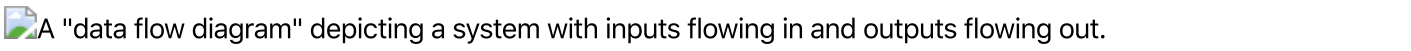
Information Systems

An **Information System** processes one or more **information inputs** into one or more **information outputs** for a specific purpose. Example system diagram:


A "data flow diagram" depicting a system with inputs flowing in and outputs flowing out.

Purpose

Information systems can perform numeric computations, facilitate communication and collaboration, automate business processes, and more. Information systems provide value to organizations by providing a competitive advantage in terms of cost, quality, speed, accuracy, and/or scale.

Information Hierarchy

Sometimes an information system outputs the same or similar information it receives. But more often a system's objective is to transform information inputs into more valuable information outputs. Information has different value, depending on where it falls within the following **Information Hierarchy**:

term	description
Data	A description of something, not necessarily organized or synthesized to provide meaning.
Information	Data that has been organized or interpreted to provide meaning and value.
Knowledge	Data and/or Information that has been organized, processed and interpreted to convey understanding, experience, accumulated learning, expertise, etc.

Classifications

Information Systems are classified based on system purpose, functionality, scope, audience, and type of information processed:

system type	general functions	specific example(s)
Operational (e.g. Transaction Processing Systems (TPS))	Sends and receives data.	An ATM.
Managerial (e.g. Business Intelligence (BI), Management Information Systems (MIS), and some Decision Support Systems (DSS))	Processes and synthesizes data into information.	A system that produces data dashboards.

system type	general functions	specific example(s)
Executive (e.g. some Decision Support Systems (DSS), Expert Systems, and Machine Learning)	Processes and synthesizes information into knowledge; emulates human decision-making and judgement processes.	A university's Student Housing Selection System, IBM Watson, Tesla Model S, Netflix and Pandora Recommendation Systems.

Components

Information systems may or may not leverage technology.

Examples of non-tech information systems include: a doctor's paper-based patient records system, a deli's paper-based ordering system, and a "tin-can telephone" system.

 a "tin-can telephone"

A computer-based information system uses a related group of technology components working together to process information inputs into information outputs for a specific purpose. Components of a computer-based information system generally include:

component	description
People	Individuals who use the system.
Processes	Procedures the system performs or facilitates.
Hardware	Physical devices such as computers, servers, sensors, monitors, printers, speakers, etc. which perform as instructed by the system's software.
Software	Written instructions which govern the system's logic.
Network	Facilitates connection and communication between system components, often a computer network such as the Internet.
Datastore	A storage place for the system's information, like a **Database** or file cabinet.