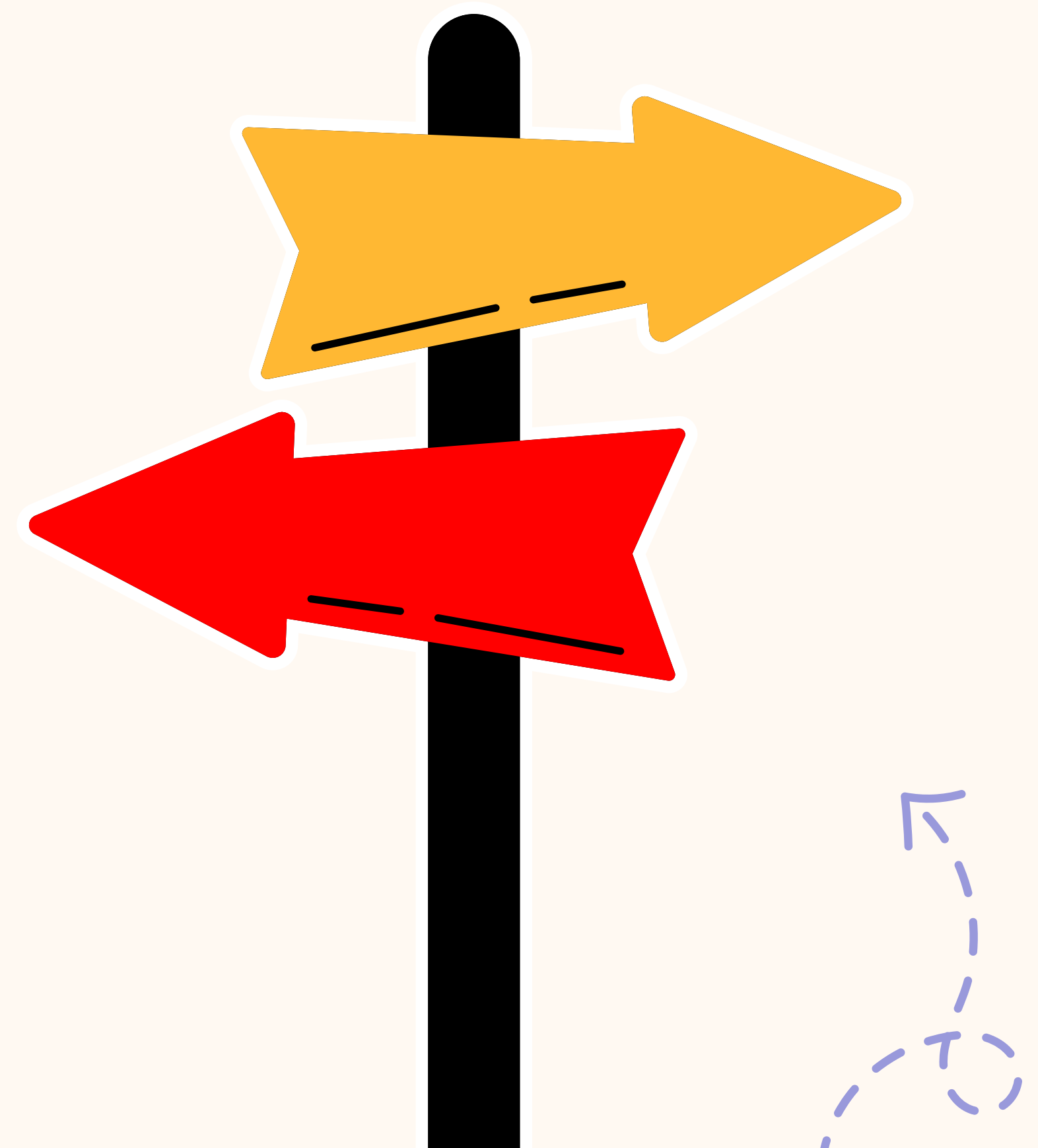


Management Information System

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6. Decision Making & MIS



Learning Objectives

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

- Explain the concept of decision-making in organizations.
- Differentiate structured, semi-structured, and unstructured decisions.
- Describe how MIS supports decision-making.
- Distinguish MIS, DSS, and ESS.
- Apply decision-making steps in real scenarios.



Imagine:

A retail company notices:
Sales have dropped by 20% in the last 3 months
Customer visits are decreasing
Competitors are growing

Manager asks:

“What is happening? What should we do?”

Think Like a Manager



If you are the manager:

What questions would you ask?

What data do you need?

What decisions must you make?

Examples:

Is the price too high?

Are customers switching to competitors?

Is our marketing ineffective?

The Real Challenge

The problem is NOT just:
“Sales are declining.”

The real challenge is:
Understanding why
Deciding what to do next



**A good decision can enable the organization
to thrive and survive long-term,**

**while a poor decision can lead a business
into bankruptcy.”**

Reality in Organizations

Managers face:



Uncertainty



Limited time



Incomplete
information

This makes decision-making difficult.

How can managers make better decisions in complex situations?

What is a Decision?



Image: Canva Library [olaser](#) from Getty Images Signature

What is Decision?

Decision:

A choice among two or more alternatives.

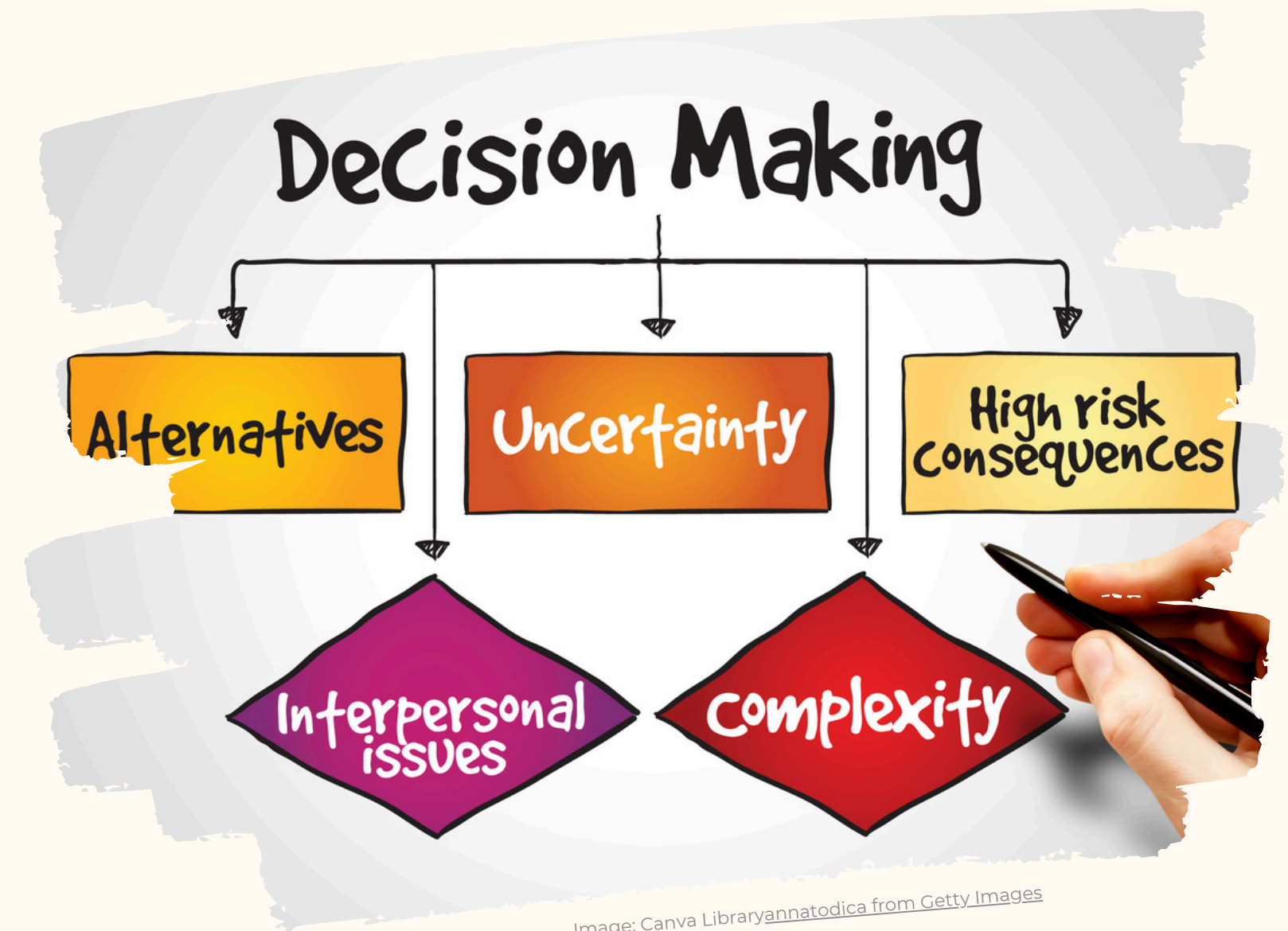


Image: Canva Library geralt from pixabay

Definition

Decision Making:

The process of **selecting the best possible course of action** from multiple alternatives to achieve a specific objective.



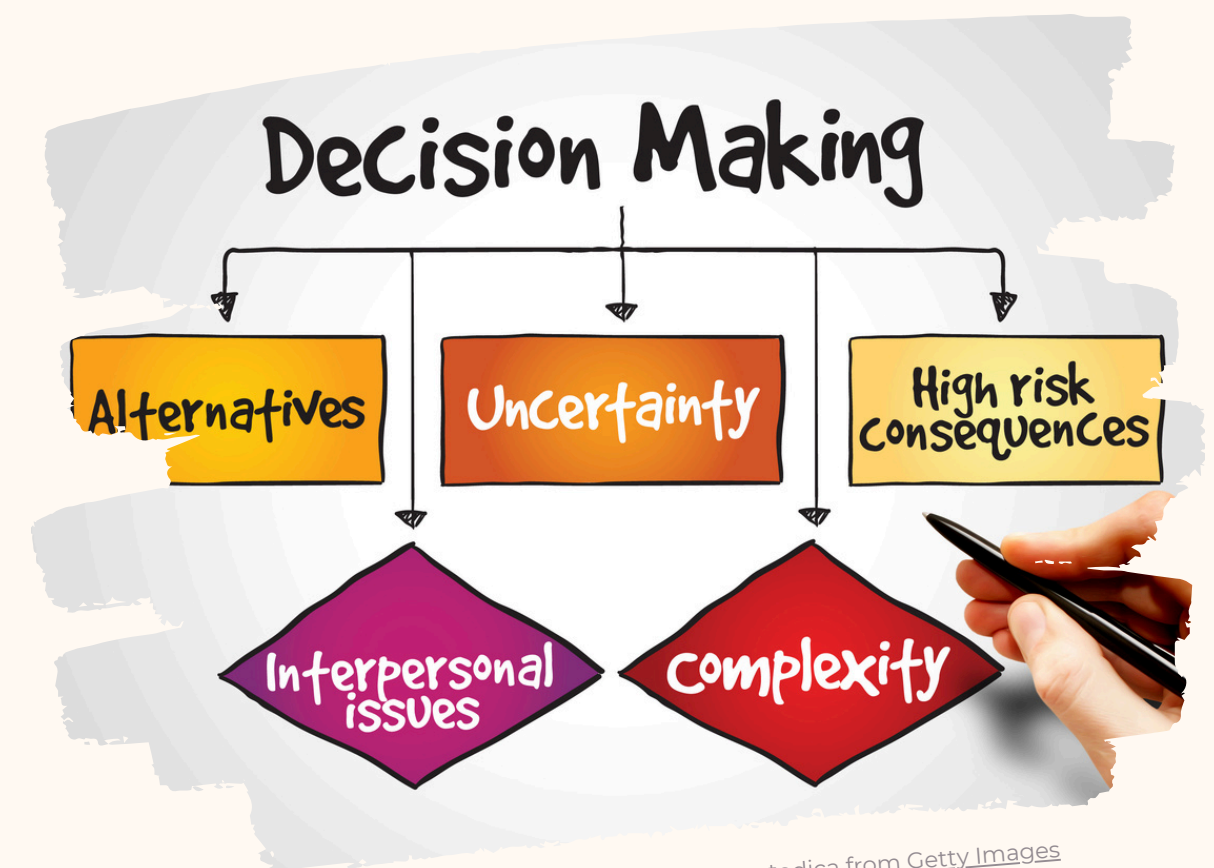
Definition

Decision-making is:

- A process of identifying problems or opportunities.
- Evaluating alternatives.
- Selecting the best course of action.

It involves:

- Data (facts).
- Experience (past knowledge).
- Judgment (intuition).



Example in Real Life

A marketing manager must decide:

- Should we increase the marketing?
- Should we lower the prices?
- Should we improve the product?

To decide, they need:

- Sales data
- Market trends
- Competitor analysis

Decision Quality



Good decision:

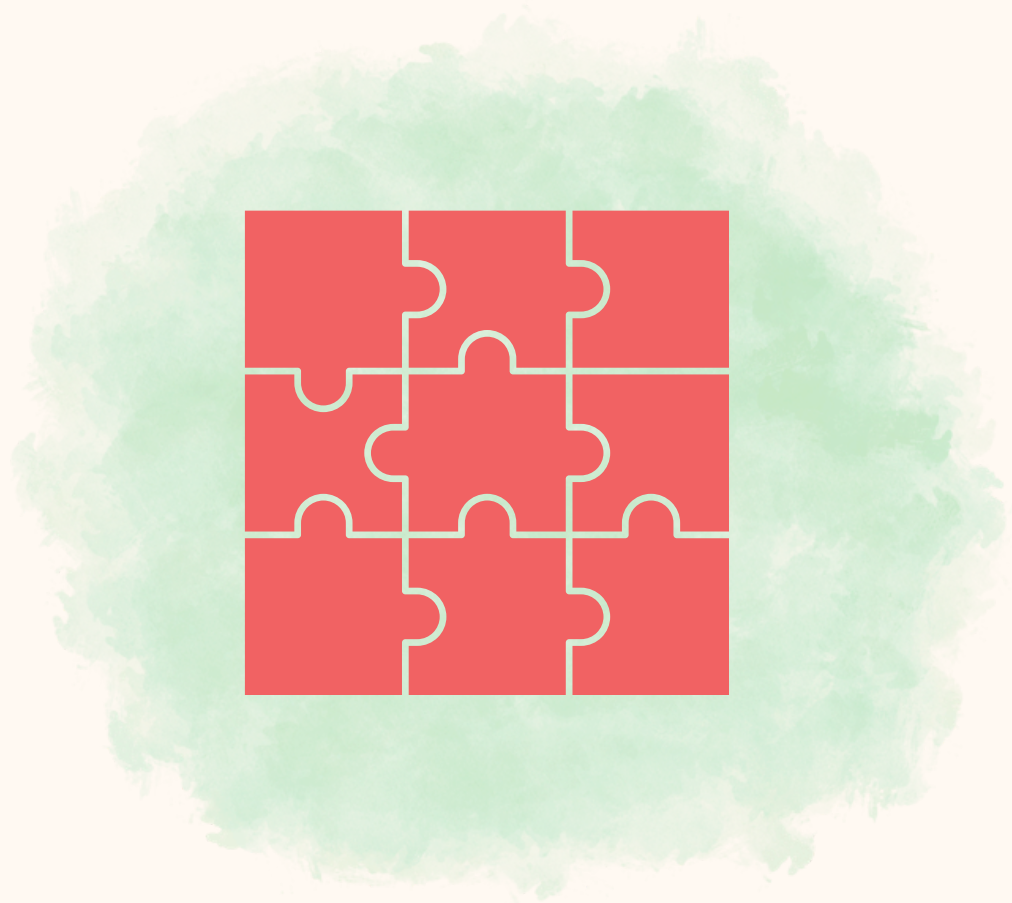
- Based on accurate data
- Considers alternatives
- Evaluates risks



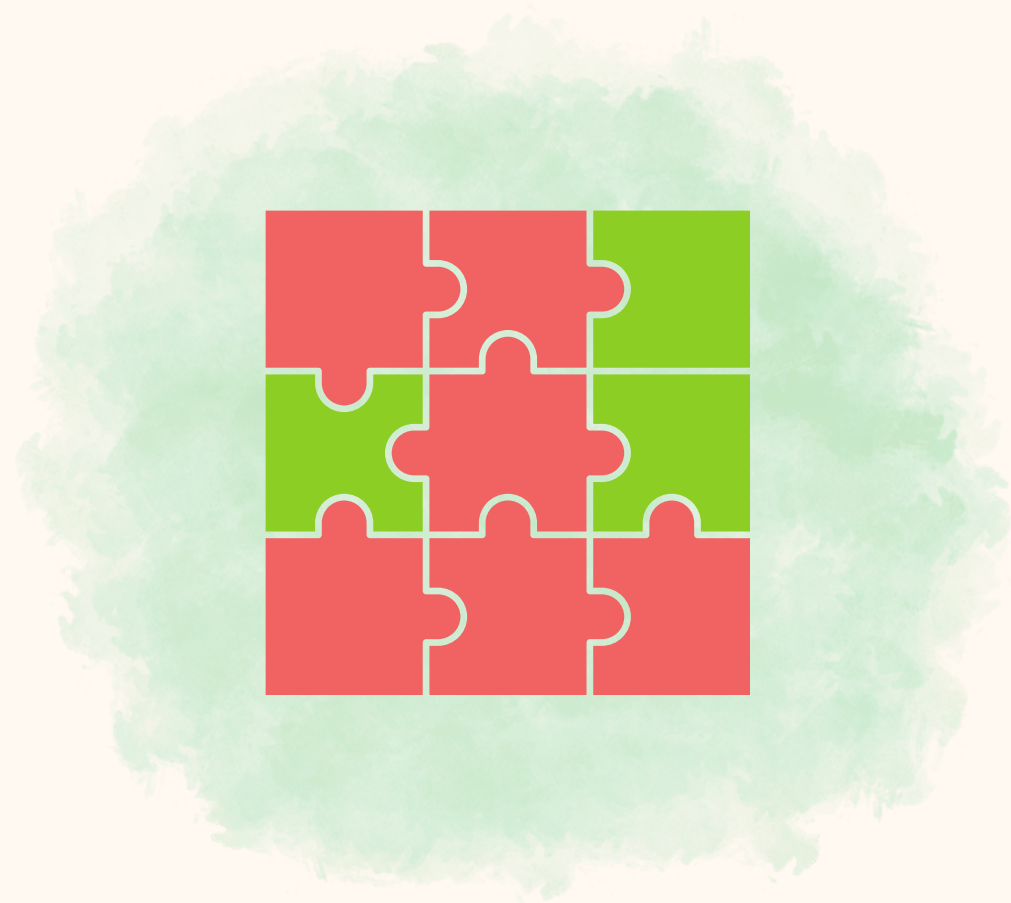
Poor decision:

- Based on a guess
- Ignores data

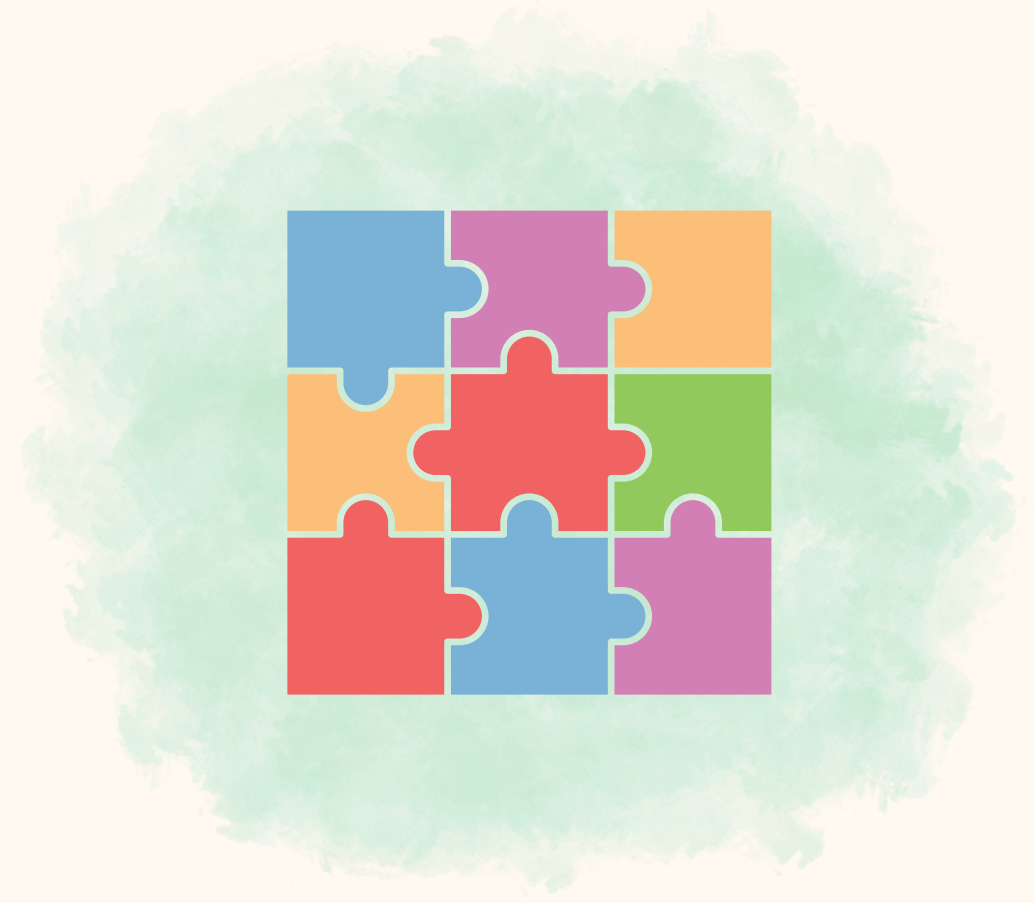
TYPES OF DECISIONS



**Structured
Decisions**



**Semi-Structured
Decisions**



**Unstructured
Decisions**

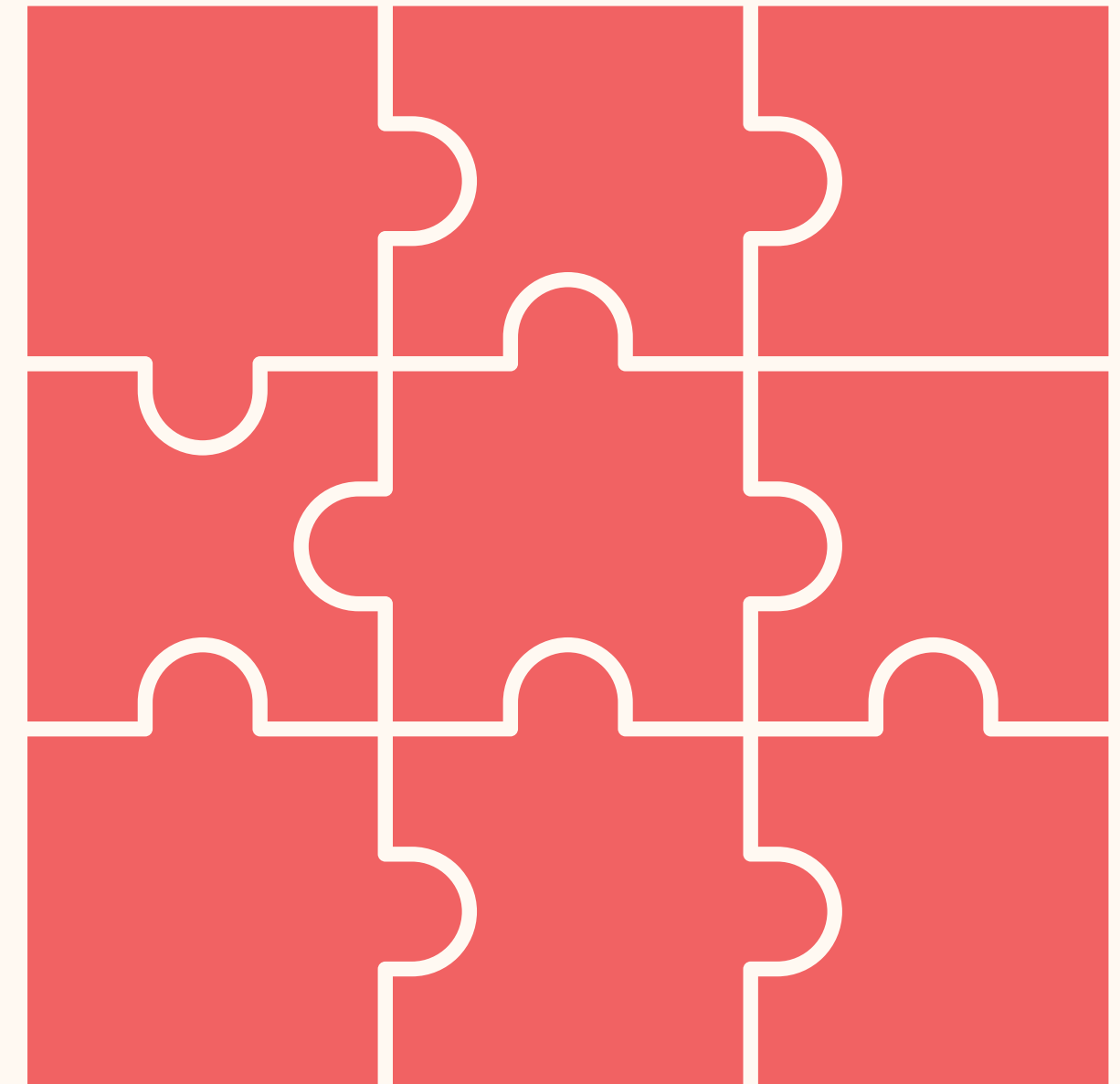
Structured Decisions

Characteristics:

- Routine and repetitive.
- Clearly defined procedures.
- Rules-based.

Examples:

- Payroll calculation.
- Order processing.
- Inventory reorder levels.



Highly suitable for automation (TPS/MIS)

Semi-Structured Decisions

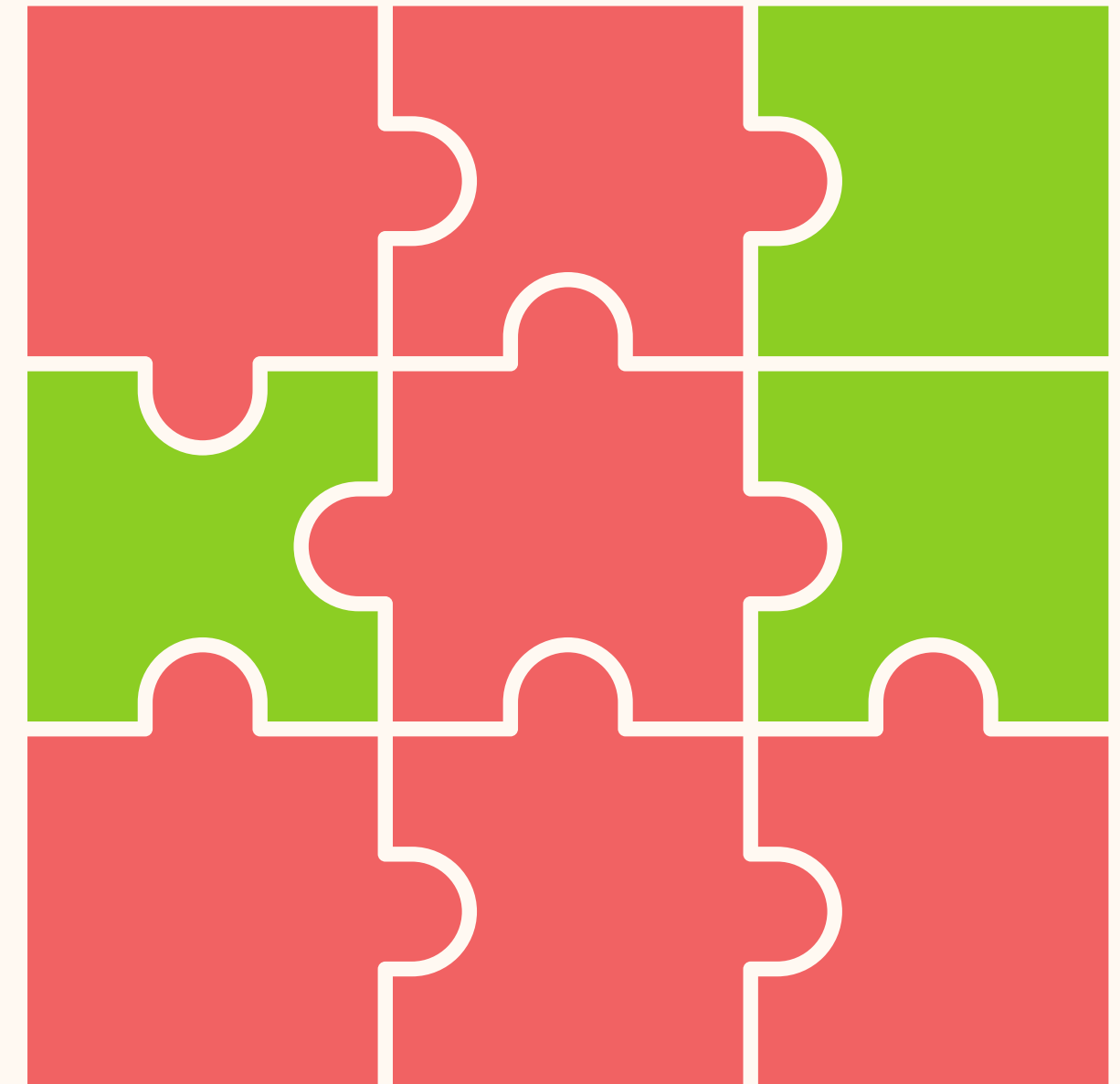
Characteristics:

- Partially defined procedures.
- Requires both data and human judgment.

Examples:

- How much marketing budget should be increased?

MIS + manager work together



Unstructured Decisions (Strategic Level)

Characteristics:

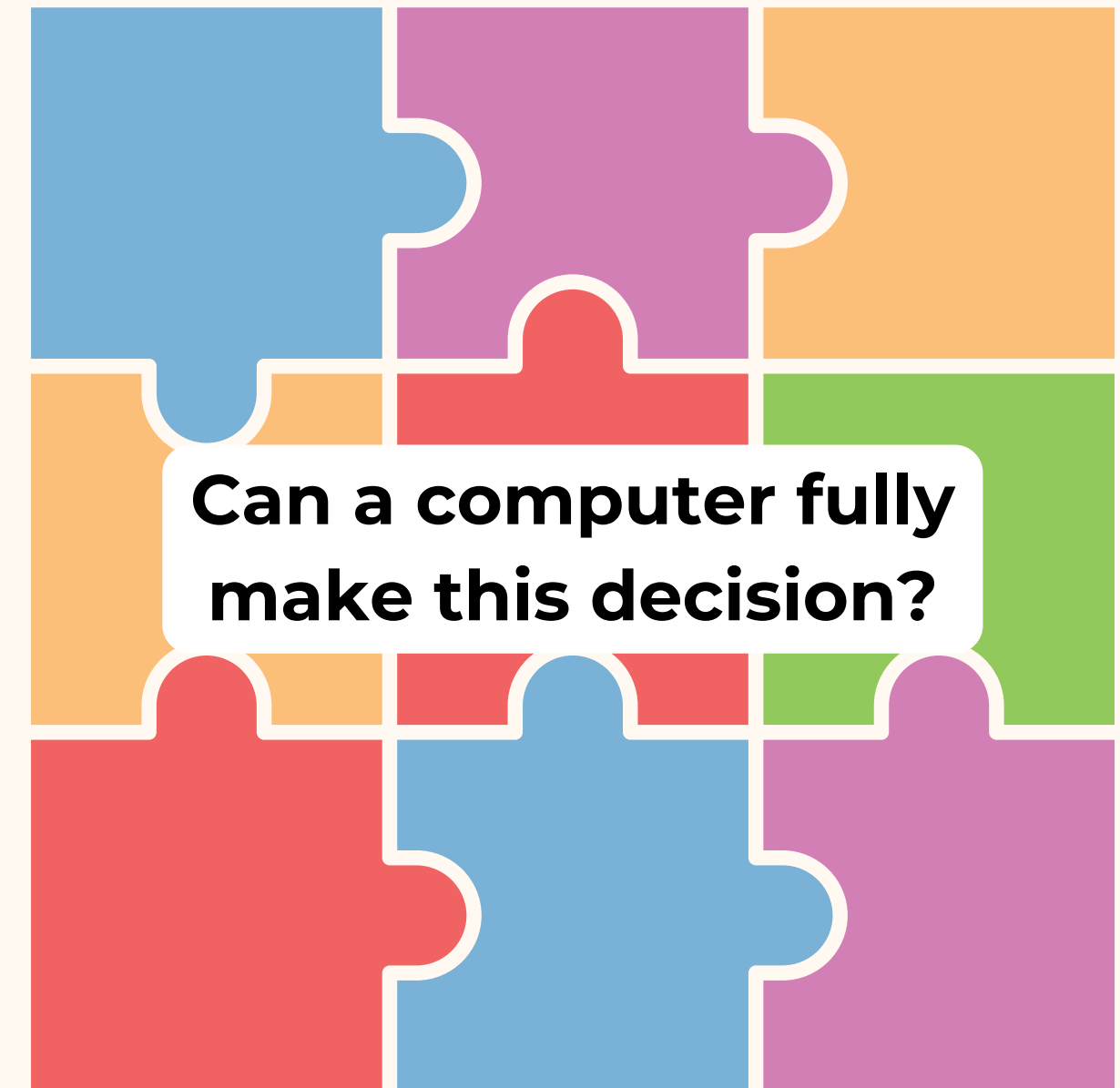
- Non-routine
- No clear procedures
- High uncertainty

Examples:

- Entering a new international market
- Business strategy
- Mergers and acquisitions

Requires:

- Experience, Creativity, Strategic thinking



Comparison Table

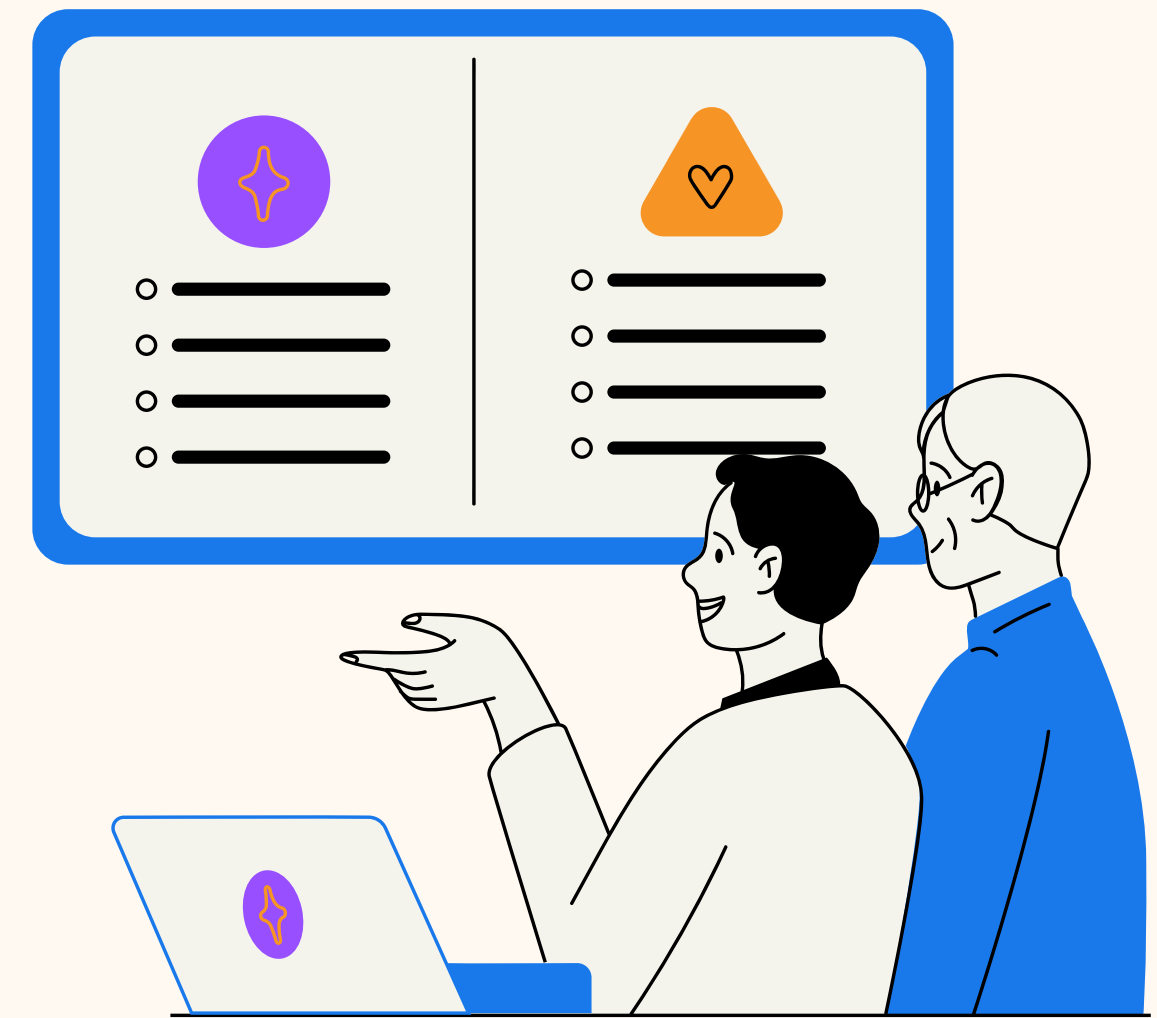
Type	Nature	System Support	Example
Structured	Routine	High	Payroll
Semi-structured	Mixed	Medium	Budget
Unstructured	Complex	Low	Strategy

DECISION-MAKING PROCESS

Decision-Making Model

Step by step, based on Herbert A. Simon:

1. Intelligence
2. Design
3. Choice
4. Implementation



Step 1: Intelligence

(Understanding the Problem)

Main Activities:

- Identify problem or opportunity
- Gather relevant data

Example:

- Detect sales decline
- Collect data:
 - Sales reports
 - Customer data

MIS helps by:

- Providing real-time reports
- Identifying trends



Step 2: Design

(Creating Solutions)

Main Activities:

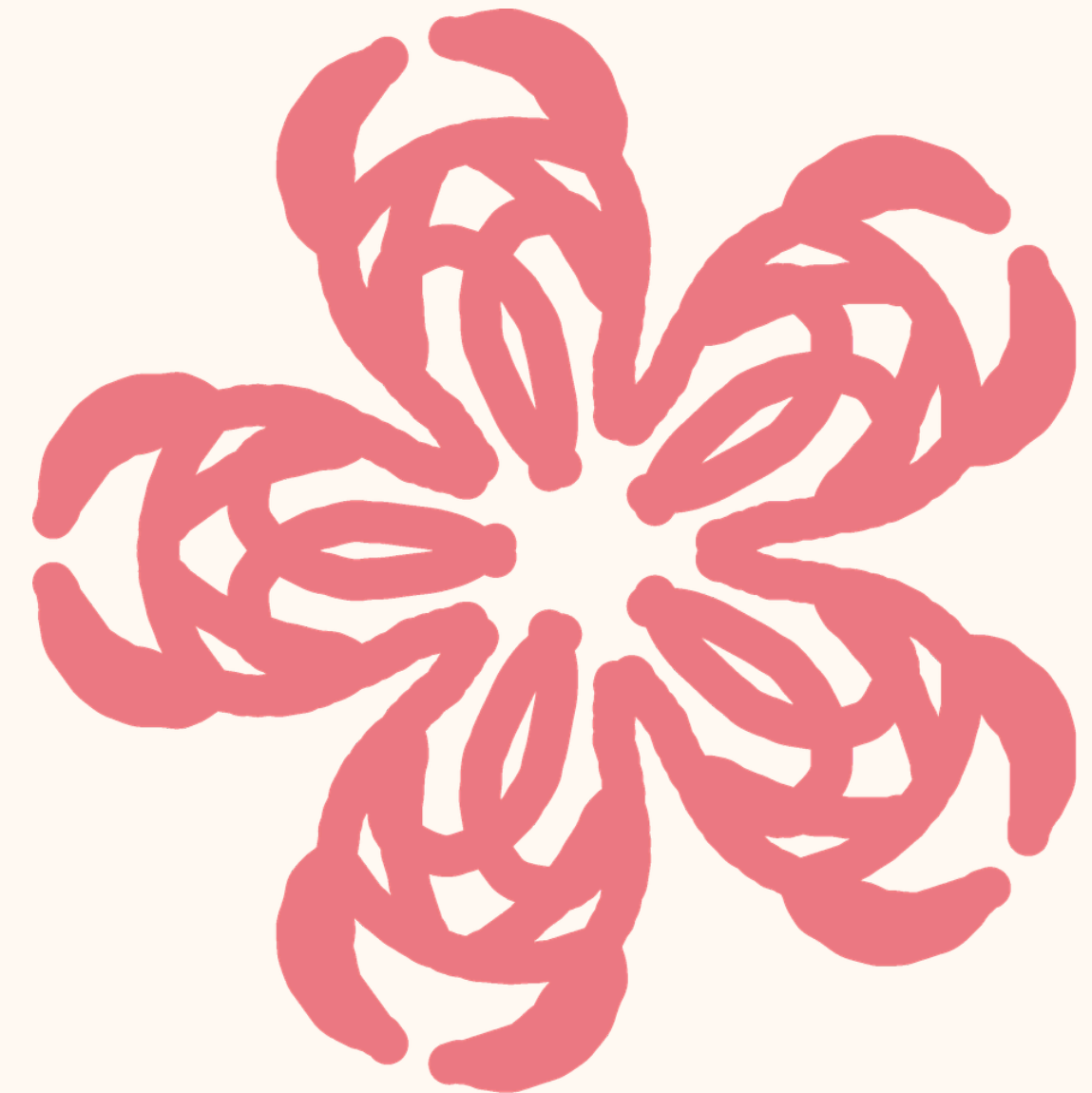
- Develop possible solutions
- Analyze alternatives

Example:

- Increase marketing
- Improve product quality
- Reduce price

MIS/DSS Role:

- Analyze each option
- Compare outcomes with scenario modeling



Step 3: Choice

(Selecting the Best Option)

Main Activities:

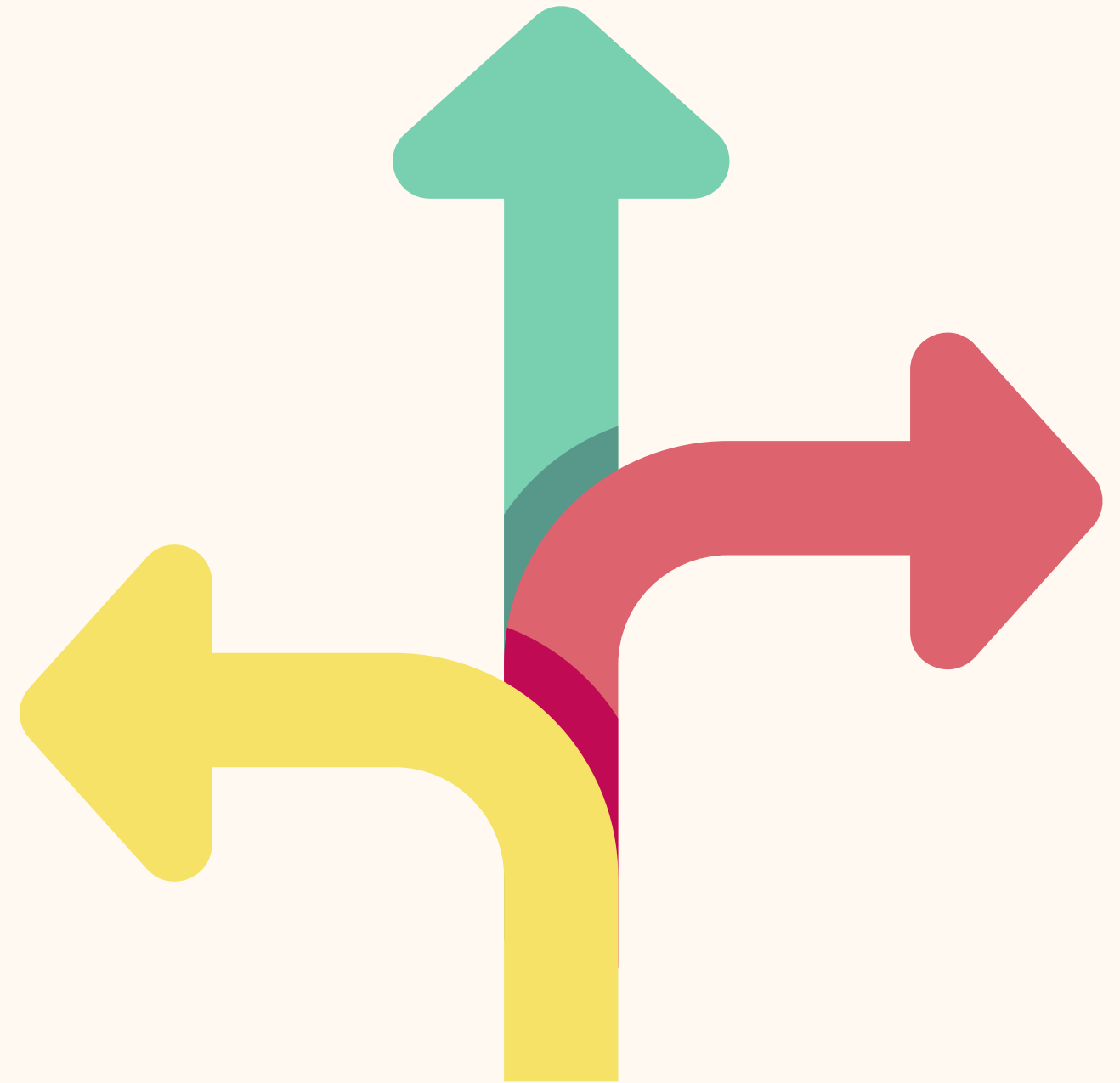
- Evaluate alternatives
- Select the best option

Consider:

- Cost
- Benefits
- Risks

Example:

- Choose to increase digital marketing



Step 4: Implementation

Main Activities:

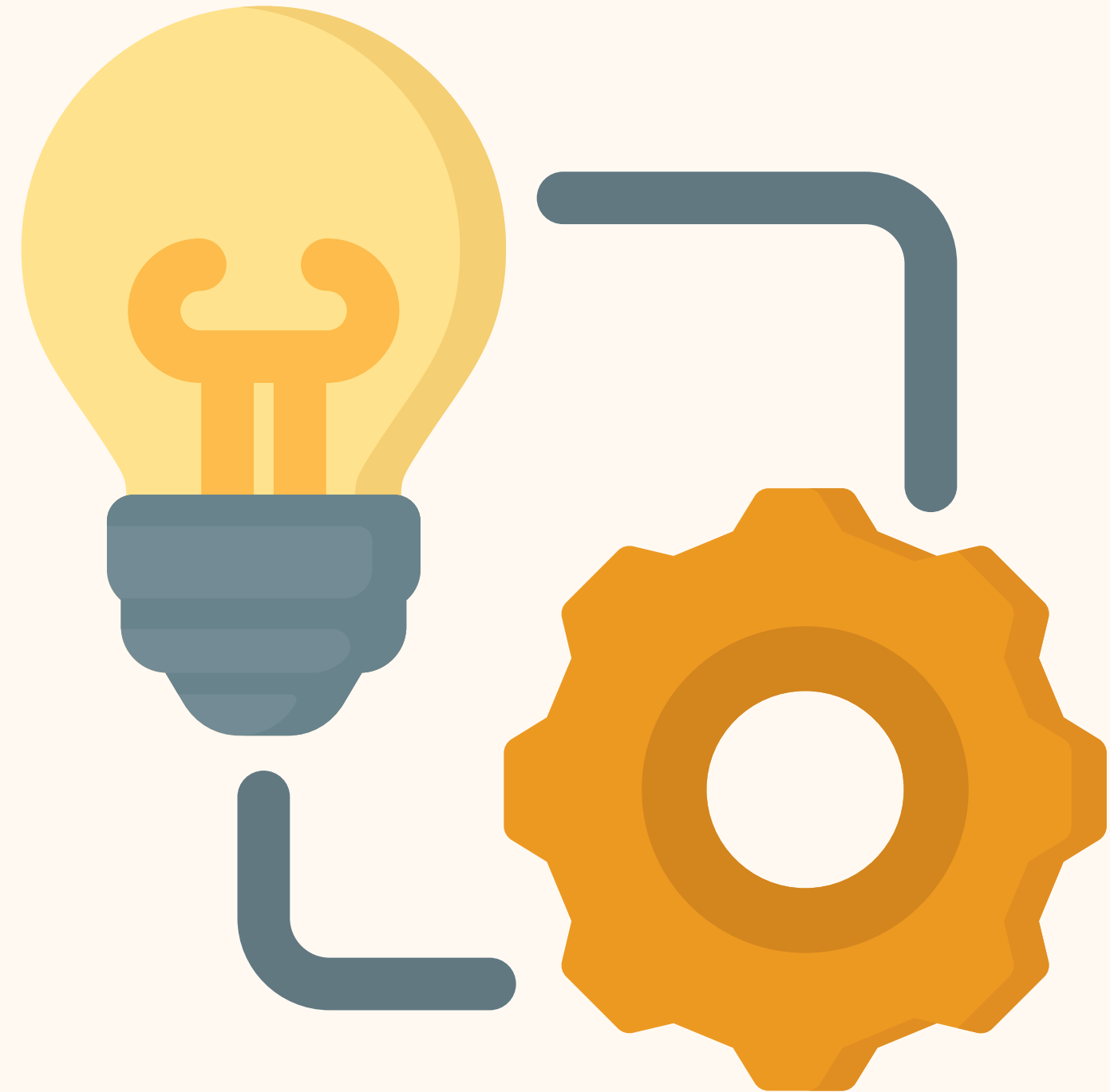
- Execute the decision
- Allocate resources
- Monitor outcomes

Example:

- Launch new campaign
- Monitor performance

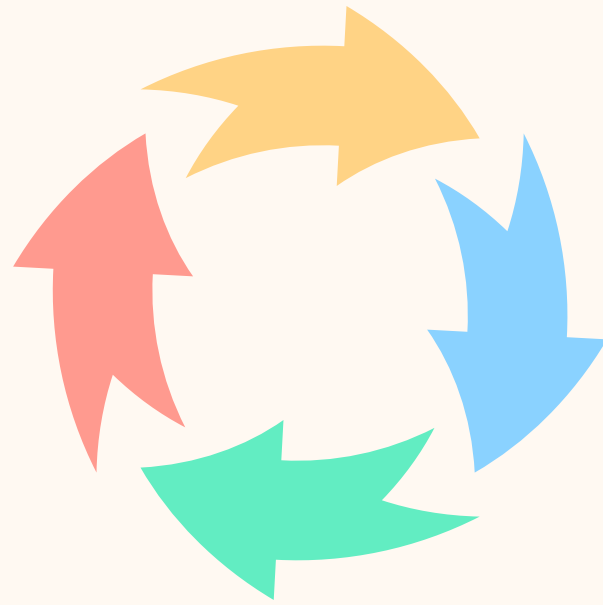
MIS Role:

- Track performance
- Generate reports



Important Insight

Decision-making is a continuous cycle.

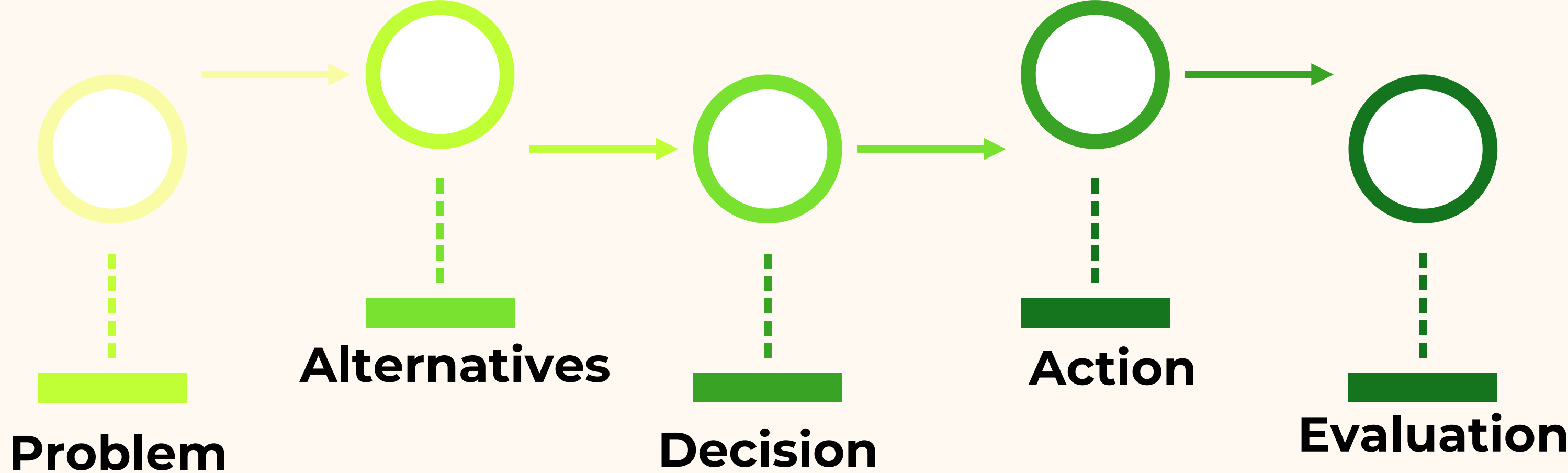


After implementation:

Evaluate

Improve

Visual Summary - Flow



ROLE OF MIS

MIS in Decision Making

MIS provides:

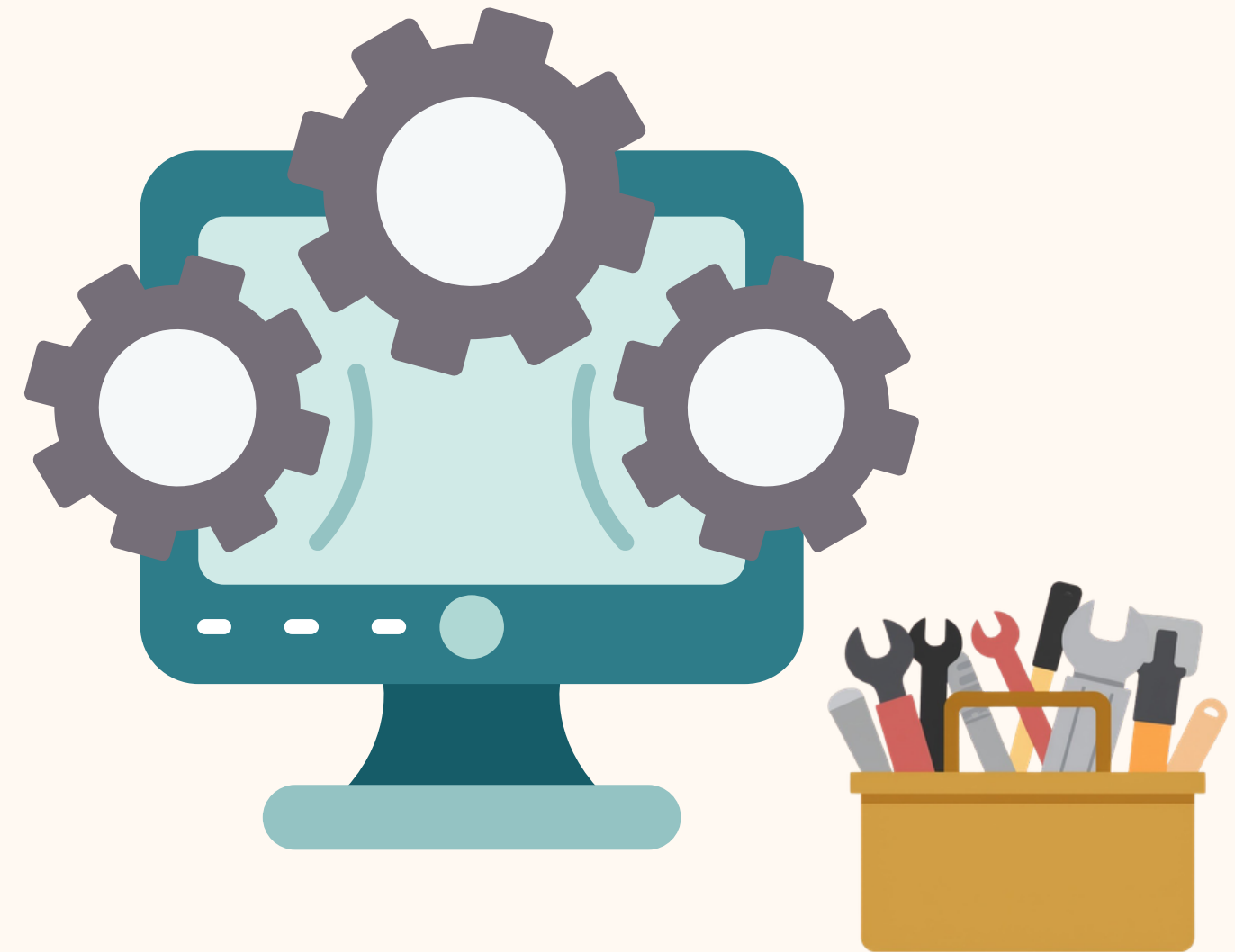
- Timely information
- Accurate data
- Relevant insights

Supports:

- Planning
- Controlling
- Decision making

MIS Functions

- Data collection
- Data processing
- Information storage
- Report generation



Benefits of MIS

- Faster decisions
- Improved accuracy
- Better coordination
- Reduced uncertainty



DECISION SUPPORT SYSTEM (DSS)

When MIS is Not Enough

Manager asks:

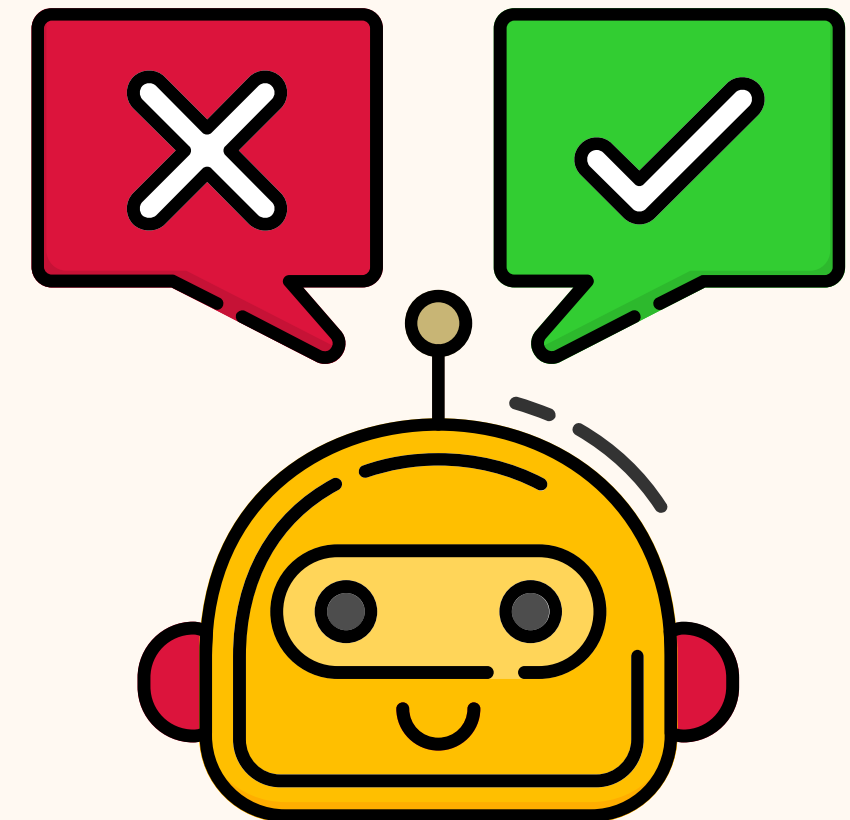
- “What will happen if we increase the price?”
- “What if we increase the marketing budget?”

MIS can only show:

Past data

Current reports

This is where DSS is needed.



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 helps answer ***“what will happen if..”***

Common DSS Analysis Techniques

WHAT IF

Analysis

Used to examine how changes in one or more input variables influence the outcome of a decision.

SENSITIVITY

Analysis

Used to evaluate how the outcome changes when one variable is adjusted repeatedly, while other variables remain constant.

GOAL SEEKING

Analysis

Used to determine the required input value needed to achieve a specific desired outcome.

OPTIMIZATION

Analysis

used to identify the best possible solution by testing multiple variables under given constraints to achieve the most optimal result.

Common DSS Analysis Techniques

WHAT IF

Analysis

Definition:

- Changing one or more variables.
- Observing the impact on the outcome.

Example: What if we increase marketing budget by 20%?

- Manager tests different scenarios.
- Higher budget → higher sales (but also higher cost).

Scenario: Marketing Budget vs Sales

Marketing Budget	Sales
Rp100.000.000	Rp500.000.000
Rp120.000.000	Rp600.000.000
Rp150.000.000	Rp750.000.000

Common DSS Analysis Techniques

SENSITIVITY Analysis

Definition:

- Examines how sensitive results are to changes in one variable.
- Focus: Impact strength

Example: If price increases by 5%, how much will sales drop?

- Insight:
 - Small price increase → small impact.
 - Large increase → significant drop.
- Helps the manager understand the **risk level**.

Scenario: Price Change Impact

Price Increase	Sales Change
+5%	-2%
+10%	-8%
+20%	-20%

Common DSS Analysis Techniques

GOAL SEEKING Analysis

Definition:

- Start with a target outcome.
- Work backward to find the required input.
- Focus: Achieving a goal.

Example: How much sales do we need to reach \$100,000 profit?

- Insight
 - Manager now knows:
Minimum sales target needed.

Scenario: Profit Target

Target:
Profit = \$20,000

Given:
Cost = \$80,000

Required Revenue = \$100,000

Common DSS Analysis Techniques

OPTIMIZATION Analysis

Definition:

- Finds the best possible solution
- Based on constraints (budget, time, resources)
- Focus: Best decision

Scenario: Budget Allocation

Budget = \$10,000

- Options:**
- Digital Ads → high return
 - TV Ads → moderate return
 - Influencer → uncertain

- **DSS calculates:**
 - Best combination to maximize sales

Example Result:

- \$6,000 Digital Ads
- \$3,000 Influencer
- \$1,000 TV Ads

Produces highest expected revenue.

Key Insight

- **What-if** → Explore possibilities
- **Sensitivity** → Understand impact
- **Goal-seeking** → Achieve targets
- **Optimization** → Find best solution

Together, these make DSS powerful tools for decision-making.

Link Back to Case

Back to our declining sales case.

Manager can now ask:

- What if we increase marketing?
- How sensitive are sales to price changes?
- What sales target do we need?
- What is the best strategy within the budget?

DSS helps answer all these questions

What is ESS?

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

Top management asks:

“Should we expand to a new market?”

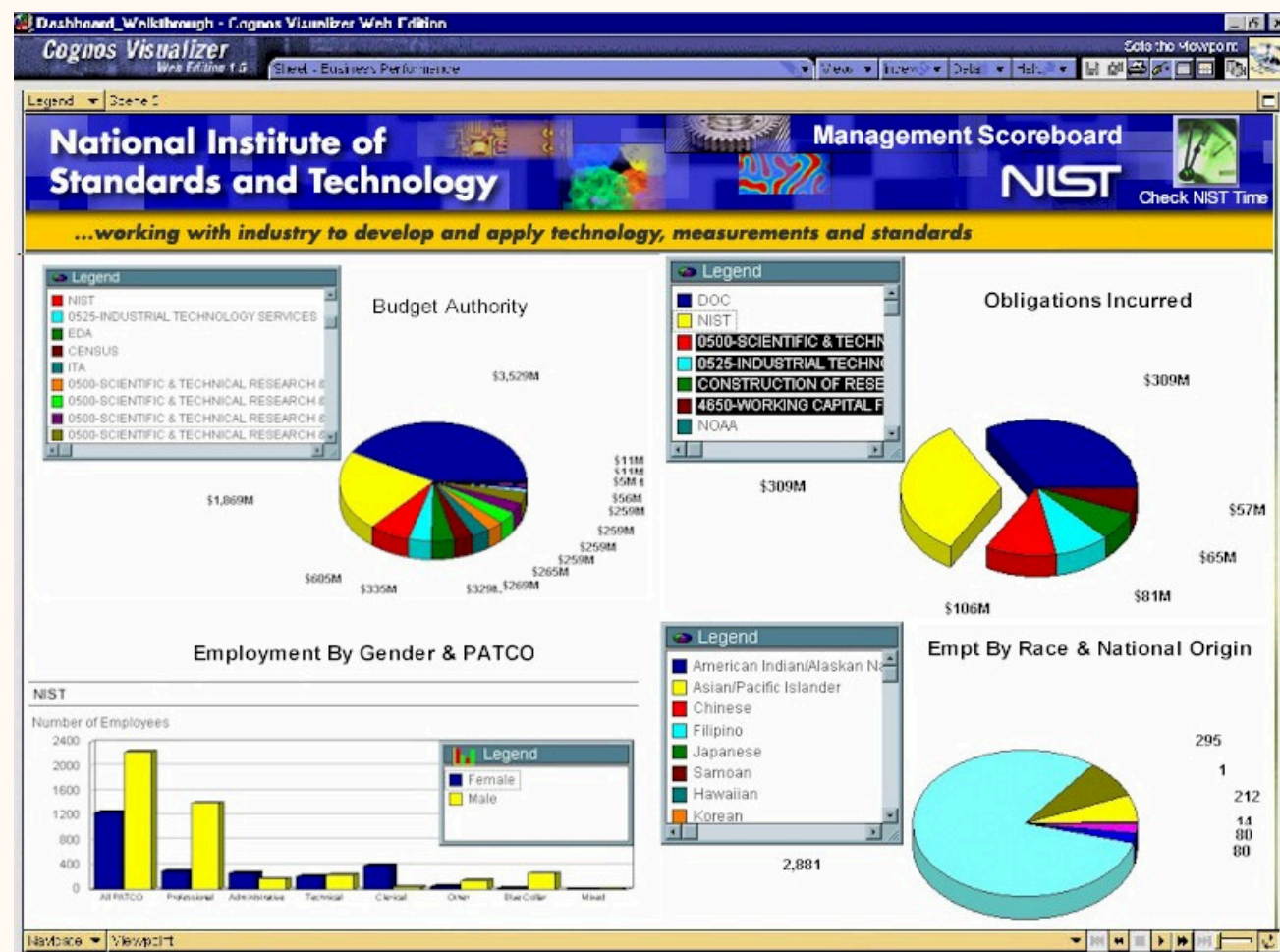
Strategic Decision

CEO sees:

Market trends

Competitor data

Economic conditions



DATA-DRIVEN DECISION MAKING

Modern Approach

Today:

Data-driven decisions

Guess-based decisions

Example

E-commerce:

- Tracks user behavior
- Recommends products

DATA-DRIVEN DECISION MAKING

Modern Approach

Today:

Data-driven decisions

Guess-based decisions

What is Data Driven Decision Making

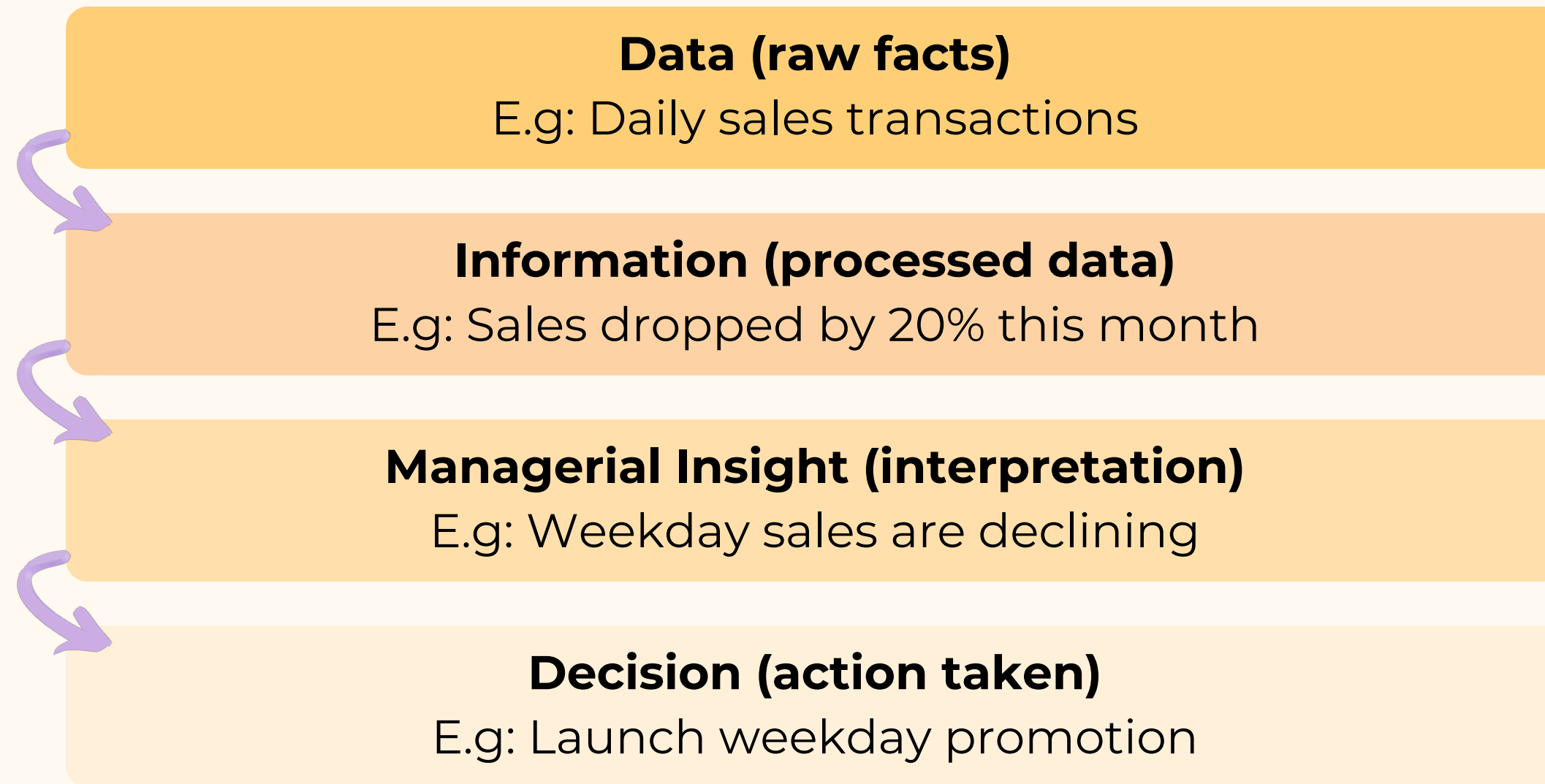
Data-Driven Decision Making (DDDM) is
The process of making decisions based on data
analysis rather than intuition or guesswork.

Involves:

- Collecting relevant data
- Analyzing patterns and trends
- Using insights to guide decisions

From Data to Decision

How Information Creates Action in Business



Data only becomes valuable when it leads to action

Without Data vs With Data

Without a Data-Driven Approach:

- Decisions based on a guess
- High uncertainty
- Inconsistent results

E.g: I think customers like this product

With a Data-Driven Approach:

- Decisions based on evidence
- More accurate
- More consistent

E.g., sales data show that 70% of customers prefer this product.

How MIS Enables This Process

MIS plays a key role by:

- Collecting data from operations
- Processing data into meaningful reports
- Presenting insights through dashboards

Examples:

- Sales reports
- Customer behavior analysis
- Performance dashboards

MIS turns data into usable information for decisions.

Case Study:

Hyundai Palisade Safety Incident

WHAT HAPPENED

- The Incident
 - A 2-year-old child died in Ohio (March 2026) due to a power seat malfunction in the Hyundai Palisade.
 - The second/third-row power seat failed to detect an obstruction, trapping the child.
- Early Warning Signals
 - Reports show complaints existed months before the fatal case
 - One customer had already reported a near-accident involving a child
 - Initially, the issue was treated as “normal operation” or low risk

The problem was **not completely unknown**; it was **underestimated**.



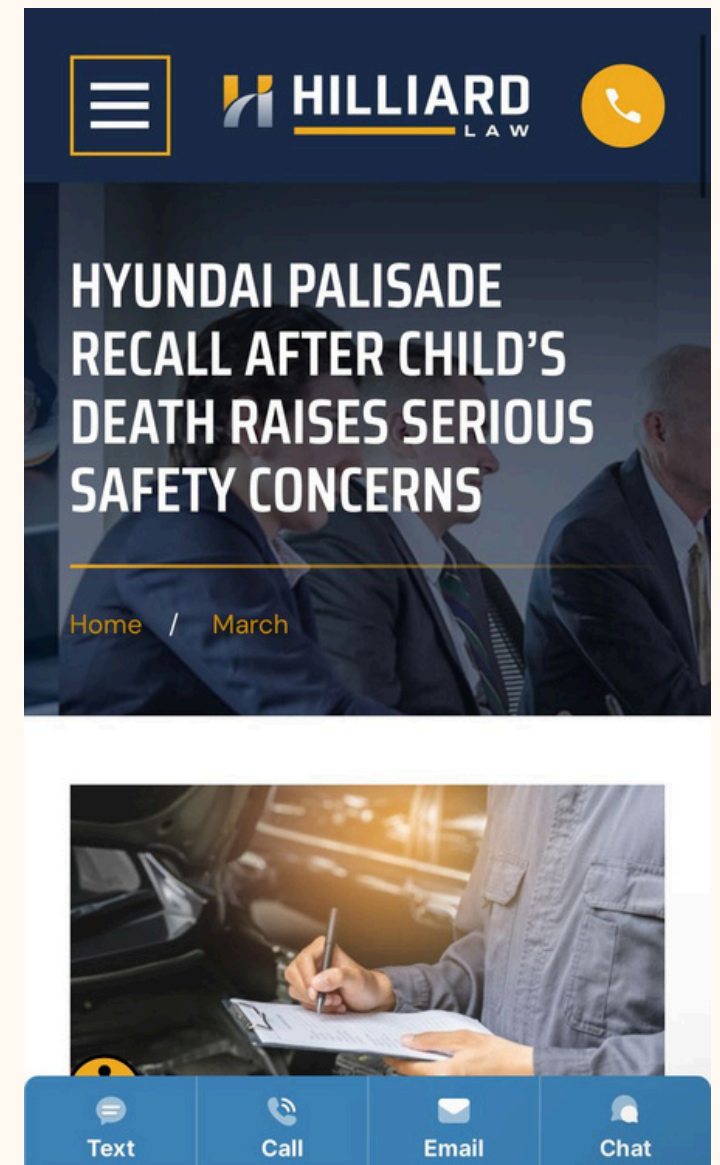
The screenshot shows the top portion of a web article. At the top left is the 'ROAD & TRACK' logo. To the right are 'JOIN NOW' and 'SIGN IN' buttons. Below this is a navigation bar with 'NEWS', 'REVIEWS', 'CULTURE', and 'EXC' tabs. The article title is 'Hyundai Power Seat Complaint Was Reportedly Filed Months Before Toddler's Death Led to Palisade Recall'. Below the title is a sub-headline: 'A mother says she tried to warn Hyundai of a dangerous condition after her own daughter was nearly crushed.' The author is 'BY JOE KUCINSKI' and the publication date is 'PUBLISHED: MAR 30, 2026 11:16 AM EDT'. At the bottom right is a red button that says 'SAVE ARTICLE'.

Case Study:

Hyundai Palisade Safety Incident

Turning Point

- Fatal incident raised:
 - Public concern
 - Media attention
 - Legal risk
- Shift in Decision Level:
 - From operational issue → executive-level crisis.



Source:
<https://www.hilliard-law.com/blog/2026/march/hyundai-palisade-recall-after-child-s-death-rais/>

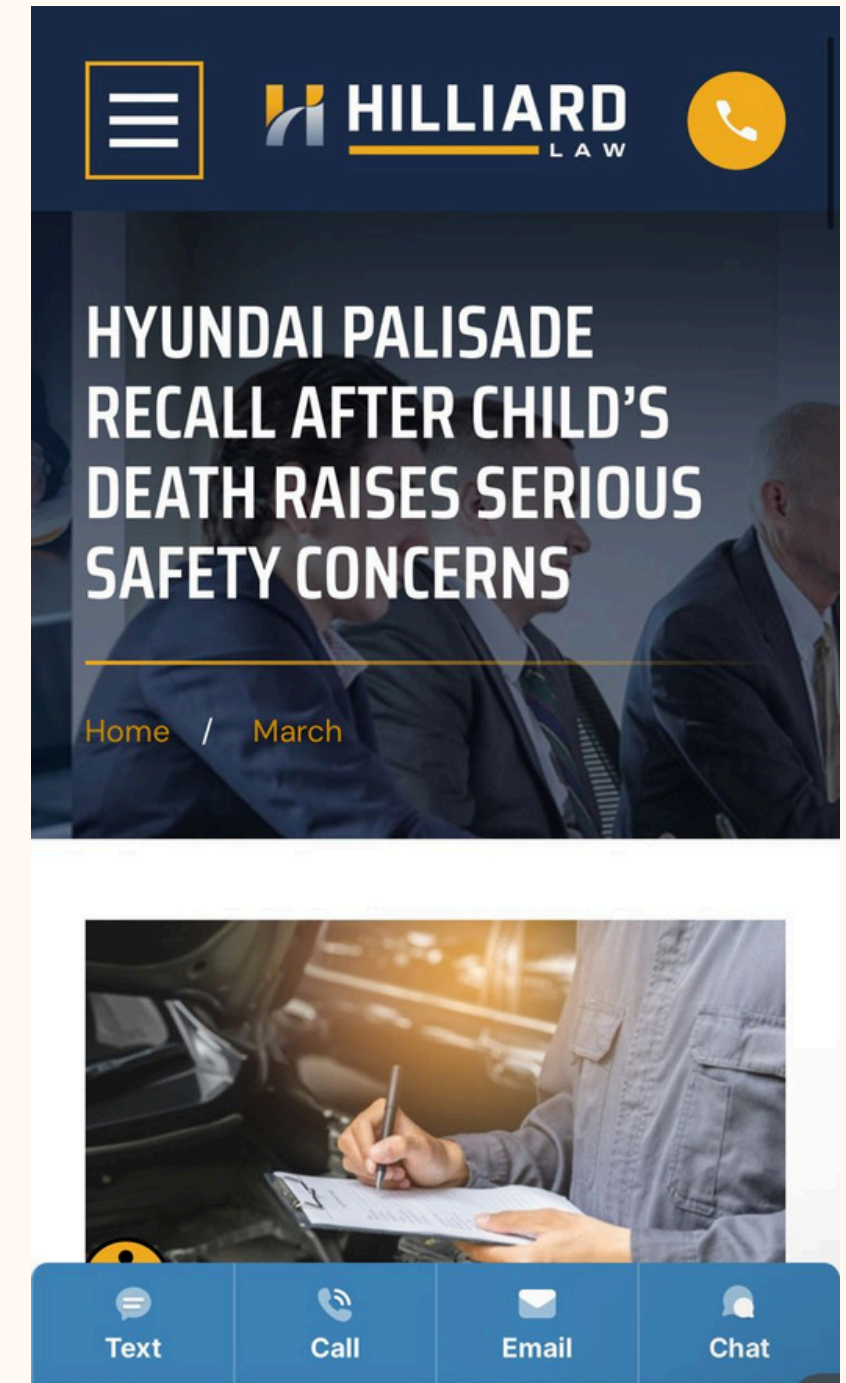
Case Study:

Hyundai Palisade Safety Incident

This is not just a technical issue—it becomes an executive-level decision problem:

Executives must decide:

- Should we **issue a recall**?
- Do we need **a global redesign**?
- How do we **respond publicly**?
- What is the **legal and ethical responsibility**?



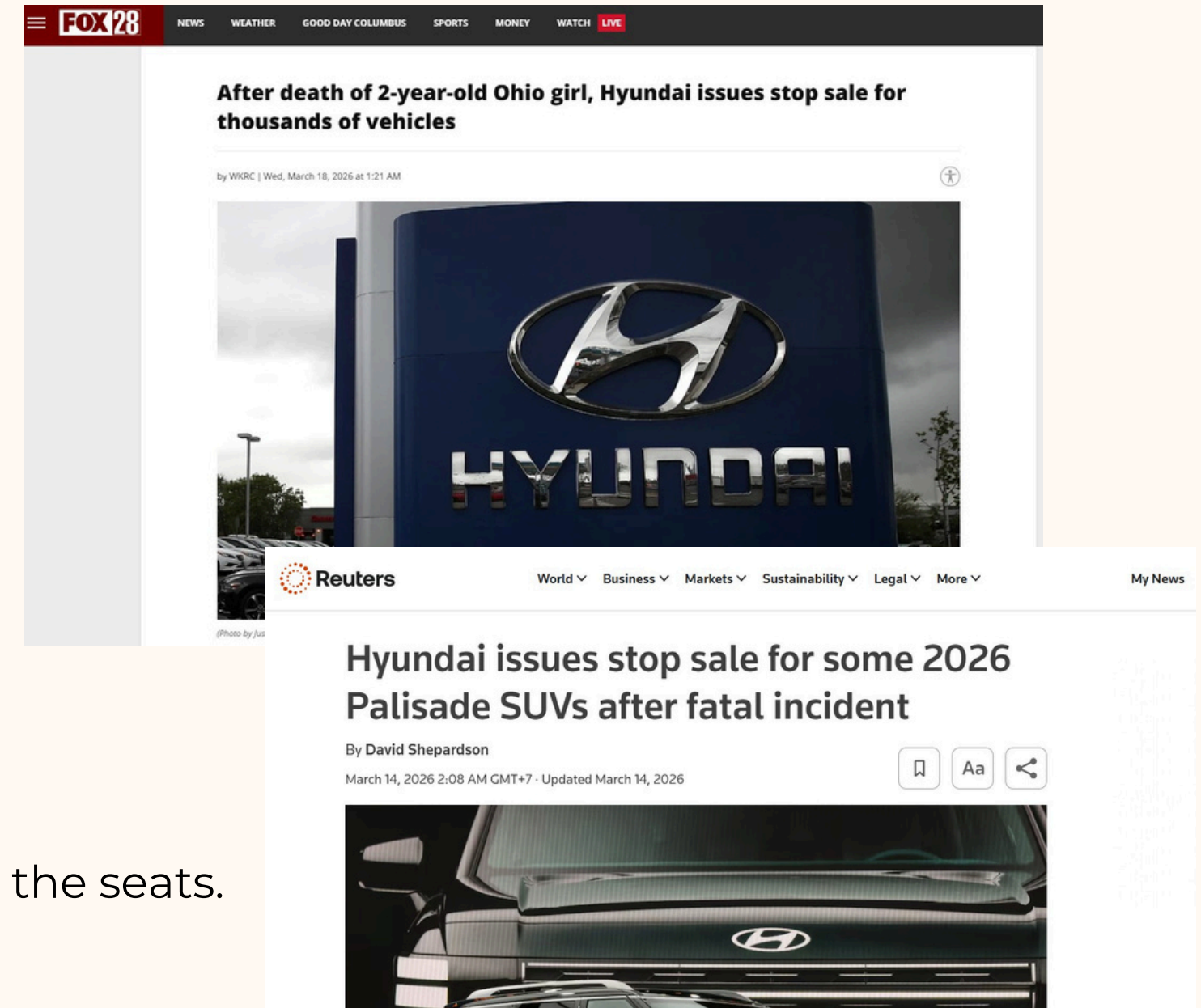
Source:
<https://www.hilliard-law.com/blog/2026/march/hyundai-palisade-recall-after-child-s-death-rais/>

Case Study:

Hyundai Palisade Safety Incident

WHAT HYUNDAI ACTUALLY DID

- Immediate Response (Reactive Phase)
 - Stopped sales of the affected 2026 Palisade models.
 - Issued recall (~68,500 vehicles in North America).
 - Publicly expressed sympathy and launched an investigation.
- Short-Term Solution (Stabilization Phase)
 - Released over-the-air (OTA) software update.
 - Improve object detection.
 - Add safety safeguards.
 - Advised users to manually check their surroundings before using the seats.
 - Offered rental cars to affected customers.



Source: <https://myfox28columbus.com/news/nation-world/hyundai-issues-stop-sale-for-thousands-of-vehicles-after-death-2-year-old-ohio-girl-cincinnati-cuyahoga-falls-restaurant-depot-sweitzer-avenue-under-investigation-functionality-safety-release-law-enforcement-national-highway-traffic-safety-administration>

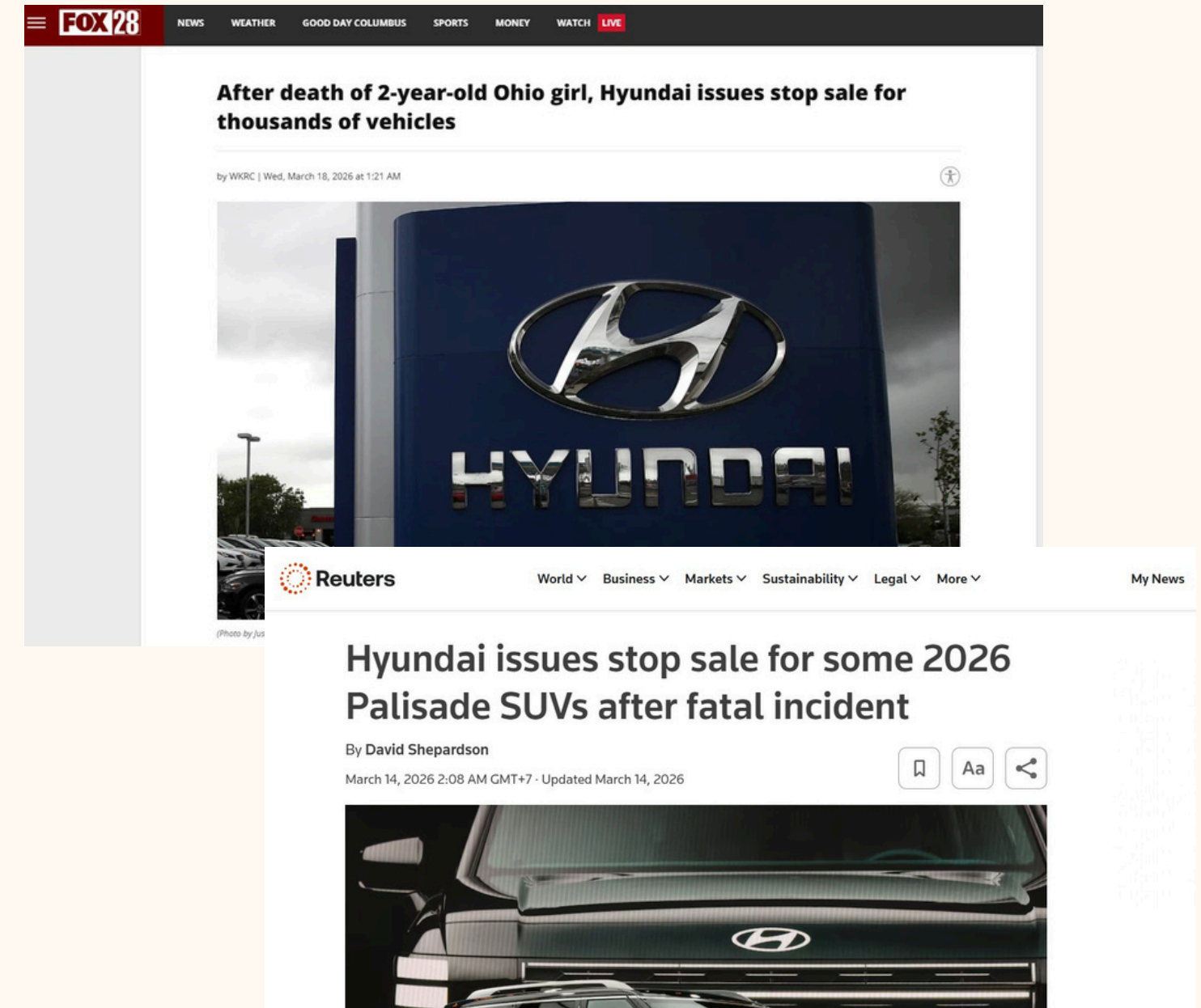
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Case Study:

Hyundai Palisade Safety Incident

WHAT HYUNDAI ACTUALLY DID

- Expanded Action (Strategic Phase)
 - The issue expanded beyond U.S..
 - Recall also applied in South Korea (~58,000 vehicles)
 - Identified additional injuries in multiple countries
- Final Fix & Recovery
 - Implemented system redesign via software changes:
 - Disable risky controls (e.g., infotainment seat controls)
 - Require press-and-hold operation
 - Improve occupant detection logic
 - Resumed sales after the fix was validated.



Source: <https://myfox28columbus.com/news/nation-world/hyundai-issues-stop-sale-for-thousands-of-vehicles-after-death-2-year-old-ohio-girl-cincinnati-cuyahoga-falls-restaurant-depot-sweitzer-avenue-under-investigation-functionality-safety-release-law-enforcement-national-highway-traffic-safety-administration>

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Case Study:

Hyundai Palisade Safety Incident

WHERE ESS COMES IN

ESS Supports Executives By:

- Aggregating global incident data
- Identifying patterns across regions
- Visualizing risk (severity + frequency)
- Supporting fast strategic decisions

ESS transforms: **Data → Insight → Action**



Source: <https://www.greenfamilyhyundai.com/manufacture-information/hyundai-meaning/>

Case Study:

Hyundai Palisade Safety Incident

WHERE ESS COMES IN

ESS Gap (Before Crisis)

What Went Wrong?

- Data existed (complaints, near-miss)
- But:
 - Not integrated effectively
 - Not escalated to executives
 - Underestimated risk
- Problem: Weak signal recognition

ESS Strength (After Crisis)

What Worked Well?

- Rapid identification of:
 - Severity (fatality)
 - Broader pattern (multiple regions)
- Enabled:
 - Stop-sale decision
 - Global recall
 - Strategic response
- ESS enabled faster, informed decisions

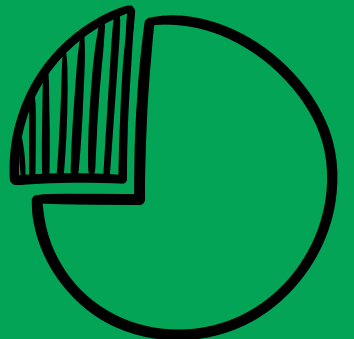
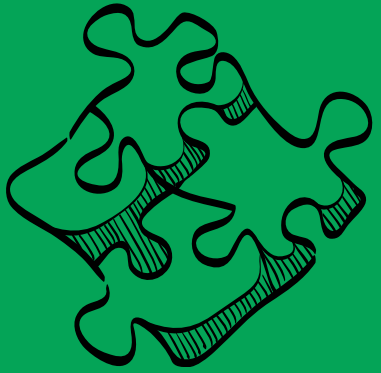
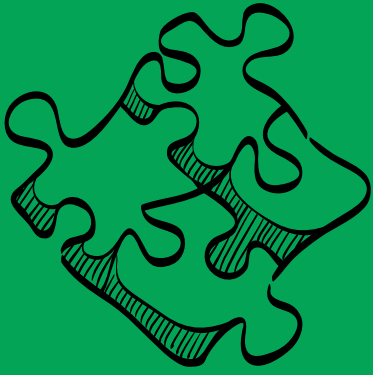
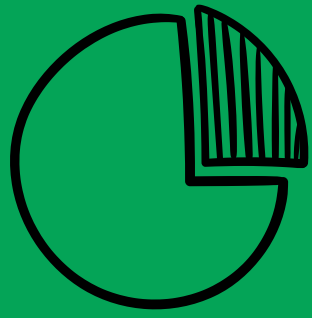
Key Insight

To be a good decision maker:

- Don't rely only on intuition
- Always ask: *“What does the data tell me?”*

Combine: Data, Experience, Judgment

Managers are not just decision makers—they are information users. The better the information, the better the decisions.



Thankyou!