LECTURE – 01

The first lecture was an introduction of the course name in which it was discussed as three separate terms and lastly combined together to form a definition for "Management Information System."

Management is defined as its core functions: planning, organizing, leading, controlling, and staffing. These functions are to be executed to achieve a task in a proper manner. Management includes planning according to given resources. Organizing is another function that means to organize the provided resources. Leading is another aspect that means to guide your team to reach a specific goal, whereas, controlling is to set minor goals to achieve a bigger one. Lastly, staffing is to select a suitable team for a task and assign the correct task to each person based on their qualification.

Information is defined as useful facts extracted out of the huge pool of data. In order to take decisions we need information. Information becomes knowledge and knowledge over a period of time become wisdom. **System** is a set of inter-related objects working together for a common cause.

On combining these terms, we get a definition of MIS *"A system that converts data into information so that management can achieve its goals by planning, organizing, leading, controlling and staffing."*

LECTURE – 02

In the second lecture, the three levels of management were discussed. The three levels of management are: **strategic level**, **tactical level** and **operational level**. The levels of management are represented in a hierarchy with operational being the last and strategic as the first level. The hierarchy is also sub-divided into five domains: sales and marketing, manufacturing, accounts, finance and HR. There are different types of decision making at each level. In operational level there is structured decision making in which everything is pre-defined, predicted and the output is well-known. In tactical, or middle management level, semi-structured decision making is followed in which part of the process is pre-defined and the rest is open ended. Lastly in the strategic, or top level management, unstructured decision making is followed in which the entire process is open ended and can't be predicted.

Systems at each level were defined in which at the operational level, transaction processing systems are acting. High volume data is given input to the TPS which is used to store and process this data. The tactical and strategic level are known to be primary levels. A tactician is one who knows what to do when something needs doing and a strategist is someone who knows what to do when there is nothing to do. The systems in tactical level are: MIS, DSS, OAS, KWS, and KMS. The systems in strategic level are: EIS and ESS.

QUESTION – 01

What is MIS? (Management, information, system)

Management is defined as its core functions: planning, organizing, leading, controlling, and staffing. Information is defined as useful facts extracted out of the huge pool of data. System is a set of inter-related objects working together for a common cause.

MIS is defined as an information system used for decision-making, and for the coordination, control, analysis, and visualization of information in an organization. The study of the management information systems involves people, processes and technology in an organizational context.

QUESTION – 02

What are the different systems working at different levels in organizations?

1. Strategic level / Top-level Management
    - **EIS – Executive Information System**
        i. An Executive Information Systems (EIS) is a type of management information system intended to facilitate and support the information and decision making needs of senior executives by providing easy access to both internal and external information relevant to meeting the strategic goals of the organization.
        ii. It provides timely delivery of company summary information
        iii. Provides better understanding of information
        iv. It filters data for management
        v. It offers efficiency to decision makers.
        vi. They provide analysis tools
        vii. They should be intuitive and easy to learn
    - **ESS – Executive Support System**
2. Tactical level / Middle Management level
    - **MIS – Management Information System**
        i. It provides managers with tools to organize, evaluate, and efficiently manage departments within an organization.
    - **DSS – Decision Support System:** Medical diagnosis, Business and Management, Agricultural production.
        i. It is a computer based information system that supports business or organizational decision-making activities.
        ii. They can support decision makers at any level in an organization
        iii. They are intended for repeated use.
        iv. They are intended to improve the accuracy, timeliness, quality and overall effectiveness of a specific design.
        v. It allows users to access data from different sources concurrently.
        vi. It provides an interactive, scalable platform for rapidly developing and deploying projects.
        vii. They are flexible and can be altered according to need.
    - **OAS – Office Automation System**
        i. Computer based information system that collects, processes, stores, and transmits electronic messages.
    - **KWS – Knowledge Work System:** Virtual Reality, Investment Workstations, Human Resource Systems
        i. Set of processes developed in an organization to create, gather, store, maintain, and disseminate the firm's knowledge.
        ii. Help integrate new knowledge within the organization.
        iii. They serve as internal consultants regarding the areas of their knowledge
        iv. They act as change agents.
        v. They require great computing power, access to external databases, easy to use interfaces, and optimization for the specific tasks to be performed.
    - **KMS – Knowledge Management System**
        i. It facilitates decision-making capabilities.
        ii. It builds learning organization by making learning routine.
        iii. It simulates cultural change and innovation.
        iv. It promotes innovation and process improvements.
        v. It reduces knowledge loss.
        vi. It supports transition of old to new employees.

3. Operational level
    - **TPS – Transaction Processing System**

QUESTION – 03

What is the role of TPS at the operational level? Explain in Detail.

Transaction processing systems serve the operational level of the organization. It is a computerized system that performs and records the daily routine transactions necessary to manage business; they serve the organization's operational level. The principal purpose of systems at this level is to answer routine questions and to track the flow of transactions through the organization.

1. It is a type of information system that collects, stores, modifies and retrieves the data transactions of an enterprise.
2. It provides rapid response with fast results.
3. It has a well-defined backup and recovery with low failure rate.
4. It treats every transaction equally.

QUESTION – 04

Differentiate between RFID and Barcode Technology.

RFID	BARCODE
In RFID, You can scan multiple tags at once, which results in fast reading.	In barcode, you need to scan each tag individually, which results in slow reading
RFID tags are sturdier and more reusable. They can be read also in harsher environments.	Barcode tags are printed on paper or adhesive and they tend to suffer more from wear and tear. Dirty or damaged tags cannot be read.
You don't need line of sight for tag reading. If you are within range, you can read RFID tags even at a distance (reading range up to 15 meters)	You need to keep the scanner in line of sight with the tag, which results in short reading range
RFID tags can store more data and with a higher degree of complexity, like product maintenance information and expiry dates	Barcode tags can only store a limited amount of data, usually generic information like name, SKU, and manufacturer
More secure, accurate, and less labor-intensive	Lighter and usually cheaper

QUESTION – 05

Explain Business Process Re-Engineering with an example other than what was discusses in class.

"Business Reengineering is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed."

BPR includes three phases; analysis phase, design phase, and implementation phase. It is also referred to as business process redesign, business process change management, and business transformation.

Example of BPR

Google redesigned its hiring process in the early days after a study revealed it was — to put it bluntly — utter garbage.

After finding the famous "how many golf balls can you fit in Seattle's sewer network?"-type questions to be nothing more than a way to make interviewers feel clever and superior, they moved away from random questioning and towards a structured, process-driven approach involving behavioral interviewing with fixed questions like "give me an example of a time when you solved an analytically difficult problem".

By reengineering the hiring process, Google has become known as one of the most effective companies in the world at judging the right people to hire. It's synonymous with finding great talent, not asking useless fluff questions.

PRINCIPLES OF RE-ENGINEERING

- Organize around outcomes, not tasks.
- Have those who use the output of the process perform the process.
- Subsume information processing work into the real work that produces the information.
- Treat geographically dispersed resources as though they were centralized.
- Link parallel activities instead of integrating tasks.
- Put the decision point where the work is performed and build control into the process.
- Capture information once and at the source.

QUESTION – 06

Define and explain types of decision making at different levels in an organization.

There are three types of decision making that takes place at each level of management. They are as follows:

1. **Structured Decision Making:** In operational level there is structured decision making in which everything is pre-defined, predicted and the output is well-known.
2. **Semi-Structured Decision Making:** In tactical, or middle management level, semi-structured decision making is followed in which part of the process is pre-defined and the rest is open ended.
3. **Unstructured Decision Making:** In the strategic, or top level management, unstructured decision making is followed in which the entire process is open ended and can't be predicted.

Examples of Business Processes

- **Manufacturing and production:** Assembling product, checking quality, producing bills of materials
- **Sales and marketing:** Identifying customers, creating customer awareness, selling
- **Finance and accounting:** Paying creditors, creating financial statements, managing cash accounts
- **Human Resources:** Hiring employees, evaluating performance, enrolling employees in benefits plans

ENTERPRISE APLICATIONS

Enterprise Systems, Supply Chain Management Systems, Customer Relationship Management System, Knowledge Management System.

BENEFITS OF ENTERPRISE SYSTEMS

Firm structure and organization: one organization

Management: Firm-wide knowledge-based management processes

Technology: Unified platform

Business: More efficient operations and customer-driven business processes

CHALLENGES OF ENTERPRISE SYSTEMS

Difficult to build: Require fundamental changes in the way the business operates

Technology: Require complex pieces of software and large investments of time, money, and expertise

Centralized organizational coordination and decision making: Not the best way for the firms to operate

SUPPLY CHAIN MANAGEMENT

- Close linkage and coordination of activities involved in buying, making, and moving a product
- Integrates supplier, manufacturer, distributor, and customer logistics time
- Reduces time, redundant effort, and inventory costs
- Helps in distribution of the finished products to customers

How Information System facilitate SCM?

- Decide when, what to produce, store, move
- Communicate orders, track order status
- Rapidly communicate orders
- Track shipments
- Share information about defect rates, returns

CUSTOMER RELATIONSHIP MANAGEMENT

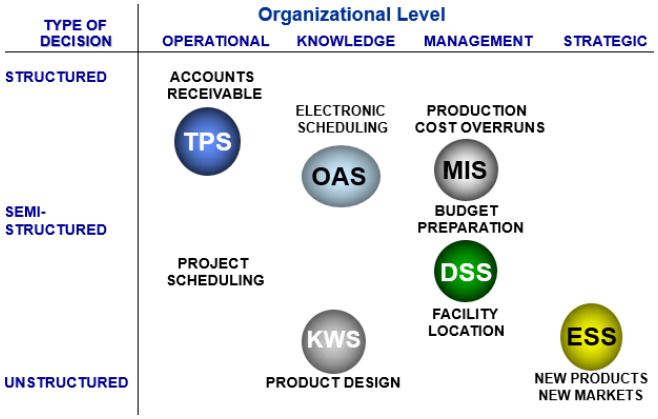
- Manages all ways used by firms to deal with existing and potential new customers
- Business and Technology discipline
- Uses information system to coordinate entire business processes of a firm
- It provides end to end customer care
- Provides a unified view of customer across the company

MANAGEMENT CHALLENGES

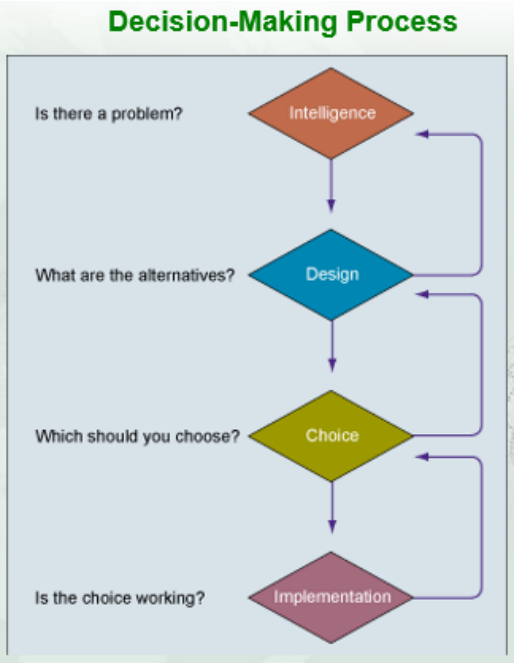
1. Sustainability of competitive advantage
2. Fitting technology to the organization (or vice-versa)

Factors to balance between organization and IT.

- Environment
- Culture
- Structure
- Standard Procedure
- Politics
- Management decision
- Chance



STRUCTURAL CHARACTERISTICS OF ORGANIZATION



- Clear division of labor
- Hierarchy
- Explicit rules and procedures
- Impartial judgements
- Technical qualifications
- Maximum organizational efficiency

All organizations have different:

- Structure / Organizational types
- Goals
- Constituencies
- Leadership styles (Tasks)
- Surrounding environment
- Ultimate goal
- Different groups and constituencies
- Nature of leadership
- Tasks and technology

Factors to consider while planning a new system:

- Organizational environment.
- Organizational structure, hierarchy, specialization, standard operating procedures
- Culture and politics of the organization
- Type of organization and its style of leadership
- Groups affected by the system and the attitudes of workers who will be using the system
- Kinds of tasks, decisions, and business processes, information system is designed to assist

Characteristics to be kept in mind while designing systems:

- Flexibility and multiple options for handling data and evaluating information
- Capability to support a variety of styles, skills, and knowledge
- Capability to keep track of many alternatives and consequences
- Sensitivity to the organization's bureaucratic and political requirements

ENTERPRISE RESOURCE PLANNING

An expanded effort to integrate marketing, financial, manufacturing and human resources in a single information system. Standardized record-keeping permits information sharing throughout the organization. **It includes:**

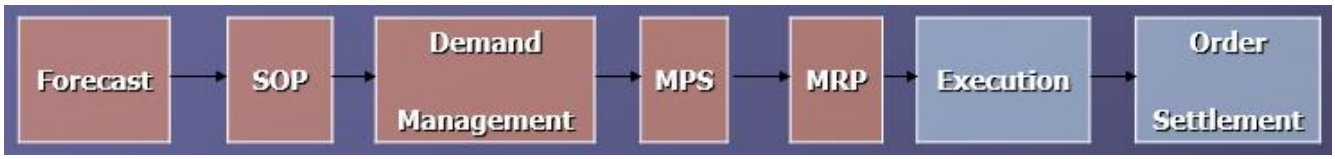
- Single integrated software program
- Single database
- Information shared and communicated
- Automates customer orders, order fulfillment, billing, shipping, etc.
- Tracking

WORKING OF SAP R/3 (sath mai jo description hai it is just for the sake of explanation/example)

1. **Ordering:** An order triggers a chain reaction of events throughout the enterprise.
   A sales rep from International Sneaker Co. takes an order for 1,000 pairs of shoes from a Brazilian retailer. From her portable PC the rep taps into the R/3 sales module back at headquarters which checks the price, including any discounts the retailer is eligible for, and looks up the retailer's credit history.
2. **Availability:**
   Simultaneously, R/3's inventory software checks the stock situation and notifies the sales rep that half the order can be filled immediately from a Brazilian warehouse. The other sneakers will be delivered in five days directly from ISC's factory in Taiwan.
3. **Production:**
   R/3's manufacturing software schedules the production of the sneakers at the Taiwan factory, meanwhile alerting ISC's warehouse manager in Brazil to ship the 500 purple tennis shoes to the retailer. An invoice gets printed in Portuguese.
4. **Manpower:**
   That's when R/3's human resources model identifies a shortage of workers to handle the order and alerts the personnel manager of the need for temporary workers.
5. **Purchasing:**
   R/3's materials planning module notifies the purchasing manager that it's time to reorder purple dye, rubber, and shoelaces.
6. **Order Tracking:** it can be continuous (Foodpanda tracking) and discrete (Gulshan → Nazimabad → Malir).
   The customer logs on to the sneaker company's R/3 system through the Internet and sees that 250 of the 500 pairs of shoes coming from Taiwan have been made and dyed. The customer also sees that there are 500 pairs of orange tennis shoes in stock and places a follow-up order on the Net.
7. **Planning:**
   Based on data from R/3's forecasting and financial modules, the CEO sees that colored sneakers are not only in hot demand but are also highly profitable. He decides to add a line of fluorescent footwear!

THE MANUFACTURING PLANNING AND EXECUTION PROCESS:

From Forecast to Settlement



SOP: Sales and Operations Planning

MPS: Master Production Scheduling

MRP: Material Requirements Planning

Forecasting: Forecasting utilizes data from the sales information system as well as profitability analysis. The output of the forecasting activity becomes the input for sales and operation planning.

In profitability analysis monetary turnover goals are set and budgets are determined so that these goals can be reached.

Sales and Operations Planning: In sales and operations planning medium to long-term sales quantities are determined and the measures that have to be made to realize these quantities are roughly planned (rough estimate of feasibility of these plans).

Demand Management: In demand management the planning and production strategy is selected and the requirement quantities and delivery dates are also determined.

Master Production Management: In master production scheduling the parts or products that greatly influence company profits or that take up critical resources are planned with extra attention.

Material Requirement Planning: In master production scheduling the parts or products that greatly influence company profits or that take up critical resources are planned with extra attention.

Execution: In execution production orders are created and released. Further, materials are issued, jobs are tracked, and goods receipts to stock are posted when the last production operation is completed.

Order Settlement: In order settlement the difference between actual costs incurred from the production order and the credits the order received from goods receipts is cleared.

MANAGEMENT CHALLENGES

Emerging Digital Firm: If the rate of change outside your organization is greater than the rate of change inside then the end is in the inside.

Electronic Commerce: Buying and selling of staff online.

Electronic Business: It compasses of everything, like business model, payment, mechanism, etc.

Challenges and Opportunities: To digitize a business is not easy.

BUSINESS MODEL

- It defines an enterprise
- It describes how the enterprise delivers a product or service.
- It shows how enterprise creates wealth

INTERNET BUSINESS MODELS

Virtual Storefront: It sell goods, and services online.

Information Broker: It provides information about products, pricing, etc. (GulAhmed, Zeen, etc.)

Transaction Broker: Buyers view rates, terms from various sources. (Insurance companies)

Online Marketplace: Concentrates information from several providers. (Daraz)

Content Provider: It creates revenue through providing client for a fee and advertising.

Online Service Provider: It provides service, support for hardware, software products. (Word to PDF converter)

Virtual Community: A chat-room, or online meeting place. (Zoom, Skype)

Portal: Initial point of entry to Web, specialized content and services.

Syndication: Online content provider that aggregates information from several sources sold to other companies.

Auction: Products, prices, change in response to demand. It is used in online marketplace.

Dynamic Pricing: Real-time interactions between buyers, sellers. Determines worth of items.

Banner Ad: Graphic display used for advertising, linked to the advertisers website.

CATEGORIES OF ECOMMERCE

Business-to-consumer (B2C)

- Business-to-consumer refers to the process of businesses selling products and services directly to consumers, with no middleperson.
- B2C is typically used to refer to online retailers who sell products and services to consumers through the Internet.
- Online B2C became a threat to traditional retailers, who profited from adding a markup to the price.
- However, companies like Amazon, eBay, and Priceline have thrived, ultimately becoming industry disruptors.

Business-to-business (B2B)

- Business-to-business (B2B) is a transaction or business conducted between one business and another, such as a wholesaler and retailer.
- B2B transactions tend to happen in the supply chain, where one company will purchase raw materials from another to be used in the manufacturing process.
- B2B transactions are also commonplace for auto industry companies, as well as property management, housekeeping, and industrial cleanup companies.
- Meanwhile, business-to-consumer transactions (B2C) are those made between a company and individual consumers.

Consumer-to-consumer (C2C)

- Customer to customer (C2C) is a business model that enables customers to trade with each other, frequently in an online environment.
- C2C businesses are a type of business model that emerged with e-commerce technology and the sharing economy.
- Online C2C company sites include Craigslist, Etsy, and eBay, which sell products or services through a classified or auction system.
- Some C2C companies have problems, such as a lack of quality control and payment guarantees.

CUSTOMER	CONSUMER
Customer is the one who purchases the product.	Consumer may or may not purchase but is the end-user.
It can resell the product for getting profit.	It can't the product for profits.
It could be anybody – individual, company, or mass.	It is a single entity or a company as a whole.