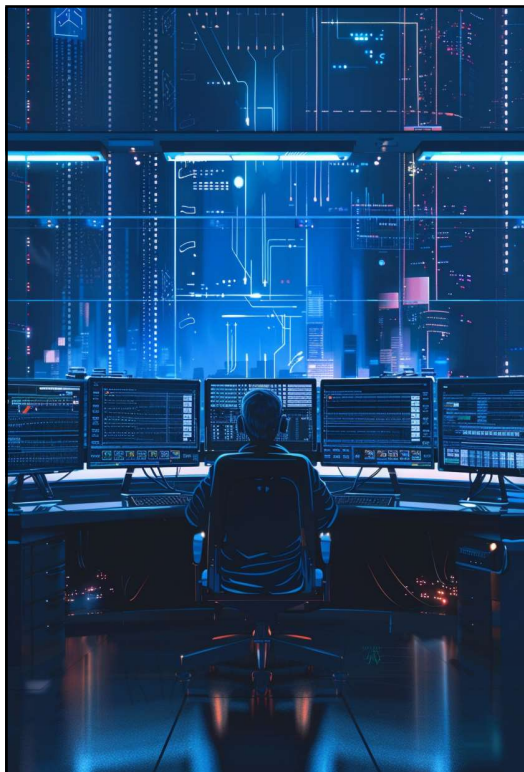




Course Name :	Association of Accounting Technicians – Level II
Subject :	Digital Transformation & Information Systems
Chapter :	01 - Concepts of Information System and Impact of Information System
Presented by:	Nadinsha Bandara

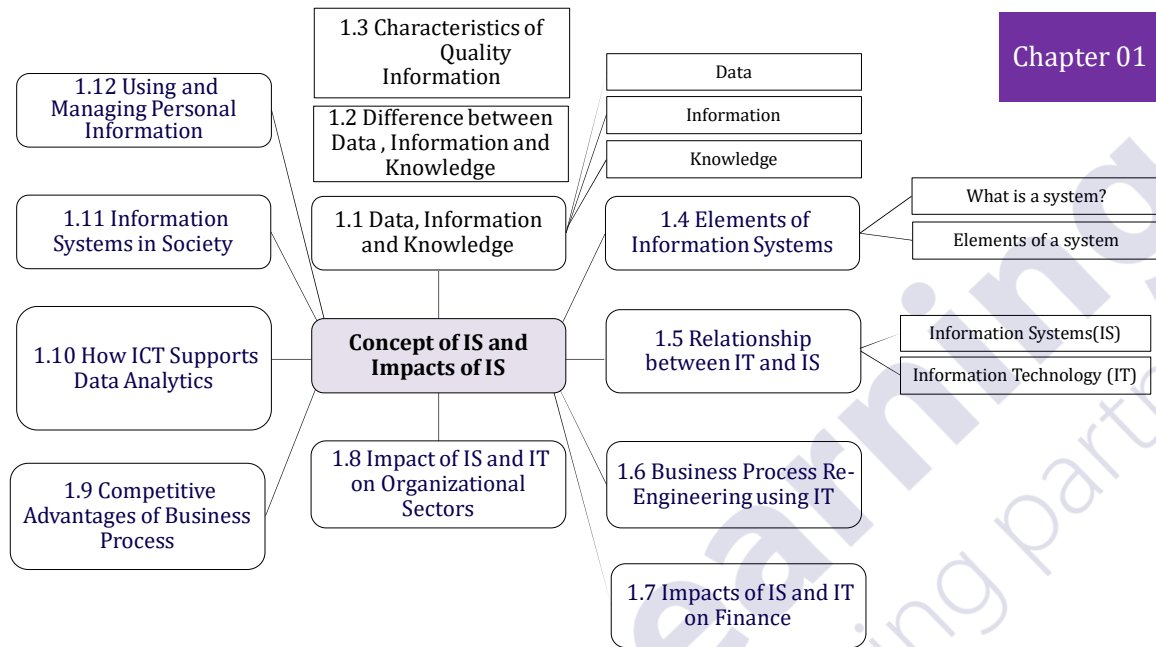


Fundamental components of IS and functions

How ICT helps in increasing efficiency and effectiveness at business organizations

Types of information related to an individuals personal life





1.1 Data, Information and Knowledge



Data

Ex: The final marks obtained by a group of students for a Specific Computer Course is given below

WINDOWS	JAVA		EXCEL		
	ACCESS	WORD			
1232C	90	77	45	76	88
1233D	65	75	28	84	51
	38	32	58	49	56
Chandana			Suranga		

Facts

Figures

What is Data?

- DATA is *the raw material for data processing (facts and figures).*
- DATA generates when *events happen without an effort.*
- DATA is something you can consider as *lower level knowledge.*
- DATA is *scattered, uncategorized and unorganized.*
- DATA doesn't have a *proper meaning.*

Information

Ex: After Partially and Fully Processing the set data the following information was produced

STU. NO	NAME	WINDOWS	EXCEL	WORD	AVERAGE	PLACE	STATUS
1231M	Chandana	90	77	45	75	1	Pass
1232C	Suranga	65	75	28	61	2	Pass
1233D	Sanjaya	38	32	58	47	3	Fail

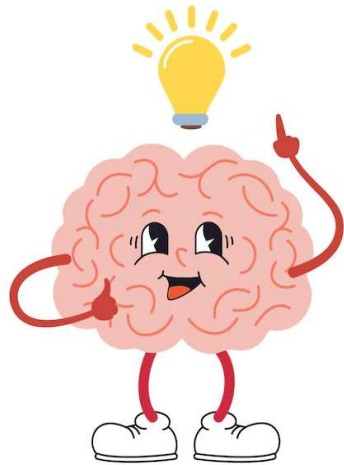
Semi Processed Data:
Which is not the best to obtain decisions

Fully Processed Data:
Which can be used for decision making process

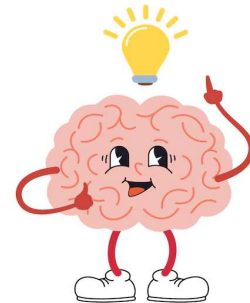
What is Information?

- INFORMATION is *organized or classifies data.*
- INFORMATION has some *meaningful values for the receiver who needs it.*
- INFORMATION is the *output of Data.*
- INFORMATION is *important for decision making process of a business*

Knowledge



- *KNOWLEDGE describes the **collected Information** that is available about a particular fact or a person.*
- *KNOWLEDGE makes it **possible to take informed decisions***
- *KNOWLEDGE can be obtained from both **Education** and **Experience***



Data	Information	Knowledge
Raw Facts and Figures used for the processing	Processed Organized and Classified Data with a proper meaning	Collected information that can be used for the process of decision making
Ex: Discount details Item Details Customer Details	Ex: Sales of a specific product	Ex: Sales continuation and Discontinuation



1.2 Difference between Data and Information



Differences can
be discussed
under;

- Meaning
- Features
- Dependency
- Nature
- Measurement
- Represented as
- Methods of Use
- Use for Decision Making
- Level of Knowledge
- Confidentiality
- Design
- Deterioration
- Types
- Units of Measurement

Basis of Difference	Data	Information
Meaning	Refers to raw, unrefined facts and figures. It can be served as inputs in computing system	Refers to processed data. It can be served as the output of a computing system
Features	Data is available in Individual Units: therefore it does not carry any meaning by itself	It contains as groups of Data that collectively depicts a logical meaning.
Dependency	Not reliant on anything	It is reliant/ derived from Data
Nature	By itself it is vague. Can also be categorized as Quantitative and Qualitative.	It is specific in its nature
Measurement	It is measurable in units of bits and bytes	It is measurable in various meaningful terms

Basis of Difference	Data	Information
Represented as	Can be collated as tabular data, data tree	Ideas, Thoughts, references
Methods of use	Collected to be useful	When processed it becomes useful
Use in decision making	No use in decision making	Very useful in decision making
Level of Knowledge	Low level knowledge	Second level knowledge
Confidentiality	Cannot be sold to public	May be made public if required

Basis of Difference	Data	Information
Design	Not designed to serve the purpose	Specific to the needs and expectations
Deterioration	Deteriorated with time	Remains as it is with the passage of time
Types	Qualitative and Quantitative	Varied as per user requirements
Units of Measurement	The units of measurement of Bits, Nibbles, Bytes, TB, kB	Information can be quantified as quantity, time, voltage etc

1.3 Characteristics of Quality Information



01. Understandable	02. Relevant	03. Completeness	04. Availability
- Information is already in a summarized form, it must be understood by the receiver so that it will interpret correctly. - Information should be clearly presented (e.g. use summaries/charts) and concise. It also needs to be communicated using an appropriate medium (e.g. email, printed report, presentation).	Information is good only if it is relevant. This means that it should be pertinent and meaningful to the decision maker and should be in the area of responsibility.	- It should contain all the facts that are necessary for the decision maker to satisfactorily solve the problem at hand using such information. - Nothing important should be left out. Although information cannot always be complete, every reasonable effort should be made to obtain it.	Information may be useless if it is not readily accessible in the desired form, when it is needed. Advances in technology have made information more accessible today than ever before through various methods.

05. Reliable	06. Concise	07. Timely	08. Cost - Effective
- It should contain all the facts that are necessary for the decision maker to satisfactorily solve the problem at hand using such information. Nothing important should be left out. - Although information cannot always be complete, every reasonable effort should be made to obtain it.	- Too much information is a big burden on management and cannot be processed in time and accurately. - Accordingly, information should be to the point and just Enough no more, no less.	- Information must be delivered at the right time and the right place to the right person. - Premature information can become obsolete or be forgotten by the time it is actually needed.	- The information is not desirable if the solution is more costly than the problem. - The cost of gathering data and processing it into information must be weighed against the benefits derived from using such information.

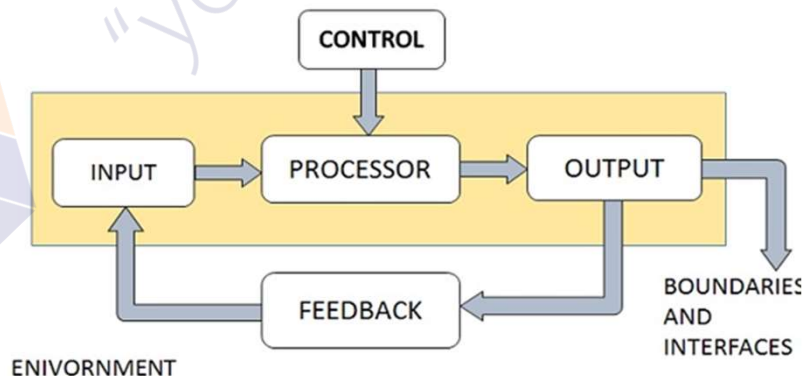
1.4 Elements of a System



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What is a System?

A system is an *organized collection of parts (or subsystems)* that are highly integrated to *accomplish an overall goal*. Every system contains a model. The model is made up with three major components *called input, processing and output (IPO Model)*.



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Components of the Information System

Components	An irreducible part or aggregation of parts that makes up a system; also called a subsystem.	Students, Teachers, Classrooms, Administration, Subjects
Interrelated components	Dependence of one part of the system on one or more other system parts.	Teachers Teach Students; Students Attend Classes; Office Collects Attendance From Teachers
Boundary	The line that marks the inside and outside of a system and that sets off the system from its environment.	School gates, Fences, School rules, Campus grounds
Purpose	The overall goal or function of a system.	Educate students and prepare them for the future

Components of the Information System

Environment	Everything external to a system that interacts with the system.	Parents, community, government, education department
Interfaces	Point of contact where a system meets its environment or where subsystems meet each other.	Parent-teacher Meetings, Report Cards, School Website, Front Office
Constraints	A limit to what a system can accomplish.	Budget, School Hours, Class Size, Education Laws
Input	Inputs are the information that enters into the system for processing.	Students, Funding, Textbooks, New Enrollments
Output	The main objective of a system is to get an output which is helpful for its user. Output is the final outcome of processing	Educated Students, Exam Results, Graduates, Certificates

What is Information System?

Formalized set of procedures designed to convert data from both internal and external sources into information suitable for decision making and planning.



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Activities of the Information System.

Five major activities can be identified to fit specific needs of an organization.

Collection and preparation of data	Gathering raw facts and getting them ready to use. Ex: Teachers record students' marks
Processing data into information	Turning raw data into something meaningful. Ex: The school calculates average grades from test scores
Dissemination of information	Sharing information with the right people. Ex: Report cards are sent to students and parents.
Using and storing Information for later use	Using information now and saving it for the future. Ex: Student records are stored in the school database and used for decisions.
Monitoring the system	Checking that everything is working properly. Ex: The principal reviews exam results and attendance to improve teaching.

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Types of the Information System.



Manual Information System

Manual or Non-Automated system is used in organizations to gather data with the involvement of human labor. These types of systems are used in small scale business organizations or else organizations with limited resources.

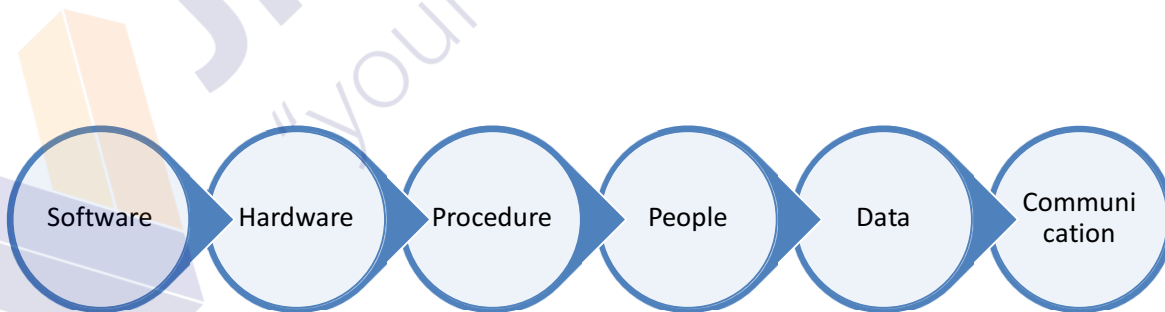


Computer Based Information System

Computer based information system (CBIS) is a system used to manage information and as well as to process data to make meaningful data. CBIS is evolved in order to automate and make the productivity of the organizations.

Elements of an Information System

There are six elements of an information system:



01. Software



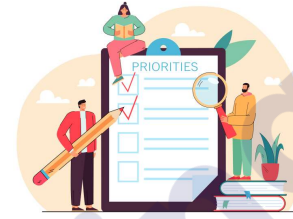
- The software gives instructions to the hardware to tell it how to function.
- It consists the step by step instructions which tell the computer how to do its works. Software also called as computer program.

02. Hardware



- The equipment's that process data to create information.
- It is controlled by the software.

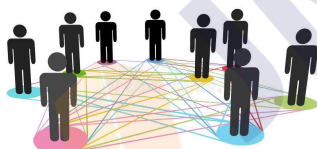
03. Procedures



- The procedures element does what it says on the tin, it provides the people with rules, guidelines, instructions and descriptions to users to follow or example, a user manual outlining how to use software, hardware or data.



04. People



- The people who design and operate the software and hardware (end users) are probably the most important part of any information system.

05. Data



- Data is sometimes said to be the core part of any information system. Data is the input of an information system.

06. Communication

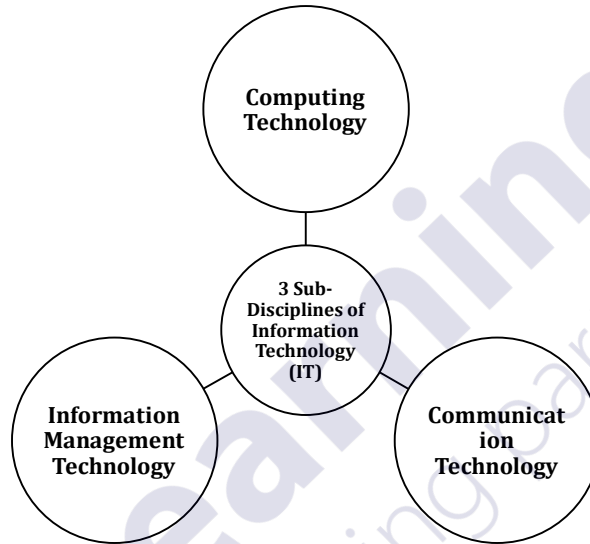


- Communication exists between the people who make the hardware, software and to disseminate information to relevant parties. The Internet is widely used to communicate with other people and computers.



What is Information Technology?

- Information Technology is the study, design, implementation, support or management of *computer-based information systems*.
- It focuses in maintaining the system's *hardware, software, databases and network with the end goal of communicating to users* how to best use its functionality.



Computing Technology

Computing is usually defined as the activity of using and developing computer technology, computer hardware and software.

Communication Technology

Communication technology is the communication between computer systems. As a standalone machine the importance of a computer is very low.

Information Management Technology

Information management technology is concerned with exploring and understanding IT as a corporate resource.

Information Technology

1.5 The Relationship between IT and IS



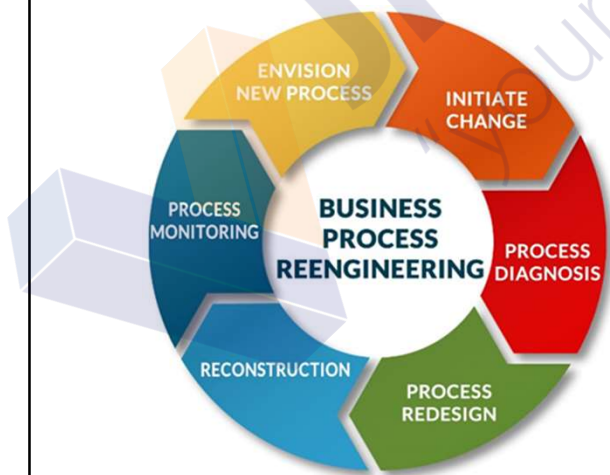
Information System (IS)	Information Technology (IT)
Formalized set of procedures designed to convert data from both internal and external sources into information suitable for decision making and planning. system helps people use data to do work, make decisions, and solve problems.	Information Technology is the study, design, implementation, support or management of <i>computerbased information systems</i> It focuses in maintaining the system's <i>hardware, software, databases and network with the end goal of communicating to users how to best use its functionality</i>
Both deals with Computer Based system. IT is a <i>subset of IS</i> . IS covers Information IT refers to <i>technology aspect (as an IT Infrastructure)</i> . IS works as the <i>bridge between technology and people</i> .	

1.6 Business Process Re-Engineering using IT



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What is Business Process Re-Engineering



"The fundamental rethinking and radical redesign of business processes to bring about dramatic improvements in performance."

-The Reengineering Revolution-
Hammer M & Shanton.S.A

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Steps of the BPR

BPR Stage	What It Means	Simple Example (School Admission)
Initiate Change	Identify the Need For Improvement	School Realizes Admissions are Slow and Parents Complain
Process Diagnosis	Study the Existing Process and Find Problems	Manual Forms, Repeated Data Entry, Long Approvals
Process Redesign	Create a Detailed New Process	Online Form ? Auto Verification ? Online Approval ? SMS
Reconstruction	Implement the New Process	Admission Website Launched and Staff Trained
Process Monitoring	Check Performance and Improve Continuously	Monitor Time Taken, Errors, and Parent Satisfaction
Envision New Process	Think of a Better Way to do the Process	Idea of Online Applications and Digital Approvals

1.7 Impacts of IS and IT on Finance



The New Buzzword : FinTech

IT has greatly impacted the financial services industry in following areas,

1. Financial Reporting
2. Online Banking
3. Reducing the human errors or fraudulent activity
4. Cheaper to run a business than ever before
5. Decreasing costs and increasing functionality

1.8 Impact of IT and IS on the other Organizational Sectors



1. Communication between employees, suppliers and customers
2. Inventory Management System
3. Data Management System
4. Management Information System
5. Customer Relationship Management



1.9 Using IT to increase the efficiency, productivity and effectiveness of business processes



1. To improve service delivery to customers.
2. To improve organization's responsiveness to new developments.
3. To change the basis of competition in industry.
4. To improve your organization's overall performance.



1.10 How ICT support data analysis , decision making and use of ICT tools for analyzing data and information



1. Process Control System.
2. Transaction Processing System
3. Office Automation System
4. Management Information System
5. Decision Support System
6. Expert/ Executive Support System

How ICT tools support in Decision Making in Organizations



- Statistical analysis and data mining software
- Enhancing Communication
- Improved Data Visualization
- Facilitating Data Collection and Storage
- Enhanced Data Processing and Analysis
- Supporting Decision-Making Processes

1.11 Information System in society



1. Education
2. Communication
3. Business
4. Health Care
5. Entertainment
6. Government

Field	Description	Examples
Communication	Social media platforms and communication apps allow users to share messages, photos, and videos instantly.	Facebook, Twitter, and LinkedIn
Education	Online learning platforms and virtual classrooms help students and teachers connect more effectively.	Google Classroom, Zoom, Microsoft Teams, Coursera, ed X, and Khan Academy
Healthcare	Technology supports the health sector by managing patient information and improving efficiency through data systems.	Electronic Health Records (EHRs)
Business	Technology improves business operations and helps organizations achieve efficiency and productivity.	Enterprise Resource Planning (ERP)
Entertainment	Provides entertainment through movies, music, and games. Streaming platforms allow users to enjoy entertainment content from anywhere.	Netflix, Spotify, and YouTube
Government	Technology assists governments in providing public services, improving transparency, and ensuring efficient administration.	Online Tax Payments, E-citizen portals, national ID databases

1.12 Using and Managing Personal Information



1. Email Management
2. Calendar Management
3. Task Management
4. Contact Management
5. Location Tracking
6. Cloud Storages
7. Expenses Management
8. Health and Wellbeing Management



PIM Usage	Brief Introduction	Examples of Software
Email Management	Managing emails by sending, receiving, organizing, searching, filtering spam, and storing important messages efficiently.	Gmail, Microsoft Outlook, Yahoo Mail, Zoho Mail, Apple Mail
Calendar Management	Planning and organizing schedules, events, meetings, reminders, and deadlines using digital calendars.	Google Calendar, Microsoft Outlook Calendar, Apple Calendar, Zoho Calendar, Calendly
Task Management	Creating, organizing, prioritizing, and tracking tasks or to-do lists to improve productivity.	Todoist, Microsoft To Do, Trello, Asana, Notion
Contact Management	Storing, organizing, updating, and searching personal or professional contact information easily.	Google Contacts, Microsoft People, Apple Contacts, Zoho Contacts, HubSpot CRM
Location Tracking	Tracking current or past locations for navigation, safety, travel history, or asset tracking purposes.	Google Maps, Apple Find My, Life360, Google Timeline, Waze
Cloud Storage	Storing, accessing, sharing, and backing up files online instead of using only local devices.	Google Drive, Microsoft OneDrive, Dropbox, iCloud, Box
Expenses Management	Recording, tracking, and analyzing personal income and expenses to manage budgets effectively.	Mint, Expensify, PocketGuard, Wally, Zoho Expense
Health and Wellbeing Management	Monitoring physical activity, sleep, diet, mental health, and overall wellbeing using digital tools.	Google Fit, Apple Health, Samsung Health, MyFitnessPal, Fitbit



Recall what you learnt

- 1.01 Data, Information and Knowledge
- 1.02 Difference between Data and Information
- 1.03 Characteristics of Quality Information
- 1.04 Elements of Information Systems
- 1.05 Relationship between IT and IS
- 1.06 Business Process Re-Engineering using IT
- 1.07 Impacts of IS and IT on Finance
- 1.08 Impact of IS and IT on Organizational Sectors
- 1.09 Competitive Advantages of Business Process
- 1.10 How ICT Supports Data Analytics
- 1.11 Information Systems in Society
- 1.12 Using and Managing Personal Information

