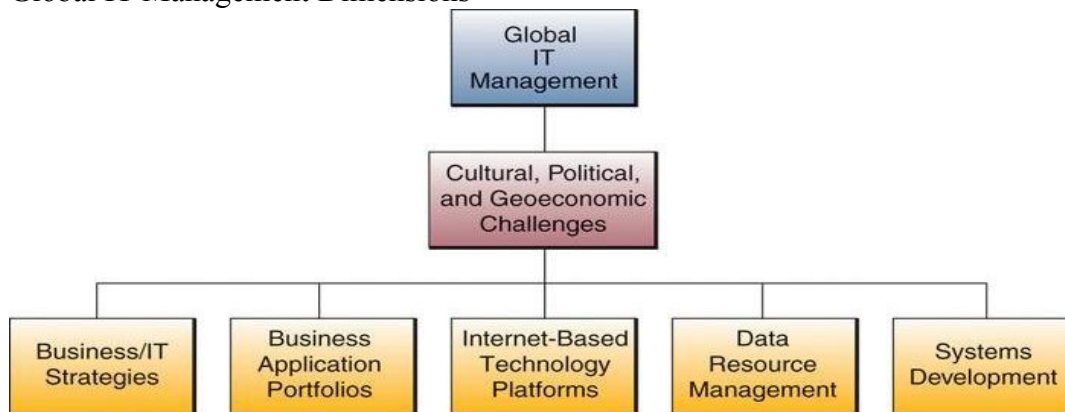
#### Case #2: Offshore Systems Development

- What are the business benefits and limitations of sending software development offshore? Use the companies in this case as examples.
- What are the business value and limitations of the in-sourcing model of offshore software development? Use GXS and Allstate as examples.
- Should U.S. companies send their software development and other IT functions offshore? Why or why not?
- What ethical and societal issues should the management of companies consider when making offshore outsourcing or insourcing decisions? Give several examples to illustrate your answer.

### Global IT Management

- Develop appropriate business and IT strategies for the global marketplace
- Develop the portfolio of business applications needed to support business/IT strategies

#### Global IT Management Dimensions



### Global IT Management Challenges

- Political
- Geoeconomic
- Cultural

#### Political Challenges

- Rules regulating or prohibiting transfer of data across national boundaries
- Severely restricted, taxed, or prohibited imports of hardware and software
- Local content laws that specify the portion of the value of a product that must be added in that country if it is to be sold there
- Reciprocal trade agreements that require a business to spend part of the revenue they earn in a country in that nation's economy



**Geoeconomic Challenges**

- Sheer physical distances
- Difficult to get good-quality telephone and telecommunications services
- Differences in the cost of living and labor costs

**Cultural Differences**

- Languages
- Cultural Interests
- Religions
- Customs
- Social Attitudes
- Political Philosophies

**Transnational Strategies**

Definition:

- Integration of global business/IT applications through close cooperation and interdependence among a company’s international subsidiaries and its corporate headquarters

**International vs. Global vs. Transnational**

Comparing Global Business/IT Strategies		
International	Global	Transnational
<ul style="list-style-type: none"> <li>• Autonomous operations.</li> <li>• Region specific.</li> <li>• Vertical integration.</li> <li>• Specific customers.</li> <li>• Captive manufacturing.</li> <li>• Customer segmentation and dedication by region and plant.</li> </ul>	<ul style="list-style-type: none"> <li>• Global sourcing.</li> <li>• Multiregional.</li> <li>• Horizontal integration.</li> <li>• Some transparency of customers and production.</li> <li>• Some cross regionalization.</li> </ul>	<ul style="list-style-type: none"> <li>• Virtual business operations via global alliances.</li> <li>• World markets and mass customization.</li> <li>• Global e-commerce and customer service.</li> <li>• Transparent manufacturing.</li> <li>• Global supply chain and logistics.</li> <li>• Dynamic resource management.</li> </ul>
Information Technology Characteristics		
<ul style="list-style-type: none"> <li>• Stand-alone systems.</li> <li>• Decentralized/no standards.</li> <li>• Heavy reliance on interfaces.</li> <li>• Multiple systems, high redundancy and duplication of services and operations.</li> <li>• Lack of common systems and data.</li> </ul>	<ul style="list-style-type: none"> <li>• Regional decentralization.</li> <li>• Interface dependent.</li> <li>• Some consolidation of applications and use of common systems.</li> <li>• Reduced duplication of operations.</li> <li>• Some worldwide IT standards.</li> </ul>	<ul style="list-style-type: none"> <li>• Logically consolidated, physically distributed, Internet connected.</li> <li>• Common global data resources.</li> <li>• Integrated global enterprise systems.</li> <li>• Internet, intranet, extranet Web-based applications.</li> <li>• Transnational IT policies and standards.</li> </ul>

**Global Business Drivers**

Definition:

- Business requirements caused by the nature of the industry and its competitive or environmental forces

Examples:

- Global Customers
- Global Products
- Global Operations
- Global Resources

- Global Collaboration

### **Global IT Platform**

#### Definition:

•Managing the hardware, software, data resources, telecommunications networks, and computing facilities that support global business operations

Internet as a Global IT Platform

•The Internet provides an interactive channel for direct communication and data exchange with customers, suppliers, distributors, manufacturers, product developers, financial backers, information providers – in fact, with all parties involved in a given business venture.

### **Key Questions for Global Websites**

•Will you have to develop a new navigational logic to accommodate cultural preferences?

•What content will you translate, and what content will you create from scratch to address regional competitors or products that differ from those in the U.S.?

•Should your multilingual effort be an adjunct to your main site, or will you make it a separate site, perhaps with a country-specific domain?

#### Key Questions for Global Websites

•What kinds of traditional and new media advertising will you have to do in each country to draw traffic to your site?

•Will your site get so many hits that you'll need to set up a server in a local country?

•What are the legal ramifications of having your website targeted at a particular country, such as laws on competitive behavior, treatment of children, or privacy?

### **Transborder Data Flows**

#### Definition:

•Business data flow across international borders over the telecommunications networks of global information systems

•May be viewed as violating a nation's sovereignty or violating their laws to protect local IT industry from competition or their labor regulations for protecting local jobs

### **Internet Access Issues**

•High Government Access Fees

•Government Monitored Access

•Government Filtered Access

•No Public Access Allowed

### **Global Systems Development**

•Conflicts over local versus global system requirements

•Difficulties in agreeing on common system features

•Disturbances caused by systems implementation and maintenance activities

- Global standardization of data definitions

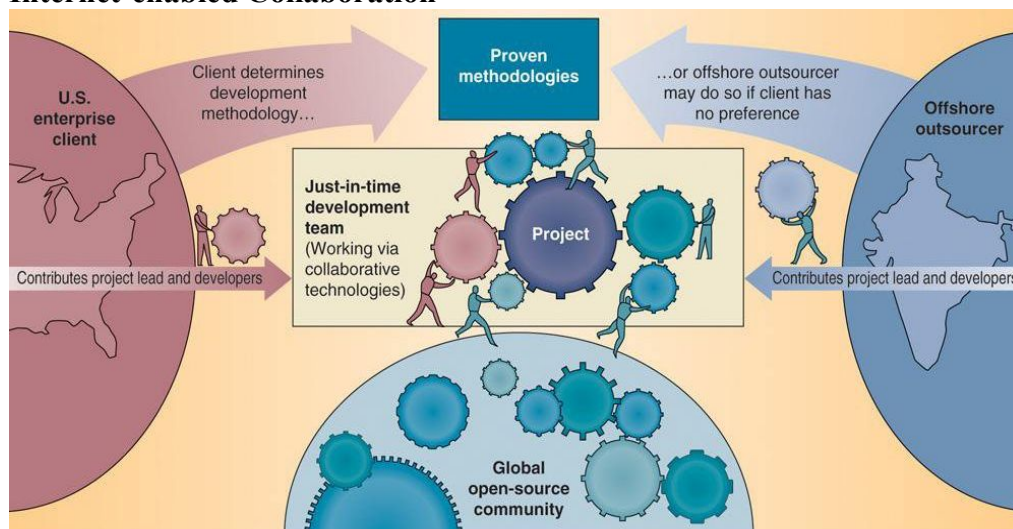
### Systems Development Strategies

- Transform an application used by the home office into a global application
- System used by a subsidiary that has the best version of an application will be chosen for global use
- Set up a multinational development team with key people from several subsidiaries to ensure that the system design meets the needs of local sites as well as corporate headquarters.

### Systems Development Strategies

- Parallel Development – parts of the system are assigned to different subsidiaries and the home office to develop at the same times based on the expertise and experience at each site
- Centers of Excellence – an entire system may be assigned for development to a particular subsidiary based on their expertise in the business or technical dimensions needed for successful development
- Offshore Development – outsource the development work to a global development company

### Internet-enabled Collaboration



Case #3: Global Collaborative Development

### istributed Global Collaborative Model:

- Low-cost application development talent is located around the world, and with Internet-based, open-source tools available for collaborative application development, teams can now come together quickly to get a job done

Case #3: Global Collaborative Development

### Benefits:

- Allows executives to concentrate on running their core businesses

- Fast, cheap development

Case #3: Global Collaborative Development

- How is the open-source model affecting the development of application software for business?

- What are the business benefits of the global or collaborative approach to software development? Use the companies in this case as examples.

Case #3: Global Collaborative Development

- What are several potential challenges or limitations that might arise when using a global collaborative approach to software development? How can companies address such challenges?

Case #4: Successful Management

### **Reasons for Failure:**

- Poor project management

- The lack of good project management may lead to business units taking on IT development projects without the knowledge or oversight of a company's IT department

Case #4: Successful Management

### **IT Project Metrics:**

- Periodic status reports

- NPV and IRR calculations

- Capital spending figures

- ROI

Case #4: Successful Management

- What are several possible solutions to the failures in IT project management at many companies described at the start of this case? Defend your proposals.

- What are several key ways that Avon and Guardian assure that their IT projects are completed successfully and support the goals of the business?

Case #4: Successful Management

- If you were the manager of a business unit at Avon or Guardian, what are several other things you would like to see their IT groups do to assure the success of an IT project for your business unit? Defend your suggestions.

### **Summary**

- Managing IT includes:

- Managing the joint development and implementation of e-business and IT strategies

- Managing the development of e-business applications and the research and implementation of new information technologies

- Managing IT processes, professionals, and subunits within a company's IT organization and IS function

- Information systems are not being used effectively or efficiently by many organizations. The experiences of successful organizations reveals that the basic ingredient of high-

quality information systems performance is extensive and meaningful management and user involvement in the governance and development of IT applications.

- The international dimensions of managing global information technologies include dealing with cultural, political, and geoeconomic challenges posed by various countries; developing appropriate business and IT strategies for the global marketplace; and developing a portfolio of global e-business and e-commerce applications and an Internet-based technology platform to support them.
- Many businesses are becoming global companies and moving toward transnational business strategies in which they integrate the global business activities of their subsidiaries and headquarters.

**Questions**

- 1 a What are the major dimensions of global e-business technology management? explain with a neat diagram (06 Marks)(2009 jun/jul)
- 1 b What are the major component of information technology architechture?explain them (06 Marks)(2009 jun/jul)
- 1 c What are the reasons for IT failure in management (06 Marks)(2009 jun/jul)
- 2 a With a neat block diagram explain the three major components of information technology management (08 Marks)(2010 may/jun)
- 2 b Write a short notes on business management (12 Marks)(2010 may/jun)
- 3 Explain any five types of accounting information systems that are being widely used (10 Marks)(2011 may/jun)
- 4 Explain the various steps involved in system analysis design phase. (10 Marks) (2012 may/jun)
- 5 a What are the major dimensions of global e-business technology management? explain with a neat diagram (06 Marks) (2012 dec)
- 5 b What are the major component of information technology architechture?explain them 06 Marks) (2012 dec)
- 5 c What are the reasons for IT failure in management (06 Marks) (2012 dec)