Problem Solving

Albert Einstein once said,

“If I had one hour to solve a problem, I would spend 55 minutes thinking about the problem and five minutes thinking about the solution.”

Topic List

- The E5 Approach
- Fish Bone Analysis
- Pareto Analysis

Learning Objectives

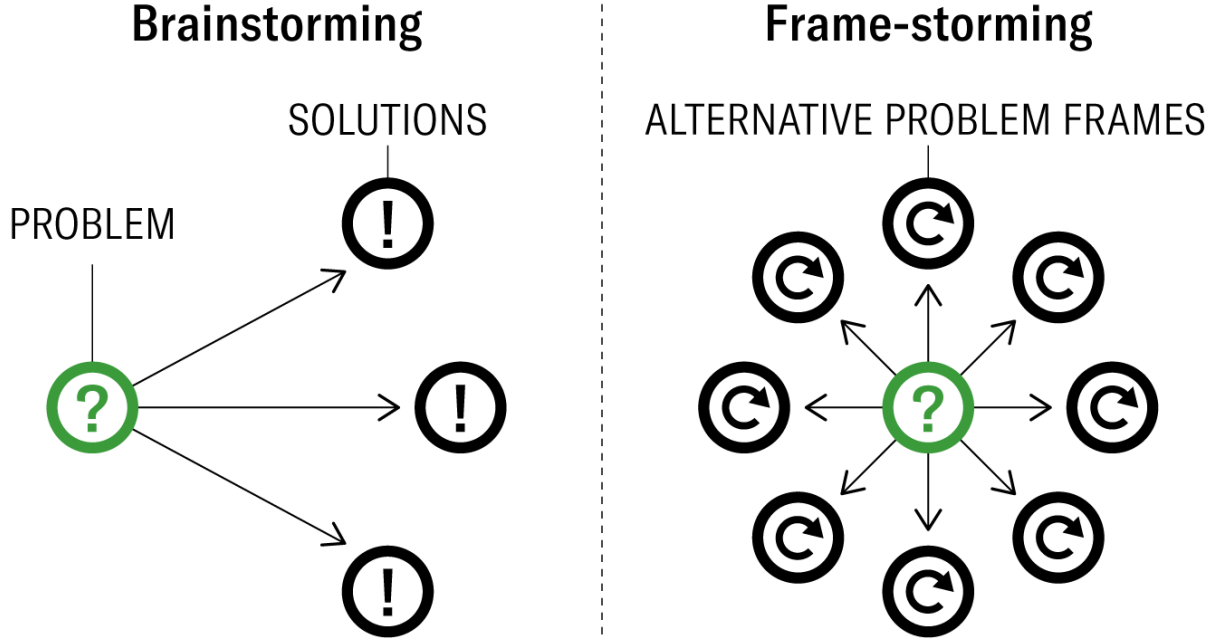
- To learn about the different problem solving techniques.

The E5 Approach

Phase 1: Expand

Open Your Mind

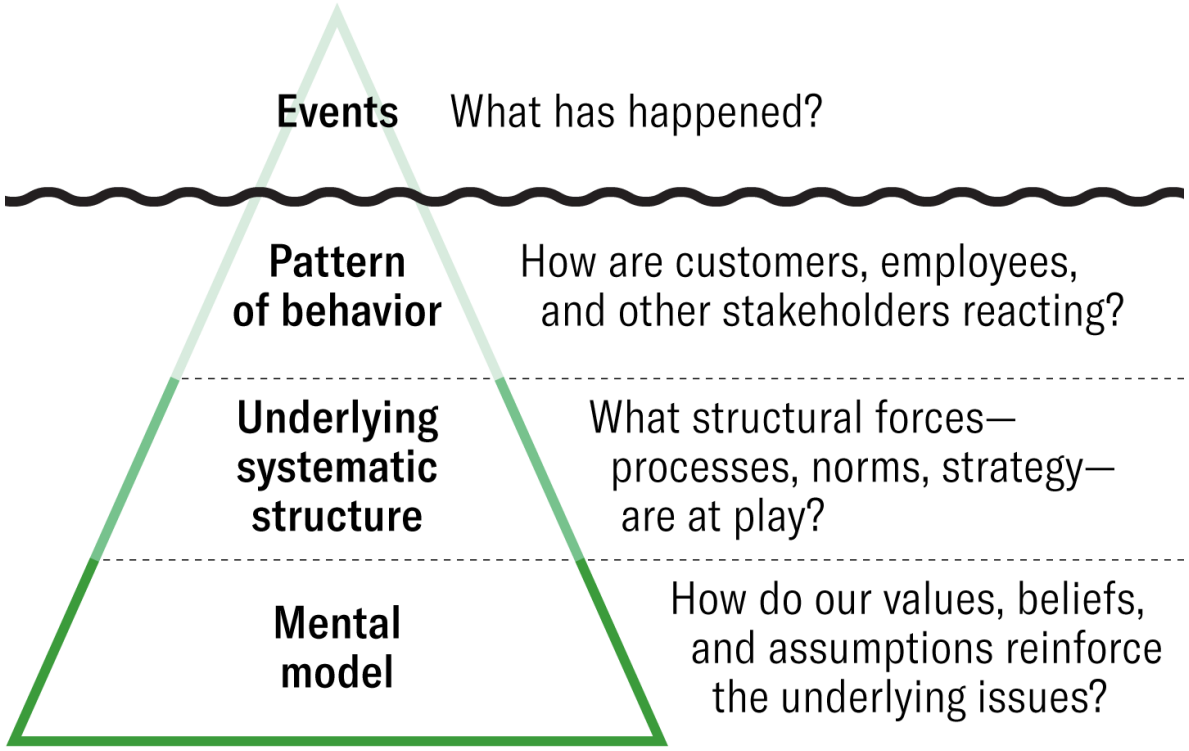
Whereas brainstorming often involves generating many solutions for an already framed problem, frame-storming encourages teams to identify all aspects of a challenge.



Phase 2: Examine

Delve into Root Causes

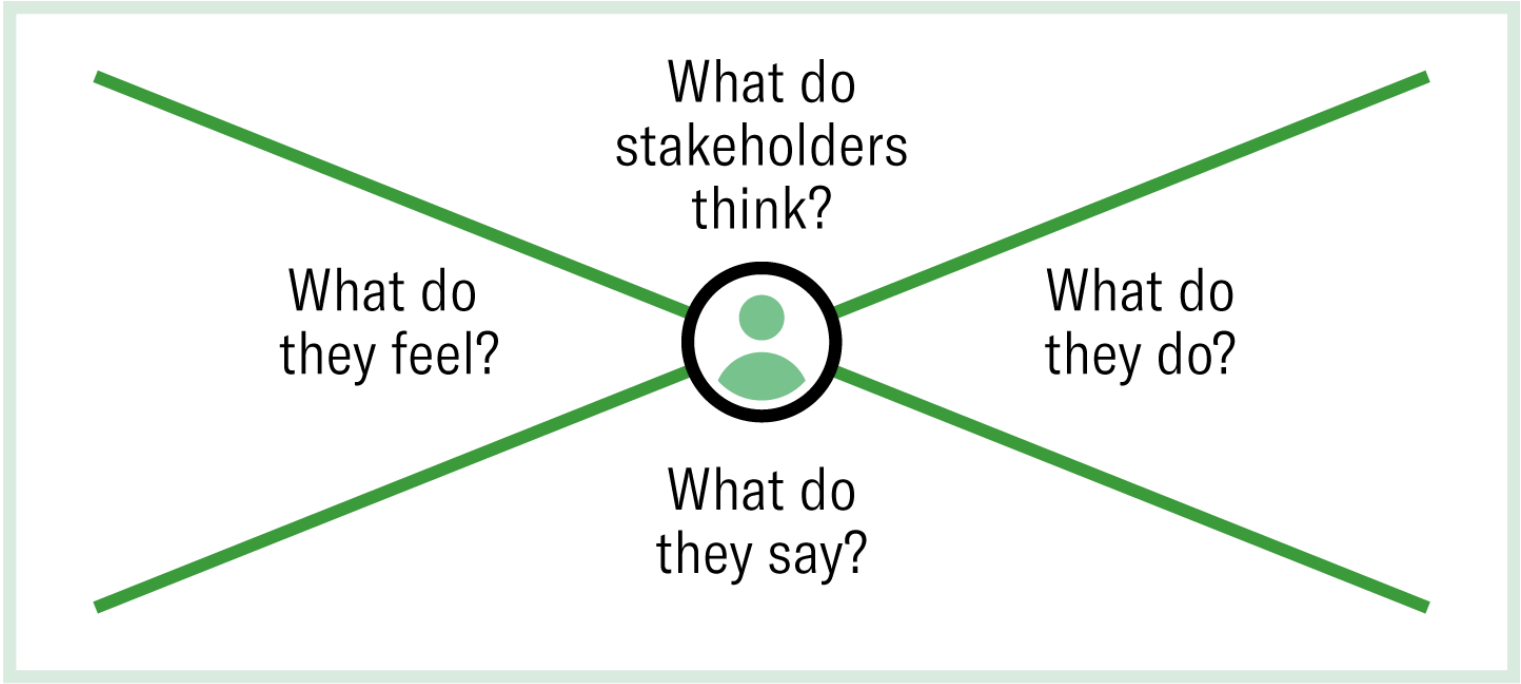
The iceberg model helps you investigate below the surface to understand how underlying factors contribute to a problem.



Phase 3: Empathize

Engage with Stakeholders

Create an empathy map and conduct interviews and surveys to gather data to populate each section.



Phase 4: Elevate

Adjust Your Vantage Point

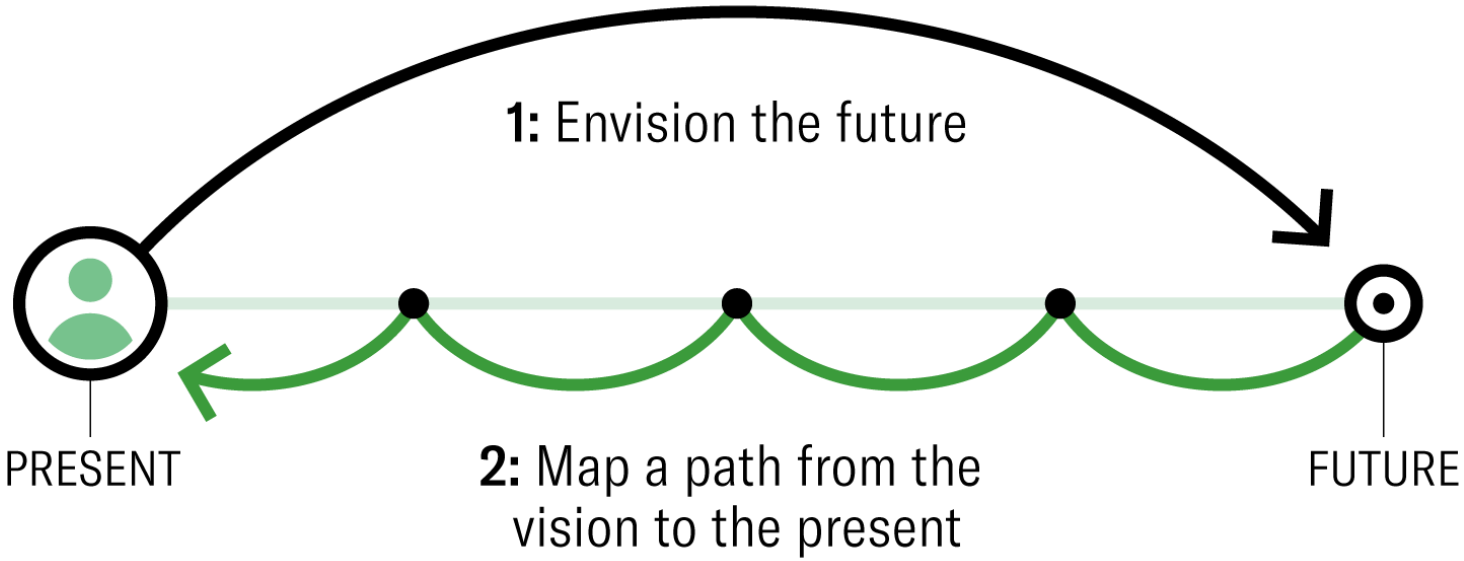
Explore the broader organizational issues that factor into the problem, using four distinct frames.

Political Power dynamics, competing interests, and coalitions	**Interpersonal** People and relationships
Structural Coordination and alignment of activities	**Symbolic** Group identity and culture

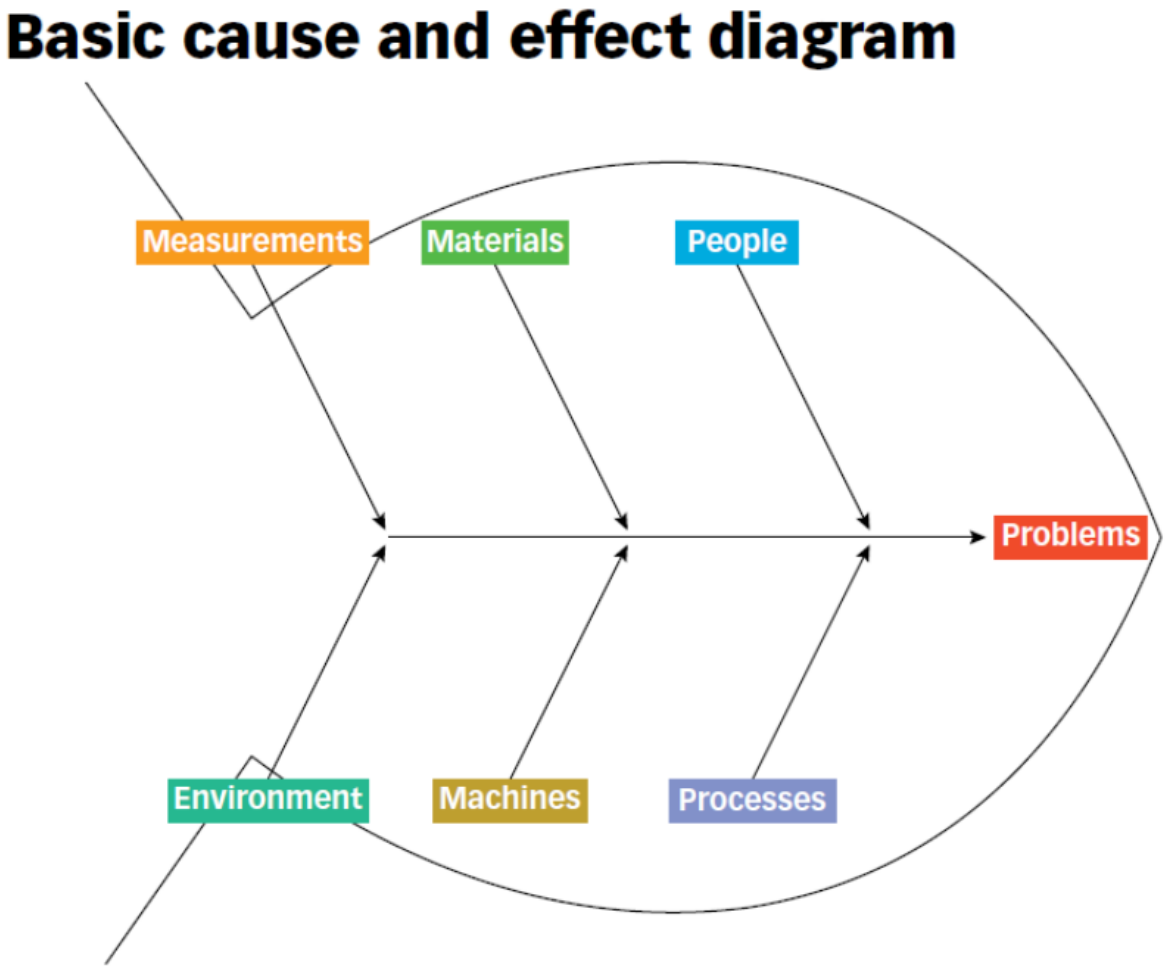
Phase 5: Envision

Reverse Engineer Your Path to Success

Backcasting starts with a clear vision of your desired goal. Then outline the necessary long-term milestones and immediate actions.



Fish Bone Analysis



Fish Bone Diagram

- A fishbone diagram is one of the most widely used tools in quality management.
- It is also known as a cause and effect diagram or an Ishikawa diagram (after its creator, Kaoru Ishikawa).
- The fishbone diagram can help users identify the many possible causes for a problem by sorting ideas into useful categories and is especially useful in structuring brainstorming sessions.

Fish Bone Diagram

- Identify the potential causes of the problem and categorise under “6 M’s”.

The 6M’s stand for:

- Materials—parts, ingredients, supplies.
- Machinery —production-related equipment, materials handling equipment, software (this may need to be a separate category for some industries/organizations).
- Methods —procedures, techniques, processes, regulations (this may need to be a separate category for government and heavily regulated industries).
- Measurement—key indicators, measurement devices, key data capture or collection points.
- Manpower—people and human resources, with their associated training, skills, competences.
- Mother Nature —environment and externalities.
- Less commonly included but useful for contemporary diagrams is a seventh M: Money —operating expenses and capital investments

Pareto Analysis

- The 80/20 Rule (also known as the Pareto principle or the law of the vital few and trivial many) states that, for many events, roughly 80% of the effects come from 20% of the causes.

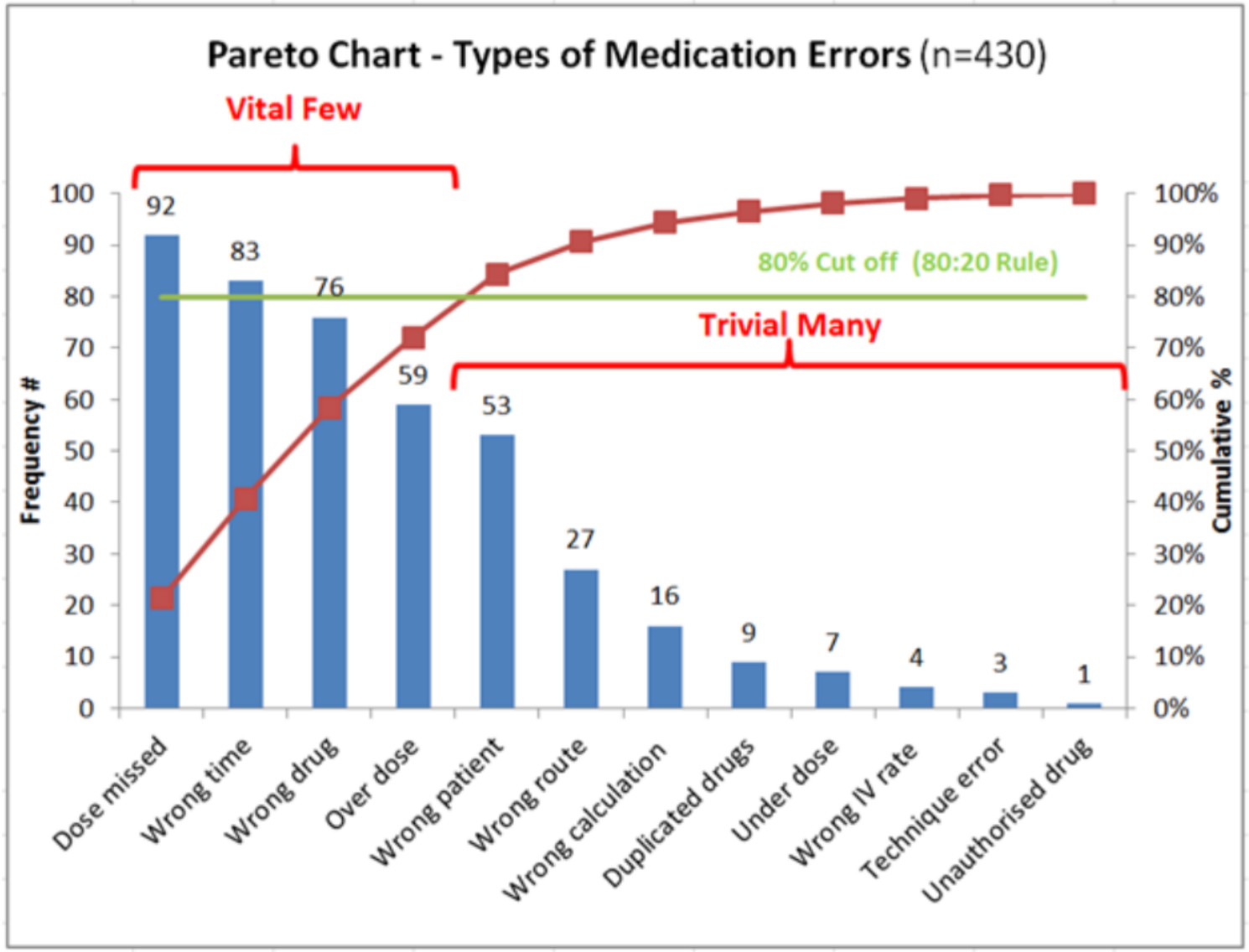
- Joseph Juran (a well regarded Quality Management consultant) suggested the principle and named it after the Italian economist Vilfredo Pareto, who noted the 80/20 connection in 1896.

Commonly, it is found that:

- 80% of complaints come from 20% of customers.
- 80% of sales come from 20% of clients.
- 80% of computer crashes come from 20% of IT bugs.

- Using a Pareto Chart helps a team concentrate its efforts on the factors that have the greatest impact. It also helps a team communicate the rationale for focusing on certain areas.

Pareto Analysis



Thank You

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