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University of Colombo School of Computing

Student Manual

Lesson 4:

Organizations and Information Systems

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Duration: 6 hrs

4   Organizations and Information Systems

- Define the terms organization and competitive advantage
- Identify the processes in the value chain
- Describe the role of Information System in different functional areas of Business and in different industries
- Describe how organizations are using Information Systems to gain competitive advantage
- Identify the strategic uses of Information Systems
- Define virtual organisation and reengineering
- Describe the role of the network in an organisation
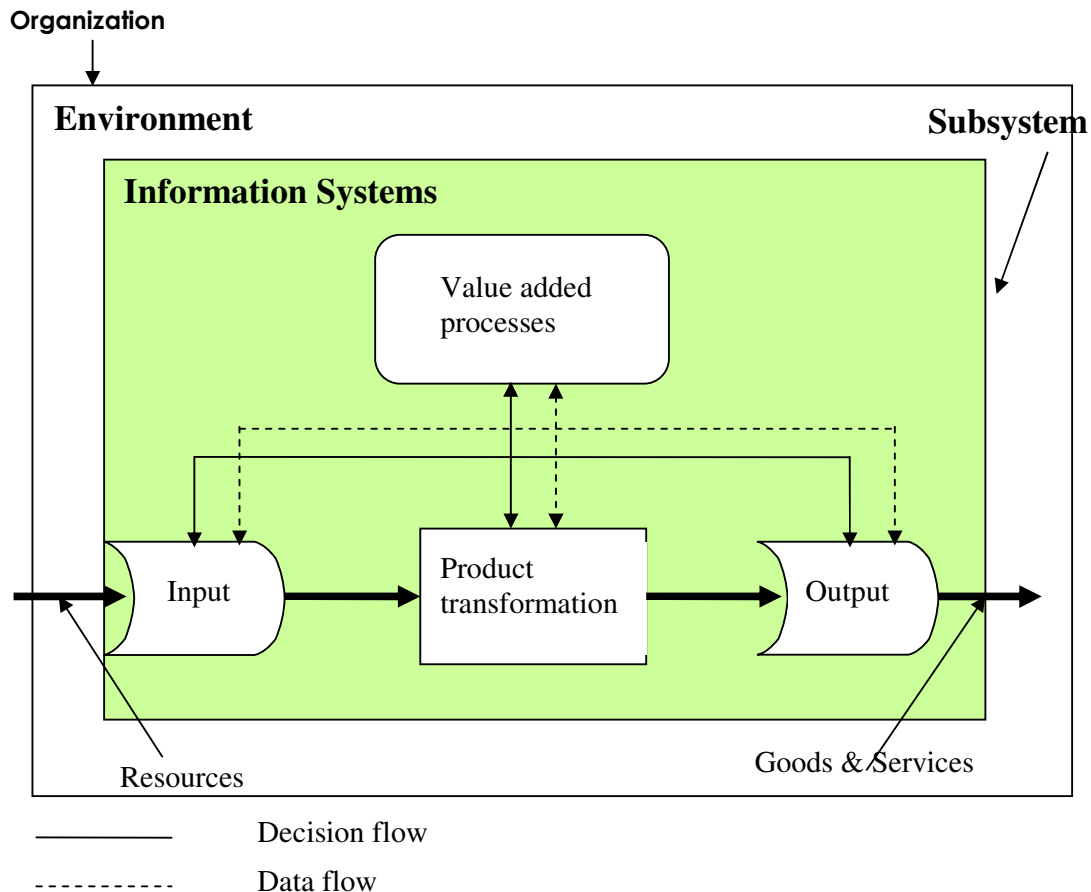- Identify some of the network trends and business value they generate

Until the early 1970s, many computerized information systems were developed to provide reports for business decision makers. The information in these reports helped managers monitor and control business processes and operations. For example, reports of fast-moving products could be used to increase the sales of other products. Unfortunately, many of these early computer systems did not take the overall goals of the organization and managerial problem-solving styles into consideration. As a result, these computer systems failed or were not utilized to their potential. In this chapter, we will explore how information systems can help organizations produce higher-quality products and increase their return on investment. Let's starts by investigating organizations and information systems.

4.1   Organizations

An organization is a formal collection of people and other resources established to accomplish a set of goals. The primary goal of a for-profit organization is to maximize profits by increasing revenues while reducing costs. Nonprofit organizations or public bodies include social groups, religious groups, universities, and other organizations that do not have profit as the primary goal. The income of these organizations may not be generated by the services provided. Income is probably indirect, through donation or taxation, and the organization's costs must be contained within the funds available. Non profit making organizations may not compete for customers but it does compete for available resources.

As explained in Lesson 1, an organization is a system. It has a goal, components, inputs, processing and outputs. It can be analyzed to identify system boundaries and environment in which they operate. Money, people, materials, machines and equipment, data, information, and decisions are constantly in use in any organization. A general model of an organization is illustrated in Figure 4.1, which shows that resources such as material, people, and money input to the organizational system from the environment, go through a transformation process and are output to the environment. The outputs from the transformation process are usually goods or services. Although not shown in the figure, input to the subsystem can come from internal and external sources, and output from the subsystem can go to either internal or external systems.

The values of the goods or services produced by the organization are relatively higher than the inputs alone. The transformation process contains various processes that help turn inputs into goods or services of increasing value. These value-added processes increase the relative value of the inputs on their way to becoming final outputs of the organization.

Organization

Environment   **Subsystem**

Information Systems

Value added
processes

Input   Product
transformation   Output

Resources   Goods & Services

——————   Decision flow

- - - - - - - - - -   Data flow

Figure 4.1: A General Model of an Organization

For example, consider a simple self-service car wash system. The primary purpose of the car wash system is to clean automobiles. The inputs to the system are the dirty car, soap and water, and the instructions to the operator. The desired out of the system is a clean and dry car. The first value-added process might be identified as washing the car. A clean but wet car is worth more than the mere collection of soap and water (messed car). The second value-added process is drying, which transform the wet car into a dry one. The value comes from the skill, knowledge, time and energy invested by the organization. By adding a significant amount of value to their product and services, organizations will achieve their goals such as providing a good service to customers which in turn will help the organization to make profits.

All business organizations contain a number of processes. Providing value to a customer, supplier, manager or employee is the primary goal of any organization. The **value chain** concept developed by Michael Porter is a concept that shows how organizations can add value to their products and services. The original value chain model was based primarily on manufacturing business, but its structure can be applied to most other types of businesses such as service industry organizations. The value chain views the organization as a chain of business activities. Some business activities are primary processes and others are support processes. Primary processes include the following.

1. **Inbound logistic:** Obtaining, receiving, storing and provisioning key inputs and resources required by the central operations of the business. This can include recruiting staff, buying materials and services, and dealing with subcontractors.

2. **Operations:** Transforming inputs of all types into the products or services to meet customer requirements. This involves bringing together the requisite materials, resources and assets to produce the right quantity of products or services – for instance in a university, delivering the courses in the prospectus and examining the students.

3. **Outbound logistic:** Distributing the products or services to the place of sale, or to customers directly, using channels of distribution by which the customer can obtain the product or service and pay for it.

4. **Sales and marketing:** Making customers and consumers aware of the product or service, and how they can obtain it; promoting the products in a way that the customers are persuaded the product satisfies a need at an appropriate price.

5. **Services:** Adding additional value for the customer at the time of sale or afterwards; for example by means of financial services, user training and warranty claims processing.

Support processes include technology development, administrative support services, human resources management and procurement of resources.

While these activities fulfill the value adding role of a business unit as seen in its industrial context by its suppliers and customers, they must each be optimized individually and linked together if the best overall performance is to be achieved. Depending on the customer perception, value may mean lower price, better service, higher quality or uniqueness of product.

What role does information play in these processes? From an information systems perspective, the internal value chain is a valuable way of identifying where better information and systems are needed, especially to show where integration through systems could provide potential advantages over competitors (or reduce current disadvantages). A logical approach to identifying how an information system can improve the business is:

1. Improving relationships with customers and suppliers in all aspects of their interface with the organization.

2. Improving the critical information flows through the activities in the value chain, namely removing bottle necks and delays, ensuring the accuracy and consistency of information used.

3. Improving the systems within each activity in the value chain to achieve local improvements in efficiency etc.

An information system can turn feedback from subsystems into more meaningful information for employees' use within an organization. This information might summarize the performance of the systems and be used to change the way that the system operates. Such changes could involve using different raw materials (inputs), designing new assembly-line procedures (product transformation) or developing new products and services (outputs). In this view, the information system plays an important role externally through controlling and monitoring processes in ensuring effectiveness and efficiency of the organization.

More importantly, information systems are best considered to be a part of the process itself. From this perspective, the information system is internal and plays an integral role in the process, whether providing input, supporting product transformation or producing

output. An example might be an information system that helps a farmer by collecting and displaying information about soil condition in different parts of the farm. The main work that is going on involves planting and tending to crops. The information system helps with decisions that are important, but bulk of work involves physical activities rather than information processing. In this situation, the information system is small, dedicated component of the system. In other situation, the information system may significantly overlap with the overall work of the system. An example is the process of granting and monitoring loans in a bank's student loan program. This process is information intensive because it is mostly about processing information such as identification, qualifications, references, payments and balance due. The information system itself is an integral part of this process. It does not just monitor the process externally but works as a part of the process to transform raw data into a product. This view of information system brings with it a new perspective on how and why information systems can be used in business. Rather than searching to understanding the value-added processes independently of information system, the potential role of information system is considered within the process itself. This will often lead to the discovery of new and better ways to accomplish the process. Thus, the way an organization views the role of information system will influence the ways it accomplishes its value-added processes.

4.2   The Fundamental Role of IS in Business

Information systems helps to perform 3 main fundamental roles in an organization. They are,
- Support its business processes and operations.
- Support decision making by its employees and its managers
- Support its strategies for competitive advantage
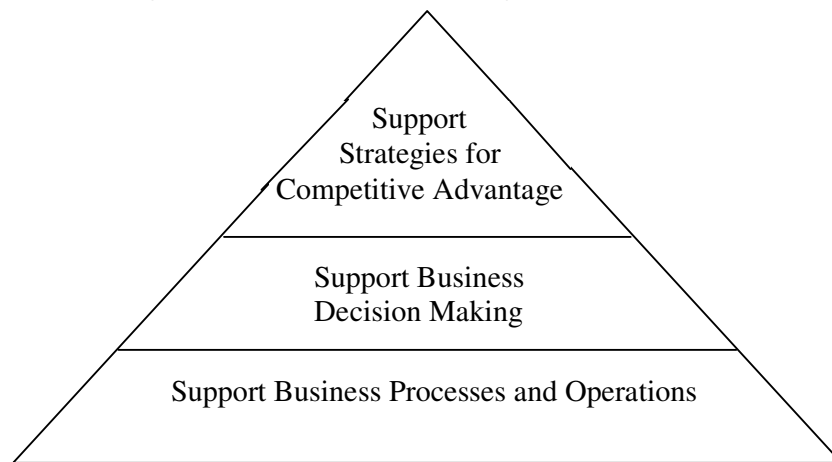
Figure 4.2: Three major roles of business applications of information systems

For example, let's consider these three roles in a retail store.
Support Business Processes: most retail stores now use computer based information systems to help them record customer purchases, keep track of the inventory, buy new merchandise, pay employees and evaluate sales trends.

Support Decision making: CBIS allow management to make decisions on what lines of merchandise is required or should be discounted and which areas need investments.

Support Competitive Advantage: Gaining a strategic advantage over competitors requires innovative use of IT.
For example, store management might make a decision to install touch-screen kiosks in all of their stores, with links to their e-commerce website for online shopping. This might

attract new customers and build customer loyalty because of the ease of shopping and buying merchandise provided by such information systems. Therefore, strategic information systems can help provide products and services that give a business a competitive advantage over its competitors.

4.2.1 Information Systems In the Functional Areas of Business

Studies have shown that the involvement of managers and decision makers in all aspects of information systems is a major factor for organizational success, including higher profits and lower costs.
Information systems are used in all functional areas and operating divisions of business.

The principal business functions are;

- Sales and Marketing: ensuring that the firms products meet the needs of the marketplace, developing a market for those products, providing them at the right time for the right price.
- Production: creating or adding value by producing goods or offering services. In firms that produce goods, the production function is known as manufacturing.
- Accounting and Finance: managing the funds of the enterprise.
- Human Resources: developing the personnel of the firm.

Let's consider application of information systems in these functional areas of a business.

Sales and Marketing: to develop new goods and services (product analysis), determine the best location for production and distribution facilities (place or site analysis), determine the best advertising and sales approaches (promotion analysis),and set product prices to get the highest total revenues (price analysis).

Manufacturing: to process customer orders, develop production schedules, control inventory levels, and monitor product quality.
In addition, information systems are used for product design. Applications used include Computer-Assisted Design (*CAD). Others include manufacturing of items using Computer-Assisted Manufacturing (*or CAM), and integration of multiple machines or pieces of equipment using computer-integrated manufacturing, or CIM.

Finance and Accounting: to forecast revenues and business activity, determine the best sources and uses of funds, manage cash and other financial resources, analyze investments, and perform audits to make sure that the organization is financially sound and that all financial reports and documents are accurate.

Human Resource Management: to screen applicants, carry out performance tests to employees, monitor employee productivity, and more.

4.2.2 Information Systems In Different industries

Information systems are used in almost every industry or field.

The airline industry employs Internet auction sites to offer discount fares and increase revenue.

Investment firms use information systems to analyze stocks, bonds, options, the future market, and other financial instruments, as well as to provide improved services to their customers.

Banks use information systems to help make sound loans and good investments, as well as to provide online check payment for account holders.

The transportation industry uses information systems to schedule trucks and trains to deliver goods and services at the lowest cost.

Publishing companies use information systems to analyze markets and to develop and publish newspapers, magazines, and books.
Healthcare organizations use information systems to diagnose illnesses, plan medical treatment, track patient records, and bill patients.

Retail companies are using the Web to take customer orders and provide customer service support. Further, they use information systems to help market products and services, manage inventory levels, control the supply chain, and forecast demand.

Power management and utility companies use information systems to monitor and control power generation and usage.

Professional services firms employ information systems to improve the speed and quality of services they provide to customers.

4.3   **Competitive Advantage and Strategic Information Systems**

4.3.1 Introduction to Competitive Advantage

Competitive advantage is considered as the advantage a company has over competitors. Organizations compete based on their value chains, the series of processes that create products and services that external customers pay for. **Competitive advantage** occurs when a firm's value chain generate superior product and service features, quality, availability, low cost or other things customers care about. Competitive advantage comes from many sources. Some companies have a natural competitive advantage. Others must create competitive advantage through superior product design, marketing, customer service or distribution channel. Information systems are increasingly used by organizations to gain competitive advantage. These systems are known as Strategic Information Systems. In order to gain competitive advantage, they may deliver a product or service that is at a lower cost, that is differentiated, that focuses on a particular market segment, or is innovative. We will discuss these terms in the subsequent sections.

4.3.2 Competitive Forces and Strategies

A company can survive and succeed in the long run only if it successfully develops strategies to gain advantage in the global market over the **competitive forces** that shape the structure of competition in its industry and market. Competitive forces were introduced by Michael Porter. Any business that wants to survive and succeed must develop and implement strategies to effectively counter the following five competitive forces.

1. The challenge of competitors within its industry.
   As the number of competitors increases in the industry, naturally competition among them increases.
2. The threat of new entrants into an industry and its market.
   When the barriers to enter into an industry is less, such as less capital required, it is easy for new companies to enter into this industry. This also increases competition.
3. The threat posed by substitute products, which might capture market share.

When there are more substitute products, competition increases as customers can easily buy a substitute product/service.

4. The bargaining power of customers.
   If customers are able to move from one company providing services to another, due to reasons such as low switching costs (for example, when the customer has to spend little money or no money to move to a competitor), the competition among these companies increases.

5. The bargaining power of suppliers.
   When the suppliers can impose conditions on the organizations in an industry for reasons such as less availability of suppliers, the competition increases.

Whether and how a firm can use information systems competitively depends on the firm's strategy. Although competitive situations vary widely, most companies adopt some combination of the following five strategies to cope with the above threats of competitive forces.

1. **Cost leadership strategy:** Produce products and/or services at the lowest cost in the industry. A firm achieves cost leadership in its industry by economical buying practices, efficient business processes, forcing up the prices paid by competitors, and helping customers or suppliers reduce their costs. E.g. Many Sri Lankan garment manufacturers adopted this strategy to compete with foreign producers by taking advantage of low cost labor.

2. **Product differentiation strategy** provides more value to its products and services than competitors' or eliminates or reduces the competitor's differentiation advantages. A Sri Lankan buyer of an automobile may prefer a Japanese product over an Indian product due to the qualities such as comfortableness and the exterior look of the vehicle.

3. **Innovation strategy:** Introduce new products and services, put new features in existing products and services, or develop new ways to produce them. Innovation is similar to differentiation except that the impact is much more dramatic. Differentiation "tweaks" existing products and services to offer the customer something special and different. Innovation implies something so new and different that it changes the nature of the industry. The new wristwatch released to market with capabilities of a Smartphone is an example.

4. **Growth strategy:** Increase market share, acquire more customers, or sell more products. Such a strategy strengthens a company and increases profitability in the long run. Web-based selling can facilitate growth by creating new marketing channels, such as electronic auctions.

5. **Alliance strategy:** Work with business partners in partnerships, alliances, joint ventures, or virtual companies. This strategy creates synergy, allows companies to concentrate on their core business, and provides opportunities for growth. Alliances are particularly popular in electronic commerce ventures. For example, Amazon (online book seller) outsources many of its services such as warehouse management and logistics and works together to provide the service to customers.

4.3.3 Use of IT to Support Competitive Strategies

A company's business strategy has crucial implications for its operations, profitability, and capacity to meet the needs of its customers. Information technology can facilitate strategy implementation and can become a source of competitive advantage. The source of competitive advantage in business is what you do with the information that

technology gives you access to. Therefore, planning and applying information systems in a way that complements the overall strategies and tactics of the organization is important.

How information technology can be used to implement the five basic competitive strategies is briefed in table 4.1.

Table 4.1 – Use of Information Technology in Basic Strategies

Strategies	Use of IT
Cost leadership	• Use IT to substantially reduce the cost of business processes. • Use IT to lower the costs of customers or suppliers.
Differentiation	• Develop new IT features to differentiate products and services. • Use IT to reduce the differentiation advantages of competitors. • Use IT to focus products and services at selected market places.
Innovation	• Create new products and services that include IT components. • Develop unique new markets or market niches with the help of IT. • Make radical changes to business processes with IT that dramatically cut costs, improve quality, efficiency or customer service, or shorten time to market.
Growth	• Use IT to manage regional and global business expansion. • Use IT to diversify and integrate into other products and services.
Alliances	• Use IT to create virtual organizations of business partners. • Develop inter-enterprise information systems linked by the Internet that support strategic business relationships with customers, suppliers, subcontractors and others.

4.3.4 The Value Chain and Strategic IS

A strategic information system is designed to play a major role in an organization's competitive strategy and involves using various strategic uses of information technology for gaining a competitive advantage or reducing a competitive disadvantage or meeting other strategic enterprise objectives.

The value chain concept was briefly introduced in section 4.1. It views the organization as a chain of value-added processors or activities. In this view, the organization should focus developing of a variety of strategic uses of information technology on those processors that add the most value to an organization's products or services, and thus to the overall business value.
As such, the value chain concept is useful in analyzing where and how the strategic capabilities of information technology can be applied. It also shows how various types of information technologies might be applied to specific business processes to help an organization gain competitive advantages in the market place.

Some examples of strategic applications of information systems technology to primary and support business processes is presented in table 4.2.

Table 4.2 – Examples of Strategic Applications of Information Systems Technology to the Value Chain Processes

Type of Process	Business Process	IT Application	Advantage
Primary	Inbound Logistics	Automated Just in Time warehousing	Reduces the raw materials that should be stored in the organization. Raw materials are delivered as and when stock levels reduce to a predefined

			level. Saves money as storing raw materials itself is a cost for an organization.
	Operations	Use Computer aided manufacturing	Reduces costs and time. Increases accuracy compared to manual work.
	Outbound Logistics	On-line Point-of-Sale (PoS) and Order Processing	Improves customer service by providing quick service Can also reduce cost
Support	Human Resource Management	Employee benefits (intranet)	Quick information delivery Satisfied customers Improves efficiency
	Technology development	Product development extranet with partners	External knowledge can be incorporated efficiently.

4.3.5 Other Strategic Uses of IT

There are many other strategic uses of information technology in addition to one described in the previous section. Let's look at several of those.

4.3.5.1 Building a Customer Focused Business

The value of this type of business lies in its ability to help organizations keep customers loyal, anticipate their future needs, respond to customer concerns and provide top-quality customer service. This strategic focus on customer value considers quality of products and services, rather than prices, as the primary determinant in a customer's perception of the value. The organization that consistently offer the best value to customers from their point of view, are mainly able to keep track of their customers' individual preferences and provide customer services tailored to individual needs.

Let's look at how IT can be used to build a customer based business.

- The Internet provides a strategic opportunity. It offers a fast, responsive, high quality products and services tailored to individual customer preferences.

- Customer Relationship Management (CRM) systems and Internet, intranet and extranet web sites create new channels for interactive communications within a company with customers and suppliers, business partners and others in the external environment.

- Internet and extranet links to suppliers and business partners can be used to ensure prompt delivery of quality components/services.

- Business Intelligence applications enable organizations to identify customer requirements better.

4.3.5.2 Reengineering Business Processes

Reengineering business processes, often called Business Process Re-engineering (BPR), is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical measures of performance, such as cost, quality, service and speed. Obviously, its payback is very high. However, making radical changes to the business processes to dramatically improve efficiency and effectiveness is not an easy

task. Because of the radical restructuring it calls for, most firms attempting major reengineering projects have found them difficult and risky. Common outcomes of reengineering include combining several jobs into one, permitting workers to make more decisions themselves, and reorganizing jobs to give individuals more understanding and more responsibility. Many reengineering efforts also result in significant staff reductions.

Information technology plays a major role in reengineering most business processes. The speed, information processing capabilities and connectivity of computers, Internet technologies can substantially increase the efficiency of business processes, as well as communication and collaboration among the people responsible for their operation and management.

4.3.5.3 Improve Agility

Agility in business performance is the ability of a company to remain competitive in rapidly changing, continually fragmenting global markets for high-quality, high performance products and services. Thus, an agile company can compete in markets with broad product ranges and short reproduction lifetimes. It also can fill large orders individually. It offers customized products while maintaining high volumes of production. Agile companies depend heavily on internet technologies to integrate and manage business processes.

 Three basic strategies must be implemented to be an agile company.
1. Customers view products or services as solution to their individual problems. Thus, the price of a product is only based on the value of it to customers, and not based on the cost to produce.

2. Company cooperates with customers, suppliers, and other companies, and even with competitors to bring products to the market as rapidly and cost effectively as possible.

3. Company succeeds on change and uncertainty. It uses flexible organizational structures keyed to the requirements of different and constantly changing customer opportunities.

4.3.5.4 Develop Virtual Organizations

A virtual organization can be one of the most important strategic uses of information technology. A virtual organization uses information technology to link people, organizations, assets and ideas. The major aspects of core processes such as design, production, and delivery are outsourced to other organizations that specialize in these areas. Virtual organizations exist by agreement of their members and sometimes need immediate access to shared information in order to operate efficiently. Virtual organizations typically form flexible and adaptable virtual workgroups and alliances with business partners that are interlinked by the Internet, Intranet and extranets to exploit fast changing business opportunities. People and organizations are forming virtual companies as the best way to implement key business strategies and alliances that promise to ensure success in today's chaotic business climate.

4.3.5.5 Improve Knowledge Creation

In a company where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge. Successful companies are those that consistently create new knowledge, disseminate it widely throughout the organization, and quickly embody it in new technologies and products. These activities define the "knowledge-creating" company, whose sole business is continuous innovation. These companies are

famous for their ability to respond quickly to customers, create new markets, rapidly develop new products, and dominate emergent technologies. The secret of their success is their unique approach to managing the creation of new knowledge. Successful knowledge management creates techniques, technologies, systems, and rewards for getting employees to share what they know and to make better use of accumulated workplace and enterprise knowledge as they do their job.

Knowledge Management Systems help knowledge workers create, organize and make available important business knowledge, wherever and whenever it's needed in an organization. As the organizational learning process continues and its knowledge base expands, the knowledge creating company works to integrate its business processes, products and services. This helps the company become more innovative and agile provider of high quality products and customer services.

### 4.4   Role of networks in organizations

Networks are used for many different activities in an organization. Many companies use the Internet to sell goods and services to customers. For example, if you want to book a hotel room you may do it online through the hotel website. In banking, you may transfer money between accounts using the Internet.

As the above examples show, networks try to facilitate communication between two or more parties. Communication means the exchange of information between two or more parties. It is an important business activity because it helps customers to be in touch with an organization, employees to share ideas and the organization as a whole to communicate with other organizations.
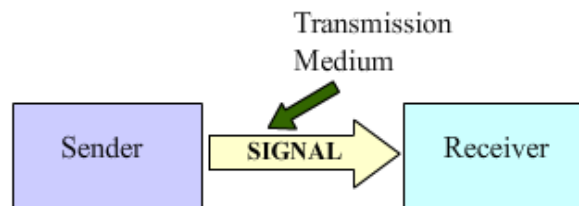

Figure 4.3: Communication basics

In organizations, people communicate not only verbally, but perhaps also using some sort of electric means. The most common example of using some sort of electric means to communicate is the use of the telephone network also called the telecommunications network to get calls. For example telecommunications help a manager at the head office in Colombo to speak with a divisional manager in Galle.
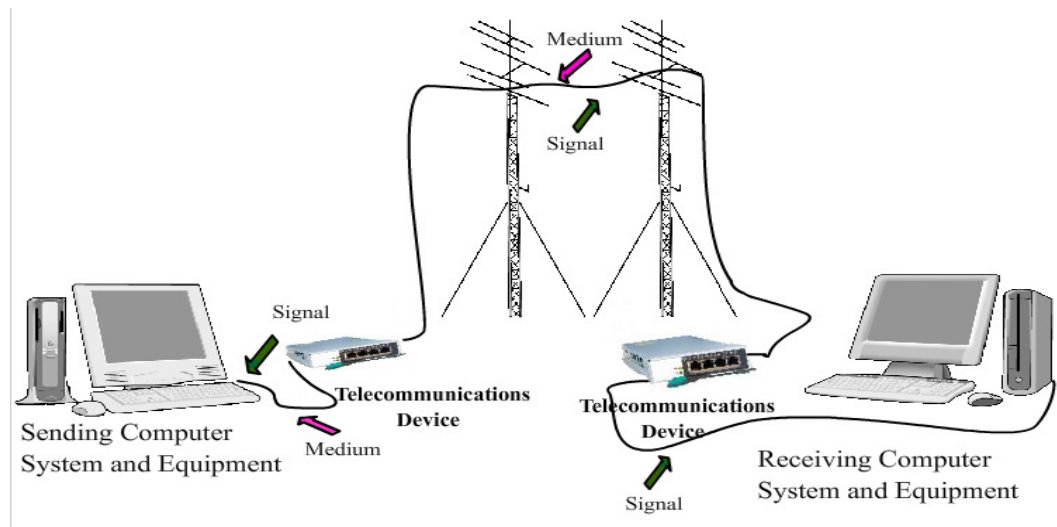
Figure 4.4: Telecommunication network

In a computer network two or more computers communicate through some link. An example for the use of a computer network is an information system of a supermarket where transaction details entered at the checkouts are summarised and presented to the management over a communication link.
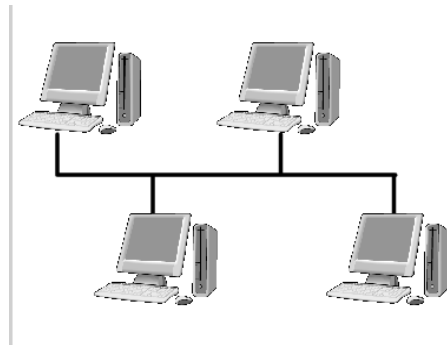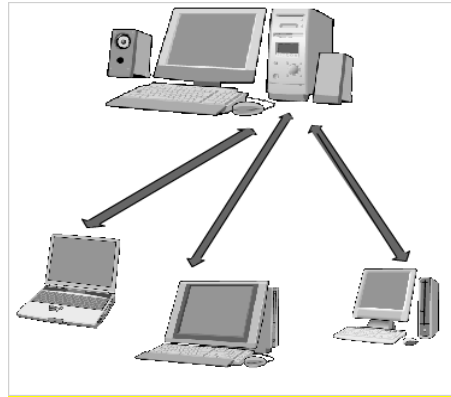

Figure 4.5: A Computer network

Communication can be synchronous or asynchronous. In synchronous communication the receiver gets the message at the same time it is sent whereas in asynchronous communication the receiver gets the message later. Ordinary telephone calls are examples of synchronous communication. Another example is video conferencing where all the parties involved hear and see each other at the same time. Video conferencing is used nowadays to hold business meetings from distant locations. An example for asynchronous communication is e mail.
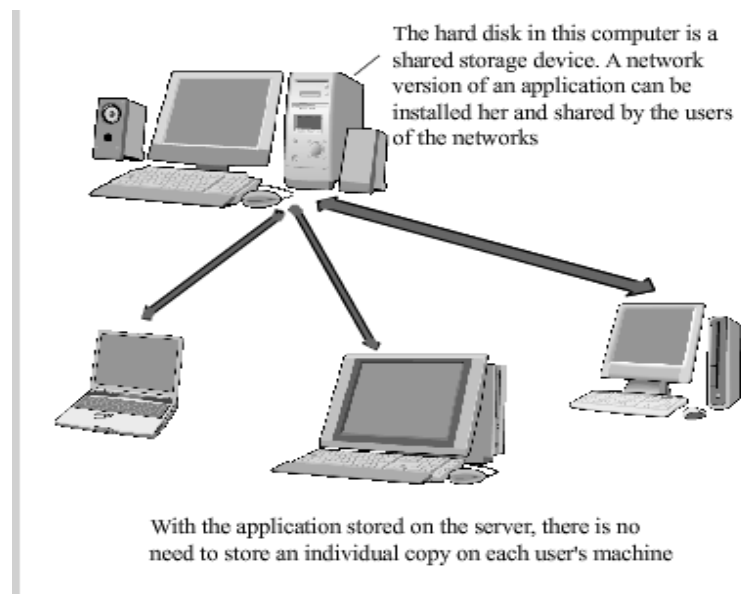
Communication is an important aspect of an information system. For example consider a transaction processing system of a modern supermarket. The computers at the checkouts may need to connect to a database to maintain backups of the transactions. On the other hand transaction details may need to be summarised and presented to a manager who is at the head office in Colombo over a management information system.

Communication networks avoid the need to be in the same place and some times the same time for communication to happen. For example an e-mail message you sent to your favourite bookshop in Colombo this morning reserving a book may have been read only this evening.

There are computers called database servers which are used to store data because they are designed to do data management. By storing shared data in a database server, computers can have access to the data at the same time through a network. Further, there are program versions called network versions which can be stored in a server and shared by the computers of a network. This avoids duplicating programs in each machine.


Figure 4.6: Sharing data

The hard disk in this computer is a shared storage device. A network version of an application can be installed her and shared by the users of the networks

With the application stored on the server, there is no need to store an individual copy on each user's machine

Figure 4.7: Sharing network versions of programs

Another use of a network is to share peripheral devices such as laser printers which are expensive. In this case the network operating system manages the use of the shared peripheral device. For example a network operating system will not allow a printer to be used by a computer in the network if it is used by another computer in the network at the same time.
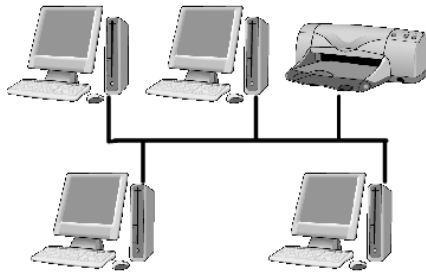
Figure 4.8: Use of networks to share peripheral devices

Networks link computers together. As a result networks provide a means to communicate between machines. For example we use networks when we send e-mails and download information from the web.
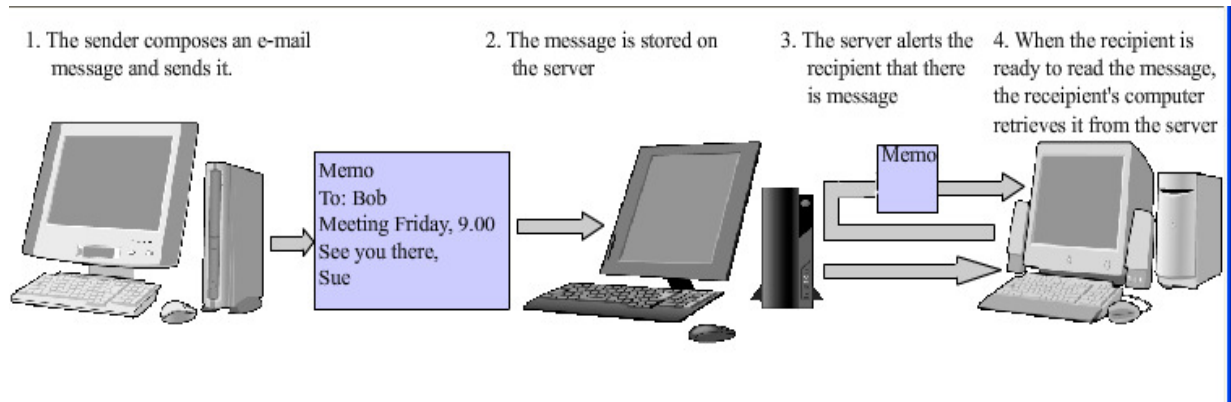
Figure 4.9: Communication through e-mail

A network can be used to send backups of data from a computer in the network to a database server which is attached to the network. The software which manages and coordinates a network called the network operating system usually backup data time to time.
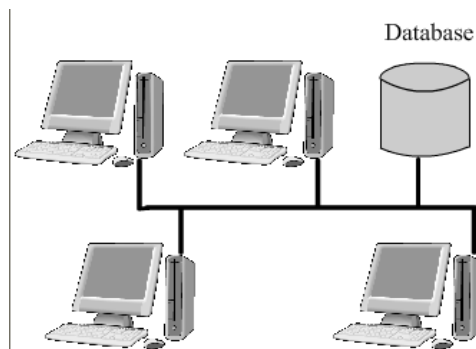
Figure 4.10: Use of a network to backup data

4.5   Communication Networks and the business value they generate

4.5.1 Business value of telecommunication networks

Telecommunications has become an important factor of an organization's success and is considered a strategic resource. Telecommunication infrastructure enhances connectivity. For example with the cellular network sales personnel can be in constant touch with the customers and the managers. Telecommunications not only support voice communication but also supports data communication. For example with increased telecommunication infrastructure, more users will get connect to the Internet and the organizations will get involved in e-business.

Table 4.3: Examples of the business value of telecommunications

Strategic Capabilities	e-Business Examples	Business Value
Overcome geographic barriers: Capture information about business transactions from remote locations	Use the Internet and extranets to transmit customer orders from traveling salespeople to a corporate data center for order processing and inventory control	Provides better customer service by reducing delay in filling orders and improves cash flow by speeding up the billing of customers
Overcome time barriers: Provide information to remote locations immediately after it is requested	Credit authorization at the point of sale using online POS networks	Credit inquiries can be made and answered in seconds
Overcome cost barriers: Reduce the cost of more traditional means of communication	Develop videoconferencing between a company and its business partners using the Internet, intranets and extranets	Reduces expensive business trips, allows customers, suppliers and employees to collaborate, thus improving the quality of decisions reached.
Overcome structural barriers: Support linkages for competitive advantage	Business-to-business electronic commerce websites for transactions with suppliers and customers using the Internet and extranets	Fast, convenient services lock in customers and suppliers

4.5.2 Business value of the Internet

The business value of the Internet is evident from the numerous web sites that are engaged in e-business and e-commerce. Ref. 2 identifies 6 major business values, which companies engaged in e-business and e-commerce strive for. They are,

(1) Generate new revenue from online sales
(2) Reduce transaction costs through online sales and customer support
(3) Attract new customers via web marketing and advertising and online sales
(4) Increase the loyalty of existing customers via improved web customer service and support
(5) Develop new Web-based markets and distribution channels for existing products
(6) Develop new information-based products accessible on the web.
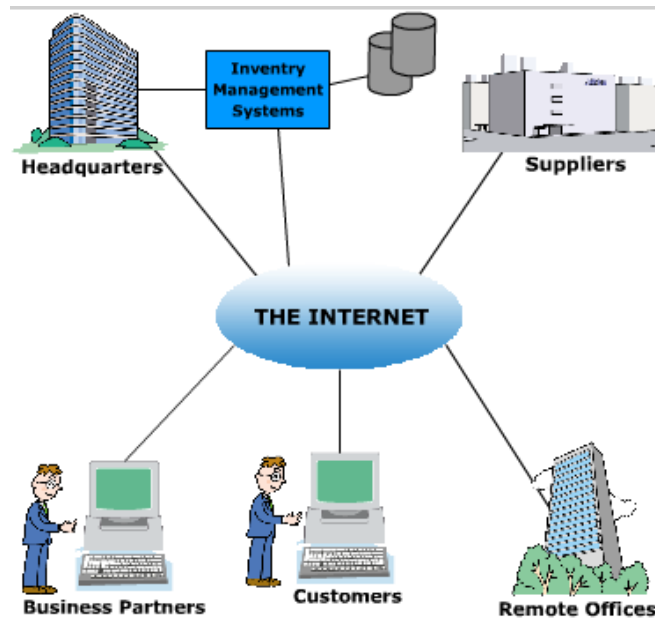
Figure 4.11: Business value of the Internet

4.5.3 Business value of Intranets

Intranets have become an essential ingredient of day to day work in organizations. By providing an Internet-like environment inside an organization, they enable better communication and information sharing. Management becomes easier and the responsiveness of the business processes improves as a result.
Intranet applications can be organized as follow.

(a) Communications & collaboration
Intranets help send and receive e mails and communicate through voice mails. They further enable virtual meetings and group discussions through e mail and video conferencing.

(b) Web Publishing
Things like company newsletters, project plans and technical drawings can be published as attractive web pages having multimedia content. These can be stored in a server which could be accessed through any computer on the intranet. This has become an efficient and a cost effective alternative to share information in an organization.

(c) Business Operations and Management
An intranet can be used to support business activities such as order processing, inventory control and sales management.

4.5.4 Business value of Extranets

Extranets link an organization with its suppliers and customers. By linking with suppliers, it reduces delivery time and consequently the storage costs. By enabling online collaboration with customers, extranets enable interactive and customer focused product development and marketing. The company can increase its competitive advantage by introducing new types of products that have information value to the customer. For example consider software having online product support over the

Internet. They also enable faster decision making by enabling faster communication with the business partners of the company.
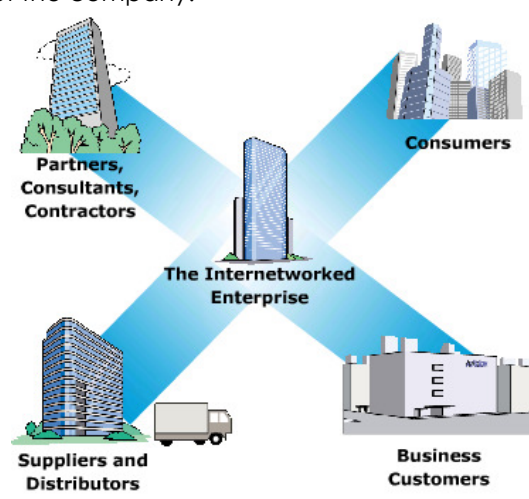
Figure 4.12: Extranet applications