INFORMATION SYSTEMS MANAGEMENT

Sit 222

Lesson 5

IS Types

IS Types

Administrative IS

- TPS
- MIS
- DSS
- ES
- EIS
- KMS

IS Types

Integrated:

- ERP

Types of Information Systems

Executive Support Systems (ES)

- Support the strategic roles of the most senior staff in an organization make strategic decisions.
- Attend to the unstructured situations and usually utilize powerful graphics software.
- Gathers, analyses and summarizes the key internal and external information used in the business.
- Typically involves lots of data analysis and modeling tools such as "what-if" analysis to help strategic decision-making.

Some examples of EIS

Executive Information Systems tend to be highly individualized and are often custom made for a particular client group; however, a number of off-the-shelf EIS packages do exist and many enterprise level systems offer a customizable EIS module.

The role of EIS

- Are concerned with ease of use
- Are concerned with predicting the future
- Are effectiveness oriented
- Are highly flexible
- Support unstructured decisions
- Use internal and external data sources
- Used only at the most senior management levels

Functions of a EIS in terms of data processing requirements

Inputs	Processing	Outputs
External Data Internal Files Pre-defined models	Summarizing Simulation "Drilling Down"	Summary reports Forecasts Graphs / Plots

Types of Information Systems

Management Information Systems (MIS)

- Mainly concerned with internal sources of information.
- Usually take transactional data and summarizes it into a series of management reports.
- These reports tend to be used by middle management and operational supervisors.
- These reports usually generated on pre-determined schedule and appear in a pre-arranged format.

Some examples of MIS

- Sales management systems
- Inventory control systems
- Budgeting systems
- Management Reporting Systems (MRS)
- Personnel (HRM) systems

The role of MIS

- Based on internal information flows
- Support relatively structured decisions
- Inflexible and have little analytical capacity
- Used by lower and middle managerial levels
- Deals with the past and present rather than the future
- Efficiency oriented?

Functions of a MIS in terms of data processing requirements

Inputs	Processing	Outputs
Internal Transactions Internal Files Structured data	Sorting Merging Summarizing	Summary reports Action reports Detailed reports

Types of Information Systems

Decision-Support Systems (DS)

- Specifically designed to help management make decisions in situations where there is uncertainty about the possible outcomes of those decisions.
- Concerned with provision of useful information that is meant to support the decision process.
- They comprise tools and techniques to help access relevant information (*data that has already been captured by TPSs and MISs.*)and analyze the options and alternatives.
- DSS often involves use of complex spreadsheet and databases to create "what-if" models.

DSS … continued

- DSSs provide one or more of the following:
  - Identification of problems or decision-making opportunities
  - Identification of possible solutions or decisions
  - Access to information needed to solve a problem or make a decision
  - Analysis of possible decisions or of variables that will affect a decision ("*What if*" analysis)
  - Simulation of possible solutions and their likely results

Some examples of DSS

- Group Decision Support Systems (GDSS)
- Logistics systems
- Financial Planning systems
- Spreadsheet Models?

The role of DSS

- Support ill- structured or semi-structured decisions
- Have analytical and/or modelling capacity
- Used by more senior managerial levels
- Are concerned with predicting the future
- Are effectiveness oriented?

Functions of a DSS in terms of data processing requirements

Inputs	Processing	Outputs
Internal Transactions Internal Files External Information?	Modelling Simulation Analysis Summarizing	Summary reports Forecasts Graphs / Plots

Types of Information Systems

Transaction Processing Systems (TPS)

- Designed to capture and process routine transactions efficiently and accurately.
- Can respond to both external events (eg processing customer orders) and internal events (eg generation of production orders for the shop floor).
- Design of TPSs focuses on factors such as response time, throughput (Voulme of transactions), Accuracy, Consistency, and Customer Service.

Some examples of TPS

- Payroll systems
- Order processing systems
- Reservation systems
- Stock control systems
- Systems for payments and funds transfers

The role of TPS

- Produce information for other systems
- Cross boundaries (internal and external)
- Used by operational personnel + supervisory levels
- Efficiency oriented

Functions of a TPS in terms of data processing requirements

Inputs	Processing	Outputs
Transactions Events	Validation Sorting Listing Merging Updating Calculation	Lists Detail reports Action reports Summary reports?

Types of Information Systems

Office Automation Systems (OAS)

- Systems that try to improve the productivity of employees who need to process data and information.
- They also improve workflow and communication between workers, regardless of whether they are located in the same office or not.
- The functions include:
  - Word processing
  - Electronic messages (emails)
  - Work-group computing and scheduling
- Microsoft Office XP is such a software that improves the productivity of employees working in an office
- Also there are other systems that allow employees to work from home or whilst on the move. (VPN)

OAS … continued

- There are two general categories of OASs:
  - ***Personal Information Systems***: These are designed to meet the needs of a single user, by boosting the individual's productivity.
  - ***Work Group Information Systems***: Are designed to meet the needs of a work group. The systems enable users to collaborate on projects.

ERP

Enterprise resource planning

ERP- Definition 1

- This is a business process management software that allows an organization to use a system of **integrated applications** to manage the business and automate back office functions.
- ERP software integrates all facets of an operation:
  - Product planning
  - Development
  - Manufacturing processes
  - Sales and marketing etc..

ERP- Definition 2

- ERP is usually a suite of **integrated applications**—that a company can use to store and manage data from every stage of business
  - Product planning, cost and development
  - Manufacturing
  - Marketing and sales
  - Inventory management
  - Shipping and payment

ERP- Enterprise resource planning

- ERP provides an integrated real-time view of core business processes.
- It uses common databases maintained by a database management system.
- ERP systems track business resources—cash, raw materials, production capacity—and the status of business commitments: orders, purchase orders, and payroll.
- The applications that make up the system share data across the various departments that entered the data.
  - Manufacturing
  - Purchasing
  - Sales
  - Accounting …

ERP


finance
human resourse
logistics management
maintance management
sales and distribution
Quality management
materials managemnt
manufacturing
stregic and operational planning
ERP system

ERP- Enterprise resource planning

- ERP facilitates information flow between all business functions, and manages connections to outside stakeholders.
- Organizations consider the ERP system a vital organizational tool because it integrates varied organizational systems and facilitates error-free transactions and production.
- ERP systems run on a variety of computer hardware and network configurations, typically using a database as an information repository.

ERP- Enterprise resource planning

Advantages of ERP

1. Complete **visibility** into all the important processes across various departments of an organization (especially for senior management personnel).

2. Automatic and coherent **work-flow** from one department / function to another to ensure smooth transition/ completion of processes.

3. A unified and single **reporting** system to analyze the statistics/ numbers/ status etc in real-time, across all the functions / departments.

4. Since **same software** is used across all departments – this can avoid individual departments having to buy and maintain their own software systems.

ERP- Enterprise resource planning

Advantages of ERP

5. Certain ERP vendors can extend their ERP systems to provide **Business Intelligence** functionalities as well.

6. Advanced **e-commerce integration** is possible with ERP systems that can handle web-based order tracking/ processing.

7. There are **various modules** in an ERP system like Finance/ Accounts, Human Resource Management, Manufacturing, Marketing / Sales, Supply Chain / Warehouse Management, CRM, Project Management, etc.

8. Since ERP is a **modular software** system, its possible to implement either a few modules (or) many modules based on the requirements of an organization. If more modules implemented, the integration between various departments might be better.

ERP- Enterprise resource planning

Advantages of ERP

9. Single Database is implemented on the back-end to store all the information required by the ERP system and that enables **centralized storage** / back-up of all enterprise data.

10. ERP systems are more **secure** as centralized security policies can be applied to them and all the transactions happening via the ERP systems can be tracked.

11. ERP systems provide visibility and hence enable better/ faster **collaboration** across all the departments.

12. It is possible to integrate other systems (like bar-code reader, for example) to the ERP system through an **API** (Application Programing Interface).

ERP- Enterprise resource planning

Advantages of ERP

13. ERP systems make it **easier** for order tracking, inventory tracking, revenue tracking, sales forecasting and related activities.

14. ERP systems are a boon for managing **globally dispersed** enterprise companies.

ERP- Enterprise resource planning

Disadvantages of ERP (Enterprise Resource Planning) Systems:

1. The **cost** of ERP Software, planning, customization, configuration, testing, implementation, etc is too high.

2. ERP deployments take **1-3 years** to get completed and fully functional.

3. Too little **customization** may not integrate the ERP system with the business process & too much customization may slow down the project and make it difficult to upgrade.

4. The **cost savings/ payback** may not be realized immediately after the ERP implementation & it is quite difficult to measure the same.

ERP- Enterprise resource planning

Disadvantages of ERP (Enterprise Resource Planning) Systems:

5. The **participation** of users is very important for successful implementation of ERP projects – So, exhaustive user training and simple user interface might be critical. But ERP systems are generally difficult to use (and learn).

6. There maybe additional **indirect costs** like new IT infrastructure, upgrading the WAN links, etc.

7. **Migration** of existing data to the new ERP systems is always difficult to achieve as with integrating ERP systems with other stand alone software systems.

8. ERP implementations are difficult to achieve in **decentralized organizations** with disparate business processes and systems.

ERP- Enterprise resource planning

Disadvantages of ERP (Enterprise Resource Planning) Systems:

9. Once an ERP systems is implemented it becomes a **single vendor lock-in** for further upgrades, customizations etc.

CUSTOMER RELATIONSHIP MANAGEMENT

- CRM is an enterprise application module that manages a company's interactions with current and future customers by organizing and coordinating, sales and marketing, and providing better customer services along with technical support.
- Customer Relationship Management is a comprehensive strategy and process of acquiring, retaining, and partnering with selective customers to create superior value for the company and the customer. It involves the integration of marketing, sales, customer service, and the supply-chain functions of the organization to achieve greater efficiencies and effectiveness in delivering customer value.

Why CRM?

- To keep track of all present and future customers.
- To identify and target the best customers.
- To let the customers know about the existing as well as the new products and services.
- To provide real-time and personalized services based on the needs and habits of the existing customers.
- To provide superior service and consistent customer experience.
- To implement a feedback system.

CRM

- CRM scope