# Information System (IS)

## 1.    Meaning of IS

Information system is a set of components that are linked together for **collecting, storing, and processing data and for providing information**, knowledge, and digital products.

**Data:**   Data is a collection of facts, such as numbers, words, measurements, observations or even just descriptions of things.
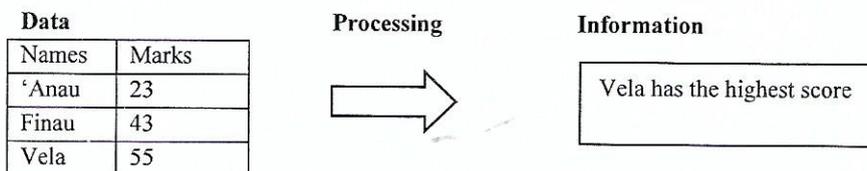
**Information is created from data**



**Information:**   Information is a collection of organised data that is useful and meaningful.

Data are symbols or signals that are input, stored, and processed by a computer, for output as meaning information.

**Example:**

**Data**

| Names | Marks |
|-------|-------|
| 'Anau | 23 |
| Finau | 43 |
| Vela | 55 |

**Processing**

**Information**
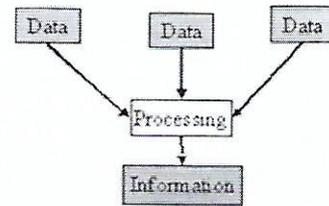
| Vela has the highest score |
|---|

### System

A system is a collection of components with a clearly defined boundary working together for a common purpose.
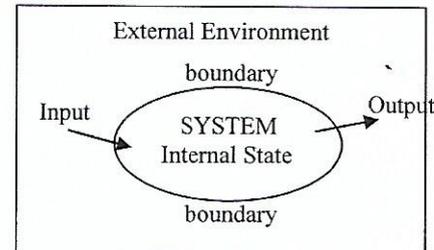
All systems have the following basic elements;

- Input, Processing and Output
- Feedback and control



## 2.    Components of an Information System

An Information System is made up of five components

i.     Hardware
ii.    Software/Work processes
ii     Data
iv     Networking/Communication
v.     People

### Key features of IS

**People:**
People are an important component for the successful operation of all information system. It includes end users and IS specialist.

End users are people who use an information system or the information it produces.
IS specialists are people who develop and operate information system. It includes system analysts, software developers etc.

**Hardware:**
Hardware includes all physical devices and material used in information processing. It includes not only machines, such as computers and peripherals but also all data storage media, etc.

**Software:**
Software includes all programs (OS and applications) which direct and control computer hardware but also the set of information processing instruction called procedure that people need.

**Data:**
Data are facts that are organised, stored, accessed by a variety of data resource management technologies. A database is usually used to store and manage Data.

**Communication:**
Communication or Networking includes communication media technologies or Network Infrastructure that can allow people access information on an Information System.

### 3.    Types of IS

There are many different use of Information Systems today but here are the common types of IS that can be found in different organisations.

-    Executive Information Systems
-    Decision Support Systems
-    Management Information Systems
-    Transactions Processing Systems

### Role of IS

Transaction Processing Systems are used for low level activities or basic transactions type tasks such as automated teller machines in banks, a payroll system, a store management system, hotel reservation system.

Management Information Systems (MIS) are management-level systems that are used by employees to manage and improve the operation of an organization. Some examples of MISs are school management information system, health management information system, asset management system and Human resource management system.

Decision Support Systems are used mainly by senior managers to analyze existing structured information for improving decision making for an organisation. Such systems are used by big companies to provide future opportunities. Examples of such systems are Financial planning systems, Decision support systems, etc.

Executive Information Systems are strategic-level information systems that are used by senior executives of companies to analyze the environment in which the organisation operates, to identify long-term trends, and to plan appropriate courses of action.

### 4.    Major Benefits of IS development

-    Companies and organisations rely on information systems to carry out and manage their operations, interact with their customers and suppliers.
-    Information systems are used by companies or schools to process financial accounts, to manage their human resources, and to reach their potential customers with online promotions.
-    Many major companies are built entirely around information systems such as eBay, a largely auction marketplace; Amazon, an expanding electronic mall (online shop) and provider of cloud computing services; Alibaba, a business-to-business e-marketplace; and Google, a search engine company that derives most of its revenue from keyword advertising on Internet searches.
-    Governments deploy information systems to provide low cost and quality services to citizens.

i.    *Class 12 Computing and ICT Resource Book*

- Digital goods such as electronic books, video products, software and online services, such as gaming and social networking, are delivered with information systems.
- Individuals rely on information systems that can be accessed online for socializing, study, shopping, banking, and entertainment.
- Information systems allow for the creation of new and interesting jobs. Computer programmers, Systems analysts, Hardware and Software developers and Web designers are just some of the many new employment opportunities in using IS.
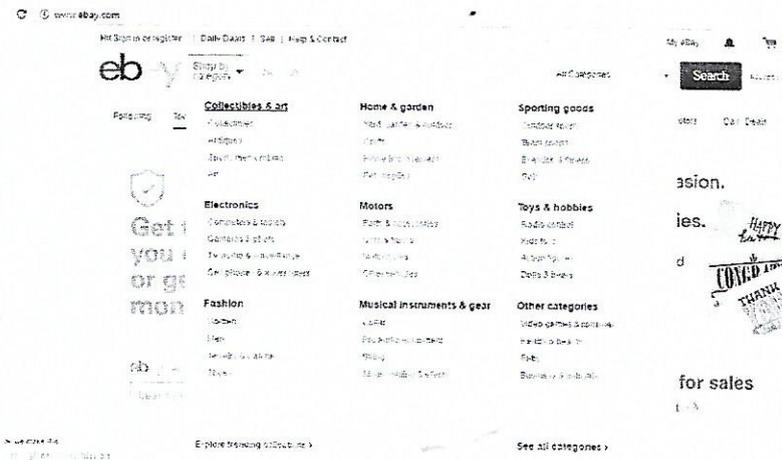


## IS in schools

Schools have to manage many different types of data such as student information, staff information, timetable, school administration, financial, etc. Instead of using different systems to manage such data many school use a school Information System. Some examples of School Information Systems are;

- School management information system mainly used for managing school administration, student admissions, courses, finances, etc.
- Library Systems to manage Library services such as borrowing and recording of books in a school Library.
- Course management system for managing courses and interactive learning.
- Communication systems used mainly for student and teachers collaborations and communication.

5.      **IS implementation** (process of installing and maintaining an Information System)

Implementing IS in the Pacific can be a challenge for the following reasons;

- Most Pacific Island Nations do not always understand the full technical and security requirement for an IS implementation.
- Most Pacific Island nations do not understand the need for Information Systems and still rely heavily on Manual systems.
- Lack of local experts in ICT and IS so many Island nations will depend more on experts from developed countries that cost a lot of money.
- Implementing IS involves fast communication networks, reliable computers and effective technical support that are not always available in small Islands Nations.
- Technical and power failures that often happen in most Island Nations can affect the installation of hardware and software.
- Failures in IS implementation can cost a lot of money.

- Users of IS in small Island Nations often failed to use IS properly and may require lots of training and support.
- Most IS will require regular software updates that may add more costs.

Successful IS implementation require both technical and operational readiness.

Operational readiness require end-user (customers), managers who influence direction and budget, and software developers must be in full collaboration to ensure successful implementation of a new information system. For small Pacific Island Nations to be ready for IS implementation, they need to;

- Understand the full technical (hardware and software) and operational (work processes and users) requirement for using an IS.
- A clear IS implementation plan.
- Have enough funding to buy resources and pay for the experts to help with the implementation and provide technical support.
- Have a training programme to train users and also staff to manage and maintain IS.

A successful IS implementation will improve the work of businesses, companies or institutions.

For examples;

- In a school, an IS implementation will improve the running of the school by allowing staff and students to have timely and quick access to student information online.
- A business that relies on e-business (online business) requires an effective IS to attract customers.
- A government department will rely on an effective IS to improve services to the public.

# ICT Infrastructure

## 1. ICT/IT Infrastructure

**Definition:** ICT infrastructure consists of all the components that enable the use of computer technologies to support the operation of a company or institution.

A basic ICT infrastructure consists of the following components:

| Components | Examples |
|---|---|
| User | Human users, such as network administrators (NA), developers, designers and generic end users |
| Software | productivity applications, Enterprise resource planning (ERP), Management information systems (MIS) |
| Hardware | Servers, computers, switches, hubs and routers, |
| Network | Network enablement, Internet connectivity, firewall and security. |