

**UNIT- III: Applications-MIS:** Applications in Manufacturing Sector, Personnel, financial, production, materials, marketing management, Applications in service sector, creating a Distinctive service, MIS in service industry, Technology of Information systems, Data processing, Transaction processing, Application processing, TQM of Information systems, Programming languages for system coding.

\*\*\*\*\*

- ❖ **Logistics and Supply chain relationships:** **Supply chain** and **logistics** focus on the **flow of goods from** the point of **origin** to the **endpoint**. Both disciplines require careful coordination of supplies, labor and facilities to make sure items can move through the supply chain as required. Logistics is a key component of supply chain management.
  
- ❖ **Key common aspects of logistics and supply chain management:**
  - They focus on information, goods, services.
  - They have the ultimate aim of supporting the success of the company.
  - They have the ultimate aim of distinguishing the company from competitors.
  - They seek to increase the customers' satisfaction.
  - They revolve around the same flow of goods and services, from suppliers to the manufacturers, to the retailer or final consumer.
  
- ❖ **Key differences between logistics and supply chain management:**
  - **Logistics** are activities inside the supply chain management and **SCM** covers activities that include: production, inventory planning, labor planning, materials, facilities management, manufacturing and delivering goods and services.
  - **Logistics** focus is on the efficient and cost-effective delivery of goods to customers while **supply chain management** controls the development of raw materials into finished goods in order to move into their delivery.
  - **Logistics** emphasizes meeting customer needs and expectations while **supply chain management** works toward improving processes to create competitive advantages.
  
- ❖ **Application of MIS in Production Industry:**
  - Management information system helps production to performs an integrating role with in the production system of any organization. Management of activities/operations in a production system is concerned with decision making related to different components of the system so as to accomplish the desired output in any industry.
  - These decisions can be divided as periodic-decisions viz. **selection, design and updating** of resources, transformation process and methods, and continual decisions about day-to-day operation and control of various activities/operations in the system. These decisions can also be divided in **planning, implementation and control** categories.
  - Production information system is a network to generate necessary information and process it to make various decisions related to some production system. It consists of communication channels and information processing centres collecting information from its sources of **origin, storing, updating, collating and processing** it and then supplying the processed information to the various users of the system.
  - A production information system can be viewed as an independent group of sub-systems

each related to its successor, each performing a different function though yet united with others for achievement of the overall objective. It interacts with both its internal and external environments.

➤ **The components of the Production system vs MIS:**

# **Long Term Planning:** This implies planning the conversion system specifying the sequence of operations, capacity of the system, plant location and its layout aspects. The decisions derived have long term impact and are difficult to undo once implemented. Information for taking such decisions is compiled periodically determination of appropriate product mix.

# **Annual Production Plan:** These are meant to plan the use of transformation process. These plans are drawn from sales programmes by optimizing inventory-carrying costs, costs on labour with hiring and firing of personnel etc. These plans are revised periodically.

# **Inventory Control:** It is generally expressed in terms of money and number of units produced. It deals with preparation of master inventory and production schedules.

# **Production Scheduling:** These decisions are to determine: what to make, when to make, how to make, how much time is required to make it, production plan, bill of materials and operations sheets providing the necessary information for the preparation of production schedules.

# **Dispatching:** Time standards are formulated through operation/route sheets supplied by planning and engineering departments. Cost standards are calculated through cost cards and product numbers and the quality standards are prescribed by design & engineering sections.

➤ **Input Records into MIS:**

# Records of Basic Information

\* Blue Prints

\* Bill of materials

\* Time value of fundamental operations

\* Production routing

# Records showing what is available

\* Raw material records

\* Work in process

\* Semi-processed stock

\* Finished goods stock

\* Information about tools

\* Machinery and equipment details

# Historical Records

\* Records of production

\* Records of waste and reject

\* Records of machine performance

\* Records of sales

\* Records of absenteeism

The nature of these records can vary for different type of plants and production systems as well as according to the situation and needs of the management.

❖ **Technology of Information systems:** The development of modern information system is a complex process. It needs knowledge, know how, skills and technology in almost all the disciplines. The developer, the designer and the user must be knowledgeable in their respective area of functions and responsibilities.

As **information systems** are being demanded for on-line real time usage in business management, its development requires thorough understanding of the business and the manner in which it is executed. In the **seventies**, the information systems were of a stand-alone type outside the mainstream of the business. In the **eighties**, the information systems were looked upon as a resource for information to support the decision making.

In the **nineties**, the information technology developed multifold and the business became global, strategic and competitive, with the business focus shifting from supply management to customer service management.

- The business management process has changed from function management to process management. The organisation culture also changed from centralised, bureaucratic, authority structure to work-group culture where members of the work-groups were trained and empowered to make decisions. This called upon the information system availability at the workplace.
- The nature of business is such that a lot of initiative of the user is expected to decide his own information needs at a given point of time. Due to this, a change in the architecture of information systems is required, whereby the user requirements are made independent of data giving him the freedom to manipulate the data using his own methods.
- The basic understanding of the process is essential even though the technology is a significant factor in a good design of information systems.

❖ **Data processing:**

- **Data** is the smallest atomic entity in the information system which is basic to build the information system. The character of data decides the quality of information it offers to the user. If the data is taken care of properly, its usage will ensure quality output. Hence, in any information system significant care is taken in building the data as a first level input to the system.
- The hierarchical steps of processing raw data leading to an output in a report form or information having certain—value specific or perceived—as seen by the user is called as ‘Data Processing’.
- The steps involved in information system application of Data are **data processing, transaction processing, application processing and system processing**.
- **Data processing** is handling raw data in a systematic manner to conform to the data quality standards and determined by the designer of the information system.
- The atomic data entity is defined as a value attached to an attribute which has a character, meaning and presentation providing specific message and understanding to its viewer or user.
- Let us take a simple example of a date used extensively in every application. Though the date is a universal entity in nature, it still requires determination of specification, character and presentation. A date in isolation conveys the position of the day in a calendar. In the information system, however, it may convey a number of things to the user. First, therefore, it needs specification.
- The specification of data means determining its manner of presentation (DD-MM-YY), its value, specific or in limits, its validity whenever possible. The character is numeric or alphabetical or both.
- In the data processing stage, the system would point out errors of wrong specification, errors of value (i.e., amount in multiples of thousands), errors in validity (postdated cheque or deductions greater than the basic amount, etc.).
- Data processing means following steps or stages to be implemented before the data is accepted in the system for usage.

# Confirming the character, structure and presentation vis-à-vis data design.

# Checking the value of the data vis-à-vis data value specification such as single specific value, range of value, and limit value ranges.

# If a non-conformance is seen, point out the error and seek corrective response before the processing control shifts to a new field.

❖ **Transaction Processing:**

- A transaction is processed with reference to business rules, i.e., a transaction is scrutinised for conformance to the rules, policy or guidelines before it is taken up for further processing. The rules may be directly related to the transaction or it may have some relation and association with other transactions.
- In case, if transaction does not conform to the set of specified conditions governed by the rules, the error is displayed for user to take corrective action.
- Let us take an example of the goods receipt as a transaction. Having checked the individual data entities, the goods receipt transaction is subjected to further checks for acceptance and execution. The business rules in case of this transaction are:
  - # The purchase order must be present and open and the item received should be present on Purchase Order. Further, the receipt is as per the scheduled date.
  - # The supplier has sent the necessary supporting documents such as Excise Gate Pass, Octroi Challan, Sales Tax Form, Certification by Third Party, etc.
  - # Such other conditions that may be applicable.

❖ **Application Processing:**

- Application processing is designed to process more than one type of transactions to bring out the specific business results in one or more business functions. This processing is carried out once the transaction is processed for its validity.
- Let us take an inventory application which require the receipt and issue transactions duly validated for inventory processing. When these two transactions are processed, the inventory is updated for receipts and issues giving the net balance at the end of the processing for each items in the inventory.
- The application processing means the use of transaction data bringing out a particular status. The application could be designed to change the number of different files holding a variety of information.
- The scope of application processing can be made diverse by incorporating different transactions from the same application area or associated areas.
- The advent of communication technology and its embedded use in application processing extended its scope beyond the boundaries of the organisation. The application can be designed for processing the results, updation of the business status, for triggering predefined actions and also communicating with the affected agencies located within and outside the organisation. The quality of application design will depend on the inputs provided through transaction processing and data processing.

❖ **Information System Processing:**

- The system processing is at a higher level, over the application processing. The system is defined as a product made up of several applications set in orderly manner to produce a higher level information output different than the output of the application processing.

- The nature, role and the type of the system is such that its design is very complex and sensitive to the business needs. The system designer, therefore, must have a good insight into the business for which the system is being designed.
- The basic management functions are same, i.e., finance, materials, production or service, personnel and sales, etc. in all the business.
- However, these functions are executed in different manner on account of the **following factors**:
  - Nature of business (trading or manufacturing),
  - The type of business (product or service),
  - The complexity of business (multiple locations, divisions, products, etc.)
  - Management style (autocratic, participative),
  - Decision making (centralised, decentralised and empowered),
  - Quality of the organisation and the people (learning and positive proactive work culture).

#### ❖ TQM Of Information Systems:

- The objective of the Total Quality Management (TQM) in the information systems design is to assure the quality of information.
- This is done by ensuring, verifying, and maintaining software integrity through an appropriate methodology choice amongst the technology, design and architecture. It institutes appropriate procedures with checks and controls in all the processes of information systems development.
- It ensures that the scope and the objective of the system, choice of the design architecture and development methodology and further quality ensuring the processes and planned implementation methodologies are correctly chosen.
- The quality of the information and the systems which generate that information will be rated high provided it assures:
  - A precise and an accurate information,
  - A high level response in an interactive processing
  - User friendly operations,
  - Reliability of information, and
  - An ease of maintenance.
- In the process of achieving user satisfaction, the information system must be conceived with business focus and orientation. It must address the total scope of the business with specific attention in the areas of core competence and mission critical applications.
- Normally, if the systems are planned properly right from the inception, and broadly if the business strategy focus and objectives are not changed, then the system level changes are very rare, the application level changes are few, the transaction processing changes are negligible and the data level changes are non-existent.
- In the TQM application to information systems, the technologies play a vital role. We can make two parts of these technologies. First, as a current and the second one as the emerging technologies. The current technologies are database management, distributed data processing, object orientation, parallel processing, data warehousing and replication, networks and communication.

➤ **Software Testing strategies / software quality assurance in TQM:**

- The TQM approach to the information system development ensures satisfactory level attainment of these parameters through the implementation of various strategies in the process of development.
- In the discussion we will call the **information system software** as just a ‘**software**’. The software quality assurance is nothing but what is required which would ensure conformance to the standards set by the management.

➤ **The software quality assurance is an essential activity** to ensure the attainment of quality goals. The activity comprises:

1. Application of the proven methods and tools
  - requirement analysis,
  - defining the scope and the problems,
  - modelling and prototyping,
  - finalising the software requirement specifications,
  - configuring the hardware software platforms.
2. Technical review to
  - detect errors in the functionality and its logic,
  - confirm that the software meets the basic system objectives,
  - confirm that it meets the predefined standard in all the areas,
  - confirm that uniform application of methods and technologies.
3. Testing to
  - detect errors at the data level,
  - ensure the execution of known functionality
  - ensure internal working of the software,
  - ensure the execution on conditions and subsequent actions,
  - confirm the integration process.

The testing is done at the data level, transaction level, application level and the system level. The normal practice is to develop a test plan and procedure to check the software from all the angles.

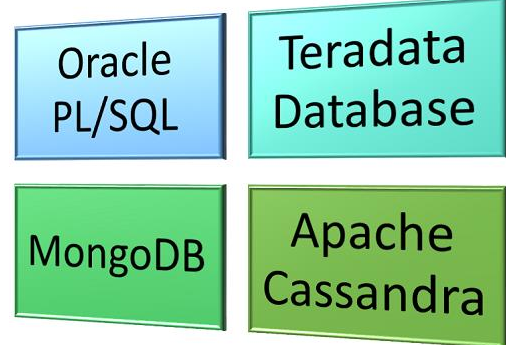
4. Version changes control to
  - ensure that the change does not alter the original assured quality,
  - confirm that no bugs are introduced in the software,
  - ensure that proper documentation is made as changes introduced.
5. Record keeping to
  - establish knowledge and know-how on reviews, audits, changes, testing for future reference and use in bug fixing.

❖ **Programming languages for system coding:**

- The field of **management information systems** doesn't revolve around coding, but coursework in computer programming is still important for aspiring computer and information systems managers, the **United States Bureau of Labor Statistics (BLS)** reported.
- There are many **different computer languages** that are used for different aspects of **programming**. Learning the concepts of computer programming can help you more easily

pick up the skills needed to program in new languages, but each language is distinct and has its own strengths as well as its own idiosyncrasies.

- Perhaps the most important types of computer **programming languages** are **scripting languages**. A knowledgeable programmer can use these languages to create scripts of instructions or commands that allow tasks to be automated in a run time environment like a website. It is needed to learn some of the scripting languages most commonly used in creating computer information systems for business purposes in MIS.
- Some of the **scripting languages** are most likely to use as a computer and information systems manager include **JavaScript, Ruby on Rails, PHP: Hypertext Preprocessor, Python and Perl**, O\*NET reported.
- MIS may also require knowledge of **HTML** and other **markup languages** commonly used in web development.
- **Database Management Software:** Different types of computer languages are used when managing, developing and using database systems. O\*NET cites skills with both **database management system software and database user interface** and query software as important for a career in management information systems.
- Database management system is used to manage the database that stores the data needed for a computer application to run. Some of the database management system software that you may need to be familiar with include Oracle PL/SQL, Teradata Database, MongoDB and Apache Cassandra, O\*NET reported. Database user interface and query software instead allows the user to access and manipulate data. These languages and platforms allow you to create queries, or requests, for information contained within the database. The query software most often used in management information systems careers include Microsoft Access, Microsoft SQL Server, MySQL, Oracle DBMS, according to O\*NET.
- Database query software is based on a standard database language called structured query language, or SQL, but there are differences between these systems. Different systems are more like differences in dialect or syntax within the SQL language than distinct languages.
- Companies use **management information systems** to accomplish everything from tracking sales and inventory to managing e-commerce. The more types of computer languages, applications and tools you are familiar with, the greater the scope of your expertise.



Ooo000000\*\*\*000000ooO