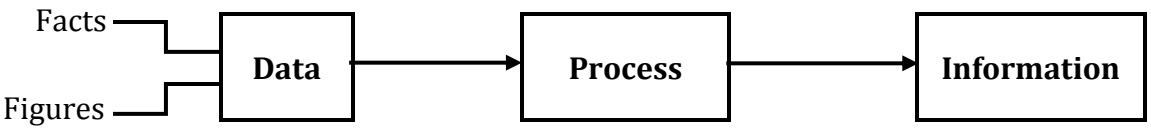
CHAP - 4

Business Information Systems



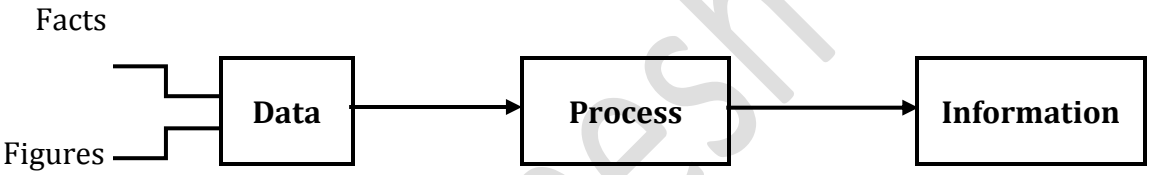
→ Process data presents in meaningful context.
→ This information is important for decision making.

DATA

Is a raw fact & can take the form of no or statement such as a date or a measurement.

INFORMATION

Data is processed to produce the information.



SYSTEM

Is a collection of inter-related elements working together to accomplish common goal by accepting input & producing output through ordered process.

Five components of system are Input, Process, Output, Feedback, Control.

INFORMATION SYSTEM

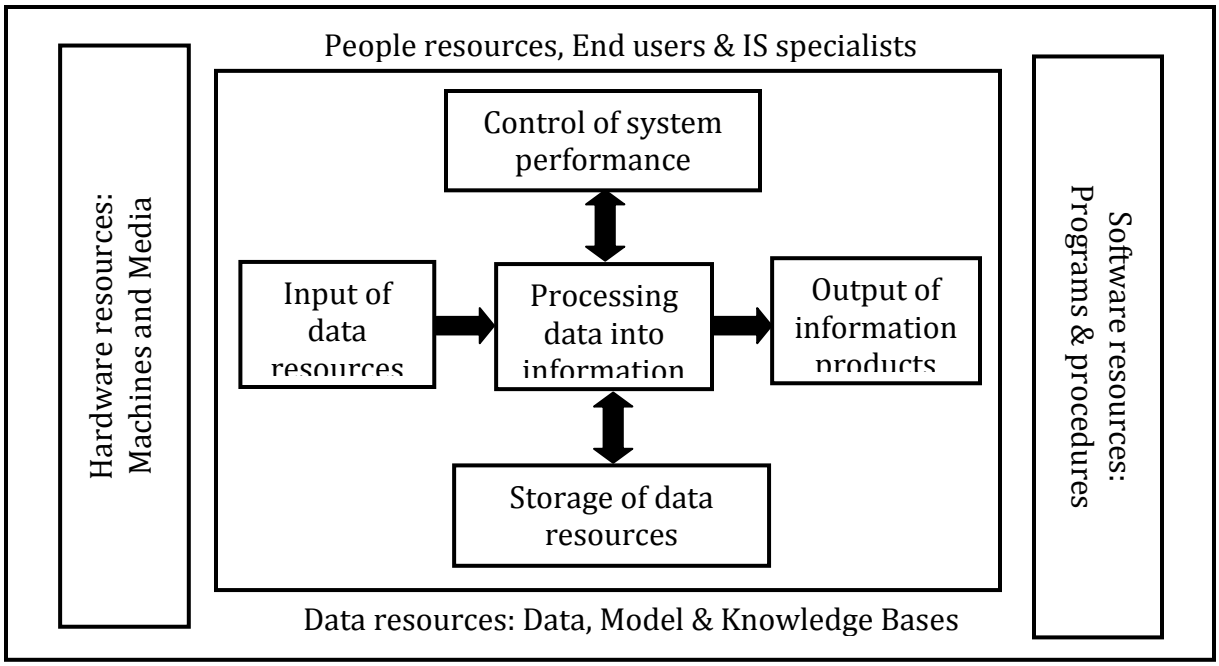
Is a combination of people, hardware, software, communication devices, network & data resources that processes data & information for a specific purpose (i.e. decision making).

Information systems integration of people process & technology a three tier approach.

People ⟶ Technology ⟶ Process. E.g. Big bazaar billing.

EMAIL : Chheda.jignesh@gmail.com **contact : 9819068991**

COMPONENTS OF INFORMATION SYSTEM



Main aim is to convert the data into information which is useful & meaningful.

Process consists of 4 basic concepts:

i) People, hardware, software & data are four basic resources.

ii) Human resources consists of all users of information like Auditors, IFS Specialists, etc.

iii) Process converts data into info for end users.

iv) Consist of input processing output storage & control processes.

BUSINESS INFORMATION SYSTEM (BIS)

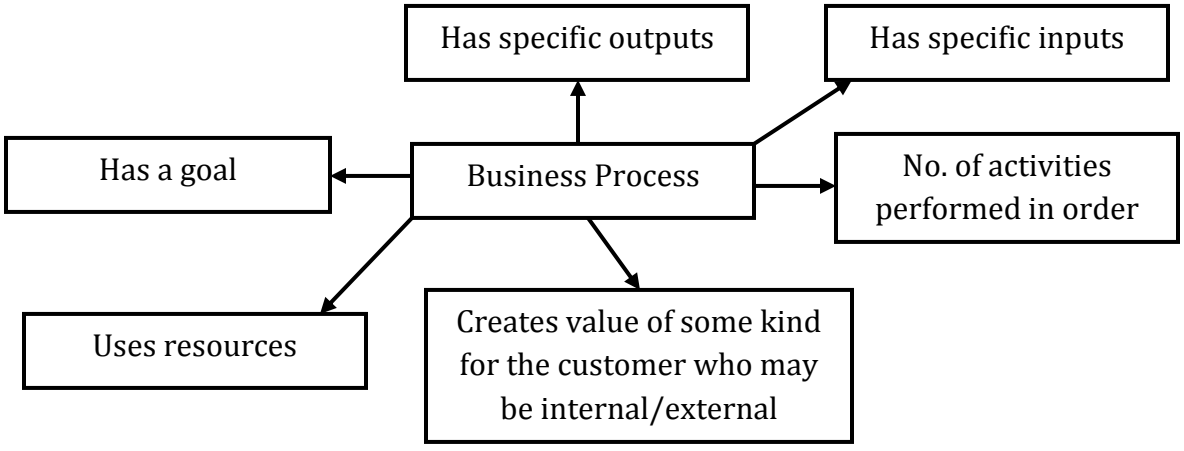
BIS may be defined as systems integration information technology, people & business.

Brings business functions & info modules together for establishing effective communication channels which are useful for decision making.

ORGANISATIONS, INFO SYSTEMS & BUSINESS PROCESSES

Business Process

Is an activity or set of activities that will accomplish a specific organizational goal.



In order to be able to compete successfully in the modem business environment information system must be able to.

- Have large capacity for storage of info & also provide faster access.
- Provide support for decision making.
- Grant a competitive edge.
- Offer faster communication & exchange of information across the value chain.
- Reduce information redundancy.

TYPES OF INFORMATION SYSTEM & ITS USES

1) Strategic level

System	User
→ Manages to track & deal with strategic issues, long range planning. → E.g. DSS, EIS	→ Senior manager, top level managers. → They set goals for the organization & direct the co. to achieve them.

2) Management level

System	User
→ Monitoring, controlling etc. activities of middle management. → E.g. MIS	→ Middle management → Responsible for carrying out the goods set by top management

3) Knowledge level

System	User
→ Supports data discovery → Controls the further flow of paper work.	→ Experts like chartered, tax consultants.

4) Operation level

System	User
→ Operational managers tracking elementary activities like customer orders etc.	→ Operational managers or supervisors. → For daily management. → First-line managers in every work unit in the organization.

TRANSACTION PROCESSING SYSTEM (TPS)

TPS defined as a type of information system that collects, stores, modifies & retrieves the day to day data transactions of an enterprise.

Most of the transaction processing systems include of the following attributes.

Or

Explain attributes of TPS (HEAT)

Access control	Equivalence TPS	High volume rapid processing – TPS	Trust worthiness – TPS
People who are not authorized are not permissible.	Transactions are processed in the similar format every time to ensure that full effectiveness is achieved.	Immediate process & confident that the transaction available to other users.	Designed to be robust & trust worthy, data integrity is preserved.

Transaction Processing Qualifiers

TPS should pass 'ACID' test.

There are 4 perquisites.

Atomicity	Consistency	Isolation	Durability
→ Transportation completed in all or not at all. → i.e. no partial transaction is recorded. → E.g. Cheque deposited but not cleared not recorded.	→ Exists within specific format. → Consistency in data format. → E.g. If certain database is always in the +ve then no –ve fig. will be included.	→Process should be simultaneous & not in speculation. →E.g. Fund transfer Dr. in a A/c & Cr. In another A/c.	→If system crashes then also no problem. →As a separate logfile will be recorded.

KNOWLEDGE MANAGEMENT SYSTEM (KMS)

Refers to any kind of IT system that stores & retrieves knowledge, mines repositories for hidden knowledge etc.

Knowledge: Derived from information, knowledge represents information with a potential use retained for reference in future decision situation.

Types of Knowledge

Explicit	Tacit
→ It is articulated i.e. can be captured. → Represented as spoken words, written material. → E.g. Online tutorials etc.	→ It is a implied knowledge. → Cannot be captured. → Difficult to document & communicate. → E.g. Special knowhow etc.

A close & firm link between information & knowledge has always existed.

Information	Knowledge
Is a piecemeal, fragmented.	Is structured.
Is timely, temporary	Is a permanent.
Flow of messages.	Is a stock. (which is modified by adding, restructuring the knowledge)

KNOWLEDGE DISCOVERY & DATA MINING (KDD)

Fundamentally deals with ways & means of capturing & making obtainable knowledge of the experts to others in electronic form.

Confident factors that show "Why knowledge has gained so much momentum in recent times".

Altering business surroundings	Burgeon connection	Globalization	Modification in organized composition
Due o increasing competition organization naturally become knowledgeable over a time.	Increasing connection incorporated due to global expansion, continuous changes. E.g. Facebook, SMS, hoardings.	Importance to knowledge, innovation increased.	Organizational structures are changing. E.g. From physical lectures to virtual lecture.

MANAGEMENT INFORMATION SYSTEM (MIS)

Definition

MIS is a system which provides accurate, timely & meaningful data for management planning, analysis & control to optimize the growth of the organization.

MIS is an integrated application.

Developing MIS – DOS & Don'ts:

Particulars	Do's	Don't
1. Layman	Have simpler & manageable system.	Be ambitious it may result in complex system.
2. Bridging	Develop common understanding between consultant & the organization.	Be unrealistic while developing plan.
3. Contribution in loyalty	Involve programmer in needs assessment.	Delay decisions on hiring application developers.
4. Tailor-made	Customize off-the-shelf software.	Depend heavily on the consultant.
5. Interpretation	Have simple software for users to handle.	Invest heavily in in-house app. development.
6. Synchronization	Extensively involve users in MIS development.	Let renders determine hardware needs for LAN.
7. Application	Adopt modular approach	Go for large applications.

Some examples of MIS

(i) Airline reservations (booking, schedules etc.)
(ii) Bank operations (deposits, transfers etc.)
(iii) Integration of department with the help of complementary software like ERP.
(iv) Logistics management application to streamline the transportation system.
(v) Train reservation with the help of IRCTC.

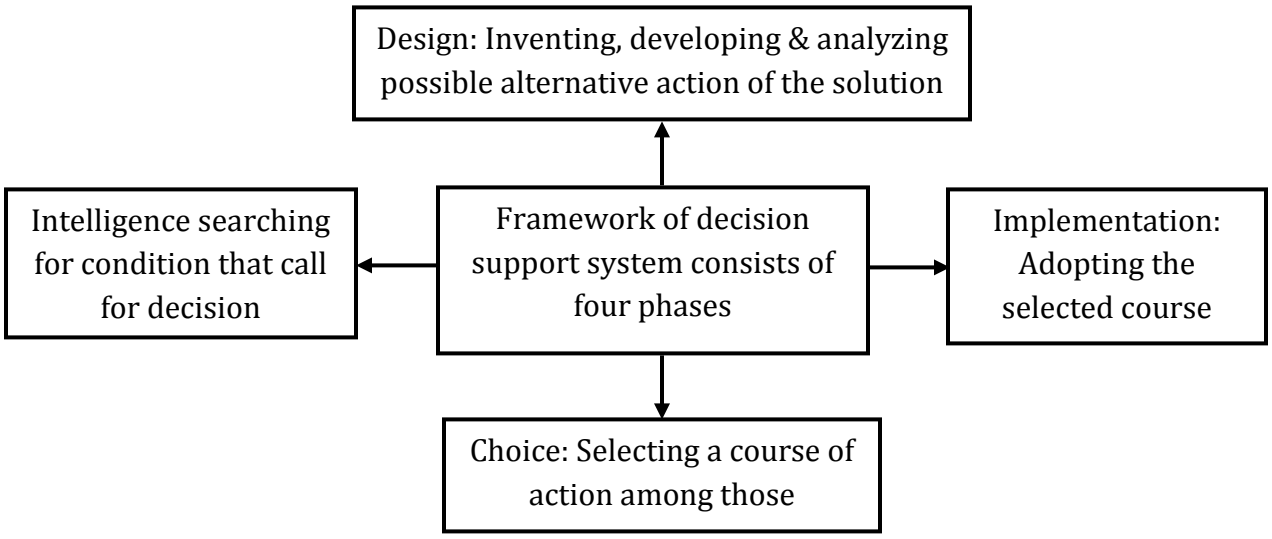
DECISION SUPPORT SYSTEMS (DSS)

Definition

Is a computer based information system that supports business or organization decision making activities.

Basic components of DSS

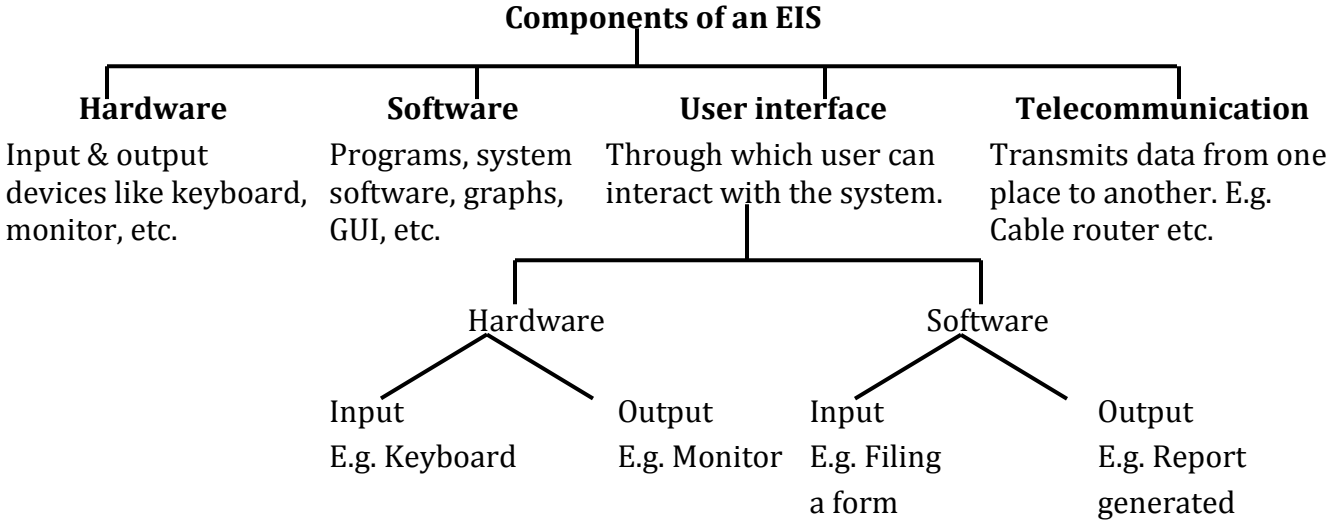
The user	One or more database	Planning languages	Model base
Usually managers at all levels.	Contains both routine or non-routine data.	→ Through which user can interact with DSS. → It can be far general or special purpose.	→ Brain of DSS. → Manipulations & computes the info from data base provided.



EXECUTIVE INFORMATION SYSTEMS (EIS)

Definition

Computerised information system that supports business decision making activities for executives.



ENTERPRISE RESOURCE PLANNING (ERP)

Integrate internal & external management information across an entire organization like finance, sales, service etc.

Useful for big organization.

ERP has also evolved considerably with computer & technological advances.

There are diverse stages of ERP

Stages of ERP

1	2	3	4	5	6	7	8	9	10
Inventory control	**ABC Analysis**	**EOQ**	**JIT**	**Material requirement planning (MRP I)**	**Manufacturing Resource Planning (MRP II)**	**Distribution Resource Planning (DRP)**	**Enterprise Resource Planning (ERP**	**Money Resource Planning (MRP III)**	**EIS Web enable**
→It is the supervision of supply, storage & accessibility of items in order to make certain a sufficient supply without excessive over supply. →System designed to encourage or avoid fraud & error etc.	→Material is divided into 3 categories according to the value & nature of that category's material.	→EOQ is the quantity at which ordering & carrying cost is minimum. →Helps small business owners to make decisions about invention management.	→Is a philosophy of continuous improvement in which wastes are identified & removed for purpose of: (i) Reducing cost (ii) Improving qty. (iii) Adding flexibility etc.	→Control inventory & production. →Ensures materials are available. →Maintain the lowest possible inventory. →Plan delivery schedules, purchasing activities.	→ Planning of all resources of a manufacturing company. → Financial planning, 'what-if', production related activities.	→ Plans use of all resource of organization. → Objective → Improve customer service. → Provides accurate requirement plan for manufacturing. → Optimize the distribution of available stock.	→Take customers order & provides a software roadmap for changes in database.	Planning of capital or managing the surplus money arises.	Web browsed software is the cheapest & simplest client software for an EIS.

CUSTOMER RELATIONSHIP MANAGEMENT (CRM)

Customer (Humanbeings)

- Source of profit & future growth.
- Provides ability to distinguish & manage the customers.

Relationship (Feelings)

- Communication & interaction between company & its customers.
- Managing relations is mutually beneficial.

Management (Tacts)

The customer info collected & analyzed continuously is transformed in corporate knowledge that leads to activities that take advantage of the information & of market opportunities.

CRM Equation

CRM = Customer + Understanding + Relationship Management

Customer understanding

Analysis of customer data to gain deep understanding.

Relationship management

Interaction with the customer.

Analytical CRM

Use to perform effective relationship management.

Benefits of CRM

→ Generating customers loyalty.

→ Preserving existing customers.

→ Developing connection & affiliation with customer & supervising if professionally.

→ CRM applications helps to analysis of data from existing & potential customers.

SUPPLY CHAIN MANAGEMENT (SCM)

→ Based on 2 central ideas.

→ Practically every product that reaches an end user represents the cumulative effort of multiple organizations.

→ These organizations are referred as the 'supply chain'.

→ SCM starts with customer & ends with customer.

Components of SCM

Procurement/Purchasing right items are delivered in the exact quantities at the correct location on the specified time schedule at minimal cost.	Operations having received raw materials, parts, components or services from suppliers, the firm must transform them & produce the products or the services that meet the needs of customers.	Distribution involves several activities, transportation, warehousing & CRM.	– Integration between suppliers. – Last element of supply chain. – The impact of the failure to adopt a system increases cost & destroys

HUMAN RESOURCE MANAGEMENT SYSTEMS (HRMS)

Is a software application that integrate many human resource functions, together with benefits administration payroll, recruiting & training & performance analysis and assessment into one parcel.

Key integration points/Different modules of this system

Workforce Management	Time & Attendance Management	Payroll Management	Training Management	Compensation Management	Recruitment Management	Personnel Management	Organisational Management	Employee Self services	Analytics
→ Effectively manage labour rules, ensure compliance & control labour cost & expense		→ For calculation of salary. → Not possible to pay every employee by physical check.	→ Conditions & details about training for particular post is stored.	→ Attract & retain talented employee.	→ Help to recruit right people at right job. → Help in shortlisting.	→ Stores all info about employee.	→ As per management herachy.	→ Info about his attendance to check to correctness of payment made to him can be accessed by employee.	→ Analysis of employee about his continuance with organisation

CORE BANKING SYSTEM (CBS)

CBS = Centralised online real time environment.

Various elements of CBS:

- Opening new accounts.
- Processing cash deposits & withdrawals.
- Processing payments & cheques.
- Managing customer accounts.
- Establishing interest rates.

In this system absolute bank's branches access applications from centralized data centers.

Applications (Softwares) for working of core banking

Infosys Finade

Finade core banking solution is a comprehensive quick, modules yet integrated business solution, addressing all the core needs of banks in easy to configure modules.

Nucleus Finnone

→ NFC's are the users of this applications.

→ It includes loan origination system that automates & manages the processing of many types of loans, credit card application system with strong credit & fraud detection tools.

Oracle's Flexcube

→ Empowers universal banks.

- Superior web experiences.
- Improved bank staff productivity with intuitive, role based dashboards.
- Straight-Through-Processing (STP) i.e. payment will be done without manual intervention.
- Improvement risk management & reporting.

Key Modules: (Features)

Enterprise customer information	Consumer banking	Corporate banking	Trade finance	Customer analytics	Wealth management	Islamic banking	Payments	Origination	Dash boards
create & maintain a single source of customer through enterprise customer info. Files, across multiple host systems.	offerings such as savings & checking a/c, auto finance, multi-currency a/c, securitization are added as needed.	includes commercial lending, essentials such as multi currency disbursement & repayment varied interest rate set up etc.	(Export-import) Processing of trade products such as documentary credit forward contract, import & export financing	there is also the flexibility to host customer functions, the business the customer stage of acquire development.	Offered to high networth individuals.	Services as pervarying markets segments, based on different Islamic concept.	ECS	Loan procedure	Total info of customer

ACCOUNTING INFORMATION SYSTEM (AIS)

System of collection, storage & processing the financial & accounting data for decision making key components

People system users like accountant, managers etc.	Procedure & instructions includes both manual & automated methods for collecting storing retrieving & processing data.	Info about organisations business practices.	These are computer programs that provide quality, reliability & security to company's financial data.	IT Infrastructure includes hardware servers, printers, etc. There is back up power supply used to operate the system.	Internal like biometric identification to protect sensitive data against unauthorized computer access.

Biometric identification = E.g. Finger prints, face detection.

EXPERT SYSTEM

Computerised info system that allows non-experts to make decisions comparable to those of an experts components of expert system.

Knowledge based	**Interference Engine**	**User Interface**	**Data base of facts**	**Explanation facility**
This includes the data, knowledge, relationships & decision trees used by experts to solve a particular problem.	This program contains the logic & reasoning mechanisms that simulate the expert logic process & deliver advice.	Interact with the system.	This holds the user's input about the current problem. The user may begin by entering as much as they know about the problem or the inference engine may prompt for details or ask whether certain conditions exist.	To the logic the ES used to arrive at its conclusion.

BUSINESS INTELLIGENCE

Business Analysis

ETL (Extract, Transform, Load) tools bring in data from outside source, transform it in standard system used by main branch to load it.

Types of expert system

Example based system

→ Developer enter the case facts & results.

→ E.g. legal software

Rule based system

→ Asks the user questions, if then rules to the conclusions & make recommendations.

→ E.g. Windows trouble shooting.

Frame based system

→ Organize all the info about topic into logical units called frames which are similar to linked records in data files.

→ E.g. Wikipedia

BUSINESS INTELLIGENCE

Is the delivery of accurate, useful information to the appropriate decision makers within the necessary time frame to support effective decision making for business processes.

Key Business Intelligence Tools

Simple reporting & querying reporting tools used to arrange info into a readable format & distribute it to the people who need it.	Business analysis presentation of data in multi-dimensional manner. Query & report data is presented in row after row of 2 dimensional data.	Dashboards gathered from the database & making it available to users as snapshots of many different things.	Scoreboards It offers a rich, visual gauge (measure) to display the performance of specific initiative.	Data mining or statestian analysis Discovering useful patterns. E.g. Shoppers stop formal shirts – coufling.

BUSINESS REPORTING

Provides a platform for users to get immediate access to business information by using simple analysis.

- Business reports are routinely assigned to facilitate us to:
  (Importance of reporting)
  – Conclusions about issue.
  – Demonstrate communication skills.
  – Recommendation for upcoming accomplishing (future tax)
  – Exhibit our analytical, reasoning and evaluation skills.
  – Business theory to a practical situation.
  – Scrutinize obtainable solution to a problem.
- Benefits for micro-businesses & small to medium enterprises
  – Paperless lodgment (storage): Reduces cost.
  – Electronic record keeping.
  – Pre-filled forms: Reports are automatically pre-filled with information.
  – Ease of sharing: Between client, accountants etc. for checking.
  – Secure AUS key authentication: For business to government services.
  – Same time validation: Receive a fast response.

- Benefits for large business:
  – A single reporting language to report to government:
  – Extensive Business Reporting Language (XBRL) – an international standard.
  – Reduce costs.
  – Streamline (standardize) the process of aggregating data.
  – Increased access to comparable performance information.
  – Secure AUS key authentication.
  – Same time validation.

Four general functions, identity verification, authentication, authorization & accountability

Identity Management	**Authentication**	**Authorization**	**Accountability**
Consists of 1 or more processes to verify the identity of a subject attempting to access an object.	Is the process of verifying a subject's identify at the point of object access.	Identifies what systems, network resources etc. a subject can access.	Some external resource logs all activity between the subject & object.

Approaches to Access Control

Role Based Access Control (RBAC)	**Rules Based Access Control (RAC)**
Consists of 1 or more processes to verify the identity of a subject attempting to access an object.	Is the process of verifying a subject's identify at the point of object access.

Payment Mechanisms

Major types of e-payment.

1) Credit Cards:

How a credit card is processed:

Step 1: Authorisation

After a merchant swipes the card, the data is submitted to merchant's bank called an acquirer to request authorisation for sale.

Step 2: Batching

The merchant settles whole day's transaction at once called batch. E.g. NEFT per transaction charges.

Step 3: Clearing

The issuing bank subtracts its interchange fees, transfers the remaining amount through the network back to the acquirer.

Step 4: Funding

Final step. After receiving payment from the issuer, minus interchange fees, the acquirer subtracts its discount fee & sends the remainder to the merchant.

2) Electronic Cheques:

Two systems have been developed to use of E-cheques

By the Financial Services	**By Cyber Cash**
Technology Corporation/FSTC) Is a group (consortium) of bank & clearing houses that has designed an electronic electronically & uses a digital signature for signing & endorsing.	– E-cheque has all the same features as a paper cheque. – Sender can protect ourselves by encoding our account no. with the bank's public key.

3) Smart Cards:

Embeded microchip instead of magnetic strip. The chip contains all the information a magnetic strip contains but offers the possibility of manipulating the data & executing applications on the card.

Contact Cards: Need to insert into a reader in order to work, such as smart card reader.

Contactiess Cards: Just woving near a reader is sufficient to transfer data. E.g. Delhi metro card.

Combi/Hybrid Cards: Allows a wider range of application. Mixture of above two.

4) Electronic Purses:

- Another way to make payments over the net similar to prepaid card.
- Validation through personal identification no. (PIN No.)

----****----