



Emerging Stronger in 2021

Making Better Decisions Under Conditions of Risk and Uncertainty

Bevington Group “What’s Next” Series

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www.bevingtongroup.com

Business Model Design • Process Improvement • Change Management

US, Australia and NZ patents apply to XeP3, Canadian patents pending
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Current context

We are living in a **VUCA** world



Volatility, uncertainty, complexity and ambiguity

So, today we will cover

- ❑ How **leaders** can improve their own decision making under conditions of uncertainty
 - Starting with what we mean by uncertainty
 - Common cognitive pitfalls
 - Decisions on “how to make the decision”
 - The importance of consciously improving your decision making competencies

- ❑ How **organisations** make decisions under conditions of uncertainty
 - Clarity on decision making accountability
 - Innovation, risk and courage – how to stop a critical decision
 - The importance of diversity of perspective
 - “Risk Learning” as a core strategic competency

Let's start with what we mean by uncertainty

Gigerenzer (2014) was prescient in his forward view of uncertainty, predicting how we might have to think in a world with COVID-19 and many other risks. He presented three positions

01

Certainty

It is just going to happen (100% probability, e.g. that if I drop this pen it will fall by the force of gravity)

02

Risk

We can precisely calculate the probabilities (e.g. casino games, slot machines, lottery)

03

Uncertainty

We cannot calculate the risks – we just don't have ways to get all the information (i.e. a very much real life scenario)

- ❑ One of the deep challenges in decision making is that it is possible to mistake 3 for 2. This can overestimate confidence – e.g. bank models prior to GFC
- ❑ This can lead to a reluctance to apply common-sense rules of thumb which Gigerenzer argued are actually very valuable

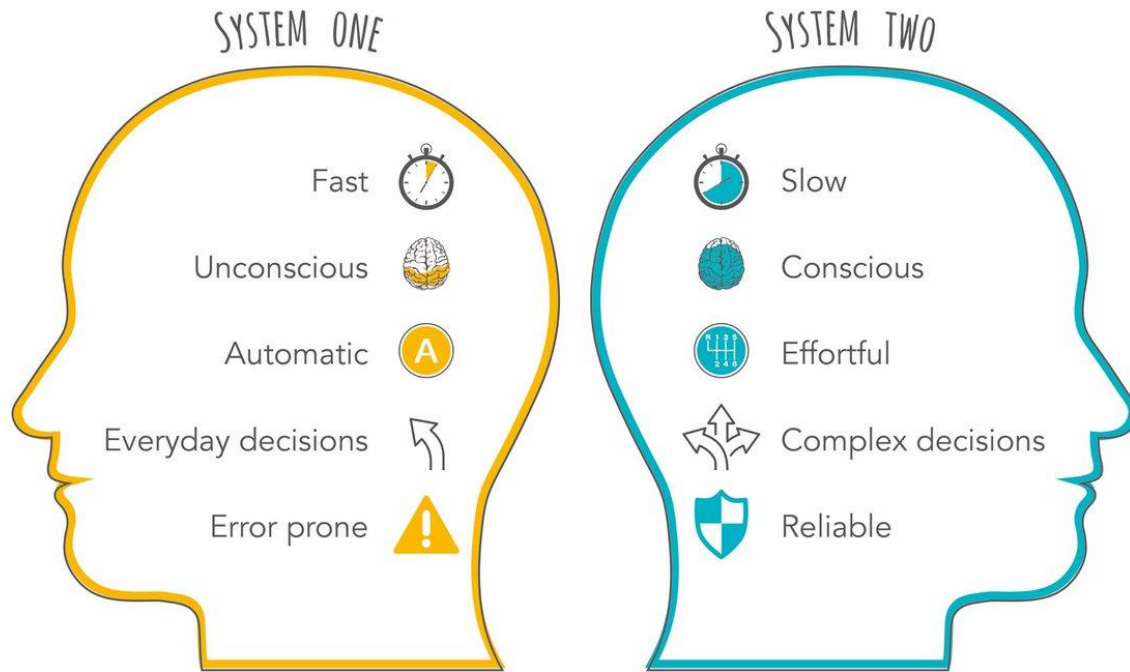
Reference: Gigerenzer, G. (2014). Risk savvy: How to make good decisions. New York: Viking.

Now let's look at the different ways we can think under conditions of uncertainty

Hint – there is more than enough uncertainty to go around

Kahneman told us in “Thinking Fast and Slow” (2011) and in “Noise” (2021) about different thinking systems

□ Kahneman’s model divides the mind’s processes into two distinct operating systems:



	System 1	System 2
Define	“A perceptual and intuitive system, generating involuntary impressions that do not need to be expressed in words. This system is fast to react, automatic, associative, emotional, effortless and learns through repeated experiences and gradually over time.”	“The conscious, reasoning self that has beliefs, makes choices and decides what to think about and what to do.” Allocates attention to the effortful mental activities that require some sort of conscious exertion
Example	Answering equation $1 + 1 = 2$, without effort	Remembering how to multiply decimals then using a pencil and paper to work out the equation $27.54 \times 54.04 = 1,488.2616$
Ease of Use	Often happy enough to trust a plausible (System 1) gut judgement that comes easily to mind	It is hard work to process information using System 2. However, our capacity for System 2 thinking is very limited
Control	System 1 is the process that is really in charge as it “effortlessly originates impressions and feelings that are the main sources of the explicit beliefs and deliberate choices of System 2”	We identify with System 2
When the System Runs	<ul style="list-style-type: none"> System 1 thinking is responsible for many of the everyday decisions, judgements and the purchases we make and explains many of the heuristics (shortcuts or rules of thumb) 	<ul style="list-style-type: none"> We use System 2 to make rational decisions It is this slower system that retrieves mental data and weighs the pros and cons for us

References:
 Kahneman, D. (2011). *Thinking, fast and slow*. Farrar, Straus and Giroux.
 Kahneman, D., Sunstein, C. R., Sibony, O. (2021). *Noise*. United Kingdom: HarperCollins Publishers

For our purposes we will think of decisions in three categories (a pragmatic Bevington Group view)



Intuitive / Instinctive (very much System 1 thinking)

- We use every day for patterns that are well entrenched and we are happy with the outcome e.g.
 - What route to follow to work
 - What to order from a restaurant
 - What mood your partner was in (an explicit example from Kahneman)



Deliberative Analysis (e.g. the use of logic trees / Value Driver trees / Decision matrices)

- Roughly divided (by Roger) into
 - Short form analysis
 - Full analysis
 - Automation support analysis
 - Group analysis

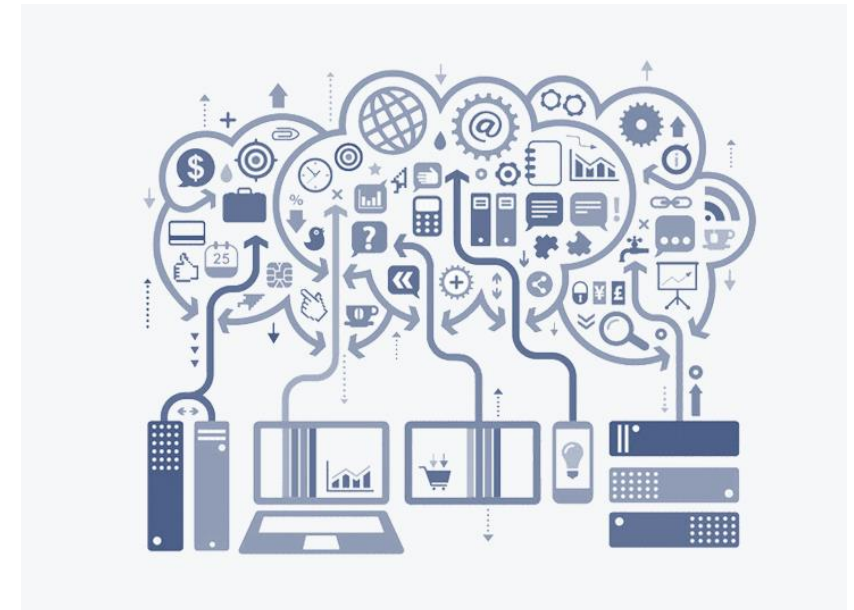


Deliberative Rules of Thumb

- When we have enough experience to simplify deliberative analysis
- Or when there just is not enough data or information to do deliberative analysis properly
- (Note that according to Gigerenzer, gut feeling, might be an unconscious rule of thumb – to be organisationally useful we need to make it explicit)

All things being equal we would prefer complex decisions to utilise analytical frameworks such as Conn and Maclean’s “Bulletproof Problem Solving” (2019)

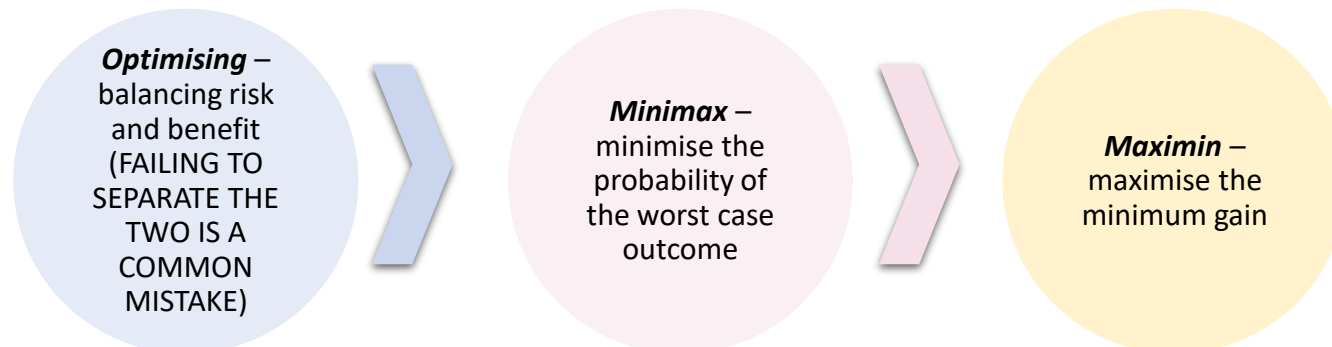
- 1 **Define** the problem
- 2 **Disaggregate** the problem – because a single problem or decision can have many elements
- 3 **Prioritise** the elements to address
- 4 Develop a **workplan** to tackle the elements of the problem (finding the data you will need)
- 5 **Analyse** the information you have uncovered
- 6 Decide and **synthesize** your decision
- 7 **Communicate** with clarity



Reference: McLean, R., Conn, C. (2019). *Bulletproof Problem Solving: The One Skill That Changes Everything*. United Kingdom: Wiley.











Or turn to the “oldie but goodie” thinking skills frameworks from De Bono (2006 and 2008)

- ❑ The fastest method is TEC, which is designed for rapid decision making
 - 🎯 Target – define the decision you are trying to make with a clear view of your objective
 - 📈 Expand – generate options
 - 📋 Contract – select criteria, and apply to decide
- ❑ This is NOT a comprehensive framework, SO consider VECTOR THEORY – a Bevington approach
 - WHEN there are just too many criteria to process (often the case)
 - OR there is insufficient information to assess the criteria
 - THEN you should consider choosing the two most important elements
 - DECIDE using that basis
- ❑ You will still have to decide whether you are

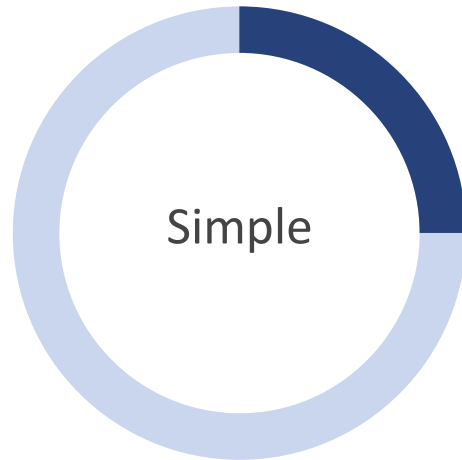


This “Posture” is decided in the “Target” Phase

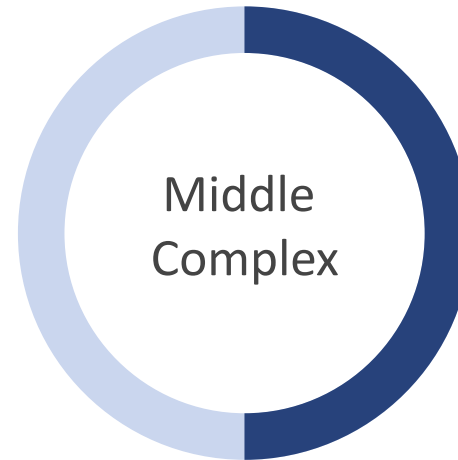
There are more comprehensive De Bono-esque frameworks (De Bono, 2006)

-  **1: RECOGNISE** – Deliberate effort to identify a situation to make it easier to understand or to deal with.
-  **2: ANALYSE** – Deliberate breaking apart of a task or a situation in order to think about it more effectively.
-  **3: COMPARE** – Examining points of similarity and difference.
-  **4: SELECT** – Selecting from logical possibilities.
-  **5: FIND OTHER WAYS** – Deliberately consider alternative ways of examining an issue.
-  **6: START** – Organise a chronological plan of attack. What is the first thing to do?
-  **7: ORGANISE** – Who should do which tasks? How? When? Why?
-  **8: FOCUS** – Take time to define and clarify that everyone's understanding of goals and approaches are the same.
-  **9: CONSOLIDATE** – Stop regularly to take stock of progress, evaluate progress, and to re-define or revise plans if necessary.
-  **10: CONCLUDE** – Arrive at a definite conclusion.

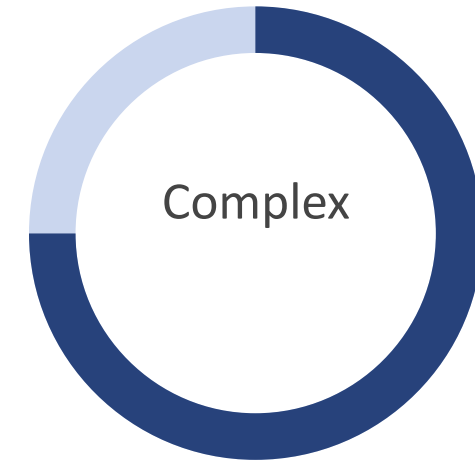
All supported by a range of valuable investigative tools that range from simple, to middling to complex, for example



- Mind maps and logic trees (e.g. to disaggregate the problem into elements)
- Root cause analysis e.g. Fishbone diagrams / 5-Whys
- Pareto / Outcome distribution
- Graphical representation – bar charts, control charts, pie charts, Harvey balls
- TEC / Vector theory
- 2 x 2 Prioritisation matrices (e.g. Impact vs Cost, or Impact vs Influence to prioritise)

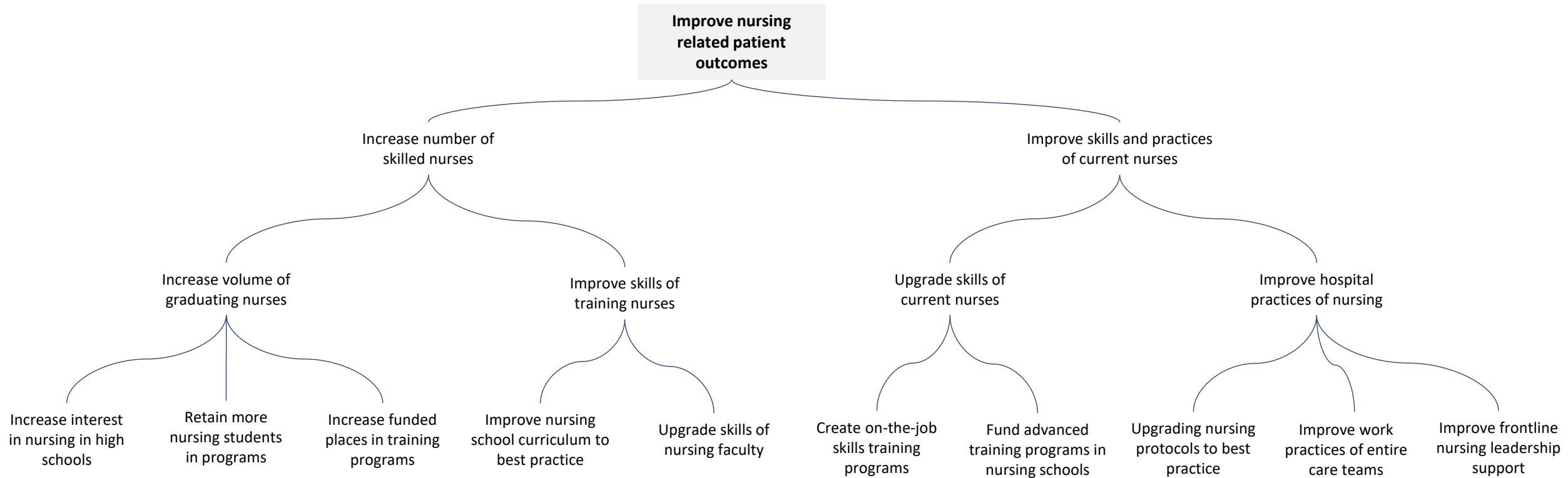


- Expected Value Frameworks (Weighted Criteria, Scored, Multiplied and Added)
- Marginal analysis and break-even analysis
- Adoption curves



- Multiple regression analysis OR Controlled experiments
- Machine learning
- Sophisticated financial modelling (e.g. Monte Carlo analysis)

Mind-maps and logic trees are especially useful



Reference: McLean, R., Conn, C. (2019). *Bulletproof Problem Solving: The One Skill That Changes Everything*. United Kingdom: Wiley.

But... in reality you may not have the data to conduct a detailed analysis for every problem AND in a crisis, you may not have the time – so what is to be done?



We can **simply run out of energy** if we are solving complex problem after complex problem



We can **freeze** due to **cognitive overload**

So



Figure out what you should and should not be solving



Some problems might be best solved using **“rules of thumb”** or **“principles”** that have consistently been shown to **drive good outcomes**

In his recent book “Noise”(2021), Kahneman has some advice on which types of decision making to use

- ❑ **Intuition** can be extremely useful BUT is best utilised for *very familiar problems*

- ❑ If we applied Gigerenzer’s thinking to this advice – **Rules of Thumb** are also useful but only
 - When we have worked them out **based on experience** (that is relevant!)

- ❑ **Group decisions** are a great way to **eliminate statistical noise** in our own decision making (e.g. judges making different decisions depending on the mood they are in), but only
 - When the judgements are **truly independent** (e.g. in a jury room one dominant individual might influence others, compromising independence)
 - This works because Kahneman’s “noise” is a statistical concept (variation in our decisions)

- ❑ If we want to use Intuition, then we should consider delaying it in **extremely important decisions**
 - Conduct a form of **deliberative analysis** then apply intuition, e.g.
 - Kahneman tested this as a psychologist building a recruitment system for an army

Kahneman, D., Sunstein, C. R., Sibony, O. (2021). *Noise*. United Kingdom: HarperCollins Publishers.

For Gigerenzer (2014) rules of thumb have real power under conditions of uncertainty

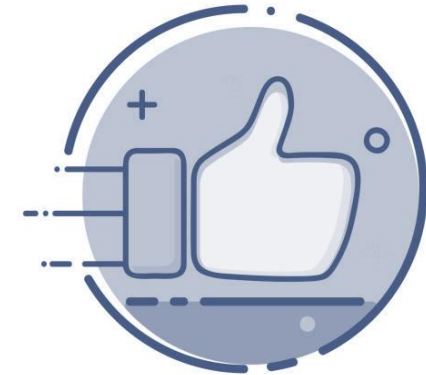
- ❑ Gigerenzer has researched the power of simple rules in times of uncertainty
 - They avoid providing the “false comfort” of apparently precise statistics
 - HOWEVER, they can certainly be validated (where possible) or improved using quantitative analysis
 - This is not a call to avoid looking at the numbers, but it points out the value of Rules of Thumb in situations where the data cannot be (sufficiently) acquired

- ❑ **Rules of thumb** match with the (supposedly) Einstein quote **“Make everything as simple as possible but not simpler”**

- ❑ Learning organisations will often seek to turn the “gut feelings” of leaders who are often right into rules of thumb – then understand why. This is a means of addressing “defensive decision making”

- ❑ HOWEVER - your rules of thumb may be specific to context and particular risks. They are a way of having learnt about a particular set of risks. So, beware of overgeneralisation

- ❑ The very best decision makers have a good selection of (conscious or unconscious) rules of thumb, and recognise that they do not necessarily apply to all situations
 - In one study, complex rules were better at predicting the past, simple rules were better at predicting the future – the “future fog” effect (Wubben and Wangenheim, 2008)



References:

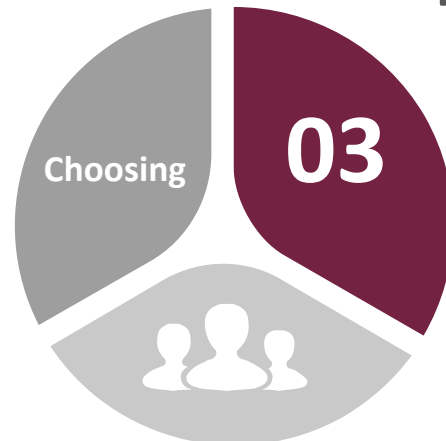
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Examples of simple, yet classic, rules of thumb



- First listen, then speak
- If a person is not honest and trustworthy, then the rest does not matter
- Encourage people to take risks (within bounds) and empower them to make decisions and take ownership

RULES of THUMB



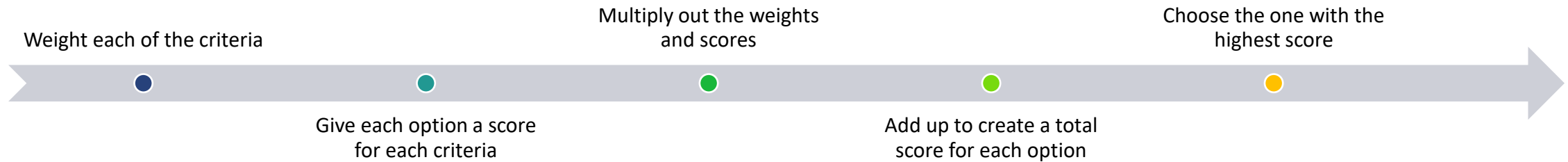
- **satisficing** – Set your aspirational level then choose the first one that meets it (very efficient)
- **minimax** – Choose the solution that minimises the chance of worst possible outcome
- **vector** – Choose based on the two most important criteria (ignoring the rest reduces complexity)



- Innovation drives success
- You cannot play it safe and win
- Analysis cannot reduce all uncertainty
- Put as much stock in the people as in the plan
- Don't wait for the "perfect" option – you will miss an opportunity

Other than rules of thumb, Vector decision making can be incredibly valuable in complexity

- ❑ Imagine you have to choose between 2 really great jobs, but they both have different strengths and weaknesses across about 15 decision criteria you have imagined
- ❑ In classic decision theory you could



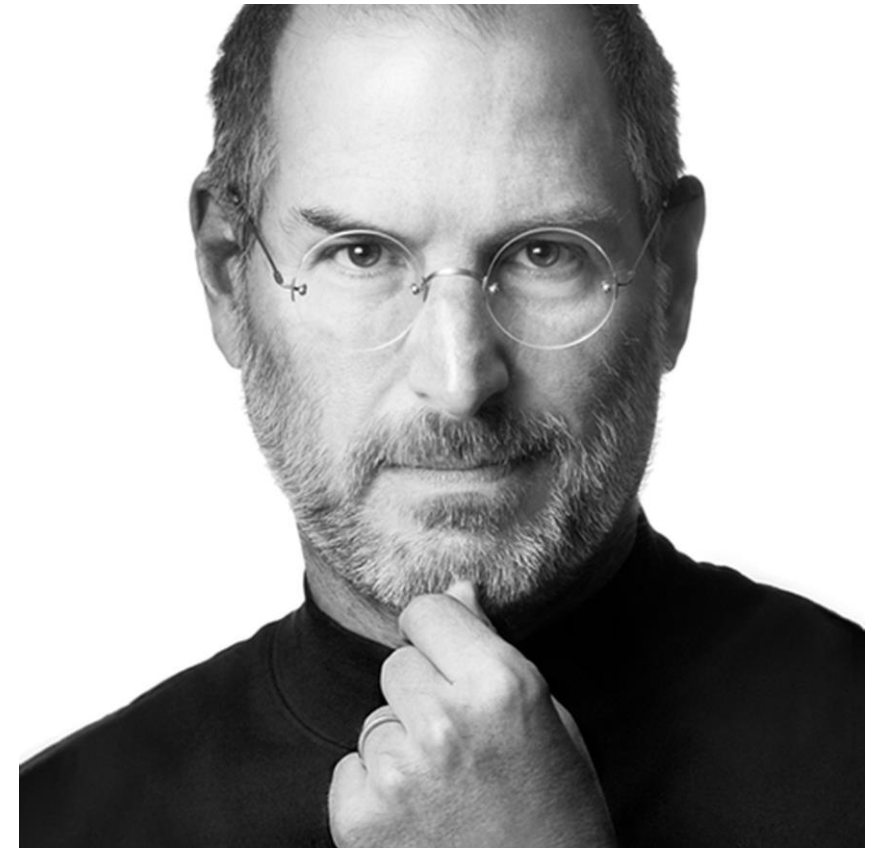
- ❑ Yet it doesn't seem to work that way!
- ❑ One way to deal with the impasse is to use Vector Decision Making (Perry, 2018)



“You have to work hard to get your thinking clean to make it simple” Steve Jobs. This means “knowing your stats”

- ❑ Clearly **define what you mean** e.g. there is a 10% chance of rain – today? In the next hour?
 - ❓ Always ask for a reference class (% of what)
 - ❓ Always ask for the absolute risk rise (not relative risk)
- ❑ Check that you are dealing with someone who “knows” BUT does not have a conflict of interest
- ❑ If you are overpowered by an emotion (Dread Risk) beware the higher probability of error

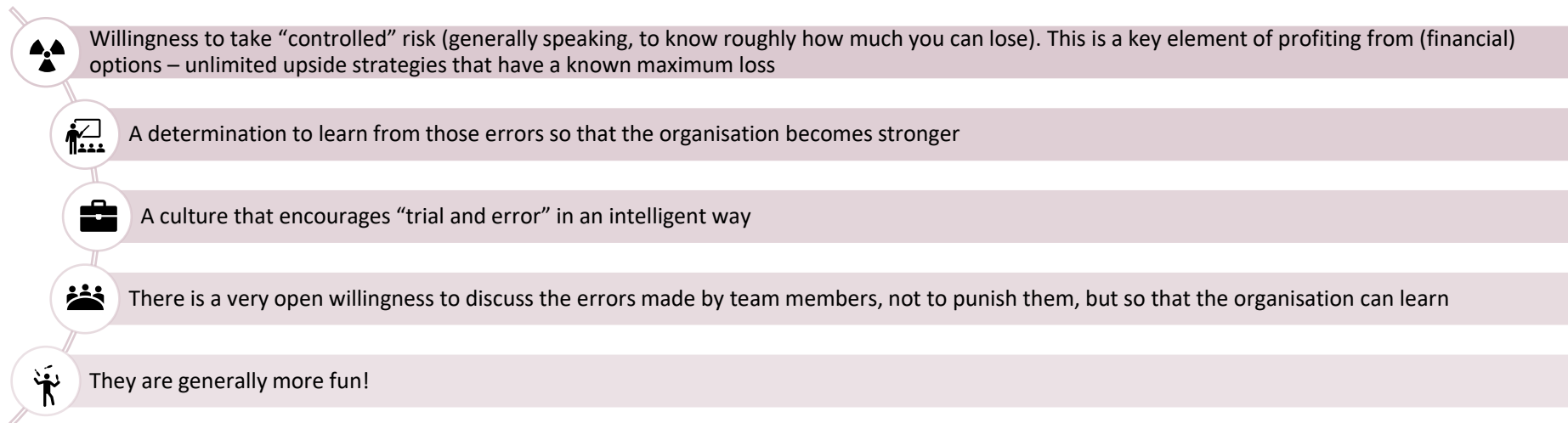
Steve Jobs



But what about organisational decision making?

It is possible to develop a “defensive” decision making culture which deeply damages potential (Gigerenzer, 2014)

- ❑ Simply put – Low levels of risk taking due to an unwillingness to make errors leads to a low level of innovation
- ❑ In a “negative error culture”
 - Problems are analysed to the point the opportunity has passed
 - Low levels of risk taking reduces the opportunity to learn
 - Lower levels of learning means a reduced level of competitiveness
- ❑ Taleb (Anti-fragile, 2012) pointed out that the vast majority of human invention and discovery had a heavy reliance on trial and error
- ❑ Eric Reis (The Lean Start-up, 2011) built trial and error into the Minimum Viable Product construct
- ❑ The essence of a good decision making culture is as follows



- ❑ One airline safety expert was quoted as saying “If we had the same safety culture as a hospital we would crash two planes a day”

References: Taleb, N. N. (2012). *Antifragile: Things that Gain from Disorder*. United Kingdom: Penguin Books Limited.
Ries, E. (2011). *The Lean Startup: How Constant Innovation Creates Radically Successful Businesses*. United Kingdom: Penguin Books Limited.

BUT Risk Thinking is also deeply strategic (Apgar, 2006)

- ❑ Apgar posited that **it is possible to get an advantage by learning more about the risk**

- ❑ He meant “**learning more**” in a relative sense and proposed that **understanding a risk gives you a real competitive advantage**

- ❑ E.g. Nokia beat Ericsson when they made the right risk decisions with regards to a supply disruption in a factory fire
 - They had studied the problem beforehand
 - They had diversified supply because they knew that the risk was not worth the cost saving of single source supply
 - They knew when the disruption happened that the supplier had underestimated the problem
 - SO – they activated pre-positioned contingency plans



Reference: Apgar, D. (2006). Risk Intelligence: Learning to Manage What We Don't Know. United States: Harvard Business Review Press.

Mis-understanding the risks can cause you a lot of pain

If you overestimate the risk

- You may not go into attractive markets
- You may allocate too much reserve capital
- You may fail to learn from experimentation
- Etc.

If you underestimate the risk

- You can allocate too little capital (existential risk)
- You can incur serious losses
- You can lose market reputation and respect

Eric Reis's (2011) work on Minimum Viable Product is a way to deal with learning about risk (and many other factors)

- Establish a hypothesis
- Design a customer facing test
- Conduct the test
- Review and make decisions

Ries, E. (2011). The Lean Startup: How Constant Innovation Creates Radically Successful Businesses. United Kingdom: Penguin Books Limited

Fortunately, we can review all our projects through a “Risk Learning” lens

- ❑ Apgar proposes that we can prioritise our risk – a form of specific risk related “Risk Intelligence”
- ❑ Score 0 – 2 in a relative assessment (e.g. relative to competitors) on the following score

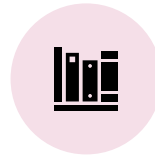
#	Question	Score
1	How often do you have experiences related to the risk?	
2	How relevant are these experiences to what might influence the risk?	
3	How surprising are these experiences?	
4	How diverse are these sources of experience?	
5	How methodically do you keep track of what you learn from the experiences?	

An alternative way to review your potential projects (Apgar, 2006)

1. Recognise which risks are learnable (you can know more about than your competitors)
2. Identify the risks you can learn about fastest (you can learn faster than your competitors)
 - a. Look for patterns in your risk intelligence scores and try to improve them



Impressionists apply lessons from formative experiences too widely



Encyclopedists tend to have a large knowledge that is not distinctive (so no advantage)



Amnesiacs tend to be poor at documenting lessons

- b. Conduct a risk strategy audit for you main activities



Relative skill in assessing the risk







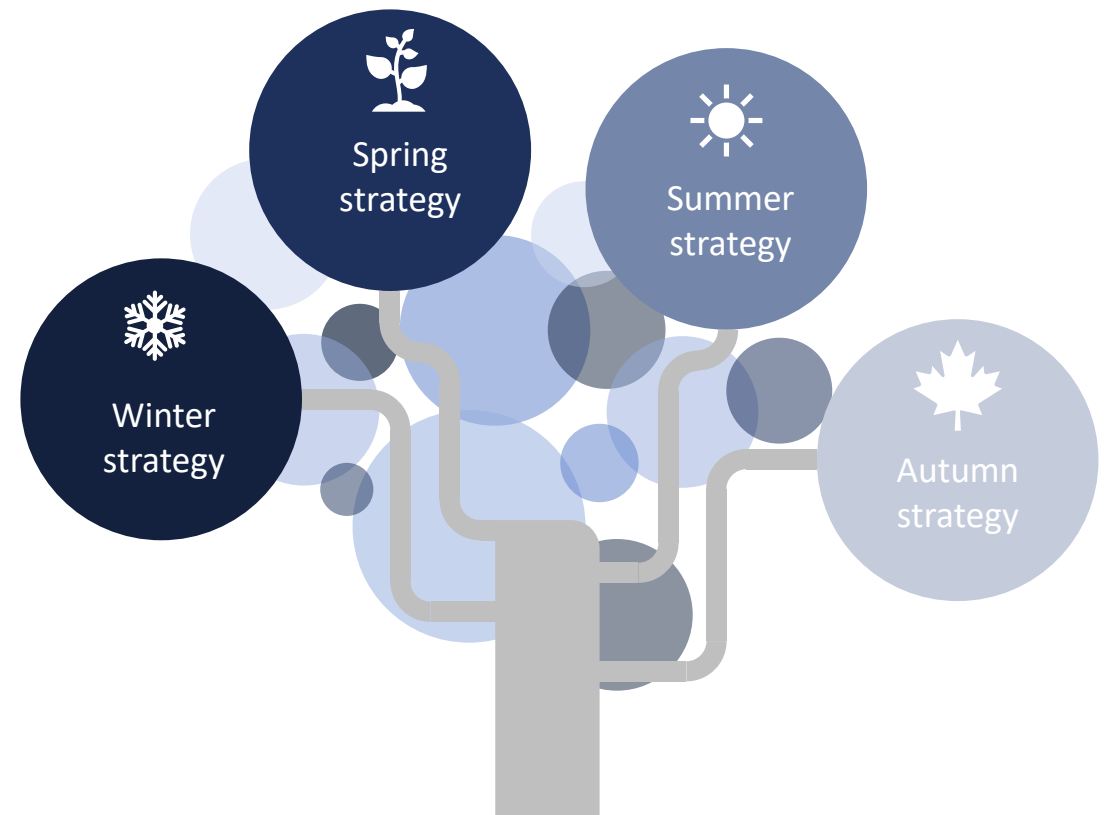
Extent to which it diversifies net risk

3. Sequence risky projects in a learning pipeline (because you cannot do everything at once)
4. Keep networks of partners to understand all risks (you cannot deeply understand every risk you engage in)

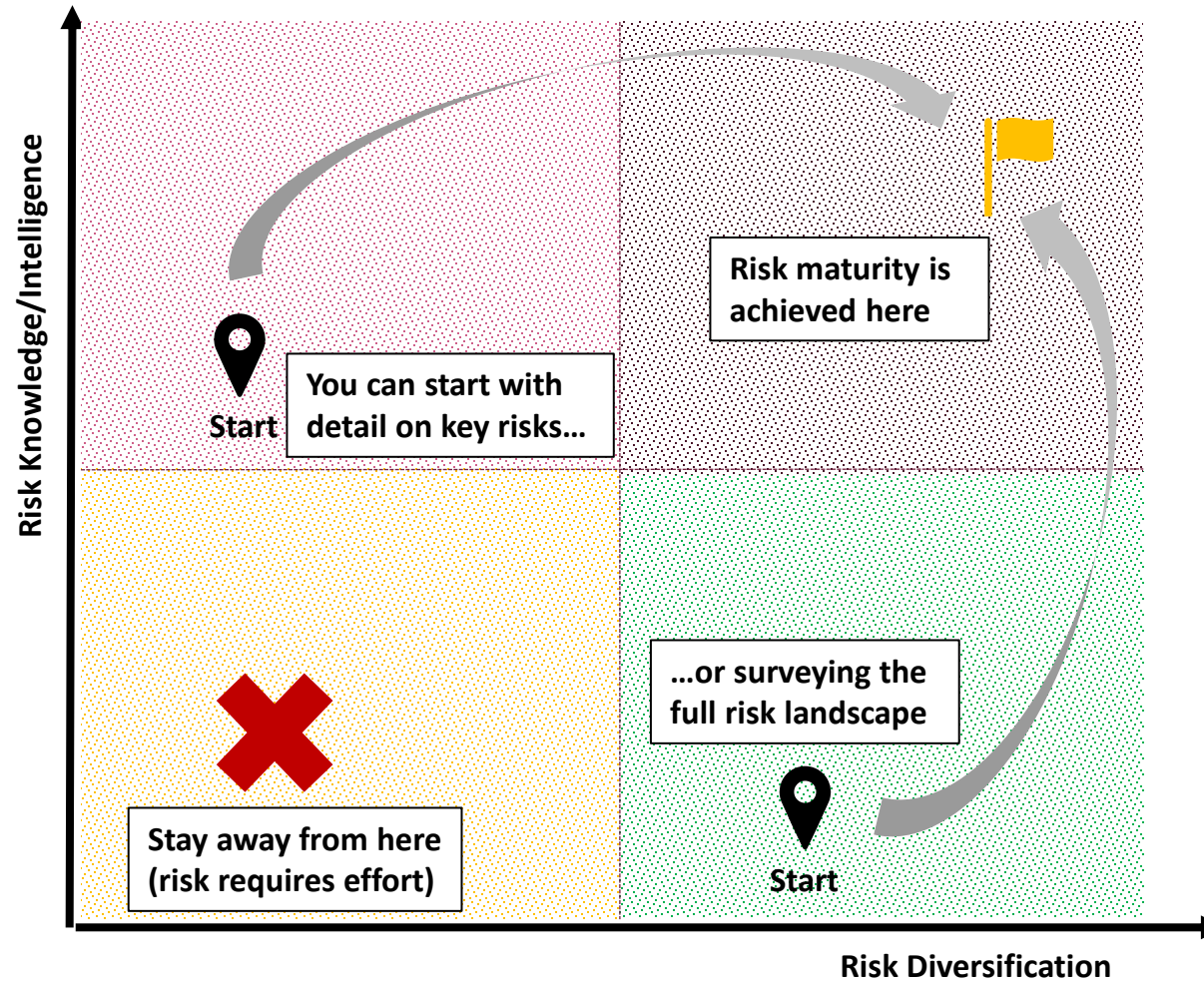
Reference: Apgar, D. (2006). Risk Intelligence: Learning to Manage What We Don't Know. United States: Harvard Business Review Press.

Understanding your risk intelligence position allows you to see a range of potential risks – such as the four seasons of risk strategy

-  **Winter strategy:** Little market dominance (no major initiatives with high risk intelligence)
-  **Spring strategy:** Little focus (no major initiatives with low diversification)
-  **Summer strategy:** Little development (few experimental initiatives with low risk intelligence)
-  **Autumn strategy:** Little resilience (few initiatives with high diversification)



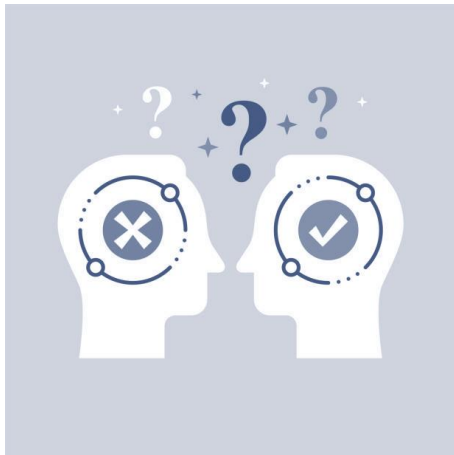
Diversification vs Focus (on risks that can be learnt better and faster)



Thinking traps we can fall into at any time....

BUT especially under pressure and in conditions of uncertainty

All these forms of decision making can suffer from cognitive biases. I have highlighted some of the big ones that I experience when making decisions under uncertainty – you should know your own



Cognitive biases		
The “Turkey Illusion” – the Turkey’s use of historical data means it misses the possibility of Christmas (inductive thinking)	Fundamental misattribution error – attaching causation to the wrong factor, often because it matches your story	Action bias and Taoist strategic technique
Foiled by randomness – seeing patterns that are not there (think clouds)	Contrast effect	Omission bias – the preference to do nothing
Mistaking luck for skill	Authority bias	Failure to test theories after initial success
Availability bias	Causality from correlation error	BEWARE – decision making exhaustion
Confirmation bias	Illusion of control	The Averages problem
Over-reliance on “social referencing” – fraud and ...	Outcome bias	Stage migration or The Will Roger Effect
Loss aversion bias	The paradox of choice	The law of small numbers (fooled by randomness)
Negative bias in thinking (we tend to notice what is wrong before what is right)	The probability of unlikely events	BEWARE – intuition and rules of thumb critical – but recognise when structured problem solving needed
Overestimating DREAD risk	Base rate effect – German truck driver analogy	Affect heuristic - separating of risk from benefit
Anchoring (Kahneman (1979))	Failure to think in “interconnected systems”	Neomania vs Status Quo bias
Survivorship bias and consequent overoptimism	Halo and Horned effect	Saliency effect (undue attention to “attention seeking” features) Planning Fallacy
Social proof bias and the Fear of Regret	Conjunction error (additional conditions make outcome less likely)	Hammer Fallacy
Sunk cost fallacy	Intention-to-treat / selection bias	Feature positive effect

Reference: Gigerenzer (2014), Rolf Dobelli (2014) “the art of thinking clearly”, Mauboussin (2012) “Think Twice”, Conn and Maclean (2018) “Bulletproof Problem Solving”

Linking back to our “Resilience Series”

Directionally, we need our organisations to still manage to Fortification and Adaptation



Fortifying the organisation

This is done in a similar way to that considered for specific risks but now you are thinking about much more generic strategies such as having reserve cash - because money buys you time



Increasing organisational adaptability

When faced with an unexpected challenge the organisation can develop and implement plans to survive, even thrive – agility and adaptability are forms of resilience

Risk aversion and adaptation are not good bed fellows – however, risk management combined with adaptation are partners in enterprise



Adaptation and risk aversion are NOT good bed-fellows. Risk aversion is different from risk management – in the latter the risks are taken on ***a calculated basis with an understanding of “expected value”*** (think of it as a risk-weighted likely outcome in probability theory)



You cannot adapt if you are not aware of the dangers or market changes – so great organisations invest in first rate ***“sense and respond systems”***



Cross-functional teams, usually working in an ***agile construct***, are generally more able to generate creative conclusions – this is particularly true of teams which blend Product, Technology and Commercial teams



Minimum Viable Product (a la “The Lean Start-up”) is actually a discipline (not a free for all). YET if you can do it right you have an enormous market advantage because testing propositions in real markets is both faster and more effective than a long series of market studies

Yet, this presentation gives you ways to move, decision by decision, in that direction

Understand when to use deep analytics vs faster styles such as TEC or “rules of thumb” are very handy – but test them!

Have a broad set of deep decision making capabilities

Understand when to dig into detailed analysis and the value of having a broad range of available analytical tools to be used in a framework

Accept that not all the information required for statistical decision making will be available

Recognise the difference between Certainty, Risk and Uncertainty



Be aware that your decision making culture can have an enormous impact on your innovation profile (e.g. defensive decision making)

Take a “risk learning” on your portfolio of projects or investments

- Some risks are “learnable”
- Some risks you can learn faster than others (you have greater risk intelligence for that risk) – and this can give you a relative advantage
- All things being equal, pursuing projects with risks you can understand better than others is a good idea
- Doing so allows you to avoid all sorts of errors and to improve returns

Take a “risk portfolio” view of your projects

Yet be aware of common errors in decision making (e.g. being overly influenced by the fear of loss)

Overall – Remember that Risk Aversion is not Risk Management

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BUSINESS OPERATING MODEL DESIGN



1. Operating Model Design

- Create an aspirational view of how the enterprise will deliver against future expectations

2. Restructuring and Role Design

- Create structures and roles that sustainably deliver value



PROCESS IMPROVEMENT

3. Strategic Lean Process Improvement

- Concurrently transform end-to-end processes, structures, roles and systems
- Design radical changes aligned to customer outcomes and business strategy

4. Tactical Lean Process Improvement

- Deliver incremental lean process improvement
- Use and teach a proven, client-centric, process improvement methodology



CHANGE MANAGEMENT

5. Agile Deployment

- Deploy process changes rapidly to address top priority issues
- Deploy technology solutions with Agile methods

6. Change Management

- Utilise and teach a structured approach to understanding the impacts of change and transitioning organisations to the future state

7. Connect Program

- Connect clients to each other
- Understand and compare solutions from other industries
- Inspire through knowledge transfer and networking events

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