

Management Information System

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2. Type of Information System & Hardware Basic



Learning Objectives

By the end of this session, students should be able to:

- Identify major types of information systems.
- Understand how different systems support different management levels.
- Explain how MIS supports decision-making.
- Distinguish TPS, MIS, DSS, ESS, and other systems.
- Apply knowledge to business situations.



Imagine you are a manager in a company.

Every day you receive:

**hundreds of transaction records, customer complaints, sales reports,
financial statements, & inventory updates.**

How do you process all this information?

Real Organizational Problem

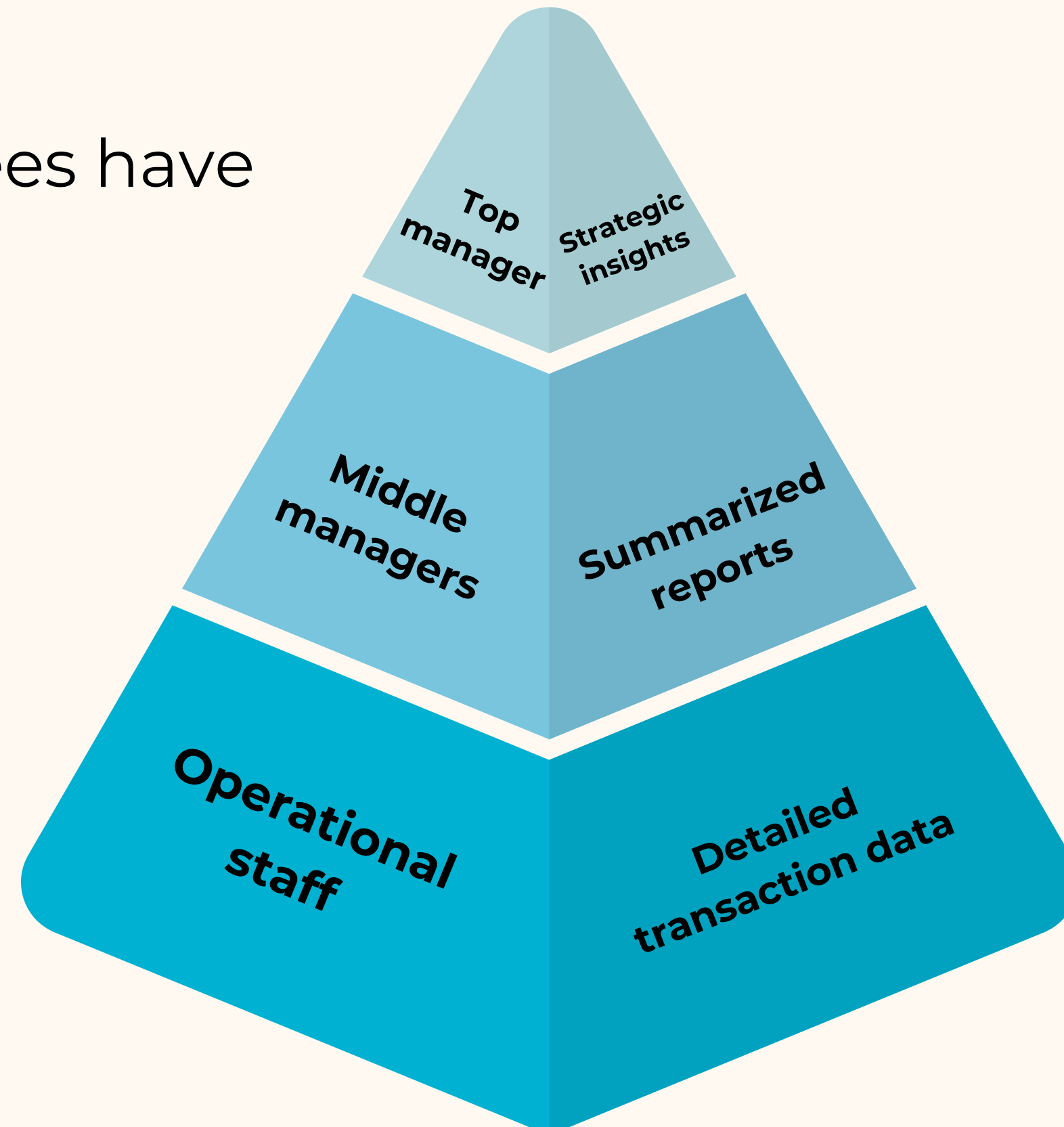
Without proper systems:

- data scattered across departments
- duplicate records
- outdated information
- difficult to make decisions

Managers need structured information systems.

Why Different Systems Are Needed

Different employees have different needs:



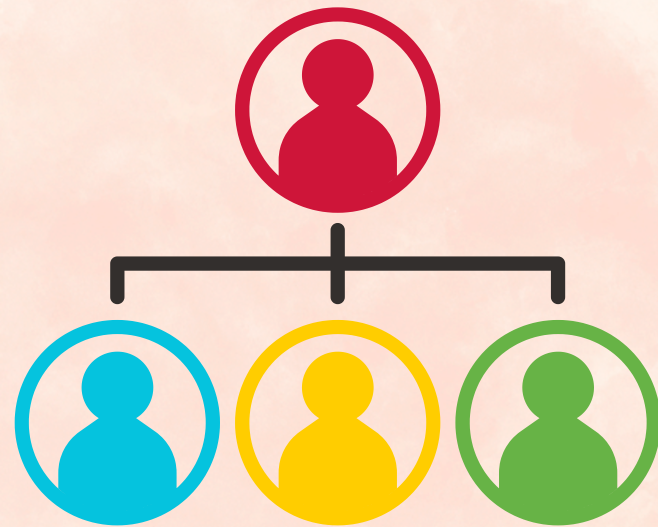
One system alone cannot serve all needs

Definition

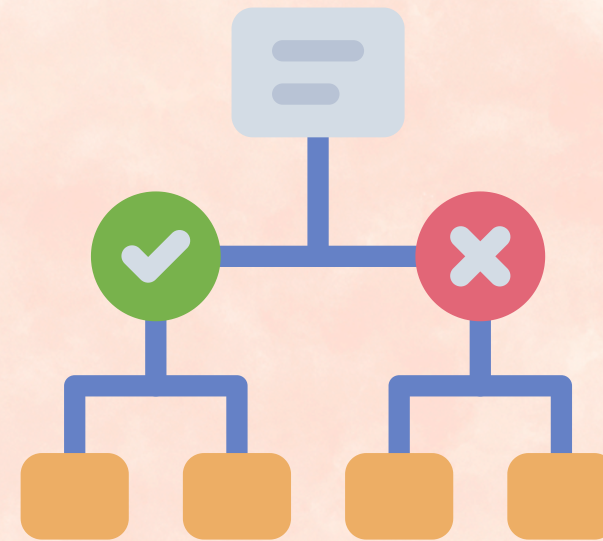
An Information Systems is a system that collects, processes, stores, and distributes information to support decision-making and control.

Classification of Information Systems

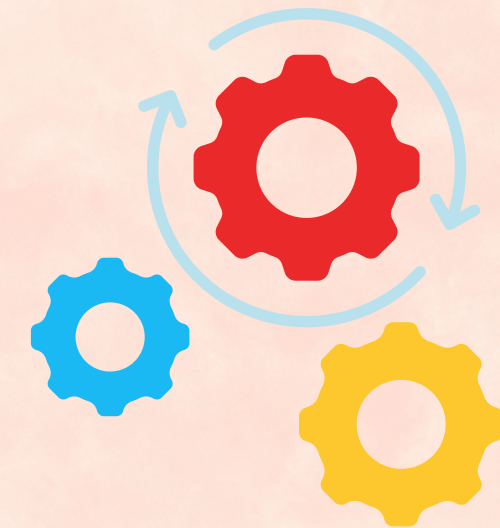
Information systems are classified based on:



Organizational level



Type of decision



Business function

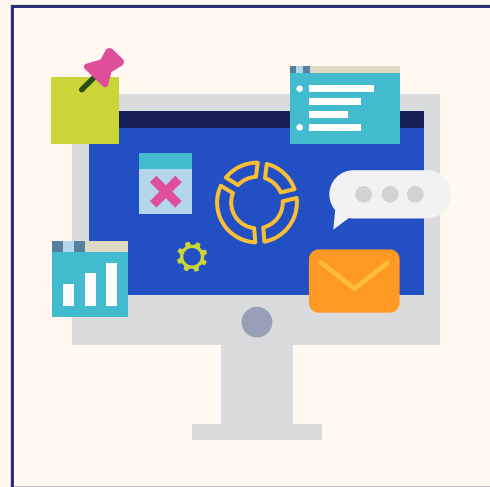
6 Main Type of Information Systems



TPS
Transaction Processing Systems



MIS
Management Information System



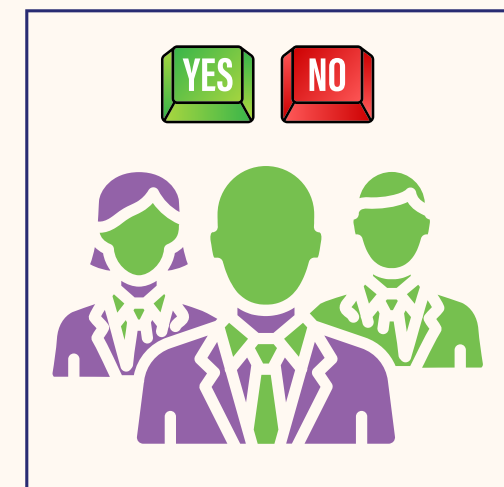
OAS
Office Automation Systems



DSS
Decision Support System



KMS
Knowledge Management Systems



ESS
Executive Support Systems

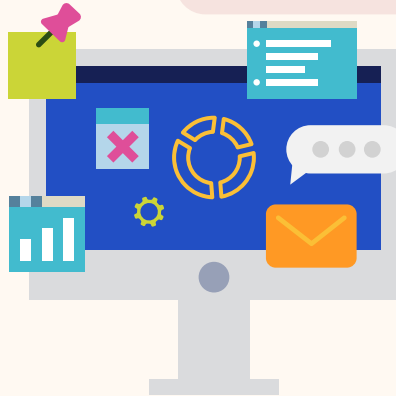
6 Main Type of Information Systems



TPS

Transaction Processing Systems

Raw Scattered Data



OAS

Office Automation Systems



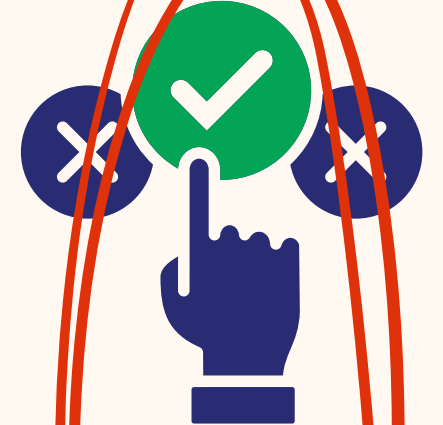
KMS

Knowledge Management Systems

Organize & Summarize

MIS

Management Information System



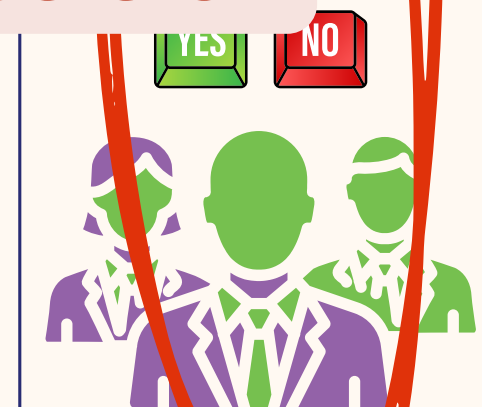
DSS

Decision Support System

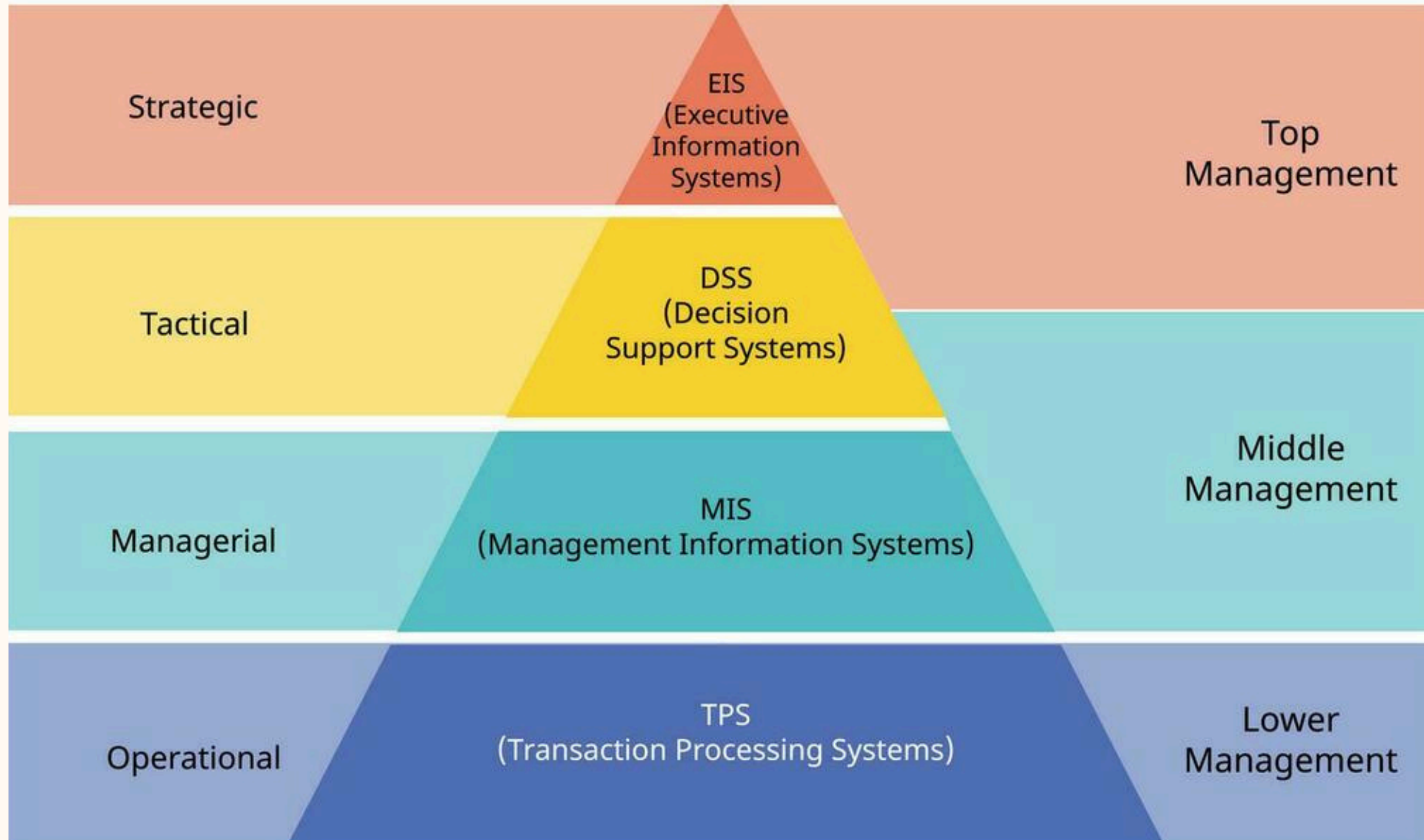
Better Decision

ESS

Executive Support Systems



Pyramid of Information Systems



Source: <https://www.vecteezy.com/vector-art/35944872-types-of-information-system-for-mis-tps-dss-and-eis-level-of-decision-making-pyramid>

TRANSACTION PROCESSING SYSTEM (TPS)

What is TPS?

TPS is a system that records daily routine transactions within an organization.



The main objectives of TPS are:

- To produce accurate data
- To ensure fast and real-time processing
- To maintain the security and consistency of transactions

Characteristics of TPS

High volume
Routine transactions
Structured data
Accuracy important

Example of TPS



Supermarket purchase



ATM withdrawal

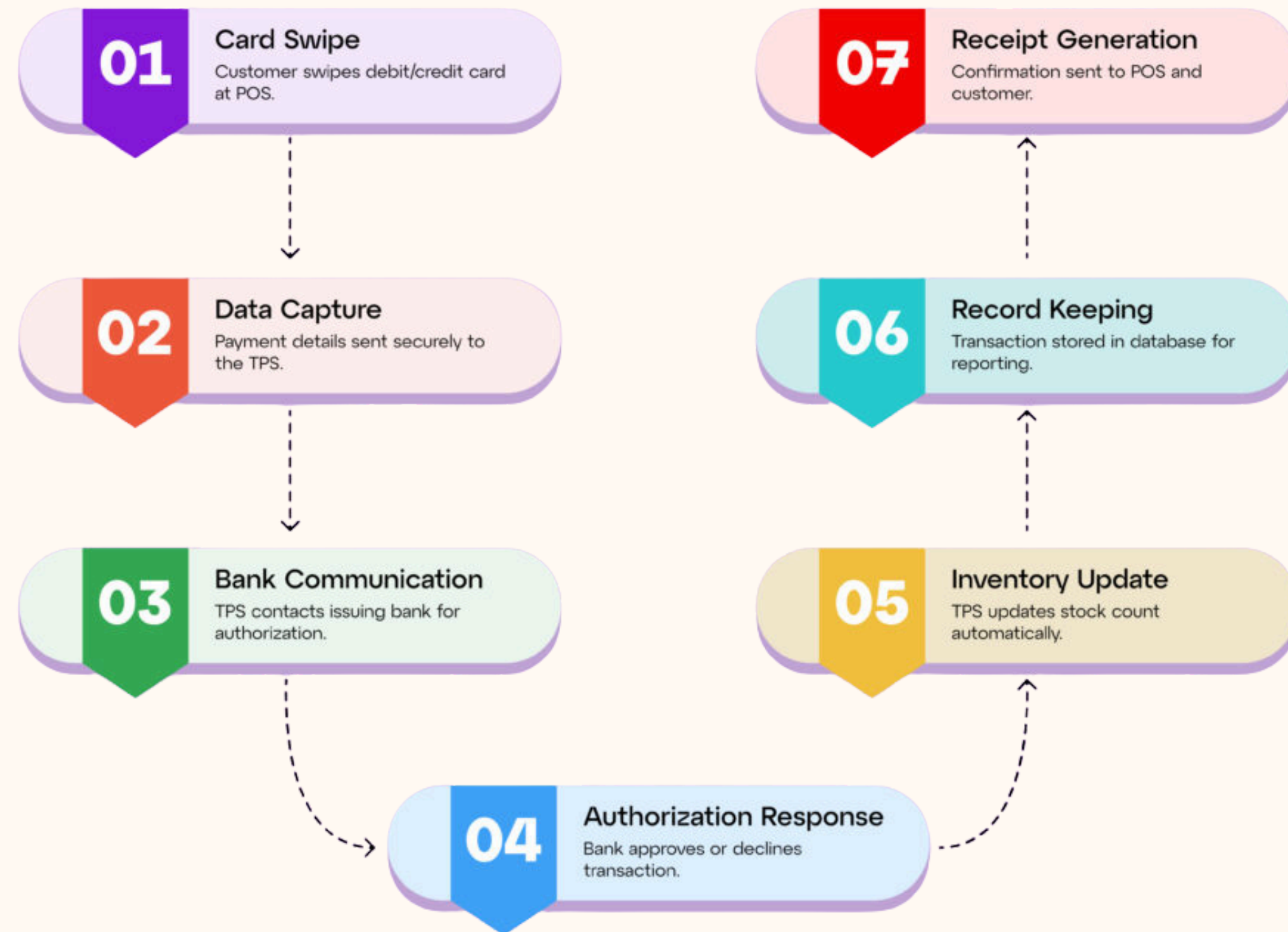


Online ticket booking

Who Uses TPS?

1. **Business:** Retail, banks, airlines, and e-commerce platforms.
2. **Government Agencies:** Tax collections, social security systems
3. **Individuals:** Through apps like mobile banking or transferring with their bank account.
4. **Industries:** Healthcare (patient records), logistics (inventory tracking)

How TPS works (flow chart)



Case Study: Shopee



- **Customer checking out product:**

Transaction Processing System (TPS) automatically records the buyer's information, product details, and quantity, generates an order number, updates the seller's inventory by reducing stock, verifies payment and stores the transaction time.

- **Shipping product:**

Transaction Processing System (TPS) automatically records the tracking number, updates the order status to "shipped," stores the courier information, and enables real-time package tracking.

- **Seller receive payment**

The Transaction Processing System (TPS) calculates the marketplace commission, transfers the remaining funds to the seller, and records the financial transaction. This process ensures that payments are completed accurately, and that all financial activities are properly documented in the system.

MANAGEMENT INFORMATION SYSTEM (MIS)

What is TPS?

MIS is a computer-based system that is used to collect, process, store, and present information to support management decision-making in an organization.

MIS answers:

What happened?

What is the performance?



MIS Output

Monthly sales report.

Budget summary.

Production report.

Performance report.

MIS supports monitoring and control.

General Function of MIS

1

SUPPORTING DECISION MAKING

MIS provides information that helps managers:

- Evaluate performance
- Compare targets with actual results
- Make appropriate decisions

2

SUPPORTING PLANNING

MIS helps management in:

- Budget planning
- Production planning
- Human resource planning

3

SUPPORTING CONTROL OF OPERATIONS

MIS enables managers to:

- Monitor daily activities
- Detect deviations or problems
- Take corrective actions when necessary

4

IMPROVING EFFICIENCY

With MIS:

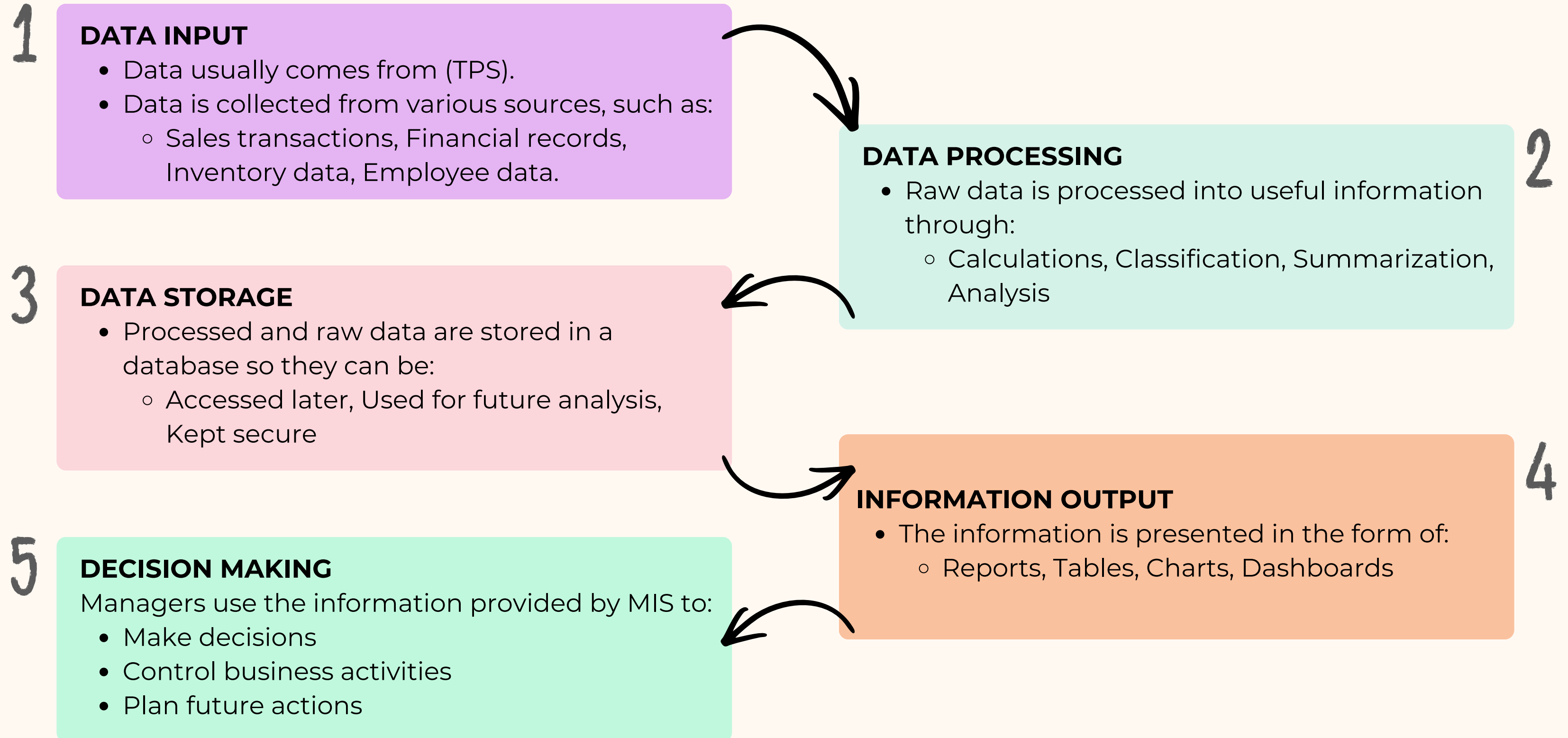
- Reporting becomes faster
- Data is well organized
- Human errors are reduced

MIS Characteristics

MIS features:

- Uses TPS data.
- Produces periodic reports (not real-time).
- Supports structured decisions.
- Used by middle managers.

How MIS Works



DECISION SUPPORT SYSTEM (DSS)

What is DSS?

DSS is a system that helps managers make complex decisions using data and models.

A "smart assistant" that helps **decision makers, especially for managers, leaders, supervisors, analysts, or planners**, try out various scenarios with data before making decisions.



DSS Characteristics

Uses analytical models.

Supports "what-if" analysis.

Helps evaluate alternatives.

Interactive system.

Solve Semi-Structured problems.

DSS Example

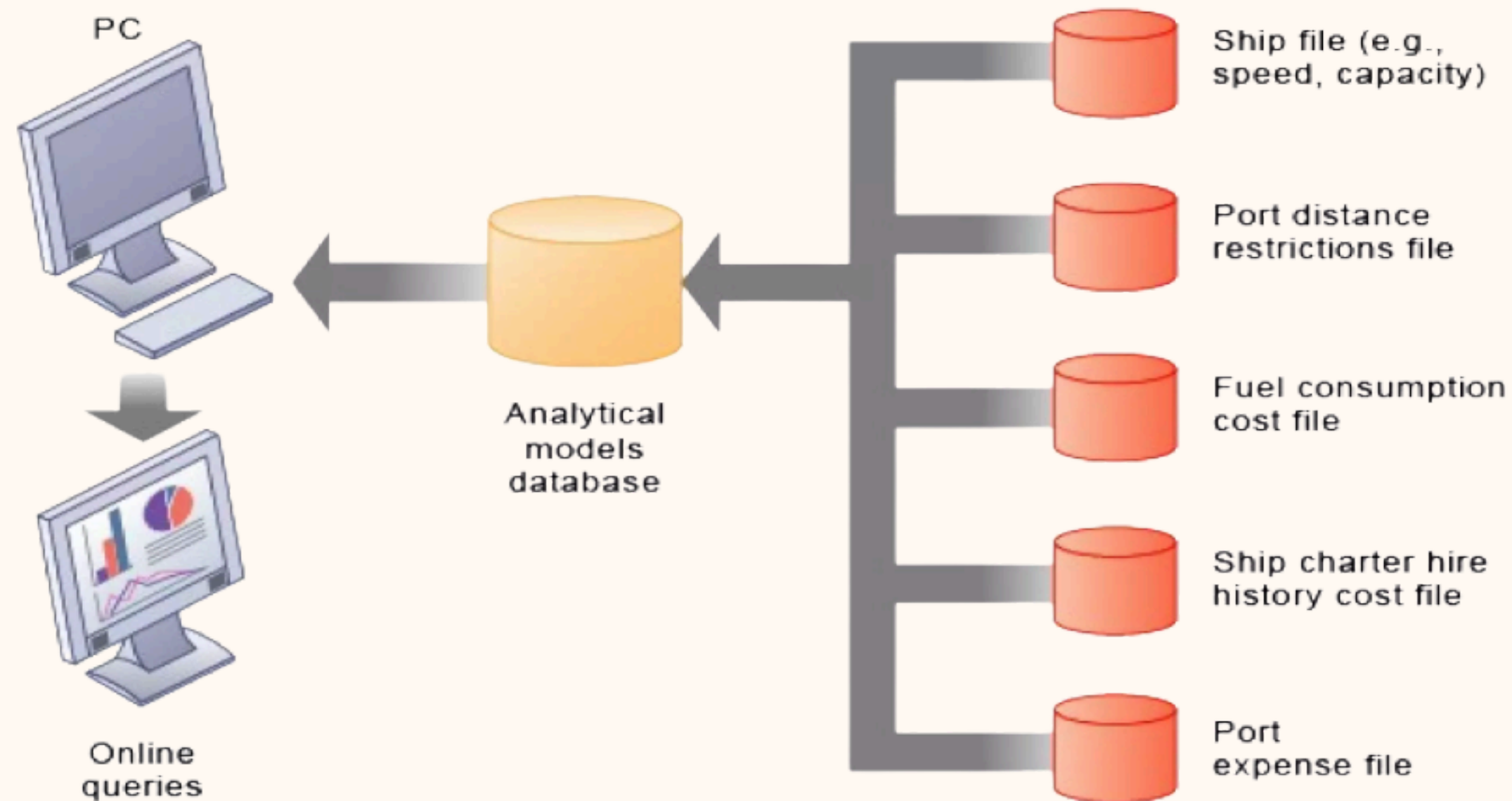


What happens if price increases 10%?
What happens if cost decreases?



DSS helps simulate scenarios.

DSS Example: Voyage Estimating Decision Support System



DSS Tools

- Data Visualization tools.
- Forecasting tools/predictive Analytics tools.
- Simulation models / Scenario Analysis Tools.
- Optimization Tools.
- Decision trees and Decision Tree Tools.
- Collaboration and Communication tools.
- Expert Systems and Knowledge-Based Systems.



EXECUTIVE SUPPORT SYSTEM (ESS)

What is ESS?

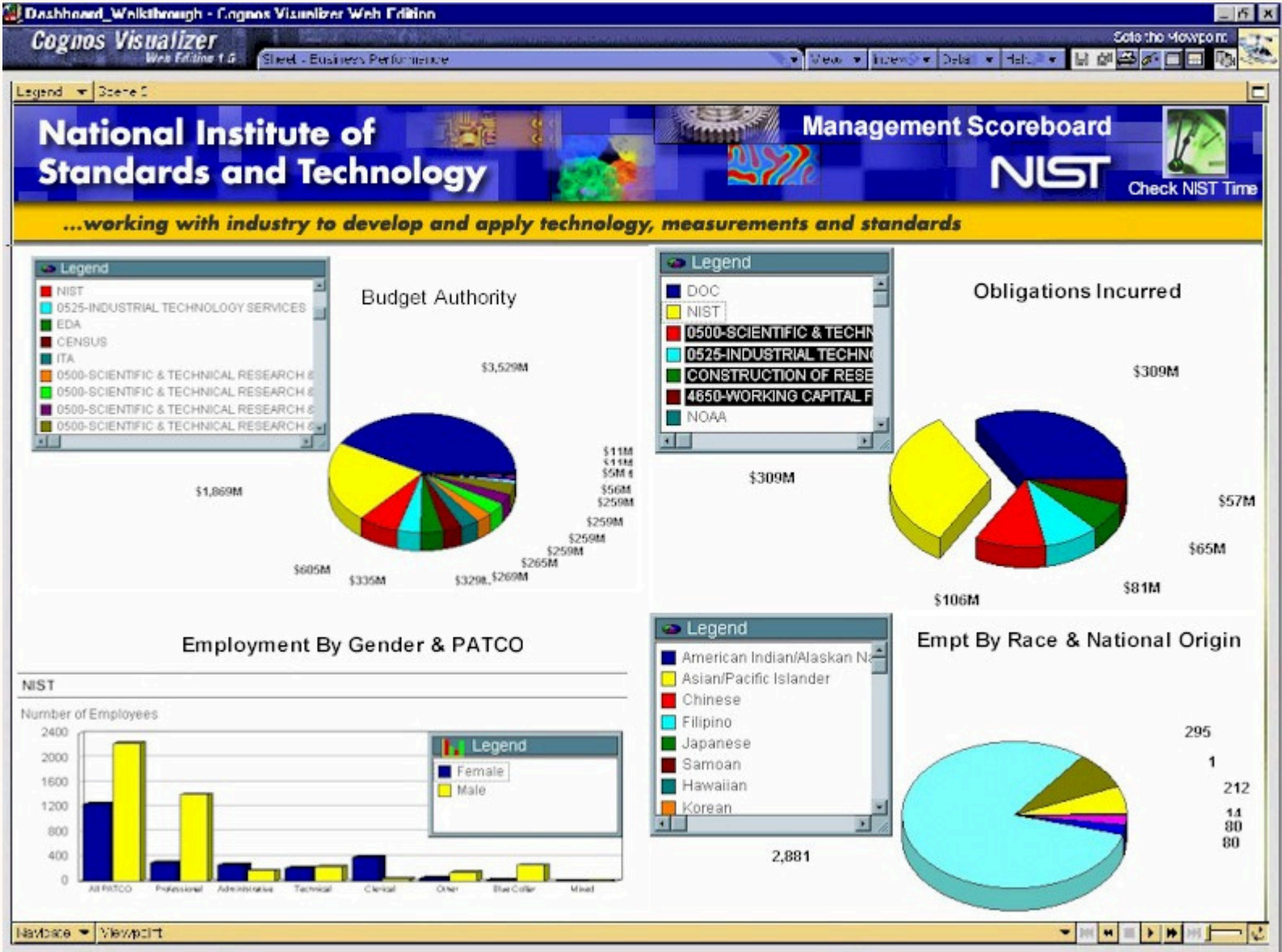
ESS is a system that supports top-level executives in strategic decision-making.



ESS Characteristics

ESS provides:
High-level summaries.
Trend analysis.
External data.
Visual dashboards.

ESS Example



Source: <https://eternalsunshineoftheismind.wordpress.com/wp-content/uploads/2013/02/blog.jpg>



Source: <https://www.forbes.com/sites/davelavinsky/2013/09/06/executive-dashboards-what-they-are-why-every-business-needs-one/>

ESS Example

Example strategic decisions:

Enter new market.

Launch new product.

Increase investment.

ESS helps executives see trends.

KNOWLEDGE MANAGEMENT SYSTEM (KMS)

What is KMS?

KMS is a system that captures, stores, organizes, shares, and reuses organizational knowledge.

Knowledge includes:

best practices, guidelines, training materials, lessons learned, and organizational experience.



Purpose of KMS

- Capture Organizational Knowledge and Experience.
- Support Learning and Continuous Improvement.
- Help Employees Solve Problems.
- Support Better and More Consistent Decision Making.
- Encourage Knowledge Sharing and Collaboration.

Benefit of KMS

- Knowledge is not lost when employees leave the company.
- Employees can work faster because information is easy to find.
- The same mistakes can be avoided in the future.
- Encourages knowledge sharing and innovation.
- New employees can learn and adapt more quickly

KMS Flow in Organization

- Employee Experience
- Document Knowledge
- Store in Shared System
- Organize Clearly
- Share with Team
- Reuse Knowledge
- Improve Work Quality

Knowledge should flow, not stay with one person.



KMS in Organization

- KMS happens when organization:
- documents knowledge
- organizes information clearly
- encourages knowledge sharing culture
- allows knowledge to be reused

Technology alone is not KMS.

KMS Example:

Using Google Drive in Our Company

Google Drive can function as a Knowledge Management System (KMS) when used intentionally to capture and share organizational knowledge.

How Google Drive supports KMS in our company:

- Store important documents in a centralized location
- Organize files into structured folders (SOP, templates, training materials)
- Share knowledge across departments
- Allow team members to learn from past projects
- Ensure knowledge is not lost when employees leave
- Provide access to updated and standardized documents



Example of Poor Folder Structure

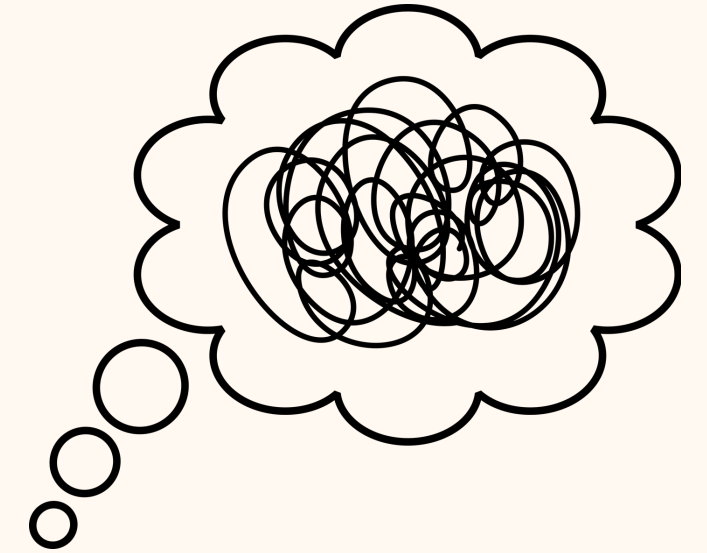
Problems:

- difficult to find files
- duplicate documents
- unclear naming
- knowledge not reusable

Example:

Drive Folder:

- Documents
- New Folder
 - Final
 - Final2
 - Final version latest
 - Misc
 - Untitled document



Knowledge exists but cannot be used effectively.

Example of Good Folder Structure

Organized Knowledge Structure:

Company Knowledge

- 01_SOP
- 02_Templates
- 03_Training Materials
- 04_Project Documentation
- 05_Policies
- 06_Lessons Learned
- 07_Reports

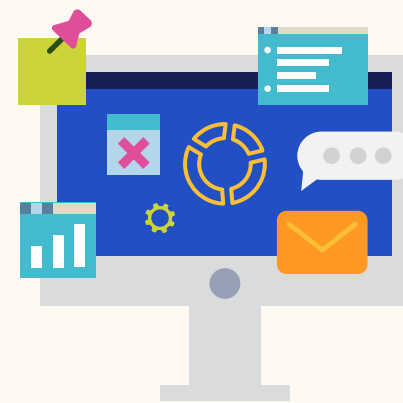
Benefits:

- easy to find information
- knowledge reusable
- faster onboarding of new employees
- standardized work quality

OFFICE AUTOMATION SYSTEM (OAS)

What is OAS?

OAS is a computer-based information system that supports office activities by automating administrative and operational tasks, helping manage documents, communication, and data efficiently.

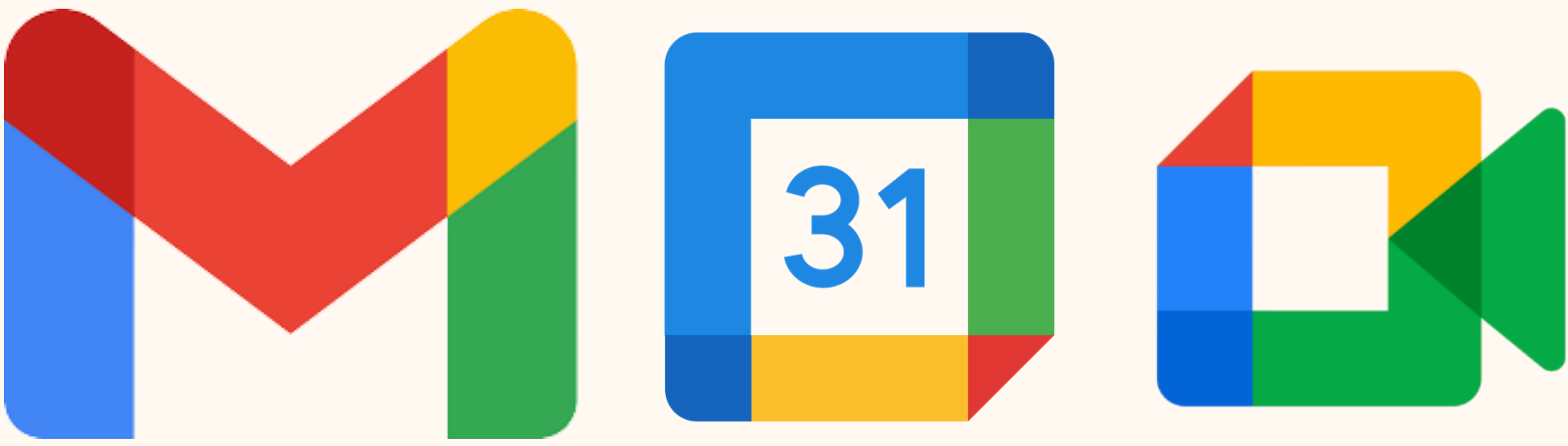


Purpose of OAS

- Automates Routine Office Tasks.
- Increases Employee Productivity.
- Speeds Up Administrative Processes.
- Reduces Human Error.
- Saves Time and Operational Costs.
- Improves Communication Between Employees.



Example of OAS



zoom

INTEGRATION OF SYSTEMS

How Systems Work Together

- TPS → provides data
- MIS → summarizes data
- DSS → analyzes data
- ESS → supports strategy

All systems connected.

Example Scenario Integration





Why can't organizations rely only on TPS?

Activity:

A company wants to:

Record daily sales.

Analyze customer trends.

Prepare a monthly report.

Plan expansion strategy.

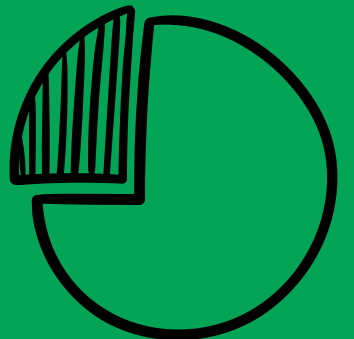
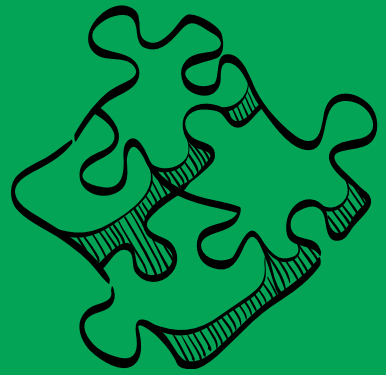
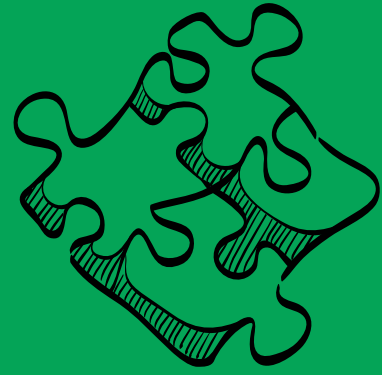
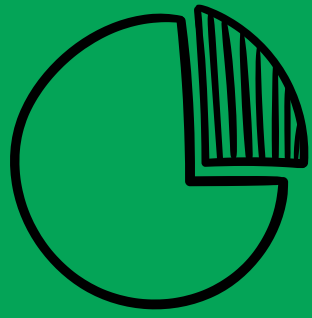


Question:

Which system is used?

Key Takeaways

- Organizations use different types of Information Systems because each management level has different information needs
- There are 6 types of Information Systems: **TPS, MIS, DSS, ESS, KMS, & OAS.**
- **All systems are important** because they support different organizational needs:
 - TPS → operational activities
 - MIS → performance monitoring
 - DSS → decision analysis
 - ESS → strategic direction
- No single system can support all levels effectively.
- In Indonesia, the adoption of information systems supports digital transformation across e-commerce, banking, education, startups, and SMEs
- Understanding types of Information Systems helps future managers choose the right system for the right business need.



Thankyou!
- Type of Information System -