

Introduction to Information Systems

Introduction to Information Systems (IS)

Key concepts, components, and the role of IS in organizations

1. What Is an Information System?

Definition	Core Idea
Information System = a set of interrelated components that collect, process, store, and disseminate data to support decision-making, coordination, control, analysis, and visualization in an organization.	It is more than just technology – people, processes, and data are equally essential.

2. Major Components of an IS

Component	Description	Typical Examples
Hardware	Physical devices that input, process, store, and output information.	Servers, PCs, mobile devices, networking gear, IoT sensors.
Software	System and application programs that direct hardware to perform tasks.	Operating systems, ERP, CRM, database management systems, analytics tools.
Data	Raw facts that are processed into meaningful information.	Customer records, transaction logs, sensor readings.
People	Users and IT professionals who create, manage, and use the system.	Executives, analysts, developers, end-users, support staff.
Processes	Structured activities that transform data into information.	Order-to-cash cycle, payroll processing, reporting workflows.
Network	Communication infrastructure linking hardware and users.	LAN/WAN, Internet, cloud connectivity, VPNs.

3. Types of Information Systems

System Type	Primary Users	Main Purpose
Transaction Processing System (TPS)	Operational staff	Capture and process day-to-day transactions (e.g., sales, inventory updates).

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System Type	Primary Users	Main Purpose
Management Information System (MIS)	Middle managers	Produce routine reports (e.g., sales summaries, budget vs. actual).
Decision Support System (DSS)	Managers & analysts	Provide interactive tools, models, and data for semi-structured decisions.
Executive Information System (EIS)	Top executives	Deliver high-level, real-time dashboards and key performance indicators (KPIs).
Enterprise Resource Planning (ERP)	Organization-wide	Integrate core business functions (finance, HR, supply chain) into a single platform.
Customer Relationship Management (CRM)	Sales, marketing, service	Manage interactions with current and prospective customers.
Knowledge Management System (KMS)	Knowledge workers	Capture, store, and share organizational knowledge and best practices.
Supply Chain Management (SCM)	Procurement, logistics	Coordinate flow of goods, information, and finances across the supply chain.

4. The IS Development Life Cycle (SDLC)

1. **Planning** – Define scope, objectives, feasibility, and resources.
2. **Analysis** – Gather requirements; model current processes.
3. **Design** – Specify system architecture, data models, user interfaces.
4. **Implementation** – Code, configure, test, and deploy the system.
5. **Maintenance** – Ongoing support, upgrades, and performance tuning.

Agile and *DevOps* are modern variations that emphasize iterative delivery and continuous integration/continuous deployment (CI/CD).

5. Strategic Role of Information Systems

Strategic Dimension	How IS Contributes
Operational Efficiency	Automates repetitive tasks ? lower cost, faster cycle times.
Decision Quality	Provides accurate, timely data ? better forecasting and risk assessment.

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Strategic Dimension

How IS Contributes

Competitive

Enables unique capabilities (e.g., personalized recommendations, real?

Advantage

time analytics