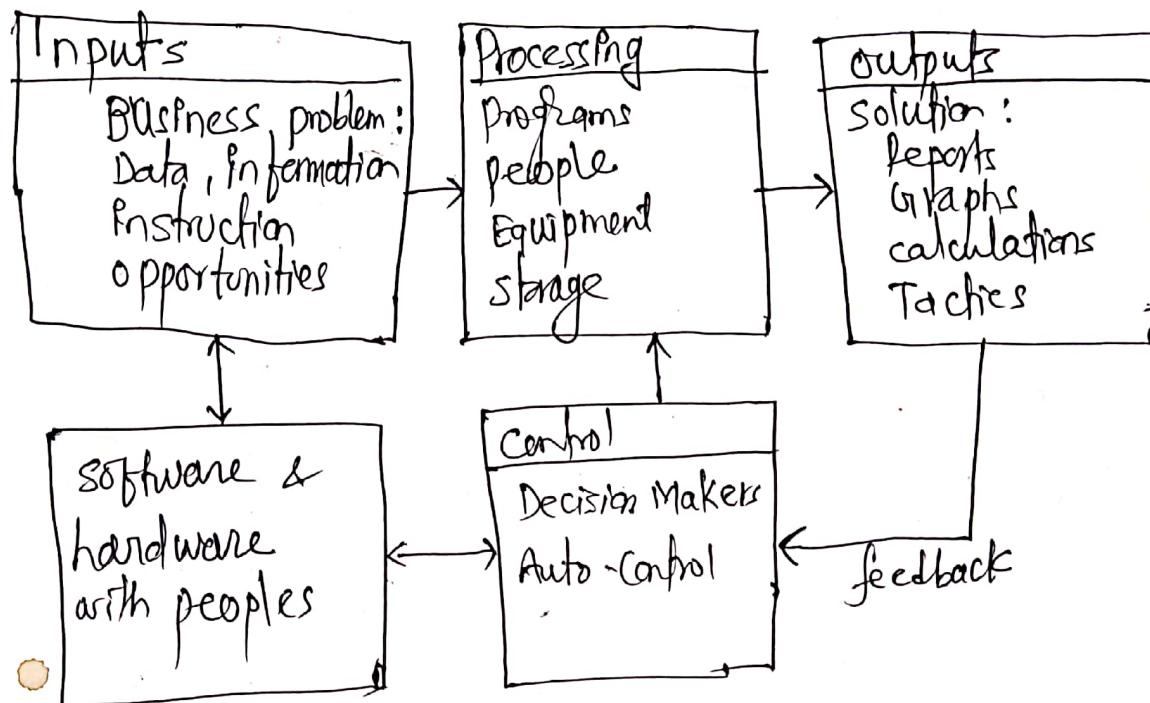
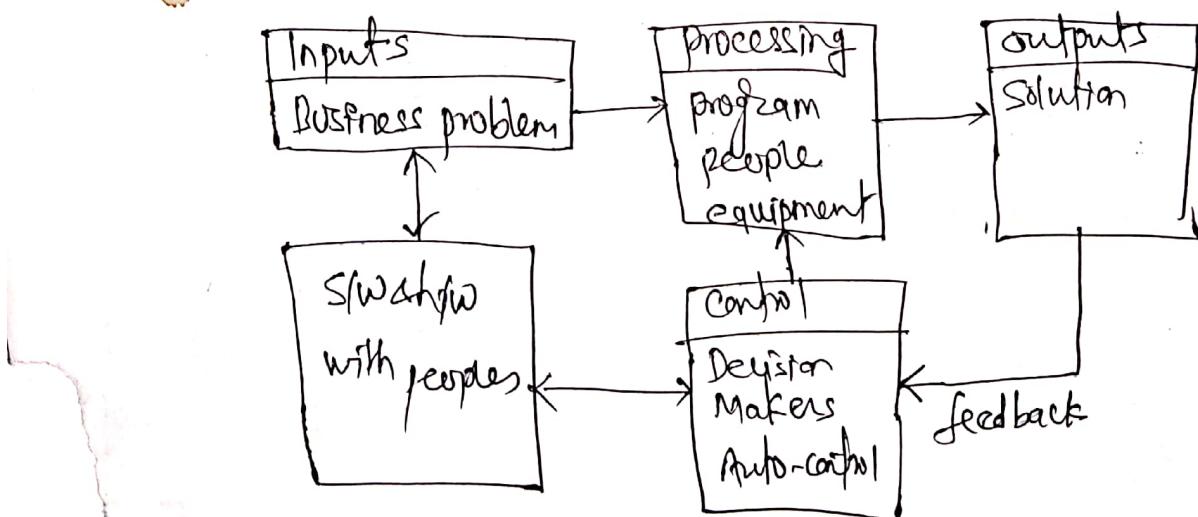


Ch 1 Information System (IS)

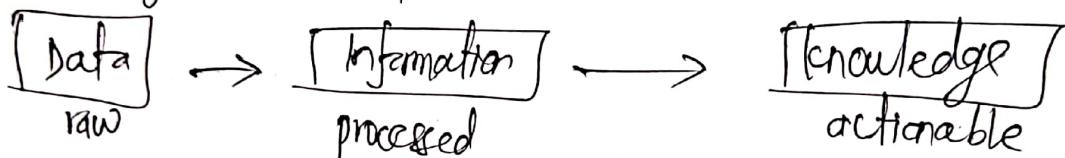
- IS (Information system) is the study of complementary networks of h/w and s/w that people and organizations use to collect, filter, process ; create and distribute data.
- IS collects, processes, stores, analyzes and disseminates information for specific purpose.



OR



- * Data are raw alphanumeric value obtained through different acquisition method.
→ Is objective / No meaning / Is quantifiable
- * Informations are the processed data (when data are processed, organized or structured to provide context and meaning) → should be objective / Meaning / Is quantifiable
- * Knowledge is what we know, is unique to each individual and is the accumulation of past experience and insight that shapes lens by which we interpret.



→ Is subjective / meaning for specific purpose / Not quantifiable

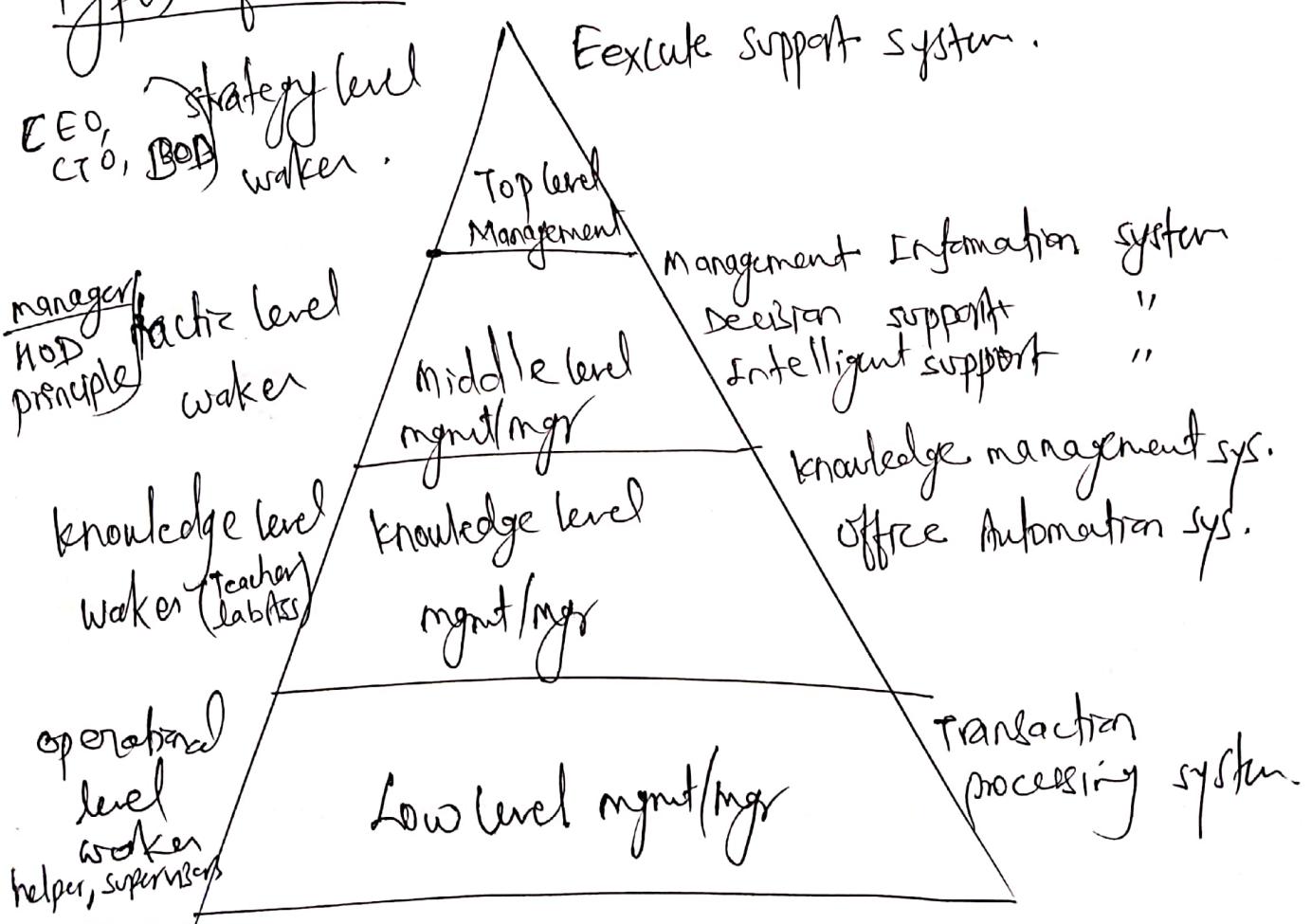
Benefits of IS

- New product and service
- Information storage
- Simplified decision making
- Behavioral change

Evolution

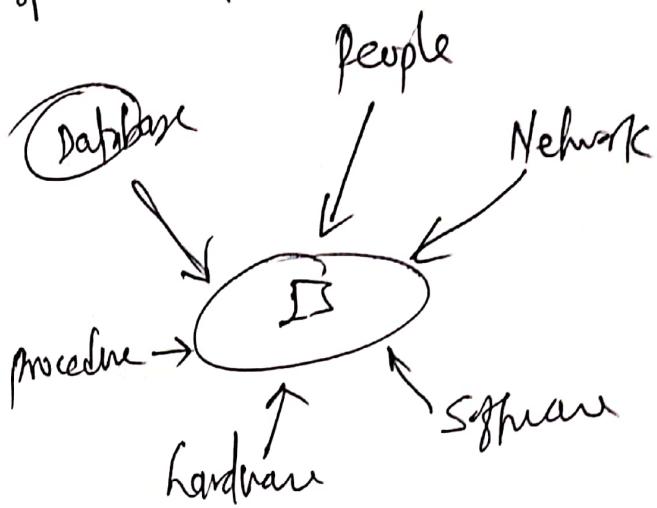
- Manual task, repetitive high volume task
- TPS : Transaction processing system
- MIS : Management Information System
- OAS : Office automation system
- DSS : Decision support system
- End user computing
- ISS : Intelligent Support systems
- KMS : Knowledge mgmt system
- Data warehousing
- Mobile computing
- e Commerce.

Types of IS



Basic Component of IS.

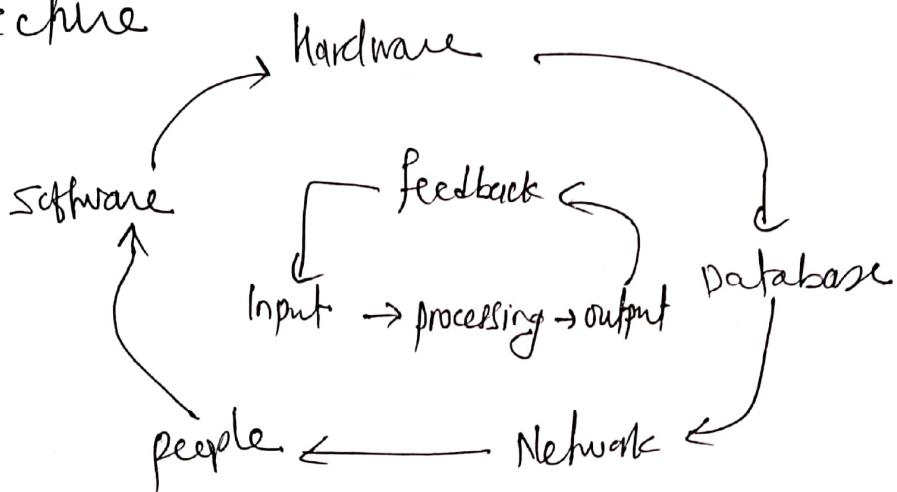
- hardware
- software
- Database
- Network
- procedures
- people



Classification of IS

- Departmental IS
- Enterprise-wide IS
- Inter-organizational IS

Architecture



Qualities of IS:

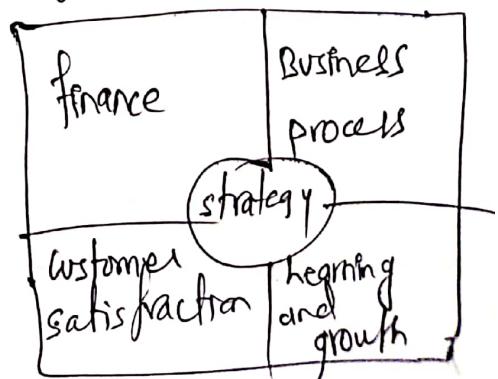
- Authority / verifiability
- Scope of coverage
- Composition of organization
- Reliability
- Uniqueness
- Timeliness
- Reproducibility

of BSC: Balance Score Card.

- The management tool, provides stakeholders with a comprehensive measure of how the organization is progressing towards the achievement of its strategic goals.
- Balances financial & non-financial measures.
- Balances short & long term measures.
- Balances leading and lagging indicators.
- Lead to strategic focus and organizational alignment

Importance of BSC

- To achieve strategic objective
- To provide quality with fewer resources
- To eliminate non-value added effort
- To track progress
- To evaluate process change
- To continually improve
- To increase accountability.



Ch2 control, audit & security.

* Control

- method to ensure that a system processes data as per design and that all data included and correct
- it is very important to ensure the reliability of reports produced by an IS
- Systematic controls are thus essential when a system is designed.
- Need to handle massive amount of data
- Incorrect data entry can lead to high monetary loss, so avoid this
- Ensure legal requirement are met or not
- To guard against frauds.
- Application control → input control
 - processing control
 - output control

* Audit

- method to ensure the control of IS.
- process.
- ensure computer based financial & other information reliable
- ensure all records included while processing
- Ensure protection from frauds.
- process of verifying the control process.

Steps of Audit

- 1 Obtain Understanding of Audit subject area
- 2 Perform risk assessment & prepare Audit plan
3. Add detail to plan
4. Evaluate Audit area
- 5 Evaluate Controls
- 6 Audit testing
- 7 Compliance testing
- 8 Substrative Testing.
9. Prepare Audit report .
- 10 Follow -up:

Security of IS.

- protection of data from accidental or intentional modification, destruction and disclosure to unauthorized person.
- Refers to precaution taken to keep all the aspects of IS.
- essential to ensure continuity of service when unforeseen situations.
- essential to ensure quick recovery from disasters and continuity of services.

* Potential threats to security.

- Natural disasters such as fire, flood, earthquakes.
- Accidents such as disk crashes, file erasure by inexperienced operator.
- Theft/erasure of data by disgruntled employees
- Frauds by changing programs, data by employees
- Industrial espionage
- Viruses/worms
- Hackers who break into systems
- Denial of services attacks by flooding with mail.

* Consumer oriented security (strategy)

- how users can interact with specific application
- must be taken care of security of user side.
 - extended validation (EV) SSL certificates.
 - multifactor authentication.
 - single sign on
 - fraud detection and risk based authentication -
 - encryption
 - secure web and e-mail.

* Enterprise Layered Security Strategy.

→ work station application white listing

→ " system restore solution

→ . " and network authentication

→ file, disk and removable media encryption.

→ remote access authentication

→ network folder encryption.

level → physical

→ Network

→ Application.

* Extended Validation (EV) SSL Certificate?

→ highest form of SSL certificate on the market.

→ while all level of SSL Extended validation (EV)
organization validation (OV)
and Domain validation (DV)

provided encryption and data integrity

→ Type of TLS/SSL certificate that verifies that the certificate holder has undergone the most extensive level of vetting and identity background checks to clearly certify that their website is authentic and legitimate.

→ EV certificates are often required for high profile brands, banks etc.

→ EV means the certificate recipients and the websites have completed a 16-point check to verify details.

Ch 3 EMS.

* Enterprise management system.

→ large software package.

→ provide the s/w need for large companies.

→ covers wide range of business needs and can be customized to the needs of business.

Advantages

→ Simplify IT

→ standardize processes

→ cloud Based

* ERP: Enterprise Resource planning

→ one of the best way to go about strategic planning for a business.

→ allows for the facilitation of processes across multiple business function.

→ keeps different departments and teams on the same page in a large business.

* CRM: ^{Customer Relationship} Supply Chain management

→ boils down to customer service in most scenarios.

→ software built for customer relations has a main goal of keeping business connected to customers.

→ can be used to human resource management

* SCM: Supply chain mgmt

→ software is unique in that it only applies to a few industries.

→ manages the flow of good, data and finance related product and many of these are directly related to shipping warehouse and large scale commerce business.

15/

* Strategic Information System

- Strategic information is concerned with long term policy decision that defines the objectives of a business and checks how well these objectives are met. e.g. acquiring a new plant, a new product
- Strategic planning is an organization's process of defining its strategy or direction and making decisions on allocating its resources to pursue this strategy.
- Generally, strategic planning goals deals, on the whole business, rather than just isolated unit.
- Strategic Information is used at the very top level of management within organization. They are BOD or chief executives.
- Strategic information is board based and will use a mixture of information gathered from both internal and external sources.
- Strategic planning is mostly influenced by
 - Decision of diversification
 - market dynamics, demand, supply
 - competitive changes
 - various challenges and opportunities.
- Strategic planning generally follows one of them 'way'
 - overall company strategy
 - growth orientation
 - product orientation
 - market orientation.

* Tactical Information System

- Tactical information is concerned with the information needed for exercising control over business resources like budgeting, quality control, service level, productivity level.
- Tactical planning is short range planning emphasizing the current operation of various parts of organization.
- Managers use tactical planning to outline what the various part of the organization must do for the organization to be successful at some point one year or less.
- Tactical plans are usually developed in the area of production, marketing, personal and plant facilities.
- Tactical information will be mostly internal with a few external resources being used.
- Tactical information is used by the middle management when managing or planning projects.

* Operational Information System

- Operational information is concerned with plant / business level information and is used to ensure proper conduction of specific operational task as planned.
e.g. operator specific, machine specific, shift specific job related information
- Operational planning is the process of linking strategic goals and objectives to tactical activities.
- O.P. describes milestones, conditions for success and explains how & what portion of a strategic plan will be put into operation during a given operational period.
- The lowest level is operational and O.P. takes place based on the tactical plans.
- The lowest level of management or workers in an organization implements operational plans.

Classification of IS by application

- planning IS
- control IS
- knowledge IS
- organizational IS
- functional/operational IS
- Database IS

6.

* Change management

- / → change. is ~~invent~~ inevitable
- Software Development without consideration for change. is bound to fail
- changes are difficult to predict and grows in proportion to the complexity of the system / project.
- Decisive and functional management is a decisive factor for project success
- Types of changes in software development
 - change due to unclear requirement
 - Developmental changes.

Change due to unclear requirements

changes not clear in the beginning of the project

causes:

change in technology

change in market requirement

Developmental changes

- Setting objectives as per the purpose and vision
- Detailed planning of resources
- continuous monitoring of implemented plan
- Access progress regularly and make proper plan adjustment

Pre-em Addressee

Change management is the process of guiding organizational change to fruition, from the earliest stages of conception and preparation, through implementation and finally, to resolution.

→ Change processes have a set of starting condition (point A) and a functional endpoint (point B). The process in between is dynamic and unfolds in stages.

→ 5 steps in change management

- Prepare the organization for change

- must be prepared both logically and culturally

- manager is focused on helping employees recognize and understand the need for change.

- Craft a vision and plan for change

- manager must develop a thorough and realistic plan
 - strategic goals
 - key performance indicators
 - project stakeholders and team
 - project scope

- Implement the changes

- The plan should be followed to implement the required change

- Embed changes within Company culture and practices

- By embedding change, it becomes more difficult for backsliding to occur

- Review Progress and Analyze Result

After the change, review must be done and conducting analysis can help business leaders understand whether a change initiative was success, failure or mixed.

Critical Success Factors (CSF)

- As started in several studies in the literature, nearly 80% of IS project fail.
- An unsuccessful project exceeds its schedule and budget
- Companies try to avoid such project failures due to high investment in terms of money, time and manpower.
- The CSF can be listed that affect the success of the project.
- CSF are those few things that must be ~~well~~ done well for the organization to survive
- These factors are common in most of the studies, yet the weights and the priorities may change according to the company's structure, culture, region, and IS project's volume
- Sources of CSF
 - characteristics of the industries
 - company competitive strategy, industry position and geographic location.
 - Environmental factor, managerial position

5 key success factors

- strategic focus (leadership, mgmt, planning)
- people (personal, staff, learning, development)
- operation (processes, work)
- marketing (customer relation, sales)
- finance (assets, facilities, equipment)

f. In IS Application

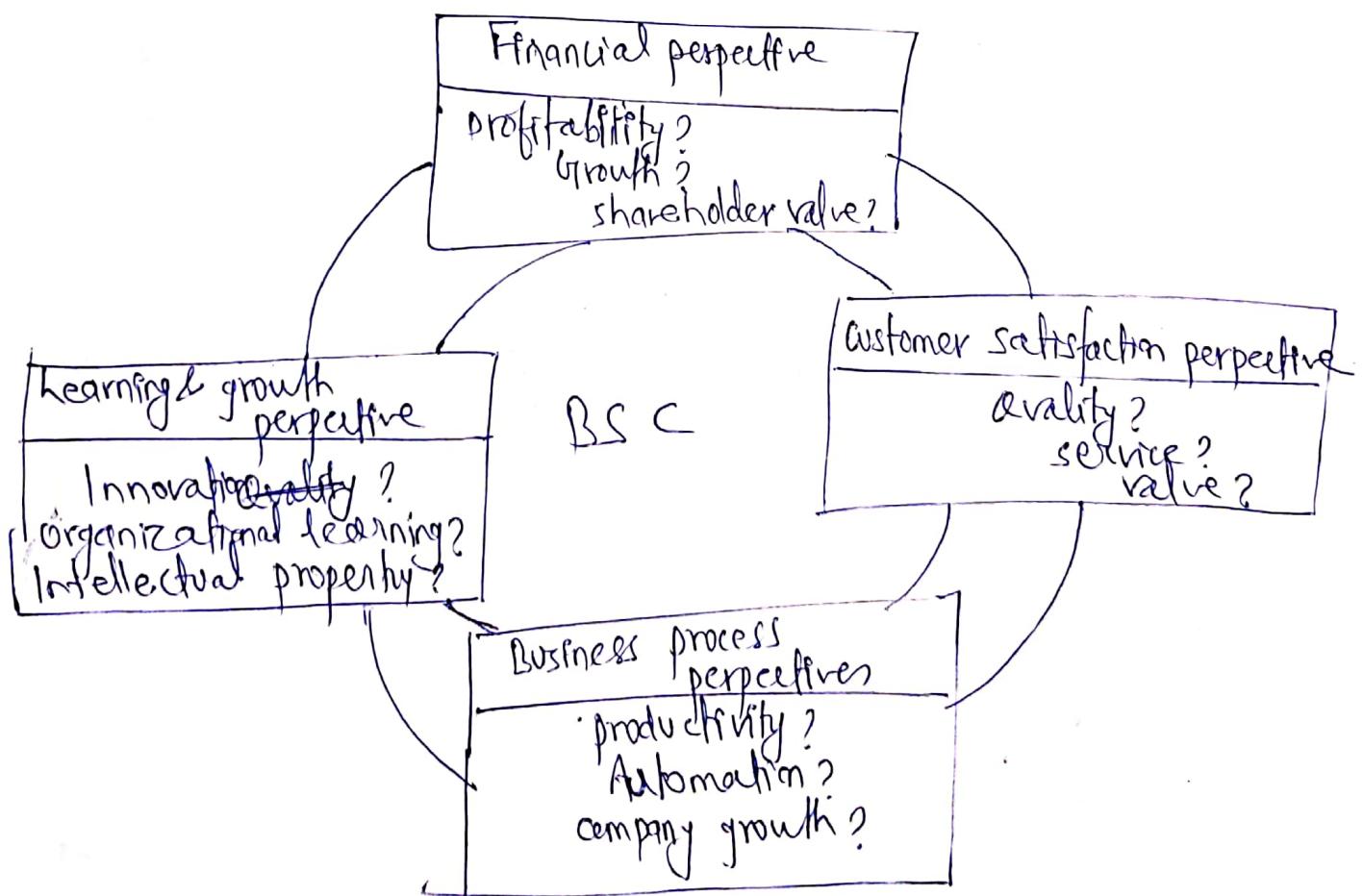
- Factors about internal organizational structure
 - Strategic alignment between organizational structure.
 - Top mgmt support and ~~IS~~ commitment to IS
 - User participation in IS project
 - Enough managerial and technical skills
 - matching IT capabilities to organizational needs and goals.
- Factors about project team structure
 - Project leader's feedback to team
 - Experience of project leader & team member
 - Project monitoring and control.
 - Team member commitment
 - Team member self-control.
- Factors about technology and project methodology
 - clearly stated objectives
 - detailed project plan
 - proper project scope
 - utilizing effect methodology.
 - use of appropriate technology

Benefits

- For specifying critical information systems
- To focus attention on important matters
- Help to link IS strategy to business strategy
- Helps to give project corporate justification.

SC: Balance Scorecard

- was popularized by Harvard professor Robert Kaplan and David Norton in early 1990s.
- is the de-facto standard in the world of strategic performance scorecards for measuring financial and non-financial performance.
- is a performance metric used to identify, improve and control a business's various functions and resulting outcomes.
- involves measuring four main aspects of the business
 - Learning and growth
 - business process
 - customers and
 - finance.



BSC for Nepal Telecom

Financial perspective			Business perspective		
Objective	Target	Current	Objective	Current	Target
operating cost	30M	35M	Office automation	4/10	5/10
debt	40M	50M	Employee Retention	4%	5%
Billing time	5 mins	10 minute	Paperless office	70%	80%
cost of service	Rs 1000	Rs 800			
Customer satisfaction perspective			Vision, goals strategy	Learning & growth perspective	
Objective	Current	target	Objective	Current	target
No of customer	50,000	60000	branch office	10	13
customer need fulfilment	4/10	6/10	Reduce operating cost	3.5M	30M
cost of call	Rs 2/Min	Rs 1.5/Min	Innovative product	1 new	2 new
retain customer	34%	35%	Recruit partner	10	8

	Objectives	Goals	Indicators	Initiatives
Financial perspective	To minimize the operating cost	To decrease the operating cost by 5%.	previous statement of operating cost	train the employee with new technology.
Customer perspective				
Business process perspective				
Learning and growth perspective				

7 The structure of the web

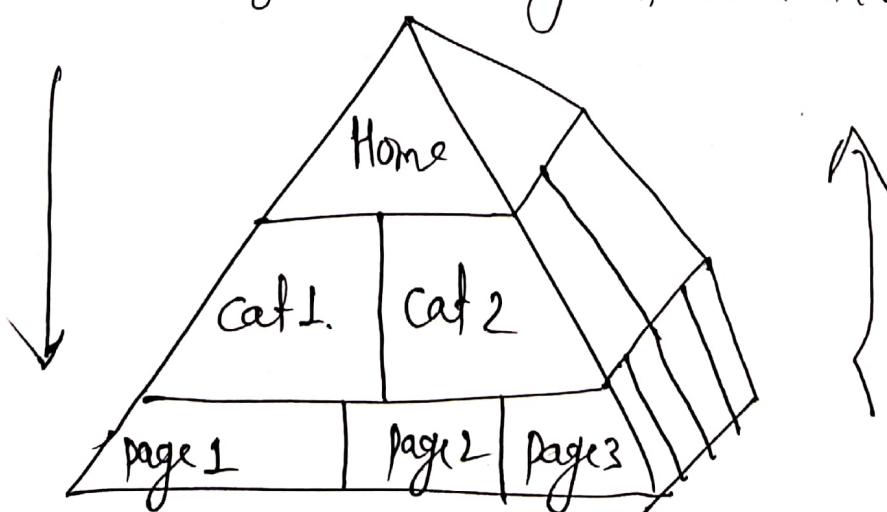
- Web consists of a home page, categories, sub categories and individual posts and pages.
- The ideal web structure looks like a pyramid, starting with home page at the top, then categories and subcategories and individual posts and pages.
- Generally the structure of the web follows two approaches.

① Top down approach

- focuses first on general categories of the content.
- Designer can logically divides the contents by gradually breaking it up into categories.

② Bottom-up approach.

- probably the opposite of top-down
- focuses first on creating a structure on the contents
- Designer logically assigns the contents to the categories according to the similarities.

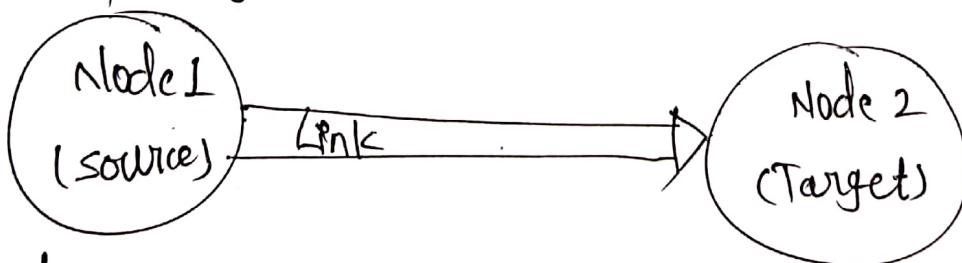


Link analysis

- The data analysis technique used in network theory that is used to evaluate the relationship or connections between network nodes.
- It is a kind of knowledge discovery that can be used to visualize data to allow for better analysis, especially in the context of link.
- It is used in search engine optimization as well as in intelligence. In medical research, security analysis.

Primary purposes

- find matches for known patterns of interests between linked objects
 - find anomalies by detecting violated known patterns
 - find new pattern of interest
- It gives us the ability to calculate centrality measures namely degree, betweenness, closeness, and eigenvectors



Advantages

- fast discovery of insights
- scalable data analysis
- Accessible and intuitive analytics

e.g. used in fraud detection

Searching the web

- The most productive way to conduct a search on the Internet is through a search engine
- A web search engine is a software designed to search for information on WWW.
- The search results are generally presented in a line of results often referred to as search engine result pages (SERPs)
- The information may be a mix of webpage, images, and other types of files.

Search engine

- A search engine is a software accessed on the Internet that searches a database of information according to the user's query.
- It provides a list of results that best match what the user try to find.

e.g Google, Bing, Yahoo, bing are the most popular search engines.

Navigating the web

- The process of navigating a network of information resources in www.
- The process of moving from one webpage to another webpage
- Navigating the web maximize usability
- Without Navigation menu in website, user can't take web experience of these websites
- → The roadmap of any websites
- Increases the visitor

Principles for good navigation design

- Let me know where I am at all times
- clearly differentiate hyper link from contents
- let me know clearly where I can go from here
- Let me see where I've already been
- make it obvious what to do to get somewhere
- Indicate what clicking a link will do.

Navigation Models

- list of contents
- Breadcrumb trail
- horizontal topbar
- Tabs
- bar or tabs
- top and sidebars
- Paging.

~~Types of Navigation~~ Navigation

* Global website Navigation

- shows the main section/page of the website
- Available on each & every page of the website
- main layout has ~~define~~ definition for it
 - menubar
 - horizontal navigation
 - vertical navigation
 - megamenu
 - sticky navigation

* Local navigation

- used for linking subsection or subpages
- it is ~~not~~ defined in every pages
- it can be defined where it is necessary
- Using text, link button, page can be redirect

Recommending System / Recommendation System

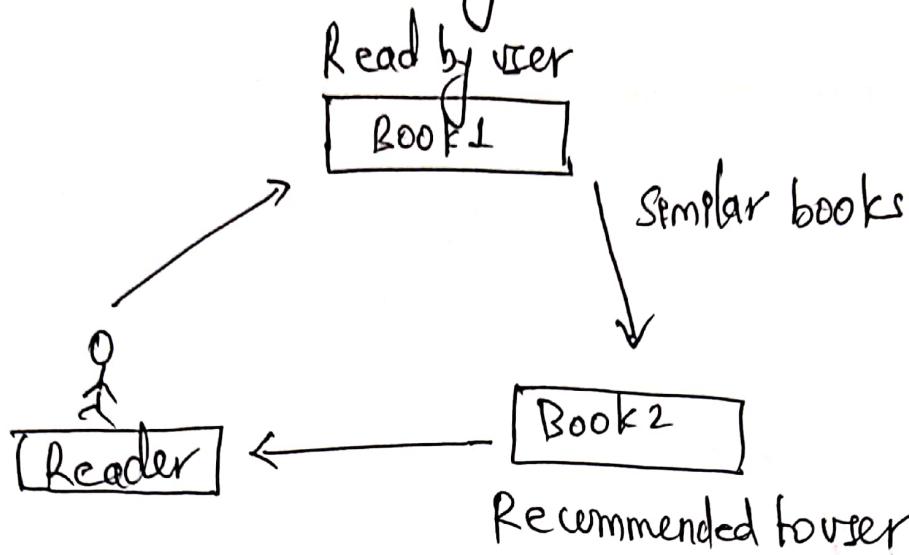
- The subclass of Information filtering system that seeks to predict the rating or the preference a user might give to an item.
- An algorithm that suggest relevant items to user.
e.g. In case of Netflix movie to watch, in the case of e-commerce with product to buy
- The system which predict the current preference based on the previous behaviour or preferences of user.
e.g. In case of Daraz, Daraz recommend the item to the user according to the previous purchase history.
- It may based on the previous preference, age, culture, sexuality, location and ~~the other personal stuff~~. cookies etc.

Use Case of ~~Recomm~~ Recommendation System.

- Personalized Content
Hope to improve the on-site experience by creating dynamic recommendation for different kind of audiences (Netflix)
- Better product search experience
Helps to categories the product based on their features. (.

Types of recommendation system.

① Content Based filtering



→ Relevant items are shown using the content of the previously, content refers to the attributes/tag of product.

e.g. youtube, facebook, netflix, uses previous history of user and recommend them video, content to them

- Adv
- model doesn't need data of other user.
since it is per person specific
 - It makes it easier to scale to a large number of users

Disadv

• The model has limited ability to expand on the user's existing interest.

i) Collaborating based filtering (CF)

- Recommending the new items to users based on the interest and preference of other similar user.
- Overcomes the disadvantages of content-based filtering.
- It only needs the historical performance of the user.

Types of collaborating filtering (CF)

a) User based .cf.

→ Based on the notation of user's similarities.

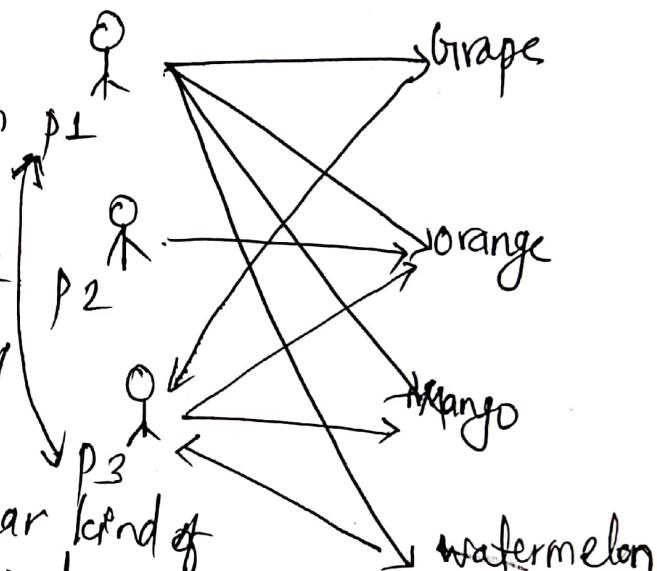
→ P₁ bought All fruit

P₂ bought orange only

P₃ bought orange and mango

so P₁ & P₃ are similar kind of user so,

Grape and watermelon are recommended to P₃.



b) Item filtering cf.

→ Based on the notation of item similarities.

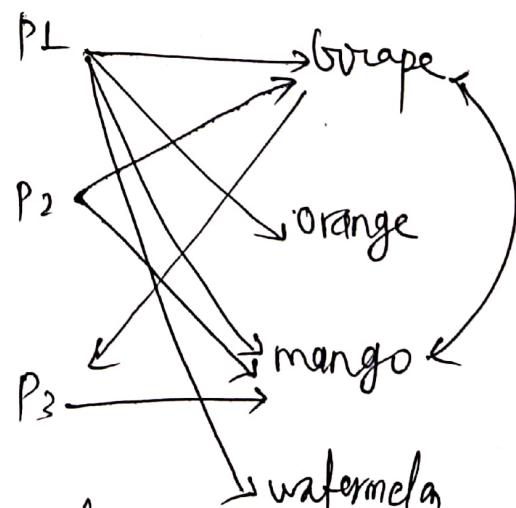
→ Grape is bought by P₁, P₂

Orange is bought by P₁ only

Mango is bought by P₁, P₂, P₃

Watermelon is bought by P₂

so P₁ and P₂ both bought Grape and mango so Grape is suggested/recommended to P₃.



Advantages

- works well even if the data is small
- helps users to discover a new interest
- No need for domain knowledge

Disadv

- It cannot handle new items because the model does not get trained. (cold start problem)
- Side feature does not have much important.

Collective Intelligence (CI)

- CI is Shared. or Group intelligence (GI) that emerges from the collaboration, collective effort and competition of many individual and appears in consensus decision making.
- The process by which a large group of individuals gather and share their knowledge, data, skills for the purpose of solving informational problems.
- is used to help create widely known platforms such as google and wikipedia.

Principle of Collective Intelligence

* Openness

All participants approach their work or project without thinking "this idea is mine".

* Peering

work or projects will be opened up "horizontally" from which people are able to champion idea and grow a project out in direction on their own.

* Sharpening

Clarify the need for intellectual property to be shared with other in the group.

* Acting globally

It is founded on the advancement of Technology that allows organization to reach out across their entire network of collaborators and to engage every one

Way to boost collective intelligence

- Value opinion and feedback
- provide every opportunity to contribute
- Encourage constructive conflict

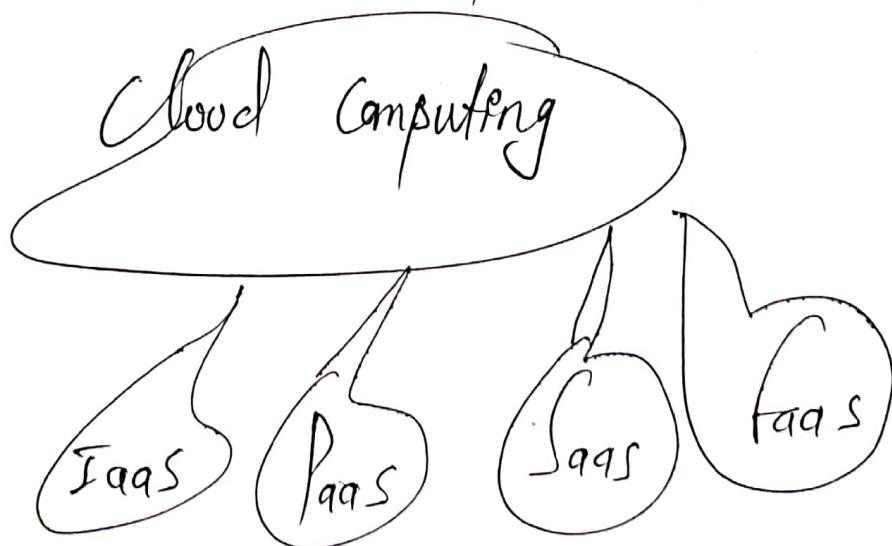
Benefits

- collective intelligence, makes your team smarter
- Improve creativity and creates new market
- Improve productivity, collaboration
- Reduce cost

8

i Cloud Computing

- The storing and accessing data and computing services over the Internet
- It is on-demand availability of computer services like servers, networking, database, data storage etc.
- The main goal of cloud computing is to give data centers access to many user for accessing data from remote servers.
- Offers cost effective and timely disaster recovery
- Helps you store files online
- Helps you to create a flexible and scalable testing environment
- Learning cloud based backup method.



Types of cloud

* Private cloud

- Computing resources are deployed for one particular organization.
- more used for intra-business interactions.
- computing resources are governed, owned and operated by the same organization.

* Community cloud.

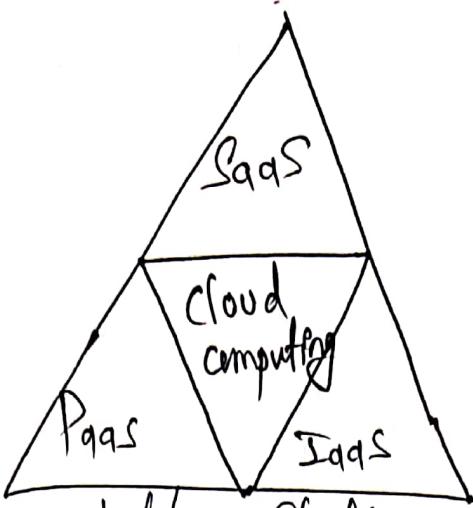
- computing resources are provided for community and organization.

* public cloud

- computing resources are deployed for B2C type interaction.
- computing resources are governed by operated and owned by government, an academic or business organization.

* Hybrid cloud

- computing resources are deployed for B2B and B2C type of interaction.
- computing resources are bounded together by different cloud.



* ~~PaaS~~ : ~~Platform~~ Software as a Service
 → Used by developers

- gives access to runtime environment to deployment and development tools for application.
- delivers tools that are used for development of applic
- Some knowledge is required for the basic setup.

* ~~IaaS~~ : Infrastructure as a Service eg. Facebook

- Used by network architectures.
- gives access to the resources like virtual machines and virtual storage.
- provides visualized computing resources over the internet.
- Requires technical knowledge
- popular between developer and researchers eg. AWS

* ~~SaaS~~ : Software as a Service

- used by end user
- give access to the end user
- Host software makes available for clients
- No requirement of technical knowledge
- eg. Terremark, AWS

Hadoop

- It is open source framework from apache and used to store process and analyze data which are very huge in volume.
- It is written in Java. and used for batch/offline processing
- It can be scaled up just by adding nodes in the cluster.

Modules in Hadoop

- HDFS : Hadoop Distributed File System,
The files will be broken into blocks and stored in nodes over distributed architecture.
- Yarn:
Resource Negotiator, is used for job scheduling and manage the cluster
- Map Reduce
The framework which helps java programs to do the parallel computation on data using key value pair.
 - Map task takes input data and converts it into a data set which can be computed in key value pair
 - The output of map consumed by the Reduce task and then the output reducer gives desired output.
- Hadoop common.
These java libraries are used to start Hadoop and are used by other Hadoop modules.

MapReduce

- The processing technique and a program model for distributed computing based on Java.
- The MapReduce algorithm contains two important tasks.
 - * Map
 - * Reduce

Algorithm

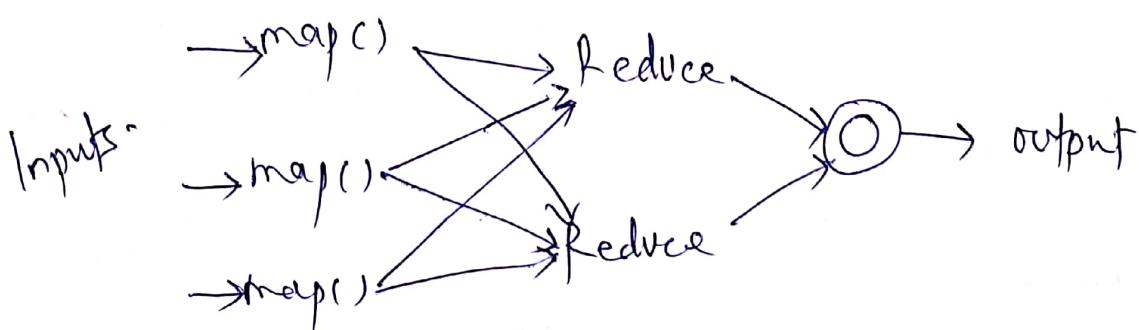
- Generally mapReduce paradigm is based on sending the computing to where the data resides
- MapReduce program executes in three stages.

- Map stage

The map or mapper's job is to process the input data from HDFS. The input file is passed to mapper line by line. The mapper processes the data and creates several small chunks of data.

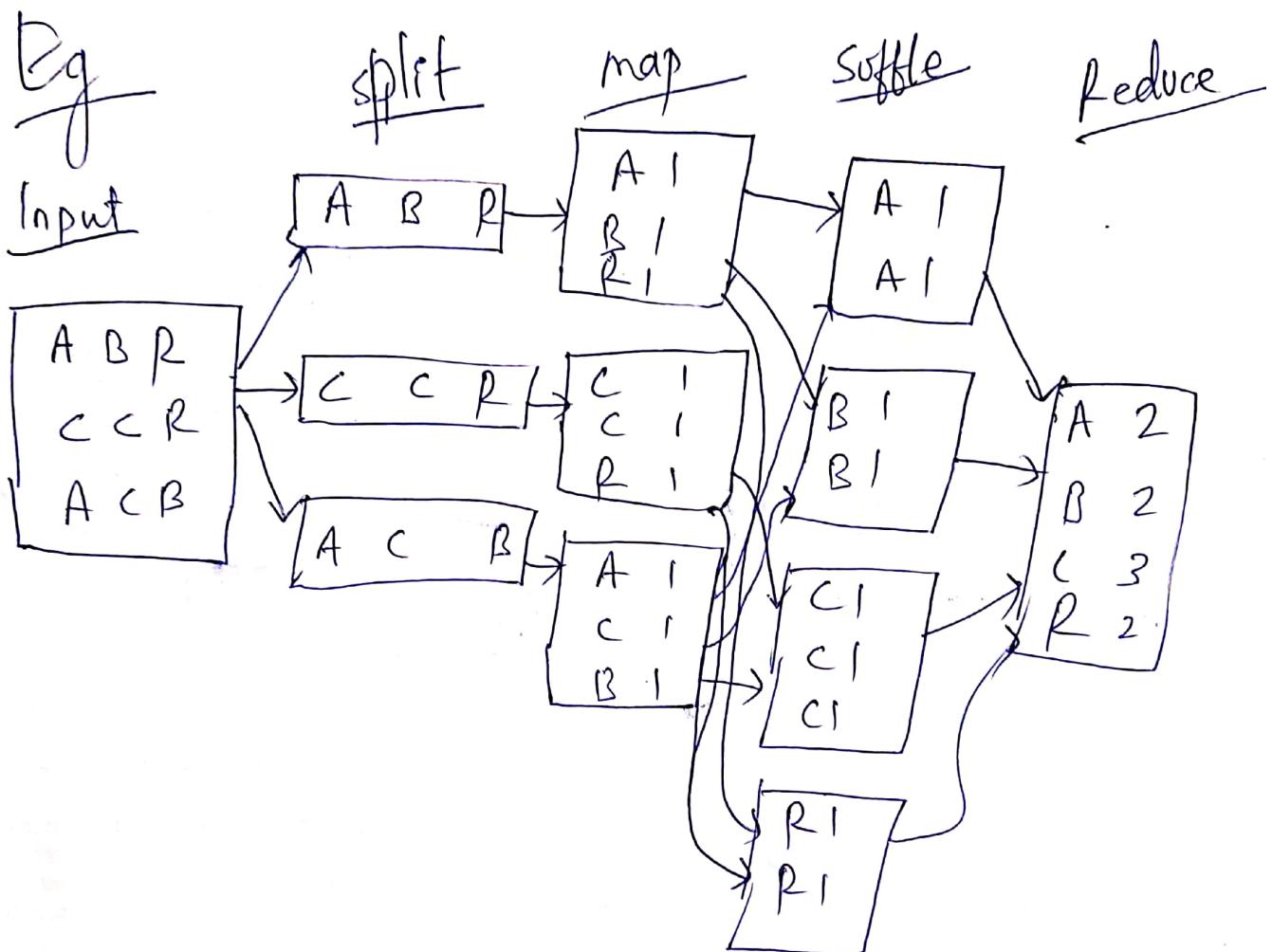
- Reduce stage

It is the combination of shuffle stage and Reduce stage. The reducer's job is to process the data that comes from mapper. After processing it produces a new set of output and will be stored in HDFS.



Advantage of Hadoop

→ fast, scalable, cost effective, Resilient to failures.

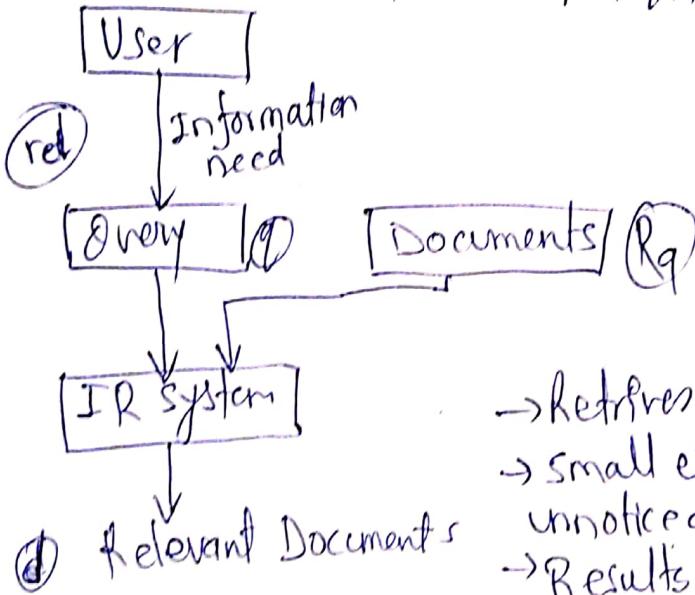


Data Management In Cloud.

- cloud data management is the implementation of data management in cloud platforms, tools, and policies and procedures that gives organizations controls of their business data.
- cloud data management is a way to manage data across cloud platforms, either with or instead of on-premises storage.
 - cloud Integration
 - cloud data quality & governance
 - cloud data privacy and ~~maintain~~ security
 - cloud master data management
 - cloud metadata management & data cataloging

Information Retrieval (IR)

- The activity of obtaining information resources relevant to an information need from a collection of information resources.
- The process of obtaining information system resources that are relevant to an information need from a collection of these resources.
- defined as a software program that deals with the organization, storage, retrieval and evaluation of information from document repositories.
- The estimation of the probability of user's relevance rel for each document d and query q with respect to a set R_q of training documents: $\text{Prob}(\text{rel}/d, q, R_q)$



- Retrives information about a subject
- small errors are likely to go unnoticed
- Results obtained are approximate matches
- Results are ordered by relevance
- probabilistic model.

Link analysis in cloud setup

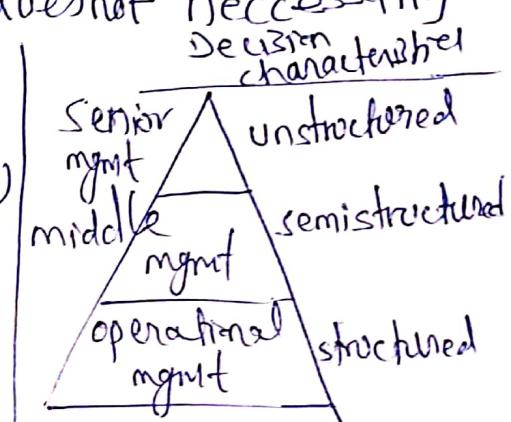
- The web is not just a collection of documents
it's hyperlinks are important
- A link from page A to page B may indicate
 - A is related to B
 - A is recommending, citing, voting for or endorsing B.
- Links are either
 - referential - click here and get back home
 - informational - click here to get more details
- links effect the the ranking of web pages and thus have commercial values.

[For more Chap 7]

4)

DSS: Decision Support System

- It is interactive software based systems intended to help managers in decision making by accessing large volume of information generated from various related Information system involved in organizational business process
- It helps in decision making but does not necessarily give a decision itself.
- Phases in DSS
 - Intelligence (find what to fix)
 - Design (find fixes)
 - choice (pick a fix)
 - Implementation (apply fix)



→ Components of a DSS

- Database management system
 - To solve a problem the necessary data may come from internal and external database
 - Internal - TPS, MIS
 - External - newspaper, online data server
- Model Management system
 - It stores and access models that managers use to make decision.
- Support tools
 - Includes, down minus, user interface s, graphical analysis, error correlation mechanism etc.

4>

DSS: Decision Support System

→ It is interactive software-based systems intended to help managers in decision making by accessing large volume of information generated from various related Information system involved in organizational business process

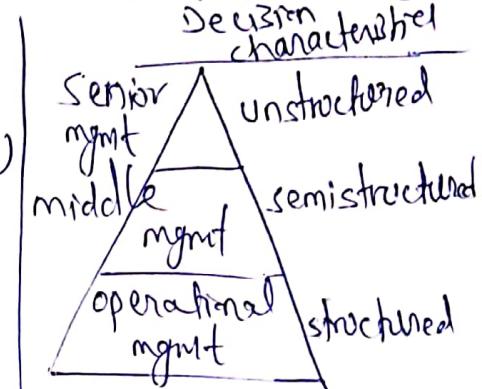
→ It helps in decision making but does not necessarily give a decision itself.

→ Phases in DSS

- Intelligence (find what to fix)
- Design (find fixes)
- choice (pick a fix)
- Implementation (apply fix)

→ Components of a DSS

- Database management system
 - To solve a problem the necessary data may come from internal and external database
 - Internal - TPS, MIS
 - External - newspaper, online data server
- Model Management system
 - It stores and access models that managers use to make decisions.
- Support tools
 - Includes, down minus, user interface, graphical analysis, error correlation mechanism etc.



Benefits of DSS

- Improves efficiency and speed of decision making
- Increases the control, competitiveness and capability of futuristic decision making
- Facilitates interpersonal communication
- Encourages learning and training
- Helps automate managerial processes.

Classification of DSS

- Text oriented
- Database oriented
- Spreadsheet oriented
- Server oriented
- Rule oriented.
- Compound

Types of DSS

- status Inquiry DSS
- Data analysis
- Information analysis
- Accounting system

GSS: Group Decision Support System

It is an attractive computer based system used to facilitate the solution of unstructured problem by a set of decision makers working together as a group.

- It provides the tools and technologies geared explicitly toward group decision making and were developed in response to a growing concern over the quality and effectiveness of meeting.

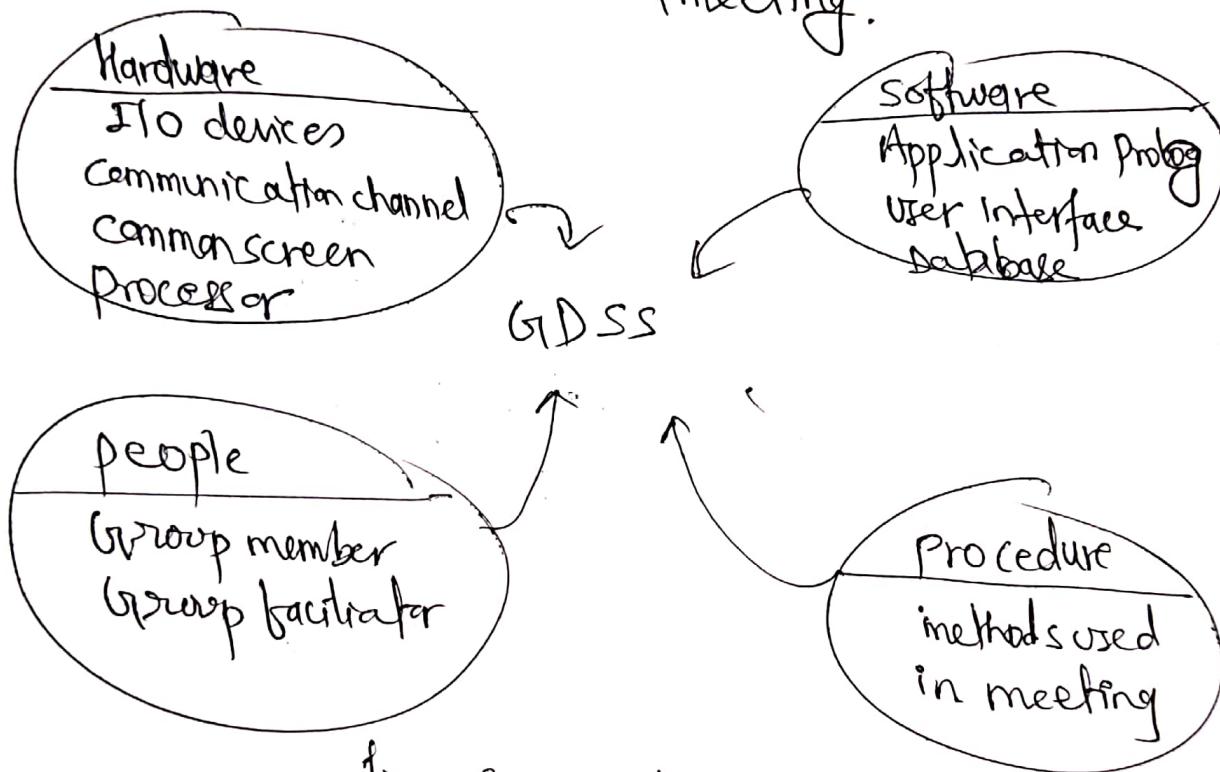


Fig: Components of GIDSS

Features

- Ease of Use
- Better Decision making
- Emphasis on semi-structured and unstructured decisions
- specific and general support
- supports all phase of the decision making
- support positive group Behaviours

Adv of GDSS

- More information in Less time
- Greater participation
- More structure
- Automated Documentation

DAdv of GDSS

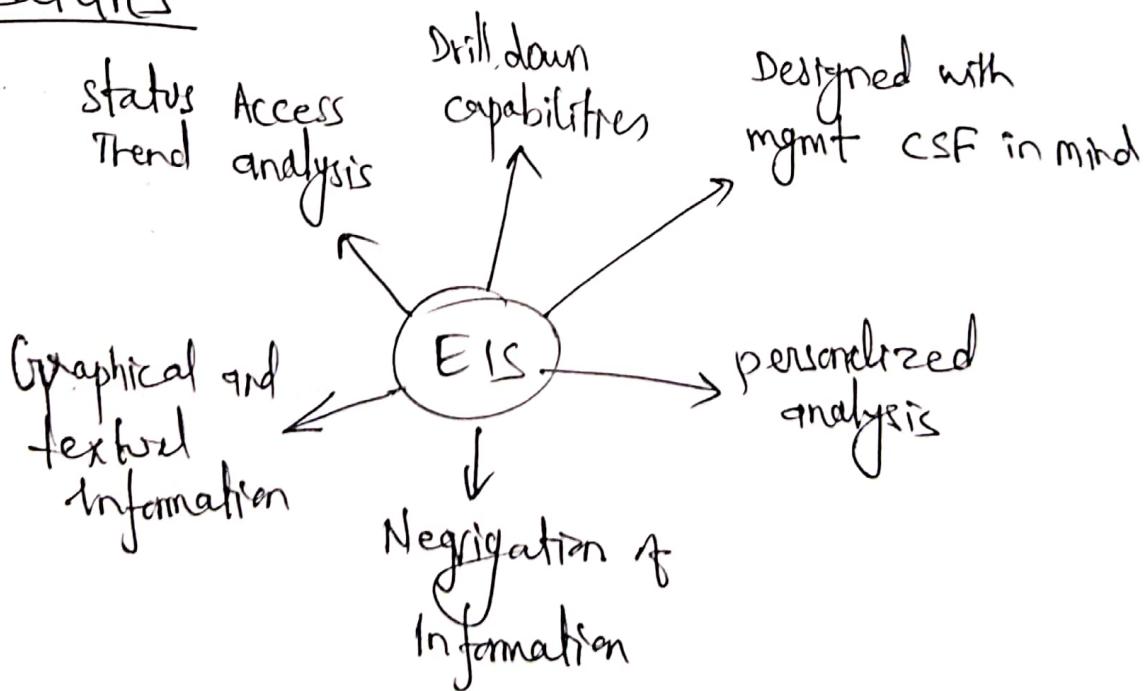
- cost & Technical failures
- security
- key boarding skill
- Training
- Perception of messages.

Enterprise and Executive DSS

An executive information system (EIS) is also known as executive support system (ESS).

- It is a type of MIS that facilitates and supports senior executive information and decision making needs.
- It provides easy access to internal and external information relevant to organizational goals.
- It is commonly considered a specialized form of DSS.
- It emphasizes graphical displays and easy-to-use user interface.
- It offers strong reporting and drill down capabilities.
- It is intended to be used by senior managers directly to provide support to non-programmed decisions in strategic mgmt.

→ features



Vantage of ESS/EIS

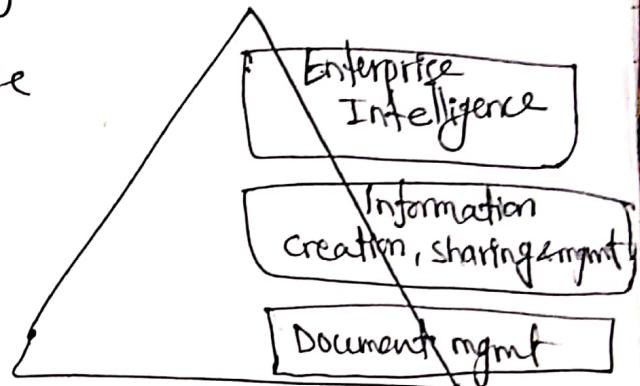
- Easy for upper level executive to use
- ~~Ability~~ Ability to analyze trend
- Enhance personal thinking and decision making
- Enhance organizational competitiveness in the market
- Improve office automation
- Better reporting system, understanding, time mgmt

Knowledge

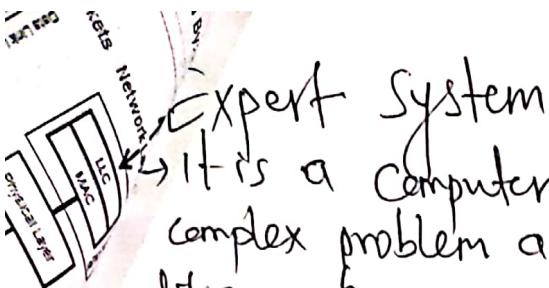
- Personalized information
- state of knowing and understanding
- An object to be stored and manipulated.

KMS: Knowledge Management System.

- It comprises a range of practices used in an organization to identify, create, represent, distribute and enable adoption of insight and experience.
- Purpose of KMS
 - Improved performance
 - Competitive advantage
 - Innovation
 - sharing of knowledge
 - Integration



- start with the business problem and the business value to be delivered first
- Identify what kind of strategy to pursue to deliver this value and address the KM problem.
- Think about the system required from a people and process points of view.
- Think about what kind of technical infrastructure are required to support the people and process
- Implement system and processes with appropriate change mgmt and iterative staged release.



Expert System

- It is a Computer program that is designed to solve complex problem and to provide decision making ability like a human expert.
- It performs this task by extracting knowledge from its knowledge base using the reasoning and inference rule according to the user queries.

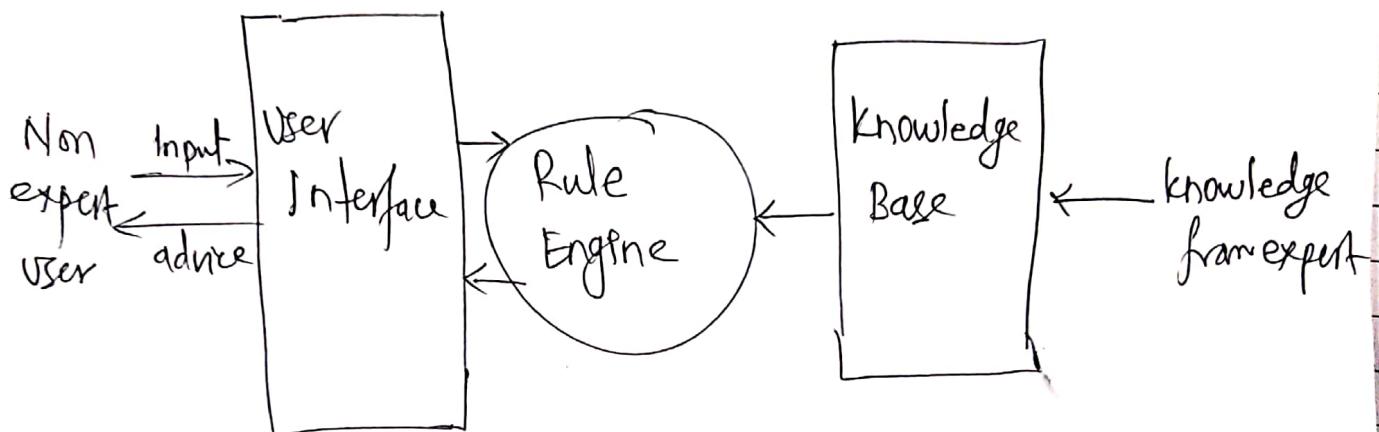


fig: Expert system

→ characteristics

- High performance
- understandable
- Reliable
- high Responsive

Expert System

Date _____
Page _____

- An expert system is a set of program that manipulates encoded knowledge to solve problem in a specialized domain that normally requires human expertise.
- A computer system that simulates the decision-making process of a human expert in a specific domain.
- The process of building Expert system is called knowledge engineering and is done by knowledge engineer.
- Experts systems provides following features:
 - Facility for non-expert personal to solve problems that requires some expertise.
 - Speedy and reliable solution
 - Cost reduction
 - Power to manage without human experts
 - wider areas of knowledge
- Use of Expert system is specially recommended when:
 - Human experts are difficult to find.
 - Human experts are expensive.
 - Knowledge improvement is important
 - The available information is poor, partial, incomplete
 - The problem is rapidly changing legal rules and codes
 - There is lack of knowledge among all those who need it.
 - Problems are incompletely defined.

Improve the efficiency of business analysis

Enhances the user's productivity.

AP

Online analytical processing

well-known as an online database query management system

consists of historical data from various databases

make use of a data warehouse

subject oriented, used for data mining, Analytics, Decision making etc

tables are not normalized

purpose to extract information for analysis and decision making

volume . TB, PB

Complex query can take lengthy time

only read and rarely write operation with spread operations

focused on customer

Improve the efficiency of business analytics

OLTP

Online transaction processing

well-known as an online database modifying system

consists of only one operational current data

make use of a standard DBMS

application-oriented.
used for business task

tables are normalized (3NF)

purpose to ~~extract~~ insert update and delete the information in db.

volume MB, GB

comparatively fast in processing

focused on market

Enhances the user's productivity.

The process
passes through
the following
stages:

Data Mining

- The practice of automatically searching large stores of data to discover patterns and trends that go beyond simple analysis.
- It uses sophisticated mathematical algorithm to segment the data and the probability of future events.
- also known as KDD: knowledge Discovery in Data
- Properties
 - Automatic discovery of data/patterns
 - Prediction of likely outcomes
 - creation of actionable information
 - focus on large data set and database

problem definition

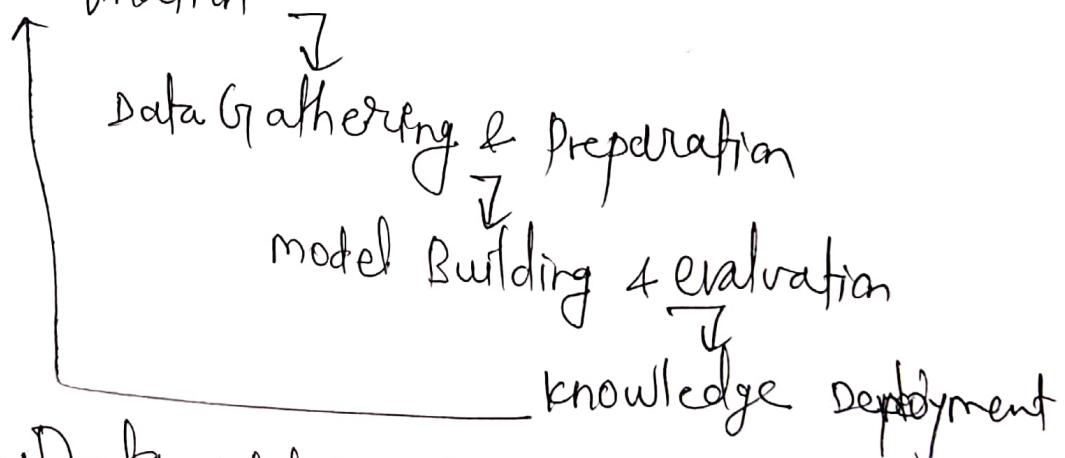
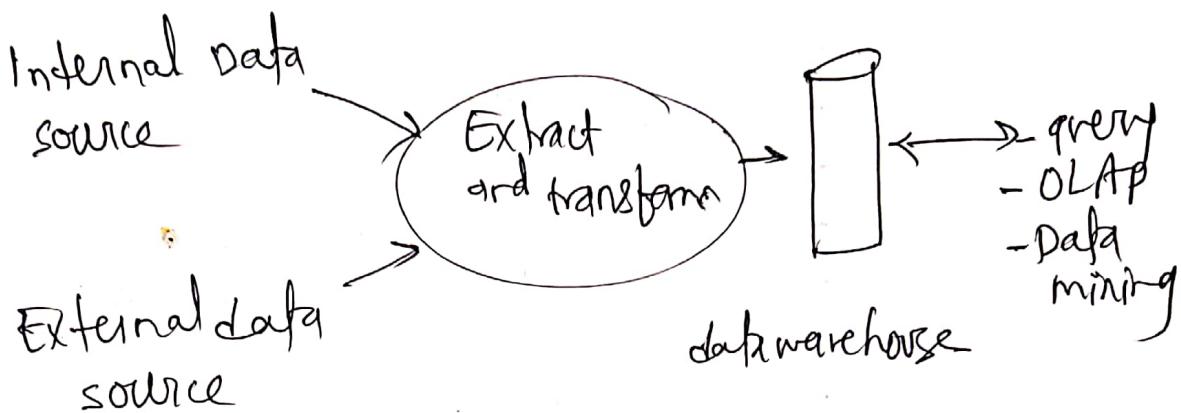


fig: Data mining process

Data warehouse

A data warehouse is a collection of information gathered from many operational databases used to create business intelligence that supports business analysis activities and decision making tasks.



→ key characteristics

- multidimensional
- support decision making
- subject oriented
- integrated
- Time variant
- Non volatile

DATA

DATA

3/

1 EMS: Enterprise management system.

→ The software solution provides with a range of product and service for the enterprise market

→ ES: Enterprise System are large-scale application software packages that support business processes, information flows, reporting and data analytics in complex organizations

→ ES includes

ERP : Enterprise Resource planning

CRM : customer relationship management

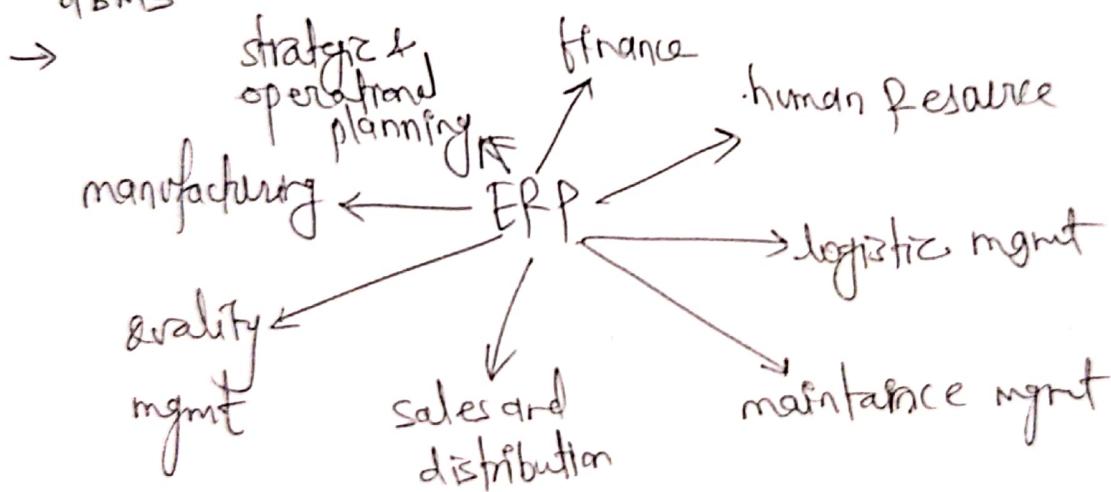
SCM : supply chain management

* ERP: Enterprise Resource planning

→ The business-management software that typically a suite of integrated applications, can use to collect store, manage and interpret data from many business activities such as

- product planning and cost
- manufacturing or service delivery
- marketing and sales
- Inventory management
- shipping and payment

→ ERP provides an integrated view of core business processes, often in real time, using common database maintained by DBMS



Scope of ERP

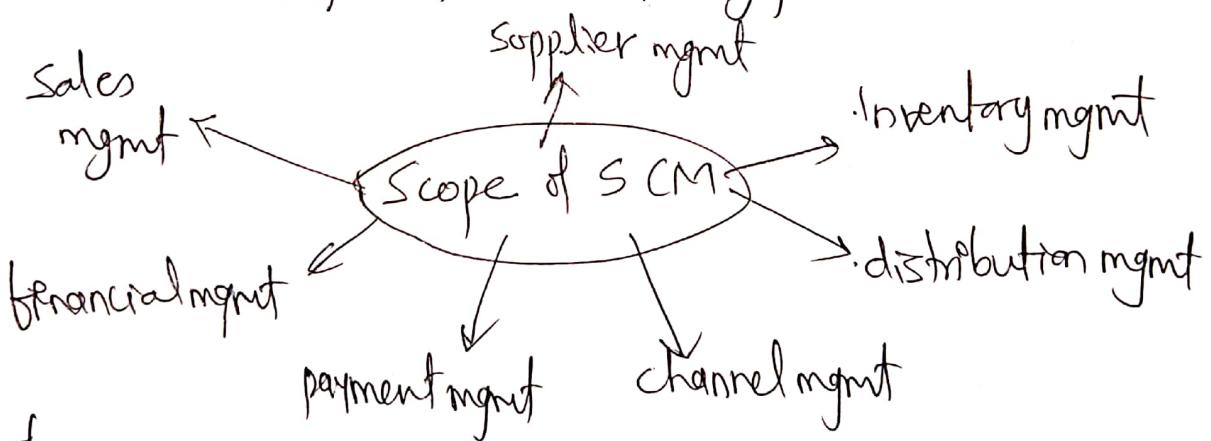
- finance
- logistics
- HR
- supply chain
- work flow

Advantages

- Reduction of lead time
- Reduction of cycle time
- Better customer satisfaction
- Increased flexibility, quality, efficiency
- Improved informational security, accuracy
- Improved resource utilization
- Quick decision making
- Better transparency
- Forecasting and optimization.

Disadv	
	- Expense and time in implementation
	- Implementation failure
	- Risk in using one vendor

- SCM: Supply chain management system.
- The integral part of the business framework
 - Concept is having the right product in the right place at the right time at right price and at the right condition.
 - means delivery of good to the customer through integrated management of supply chain components.
 - It transforms the way companies deal with suppliers, partners, and even customers.
 - The goal is to improve efficiency and profitability.
 - The systematic, strategic coordination of the traditional business function and tactics across these business functions.
 - consists of
 - operations mgmt
 - logistics
 - procurement
 - Information Technology.



Benefits

- web-based arch. (client-server)
- supports the exchange of real time information
- it has open internet application arch.
- platform independent
- fully integrated system
- rule based
- user support

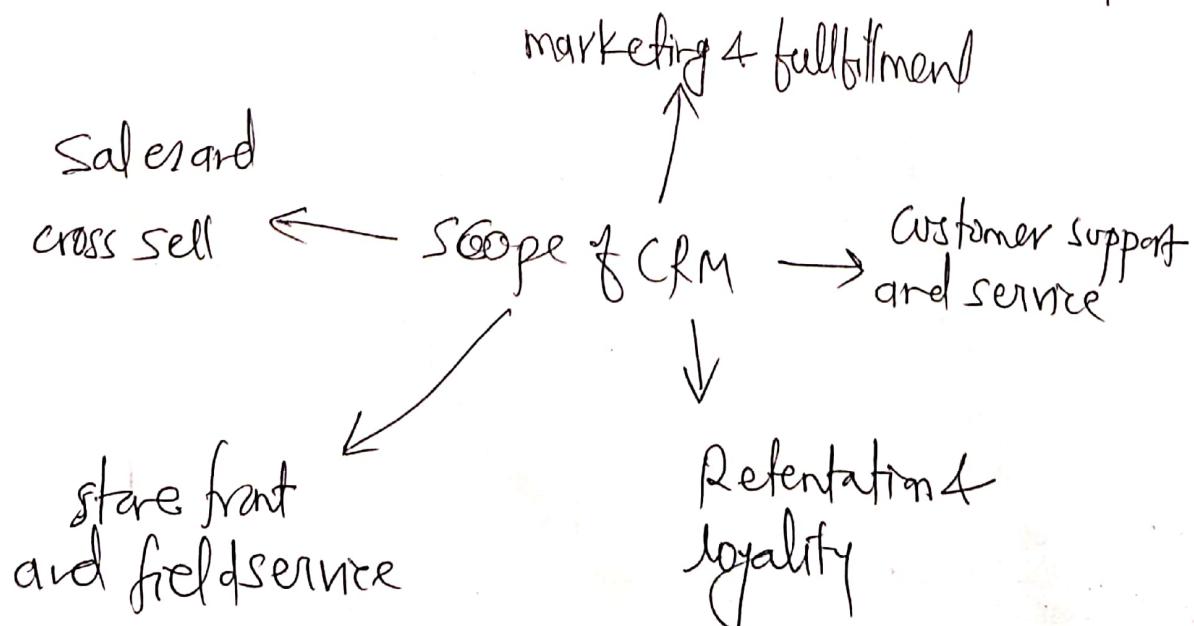
► Five Component of SCM. (online)

- Advanced scheduling and manufacturing planning program
- Demand forecasting program
- Transportation logistic program
- Distributed planning program
- order commitment program

CRM : Customer Relationship Management

- The information system that combines strategies, methodologies, software and internet to help an organization establish stronger relation.
- It involves using HR and IT to gain insight into customers' behaviours ~~and~~ and their values.
- The enterprise application module that manages a company interactions with current and future customers by organizing and coordinating sales and marketing.
- The comprehensive strategy and process of acquiring, retaining and partnering with selective customers
- Objectives of CRM

- Better customer service and customer
- more efficient cross selling products
- Simplified market and sales process
- Improve profitability and customer satisfaction.



Benefits of CRM

- Lower cost per contact
- An emotional bond with customer
- An ability to communicate with more emotive content
- Fewer errors
- Greater customer interactivity with websites.
- Improved reliability, scalability
- Greater responsiveness, return of investment

Roles of IS and IT in Enterprise mgmt

- The IS and IT satisfies the diverse needs through variety of systems such as query system, analysis system, modeling system and DSS.
- The IS and IT helps in strategic planning, mgmt control, operational control, transaction processing
- The IS and IT helps in the personal in the TPS
- The IS and IT helps the junior mgmt personal by improving the operational data for planning, scheduling and controlling and helps them in decision making.
- The IS and IT helps the middle mgmt in short term planning, target setting and controlling the business functions.
- The IS and IT helps the top level mgmt in goal setting, strategic planning and evolving the business plan
- The IS and IT plays the roles of Information generation, communication, problem identification and helps in the process of decision making.

* Enterprise engineering is defined as the body of knowledge, principles and practices to design a enterprise.

- It is the sub discipline of system engineering
- It examines each aspects of the enterprise including business process, information flow and organizational structure.
- It may focuses on the design of the enterprise as a whole or on the design and integration of certain business component.
- It involves formal methodologies, methods, techniques which are designed, tested and used extensively.

* Electronic organism / Digital organism

- The self-replicating computer program that mutates and evolves.
- It is used as a tool to study the dynamic evolution and to test or verify specific hypothesis or mathematical model evolution.
- It refers to the electronic program for managing information system as well as data by using electronic medium.
- It is used for the accessing and providing information in any enterprise.

Full Integration

Direct physical link required
Synchronous communication
strong type of system

OO - style navigation of complex
object trees

Central control of process logic

Statically bounded service

strong OS and programming
language dependencies

Loose Integration

physical link is intermediary
Asynchronous communication
weak type of system

Data-centric, self-contained
messages

Distributed logic
component

Dynamically bounded services

OS and programming
language independent

Process Alignment / process harmonization.

The activity of resolving differences between business processes.

→ Processes must be aligned in many practical situations including

- mergers where the differences between the merging organization must be identified and resolved.
- Audits where differences between prescribed processes and processes as they are actually performed must be identified.
- Compliance checks, where compliance to standard processes and regulation is checked.

