

Problem Solving & Guesstimates

A structured approach to thinking and estimation

What is Problem Solving?



Cognitive Process

A psychological journey of navigating and resolving complex situations when the path forward is uncertain



Goal-Oriented Navigation

Moving purposefully toward objectives even when the exact route remains unclear



Growth Catalyst

Drives development for individuals, organizations, and entire societies through continuous improvement



Value Creation

The more complex problems you can solve, the more valuable you become to employers and society

Problem solving is fundamentally about transforming uncertainty into clarity, obstacles into opportunities, and challenges into competitive advantages.

How Does Problem Solving Help Us?

Organizational & Social Impact

Drives innovation, efficiency, and progress by addressing critical challenges that move industries and communities forward

Enhanced Productivity

Structured approaches help you resolve issues faster and more effectively, preventing wasted time and resources

Career Advancement

Builds expertise and opens doors to new opportunities as you demonstrate capability with increasingly complex challenges

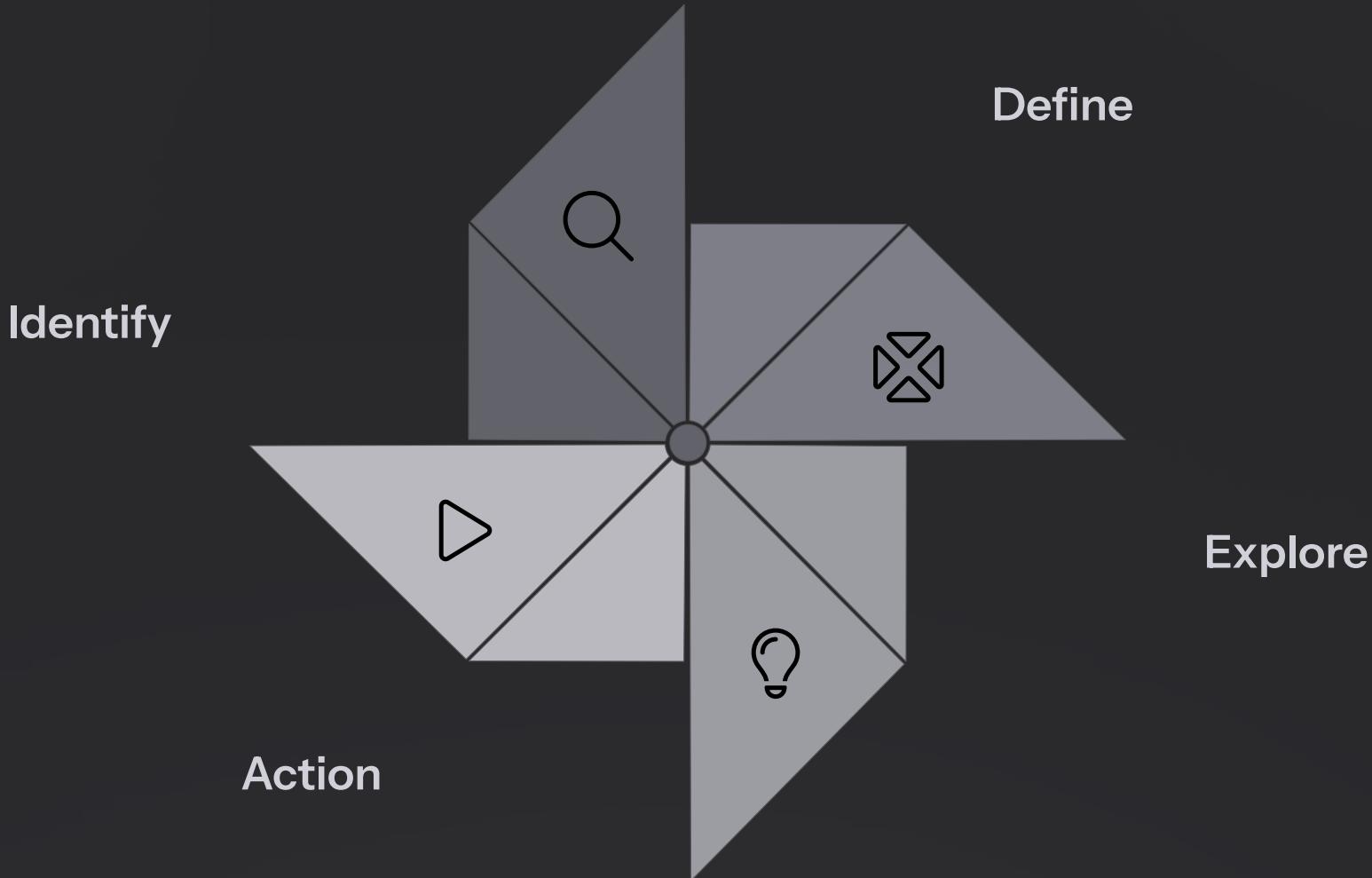
Intelligence & Confidence

Every solved problem sharpens analytical skills and reinforces belief in your own capabilities

- Problem solving isn't just a skill—it's a competitive advantage that compounds over time, making you progressively more effective and valuable.

The IDEAL Framework for Problem Solving

IDEAL is a cyclical, iterative framework that guides you from recognizing a problem to implementing and refining solutions. This isn't a one-way street—the "Look Back" step feeds insights into future problem-solving, creating continuous improvement.



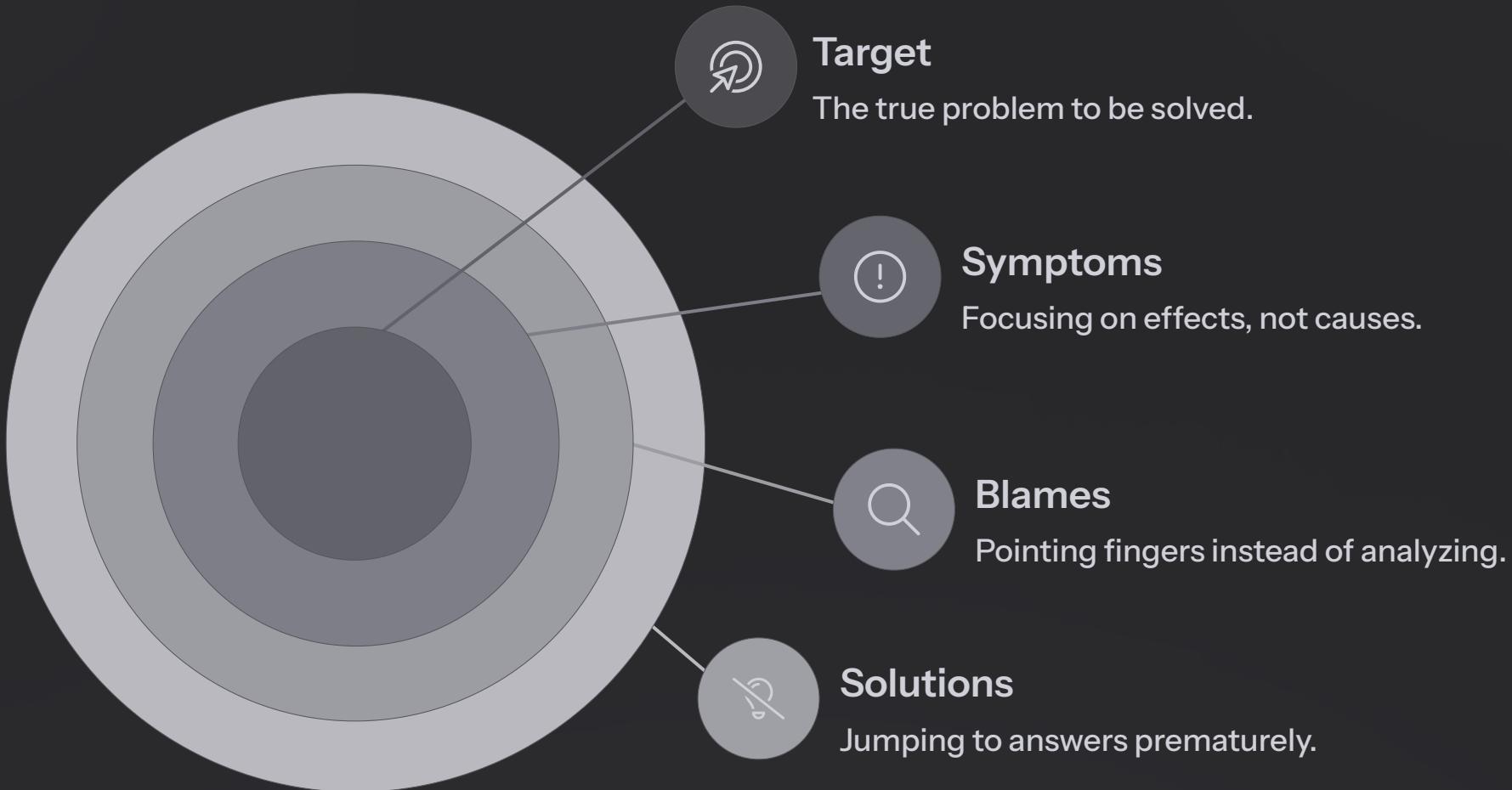
Asking the right questions at each step is the key. This is a thinking process, not just a checklist.

The framework transforms problem-solving from a haphazard activity into a deliberate, repeatable process that improves with each iteration.

Made with **GAMMA**

Why Defining the Problem is So Challenging

Before solving any problem, you must define it correctly. This is often the hardest part because several common traps obscure the true issue:



Symptoms

Mistaking effects for causes. "Sales are down" is a symptom, not the root problem.

Blames

Pointing fingers prevents objective analysis of systemic issues.

Solutions

Jumping to "we need X!" before understanding the actual problem.

Personal Biases

Past experiences cloud judgment and prevent seeing clearly.

The SMART Framework for Problem Definition

Avoid common traps by using SMART criteria to craft powerful, actionable problem statements:



Specific

Be crystal clear about what you want to accomplish. Vague goals lead to vague results.

Example: "Increase user engagement on our mobile app"



Measurable

Establish quantifiable metrics so you know when you've succeeded.

Example: "Increase daily active users by 15%"



Achievable

Set ambitious but realistic goals. Impossible targets demotivate and waste resources.



Relevant

Ensure the problem aligns with broader business or personal goals. Is it worth solving now?



Time-bound

Set clear deadlines to create urgency and focus.

Example: "...in the next quarter"

Structuring Exploration with MECE

MECE = Mutually Exclusive, Collectively Exhaustive

The MECE method, popularized by McKinsey, is the gold standard for structuring your thinking when exploring solutions.



Mutually Exclusive

Each item is separate and distinct with no overlap. No individual appears in more than one category.



Collectively Exhaustive

All items combined cover every possible option. Nothing is left out when categories are combined.

Age Breakdown Example

MECE: 0-18 years, 19-35 years, 36-60 years, 61+ years

No overlap, everyone included

Not MECE: Kids, Adults, Senior Citizens

Vague definitions, potential overlaps, missing categories

MECE thinking ensures you explore the complete solution space systematically without wasting effort on redundant analysis.

Introduction to Guesstimates

What is a Guesstimate?

A logical estimation of a quantity with limited information. It's not about getting the exact answer—it's about demonstrating **structured thinking under uncertainty**.

Why Guesstimates Matter

Test Problem Decomposition

They assess your ability to break complex problems into manageable pieces using frameworks like MECE.

Evaluate Assumptions

They force you to make reasonable, defensible assumptions when perfect information isn't available.

Demonstrate Structure

They showcase your capacity for systematic thinking in ambiguous situations—a critical skill in business and consulting.

The process of arriving at an estimate reveals far more about your problem-solving capabilities than the final number itself.

Applying Frameworks to Guesstimates

Successful guesstimates combine the frameworks we've discussed. Here's how they work together:



Define with SMART

Clarify exactly what you're estimating and the level of precision needed



Break Down with MECE

Decompose the problem into mutually exclusive, collectively exhaustive components



Estimate & Calculate

Make reasonable assumptions for each component and work through the math



Validate & Refine

Sense-check your answer and adjust assumptions if needed

Example approach: "How many gas stations are in the United States?"

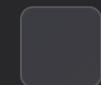
- Define: Estimate total number of retail gas stations
- Break down: US population → number of cars → cars per station
- Estimate: 330M people, 250M cars, average 1 station per 3,000 cars
- Calculate: $250M \div 3,000 \approx 83,000$ stations
- Validate: Compare to known data points or adjust assumptions

Key Takeaways



Problem solving is a learnable skill

Use structured frameworks like IDEAL to transform uncertainty into actionable solutions



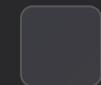
Define before you solve

Avoid symptoms, blames, premature solutions, and biases. Use SMART criteria to craft clear problem statements



Structure your thinking with MECE

Break problems into mutually exclusive, collectively exhaustive components to ensure complete coverage



Guesstimates test your framework mastery

They're not about precision—they demonstrate your ability to think systematically under uncertainty

The more complex the problems you can solve, the more valuable you become. Start practicing these frameworks today to build your problem-solving muscle.