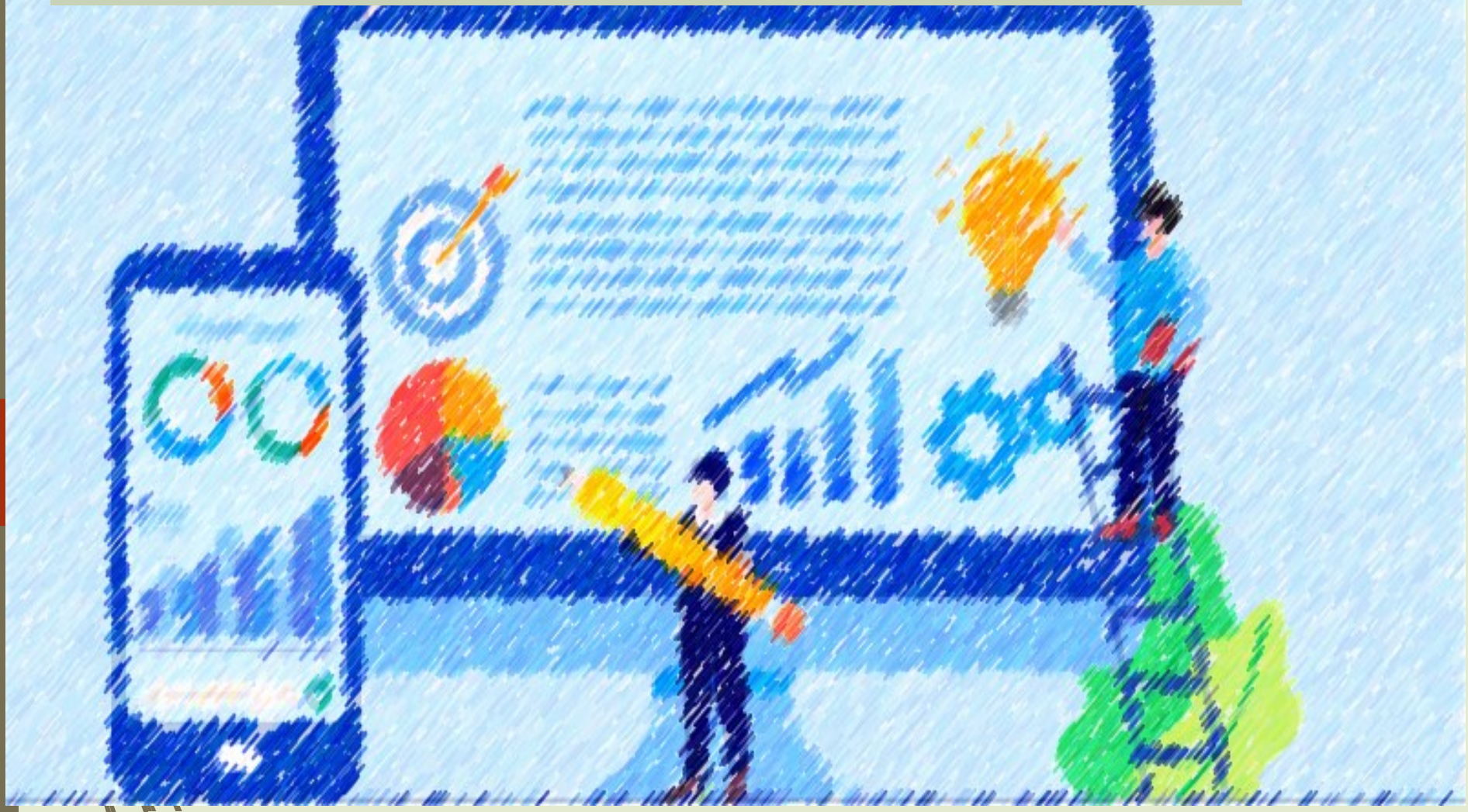
Management Information System



What is Information

Operations of any business organization are framed as **'Events'** and any event that affects the monetary condition of that organization are regarded as **Data** which after processing become **Information**.

These information, often labeled as '**Business information**' are any sort of **facts**, **figures**, **narrative**, or **intelligence** about the operations of that company. They include materials generated by the company itself and by external reporters or analysts.

What is Information Technology-IT

The use of hardware, software, human-ware, their services and supporting infrastructure to manage and deliver these information formatted as numbers or text, audio or video pictures or animation is now known as Information Technology.

They are formatted such that they convey meaning to target personals.

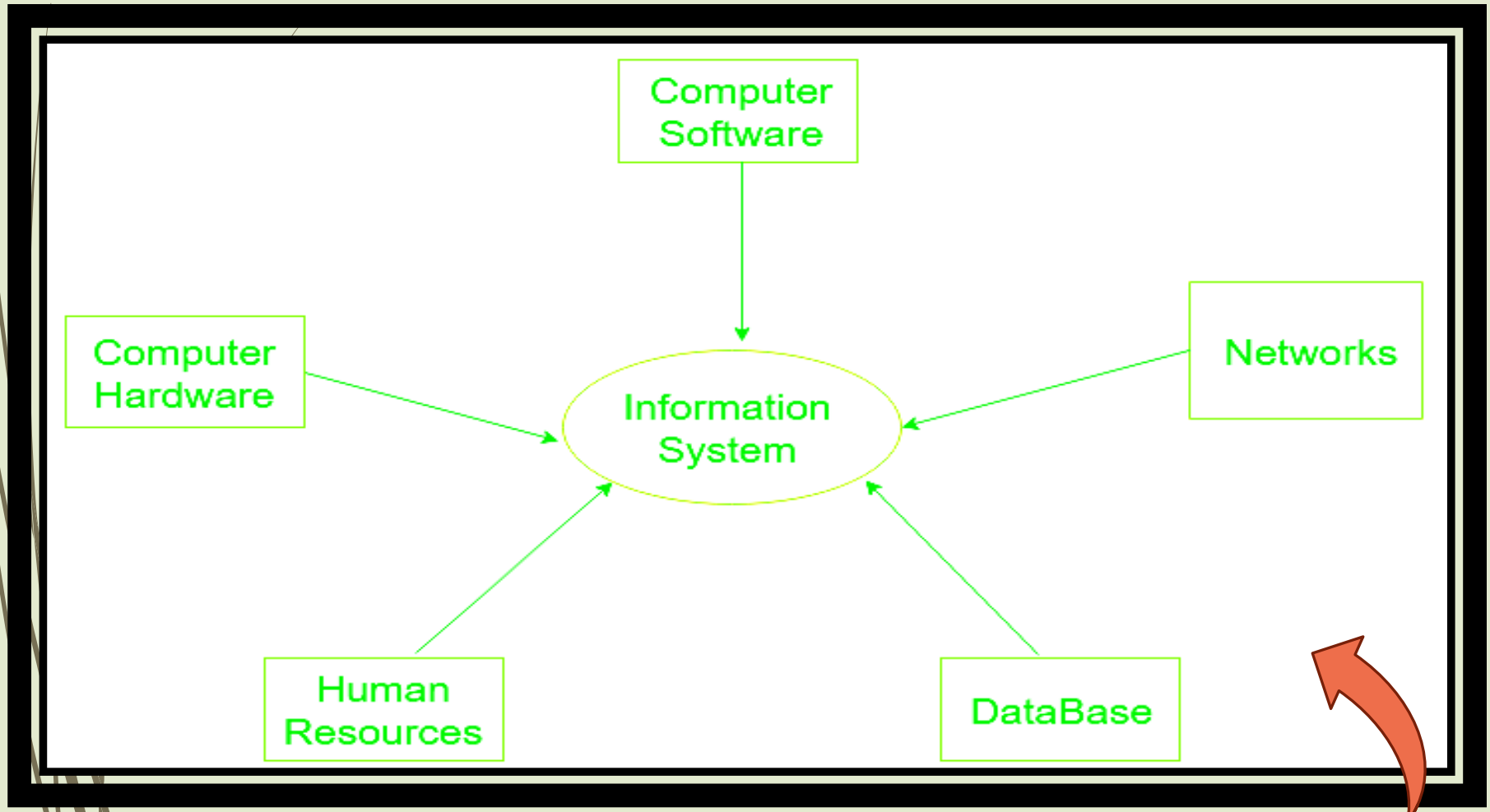
What is Information System

Information System is a combination of software, hardware, and telecommunication networks to capture events and collect useful data from them and then process those raw data as per organization's policy and principal.

Management of Information System (IS) has to be done -

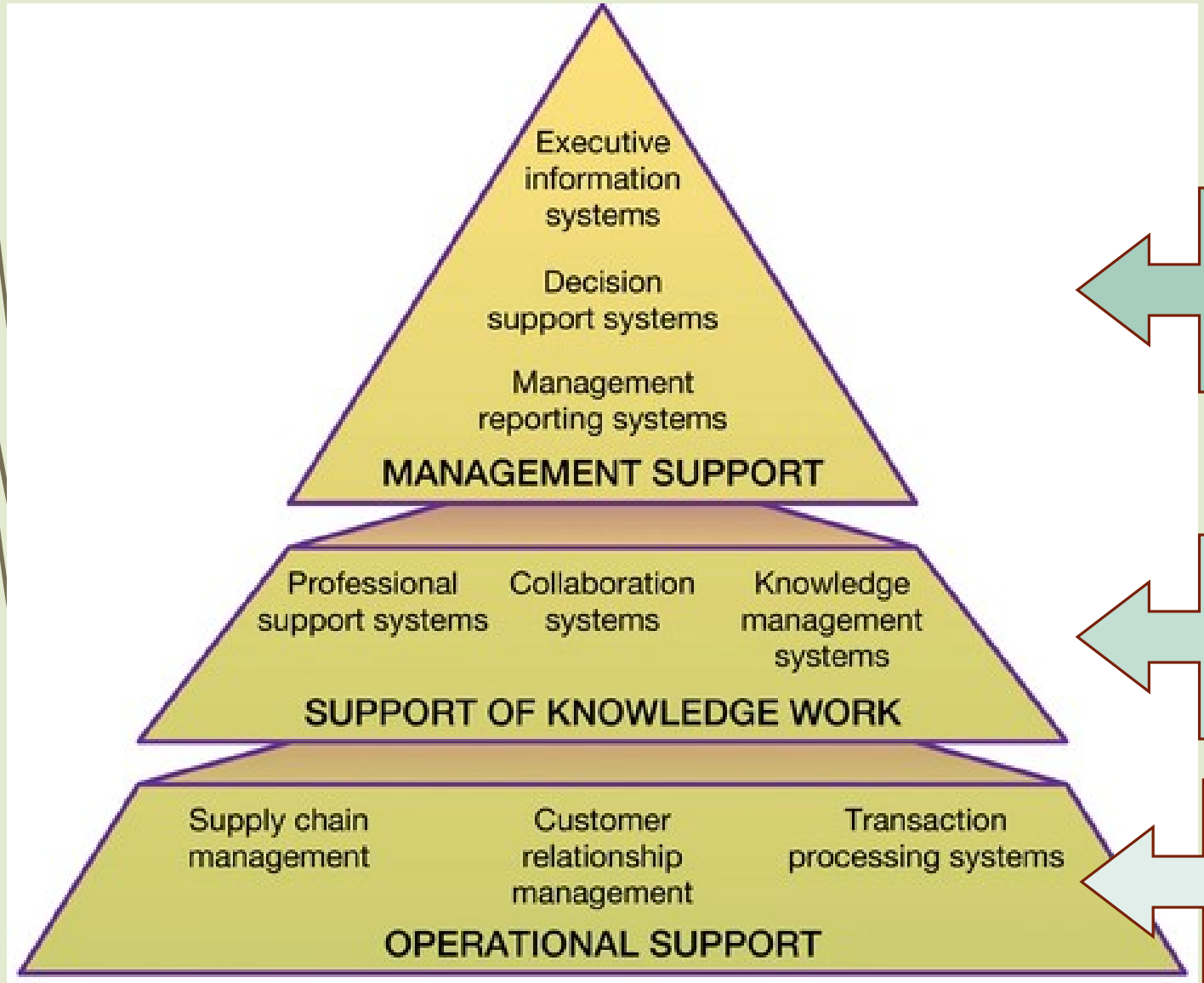
- To complete and manage their operations
- To interact with their consumers and
- To stay ahead of their competition.

What is Information System



Components of Information System

Types of Information Systems



For Top Level Managers (CEO, CIO) and Policy Makers

For R&D Department and Their Corresponding Team Leaders

For Field Managers and Supervisors

Management Information System

Management Information Systems is a inter-disciplinary field of study that teaches us how to apply IS to for managing IT in organizations for management roles such as interpersonal roles, informational roles and decision based roles.

Importance of IS Management

- Through IS management we process and interpret massive amounts of data from multiple sources and generate detailed reports that companies can use to make informed business decisions.
- As IS management is automated, the company personnel do not need to spend a lot of their time managing critical business information. Instead, they can focus more on incorporating the information in their day-to-day operations.

Importance of IS Management

- Using data compiled through an MIS, the organization's employees can correlate varied data points and use the comparisons to gain essential insights into its past, current and future business operations.
- IS management software tools offers built-in tools to make analytical reports. For example they can prepare predictions to boost sales by comparing and analyzing sales data from different years and different geographic locations

Importance of IS Management

- It allows real-time performance reports
- It generates analytical reports
- It compares projections and performances
- It aids the work allocation process
- It improves internal communication

MIS Challenges: Three Major Themes

MIS Challenges: Three Major Themes

Globalization

Companies seek to offer or procure their goods and services around the world. However, the worldwide expansion of brands and the emergence of global institutions continue to encounter major protests from groups, and even nations, that want to maintain their local identity. Companies feel this backlash in their use of IT: locales and regions want systems that suit their culture, preferences, or lifestyles.

MIS Challenges: Three Major Themes

Globalization

In addition, they want jobs to stay put, and not move to a far-off country. In response, IS executives are seeking to achieve a balance between implementing a single, enterprise wide IT infrastructure and tailoring systems to fit local needs and locating work where it is most cost effective

MIS Challenges: Three Major Themes

E-enablement

Doing business electronically has been fundamental since the 1950s, but now the Internet has transformed the way people conduct business. The term “e-business” has the broad connotation of doing business electronically. E-business has much to do with building e-enabled relationships with consumers and other enterprises.

MIS Challenges: Three Major Themes

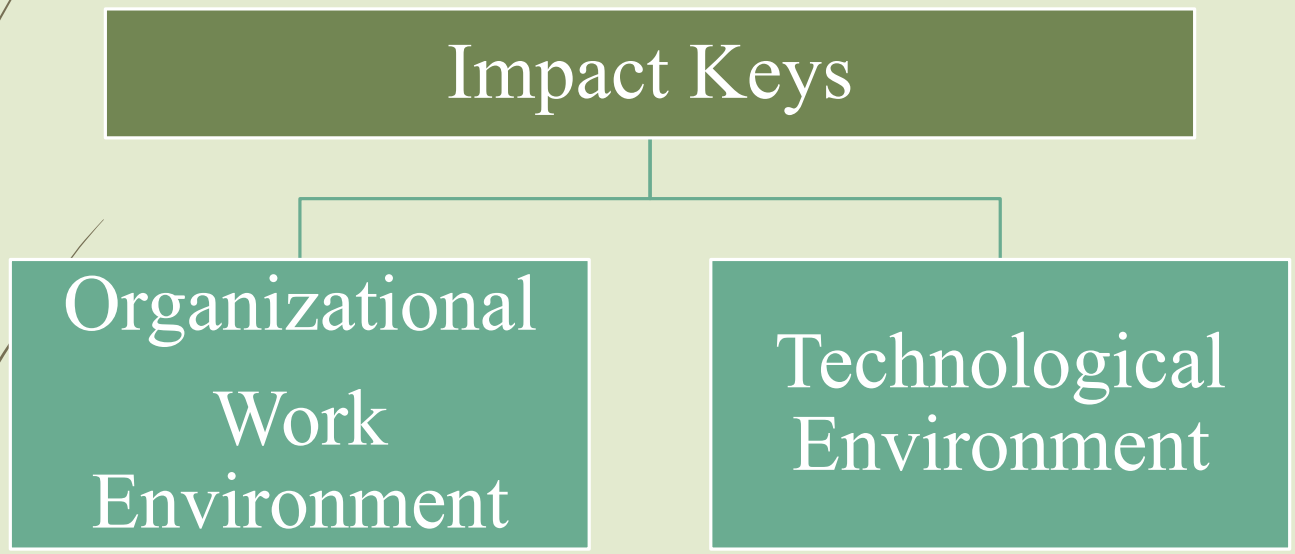
Business Intelligence

The third major theme is how to deal with all the world's knowledge. One aspect of this is the transfer of knowledge between people (sharing), because the most important asset in enterprises is the people and the knowledge they possess. The other aspect is the transfer of knowledge from people's heads into lasting things, such as processes, products, best practices, databases, directories, software, and such.

Evolution of Business Computing

Time Frame	Computer Use Trends	Emerging Applications	Some Leading Vendors
1950s	Calculator	Bookkeeping	Texas Instruments
1960s	Computer	Accounting, Payroll	IBM, Honeywell, CDC, Univac, Burrough, GE
1970s	Management Information Systems	Financial Applications, Inventory Management, Production, etc.	Digital, IBM, Unisys
1980s	Decision Support and Applied Artificial Intelligence	Portfolio Management, Project Management, Executive Information Systems	IBM, Lotus, Apple, Sun Micro Systems, Oracle, Microsoft
1990s	Communicator	Office Automation, E-mail, Instant Messaging, File Transfer	IBM, MCI, AT&T, AOL, Netscape
2000s	Partnership Promoter/Social Enabler	E-commerce, Supply Chain-Management, Social Networking, Mobile Computing	IBM, Oracle, SAP, Microsoft

Key Trends That Impact MIS



Organizational Environment

External Organizational Environment

Points to Consider:

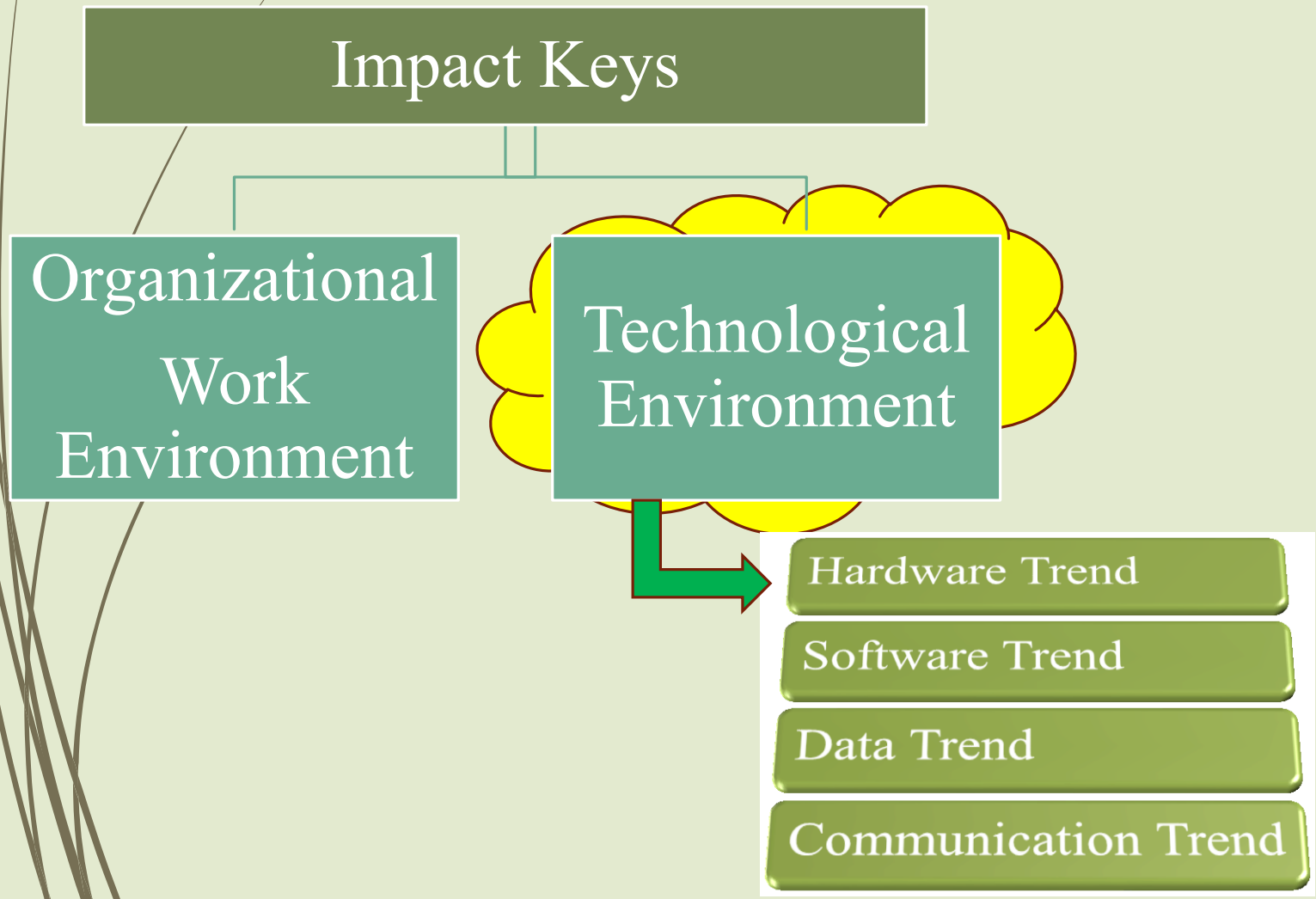
- The Internet Economy
- Global Marketplace
- Micro-markets
- Business Ecosystems
- De-capitalization
- Faster Business Cycles
- Instant Gratification
- Accountability and Transparency
- Rising Societal Risks of IT

Internal Organizational Environment

Points to Consider:

- From Supply-Push to Demand-Pull
- Self-Service
- Real-Time Working
- Team-Based Working
- Anytime, Anyplace Information Work
- Outsourcing and Strategic Alliances
- Demise of Hierarchy

Key Trends That Impact MIS



Technological Environment:
Hardware Trend

From Centralized Batch Processing to Online Real Time Processing

In the 1950s and 1960s, batch processing was predominant; online systems emerged later. At that time, hardware was centralized, often in large, showcase data centers behind glass walls.

With the advent of processing power and cheap availability of bandwidth, information processing is now done in real time due to the reachability of clients through widely available networks.

Technological Environment:
Software Trend

From in House Solution Development to Custom ERP with Customizable Features from Vendors

At first, companies used to have their own developers or outsource contractual programmers who would develop there IS (mainly TPS). This changed into purchased proprietary software that eventually forced companies to move into ERP softwares that have web supports and DSS for top level managers and other automatic report and prediction generation tools (thanks to 4GL).

Technological Environment:
Data Trend

From Large Volume of Text/Number Type Data Processing to Multimedia Information and Data Mining

File processing and file management quickly changed into DBMS with multimedia data support as processed information. And Data Warehousing and Data Mining are now in use to find patterns, clusters and trends in data sets to predict demand, customer feedback, discover potential markets – so that now companies can cut their cost and improve their profit margin.

Technological Environment: Communication Trend

From Intranet in a LAN to Worldwide Last Mile Reach with Wireless Connectivity

Once an Intranets in organizations' LANs were deemed to be the future of IS management. But now with internet and its reach to every corner of this planet with 5G networks, organizations can reach any corner of this planet and can be in touch with a unit with enormous processing power (compared to 90s).

These changes in communication along with other Technological Trends are now affecting they way IS should be managed.

Decision Support System: DSS

Definition

DSS is intended for the top level managers (CEO, CIO, CFO) of an organization. DSS takes input from mid level managers' report prepared by there Information Systems (MIS, KWS, TPS) and help top level managers in making decisions.

The outcome from DSS can be conventional or can even be unconventional as it allows managers to make or find support for their improvised business decision.

Decision Support System: DSS

Characteristics

- ✓ Offers flexibility, adaptability and quick response.
- ✓ May not require help from in house or outsourced programmers.
- ✓ Can provide support for decisions/solutions made in advance.
- ✓ Uses sophisticated data analysis and modelling tools.

Components

- ➢ Database consisting of both current and past data both from inside and outside of the organization.
- ➢ User Interface that may appear like a web portal.
- ➢ Software system that can analyze models and do data mining.

Decision Support System: DSS

Benefits

- Can help in solve complex problems that ordinarily can't be solved by other computerized approaches.
- Thorough quantitative analysis can be done in no time.
- Can be used to test frequent changes in scenario with acceptable accuracy.
- Gives the managers ability to test several different strategies under different configuration quickly and objectively.
- Regular application of DSS in testing decision before implementation helps in cutting costs in any organization.

Group Decision Support System: GDSS

Definition

Group decision-support system (GDSS) is an interactive computer-based system used to facilitate the solution of unstructured problems by a set of decision makers (CIO, CEO, CFO) working together as a group. Where DSS is designed to interface with one user, GDSS is designed to function such that a group can operate together during a single operation.

It is meant for harnessing the productivity of a group for finding the optimum solutions to unconventional problems.

Group Decision Support System: GDSS

Components

GDSS is viewed as a three component system. They are:

- Hardware - Computers, their peripherals, networks and network components-even the physical accommodation intended for meeting and conferences.
- Software Tools – Software solution that includes electronic questionnaire, interactive interface labeled as ‘brainstorming tools’ idea/solution organizer that supports sorting and prioritizing of outcomes.
- The People – Members who participate in this system as policy organizers, simulators and input model providers.

Group Decision Support System: GDSS

Features and Benefits

- ✓ Ease of Use – The interactive interface is self explanatory and very easy to use.
- ✓ Better Decision Making - As it includes a group of decision makers instead of one and provides tools so that all can participate as intended, the outcome is better.
- ✓ Emphasis on Semi-structured & Unstructured Decisions - Structured decisions are those which can be made by following definite procedure and this type of decisions are made frequently. On the other hand, unstructured decisions require subjective evaluation, insights and personal judgments.

Group Decision Support System: GDSS

Features and Benefits

- ✓ Specific & General Support –Special supports like Idea Generation, Discussion, Vote Casting & Counting and projection of information onto a screen are facilitated by a leader. Along with these, a facilitator also provides general support to the participating group members.
- ✓ Support All Phases of Decision Making - Four phases of decision making - Intelligence Collection, Design, Making Choice, Implementing Choice - all of them are supported.
- ✓ Supports Positive Group Behavior - Positive participations are inspired through appreciations.

Office Automation System: OAS

Definition

Office Automation System is a tool that enables data to move from one system to another on its own without human intervention and inaccuracies. These tools help organizations collect, manage, and analyze information securely to accomplish everyday tasks and processes. With Office automation data flow around on its own without any human intervention, inaccuracies, and errors. With OAS, creation, collection, storage, analysis and sharing of confidential office data are automated that helps to accomplish basic day-to-day routine tasks and processes effectively.

Office Automation System: OAS

Features and Benefits

Some of the biggest advantages of automating office workflows include-

- ✓Reducing the manual effort to complete mundane tasks.
- ✓Cutting down on manual errors.
- ✓Shrinking the processing time for items.
- ✓Getting insights into process performance metrics.
- ✓Gaining greater process visibility and identifying potential bottlenecks.
- ✓Making sound business decisions based on found data.

Transaction Processing System: TPS

Definition

A Transaction Processing System (TPS) is a type of information system that manages transactions or events that occur within an organization, such as the processing of customer orders, billing, and inventory management.

A TPS collects, stores, modifies, and retrieves data related to business transactions. The system is designed to handle high volumes of transactions quickly and accurately, with a focus on maintaining the consistency and integrity of the data.

Transaction Processing System: TPS

Definition

TPSs typically include a database management system, which stores the data related to transactions, and an application program interface (API), which enables users to interact with the system. The system also includes a set of procedures for processing transactions, including validation, updating records, and generating reports.

Examples of TPSs include point-of-sale systems in retail stores, order processing systems in manufacturing companies, and reservation systems in airlines and hotels.

Transaction Processing System: TPS

Features & Characteristics

- Rapid Response - Transactions are captured with no delay or lag, system provides instant response, outcome of any transaction affect the database immediately.
- Reliability - Failure rate essentially zero. With network supported robust backup and recovery - any erroneous transaction can either be corrected or reversed.
- Inflexibility - Programmed to make no exception to any of the transactions. Set rules and policies stay inflexible to any input from transaction data.

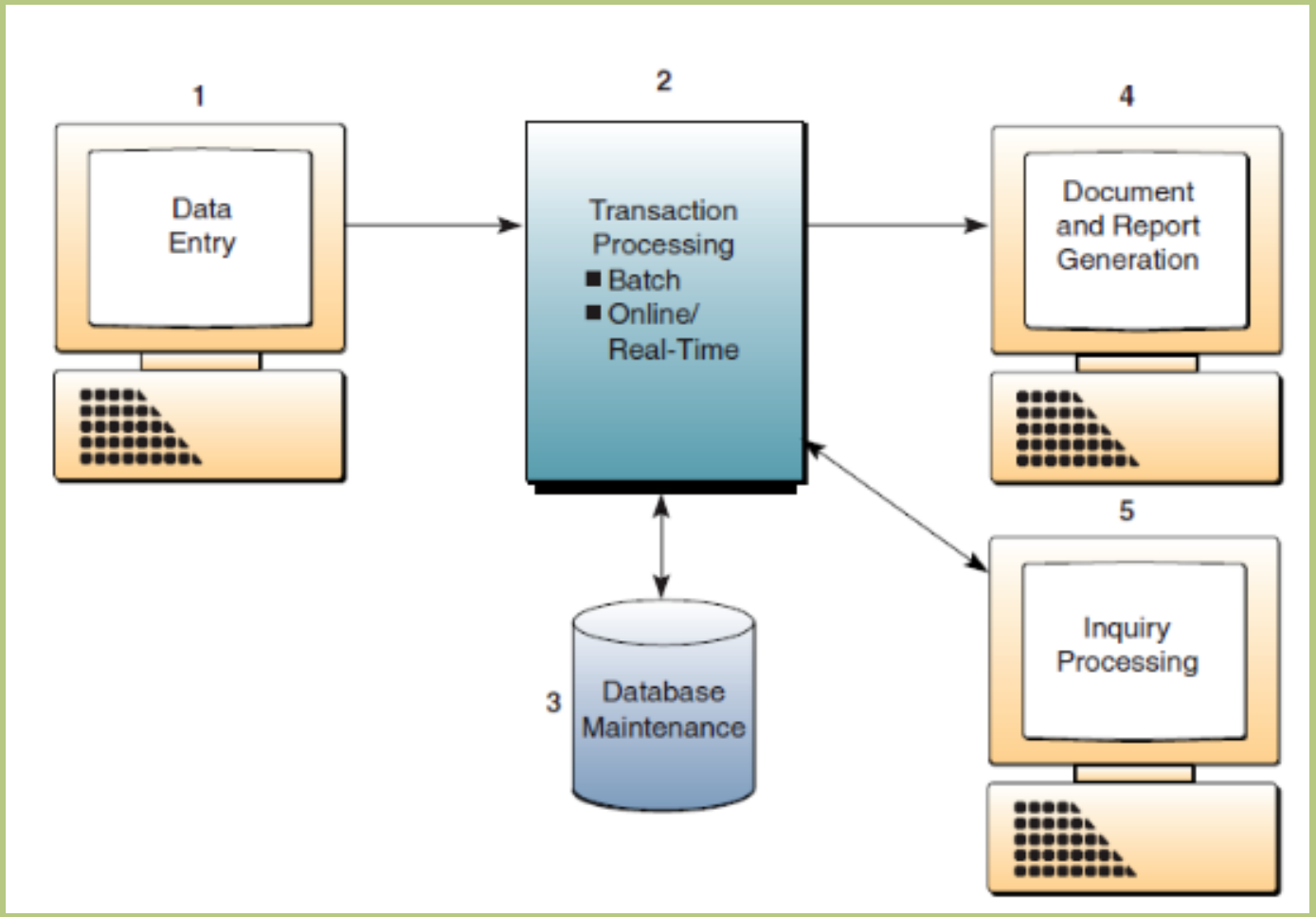
Transaction Processing System: TPS

Features & Characteristics

- Atomicity - It means affect all or none. If a transaction affects multiple account, then to maintain atomicity, all or none will be affected for that transaction.
- Consistency - Integrity is maintained within the specified rules from first to last - for every transaction.
- Isolation - Even though multiple transactions affecting the same account might seem concurrent, in reality TPS is able to identify the sequence of those and record their respective effect without a fail.

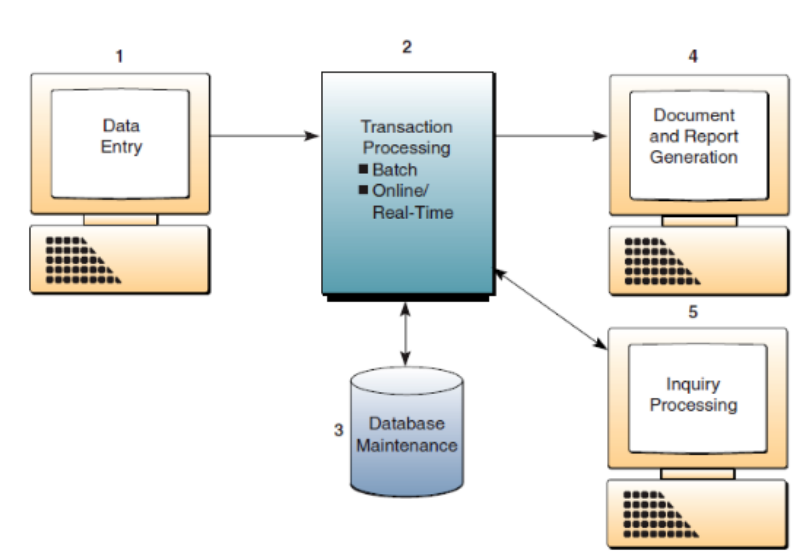
Transaction Processing System: TPS

TPS Cycle



Transaction Processing System: TPS

TPS Cycle



Data Entry

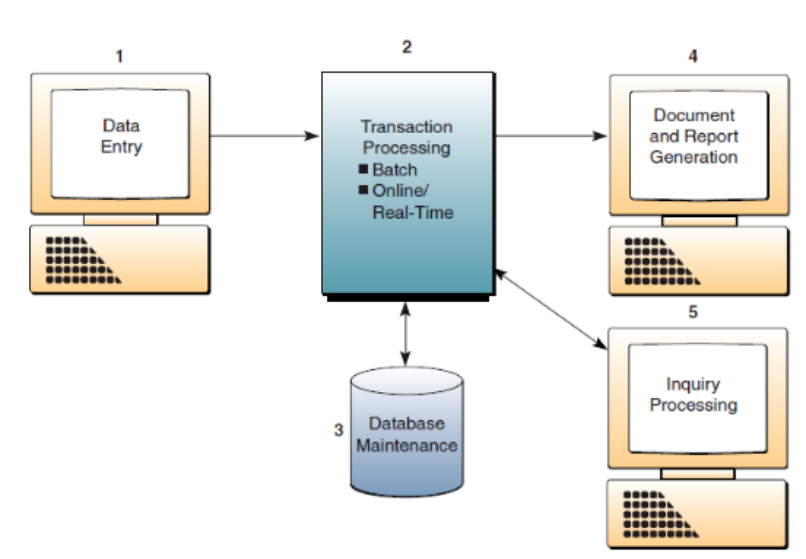
Data entry involves capturing of data and entering them into the system for digital processing. Before acceptance into the processing, these data go through validation checks and necessary corrections.

Processing

Data are processed (classify, sort, summarize) in batch or in real-time (online TPS). Processing phase also generates reports for user queries based on files from storage.

Transaction Processing System: TPS

TPS Cycle



Database Management

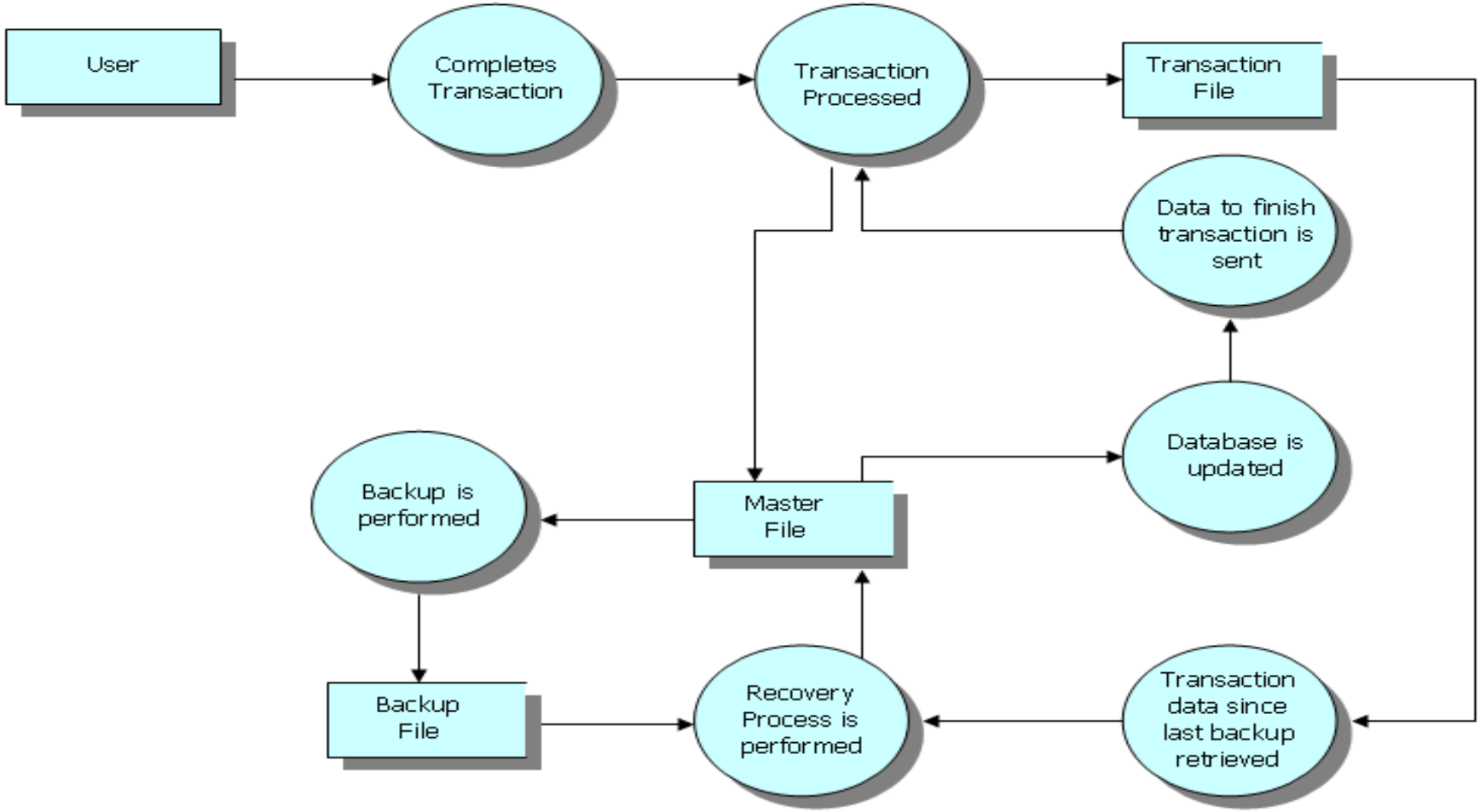
TPS database structure can be of hierarchical, networked or relational type. Storage keeps transaction files, master files, output files and program files separately.

Inquiry Processing

Inquiry processing generates reports as per user queries and custom requirements.

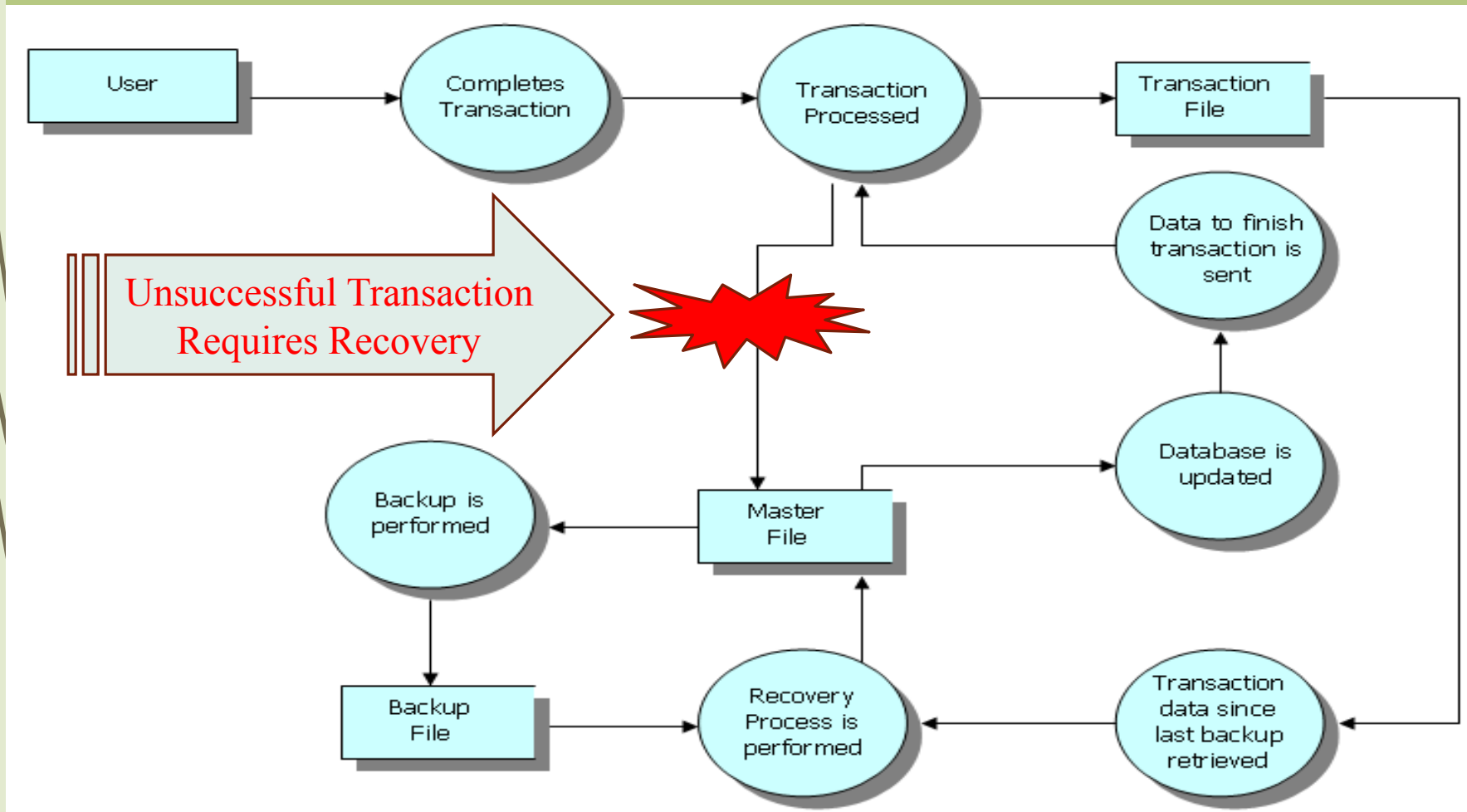
Transaction Processing System: TPS

Backup and Recovery



Transaction Processing System: TPS

Backup and Recovery



Thank you all