

Why problem solving training?

What is problem solving?

A structured method helping you to think critically, cut through complex problems, prioritize, and make decisions

Why do we teach it?

Good management and decision making is based on problem solving

Everyone in operationally excellent organizations should be finding and solving problems as part of their daily work

What is a problem?

A problem exists whenever there is a gap between the current condition and the condition desired by the business

What is problem solving?

A structured method of establishing and implementing sustainable solutions to these problems

When is it required?

As frequently and consistently as possible

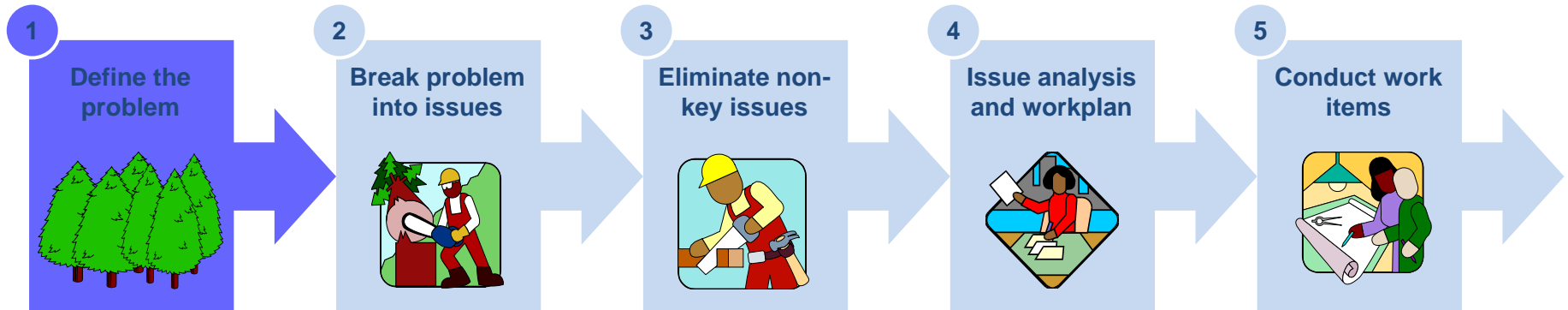
Who should practice it?

Everyone involved in operations

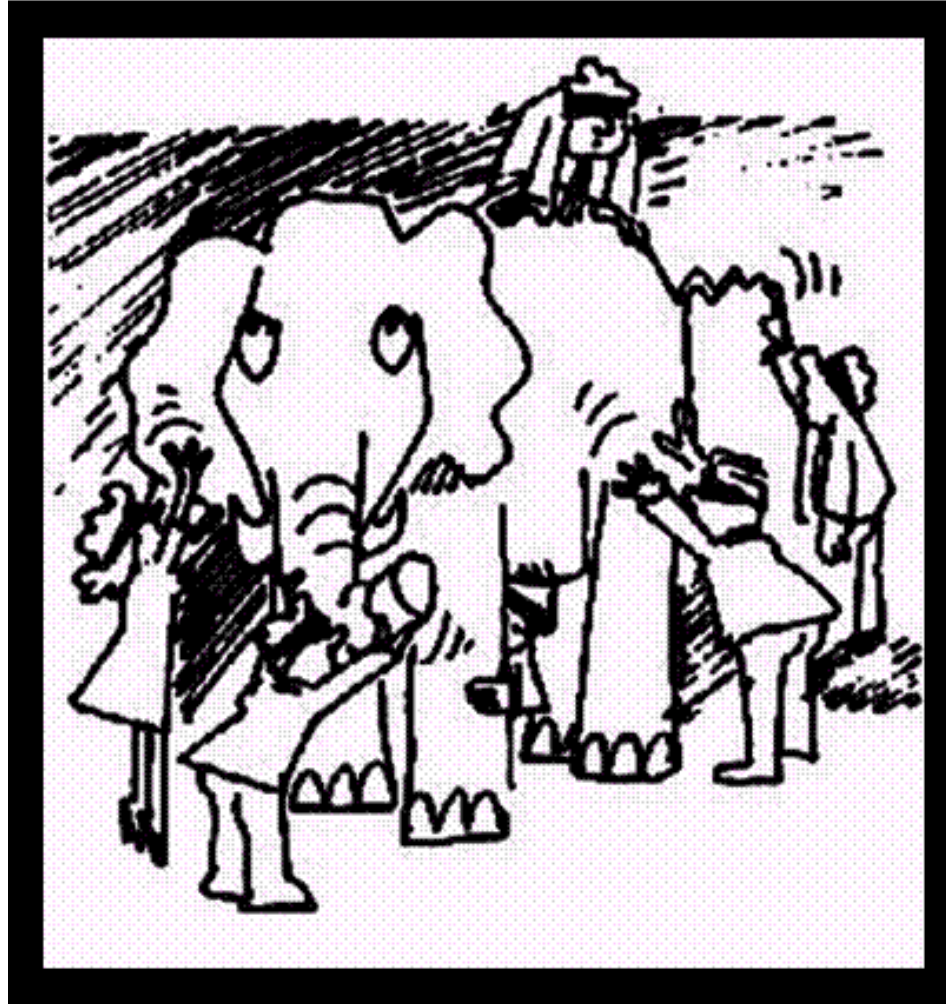
Objectives of today's training

- Provide you with a framework for how to solve problems (all types of problems)
- Practice using tools and techniques for structuring, analyzing, and solving problems

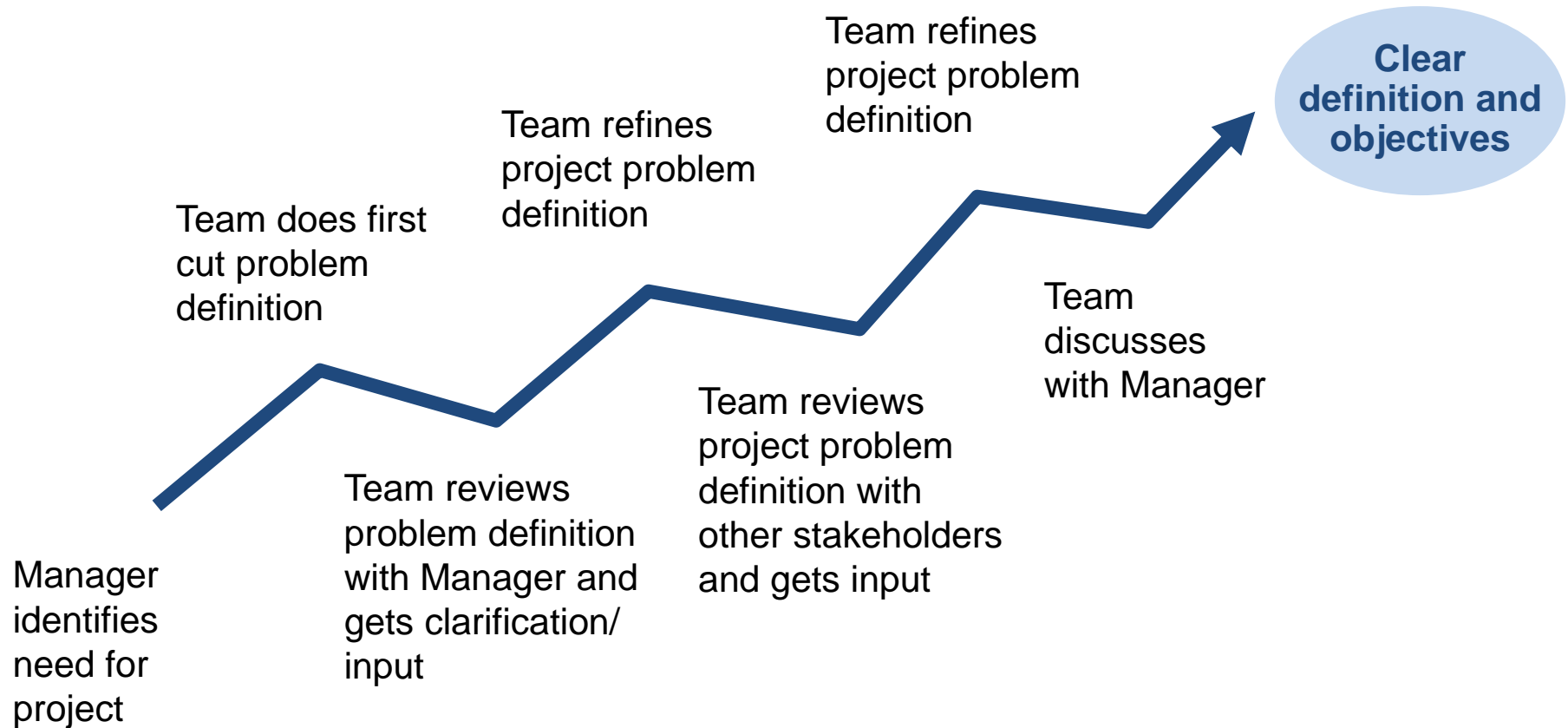
5-step problem solving methodology



Getting an accurate understanding of the problem
is the first priority



Defining a problem is an iterative process





Problem	Solution space	Verdict
<p>“I hate my job”</p> <p>Why?</p>	<ul style="list-style-type: none">▪ Change job▪ Cope with it <hr/>	<ul style="list-style-type: none">▪ Not very likely to have impact <hr/>
<p>“I hate my boss”</p> <p>Why?</p>	<ul style="list-style-type: none">▪ Change job▪ Cope with it▪ Change boss <hr/>	<ul style="list-style-type: none">▪ Not very likely to have impact <hr/>
<p>“He/she doesn’t support me”</p> <p>Why?</p>	<ul style="list-style-type: none">▪ Change job▪ Cope with it▪ Change boss▪ Change boss’ behavior <hr/>	<ul style="list-style-type: none">▪ We’re getting there! <hr/>
<p>“Maybe he/she doesn’t like me – I don’t know”</p>	<ul style="list-style-type: none">▪ Talk to boss	<ul style="list-style-type: none">▪ Now we have an actionable next step that will improve problem solving impact!



What are the characteristics of a good problem statement?

- Specific, not general
- A thought-provoking question, not a fact
- Debatable (not a statement of fact or non-disputable assertion)
- Actionable
- Focused on what the decision maker needs to move forward



Good problem statements are specific and actionable

Question

What opportunities exist for the company's supply chain to produce cost savings of \$150mn in 50 months?

OR

Hypothesis

The company should shift to a low cost operator approach, cut overheads, redesign operations, and restructure non-core assets to improve profitability by \$40mn per year



A problem statement worksheet is a good way to frame and define the problem

Basic question to be resolved ?

- What opportunities exist for the company's supply chain to produce cost savings of \$150mn in 50 months?

① Situation and complications?

Cultural changes

- Stock price stagnation
- Competition
- Increasing cost due to industry pressures and regulatory changes

② Decision makers and processes?

- VP, supply chain president, VP of operations, and plant managers
- Parties will either communicate and support the solution or drive the solution

③ Goal/criteria for success?

- Clear set of quantifiable metrics
 - \$150mn cost savings produced in 50 months
 - Complete roll out of plan to all facilities in a staggered approach

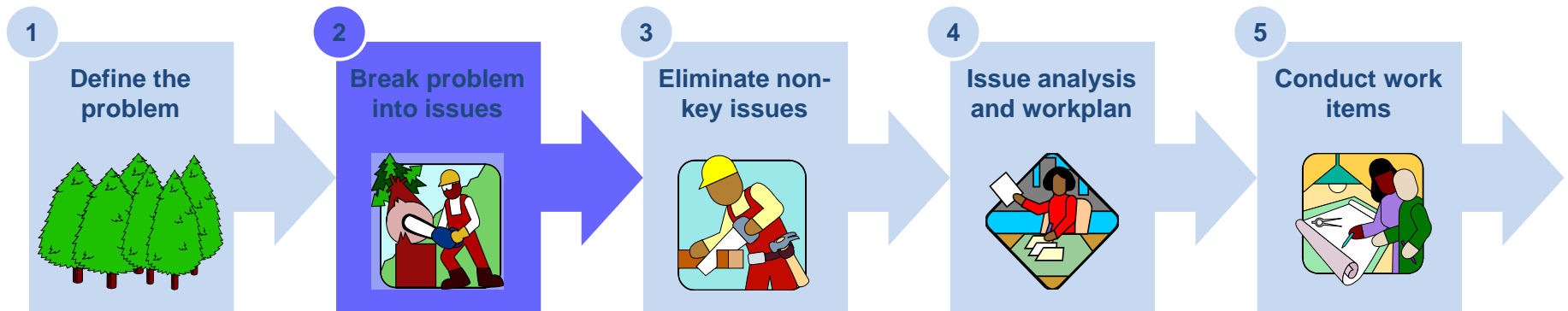
④ Scope?

- Each facility is responsible for a set amount of savings
- Only supply chain cost improvements will be considered

⑤ Obstacles?

- Limited short-term capital
- Resistance to change
- People resources – prioritization of existing management structure to achieve initiative

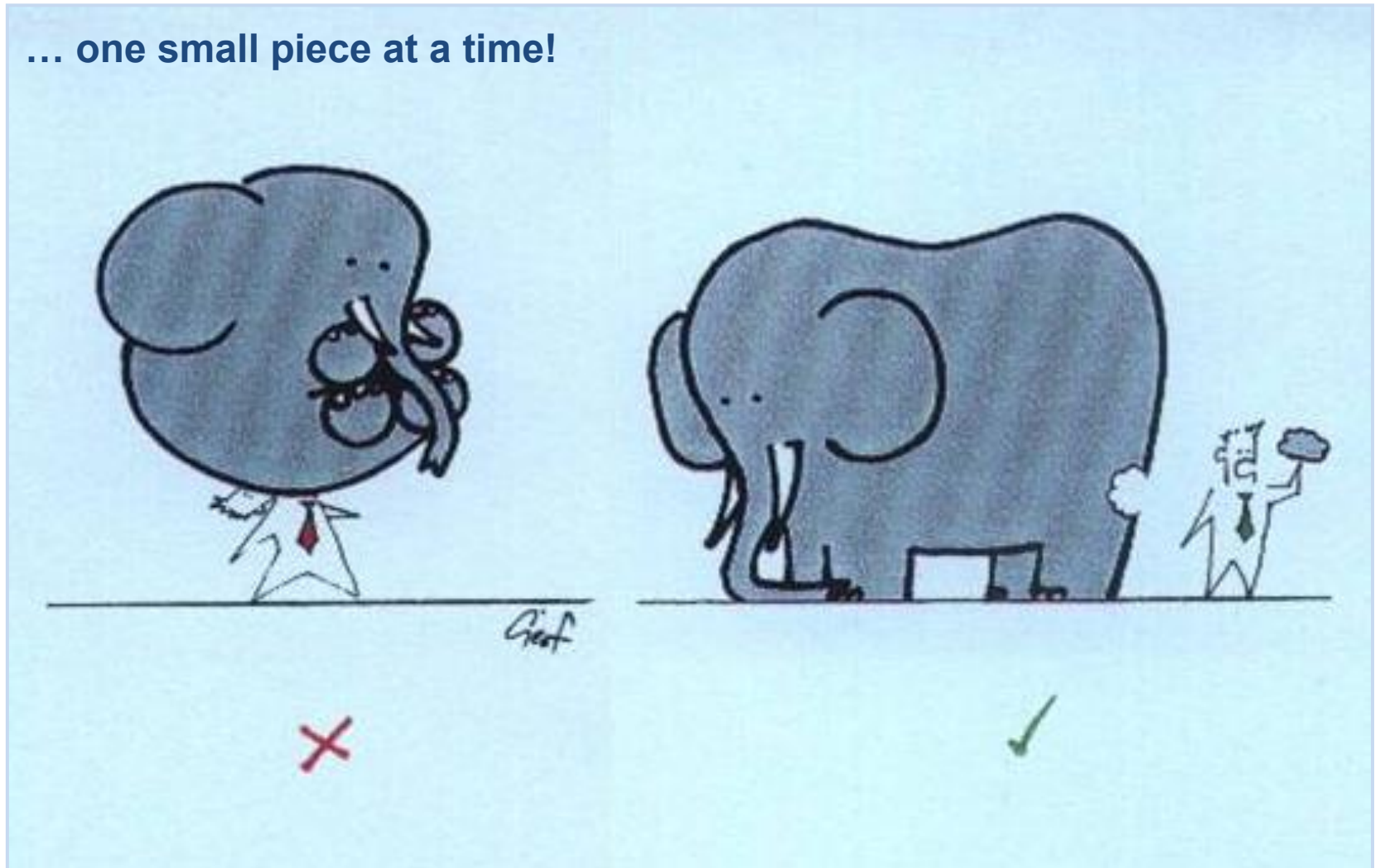
5-step problem solving methodology



How do you eat an elephant?

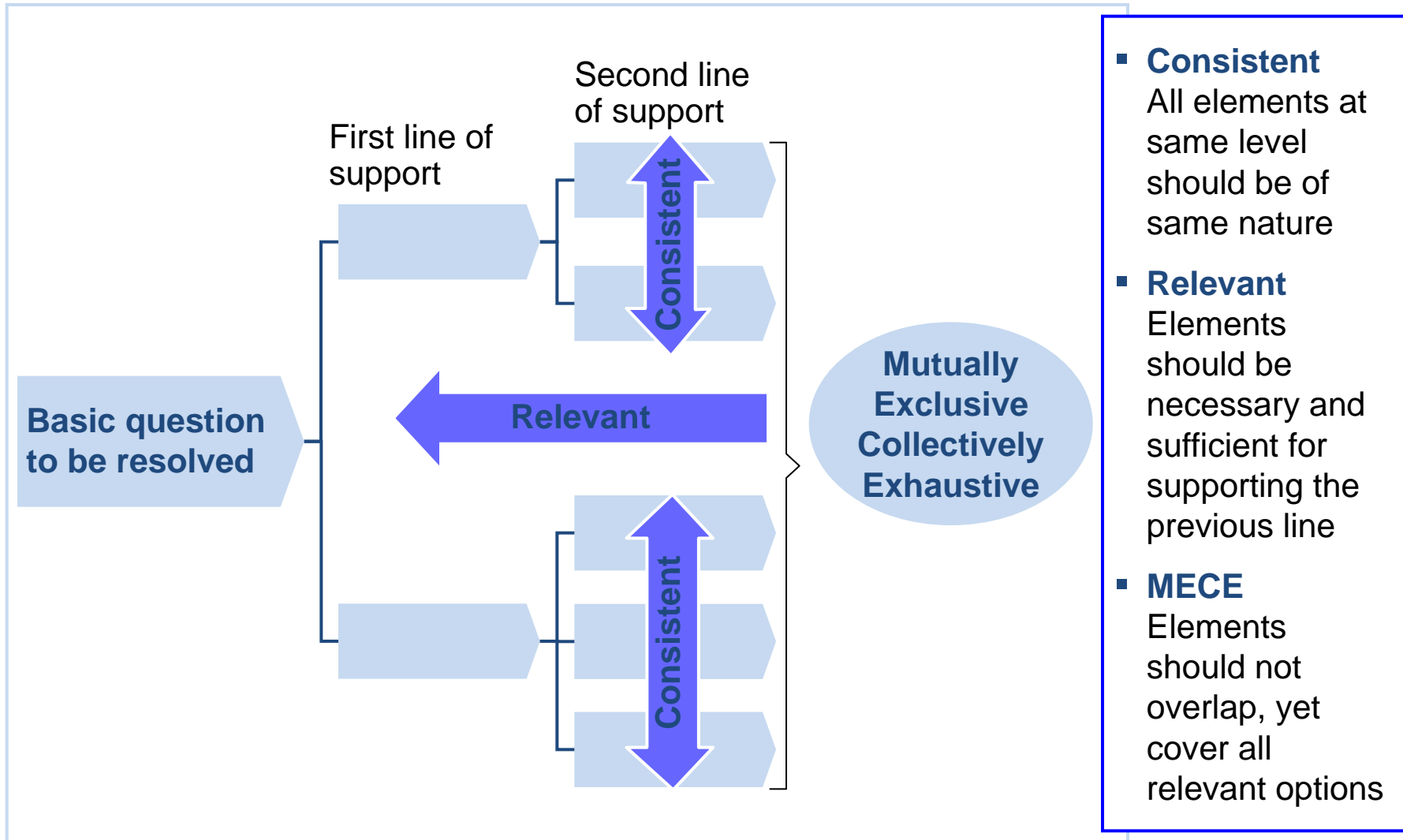


... one small piece at a time!





Logic trees help when structuring a complex problem and are consistent, relevant, and MECE¹



¹ Mutually exclusive, collectively exhaustive



To break down a problem into components so that

- Work can be divided into manageable pieces
- Priorities can be set
- Responsibilities can be allocated

Provide the basis for a work plan

To ensure that integrity of the problem solving is maintained

- Solving the parts will really solve the problem
- The parts do not overlap and there are no gaps

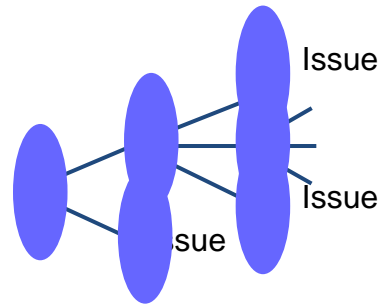
Ensure “MECE”ness



There are two types of logic trees that are used at different occasions

Deductive:
What
or how?

Problem definition



Description

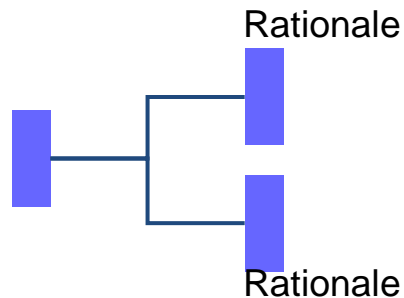
E.g., asking what or how

Used when ...

- Knowledge of problem is limited and type of issue is general/broad
- Typically used upfront to save time

**Hypothesis
driven:**
Why?

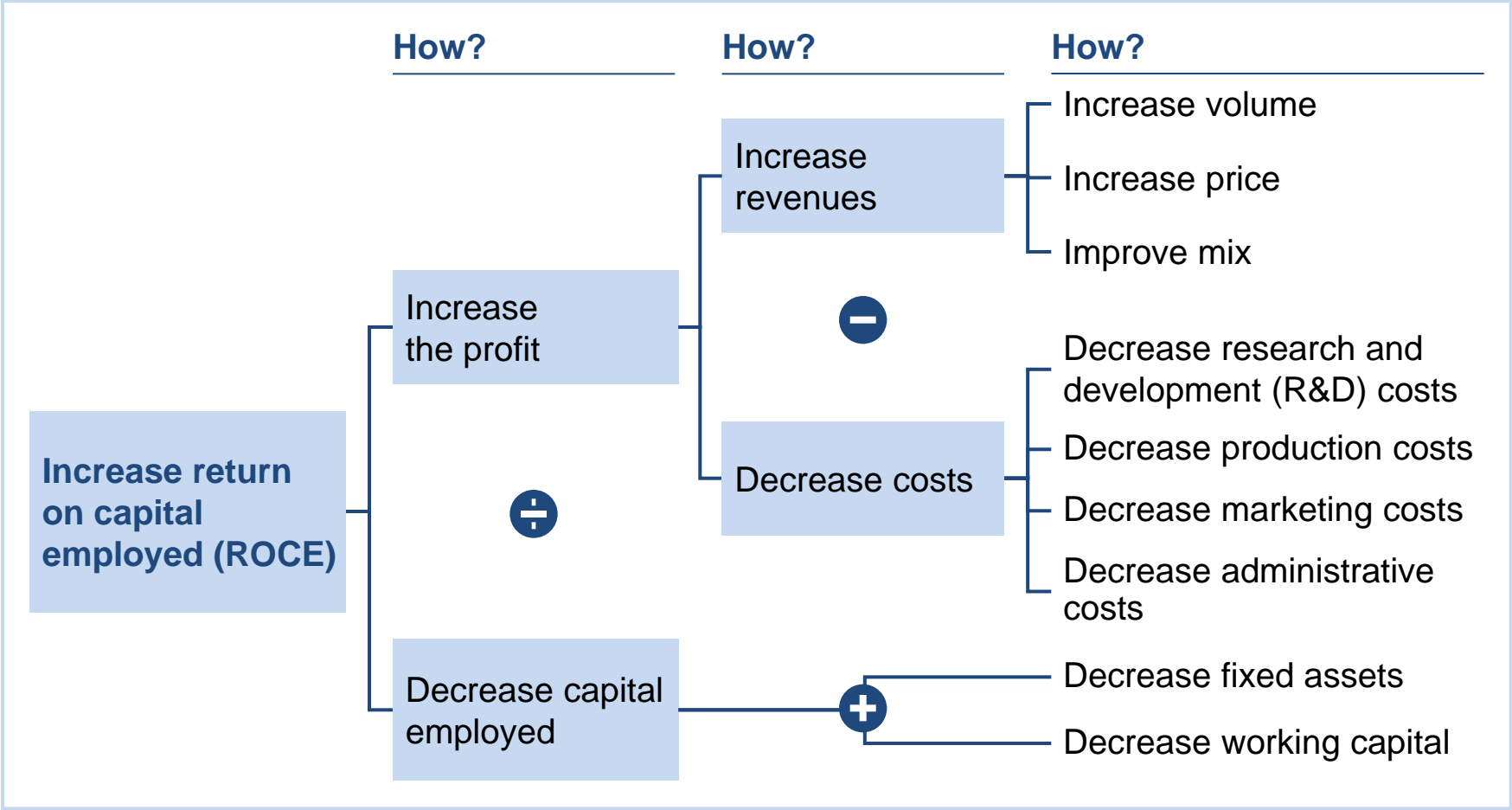
Hypothesis



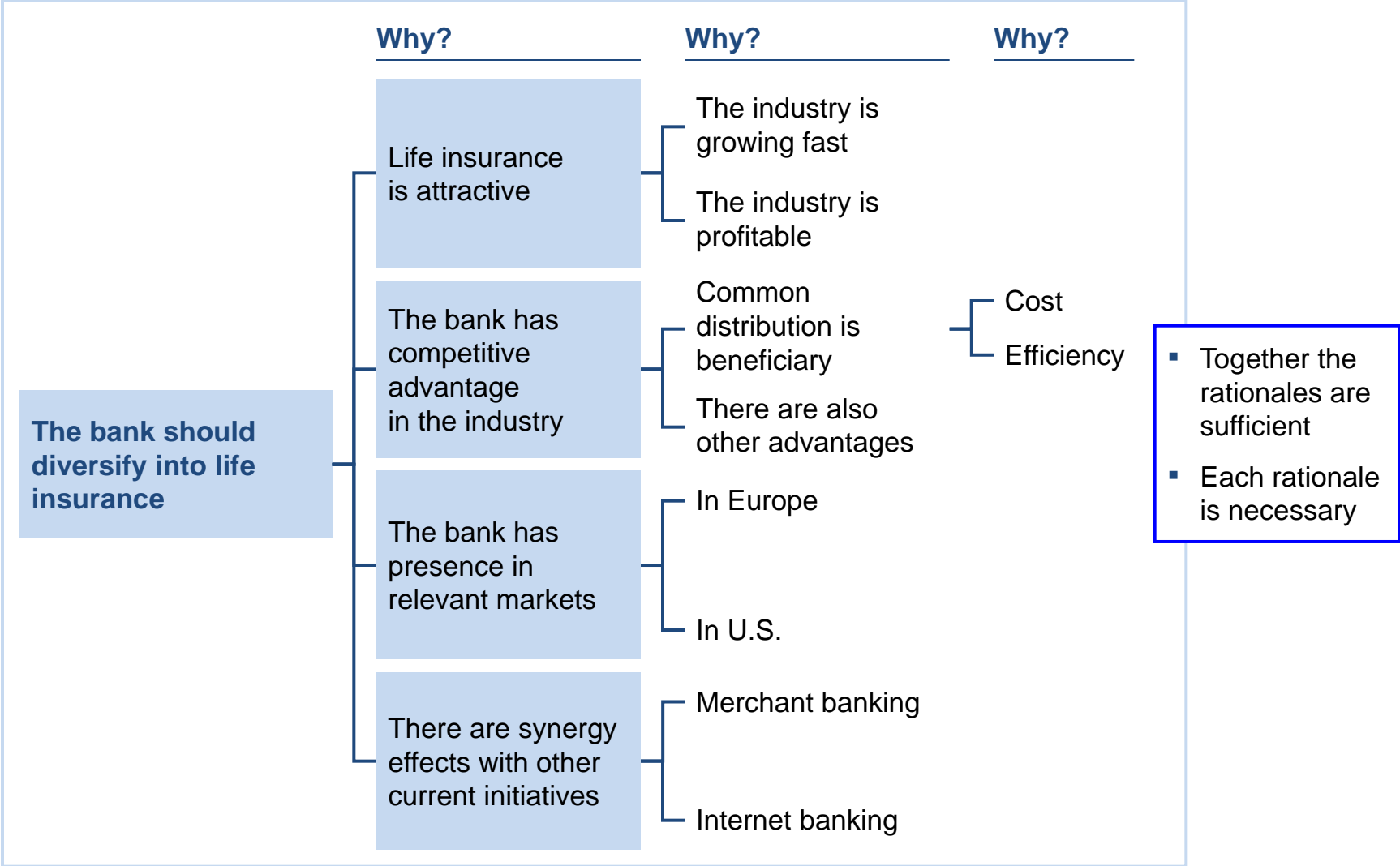
- Necessary and sufficient rationale to validate hypothesis

- Knowledge of problem is deep and type of issue is specific

Example of a deductive logic tree



Example of a hypothesis driven logic tree

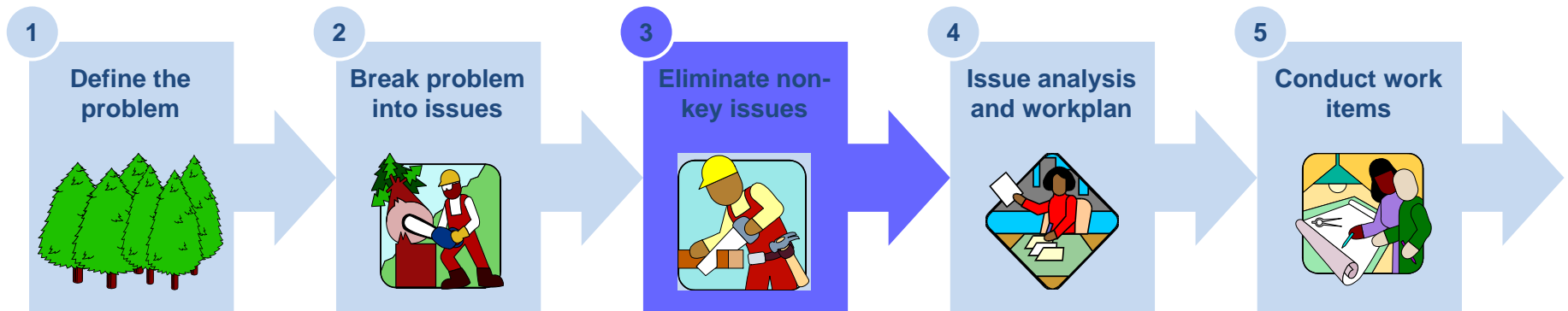




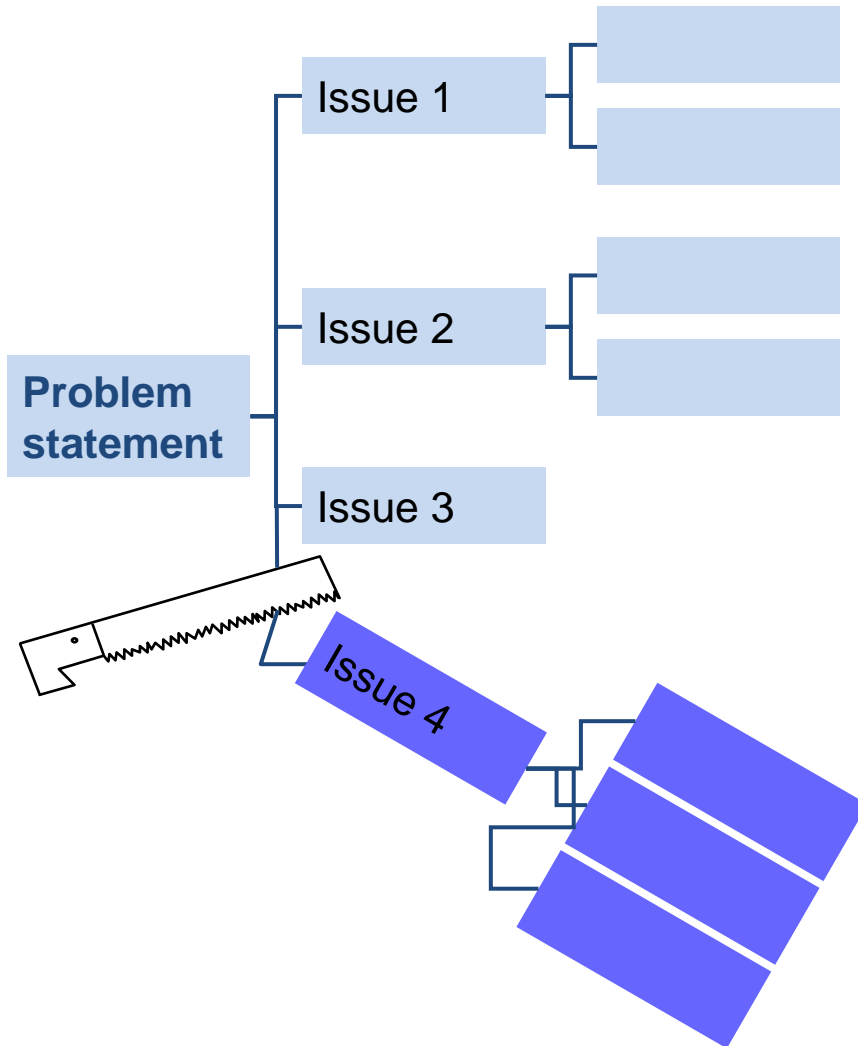
Breakout in your teams to conduct two exercises

- 1) How to make more money
- 2) How to get married
- 3) How to break up with someone

5-step problem solving methodology

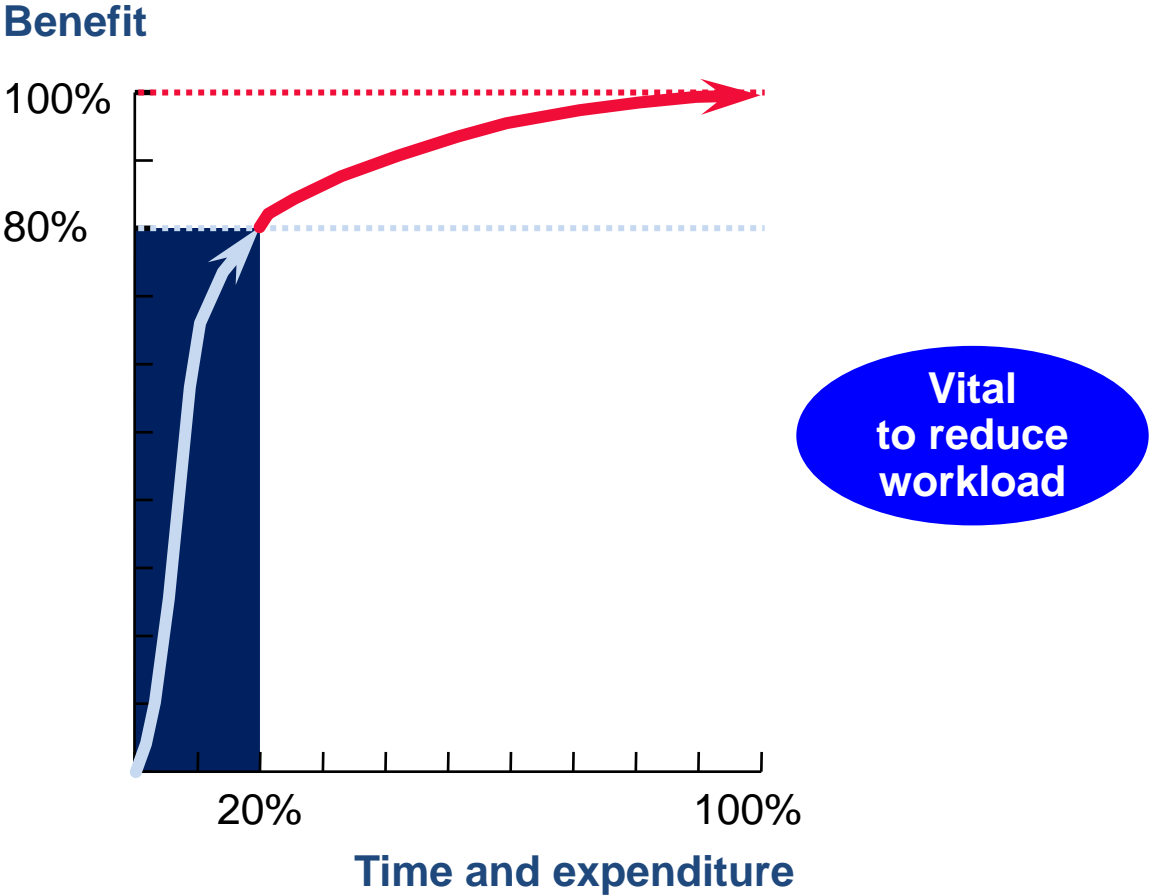


Prioritization helps to trim the tree



- Cut off branches to work efficiently
- Prioritize effort on what is most important

What is the 80:20-rule?





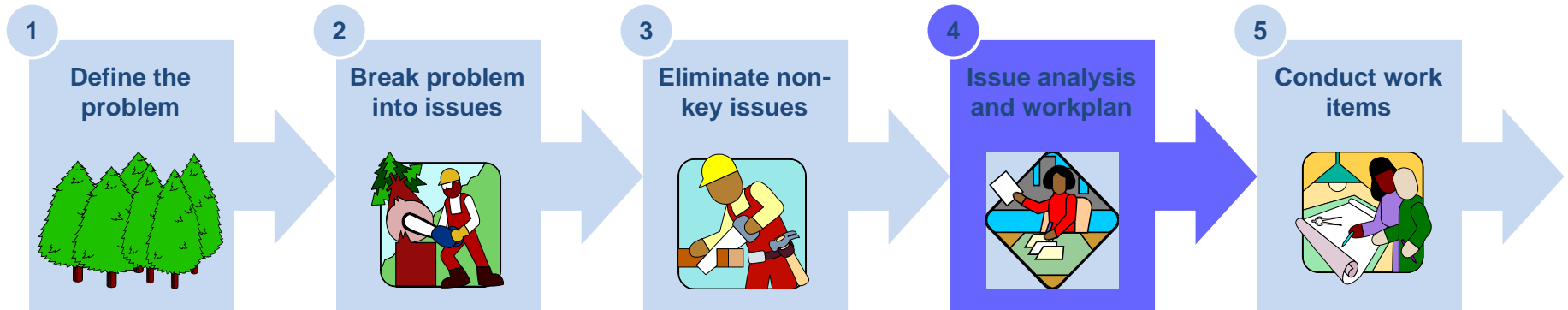
What is it?

- A grid that maps out decision options based on a given set of criteria
- Examples:
 - impact of an idea vs. the speed to implement the idea
 - Ease of data collection vs. Accuracy of data
 - Financial benefits of an improvement idea vs. Required investment for implementation

Prioritization matrix – example

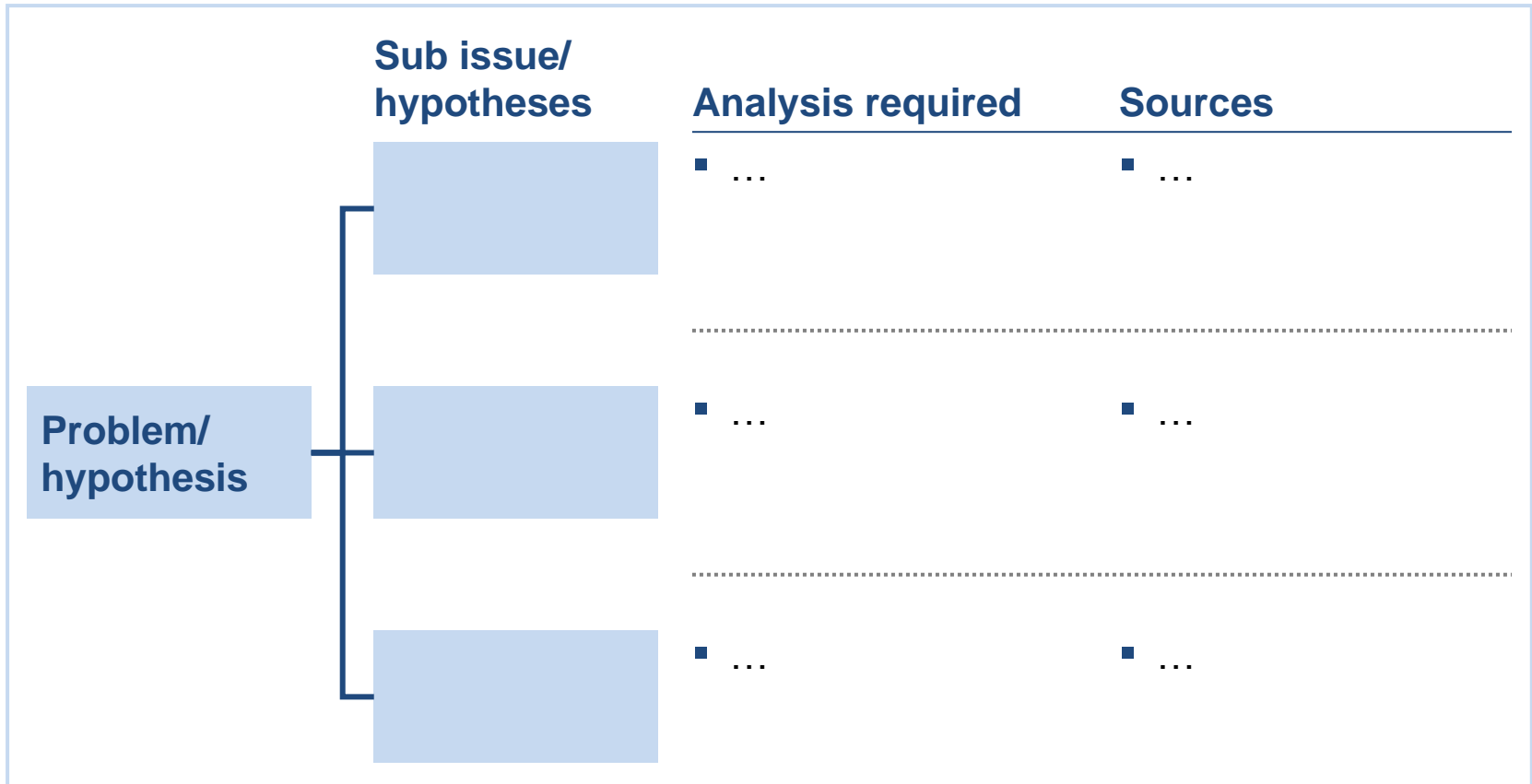


5-step problem solving methodology





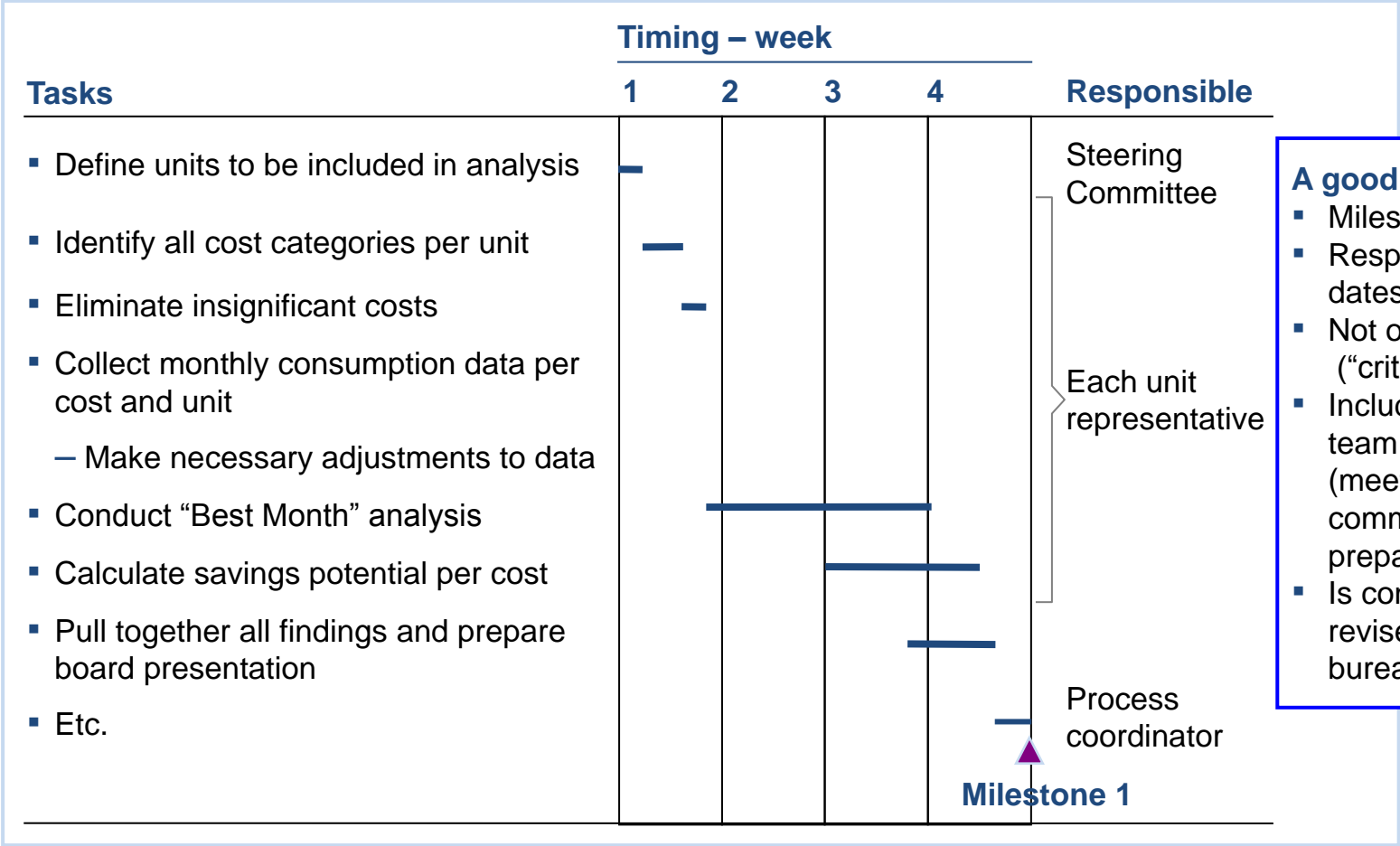
Use the issue analysis as the base for the work planning





Issue	Analysis	Source	Responsible/timing	End product
<ul style="list-style-type: none">▪ Issue or hypothesis	<ul style="list-style-type: none">▪ Work to be done to prove or disprove the hypothesis	<ul style="list-style-type: none">▪ Likely location, or means of obtaining data to the analyses	<ul style="list-style-type: none">▪ The person who will obtain the data and do the analysis▪ By when	<ul style="list-style-type: none">▪ End product (to answer issue/confirm hypothesis)
<ul style="list-style-type: none">▪ Should we invest \$20mn in a new manufacturing technology	<ul style="list-style-type: none">▪ Comparison of manufacturing costs	<ul style="list-style-type: none">▪ Interviews with equipment manufacturer▪ Interviews with customers	<ul style="list-style-type: none">▪ John 1/9	<ul style="list-style-type: none">▪ Financial forecast and value of investment

Never underestimate the impact of a well-structured work plan!



A good work plan

- Milestones and tasks
- Responsible and dates
- Not overly optimistic (“critical line”)
- Includes time for team processes (meetings, communication preparation)
- Is continuously revised (tool-not bureaucracy)



Early Do not wait for data, critical mass, or anything else

.....
Often Revise, update, and improve your hypotheses
as you work through the data

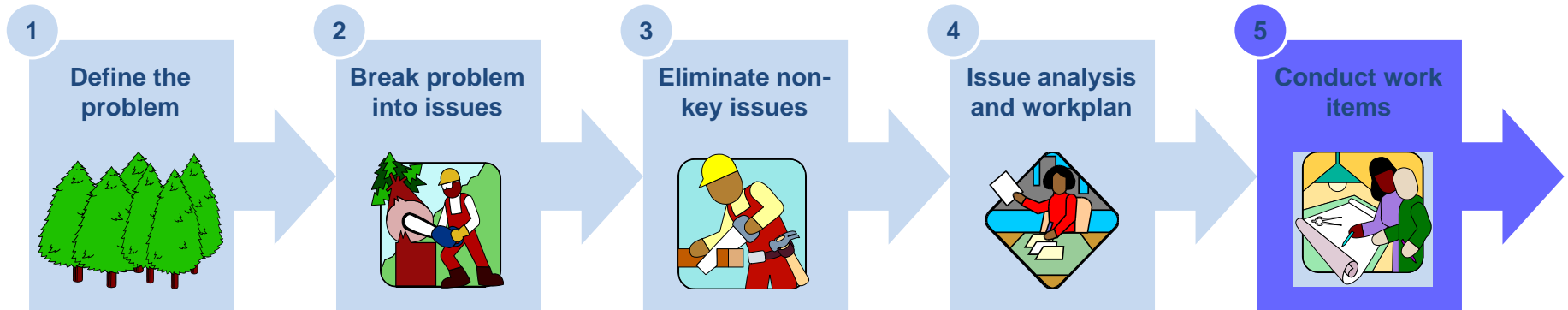
.....
Specific Be very specific on analysis and source

.....
Syndicate Test with General Managers, Managers,
team members

.....
Milestones Be disciplined – deliver on time using 80/20

.....
Meaningful Push detailed work plans out only 2–4 weeks
ahead. Do not write an encyclopedia

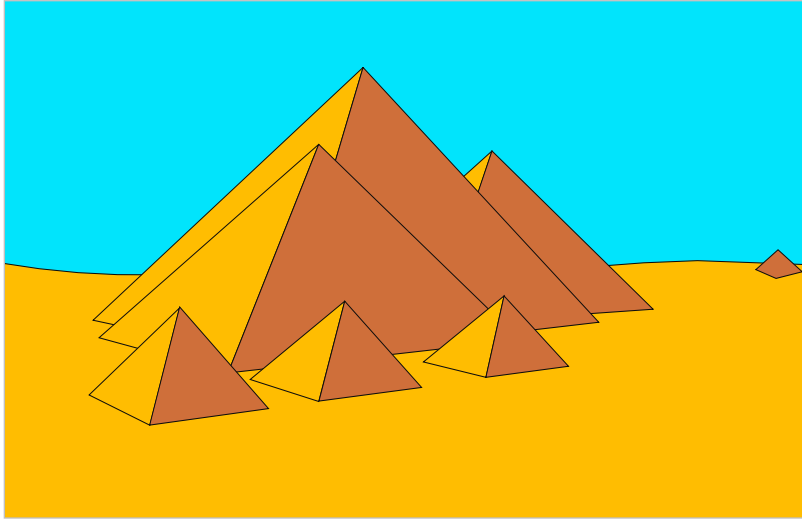
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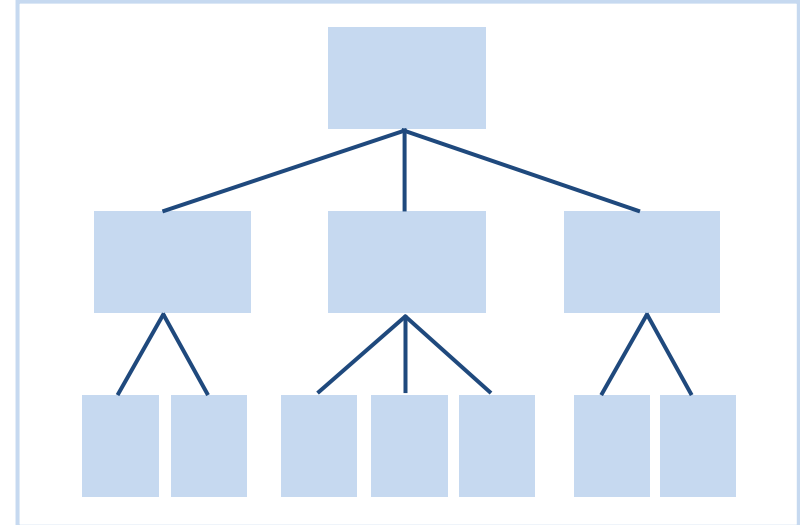
BONUS

Pyramid structure

Pyramids built of stone ...



Pyramids built of ideas ...



- Only one 'stone' at the top
- Every stone supported by at least two other stones
- Sturdy – not easily thrown away



Benefits of top-down communication

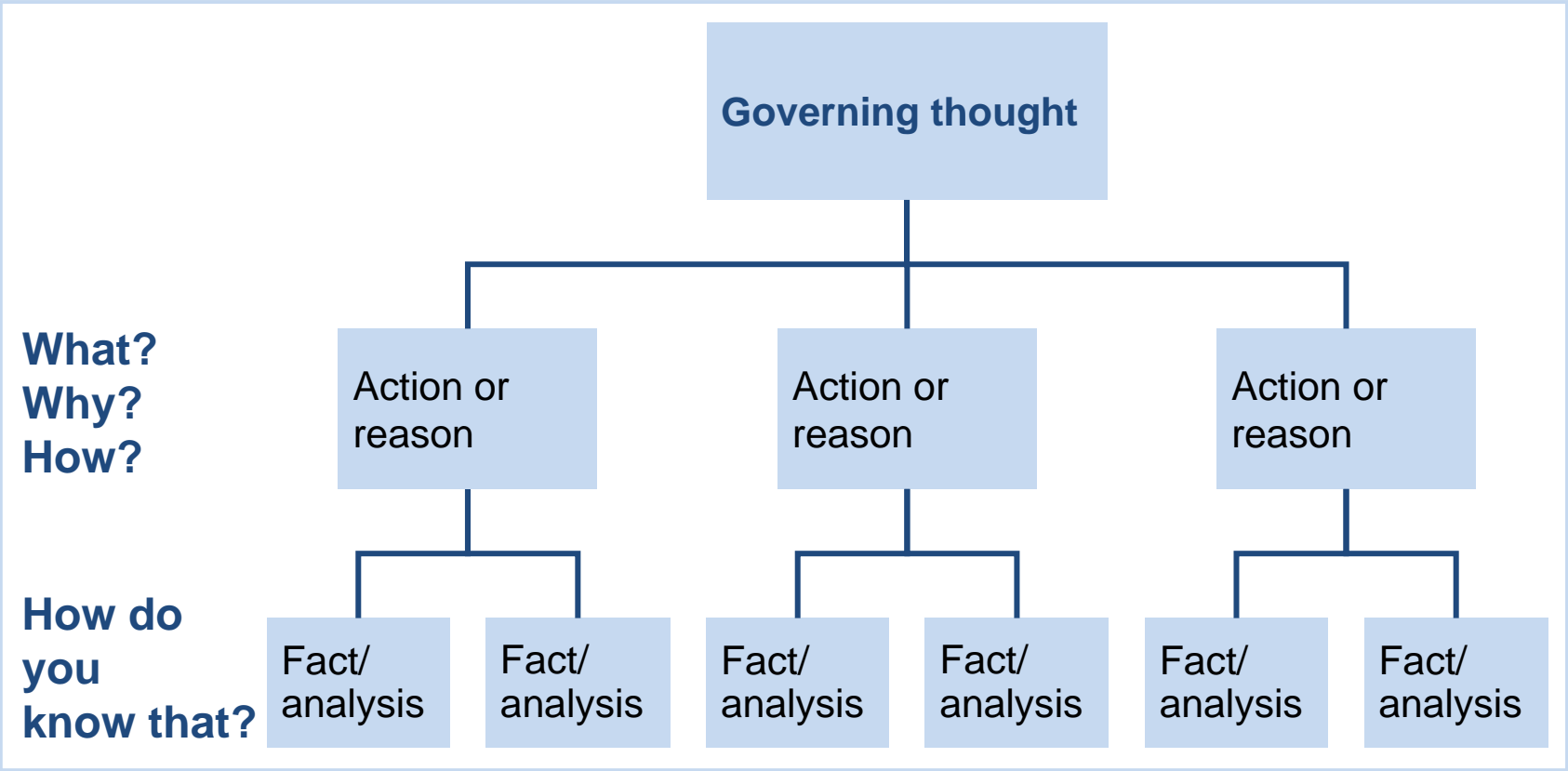
For your audience

- Gets your message across faster
- Is easier to absorb and process

For yourself

- Puts yourself in the shoes of top management
- Forces you to think clearly
- Eliminates irrelevant material

The pyramid structure



Reflections: Overall problem solving

Invest in upfront thinking

- Define the right problem
- Ask so-what
- Make hypothesis

Talk to others, interact, and syndicate

- Other people have done this before
- Each input avoids changes later on

Plan for how to use the results

- Presentation vs. action