

Concepts of Information Systems and Impact of Information Systems

Part 1

AAT Level II

Information Systems in Digital Environment (ISD)

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Information Systems in Digital Environment

Concepts of information Systems

Lesson 01

Learning Outcome

- Distinguish between DATA ,INFORMATION and KNOWLEDGE
- Characteristics of quality Information
- System Concept
- Business as a System
- Information Systems and its Components

Lecturer



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What is Digital Environment

A **digital environment** is an integrated communications **environment** where **digital** devices communicate and manage the content and activities within it. The concept is based on **digital** electronics systems which are integrated and implemented for a global community.



Manual Vs Digital Information Systems

Manual	Digital
Less Efficiency	High efficiency
Low Accuracy	High Accuracy
Required physical space	Required logical space
Threats of natural disasters	Threats of Virus, Cyber attacks ect

Data

The term **data** means raw facts.

These raw facts cannot be applied to anything like decision making

These raw facts are generated as a result of day to day transactions (or activities).

These basic arises spontaneously

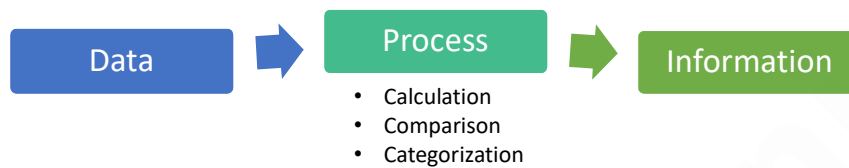
EXAMPLE from a Supermarket

Customer 01	Customer 02	Customer 013
Sugar 3 kg - 80 x 3 - 240.00	Sugar 5 kg - 80 x 5 - 400.00	Sugar 3 kg - 80 x 3 - 240.00
Laundry Soap 50 x 4 - 200.00	Rice 10 kg 120 x 10 - 1200.00	Laundry Soap 50 x 2 - 100.00
Rice 10 kg 120 x 10 - 1200.00		Rice 5 kg 120 x 5 - 600.00

Information

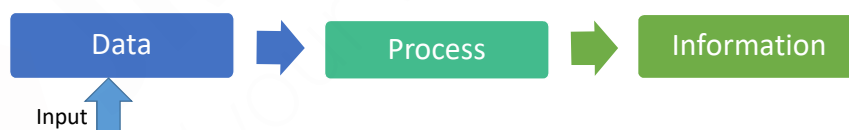
- Information is a set of data which is processed in a meaningful way according to the given requirement. Information is processed, structured, or presented in a given context to make it meaningful and useful.

- Information is the result of Data Processing



- Information must be created with some effort
- Same set of data can process in different ways to generate different types of information

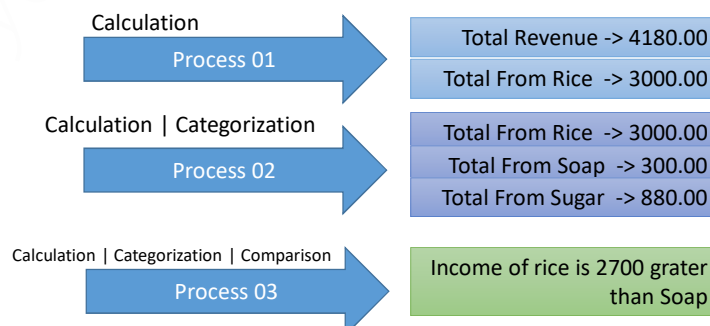
Example



Customer 01		
Sugar 3 kg	- 80 x 3	- 240.00
Laundry Soap 50	x 4	- 200.00
Rice 10 kg	120 x 10	- 1200.00

Customer 02		
Sugar 5 kg	- 80 x 5	- 400.00
Rice 10 kg	120 x 10	- 1200.00

Customer 013		
Sugar 3 kg	- 80 x 3	- 240.00
Laundry Soap 50	x 2	- 100.00
Rice 5 kg	120 x 5	- 600.00



Distinguish between data and information

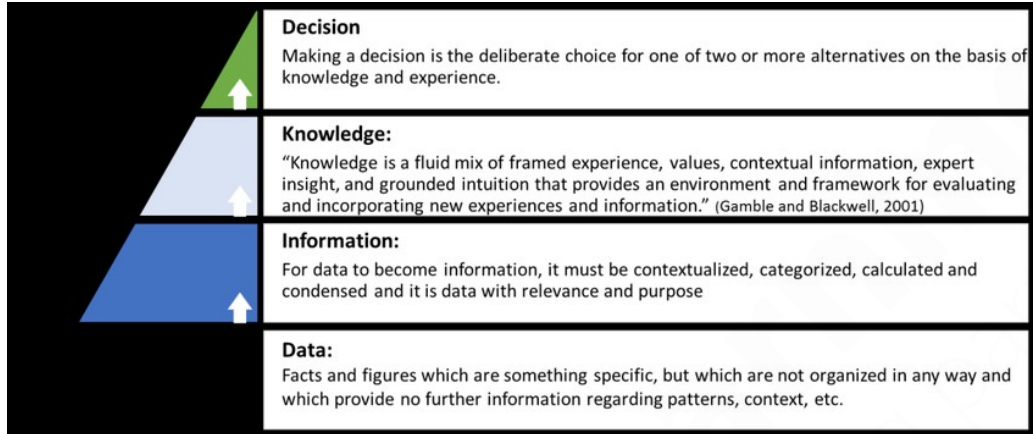
Parameter	Data	Information
Generation	Primary	Secondary
Format	Data is in the form of numbers, letters, or a set of characters.	Ideas and inferences
Meaning	Data does not have any specific purpose	It carries meaning that has been assigned by interpreting data
Interrelation	Collected	Processed
Value	No or less value	High Value
Dependence	Data depends upon the sources for collecting data.	Information depend on data
Measuring	Measured by bits and bytes	Measured in meaningful units
Support for Decision making	It can't be used for decision making	It is widely used for decision making.
Usefulness	No or less usefulness	Information is useful and valuable as it is readily available

Distinguish between data and information

Parameter	Data	Information
Feature	Data is a single unit and is raw.	Information is the product and group of data which jointly carry a logical meaning.
Example	No 75BRuwan. Galle Road, Perera , 04, Colombo, Majestic Buildings	Ruwan Perera No 75 B, Majestic Buildings Galle Road Colombo 04

Knowledge

Knowledge can be described as collected information about a person or a situation



Decision Making

Information

Decision

Total Revenue -> 4180.00

Total From Rice -> 3000.00

Total From Rice -> 3000.00

Total From Soap -> 300.00

Total From Sugar -> 880.00

Income of rice is 2700 greater than Soap

Launch marketing campaign on Soap and sugar

Consider about new soap brand

Fixing competitive price for low selling products

Increasing the customer awareness on low selling products

Characteristics of quality information

Accuracy

Information should be fair and free from bias. It should not have any arithmetical and grammatical errors. Information comes directly or in written form likely to be more reliable than it comes from indirectly (from hands to hands) or verbally which can be later retracted

Complete

It should also be complete which means facts and figures should not be missing or concealed. Telling the truth but not wholly is of no use

Cost benefit

Information should be analyzed for its benefits against the cost of obtaining it. In business context, it is not worthwhile to spend money on information that even cannot recover its costs leading to loss each time that information is obtained. In other contexts, such as hospitals it would be useful to get information even it has no financial benefits due to the nature of the business and expectations of society from it.

Characteristics of quality information

User-targeted

Information should be communicated in the style, format, detail and complexity which address the needs of users of the information. Example senior managers need brief reports which enable them to understand the position and performance of the business at a glance, while operational managers need detailed information which enable them to make day to day decisions

Relevant

Information should be communicated to the right person. It means person which has some control over decisions expected to come out from obtaining the information.

Authoritative

Information should come from reliable source. It depends on qualifications and experience and past performance of the person communicating the information

Characteristics of quality information

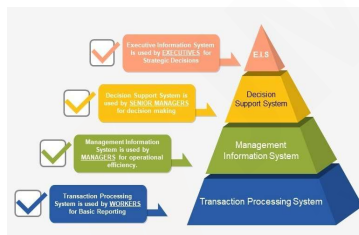
Timely

Information should be communicated in time so that receiver of the information has enough time to decide appropriate actions based on the information received. Information which communicates details of the past events earlier in time is of less importance than recently issued information like newspapers. What is timely information depends on situation to situation. Selection of appropriate channel of communication is key skill to achieve.

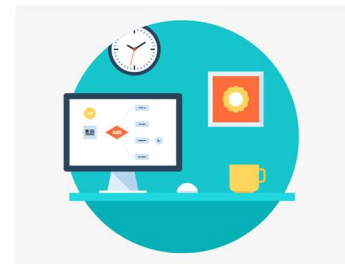
Easy to use

Information should be understandable to the users. Style, sentence structure and jargons should be used keeping the receiver in mind. If report is targeted to new-comer in the field, then it should explain technical jargons used in the report

A C C U R A T E



Information Systems



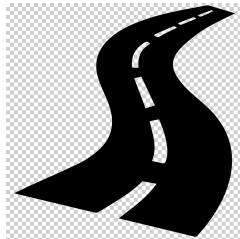
General System Concept

What is a System

System is a Collection of integrated components that working as a whole to perform a specific task.

Based on the purpose, two or more systems can integrate to gather

Example Systems



Highway System



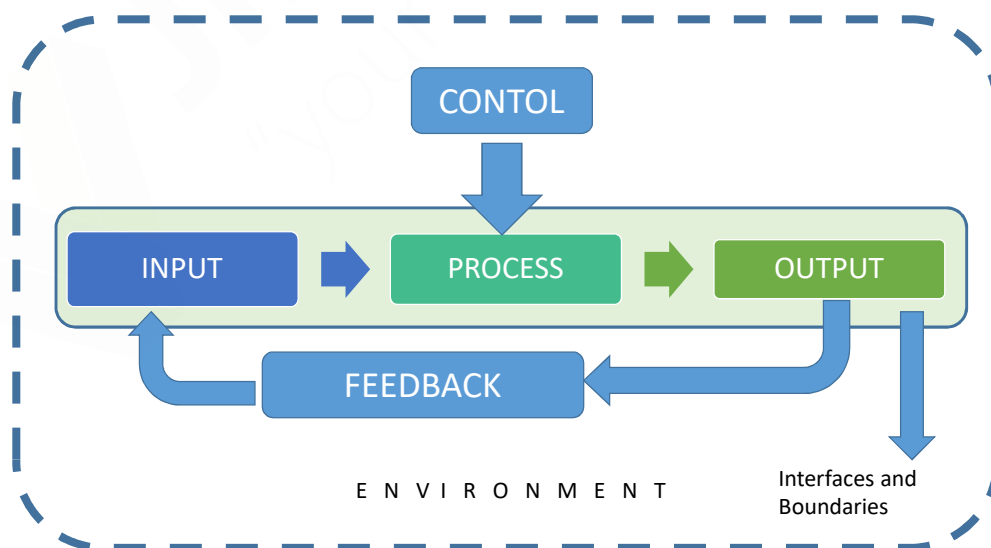
Railway System



Airway System

Transport System

General System Concept



Elements of a System

Components

An irreducible part or aggregation of parts that makes up a system; also called a subsystem.

Interrelated components

Dependence of one part of the system on one or more other system parts.

Boundary

The line that marks the inside and outside of a system and that sets off the system from its environment.

Purpose

The overall goal or function of a system.

Environment

Everything external to a system that interacts with the system.

Interfaces

Point of contact where a system meets its environment or where subsystems meet each other.

Constraints

A limit to what a system can accomplish.

Elements of a System Cont. ..

Input

Inputs are the information that enters into the system for processing.

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.

Consider online class as
a System



Information System

Collection of components that integrated to collecting data, process data (Convert data in to Information), Store, and Communication of data

Components
Computers, Smart devices, Users, Procedures etc...
Interrelated components
Computers, Smart devices, Users, Procedures etc...
Boundary
Specific Business unit or organization
Purpose
Collecting, Processing, Storing and Communication of data
Environment
Everything external to the particular system.
Interfaces
Keyboards, Biometric Readers etc...
Constraints
Access restrictions, unavailability of electricity

Information Systems

Input
Data
Output
Information

Main Elements of Information System

Hardware

Hardware refers to the computers themselves, along with any and all peripherals, including computers monitors, printers and storage devices. A CBIS may use a single or many computers.

Software

Software, tells the hardware how to function. It gathers, organizes and manipulates data and carries out instructions. Everything you do using a computer is done by the software

Procedures

Procedures are the rules, descriptions and instructions for how things are done. In computer-based information systems, procedures are frequently covered in instruction or user manuals that describe how to use the hardware, software and data.

People

who design and operate the software, input the data, build the hardware and keep it running, write the procedures and it is ultimately people who determine the success or failure of Information system

Main Elements of Information System

Data

Just as hardware cannot function without software, software cannot function without data. This is the information part of an information system, and whether that is statistical data, sets of instructions, lists of names or even graphics and animations.

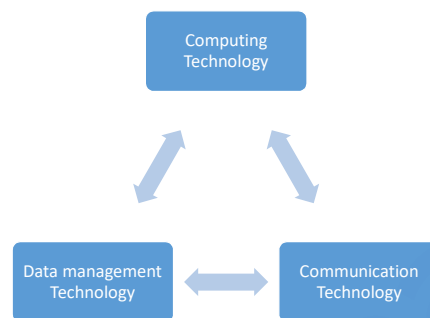
Communication

This components that allow one computer to communicate with another.

Information Technology

Information technology (IT) covers any form of technology, that is, any equipment or technique used by a company, institution, or any other organization which handles information. It incorporates computing, telecommunication technologies, and includes consumer electronics and broadcasting as it is getting more and more digitized.

Main disciplines of Information Technology



Main functions of Information Systems

Collect and preparation of data

Process Data in to information

Dissemination of Information