

What is an Information System?

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Key concepts, components, types, and real-world examples

1. Definition

An **Information System (IS)** is a coordinated set of resources that collects, stores, processes, and distributes information to support decision-making, coordination, control, analysis, and visualization within an organization or for an individual user.

2. Core Components

Component	What It Is	Typical Examples
People	Users, managers, analysts, IT staff, and anyone who interacts with the system.	Employees entering sales data, IT support technicians.
Hardware	Physical devices that capture, store, and transmit data.	Servers, desktops, laptops, smartphones, IoT sensors, network routers.
Software	Applications and system programs that process data.	ERP modules, CRM tools, databases, operating systems, mobile apps.
Data	Raw facts that are transformed into useful information.	Customer records, transaction logs, inventory counts.
Procedures	Rules, policies, and workflows that govern system use.	Data entry standards, backup schedules, access-control policies.
Network/Connectivity	Infrastructure that enables data exchange between components.	LAN, WAN, cloud services, VPNs, internet connections.

All six elements must work together; a weakness in any one compromises the whole system.

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3. Functions of an Information System

1. **Data Capture** – Input from manual entry, automated sensors, or external feeds.
 2. **Data Storage** – Organized in databases, data warehouses, or file systems.
 3. **Data Processing** – Sorting, aggregating, analyzing, or transforming data.
 4. **Information Output** – Reports, dashboards, alerts, or automated actions.
 5. **Feedback & Control** – Monitoring performance and adjusting processes accordingly.
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4. Types of Information Systems

Type	Primary Users	Typical Purpose	Example
Transaction Processing System (TPS)	Operational staff	Capture and process daily transactions	Point-of-sale (POS) system
Management Information System (MIS)	Middle management	Summarize operational data for routine decisions	Weekly sales summary reports
Decision Support System (DSS)	Analysts, senior managers	Provide interactive models & simulations	Forecasting tool for inventory
Executive Information System (EIS)	Top executives	Deliver high-level, real-time performance indicators	Executive dashboard with KPIs
Enterprise Resource Planning (ERP)	Entire organization	Integrate core business processes (finance, HR, supply chain)	SAP, Oracle ERP Cloud
Customer Relationship Management (CRM)	Sales & marketing	Manage interactions with current and prospective customers	Salesforce, HubSpot
Knowledge Management System (KMS)	Knowledge workers	Capture, store, and retrieve organizational knowledge	Confluence, SharePoint
Supply Chain Management (SCM)	Logistics & procurement	Coordinate supplier, production, and distribution activities	JDA, Kinaxis

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Type	Primary Users	Typical Purpose	Example
Business Intelligence (BI) System	Analysts, executives	Transform data into actionable insights	Power BI, Tableau

Systems can overlap; many modern platforms combine several functions (e.g., an ERP with embedded BI).

5. Information System Life Cycle (ISLC)

1. **Planning** – Define objectives, scope, and feasibility.
2. **Analysis** – Gather requirements; model current processes.
3. **Design** – Architect hardware, software, data structures, and interfaces.
4. **Implementation** – Build, test, and deploy the system