Introduction to Information Systems

From data to decisions

Agenda

1. Overview
2. Definition & Components
3. Evolution of IS
4. Data vs. Information
5. Types of Information Systems
6. Case Study
7. Knowledge Check (MCQs)
8. Wrap-up

Roadmap

Why Information Systems matter

- Enable efficient **data management**, **communication**, and **decision-making**
- Combine **people**, **technology**, and **processes** to achieve strategic goals
- Impact across sectors:
  - Healthcare, finance, education, government

Big idea

Information Systems turn raw data into decisions at scale.

Roadmap

Definition

Information System (IS)

A structured combination of **people**, **hardware**, **software**, **data**, and **processes**.

Core components

- **People**: users and stakeholders
- **Hardware**: devices, servers, networks
- **Software**: apps and operating systems
- **Data**: raw facts
- **Processes**: rules and procedures

Quick check

Which component is easiest to overlook in real projects?

- People? Processes?

Roadmap

Evolution timeline

1. **Pre-Computer Era**: manual records and calculations
2. **Mainframe Era (1950s–1970s)**: centralized computing
3. **PC Era (1980s–1990s)**: standalone computing at scale
4. **Networking Era (1990s–2000s)**: internet + connectivity
5. **Cloud & AI Era (2000s–present)**: analytics, automation, elastic infrastructure

Roadmap

Data vs. Information

Data	Information
Raw, unorganized facts	Processed data with meaning
• Example: a list of sales transactions	• Example: a monthly sales report showing trends

Key point

Organizing relationships among data creates information that supports decisions.

Roadmap

Types of Information Systems (at a glance)

System	Primary purpose
TPS	Capture day-to-day transactions
ERP	Integrate core business functions
MIS	Routine reports for managers
DSS	Analyze data for complex decisions
AI in IS	Automation + smarter decisions

Transaction Processing Systems (TPS)

- Records high-volume business transactions (sales, payments)
- Priorities: **accuracy**, **reliability**, **speed**

Enterprise Resource Planning (ERP)

- Integrates functions like **finance**, **HR**, and **supply chain**
- Benefits: single source of truth; standardized processes

Management Information Systems (MIS)

- Produces **routine reports** (KPIs, summaries)
- Supports **middle management** decision-making

Decision Support Systems (DSS)

- Supports **complex, semi-structured** decisions
- Uses models + data analysis on large datasets

AI in Information Systems

- Boosts efficiency through automation and learning from data
- Examples:
  - Chatbots for customer service
  - Predictive analytics for forecasting
  - Automated fraud detection in banking

Roadmap

Case study: AI-driven DSS for inventory

Scenario

A multinational retail company deploys an AI-driven DSS to manage inventory.

- Analyzes sales trends and forecasts demand
- Automates supply chain operations
- Outcomes: reduced costs; improved customer satisfaction

Roadmap

MCQ 1

What is the primary purpose of an Information System?

1. To store physical documents
2. To facilitate data collection and decision-making
3. To replace human labor
4. To eliminate all errors

Answer: B

MCQ 2

What is the difference between data and information?

1. Data is structured, while information is raw
2. Data is raw, while information is processed and meaningful
3. There is no difference
4. Data is always numerical, while information is textual

Answer: B

MCQ 3

Which of the following is not a component of an Information System?

1. People
2. Software
3. Automobiles
4. Hardware

Answer: C

MCQ 4

Which type of system helps in day-to-day business transactions?

1. DSS
2. TPS
3. ERP
4. AI

Answer: B

MCQ 5

What does ERP stand for?

1. Enterprise Resource Planning
2. Electronic Retail Process
3. Employee Record Program
4. Executive Review Panel

Answer: A

MCQ 6

Which system is primarily used for high-level strategic decision-making?

1. TPS
2. DSS
3. ERP
4. MIS

Answer: B

MCQ 7

What does AI bring to modern information systems?

1. Increased errors
2. Enhanced automation and decision-making
3. Slower performance
4. No significant benefits

Answer: B

MCQ 8

What is a key characteristic of cloud-based information systems?

1. They require on-premise servers
2. They provide scalable and remote access
3. They are only for government use
4. They do not store data

Answer: B

MCQ 9

What is an example of AI in information systems?

1. Handwritten record-keeping
2. Manual data entry
3. Predictive analytics for forecasting trends
4. Filing paper reports

Answer: C

MCQ 10

What is a key benefit of MIS?

1. Provides routine reports for management decision-making
2. Replaces all human employees
3. Only supports finance-related decisions
4. Works only in small businesses

Answer: A

Roadmap

Takeaways

- IS = people + tech + data + processes for better decisions
- Data becomes information when it is organized and interpreted
- Different IS types support different levels of the organization
- AI and cloud are accelerating what IS can do

Questions?

Q&A