

Risk vs Uncertainty Matrix

Know what kind of not-knowing you are dealing with

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How to use this tool

Use this tool at Step 2 (Explore the Evidence) or Step 3 (Challenge Your Thinking) of the Decision Cycle to classify the unknowns in your decision before choosing how to respond to them. Chapters 3 and 4 of LIFE: Our Uncertain Experiment explain the kinds of uncertainty behind it.

Stage 1 - List your unknowns. Before placing anything on the matrix, make a complete list of what you do not know about this decision. Do not categorise yet - just list. Separating the listing from the classifying produces a more accurate inventory.

Stage 2 - Classify each unknown. For each item, ask: can I estimate how likely each outcome is, and do I know the full range of possible outcomes? If yes to both, it is risk. If not, it is uncertainty. Place each item accordingly.

Stage 3 - Choose your tools. For risks, use probability-based approaches: expected value, likelihood and impact scoring, risk registers. For uncertainties, use scenario planning, options thinking, or resilience-building. Applying risk tools to uncertain conditions creates false precision that misleads more than it helps.

Stage 4 - Revisit as you learn. What begins as uncertainty can become risk as you gather information. Return to the matrix if the information picture changes significantly before you commit.

PART 1 Risk vs Uncertainty - the critical distinction

In 1921, economist Frank Knight drew a distinction that most decision-makers still overlook (Knight, 1921/1957). Risk is measurable: you can attach a probability to each outcome. Uncertainty is not: you cannot reliably estimate the probabilities, or you may not even know the full range of outcomes. Treating uncertainty as though it were risk - applying probability tools where they do not belong - is a common cause of poor decisions.

Risk	Uncertainty
You know what could happen. You can estimate how likely each outcome is. Tools: probability, expected value, risk registers, insurance, decision trees.	You know what could happen - but not how likely. OR: You cannot define the full range of outcomes. Tools: scenario planning, options thinking, experimentation, resilience building.

Chapter 3 of LIFE: Our Uncertain Experiment describes two kinds of uncertainty: not knowing enough, which you can reduce by finding out more, and an unpredictable world, which you prepare for. Chapter 4 describes known and unknown unknowns. The Risk and Uncertainty zones below are mostly the first kind. Complexity and Ambiguity include the second, and the unknown unknowns.

WHY DOES IT MATTER?

- Using risk tools under uncertainty gives false precision. A probability estimate you cannot justify misleads more than it helps.
- Using uncertainty tools under risk leaves value on the table. If you can calculate the odds, you should.
- Misclassifying complexity or ambiguity as simple risk leads to over-confident plans and under-prepared responses.

This matrix gives you a framework for diagnosing what kind of not-knowing you are dealing with - and choosing the right response. Use it early in your decision process, before you commit to a particular analytical approach.

PART 2 The matrix: four zones

Across: how well can you estimate the probability of each outcome? Down: how well can you define what the possible outcomes are?

	Low understanding of likelihood	High understanding of likelihood
Outcomes well defined	UNCERTAINTY Known outcomes · Inestimable likelihood You can describe what might happen, but you cannot reliably estimate how likely each outcome is. Probabilities are contested or unknowable. → Scenario plan · Hedge · Build flexibility	RISK Known outcomes · Estimable likelihood You can define what might go wrong AND estimate how likely each outcome is. Probability and impact can be calculated, even if imperfectly. → Manage · Mitigate · Calculate expected value
Outcomes unclear	AMBIGUITY Unclear outcomes · Inestimable likelihood Neither the range of outcomes nor their likelihood is clear. You are in new territory - the “unknown unknowns.” Conventional analysis is limited. → Experiment · Build resilience · Stay reversible	COMPLEXITY Unclear outcomes · Estimable likelihood You can estimate how likely things are, but the full range of outcomes is still unclear. The system is complex and interactive - small changes can cascade. → Test and explore · Use feedback loops · Stage commitments

The four zones are adapted from Stirling (2007), with relabelled zones. Stirling’s “ambiguity” is this tool’s Complexity, and his “ignorance” is this tool’s Ambiguity.

PART 3 What to do in each zone

Identify which zone your decision sits in, then use the relevant strategy below to choose your tools, frame your questions, and set your approach.

Risk - Known outcomes · Estimable likelihood

Manage and mitigate. Calculate expected value. Invest in controls proportional to probability × impact.

Tools and approaches	Key questions
• Risk register (Likelihood × Impact) • Expected value calculation • Sensitivity analysis • Pre-Mortem Template	? What is the probability of each bad outcome? ? What is the cost if it occurs? ? Is the risk worth taking given the expected return?

Uncertainty - Known outcomes · Inestimable likelihood

Scenario plan. Hedge your bets. Build in flexibility. Avoid over-committing to one path.

Tools and approaches	Key questions
• Scenario planning (best / likely / worst) • Regret Minimisation Framework • Options thinking (small bets, reversible moves) • Outcome Mapping Tool	? What are the plausible scenarios, regardless of their likelihood? ? Which scenario would I most regret not having prepared for? ? Can I keep my options open longer before committing?

Complexity - Unclear outcomes · Estimable likelihood

Test and explore. Run small experiments to clarify outcomes. Use feedback loops to adapt quickly.

Tools and approaches	Key questions
• Small-scale pilots and experiments • Simulation and modelling • Systems mapping • Monitoring and early warning indicators	? What experiment would tell me most about the range of outcomes? ? What early signals would tell me the situation is changing? ? Can I stage my commitment so I can learn before going all-in?

Ambiguity - Unclear outcomes · Inestimable likelihood

Experiment adaptively. Take small, reversible steps. Learn fast, fail safely, build resilience.

Tools and approaches	Key questions
• Design small experiments with fast feedback • Build resilience (diversify, reduce dependencies) • Increase optionality - avoid irreversible commitments • Use diverse perspectives to identify unknowns	? What would I need to learn before making any significant commitment? ? How do I make this decision more reversible? ? Who might see things I cannot see?

WORKSHEET A Answer the two diagnostic questions

Answer the diagnostic questions below to determine which zone your decision sits in. Be honest - it is easy to assume you have more knowledge than you do.

#	Question	Your answer
Q1	Can you define the range of plausible outcomes - even if roughly? (e.g. “the project succeeds”, “it fails”, “it partially delivers”)	☐ Yes ☐ No
Q2	Can you attach a meaningful probability estimate to each outcome? (even approximately - “roughly 30% chance of failure” counts)	☐ Yes ☐ No

WORKSHEET B Find your zone

Q1: Outcomes?	Q2: Likelihood?	Your zone	Your approach
Yes - known	Yes - estimable	Risk	Manage, mitigate, calculate expected value
Yes - known	No - unclear	Uncertainty	Scenario plan, hedge, build flexibility
No - unclear	Yes - estimable	Complexity	Test, pilot, use feedback loops
No - unclear	No - unclear	Ambiguity	Experiment, build resilience, stay reversible

My decision sits in the: ☐ Risk ☐ Uncertainty ☐ Complexity ☐ Ambiguity zone

WORKSHEET C What is driving the uncertainty?

Source	What is creating the uncertainty in your decision?
Lack of data	
Unpredictable actors	
Novel situation	
Complexity / interdependencies	
Other	

WORKSHEET D Your response strategy

Based on your diagnosis, design your response. The goal is not to eliminate uncertainty - it is to make a decision that is appropriate to the level of uncertainty you face.

MOVING TOWARD CLARITY - STEPS YOU CAN TAKE BEFORE COMMITTING

Action	How I will do this / by when
Gather more data	
Consult someone with different experience	
Run a small test or pilot	
Challenge my key assumptions	
Revisit after [date]	

MY CHOSEN APPROACH

Question	Your answer
The zone my decision is in	
The tools I will use	
How I will handle what I cannot know	
The earliest point at which I can decide	
What would move me to a different zone?	

Remember: your zone can change. New information can move you from Ambiguity toward Uncertainty, or from Uncertainty toward Risk. Reassess as you learn more. The goal is not certainty - it is making the best decision possible with the information you have, while staying alert to what you do not know.

Sources

Knight, F. H. (1957). Risk, uncertainty and profit. A. M. Kelley. (Original work published 1921)

Drew the distinction between risk, where probabilities can be estimated, and uncertainty, where they cannot.

Stirling, A. (2007). Risk, precaution and science: Towards a more constructive policy debate. EMBO Reports, 8(4), 309-315.

The source of the four-zone matrix, adapted here with relabelled zones.