SYLLABUS
DECISION SUPPORT SYSTEM & MIS
MBA–3rd SEMESTER, M.D.U., ROHTAK

External Marks : 70
Time : 3 hrs.
Internal Marks : 30

UNIT - I
Decision Support System: Overview, components and classification, steps in constructing a DSS, role in business, group decision support system.

UNIT - II
Information system for strategic advantage, strategic role for information system, breaking business barriers, reengineering business process, improving business qualities.

UNIT - III
Information system analysis and design, information SDLC, hardware and software acquisition, system testing, documentation and its tools, conversion methods.

UNIT - IV
Marketing IS, Manufacturing IS, Accounting IS, Financial IS.
Q. Define Decision Support System. Explain its characteristics and need.

Ans. A decision support system is an information system application that assists decision making. DSS tends to be used in planning, analyzing, alternatives and trial and error search for solutions. A DSS as a system that provide tools to managers to assist them in solving semi structured and unstructured problems in their own. In other words, A DSS is an information system that support to managers for decision making. DSS is the intellectual resources of individuals with the capabilities of the computer to improve the quality of decision.

A DSS can be defined as a computer based information system that aids a decision maker in taking decisions for semi-structured problems.

Definition of DSS: “A decision support system is a specialized kind of information system which is an interactive system that supports in the decision making process of a manager in an organization especially in semi-structured and unstructured situations. The system utilizes information, models and data manipulation tools to help make decisions in semi-structured to unstructured situations.

As a conclusion we can say that-

“Decision Support System is an interactive, computer based system which supports managers in making unstructured decisions.”

Characteristics of DSS: - The characteristics of the DSS are as follows: -

1. DSS focus on towards providing help in analyzing situations rather than providing right information in form of various types of reports.
2. DSS is individual specific. Each decisions maker can incorporate his own perceptions about the problem and analyze its effect.
3. DSS incorporates various mathematical, statistical and operations research models.
4. DSS is only supportive in nature and human decisions makers still retain their supremacy. It does not thrust its outcomes on the decision maker.
5. DSS is effective in providing assistance to solve semi-structured problems at all levels. It is used at first line, middle level and top level management.

6. DSS needs an effective database management system. It is extensively used databases.

7. DSS helps decision makers to carry out ‘What-if’ analysis.

The ideal characteristic of DSS
Objectives of DSS: - The objective of the DSS are as stated below: -
1. Provide assistance to decision makers in situations which are semi-structured.
2. Identify plans and potential actions to resolve problems.
3. Rank among the solutions identified, those which can be implemented and provide a list of viable alternatives.

Needs of DSS: - DSS have become necessary for today’s manager because of following reasons: -

1. **Fast computation:** - A decision maker can perform a large number of computations very quickly and that too at a low cost with the help of computer support systems.
2. **Enhanced productivity:** - Decision support system can enhance the productivity of support staff and also enable the group members to discuss the problems among themselves as a distance.
3. **Better decisions:** - Computer support system can help a decision-maker in arriving at a better decision. For example, more alternatives can be evaluated, risk analysis be performed quickly, and views of experts from different places can be collected quickly and at a lower cost.
4. **Data transmission:** - Sometimes the data, which may be stored at different locations, may be required to be transmitted quickly from distant locations. Computer support system can search, store, and transmitted the required data quickly and economically.

Q. Explain the components and classification of DSS.

Ans. **Components of DSS:** - The main component of DSS is

1. Hardware
2. Software

1. **Hardware:** - Hardware is that parts of the computer system that can be touched. These are tangible parts. Without hardware, software is nothing. Hardware is just like human body and software is like soul in body. All input and output devices are hardware parts. For example Mouse, Keyboard etc. are the parts of hardware.

There is no fixed hardware configuration for designing, developing, maintaining and executing DSS. The hardware configuration for a DSS is mainly determined by:-

a) The size of the database
b) The DBMS package which one intends to use.
c) The type of model that are being used.
d) Ways in which reports/presentations are expected.
2. **Software:** Software is a set of computer programs that are designed and developed to perform a specific task. Software acts as an interface between the user and computer. Software can be defined as a set of instructions written by a program to solve a problem. It can be classified as:

   a) Database Management Sub-System
   b) Model Management Sub-system
   c) Dialogue Management Sub-system

This is explained as below:

a) **Database Management Sub-system:** Normally there are two sources of data such as internal source or external source. Database management system provides facilities for organizing, storing, and querying these data. It acts as an information bank. DBMS software provides various facilities to modify and delete for database creation, manipulate the data present in the database, and query the data in the database.


b) **Model Management Sub-system:** A model presents the relationship between various parameters of the system. It gives a mathematical description of reality. The model builder provides a structured framework for developing models by helping decision makers. The model builder also contains model dictionary consistencies in the definitions of models.

A model management subsystem provides the following:

1. A model base management system which helps in the creation of models and maintenance of the same.
2. An external interface which permits a user to choose a model to be executed and provides facilities for entering data.
3. An interface to the database.

c) **Dialogue Management Sub-system:** This acts as the gateway for the user to communicate with the DSS. It provides menus and icons for the user to communicate effectively with the system. It converts the queries given by the user into forms which the other subsystems can recognize and execute. It keeps a track of activities that are being performed.

The major activities of a Dialogue management subsystem are to:

1. Provides menus and icons for the user to communicate effectively with the system.
2. Provide necessary on-line context-sensitive help to various kinds of users.
3. Convert the queries given by the user into forms which the other subsystems can recognize and execute.
4. Keep track of the activities that are being performed.
Classified of DSS: - This can be classified are as follows:-

(i) **Fie Drawer Systems**: - This is a system which provide the user with organized information regarding specific demands. This system provides on-line information. This is very useful system for decision making.

(ii) **Data Analysis Systems**: - These decision systems are based on comparative analysis and makes use of a formula. The cash flow analysis, inventory analysis and personnel inventory systems are examples of the analysis systems. This use of simple data processing tools and business rules are required to develop that system.

(iii) **Information Analysis System**: - In this system the data is analyzed and the information reports are generated. The decision makers use these reports for assessment of the situation for decision-making. The sales analysis, accounts receivables system, market research analysis are examples of such systems.

(iv) **Accounting Systems**: - These systems are not necessarily required for decision making but they are desirable to keep track of the major aspects of the business. These systems account items such as cash, inventory, and personnel and so on.

(v) **Model Based Systems**: - These systems are simulation models or optimization models for decision making. It provides guidelines for operation or management. The product decision mix decisions, material mix, job scheduling rules are the examples. It is the most important type of DSS.

(vi) **Solver Oriented DSS**: - It is performing certain computations for solving a particular type of problem. The solver could be economic order quantity procedure for calculating an optimal ordering quantity.

(vii) **Suggestion System**: - There are used for operational purposes. They give suggestion to the management for a particular problem. This model helps in making required collection of data before taking a suitable decision.

(viii) **Compound DSS**: - It is a system that includes two or more of the above five basic structures explained above. It can be built by using a set of independent DSS, each specializing in one area.

(ix) **Text oriented DSS**: - A Text oriented DSS supports a decision maker by electronically keeping trade of textual represented information that have a bearing on decision. It allows documents to be electronically created, revised and viewed as needed. The information technologies such as documents emerging, hypertext and intelligent agents can be incorporated into this type.
Q. Define the steps in constructing the DSS and explain the role in business.

Ans. Steps in constructing a DSS:

There are following steps which are constructing the DSS.

1. **Identification of the problem:** In this stage the developer and the knowledge engineer interact to identify the problems. The following points are discussed:
   a) The scope and extent are analyzed.
   b) The return of investment analysis is done.
   c) The amount of resources needed is identified.
   d) Areas in the problems that can give much trouble are identified and a conceptual solution of that problem is found.
   e) Overall specification is made.

ii) **Decision about mode of development:** Once the problem is identified, the immediate step would be to decide about the vehicle for development. He can develop shell for development by any programming language. In this stage various shells and tools are identified and analyzed for their suitability. These tools whose features fit the characteristics of the problems are analyzed in details.

iii) **Development of a prototype:** Before the development of a prototype we decide the knowledge level to solve the particular problem. For this we adopted some methods in sequence. After this the taste of knowledge begins the knowledge of Engineer and developer which interact frequently and domain specific knowledge is entramed. When knowledge representation scheme and knowledge is available a prototype is constructed.

iv) **Prototype validation:** The prototype under goes the process of testing for various problems and revision of the prototype takes place. It is very important step the DSS.

v) **Planning for full scale system:** In prototype construction, the area in the problem that can be implemented with relative ease is first choice extensive planning is done. Each subsystem development is assigned a group leader and schedules are drawn.

vi) **Final implementation, maintenance and evaluation:** This is the final stage of DSS Life Cycle. The full scale system developed is implemented at the basic resources requirements are fulfilled and parallel conversion.

**Role of DSS in Business**

DSS is computer based information system for management decision maker who deal with the semi-structured problems. DSS play an important role in business. It performs various activities. The role of DSS is explained as follows:
1. **What-if analysis**: This is the process of assessing the impact of variables. This helps managers to be proactive rather than reactive in their decision making. This analysis is critical for semi-structured and unstructured problems because the data necessary to make such decisions are not available.

2. **Goal oriented**: It is the process of determining the input values required to achieve a certain goal. For example, house buyers determine the monthly payment they can afford (say for example Rs. 5000/-) and calculate the number of such payments required to pay the desired house.

3. **Risk analysis**: Risk is the important factor which affects the business enterprise. DSS allows managers to assess the risks associated with various alternatives. Decisions can be classified as low risk, medium risk and high risk. A DSS is particularly useful in medium risk and high risk environments.

4. **Model building**: DSS allows decision makers to identify the most appropriate model for solving the problems. It takes into account input variables, interrelationship among the variables, problem assumptions, and constraints. For example, a marketing manager of a television manufacturing company is charged with the responsibility of developing a sales forecasting model for colour TV sets.

5. **Graphical analysis**: This helps managers to quickly digest large volumes of data and visualize the impacts of various courses of action. They recommend the use of graph when:
   - a) Seeking a quick summary of data.
   - b) Forecasting activities.
   - c) Detecting trends over time.
   - d) Composing points and patterns at different variables.

Q. **Explain the characteristics of Group Decision support system. Also explain the advantage and application of group decision support system.**

**Ans.** **Group decision support system (DSS)**: A group decision support system is a decision support system that facilitates decision making by a team of decision makers working as a group. The importance of collective decisions is being felt today. For main issue to be sorted out, brainstorming sessions are carried out and the collective pool of
ideas and opinions give a final shape to a decision. A GDSS is a DSS that facilitates decision making by a team of decision maker working as a group.

“A GDSS is an interactive, computer based system that facilitates solution of unstructured problems by a set of decisions makers working together as a group. A GDSS is superior then DSS because in GDSS the decisions are taken by a group of DSS. So it is superior to the DSS.”

**Characteristics of GDSS** : The main features of GDSS is explained as follows:-

(i) A GDSS is a goal oriented. A GDSS is designed with the goal of supporting groups of decision makers in their work.

(ii) A GDSS is a specially designed information system.

(iii) A GDSS is easy to learn and to use.

(iv) A GDSS is designed with the goal of supporting groups of decisions makers in their work.

(v) The GDSS is designed to encourage activities such as idea generation, conflict resolution and freedom of expression.

**Types of GDSS** :

There are three types of computer based supports are available:-

1. **Decision Network** : This type helps the participants to communicate each other through network or through a central database. Application software may use commonly shared models to provide support. The commonest implementation using local area network and microcomputers. The technology filters out many group dynamics of a participative meeting.

2. **Decision Room** : Participants are located at one place i.e the decision room. The purpose of this is to enhance participant’s interactions and decision making by computerized within a fixed period of time using a facilitator.

3. **Teleconferencing** : Groups are composed of members or sub groups that are geographically dispersed; teleconferencing provides interactive connection between two or more decisions rooms. This interaction will involve transmission of computerized and audio visual information .Decision network can be viewed as the use of local area network, for decision making involving groups the decision room is entirely new development. The decision room should consist of a table with network workstations for the purpose. Breakout rooms, used for similar discussions, are also equipped with similar machines. A combinations of overhead projector, flipchart, photocopier and other presentations devices are provided as well.
Advantages of GDSS

1. Take better decision.
2. To solve the problem.
3. To minimize the risk.
4. To collect large amount of information.
5. To provide interactive communication.
6. Improve the decision making process.
7. To make coordination in various activities.

1. **Take better decision**: Through the GDSS we can take better decisions because the under GDSS the decisions are taken by a group of DSS.

2. **To solve the problem**: GDSS provide solution to unstructured problems. GDSS collects various type of information at various sources.

3. **To minimize the risk**: GDSS allows managers to assess the risks associated with various alternatives. This helps managers to be proactive rather than reactive.

4. **To collect large amount of information**: GDSS collect information at various sources for making decision making. This information minimizes the risk.

5. **To provide interactive communication**: GDSS provide interactive communication. It takes better decision through the interactive communication.

6. **To improve the decision making process**: GDSS improve the decision making process because GDSS is a goal oriented. When the GDSS is designed the goal is considered.

7. **To make coordination in various activities**: In GDSS decision are taken by a group of DSS. The work is divided into different parts then each DSS performs own work. So the coordination is possible.

Disadvantage of GDSS: The disadvantage of GDSS are as follows:

1. More chances for clash of opinions are there.
2. Very large group bring work complex.

Application of Group Decision Support System

1. For meetings.
4. Stock exchange/foreign market.
5. Brain storming.
7. Assessing the judgmental tasks.
8. Office automation.

Components of GDSS: The main components of GDSS is explained as follows:-

1. **Hardware**: It includes Single PC, Computer PCs and Keypads, a decision room, distributed GDSS, Audio Visual Aids, Network Equipment etc.

2. **Software**: GDSS software includes modules to support the individual, the group, the process and specific tasks. The software allows each individual to do private work, the usual collection of text and file creation, graphics, spreadsheet and DBMS.

3. **Procedure**: It enables ease of operation and effective use of the technology by group members.

4. **People**

How GDSS can enhance group decision making:

GDSS help to enhance group decision making by following ways:

1. **Improved preplanning**: Improved preplanning forces an agenda to keep the meeting on track.

2. **Increased participation**: More number of persons, result more effective contribution towards decisions.

3. **Open, collaborative meetings atmosphere**: GDSS help to provide open, and collaborative meeting atmosphere which provide non judgmental input by all attendees.

4. **Criticism free idea generation**: GDSS provide criticism free idea generation with more inputs and better ideas.

5. **Documentation of meeting**: GDSS help for effective documentation of meetings which are used for further discussion and use.

6. **Setting priorities and making decisions**: GDSS help to set the priorities and give importance to those problems which are more critical.
Q. Describe the short notes on role of information system in business?

Ans. Information System is combination of two terms, namely –

1. Information
2. System

1. Information – Information is data which has been processed into a form that is meaningful to the recipient and is of real or perceived value in current or prospective actions or decisions.

2. System – System is a set of elements, joined together to achieve a common objective. Exp: - A business organization can be considered as a system, in which the parts (Divisions, Departments, Sections, Units) are joined together for a common goal.

**Information Generation**

**System**

Information System – An information system is an organized combination of people, hardware, software, communication networks and data resources that collects, transforms and disseminates information in an organization.

An information system is a set of technologies that support work group and enterprise collaboration, efficient business operations, or effective managerial decision-making and
change the way business compete strategically by acting as a vital competitive network, as a means of organizational renewal, and as a necessary investment in technologies that help an enterprise to achieve its strategic objectives.

**Functional Roles of Information System**

1. **Lower Costs** –
   a) Use IT to substantially reduce the cost of business processes.
   b) Use IT to lower the costs of customers or suppliers.

2. **Differentiate** –
   a) Develop new IT features to differentiate products and services.
   b) Use IT features to reduce the differentiation advantages of competitors.
   c) Use IT features to focus products and services at selected market.

3. **Innovate** –
   a) Create new products and services that include IT components.
   b) Make radical changes to business processes with IT.
   c) Develop unique new markets with the help of IT.

4. **Promote growth** –
   a) Use IT to manage regional and global business expansion.
   b) Use IT to diversity and integrate into other products and services.

5. **Develop alliances** –
   a) Use IT to create virtual organizations of business partners.
   b) Develop inter-enterprise information system linked by the Internet and Entrants that support strategic business relationship with customers, suppliers, sub contractors and others.

6. **Improve quality and efficiency** –
   a) Use IT to dramatically improve the quality of products and services.
   b) Use IT to make continuous improvements to the efficiency of business processes.
   c) Use IT to substantially shorten the time needed to develop, produce and deliver products and services.

7. **Other strategies** –
   a) Use inter-organizational information systems to create switching costs that locks in customers and suppliers.
   b) Use investment in IT to build barriers to entry against industry outsiders.
   c) Use IT components to make substitution of competing products unattractive.
   d) Use IT to help create, share and manage business knowledge.
Q. Explain short note on Information system for strategic advantage.

Ans. Strategic role of information systems involves using information technology to develop products, services and capabilities that give a company strategic advantages over the competitive forces it faces in the global market place. This creates strategic information systems, information system that support or shape the competitive position and strategies of an enterprise. So a strategic information system can be any kind of information system (TPS, MIS, DSS etc.) that helps an organization gain a competitive advantage, reduce a competitive disadvantage or meet other strategic objectives.

A firm can survive and succeed in the market if it can carefully develop strategies to confront the competitive forces that shape the structure of the competition in its industry. There are many factors which affect the business such as -

1. Threats of new entrants.
2. Rivalry among existing competitors.
3. Threats of substitute products or services.

Business can develop competitive strategies which are explained as follows:-

1. Cost leadership strategies.
2. Differentiation strategies.
3. Innovation strategies.
5. Alliance strategies.

Business can develop competitive strategies to counter the action of the competitive forces they confront the market place.

1. **Cost leadership strategy** – Becoming a low cost producer of product and services in the industry. Also a firm can find way to help its supplies or customers reduce their cost or to increase the costs of their competitors.

2. **Differentiation strategy** – Developing way to differentiate the firm’s product and services from its competitors or reduce the differentiation advantages of competitors. This is very important strategies for success of the business.

3. **Innovation strategy** – Finding new ways of doing business. This may involve the development of unique products and services or entry in to unique market. It may also involve making radical changes to the business processes for producing or distributing products and services.
4. **Growth strategy** – Significantly expanding a company’s capacity to produce goods & services, expanding into global markets, diversifying into new product and services or integration into related products and services.

5. **Alliance strategy** – Establishing new business linkages & alliances with customers, suppliers, competitors, consultants and other companies. These linkages may include mergers, acquisitions, joint ventures etc.

**Use of Information system in business** :

The use of information system has been increasing day by day. It helps to give a competitive advantage over business rivals. The uses of Information system in business are as follows:

1. **Promoting business innovation** – Investment in information technology can result in the development of unique products and services or processes. This can create new business opportunities and enable a firm to expand into new markets or segments of existing markets. Exp: - ATM represented an attractive and convenient new banking service produced and distributed to customers by making innovative changes in the delivery of bank services. Thus, information systems technology was used to develop a strategic new distribution process for bank services.

2. **Improving business processes** – Investment in information technology could enable a firm to cut costs, improve quality and customer service, and develop innovative products for new markets. It can still be improved by CAD- Computer Aided Design, CAM- Computer Aided Manufacturing, and manufacturing resources management technologies.

3. **Locking in customers and supplier** – Investment in information technology can allow a business to lock in customers and suppliers by building valuable new relationships with them. Earlier, this approach was used to improve the quality of service to customers and suppliers. Now this approach used for customized design suggestions and other innovation ideas from them. Exp: - Wallmart built an elaborate satellite network linking all of its stores and it is also provided managers, buyers, and sales associates with up- to –date sales, shipping, inventory and account status information to improve product buying, inventories and store management.

4. **Raising barriers to entry** – By investment in information technology a firm could also erect barriers to entry that would discourage or delay other companies from entering a market. Typically it happens by increasing the amount of investment of the complexity of the technology required to compete in an industry or market segment. Exp: - Merrill Lynch, along with an alliance with ‘Banconc’, became first securities brokers to offer a credit line, checking account, Visa credit card and automatic investment in money market fund, all in one account. Thus, large investments in computer based information system can make the stakes to high for some present or prospective players in an industry.
5. Developing a strategic information base – Information system also allows a firm to develop a strategic information base that can provide information to support the firm’s competitive strategies. Information in a firm’s corporate databases has always been a valuable asset in promoting efficient operations and effective management of a firm. However, information about a firm’s operations, customers, suppliers and competitors, as well as other economic and demographic data, stored in data warehouse, data marts, and other corporate databases, is now viewed as a strategic resource. Exp: - Many businesses are now using data mining and online analytical processing to help design targeted marketing campaigns to selectively sell customers new products and services. This is especially true of firms that include several subsidiaries offering a variety of products and services.

Q. Describe the short note of Breaking Business Barriers.

Ans. The Information Technology breaks traditional barriers to strategic business success. Computer and telecommunications networks can help a business develop strategic relationship by establishing new electronic linkages with customers, suppliers and other business entities. Through the Telecommunication networks like the Internet enable you to communicate with people almost anywhere in the world.

![Business Barriers Diagram]

Type of Business Barriers

1. Breaking Time Barriers – Computers and telecommunication networks break time barriers. The key capabilities of IT are to shorten the barriers. The key capabilities of IT are to shorten the response time to customers demand and reduce inventory investment to a minimum. Thus it is helpful to make a company on agile competitor. With the help of IT time intervals between the various critical steps in a business processes are shortened and it focuses on interval reduction and just-in-time operations. Produces who deliver their products and services in real time relative to their competitors will have a strategic advantage.
Exp – Toyota Motor Corporation concluded that it was costing more to process the order on a car than to manufacture a car. So, it responded by developing a global telecommunications network that links computers of its dealer and distribution centers to the computers at its headquarters in Toyota City, and the production and scheduling computers at its manufacturing centers.

2. **Breaking Geographic Barriers** – Many companies today operate from several locations and have customers or suppliers at distant locations and do business in regional, national or global markets. Information technology breaks the geographic barriers that hinder the managerial control of operations, raise the cost of doing business and limit the quality of services and the coverage of potential markets. So the telecommunications networks have become a vital IT component of business operations today. The internet, intranets, extranets and other telecommunications and computing technologies make it possible to distribute key business activities to where they are most needed, where they are best performed, or where they best support the competitive advantage of a business. These networks links remote locations with other company headquarters and external entities such as suppliers, customers, consultants and other business partners. All of these entities can participate in business activities if geographical barriers did not exist.

Exp – Citibank moved its entire credit card operations to South Dakota during the 1980s because of high labour costs and restrictions on it by the state of New York. The telecommunications networks enabled them to move part of its operations to distant locations with lower costs, a better workforces and less restrictive Government regulations.

3. **Breaking Cost Barriers** – IT is also helpful for a business to gain strategic reductions in operations costs. Using Intranets and other telecommunications networks to interconnect key business areas can reduce the costs of production, inventory, distribution, or communications for any business firms. Information technology has helped companies cut labor costs, minimize inventory levels, reduce the number of distribution centers and lower communications costs.

Exp – Hewlett Packard Co. had decentralized purchasing departments as a result could not take an advantage of high volume discounts from suppliers. Instead of centralizing purchasing, HP telecommunications networks to link the computers of divisional purchasing department to a corporate procurement centre database.

4. **Breaking Structural Barriers** – It is helpful for a firm to break structural barriers that inhibit its operations or limit its drive for competitive advantage. Computers and telecommunications networks can help a business develop strategic relationships by establishing’s new electronic linkages with computers, suppliers and other business entities. The Internet, Intranets, Extranets and other telecommunication networks can support innovations in the delivery of services, increase the scope and penetration of markets.
Exp – Miller Brewing and Reynolds Metals: Miller Brewing Company is a customer of Reynolds Metals Company and one of Reynolds’s EDI business partners. Miller is helping Reynolds reduce the inventory of aluminum coils used at tin can manufacturing plants and track the quality of aluminum that is received from Reynolds and other suppliers. Reynolds developed software that enables Miller to use EDI and extranet links to Reynolds to track in transit inventories as well as do materials forecasting and ordering and quality control monitoring. Thus EDI and Reynolds’s extranet have helped it to develop a new business alliance with one of its biggest customers.

Q. Explain the Reengineering Business Process.

Ans. One of the most important implementations of competitive strategies is Business Process Reengineering (BPR). A fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in cost, quality, speed and services. So BPR combines a strategy of promoting business innovation with a strategy of making major improvements to business processes. So that a company become a much stronger and more successful competitor in the market place.

Thus, reengineering questions all assumptions about “the way we do business.” It focuses on the how and why of a business process so major changes can be made in how work is accomplished. BPR thus moves far beyond mere cost cutting or automating a process to make marginal improvements.

Organizational change carries risks and rewards. The most common forms of organizational change are automation and rationalization. These relatively slow-moving and slow-changing strategies present modest returns but little risk. Faster and more comprehensive changes like re-engineering and paradigm shifts carry high rewards but offer a substantial chance of failure.
1. **Automation** – Using the computer to speed up the performance of existing tasks.

2. **Rationalization** – The streamlining of standard operating procedures, eliminating obvious bottlenecks, so that automation makes operating procedures more efficient.

3. **Reengineering** – The radical redesign, combining steps to cut waste and eliminating repetitive, paper-intensive tasks in order to improve cost, quality or service, and to maximize the benefits of information technology.

4. **Paradigm Shifts** – Radical reconceptualization of the nature of the business and the nature of the organization. A paradigm shift is thus again to rethinking not just the automobile, but transportation itself.

**Objective of Business process reengineering** – The objective of business process reengineering are as follows:

1. To reduce cost.
2. To reduce time.
3. For customer satisfaction.
4. For organizational learning.
5. To improve customer service.
6. To reinvent the basic rules of the business.

**Steps in Business Reengineering**

Reengineering experts have outlined five major steps for reengineering business processes.

1. **Develop the business vision and process objectives** – senior management needs to develop a broad strategic vision which calls for redesigned business processes.

2. **Identify the process to be redesigned** – Companies should identify a few core business processes to be redesigned, focusing on those with the greatest potential paybacks. Symptoms of inefficient process include excessive data redundancy and re-entering information, too much time spend handling exceptions and special cases.

3. **Understand & Measure the performance of existing process** – If the objective of process redesign is to reduce time & cost in develop in a new product or filling a order within the time which is available by the customer to fulfill the order to the organization for the goods & services.

4. **Identify the opportunities applying information technology** – In this we identify the various types of opportunities after the detail study of the different alternatives for the solution of the problem.
5. **Build a prototype of the new process** – Before implementation of any type of new system, we test the system a test unit. Thus for this purpose we develop the prototype for the testing of the system.

**Q. Write short note on improving business qualities.**

**Ans.** One of the strategic business values of information technology is its role in making major improvements in a company’s business processes. Investment in information technology can help make a firm’s operational processes substantially more efficient, and its managerial processes much more effective. Making such improvements to its business processes could enable a company to cut costs, improve quality and customer service and develop innovative products for new markets. The information technology can be used strategically to improve business performance in many ways other than in supporting reengineering initiatives. One important strategic thrust is continuous quality improvement popularly called Total Quality Management (TQM).

Total Quality Management is a broader Management approach than quality control. TQM many use a variety of tools and methods to seek continuous improvement of quality, productivity, flexibility, timeliness and customer responsiveness. Total Quality management is a much more strategic approach to business improvements. Quality is emphasized from the customer’s viewpoint, rather than the producer’s.

The information technology is vital for the success of business. With the help of information technology we can improve business processes which is explained are as follows:

<table>
<thead>
<tr>
<th>IT Capability</th>
<th>How IT Improve Business Processes</th>
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<tbody>
<tr>
<td>Transactional</td>
<td>Transform unstructured processes into routine transactions.</td>
</tr>
<tr>
<td>Geographical</td>
<td>Transform information quickly and easily across large distance making processes independent of geography.</td>
</tr>
<tr>
<td>Automation</td>
<td>Reduce or replace human label in a process.</td>
</tr>
<tr>
<td>Analytical</td>
<td>Bring complex analytical methods to bear on a process.</td>
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<tr>
<td>Informational</td>
<td>Bring large amount of detailed information into a process.</td>
</tr>
<tr>
<td>Sequential</td>
<td>Enable changes in the sequence of tasks often allowing multiple tasks to be worked on simultaneously.</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Allow the capture and dissemination of knowledge and expertise to improve a process.</td>
</tr>
<tr>
<td>Tracking</td>
<td>Allow the detailed tracking of the status, inputs and output of a process.</td>
</tr>
<tr>
<td>Disintermediation</td>
<td>Connect two parties within a process that would otherwise Communicate through on intermediary.</td>
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Q. Write a short note on Information System Analysis.

Ans. System analysis is the analysis of the problem that the organization will try to solve with an information system. It consists of defining the problem, identifying its causes, specifying the solution and identifying the information requirements that must be met by a system solution. In this phase a detailed problem analysis is undertaken to better understand the nature, scope, requirements and feasibility of the new system. In this phase main activities of system analysis include:-

1. Understanding the Problem.
2. Feasibility Analysis.

These activities are explained as follows:-

1. Understanding the Problem:– The system analyst should understand the existing problems and strengths and weaknesses of the existing system. Other activities include identifying the overall implications and benefits of the new system for the entire organization, taking an inventory of existing hardware and software and identifying the information needs of existing and potential users. This information is collected from a variety of sources, including corporate documents, interviews with system users, and other internal and external entities.

2. Feasibility Analysis:– The feasibility analysis carefully examines technical, economic, operational, scheduling, legal and strategic factors of a system, to make sure that the system can be successfully developed. Technical feasibility analysis determines whether the proposed system can be developed and implemented using existing technologies or whether new technologies are required. Hardware, software and network requirements are also determined.

   Economic feasibility analysis evaluates the financial aspects of the project by performing a cost benefit analysis and assessing both tangible and intangible benefits of the system.

   Operational feasibility analysis determines that there will be any problems in implementing the system in its operational environment. In schedule feasibility studies address the time it will take to complete the project.
3. **System Requirement** :- This step of systems analysis is one of the most difficult. In this phase systems specifications are identified by asking who, what, where, when and how. Some questions addressed during this phase are:-
   a) What are the needs of the user?
   b) Who needs the system and for what purpose.
   c) Who will receive system output?
   d) When should the system is delivered.
   e) What type of format should be output be delivered.
   f) Who are the users? What types of training will they require?
   g) What are the maintenance requirements of the system?

Q. Explain SDLC. Explain the phases of SDLC.

**Ans.** SDLC (Software Development Life Cycle):– System Development Life Cycle (SDLC) is a well-defined process by which a system is conceived, developed and implemented. In other words, a System Development Life Cycle is a framework for developing computer based information system. It is defined different ways by different authors. The SDLC is easy to recognize and well acknowledged.

**Phases of SDLC** :- It includes various steps which is explained as below:-

1. Feasibility Study
2. System Analysis
3. System Design
4. Development
5. Testing
6. Implementation
7. Maintenance

1. **Feasibility Study** :- Feasibility study is the process of defining the current problem, determining why a new system is needed and identifying the objectives of the proposed system. In this phase the main aim is to answer ‘Why do we need a system’ and also ‘What are the objectives of new system’. During the feasibility study the analyst considers the three main types of feasibility.
   a) Technical Feasibility
   b) Economical Feasibility
   c) Operational Feasibility

   a) **Technical Feasibility** :- During this study the analyst identifies the existing computer systems and determine whether these technical resources are sufficient for the proposed system or not.
During this study the analyst determines cost and benefits of the proposed system and compares with the budgets. 

Operational feasibility study is the important study that determines the system will work properly according to the user wants or not.

System Analysis: It is the second step of SDLC. It is very important step of SDLC. In this step the analyst study the current system in detail so that the system requirement can be determined. System Analysis also called Problem Analysis or Requirement Analysis. Requirement Analysis is the obtaining of the actual specifications of the system by clearly understanding the needs of the users. After analysis a document is prepared by the analyst, which is called as software requirement specification document.

System Design: System design is the third step of Software Development Life Cycle. After collecting and studying user’s requirements, the system is designed. This phase involves identification of inputs data, output reports and the procedures to process the data. In includes three activities: -

1. User Interface
2. Data Design
3. Process Design

Development: After designing the input and output the analyst begins developing the software using a programming language. In this phase programmers play their major role in development. They start designing of data structure and writing of programs as per the documents prepared design phase. This step can be classified into two parts: -

a) Database Design
b) Program Design

a) Database Design: Database design is the most important aspect of developing a new system. Data is a basic component of any information system.

b) Program Design: Program design is mainly concerned with writing of programs editing of programs using a text editor, debugging and finally testing them.

Testing Phase: Testing is the most time consuming but an essential activity of a software project. It is vital to the success of candidate system. The main purpose is to find out error correct them. A successful test is one which finds out an error. Testing makes the system reliable and error free. There are many activities that must be performed during testing process. Some important activities are: -

a) Preparation of Test Plan.
b) Specification of Test Cases.
c) Execution and Analysis of Test Cases.

d) Special System Tests.

6. **Implementation** :- After testing of the system, the candidate system is installed and implemented at the user's place. The old system is changed to new or modified system and users are provided training to operate the new system. This is the crucial phase of SDLC and is known as implementation phase. Implementation may be following three types:-
a) Fresh Implementation.
b) Replacement Implementation.
c) Modified Implementation.

7. **Maintenance** :- System maintenance involves the monitoring, evaluating and modifying of a system to make desirable or necessary improvements. In other words maintenance includes enhancements, modifications or any change from the original specifications. Therefore the information analyst should take change as his/her responsibility so as to keep the system functioning at an acceptable level.

**Limitation of SDLC** :- The system development life cycle is appropriate to those systems that are highly structured and routine such as TPS and MIS. However, it has some limitations for its inflexible, sequential processes. These are as follows:-

1. SDLC assumes that system requirement can be frozen during the system analysis phase. However, in the dynamic real world, user requirements change frequently.
2. Structured methods are more applicable because things done today are fast, cheap and reality checking.
3. SDLC works better in stable environment whereas the world of information system today is turmoil. The number and complexity of operating systems user interfaces network choices, software languages and development tools have grown manifold.

Q. Explain the factors which are affected hardware and software acquisition.

**Ans. Introduction** :- Hardware and software are essential parts of the computer system. Computer system is not complete without any one of them. Hardware parts are those we can touch and can be placed from one place to another. Software parts are those that are installed in hardware to make user capable to work on computer. So acquiring hardware and software services is a major implementation activity. These resources can be acquired from many sources in the computer industry. There are many factors which affect the hardware and software acquisition. So following factors should be kept in mind:-

**Hardware Evaluation Factors** :-

1. **Performance** – What are its speed, capacity and throughput?
2. **Cost** – What is the lease, or purchase price? What will be its cost of operations and maintenance?

3. **Reliability** – What are the risk of malfunction and its maintenance requirements? What are its error control and diagnostic features?

4. **Availability** – When is the firm delivery date?

5. **Compatibility** – It is compatible with existing hardware and software.

6. **Technology** – In what year of its product life cycle in? Does it use a new untested technology or does it run the risk of obsolescence?

7. **Connectivity** – Can it be easily connected to wide area and local area networks of different types of computers and peripherals.

8. **Software** – Is system and application software available than can best use this hardware.

**Software Evaluation Factors**

1. **Efficiency** – Is the software a well developed system of computer instructions of objects that does not use much memory capacity at CPU time.

2. **Flexibility** – Can it handle its processing assignments easily without major modifications?

3. **Security** – Does it provide control procedures for errors, mail functions and improper use?

4. **Language** – Is it written in a programming language that is used by our own computer?

5. **Documentation** – Is the software well documented? Does it use helpful user instructions?

6. **Hardware** – Does existing hardware have the features required to best use this software?

Q. **Describe the process of testing? Also explain the types and activities of the system testing.**

**Ans.** **Introduction** – Testing is vital to the success of the system. Testing is done at different stages during the implementation phase. System testing provides logical assumptions that if all the parts of the system are correct. Then system goals can be achieved successfully. Testing is the most time consuming, but an essential activity of a software project. Testing must be conducted to ascertain whether then system produces the right results.

System testing may involve testing and debugging software, testing website performance, and testing new hardware.
The main purpose of this phase is to find the errors and correct them. A successful test is one which finds an error. The system is tested with special test data and the results are examined for their validity.

Process of Testing – There are many steps that must be performed during testing process.

1. **Preparation of Test Plan** – A test plan is the first step of testing process. A test plan is a general document for the project which contains the following:
   a) Identification and specification of test unit.
   b) Software features to be tested.
   c) Techniques used for testing.
   d) Preparation of test data.
   e) Schedule of each testing unit.
   f) Identification of persons responsible for each activity.

2. **Specification of Test Cases** – Specification of test cases is the next major step of testing process. In this process test data is prepared for testing each and every criterion of a test unit along with the specifications of conditions and expected output.

3. **Execution and Analysis of Test Cases** – All the test cases are executed and analyzed by the analyst to see whether the system is giving expected output for all the conditions.

4. **Special System Tests** – Special tests are needed to be performed to check the response time, storage capacity, memory requirement, Peak Load performance, security features and recovery procedures of the system.

Testing Activities – During system testing, the following activities must be tested.

1. **Outputs** – The system is tested to see whether it provides the described outputs correctly and efficiently.

2. **Response Time** – A system is expected to response quickly during data entry, modifications and query processes. The system should be tested to find the response time for various operations.

3. **Storage** – A system is tested to determine the capacity of the system to store data on the hard disk or other external storage device.

4. **Memory** – During execution of the system, the programs require sufficient memory. The system is tested to determine the memory required for running various programs.

5. **Peak Load Processing** – The system must also be tested to determine whether it can handle more than one activity simultaneously during peak of its processing demand.

6. **Security** – The system must ensure the security of data and information. Therefore, the system is tested to check whether all the security measures are provided in the system or not.
7. **Recovery** – Sometimes due to certain technical or operational problems data may also be lost or damaged. The system must be tested to ensure that an efficient recovery procedure is available in the system to avoid disasters.

**Types of Testing** – Testing can be of following types:

1. **Unit testing** – Unit testing or program testing, consists of testing each program separately in the system. While it is widely believed that the purpose of such testing is to guarantee that programs are error free.

2. **System Testing** – System testing tests the functioning of the information system as a whole. It tries to determine performance time, capacity for file storage and handling peak loads, recovery and restart capabilities and manual procedures.

3. **Acceptance Testing** – It provides the final certification that the system is ready to be used in a production setting. System tests are evaluated by users and reviewed by management. When all parties are satisfied that the new system meets their standards, the systems is formally accepted for installation.

4. **Integration Testing** – Testing the interfaces between related modules of a system is known as integration testing. After development phase, all modules are tested to check whether they are properly integrated or not.

5. **Verification Testing** – Running the system under a simulated environment using simulated data in order to find.

**Drawbacks of Testing** – There are following drawbacks of testing:

1. Testing is an expensive method for identification and removal for fault in the system.

2. Testing is the most time consuming activity of software development process.

Q. **Write a comprehensive note on documentation.**

Ans. **Introduction** – Documentation means preparation of written descriptions of the scope, purpose, information flow components and operating procedure of the system. Documentation serves as a method of communication among the people responsible for developing, implementing and maintaining a computer based system. Installing and operating a newly designed system or modifying an established application requires a detailed record of that system's design. Documentation is important in diagnosing errors and making changes, especially if the end users or systems analysts who developed a system are no longer with the organization.

**Characteristics of a Good Documentation**

(i) **Availability** – It should available for whom it is needed.
(ii) **Objectivity** – It must be clearly defined in a language.
(iii) **Cross referable** – It should possible to refer to other documentation.
(iv) **Easy to maintain** – When system gets modified, it should be easy to update the documentation.
Completeness – It should contain everything needed, so that those who have gone through it carefully can understand the system.

Purpose of Documentation

Preparation of documentation is quite important as it depicts what the system is supposed to be and how it should perform its functions. It explains technically and economically how a system would better serve the objectives and goals of the company. Documentation improves overall operation in addition to management and audit control. The purpose of documentation is explained as follows:-

(i) Review the progress or development of application software.
(ii) Communicates facts about system to users.
(iii) Communicates between personnel working on a development project.
(iv) Provides necessary guidelines to allow correction or revision of a system or its system programs.
(v) Provide operating instruction to users and operating staff.
(vi) It helps the management to determine if the new design achieves the objectives of the company within the established constructions.
(vii) Documentation serves as a focal point from which the analysts design can be assessed.

Guidelines/Format for preparing Documentation Package – The format of each documentation packages will be based on the following points:-

(i) Characteristics of System – Some design require descriptive while others can be explained with the help of diagrams.
(ii) Management’s attitude toward documentation – The analyst must prepare the documentation packages within the limitations established by the management.
(iii) Equipment Restraints – A company with large and integrated computer system having teleprocessing facilities will require more formalized.

Q. Describe Conversion Process and explain the merit and demerit of the Conversion Methods.

Ans. Meaning of Conversion Process – In simple way conversion means, changing from one system to another system. Conversion is the process of changing from the old system to modified or new system. Many different activities are needed to be performed in conversion process, depending upon the type of implementation. Implementation may be following three types:-

1. Fresh Implementation – Implementation of totally new computerized system by replacing computerized system by replacing manual system.

2. Replacement Implementation – Implementation of new computerized system by replacing old computerized system.
3. **Modified Implementation** – Implementation of modified computerized system by replacing old computerized system.

Before starting conversion process the analyst must prepare a plan for conversion. This plan should be prepared in consultation with users. The conversion plan contains following important tasks:-

a) Selection of conversion method.
b) Preparation of a conversion schedule.
c) Identification of all data files needed to be converted.
d) Identification of documents required for conversion process.
e) Selecting team members and assigning them different responsibilities.

**Method of Conversion Process** – There are four method of conversion process which is explained as follows:-

1. Direct Cutover.
2. Parallel Conversion.
4. Pilot System.

1. **Direct Cutover** – In this method the old system is completely dropped out on one particular date and new system is implemented. This is shown by the figure

![Diagram](https://via.placeholder.com/150)

**Direct Conversion**

**Advantages**

- 1. Fast Method
- 2. Resource Save
- 3. Better Method

**Disadvantages**

- 1. Risky
- 2. Not reliable

3. **Parallel Conversion** – In this method the old method is not dropped out at once, both old and new system are operated in parallel. When new system is accepted and successfully implemented, old system is dropped out.
Advantages
2. Knowledge of both systems
3. Wide Scope

Disadvantages
1. Expensive Method
2. Time Consuming

3. **Phase-in-method of Conversion** – In this method, the new system is implemented in many phases. Each phase is carried out only after successful implementation of previous phase.

Advantages
1. Flexibility
2. Better Method.
3. Resource of Save

Disadvantages
1. Expensive
2. Risky.
3. Time Consuming

4. **Pilot System** – In this method only a working version of new system is implemented in one department of organization. If the system is accepted it is implemented in other department either in phases or completely.
Advantages

1. Wider Scope.
2. Flexibility.
3. Knowledge of both systems.

Disadvantages

1. Expensive Method
2. Not reliable.

Activity in conversion – There are three major conversion activity are as follows:

1. **Forms and displays conversion** – During this activity, old forms and displays are withdrawn and new ones are instituted. Various controls are implemented to ensure the system’s reliability, integrity and security. The activities implemented here were initiated early in the system design phase.

2. **Conversion of physical facilities** – In conjunction with these activities, the physical facilities are transformed to meet the specifications set in candidate system design. In a recent online conversion in a medium size bank, the installation of a new teller system required a complete redesign of the teller cage, locating the telephones, replacing ceiling lights with soft lighting and building drawer space for additional cash storage. The cost of redesign was 10% of the new system cost. Others factors included in physical facility conversion are the communications networks, safety and security provisions and notifications to customers of the change.

3. **Conversion of administration procedure** – A final important activity in the conversion phase is setting up administrative procedure for controlling the new system. This includes scheduling, determining job priorities on the system and implementing personnel policies for managing the system. The user is trained to handle various emergencies and producers. Most importantly, supervisors are trained on, how the information is gathered, produce and presented to the management.
Q. Explain the main inputs and outputs of the marketing information system.

Ans. Introduction – A marketing information system can be defined as a computer based system that works with other functional information systems to support the firm’s management in solving problems that relate to marketing the firm’s products. In other words, a Marketing Information system is a system that meets the information needs of an organization in sales, distribution, advertising, market analysis, market intelligence, product research, service management, customer profile and other marketing functions.

Philip Kotler has identified three types of Marketing information:-

1. **Marketing Intelligence** – Information that flows into the firm from the environment.
2. **Internal Marketing Information** – Information collected within the firm.
3. **Marketing Communications** – Information that flows from the firm outward to the environment.

**Main Inputs of Marketing Information System**

The information used for marketing decisions arrived at from different data sources are from the following sources:-

a) **Transaction Processing Data** – Transaction Processing data show the sales that result from specific mixes of the four Ps. Thus, they provide feedback on the effectiveness of past marketing strategies. They are also useful for appraising performance and controlling marketing expenditures.

b) **Marketing Research Data** – Marketing Research is the marketing are responsible for gathering consumer-related data that can be used to support marketing decisions. For example, Personal interviews, phone interviews and mail surveys. Statistical Packages are used by the marketing research staff to analyze these data and to provide useful acts about a product.

c) **Marketing Intelligence Data** – Marketing Intelligence refers to information about the strategies of competitors. This information is very important for the success of the
business. This information is helpful for making out strategies. Marketing intelligence information is collected is an unstructured or semi-structured manner, through observing statistics available in the media.

d) **External Environment Data** – External environment data is very important source of collecting information. External environment refers to those factors which affect the business. It includes supplies, government, media etc. In marketing, success is largely attributable to what will happen in the future external environment. For example, when a new car is introduced, the firm never knows exactly how consumers will react to it.

e) **Strategic Plan** – The strategic plan is really the starting point of all marketing decisions. It contains the types of products that the firm plans to supply to the consumer marketplace. These broad guidelines define the direction of the marketing effort. The tactical marketing plan addresses what, how, when and where questions that are appropriate to the implementation of the strategy plan.

**Output of Marketing Information System**

Main output of Marketing Information System:-

a) **Product Planning** – Product Planning is complicated unstructured decision. A number of factors contribute to a produce’s success or failure. Most products follow a product life cycle.

   In product life cycle there are four stages such as introduction, growth, maturity, and decline. A number of techniques have been developed to provide the manager with information needed for making product oriented decisions.

b) **Place Planning** – Place planning refers to the channels of distribution that a firm uses to get its products to the consumer. The resources flowing through a channel includes a supplier, manufacturer, wholesaler, retailer and consumer. The material flow originates with the supplier and ends with the consumer, and the money flow is just the reverse.

c) **Promotion** – Promotion is composed of two principal areas: Person selling and advertising. Technology is vital to the selling effort in several ways:-

   a) Typing in customers and suppliers.
   b) Increasing selling time.
   c) Increasing effectiveness of the client.
   d) Identifying selling opportunities.
   e) Making sales people more efficient.

d) **Price** – Determining the price at which products are offered is an extremely important marketing decision. Pricing decisions are very important functional area. However the
computer was not historically very helpful in this area but now days successful applications of technology help the firm to determine the pricing decision. Some firms engage in cost based pricing by determining their costs and then adding a desired mark up.

e) **Budget Allocation** – Budget allocation is another important area of marketing. Marketing does not have unlimited source of funds. Thus a budget must limit the overall size of expenditures. Some computerized allocation models can estimate desirable mixes in this area, but success is limited. This decision is still made largely through manual means and personal judgments.

f) **Sales Forecast** – The sales forecast reflects estimates by the marketing personnel on future product sales. Since it is the main source of firm’s revenue, sales forecast is an important part of the financial plan. Many technology tools are used in sales forecasting.

Q. **Explain the sources of manufacturing information system and also describe the decisions taken by the Manufacturing Information System.**

**Ans.** Manufacturing or Production information system provides information on production/operation activities of an organization and thus facilitates the decision making process of production managers of an organization. Manufacturing is another important functional area of an organization that is engaged in producing goods from raw materials. Manufacturing information system is a system that supports the manufacturing functions of purchasing, receiving, quality control, inventory management, material requirements planning, capacity planning, production scheduling and plant design. It applies to both manufacturing and service environments.

The main decisions to be taken in the manufacturing system are given below:-

1. **Product Design**
2. **Plant Location and Layout**
3. **Production Planning and Control**
4. **Quality Control**

1. **Product Design** – Product design which is also known as Product Engineering includes the entire development of the product. Preparation of drawings, specifications, experimental and development efforts are the activities involved in the product design. Now a days computer Aided Design and Computer Aided Engineering approaches are used in Product Design.

2. **Plant Location and Layout** – Plant Location determines the establishment of an organization at a particular place. It is very important decision because location of plant partially determines operating and capital costs. The decision of plant location is dynamic in nature and thus location study needs continuous monitoring.
Plant Layout is the method of arranging machines, equipment and other services within a predesigned building, ensuring steady, smooth and economical flow of material. Plant layout designs can be prepared by using mathematical and simulation models for which computer play an important role.

3. Production Planning and Control – This function is responsible for planning, directing and controlling of the material supply and other production processing activities. Production planning prepares procurement plans for materials and personnel, establishes inventory control procedures and prepares work authorization. Production control is a procedure to regulate an orderly flow of material and coordinate various production operations so as to ensure that the desired items are produced in the right quantity of the desired quality at the required time at the optimum cost.

4. Quality Control – Quality control relates to activities which ensure that the final product is of standard quality. Its function is concerned with defecting existing quality deficiencies, as well as with preventing future product quality problems. Quality control is an important area of expenses and an important area of opportunity. One group of computerized quality control techniques that has helped in manufacturing operations is known as statistical process control.

Sources of Manufacturing Information

Main sources of manufacturing information are explained as follows:-

- **Production Data** – By using terminals around the production floor, data on production processes can be quickly gathered and processed. These data are used by billing.

- **Inventory Data** – Inventory data include inventories of raw materials, goods-in-process and finished goods. Accurate raw material data are very important for the manufacturing system.

- **Vendor Data** – Vendor data show sources and prices of raw materials. Vendor data are maintained by the purchasing department.

- **Personnel Data** – Personnel data show various statistics on current manufacturing personnel often in the course of production; people switch assignments, so personnel skills must be reviewed to fit the right person for the right job.

- **Union Data** – Many types of labour today are unionized production shops usually have strict regulations regarding such it’s as pay sales, hiring and firing, promotion and working conditions.

- **Labour Data** – Raw Materials and people are at the core of manufacturing a product. While vendors are the sources of raw materials, the labour market is the source of people. Data must be kept regarding where new personnel may be obtained as labour shortages occur in the firm.
External Environment Data – To manufacturing managers the most pressing information need in the area of external environment data is the outlook for raw material prices and labour availability.

Engineering Specifications – Engineering specifications data indicate whether something can be built and how. Engineering specification contains such facts as sizes of screws, whether a certain drill bit suitable for wood and so on.

Internal Marketing Data – Marketing ends where manufacturing begins. So, marketing output is manufacturing input.

Q. What are the types of according information system? Explain the input and output of the Accounting Information System.

Ans. Introduction – Accounting is the most important service activity in business. Accounting is mainly concerned with the collecting, recording and evaluation of financial data and then communicating this information to the management and other people. Accounting information system is a system which receives the data as input; they process the data and provide the information as output. All organizations need systematic maintenance of their records that help in the preparation of the financial statements such as Profit & Loss account and Balance Sheet.

There are three types of accounting information systems:

1. Financial Accounting System – This system provides financial statements to investors, shareholders and other interested parties in accordance with their reporting formats.

2. Management Accounting System – Its provide reports to managers for strategic and tactical decisions. This decision affects the profitability of the firm.

3. Cost Accounting System – It provides reports to managers for cost planning and cost control of operations.

All the accounting information system processes the same accounting transactions and shares the data files. An accounting information system is generally developed as an integrated system providing all the reports of all information systems.

Main inputs of Accounting Information System:

a) Voucher – A transaction is recorded by debiting and crediting the two affected accounts, called a voucher.

b) Journal – It is an account book in which all the transactions are recorded in a data wise. It is maintained only in manual system by entering information from vouchers and is not required in computerized systems.
c) **General Ledger** – All the accounts are recorded and maintained individually in a book called general ledger.

d) **Cash Book** – Cash book is a special type of ledger in which only cash transactions are recorded and maintained.

e) **Bank Book** – Bank book is another type of ledger in which only bank transactions are recorded and maintained.

f) **Sales Book** – The credit sales of goods are recorded in a special ledger called sales book.

g) **Purchase Book** – The purchase of goods on credit basis is recorded in another special ledger called purchase book.

h) **Debtor’s Book** – The transactions of all the debtors are recorded and maintained in the debtor’s ledger.

i) **Creditor’s Ledger** – The transactions of all the creditors are recorded and maintained in creditor’s ledger.

**Output of the Accounting Information System**

The main output of the accounting information system is explained as follows:-

1. **Trial Balance** – It is a list of financial statements prepared monthly, quarterly, or annually to find out the balance of each account. In a trial balance all debtors are shown on one side, while all creditors are shown on the other. The total of debit balance must match the total of the credit balance.

2. **Trading Account** – It is a financial statement prepared yearly to find out the gross profit or gross loss of the firm.

3. **Profit & Loss Account** – After preparation of trading accounts a financial statement called Profit & Loss Account is generated to find out the net profit or net loss of the firm.

4. **Balance Sheet** – The balance sheet is the most important financial statement of the company that shows its position of assets and liabilities on a particular date.

5. **Accounts Receivable Statement** – This statement lists the name of the debtors and the amounts to be received by the company.

6. **Accounts Payable Statements** – This statement lists the name of the creditors and the amounts to be paid by the company.

Q. **Explains the main decisions that are taken by Financial Information System?**

Ans. **Introduction** – Financial information system is a subsystem of organizational management information system. This sub-system supports the decision-making process.
of financial functions at the level of an organization. The finance area is the functional area of the firm that is responsible for overall financial planning and raising capital.

1. **Cash Management** – Cash Management systems collect information on all cash receipts and disbursements within a company on a real time or periodic basis. Such information allows business to deposit or invest excess funds. More quickly and thus increase the income generated by deposited or invested funds. These systems also produce daily, weekly or monthly forecasts of cash receipts or disbursements.

2. **Investment Management** – Many businesses invest their excess cash in short term low risk marketable securities or in higher return/higher risk alternatives so that investment income may be earned until the funds are required. The portfolio of such securities is to be managed with the help of portfolio management software packages. Investment information and securities trading are available from hundred of online sources on the internet and other networks.

3. **Capital Budgeting** – The capital budgeting process involves evaluating the profitability and financial impact of proposed capital expenditures. Long term expenditures proposals for plants and equipment can be analyzed using a variety of techniques. This application makes heavy use of spreadsheet models that incorporate present value analysis of expected cash flows and profitability analysis of risk to determine the optimum mix of capital projects for a business.

4. **Financial Planning** – Financial analysts use electronic spreadsheets and other financial planning software to evaluate the present and projected financial performance of a business. They also help to determine the financial needs for a business and analyze alternative methods of financing. Financial analyst use financial forecasts concerning the economic situations, business operations, types of financing available, internet rates ad stock and bond prices to develop an optimal financing plan for the business.

Units of goods that must be produced in each time period in order to meet consumer demand.

Marketing data are also useful to production personnel as part of the engineering design process.
UNIT - I
1. List and briefly describe the five basic components of Decision Support System.
2. (a) Define GDSS. How does it support problem solving.
    (b) What are the different GDSS environmental setting?

UNIT - II
1. Illustrate different types of barriers faced by the business. Give examples of how information technology can break these business barriers.
2. (a) Can a business process re-engineered without the support of information technology? Justify
    (b) Identify the TQM differ form BPR in its use of Information technology.

UNIT - III
1. Describe and give example to illustrate each of the steps of system approach to problem solving and information system development.
2. (a) Does prototyping replace traditional information system development? Comment,
    (b) Explain various system conversion Method with related example

UNIT - IV
1. (a) Why does functional information system not stand alone but depend upon the rest of computer based information technology?
    (b) Financial Information System.
2. Define the following terms:
    (a) EOQ
    (b) Manufacturing resource planning

UNIT - I
1. What are the objectives of Decision Support System? What are the components of Decision Support System?
2. What are the steps involved in the construction of a decision support system.
UNIT - II
1. What are the strategic advantage of having validated information system in business organization.
2. What is Business process Re-engineering? What are the objectives of business process Re-engineering? What are the techniques of Business process Re-engineering.

UNIT - III
1. Discuss various hardware and software acquisition strategics in a system study.
2. What are the advantage of System Documentation? Describe the major activities involved in the system documentation.

UNIT - IV
1. How the Utilization computers in information processing in a manufacturing unit predicting consumable item on a mass scale can be effective?
2. Discuss the role of computer in accounting information system in business organization.

UNIT - I
1. What are the major function of a dialog management system?
2. The original term group support system was GDSS. Why was the word decision dropped? Does this make sense? Why or why not?

UNIT - II
1. Identify how information technology can be used to help a company be an agile competitor, or to form a virtual company to meet strategic business opportunities.
2. Elaborate several basic competitive strategies used to confront the competitive forces faced by business?

UNIT - III
1. Important factor you would like to use evaluating computer hardware.
2. What do you mean by conversion method? Discuss different types of conversion method.

UNIT - IV
1. (a) Accounting Information System
(b) Manufacturing Information System
DECISION SUPPORT SYSTEM & MIS

2. Define
   (a) MRP
   (b) Business Intelligence Subsystem

UNIT - I
1. Define DSS? Explain its components and types. What type of support is provided by DSS?
2. Why group DSS are superior? Its effective in GDSS?

UNIT - II
1. “MIS helps take better decisions instead of worse. “Justify the statement with arguments and describe the evolution of MIS and its role in decision making.
2. What is BPR? What are the Objectives of BPR? What are the technique of BPR?

UNIT - III
1. Highlight the benefit and disadvantages of hardware purchase (a) Leae (b) Rent (c) Outright purchase.
2. What are the advantages of system documentation? Describe the major activities involved in the system documentation.

UNIT - IV
1. Define Marketing Model?
2. Discuss the input and output in computerized Accounting Information System.