There is no shortage of books on decision making—books that tell you how irrational you are, how being rational is holding you back or even how competing brain systems cause chaos with your ability to choose wisely. All of these make it difficult to decide how to decide.

DECIDE cuts through the clutter. Part science and part practice, DECIDE follows Tremaine's decade-long quest to answer the question: what is a good decision and how do I make one? The answer is illustrated with examples from her pioneering work in building decision-making systems for teams up to large multinational organisations.

Tremaine's straight talk and use of the latest (and most reliable) research lead you on a path of discovery as you unpack your own decision-making process, plug the holes in it and learn new skills to ensure that you make the best possible decisions. DECIDE is an indispensable guide for individuals, teams and leaders.

—

"DECIDE deconstructs the decision-making process and reveals what is really going on in the brain when we decide. This book blends the academic with practice, using real world examples and case studies."

Kevin O'Leary
Former Detective Chief Superintendent,
New Scotland Yard

"This is an outstanding book, arriving at a critical juncture in our cultural and technological evolution. The speed, scale and impact of the 4th Industrial Revolution and its technologies, such as artificial intelligence, on nations, industries and organisations, remind us that decision making is not something to be abdicated to those emerging technologies, but rather, augmented in a symbiotic way with humanity."

Rocky Scopelliti
Futurologist & author of *Youthquake 4.0*

visit our website at:
www.marshallcavendish.com/genref

Marshall Cavendish Business

BUSINESS/SELF-HELP
ISBN 978-981-4841-59-7
9 789814 841597

Tremaine du Preez

DECIDE the art and science of choosing wisely

Marshall Cavendish Business

DECIDE

the art and science of choosing wisely

"In a changing world, good decision making can be the fine line between disruptor or disrupted. You decide!"

Adam Pacifico
Barrister and Chief Learning Officer PCA,
& co-author of *The Leader's Secret Code*

Tremaine du Preez

"Tremaine is one of today's most innovative thought leaders."

John Davis
Regional MD, N America,
Duke Corporate Education

Other books by Tremaine du Preez:

Think Smart, Work Smarter
A Practical Guide to Making Better Decisions

Raising Thinkers
Preparing Your Child for the Journey of Life

DECIDE

the art and science of choosing wisely

Tremaine du Preez

Marshall Cavendish Business

Published by Marshall Cavendish Business
An imprint of Marshall Cavendish International

A member of the Times Publishing Group

Other Marshall Cavendish Offices:
Marshall Cavendish Corporation, 99 White Plains Road, Tarrytown NY 10591-9001, USA • Marshall Cavendish International (Thailand) Co Ltd, 253 Asoke, 12th Flr, Sukhumvit 21 Road, Klongtoey Nua, Wattana, Bangkok 10110, Thailand • Marshall Cavendish (Malaysia) Sdn Bhd, Times Subang, Lot 46, Subang Hi-Tech Industrial Park, Batu Tiga, 40000 Shah Alam, Selangor Darul Ehsan, Malaysia.

Marshall Cavendish is a registered trademark of Times Publishing Limited

National Library Board, Singapore Cataloguing in Publication Data

Name: Du Preez, Tremaine, 1978-
Title: Decide : the art and science of choosing wisely / Tremaine du Preez.
Description: Singapore : Marshall Cavendish, [2020]
Identifier(s): OCN 1129112604 | ISBN 978-981-48-4159-7 (paperback)
Subject(s): LCSH: Decision making.
Classification: DDC 153.83--dc23

Printed in Singapore

This 40,000-word book will take about two-and-a-half hours to read.

That's less time than an adult education course and slightly more than a superhero movie.

The payoff from this time invested is unlimited.

CONTENTS

PREFACE

Does the world need another book on decision making? Who knows more about decision making: practitioners or academics? Why theoretical case studies won't cut it. Choosing your own learning journey.

There is no shortage of books on decision making, which is why I wrote this one.

Let me explain.

If, like me, you've read your fair share of books on this topic, then you'll know that there is a frustrating polarity between the pages. Academic books written by researchers bring us the theory and science of good decision making. Books written by practitioners who work with decision makers and have years of corporate experience in the application of choice strategies, reflect the art. Academics tend to turn their research findings into well-written, well-referenced offerings, but are mostly compelled to focus on a narrow area of research, usually their own.

Traditionally, academic research in the area of decision making has been carried out on students and other readily available participant

groups. This leaves it up to the author to illustrate how their findings would perform with executives who, unlike students in a controlled scenario, make decisions under conditions of stifling uncertainty, extreme stress and faced with outcomes that could significantly impact themselves and others. Making the leap from academic experiments to corporate decision making requires explanatory narratives, fictional characters and life-like case studies. These make for more interesting reading—but, personally, I find that I am quite capable of applying research findings to my own situation and don't need superfluous pages of invented scenarios.

At the other end of the spectrum, practitioners bring essential insights into the real, messy world of decision making, but often lack the academic grounding that would give their ideas depth and breadth. Occasionally a book is published that spans the practical and the theoretical, like Thaler and Sunstein's *Nudge*.[1] Firmly rooted in practice, it shows how behavioural insights gained in a lab can be applied to influence behaviour towards practical outcomes. Another is Sabrina Hatton Cohen's *Heat of the Moment*, which is part memoir of her life as a firefighter and senior incident commander, part exploration of her PhD thesis on decision making during critical incidents.

I'll confess: I first learned about decision making through the work of management gurus, who earned fame through eloquent narratives and easy to apply step-by-step formulas wrapped up in memorable mnemonics, optimised for sharing on a Twitter feed. Then I stepped into the academic world and was expected to justify the professional, practical and tacit knowledge that I brought to my research after 20 years at the coalface of industry. I trudged through academic libraries to verify the claims I had been peddling for years, only to find a great number of them to be factually incorrect, outdated or so oversimplified they were misleading. This was a painful and humbling lesson, but one I am very grateful to have experienced. I won't name and shame, but many of these ideas will be put to the test here in a stand against alternative facts and pop psychology.

So is this book art or science? Well, I am first and foremost a practitioner in organisational decision making. This puts me in the interesting position of having access to a library of real-world challenges and decisions made. Examples used in this book are true but anonymised so as not to get into trouble with my clients, colleagues and friends. However, I prefer to stick to the point, so won't subject you to unnecessary narratives if a simple explanation will do.

Having researched a doctorate degree in decision science, I can't overemphasise the importance of a sound knowledge base from which to draw conclusions and, if I dare, give advice. The work I have done in this field, along with the time very generously given by organisations and decision makers, have transformed both my understanding and application of the science and the practice of good decision making. However, this book isn't only about my current research[2] and so can be as wide-ranging as needed to answer the question: what is a good decision?

I get asked this multiple times a week in both formal and casual conversations. To answer it in a 30-second elevator pitch would be a flippant oversimplification. Furthermore, to give the impression that there is a definitive answer would be misleading. The real answer is: it depends.

Depends on what? is the question this book attempts to answer. It unites my professional and academic practice with the work of leading authors and researchers to offer a theoretically-grounded, yet battle-tested, practical answer. This will ultimately help you improve the quality of your decision making.

Many practical elements originate from my work as a consultant specialising in organisational decision making. This includes: working with organisations to understand their overall decision-making personality; how organisational, idiosyncratic and market influences shape it; and how to improve the quality of decision making in line with organisational objectives. Yes, it is a big topic and not one that I ever want to lead with at a cocktail party. It usually provokes a sympathetic smile followed by a change of subject.

The following is a brief overview of the book, allowing you to focus on your areas of interest:

Part 1 begins with a theoretical history of rationality and good decision making. It explores the research underlying the most popular responses to the question, 'What makes a good decision?', including addressing what we know about what works and what doesn't. I would highly recommend skipping Part 1 if you are a practitioner, unless you can't sleep, and theory makes you sleepy. Don't say you haven't been warned!

Part 2 examines your current decision-making processes. This self-diagnosis is an important step on the road to improved decision outcomes. I recommend you don't skip it. Decision making is intensely personal, and this book will not provide you with a five-step plan to making great decisions (I'm not a management guru, after all). My suggestions and insights are offered to augment your current strategy so that it works for you and complements the way you already process information and come to conclusions, especially when under pressure.

Part 2 also introduces a decision-making process that brings decision-making best practices together, exploring each in turn—the research, the practice and only those examples that are absolutely necessary to provoke thought. If you are already committed to a particular decision-making process (chapter 7), then start at chapter 8. The latter introduces the first few steps in a good decision-making process, namely, understanding and allocating decision rights, crafting a meta-decision and exploring the power of debiasing strategies through examples.

Part 3 continues exploring the elements of a best practice decision-making process through universal risk assessment strategies and the role of emotions and gender in our thinking and risk perception, as well as providing a case study for you to try out your new skills in evaluating an FBI fiasco.

Part 4 wraps up with some basic decision-making hygiene, chapter summaries and a cheat sheet to help you put what you've learned into action in your everyday decision making. If you are a student of mine or have attended a corporate programme run by my consultancy, DECIDE, then jump to Part 4, you'll know immediately what's going on. Of course, I will offer plenty of other resources, authors, books and journals for those wanting to dive deeper into specific areas.

Ready?

PART 1

1

YOUR CHOICE

> "God is, or He is not. But to which side shall we incline? Reason can decide nothing here … A game is being played at the extremity of this infinite distance where heads or tails will turn up. What will you wager?"
>
> —Pascal's Wager, *Pensées*[3]

Pascal proposed that to exist is to participate in the ultimate wager—to choose between two uncertainties that reason cannot illuminate. The first is that there is a God and an afterlife of peace and prosperity will follow a life of sacrifice and devotion. The other is that there is no God and piety earns no otherworldly rewards.

What do you choose to believe? How do you decide? Perhaps your risk profile sways your thinking—do you enjoy a gamble or prefer a safe bet? Perhaps your time horizon informs your choice—do you prefer to make the most of the here and now and leave the future to take care of itself?

Or perhaps you wondered about the odds of there being a God omnipotent and benevolent enough to create an afterlife sanctuary to incentivise devotion? Life, it seems, is a game of chance. Such

games have attracted mathematicians as far back as the 16th century with attempts to analyse outcomes through probabilities and how to cheat at them convincingly. The mathematical treatment of Pascal's Wager was the first recorded use of formal decision theory in Western philosophy and ground-breaking in its contribution to the brand new field of probability theory. It subsequently made possible the ever-familiar bell curve, regression towards the mean, subjective probabilities, utility maximisation, formal risk analysis and many of the other theories and tools that have filled the canon of rational choice over time.

Whether you decided to believe in a God or not, do you believe you've made a good decision? What criteria can you use to judge this decision? This leads us to the next question for you to answer:

In your opinion, what is a good decision?

2

WHAT IS A GOOD DECISION?

A crowdsourced answer to this question, busting some myths about what a good decision is and why we can't judge a decision by its outcome.

What did you decide? Does your answer include one or more of the following?

A good decision:

1. achieves its objectives
2. logically considers all the options at hand
3. avoids thinking clouded by emotions
4. aligns to an organisation's or individual's goals and values
5. avoids regret

If it includes any of these things, you're in good company. Since 2008, I have posed this question to thousands of people from over 21 countries across five continents, and the answers I receive have been remarkably similar, as summarised above. Yet over more than a decade of researching and working to improve individual and organisation decision making, I have learned that only one

of these answers is truly valid across different circumstances and problem domains. Any idea which one?

Let's start at the top. Surely a good decision achieves its objectives? This is the most popular response received, from CEOs of multinational companies and senior leaders to secretaries and support staff. If only one of these is valid, this must be it?

Let's apply a bit of critical thinking here—something we'll be doing a lot of together. In deciding on the objective that the decision is to achieve, how can one be sure that it is the best possible objective? From whose perspective? Over what time period? Who is the best person, or persons, to judge that? Did the decision maker even solve the correct problem? What if forces completely beyond the decision maker's control—such as a trade war or some environmental, political or corporate shenanigans—batted their efforts off course and resulted in the chosen course of action not achieving its objectives? Does that mean she or he made a bad decision?

> "You can't tell by the outcome whether
> you made a good decision.
> It's just a logical mistake to say, 'I got a
> good outcome, I must have made a good decision.'
> And yet that's what everybody thinks."
>
> —Ronald Howard, Professor of Management Science, Stanford University

So, can we judge a decision by whether it meets its objectives or not? Probably about as much as we can judge a Netflix series by its title artwork.

Although we can't ignore the fact that, as a professional decision maker*, you *are* judged on the outcomes of your choices—your income or bonus reflects how well you've attained your objectives or targets and your professional reputation builds on achievements made, not the process used to achieve them. This is pretty much the status quo today.

However, luck or a poor process will not result in consistently good decision outcomes over time. In chapter 2 we will explore the complement to an objective or outcome-focused approach to decision making—namely, process orientation. A good decision is underpinned by a good process. And before you say that sometimes you make great decisions on the spur of the moment without a process, we'll also explore the mechanics that underlie good rapid decision making as well as gut feel.

What about number 2 in our list of answers above? That a good decision *logically considers or weighs all the options at hand?* What do you think? Is this even possible?

Sadly, one cannot weigh *all* the options available but only the options that one is aware of. So we can cancel that answer immediately. But what about logic? It would seem obvious that it plays a starring role in good decision making. From the Greek *logos* meaning 'reason', logic describes 'reasoning conducted or assessed according to strict principles of validity'.[4] Logic is foundational to rationality, which is 'the quality of being endowed

* Have you ever considered yourself a professional decision maker? If you are required to make decisions on behalf of any kind of organisation, then you are one.

with the capacity to reason' logically. Apparently, this is 'a trait that distinguishes man[kind] from animals'.[5]

Mankind's capacity to employ rationality and hence, logic, in reasoning was the first, and is still the most endearing, perceived measure of good decision making. But there's a little more to it than the *Oxford Dictionary* lets on.

3

MUST A GOOD DECISION BE RATIONAL?

Gambling, followed by historical decision theory, contemporary decision theory and I'm-never-going-to-remember-this theory. Proof that both decision theory and our brains aren't as efficient as we think. A reminder that this part of the book is only for those few readers who enjoy theory, or those with insomnia.

Let's play a game of chance, a coin toss that will cost you $20 to participate in. In this game, you are asked to choose between two gambles:

1. the opportunity to win $400 with a 20 per cent probability, or nothing; or
2. the opportunity to win $80 with a 40 per cent probability, or nothing.

If you're quick, you've already worked out that the expected payoff[6] from option 1 is $80 and from option 2 is $32.

Which gamble do you prefer?

According to traditional decision theory, there is only one rational answer here, which is to choose the gamble with the highest expected or probability-weighted payoff—in this case option 1. If you chose option 1 and would do so under all and any circumstances then congrats, you just passed the oldest test of rationality. Option 2 is wholly illogical. But what if you chose option 2? Perhaps a surer thing with a lower payoff is more your speed? What if you decided not to partake? $20 in hand will buy lunch and a train ticket home, gambling this away for some expected payoff may not seem particularly rational to many of us.

As far back as the early 18th century, it was evident that maximising the payoff wasn't on everyone's agenda. Swiss mathematician Daniel Bernoulli (1700–82)[7] explained our seemingly odd choices by introducing a theoretical pauper who was fortunate enough to chance upon a lottery ticket offering him an equal opportunity to win a large sum of money (say $10,000)[8] or nothing at all. Clearly, he has nothing to lose by taking the gamble with a probability[9] weighted value of $5,000. Yet, might he not be better off selling that ticket for less than $5,000? His situation means that he would value even $1,000 in hand more than a 50 per cent opportunity to win $10,000. The utility, or subjective value, that he gets from the former is higher than the latter. Following this, considering a decision not in terms of monetary outcomes but rather in terms of maximising one's utility from the money earned was no longer illogical.

Two hundred years later, decision theorists[10] refined Bernoulli's expected utility theory, this time proclaiming mathematically that to be rational, a choice should comply with three decision behaviours:

1. We must be able to rank *all* possible outcomes to a choice in terms of our preference and stick to them. So, if we prefer red jerseys to blue and yellow ones and blue to yellow, we wouldn't choose the yellow jersey over the red one (even if yellow was the go-to colour of the season).

2. If pink and orange jerseys were added into the mix we would still have to prefer red to blue to yellow, and couldn't take a chance on blue if red was available.

3. If 10 Christmas-themed jerseys were on sale in our size, then it would be rational to choose the one with the most red to maximise our pleasure or utility from the purchase.

Sounds pretty rational, albeit a tad boring and far too disciplined to explain how we actually make decisions. Allowing for the fact that you may have a friend who wears only black turtlenecks or wouldn't think of eating anything other than tacos on a Tuesday, such discipline is not the norm.

These principles can be recognised as the 'strict principles of validity' (*Oxford Dictionary*, 2018), or logic, against which rationality is secured. Mathematical proofs of expected utility theory show that a rational decision maker will always select the option that maximised their expected gain (utility or pleasure) for a particular level of risk.

Unfortunately, this doesn't describe us on even our most rational days.

For this theory to be useful, the decision maker has to know upfront the probabilities of all outcomes occurring and how they feel about each outcome. For example, if you are playing a board game, then the probabilities of a fair dice landing on each number from 1 to 6 are known. However, in everyday decision making we don't always have the luxury of a full suite of known probabilities, or even of knowing how we would feel about them at some point in the future.

Despite this obvious flaw, this technical treatment of rationality dominated choice behaviour in both theory and practice for almost half a century, largely because mathematicians and economists had the field all to themselves. They had decided that it should be used as a guide to make rational choices, as a benchmark to judge the logic employed in a decision and, furthermore, to describe how people actually made choices.

And they could have gotten away with it if they hadn't used it for that last point, i.e., to describe how we actually make decisions. Describing human behaviour with all its contradictions and inconsistencies is not something that mathematicians are well equipped to do. This is the purview of psychologists and by the 1970s the time for them to weigh in on the decision-making debate had come. After all, shouldn't decision making in theory reflect decision making in practice? And so, for the first time, the theory of decision making brought psychologists, economists and mathematicians together in the same playpen, and they've been playing together quite nicely since then.

Far from being a mistake to be buried in online libraries, the early ideas in mathematical decision making have fundamentally shaped contemporary decision-making research, as its inability to model actual choice behaviour became the springboard for a proliferation of activity in decision making, including the obvious question: *If we aren't rational, then what are we?*

> "Saying that we are irrational
> is like saying we don't have fur."
> —Daniel Kahneman[11]

Many theories popped up to answer this question, but I don't want to get too side-tracked here—after all, we are meant to be exploring if good decision making *logically or rationally considers all the options at hand*. More modern definitions abound that take account of our limited capacity for rationality. Among them, rather than labelling us as categorically irrational, we are seen as being subjected to 'bounded rationality' or 'satisficing'.[12]

Apart from the constraints of limited processing power and incomplete information (even if we had full information, we could not completely process it) additional limits are always present as we choose between courses of action—such as limits to money, time, capability, emotional capacity, imagination and others. In fact, economic models that include bounds on rationality have notably more success in describing actual economic behaviour, partly because bounded rationality adheres to a fundamental economic principle of scarcity of resources—except in this case the scarce resource is human cognition![13]

Does this mean that logic and rationality cannot be criteria with which to judge a decision? That good decision making can't include *logically considering all the options at hand* as suggested in my

crowdsourced hypothesis? It would be very tempting at this stage to answer 'yes' and exclude logic from considerations of good decision making. But perhaps, like me, you also feel a little uncomfortable with that? If we can't really lay claim to logical considerations of the options at hand, why is it cited by decision makers as so important in decision quality? Surely there must exist some form of logic or rationality that we are able to rely on in our thinking? Despite the evidence against us, if the latter isn't available to employ in our decision making, then how can we trust our decisions or evaluate those of others? How can we judge decision quality?

What psychologists and behavioural economists have discovered is that decision makers are prone to violate the rules of logic and rationality in systematic ways. The research of psychologists and Nobel laureates Daniel Kahneman, Amos Tversky and others opened up the possibility that decision making is systemically irrational at an idiosyncratic level. Even today, the field of behavioural economics continues to remind us that decision making is not driven by numbers, spreadsheets, facts, models or computer algorithms, but by something that is infinitely harder to identify, quantify and label and hence infinitely more difficult to improve upon—the physical and psychological assets of an individual decision maker. We will delve further into these limitations as we build a custom decision-making model for you in Part 2.

How the perfectly irrational make good decisions

What would you consider rational or logical in decision making?

When asked to explain or defend a particular decision, the starting point is usually to explain the context in which the choice occurred. This background information frames our thinking about the problem and our pursuit of options. You might be perfectly happy with your salary, only to discover that a co-worker with the same responsibilities earns 20 per cent more than you do. This might incite you to leave the company, demand a salary adjustment or grudgingly accept this position, because you are a single parent and the economic outlook isn't great at the moment.

One of the first insights that differentiated behavioural economics from rational choice theory was that we consider our options in terms of relative positioning. Relative to other options, to the past, to expectations of the future and our own context, risk tolerance and time horizon. Decision making really is quite messy, but the good news is that we aren't strictly irrational, and some authors have tried to explain our less-than-perfect relationship with rationality.

In the intuitively appealing theory of ecological rationality,[14] we learn that oftentimes violating the principles of rationality is the most rational foundation of a sound decision. This is because the quality of our decisions depends on both our internal criteria and the nature and context of the problem at hand—something we will explore later in problem domains. Yet I wouldn't want to throw out some tried and tested measures of rationality, such as understanding the possibilities and probabilities of outcomes occurring. We still need a set of facts and sensible possibilities to work with. In the salary example above, even if we decide to take the traditionally irrational route of accepting 20 per cent less than a co-worker, we should first establish the possible outcomes to our range of options and the probabilities of those outcomes occurring.

An alternative and more realistic definition[15] of rationality is one that incorporates an understanding of how our physical and psychological assets, their strengths and limitations, affect our decision making coupled with more traditional decision-making strategies, such as consideration of the possible consequences of a choice as well as the possibilities of those consequences occurring.

The introduction of psychological assets has been an important addition to understanding judgement and decision making in practice and narrowing the gap between normative (what we should do) and descriptive (what we actually do) theories of decision making. Specifically, we need to consider the effect that unconscious processes (as part of our psychological assets) have on our perceptions of risk. Does this mean that to be rational we must understand the effect that our physical and psychological assets have on our decision making?

Yes, but it isn't as complicated as it sounds and leads us onto the next criteria of good decision making that we're going to challenge: that good decision making *avoids thinking clouded by emotions.*

How do you feel about that statement?

PART 2

6

YOUR CURRENT DECISION-MAKING PROCESS

Your decision-making process is explored and compared to the components of a best-practice decision-making framework.

Think of the last important or impactful decision you made. How did you make it? What were the steps you took? Can you jot them down?

Most people can—although I'm often asked if this should be a personal or a professional decision. Many people feel that the process used in these two settings would be different. It shouldn't be too different, though. Decisions made on behalf of an organisation attract a higher degree of scrutiny. You know that you will have to consult with stakeholders, perhaps show that you followed a due diligence process and other steps required by protocol in order to justify your choice to peers and/or superiors. In anticipation of scrutiny, and to avoid the regret that failing such scrutiny would cause, we tend to be more thorough in delineating our steps, gathering our evidence and showing our workings out in organisational decision making. Decisions in our personal life

tend to attract a smaller group of less demanding stakeholders and so the process used in deciding might not be as transparent or detailed. Where one isn't constrained by a standard operating procedure that dictates decision steps, personal and professional decision processes tend to differ only in transparency and level of granularity.

If you're still not convinced, why don't you compare how you made your last important corporate and personal decisions? Was gut feel more prominent in your personal decision making? Greater scrutiny makes it harder to justify gut feel as an input in your choices, but it shouldn't stop you from understanding where that gut feel came from and using what you discover as a data point in your justification. We'll talk more about how to do that later. Did you take more risk in your corporate decision? Perhaps your risk budget and deployable resources were bigger, and any personal loss limited. This doesn't reflect a different process, but rather a different context. Or perhaps the greatest risk when making corporate decisions comes from getting it wrong in an unforgiving corporate culture and so you choose to take on as little risk as possible, or maybe even toss the decision as far up the corporate ladder as you can? All of these are perfectly normal approaches to making decisions. For the purpose of this exercise, it would be most useful to select decisions that you took ultimate responsibility for.

If you haven't done so yet, please write down the process you used to decide.

Now that you have clarity on your own decision-making process, let's compare it to a best practice decision-making framework and see where you could augment it. This part of the process always elicits a collective groan from my MBA students and pleas to simply hand over the new framework, which they will then duly study and apply on their fast-track ascent to industry domination. For those of you who also prefer to get to the point and skip writing down and reflecting on your own decision-making process, I'll tell you what I tell my students—a tale of lessons learned through years of teaching and facilitating decision making:

'Decision making is personal and as unique to you as your fingerprint. It reflects your values, beliefs and priorities. Your decision-making process is predicated on your unique psychological skill set: accessible mental states, intelligence, memory, confidence, risk preferences, bias profile (including values) and time orientation. It also reflects the resources (physical assets) at your disposal: time, money, access to information, and a social network that supports and advises you. I can give you a social media-worthy *Five Steps to Invincible Decision Making*, but if this doesn't reflect how you engage your physical and psychological assets in actually making a decision, then it will be nothing more than a tick-box exercise imposed upon your own process. An annoying overhead, and the first thing you jettison when under pressure of any kind.'

What follows are researched and tried-and-tested ideas that will improve the quality of your decision making, but only if used to supplement your existing strategy. Pick the ideas that appeal to you and slot them into your own process where you think they would work best to improve decision outcomes.

A best practice decision-making process

A definition of a good decision usually begins with engaging a decision process that allows the decision maker to decide with as little regret as possible. Decision processes are highly personal, but should include some of these success factors:

- a process rather than outcome orientation
- clear decision rights
- a meta-decision (including ensuring that the correct problem is being solved)
- checking that the problem is being correctly framed
- being aware of the mental biases you/your team are most prone to
- exploring assumptions and risk
- understanding the role of unconscious processes on risk perception
- gathering challenging opinions

The definition of a good decision never includes whether the desired outcomes were achieved. There are so many variables that affect the outcome to a decision that a well-made and considered decision can still result in an undesirable or less optimal outcome and vice versa. Let's explore each of these in turn, allowing you to decide which ones will add the most value to your current process.

7

PROCESS VS GOAL ORIENTATION IN DECISION MAKING

Praise for process orientation in decision making and what not to do if your son takes your Porsche out for a spin without asking.

A 2010 McKinsey[1] study analysed 1,048 strategic decisions made by their clients in areas ranging from mergers and acquisitions to organisational change. Their success criterion was return on investment (ROI) and, using regression analysis, they explored which elements of decision making contributed most to it. Beginning with the area that companies (and individuals) initially focus on when making strategic decisions—gathering good quality data—and subjecting it to the best possible analysis to produce predictive and scalable financial models.

Their results were somewhat surprising. They found that *data quality and quantity* only contributed to an 8 per cent increase in ROI. Idiosyncratic variables such as capital availability, investment opportunities, and market sentiment, contributed 39 per cent, but the bulk of the impact came from the quality of the *process* used to exploit their analysis and reach a decision. Examples they

provide include: explicitly exploring major uncertainties; ensuring participation in discussions by skill and experience rather than rank; and soliciting and including perspectives that contradicted senior leaders' points of view. Raising the quality of a company's decision-making process from bottom to top quartile on these measures improved ROI to a company's investments by 6.9 per cent. Not a trivial contribution at all.

Building a decision process is something most of us, and most companies, haven't really considered. Instead, each decision is explored on its own merit according to the desired outcome or objectives. We also tend to judge decisions by their outcomes because outcomes are easier to measure. Of course, poor outcomes weigh more heavily in any evaluation than good outcomes. In addition, we're usually only rewarded for those good outcomes because the latter is assumed to result from a good decision process. In reality, this *outcome focus* skews risk perceptions and results in weaker decision making over time.

Our time together to work on improving your decision outcomes begins with a shift from goal to process orientation. However, if you've only ever judged a decision by its outcome, then moving to a process orientation may not be an easy mindset shift. We'll take it slowly, starting with some celebrity inspiration.

Process poster boys

Most decisions involve some uncertainty. This places them in the realm of bets and gambles, terms more frequently associated with games of chance and investments. In this context, evaluating a bet as good or bad would depend on the stakes and the odds,[2] not the outcome. It is no surprise, then, that successful investors focus on building strong and sustainable investment processes. In fact, two of the world's most successful investors, Warren Buffett (Berkshire Hathaway) and Ray Dalio (Bridgewater Associates), are poster boys for process-driven decision making. An investment process captures the decision criteria and processes that guide an investor when choosing to buy or sell assets for their portfolios. Buffett's process lives on in Berkshire Hathaway and lays down the steps required to delineate a good company from a good investment.

His process limits his analysts to investing only in companies they understand deeply and can analyse thoroughly. This might seem obvious, but is something that is increasingly hard to do, as companies spawn across geographies in various corporate structures, management turnover is increasing rapidly, and strategies are becoming ever more short term. This process resists the fashion of trading shares on stock price or news flow to make a quick buck. It also dictates that they initially analyse a company independently of the market, sentiment, politics and price. 'Price is a frame that affects one's evaluation of a company,' says Buffett.[3]

Understanding the level of rationality in a company is not a feature you would find in many investment processes. In this case, rationality explores whether[4] management is selfish with cashflow and profits or uses it to the benefit of shareholders. Do they follow competitors' strategies blindly or have the ability to unlock value through unique positioning or offerings in the long term? A total of 12 tenets are said to underlie his process, including numerous financial metrics and ratios. I should add that they seem overly neatly packaged in the media—perhaps for public

consumption—whereas the reality may be somewhat more fluid and less structured.

Ray Dalio built one of the world's most successful hedge funds at Bridgewater Associates. His investment process has a controversial behavioural aspect to it that he calls 'radical transparency'. It requires every employee to be completely transparent in their thinking and opinions and gives everyone in the organisation access to recordings of closed-door investment conversations (within regulatory and legal limits). But if everyone has an opinion, how do you know whose is more important in your decision making—or do you just block it all out and go with your own? The solution, according to Dalio, is weighting opinions according to someone's believability in the area under discussion—and he's even had software developed to do this. For example, if a financial stock is being discussed, everyone is entitled to an opinion; but the financial analysts, and specifically the most successful among them, will have their opinion upweighted. There are mixed reports on the mental toll that working in such an environment takes, but the investment returns have been spectacular.

Transparency and challenge are two components that have featured in all decision-making processes I've explored with teams. The degrees to which these feature and the shape they take depends on the goal of the process, be it driving consensus or generating robust debate that allows individual decision makers to fully explore an issue before deciding. Whatever the goal, the first step is to construct a process to house these protocols. Such a process is more likely to produce good outcomes over the long term than a results-orientated approach to decision making—especially when specific decision objectives are unclear or changeable, or external influences are unpredictable.

Outcomes skew risk perception and evaluation

What is a results-orientated approach? While it is clear that process orientation emphasises the development and constant tweaking of a decision process used to explore problem domains, it must still achieve an objective. Within such a process, the objective is to make the most robust decision. Here, solutions are shaped by the exercise of understanding the problem domain. This allows for goals or objectives to change if this exploration of the perceived problem uncovers an incorrect diagnosis or new factors come into play.

With a goal-orientated approach the goal is fixed, and the process focuses on achieving it. Such processes can be random, constantly change or follow the age-old 'What do we need to do?' and 'How do we do that?' team discussions. Goal orientation is action orientated, solution driven and less reflective and exploratory, but quicker. I'm not suggesting you announce to customers that your staff are no longer goal driven! That would go down like a lead balloon, because what customers wouldn't know is that process orientation in decision making allows for a better understanding of the challenge you are addressing and greater agility in the face of rapid change.

Sticking with our finance examples, one of the issues plaguing the investment industry is compensation levels. The bursting of the tech bubble in 2000, the 2007 subprime crisis and subsequent financial crisis from 2008 onwards all occurred at a time before stringent regulations on employee's compensation was implemented, when

the goal for each investment year was to maximise one's bonus. Fair enough, given how short investment careers were and the accompanying stratospheric stress levels. Taking short-term bets with increased volatility or trading on news flows or sentiment is a quick way to ramp up short-term returns, especially near financial year end. Lurching from bonus to bonus doesn't help build long-term stability in a portfolio or investment business. Incentivising investors on the quality of their risk-weighted returns over a three-to-five-year period will change the nature of the risks they take, removing some of the stress and accompanying knock-on effects of a bad period, while encouraging longer-term relationships with the companies they invest in. In the same way, incentivising a sales team on new business generated produces an outcome focus rather than creating incentives to invest in client retention and relationships.

Building and debating decision processes is commonplace in investment management, but outside of this process-driven industry discussing the process underlying one's decisions is not typical canteen conversation. Usually, when our own investment portfolio falters, we turn to our financial advisor or mutual fund manager to explain to us what went wrong. We expect him or her to highlight how market sentiment, global upheaval or other exogenous events have impacted our returns. We seldom prod our advisor's decision-making process and how that may have resulted in our portfolio pickle in the first place.

Researchers concur that we struggle to judge a decision by the process used. As soon as the results of a decision are known, this becomes the focus of any evaluation. A surgeon cannot claim an operation was successful if the patient died on the operating table, despite faultless decision making and skill. This devastating outcome overwhelms any other data about the surgeon's choices. In all decisions, consequences are far more noticeable than the process that produced them. How much weight is given to consequences can depend on who is doing the judging. Who is judging the surgeon's choices in the operating theatre? A surgical colleague might consider the surgeon to have performed admirably, but the deceased patient's loved ones might never accept a diagnosis of success. Outcomes also occur closer in time to the act of judging a decision and so have more influence on our judgement than the process that produced it—this is known as the 'fallacy of saliency'.

It's also been shown that knowledge of an outcome can change perceptions of a decision made before the outcome was known. We've all done this. Rami Malek won a 2019 Oscar for his portrayal of Freddy Mercury in the semi-biopic blockbuster, *Bohemian Rhapsody*. In his acceptance speech, he mentioned that he hadn't been the first choice of actor for the part, but with his Oscar in hand he smiled and added, 'but I guess it worked out OK!' I'm also guessing that the producers of the film were congratulating themselves on their excellent choice, even if they had been doubtful before.

In a typical work environment today, it's usually only the outcomes of employees' decisions that are observed and judged. If the 'decision judge' and 'decision maker' use different frameworks to evaluate decisions, then the one that pays the bills is going to be more influential. Decision processes take time to develop and use. If organisations don't consider these processes in judging and rewarding decisions, then they will continue to suppress decision quality. As an advocate for decision processes, I am often faced

with the question of how to judge a decision. Should managers or HR professionals be experts in decision making? Is it even possible to judge a decision's quality?

Judging your own choices

Actually, being a good judge of someone's choices is one of the oldest professions. Who would do such a job? Judges, of course. Every crime begins with a choice (either premeditated or not) to commit to a certain course of action. Imagine if a judge delivered a verdict after only hearing the details of the actual crime committed (i.e., the decision outcome). For example: Mrs White killed the postman with a blunt kitchen utensil. Murder is against the law therefore Mrs White must be guilty.

Despite reducing court cases down to minutes, such simplified judgements would be unacceptable. We expect judges to consider the context in which an act was committed, the circumstances that led to the act, including how much information was available to the accused, the emotional state of the perpetrator and how that impacted decision making. In the eyes of the law, in most judicial systems, murder is wrong, but how and why a murder is committed will determine the appropriate punishment. Was it premeditated or committed in self-defence with a clear mind or under emotional or mental strain? Fortunately, case studies and the law serve as criteria against which to judge these complex choices. In our personal decision making, values are often called upon instead. So these tend to become meaningful criteria against which to judge and justify our own choices. Not every decision has a moral aspect, though, and when we lack such 'credible' criteria against which to make a judgement, the *outcome* becomes the gold standard.

Bearing in mind that when we judge decisions against their outcomes, we do so under the influence of many mental biases, one regular rascal being loss aversion. Even if we are judging someone else's decision, negative outcomes will weigh more heavily in our thinking than a positive outcome.

If your teenage son nicks the car keys and takes your prized Porsche out for a midnight spin with his friends, two of many possibilities could result:

1. he returns it without incident, but you discover his betrayal; or
2. he has an accident that damages the car.

Now imagine that you discovered he had taken the car before he returned. You would probably go ahead and make a judgement about his decision, foster an appropriate level of ire and, possibly, devise a punishment. All before he returns. After he arrives home and shows you the damage inflicted from the car accident, would you apply a different judgement? Most likely. In which case are you going to be angrier: taking the car without permission or taking the car without permission and reversing it into a construction barrier? If the crime is taking the car without permission, then the added injustice of an accident shouldn't change the punishment. But it will, of course. Decisions that produce poor outcomes (a loss rather than a gain) are far more impactful and newsworthy and so tend to be judged more harshly.

What does this have to do with anyone adopting a decision process? Well, you're the ultimate judge of your own decisions, you have to live with the consequences. If you can reflect on and judge your decisions in terms of the process you used to generate them, you

will find it much easier to move away from focusing solely on the outcome. An outcome focus encourages the decision maker to fixate on a desired goal and work back from there to gather information and explore alternatives in less structured ways. This fosters mental biases, blind spots, lopsided risk assessments and a difficulty in standing up to scrutiny.

In summary: why do I propose developing and using a process in decision making? To uncover our blind spots, allow for our limited memory and processing capacity, rightsize the impact of emotions and counteract thinking mistakes. Ultimately, the use of an appropriate decision process should render the act of deciding trivial. Sounds sensible, doesn't it?

Let's turn to the first principle recommended for a robust decision process: allocating decision rights.

PART 3

11

RISK AND UNCERTAINTY

How your risk persona taints your view. Telling tales about risk to understand them better and tools to root out assumptions.

Here's a quick recap of where we are in our best practice decision-making process. Remember that decision processes are highly personal, but many include at least three or more of the following success factors:

- a process rather than outcome orientation
- clear decision rights
- a meta-decision (including ensuring that the correct problem is being solved)
- checking that the problem is being correctly framed
- being aware of the mental biases you/your team are most prone to
- exploring assumptions and risk ← *we are here*
- understanding the role of unconscious processes on risk perception
- gathering challenging opinions

Risk persona as a lens

All decisions involve risk—idiosyncratic risk from the decision maker, quantifiable risks, risks from assumptions and what we don't know, we don't know, alongside black swans and snakes in the grass. Booms, busts, bank runs and corporate failures are part and parcel of our complex and risky political, financial and social environments. The risks that drive extreme events are often the ones that no one paid attention to or could have foreseen when making the decision or setting policy. While it's very hard to know what you don't know, the ability to imagine alternative futures is becoming more important around the boardroom or WeWork table.

Because risk identification and management are so important in the business world, we like to leave all things to do with risk up to the risk manager and his or her flock of actuaries and PhDs. Unfortunately, this behaviour is in itself risky business. If individual decision makers don't have a strategy beyond models and numbers to grapple with unprecedented risks and imagine the unimaginable, then unimaginable things will continue to blindside us. The subprime crisis that swept global markets in 2007/2008 has largely been labelled a crisis of imagination, where politicians and governments alike failed to imagine that such an outcome was possible and later admitted so. I try not to use the word 'imagine' with my corporate clients, but no other word seems to fit the bill as snugly. Their risk processes failed to flag the risk of global systemic failure or the possibility of a bank run because the risk systems used had been programmed by minds that couldn't—or wouldn't—imagine such an extreme financial event.

> "Problems with individual financial sectors were identified, but a global failure of imagination meant no one anticipated this crisis. No one stopped to think 'what if'."
>
> —Michael Coogan, Director General of the Council of Mortgage Lenders

The lens of the past and present curtails our ability to imagine the unimaginable and so many states of the world remain unknowable, filling our decisions with uncertainty that we can't measure, assign probabilities to or manage. Risk, on the other hand, is more measurable and manageable—in theory. This requires that we assign possible outcomes and the probabilities of each occurring to the available options within our choice analysis. Yet, in reality, alongside these quantifiable risks, many of our decisions involve states of the world that we cannot foresee. We simply don't know what we don't know.

Any possibility that is assigned to a probable outcome in an unknowable future is subjective and would require forecasts and speculative narratives to sustain it. But before we get too disheartened by uncertainty's confidence-busting powers, let's explore one category of risk that we have some control over—ourselves. More specifically, our own risk tolerance. To be clear, personal risk tolerance is a frame, or bias, that affects how we think about risk.

I have pretty much always been risk averse. In fact, I'm so risk averse that I used to struggle making any decisions at all, because I became paralysed by the idea that if I chose one option then all the

other options were no longer available. Yes, clothes or gift shopping with me is a tedious ordeal as I circuitously debate the merits of both buying and not buying an item of insignificant value. It took me eight years to complete my undergraduate degree, not because I am particularly slow or unfocused, but rather because, without any career guidance, I changed my major subject three times. Every time I settled on a subject, I faced debilitating regret—not that it might prove to be a bad choice for me but rather that the other options might have been better. The choice of a partner and career were also offered at a time when I didn't have a mental database of decision-making outcomes to learn from. In both deciding to get married and choosing a career, the same decision paralysis endlessly overshadowed my thinking. In the former, I sought a sounding board in the form of a psychologist to help me decide. I eventually said 'yes' and, after some 20 years of a fulfilling marriage, I am very glad I did. In my career, I simply went with what was on offer, going with the flow, or deciding not to decide.

It was this debilitating uncertainty that led me to a career in decision making, where I have learned to promote my unconscious risk aversion to a conscious fear of taking risk. It's put me in control. This career has allowed me to explore the effects of being hypersensitive to risks and plain old risk averse in my thinking. It is a trait gleefully exploited by insurers and sales tactics of all kinds. I know that I pay a premium to wrap my life in a protective blanket of insurances, from super comprehensive car insurance to insuring theatre tickets and even summer camps against the possibility that my son falls ill. At best, most of these are not necessary and at worst, statistically foolish. When my husband and I explore new opportunities for our family, like moving to a different country (we have lived in four countries, six cities and 11 different houses), or buying a holiday home or choosing a school for my son, our views of what is important are vastly different because we have risk personas on either end of the spectrum. After 20 years of being together we use these perspectives to strengthen our conversations and temper our most extreme ideas. Despite knowing that I have a warped lens through which I view risks, I have been unable to change it. Instead, I have learned to adapt to it—to counteract its effects at times and simply accept it at others.

Yet, according to Daniel Kahneman,[1] *being less certain* is the first rule of good decision making—*being less certain about everything!* Here, Kahneman means for *uncertainty* to be used as a tool to counteract overconfidence and assumption. If you are certain that choice A will lead to outcome Y, the only way to be sure that you're not overconfident is to test the logic of your thinking. This requires doubt and curiosity. We can never really be certain of anything, but we are allowed to have confidence in our reasoning. My journey into understanding decision making was a journey of gaining confidence in my thinking and allowing my doubt to serve as an indicator of where I need to pay more attention or gather more information or opinions.

Today, I am more comfortable in deciding because I strive to understand (as comprehensively as I can) what I am giving up as well as gaining in the choices that I make. There is always risk from the things I know I don't know, the things I don't know I don't know and the things I can't control. Of course, I still can't really quantify uncertainty, yet somehow, this little charade (and a decent decision-making process) makes it easier to be confident in my choices. But just how confident should I be?

For Daniel Kahneman, overconfidence is the greatest threat to our decision making. Being circumspect and cautious is fine when you are an academic like Kahneman but erring, cautious, risk averse leaders don't really inspire much confidence. Confident leaders aren't better at forecasting the future compared to the rest of us and their decisions play out in an uncertain future, just like ours. What they do better is create narratives around what they know, extrapolate this into the future and so create a believable alternative, complete with known risks and risk mitigating strategies. Inspiring leaders, investors and headmasters are all master storytellers whose confidence is contagious. To maintain *our* confidence over time, at least some of their stories must become reality—and so a storyteller, like a research scientist, will head out to prove their theories.

It would seem a bit pointless to disprove your own theory. Yet there is an important place for disproving theories and narratives in good decision making, too. Attempting to disprove our own ideas gives us some ammunition against anchoring, confirmation bias and *believing-one's-own-BS bias*. Ok, I made the last one up as a snappy synonym for overconfidence. This can be done by asking one team member to come up with reasons to continue to support a project while another finds reasons to abandon it. For example: a (brave) CEO could task a team with highlighting the vulnerabilities and assumptions in his five-year strategy plan. An FBI team investigating a high-profile, highly-contested case could split into two teams: one team to gather evidence of innocence and another to gather proof of guilt.

Once we come to terms with our tendency to be overconfident and fall in love with our stories and the world they predict, Kahneman[2] suggests that we test what we think we know with some hard data and so revisit the logic of our decision.

Perhaps asking what other options would you have if you were less sure that A would cause Y, or that Y is preferable to X? Have you considered a dramatically different outcome to your preferred one? What are the assumptions that underlie your choice?

Base rate realities

Questioning the base rate or assumptions that you use as your anchor is another piece of advice widely offered by behavioural economists and statisticians. For example: if you believe that people who work for themselves make more money and are happier than those with a 9-to-5 corporate job and this belief drives you to fantasise about setting up on your own, you should probably test your assumptions before you resign your current job. How many professionals are in your field and how many are freelancers? Is that number growing or falling? What do they earn on average? How have earnings changed over time? How many years does it take to establish oneself as a freelancer? Are they happier or more stressed about their earnings? Do your ideal clients have minimum requirements for the size of an organisation that they will contract with? Does it include freelancers?

Or imagine you have a malady and are offered a particular medication with an impressive track record of curing over 10,000 people. That sounds good, but we can really only judge it if we know the number of people that have been treated. If 100,000 people have been treated and only 10,000 have been cured, then it doesn't look so good. Questioning base rates built into statistics is a good way to identify assumptions.

Decision making usually begins with an inside-out process of understanding the decision, our options and their impact on us. Starting with base rates and statistics instead allows us to start with an outside-in view, which has a wider frame and a less personal lens. But base rate assumptions are the blandest kind of assumptions—let's take a look at some other varieties of assumptions.

Assumptions: from fiction to facts

A global packaging company is a client of mine. I have learned far more about packaging and plastics than I ever thought I would. But it wasn't always that way. As a complete outsider, I have been able to flag some of the assumptions that are so implicit in their thinking, they don't ever stop to question them. In working on their decision making around sustainability, certain things were simply taken for granted, like the 'fact' that plastic bottles needed plastic labels and plastic lids (secondary plastics are a significant polluter) along with the 'fact' that there would always be a market for plastic-packed drinks and that the next generation of their enormous global following would stay as loyal to their brand as current consumers, despite changing tastes and values. By calling out these assumptions and challenging them, future risks can be clearly highlighted and seeds for innovation sown.

Assumptions play a starring role in our decisions. Sometimes born from the status quo and sometimes from what we don't know or beliefs we haven't updated. They are stories we create and repeat so often that they sometimes graduate to 'facts' in our thinking.

A few simple questions help to expose the assumptions hiding within our reasoning but, as always, these are only effective with a little bit of honesty.

- What do I/we know but can't prove?
- What do we accept without challenging? What is the status quo?
- What do we not know?

The last one is not a trick question. It refers to our ability to make stuff up to fill in the gaps in our knowledge; to tell tall tales that carry the veneer of respectability and could even be assumed to be true. If we are able to acknowledge that we truly don't know the facts of a matter or how something will turn out—or where interest rates will be in two years' time—then the quality of our conversations improves immediately.

There are many challenges in bringing a new aircraft to market. The Boeing 737 Max was almost the perfect example of radical innovation, featuring a cockpit and controls pilots were already familiar with, requiring little adjustment or training to be able to fly it. Despite its familiarity, it had undergone an internal overhaul to improve efficiency. Within three years of its maiden flight, 346 of its passengers had been killed in two separate and avoidable crashes. The blame was squarely rooted in these internal changes; yet, on closer inspection, the machine wasn't to blame, but rather the same two assumptions made by its engineers, test pilots and the FAA (Federal Aviation Authority). These assumptions were brought to light by the *New York Times* in June 2019:[3]

> "A year before the plane was finished, Boeing made the system more aggressive and riskier. While the original version relied on data from at least two types of sensors, the final version used just one, leaving the system without a critical safeguard. In both doomed flights, pilots struggled as a single damaged sensor sent the planes into irrecoverable nose-dives within minutes, killing 346 people and prompting regulators around the world to ground the Max."

These sensors are placed near the nose of the plane and are often damaged by bird strikes and jetties (moveable stairs) bashing against them. Up until now, two sensors were able to feed information into internal systems to compensate for any loss or damage to one. Naturally, Boeing employees and those at the FAA assumed that the system continued to rely on data from more than one sensor. They also believed that this system would rarely, if ever, activate, which is why the effects of a faulty sensor were never tested. These two assumptions were the basis of many critical decisions concerning design, certification and training.

> "'It doesn't make any sense,' said a former test pilot who worked on the Max. 'I wish I had the full story.'"
>
> —*New York Times,* 1 June 2019

With a finely tuned ear you will find assumptions all around you. But I would advise you to only root out those assumptions that impact your decisions and well-being rather than every stray assumption that crosses your path. Personal experience has taught me that this is not the route to popularity.

States of the world

Do you remember the definition of a rational decision maker from chapter 3? Probably not, so let's recap; in theory, a rational decision maker is one who selects the option that would maximise their expected utility (pleasure or gain) for a particular level of risk. For this theory to be useful, the decision maker has to know what the probabilities are of outcomes occurring: for example, if you are playing a board game then the probabilities of a fair dice landing on each number from 1 to 6 are known. However, in everyday decision making we don't always have the luxury of such objective probabilities.

In 1954, Leonard Savage extended expected utility theory to circumstances in which the actual probabilities of outcomes occurring were unknown. This subjective expected utility theory (SEU) allowed for probabilities that were influenced by assumptions and beliefs of the decision maker. For example: if you were securing a mortgage to buy a new house, you could work out how each level of interest rate impacted your payments and hence cash flow. You would also need to have a view on how likely each of these interest rate levels were. This would be based on your (or your advisor's) view of the economy over the life of the mortgage. No one can know how an economy will perform over 20 years, so these probabilities would be a belief-fuelled guess. However, you would have been able to test your ability to weather extreme economic events and decide if you wanted to take the risk if you knew you couldn't meet payments at high levels for prolonged periods.

This allows you to distinguish what is under your control and what isn't as a decision maker and thereby quantify your uncertainty.

The interest rate is an external variable over which you have no control and so it should count as a random variable within your decision. Your ability to generate income and other future financial commitments are within your control but uncertain, and so can be categorised as uncertainties.

Once this distinction is clear, modern decision theory offers a nifty suggestion to help you in your choice: divide a decision scenario into *actions*, *states of the world* and *outcomes*. States of the world are possible scenarios that may unfold and create a unique outcome with unique impacts that the decision maker can't control. Actions represent the decision maker's feasible choices. These interact with each state of the world to produce unique outcomes that can be mapped in a matrix. These can be ranked along a utility curve (a list ordered by preference).

	State of the world 1	**State of the world 2**
Action 1	Outcome 1	Outcome 2
Action 2	Outcome 3	Outcome 4

Action 1 could be buying a house well within your budget, but one that you will have to extend as the family grows. Action 2 could be taking a bigger bond than you planned for to buy the house of your dreams now, which will be big enough for the family you are planning to have someday.

States of the world might reflect the interest rate you could possibly pay at different levels, the state of the property market in five years' time, or whether you started your own business or not and how that affected your income (the outcome). The real magic is taking a guess at how likely each of these outcomes are and whether you are able to weather the associated risk. While there are no absolutely correct answers here, how you rate and rank these likelihoods or probabilities will depend on your own risk tolerance.

Quantifying every possible decision state and every possible influence that will impact the outcome is quite a tall order, especially since some of these are unknowable or occur in a theoretically infinite set. If we really can't make fully informed decisions about the future, should we rather just go with our gut—which, after all, has been shown to be much better in practice than in psychological experiments?[4]

Not entirely. As problems with calculable answers get relegated to AI and machinery to sort and solve, the challenges that remain are those that don't have one right answer. Executives will increasingly only deal with those issues loaded with ambiguity and uncertainty beyond what an algorithm can digest. This is where our ability to wrestle with the unknown, to tell tales and translate risk appetite into preferences and perspectives, will allow us to deal with an increasingly complex environment.

In the next chapter, we'll explore how gut feel and emotions both help and hinder our thinking. Needless to say, in this state of the world, gut feel as a standalone decision-making tool is usually inadequate. A range of tools and theories to challenge our data, our thinking, assumptions, risk perception and mental shortcuts is no longer optional in a successful career, or even life in general.

PART 4

17

YOUR ENHANCED DECISION-MAKING PROCESS

Your new decision-making process. A quick summary and DECIDE Decision Making Cards for teams.

When we started working on your decision making, I asked you to write down your process. Can you now write down your augmented process, including some or all of the tools that we explored in this book?

As a reminder, they are:

- a process rather than outcome orientation
- clear decision rights—checking who is the decision maker
- a meta-decision (including ensuring that the correct problem is being solved)
- checking that the problem is being correctly framed
- being aware of the mental biases you/your team are most prone to
- exploring assumptions and risk
- understanding the role of unconscious processes on risk perception
- gathering challenging opinions

Given the above, what would your ideal decision-making process look like now?

Chapter summaries

Part 1

Chapter 1 introduces the question of: What is a good decision and how should it be evaluated?

Chapter 2 explores a crowdsourced explanation of the most common answers to the above question. These answers come from a decade of asking this question in both formal research and in both corporate and academic engagements.

Conventional wisdom tells us that a good decision:

- achieves its objectives
- logically weighs all the options at hand
- avoids thinking clouded by emotions
- aligns to the organisation's or individual's goals and values
- avoids regret

Chapters 3 to 5 challenge each one of these points in turn to determine their role in good decision making. We conclude through theory and practice that not all of these are relevant to making a good decision as follows:

- *Achieves its objectives*—No, this isn't a necessary criterion for a good decision.

- *Logically considers or weighs all the options at hand*—One cannot possibly weigh all the options available, and traditional definitions of logic or rationality are at odds with how we process information and make decisions. An updated functional definition of rationality is suggested.

- *Avoids thinking clouded by emotions*—Given the role that emotions play in decision making, namely that they influence what we pay attention to, how we gather and process information and how we evaluate risks, it is biologically impossible to make decisions without the influence of emotions.

- *Aligns to the organisation's or individual's goals and values*—This is only a valid decision-making criterion if those goals and values are periodically examined to avoid the danger that they become unhelpful and outdated lenses through which we view data and information.

- *Avoids regret*—After testing all the candidate theories against academic and practitioner research, we are able to conclude that a good decision is one that the decision maker doesn't regret. Freedom from regret hails from making the best possible decision one can with the available resources (physical, mental and time) and a realistic understanding of one's limitations. The best way to be sure of achieving this is using a decision-making process that guides one's thinking, especially when under pressure. How to do this is the subject of Part 2.

Part 2

In Part 2, chapters 6 to 10 introduce a best practice decision-making process and begin to explore and explain the steps that it consists of alongside examples of decision-making processes, protocols and debiasing strategies used in organisations today.

If you are a professional of any kind, from a tech engineer to an HR executive, a CEO or a dentist, you are continuously weighing up options and deciding on the best trade, payoff, treatment or even the best thing to say in a presentation or to a customer. You are a professional decision maker and your success depends largely on the quality of your decisions. You've already learned that a good quality decision isn't always the one with the best outcome. What's far more important than hitting the bull's eye every time is to foster a good decision process that ultimately results in incrementally better decisions and hence gains from those decisions over time.

Decision processes are highly personal, but a best practice decision-making process should include some of these success factors:

A process rather than outcome orientation

Good decisions are never random inspirations hastened by a moment of genius or lucidity. A process is used (consciously or subconsciously) by anyone who makes consistently good decisions, because no one is consistently lucky. Chapter 6 asks you to write down your process so that you can reflect on and refine your approach to problem solving as we go through the tools introduced.

Clear decision rights

Once you know you are solving the correct problem, it's a good idea to clarify who the decision maker is for the various aspects of the problem domain and ensure that they have both the

authority and resources to exercise their right to take decisions. What choices are under your control and what choices need decisions from others as inputs? Each decision maker should understand their risk budget, know how much risk they are at liberty to take, and know what resources can be allocated to their decision-making efforts.

A meta-decision

A meta-decision is the simple act of deciding *how* you will decide before you jump in and make a decision. It begins by checking that you are, in fact, solving the *right* problem, then asks you to decide how you will solve the problem—using which tools, data and resources. It sounds like a mini project plan because it is. The meta-decision forms the very first step in a good decision process because it anticipates challenges, ensures that you are using the best possible tools, that your team members are all on the same page and actually speeds up the decision process.

Checking that the problem is being correctly framed

It was Socrates who first proposed that all information occurs within points of view and frames of reference and that all reasoning proceeds from some goal or objective. The poor man was executed for his outrageous thinking. Today this reasoning separates good decision makers from the rest. Without fail, every piece of information that is presented to you is done so through someone else's frame of reference, and hence has been structured in a way that serves their ends. Always ask yourself what motivation the journalist, stockbroker, surgeon, CEO, or any other person has when transmitting information. If you have sourced data yourself, also beware—that data is filtered through your own mental frames.

Being aware of the mental biases you/your team are most prone to

Outside of finance and advertising, where executives can use psychology to profit from their customers' biases, in strategic decision making, executives must understand and counteract their own biases and those of their colleagues. There aren't many examples of this being done successfully, with recent research on the tongue-twisting *bias blind spot bias* reminding us that most of us tend to perceive ourselves as less susceptible to biases than others. Training to reduce explicit biases has also not proven to be as successful as expected in eliminating them. Again, this is because we find it hard to believe that we are explicitly biased against others. This chapter focuses instead on implicit bias or mental shortcuts that affect how we process information and perceive risk, such as loss aversion, confirmation bias, anchoring and overconfidence.

Part 2 ends with an exploration of debiasing strategies. Knowing that a bias possibly affects your thinking doesn't guarantee that it won't. Debiasing strategies are decision protocols or frameworks that counteract the most prevalent biases in your thinking or that of your team. See examples of such strategies used in organisations at the end of chapter 10.

Part 3

The remainder of a best practice decision-making process is explored in Part 3 and includes:

- exploring assumptions and risk
- understanding the role of unconscious processes on risk perception
- gathering challenging opinions

In chapter 11, we see how assumptions play a starring role in our decisions. These are sometimes born from past data or the status quo and sometimes from what we don't know or beliefs we haven't updated. They are stories we create and repeat so often that they sometimes graduate to 'facts' in our thinking. Part 3 explores strategies to root out assumptions, such as asking the following:

- What do I/we know, but can't prove?
- What do we accept without challenging? What is the status quo?
- What do we not know?

Decision making usually begins with an inside-out process of understanding the decision, our options and their impact on us. Questioning base rates and assumptions allows us to start with an outside-in view, which has a wider frame and a less personal lens.

Exploring decision variables and assumptions in a *States of the World Matrix* is a useful tool to qualify uncertainty, as explored in chapter 11:

	State of the world 1	**State of the world 2**
Action 1	Outcome 1	Outcome 2
Action 2	Outcome 3	Outcome 4

In chapter 12, we take a well-earned break from exploring our own decision making and focus on that of the FBI instead, with a true case study exploring the wrongful arrest and imprisonment of Brandon Mayfield. Once you've seen their decision-making mistakes in action, you can make recommendations to help them get better and see if your recommendations align to those suggested by an independent commission investigating the case.

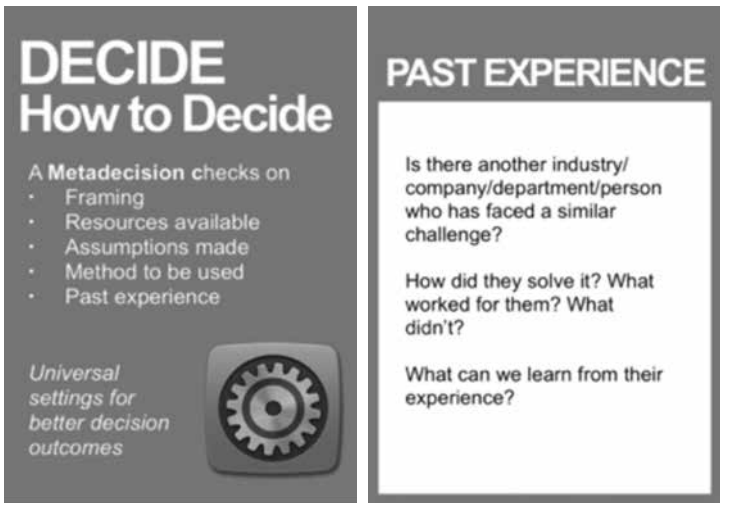
Chapters 13 to 15 turn to the mega influence of unconscious processes on our risk perception. It is thought that emotions serve a coordination role in our bodies, triggering a set of responses that enable us to react quickly to problems or opportunities. Specific emotions, like lines of code in a computer program, carry specific 'action tendencies' that signal a universal response to situations that influence our judgement and decision making. Not only does an emotion provoke an internal response, but it also acts as a lens through which to see or appraise future events. This is why it is essential to check in with how you feel about the decision and its components. Stress is an emotion, too. We explore the impact of stress on risk perception along gender-specific lines and breaking research on the ability of stress hormones to bias decision making away from goal orientated to habitual behaviours.

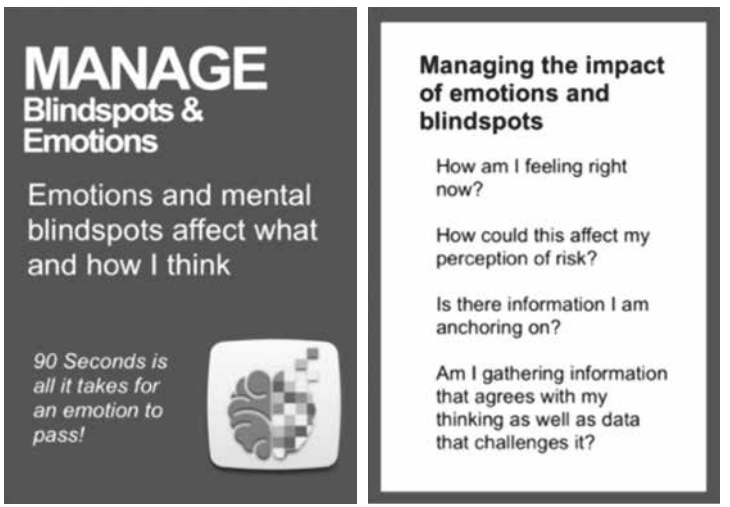
Chapter 16 reminds you that testing your thinking before making a decision is an important part of good decision making; yet we aren't wired to give or receive criticism painlessly, no matter how constructive or well intentioned it is. Reframing from criticism to data, asking for challenging opinions early on in your thinking process, and choosing your critics even more wisely than your friends all help to manage and maximise the impact of receiving criticism.

Finally, chapter 17 concludes with a summary of a best practice decision-making process and a spot for you to write down how you will use this to augment the decision-making process that you started out with.

DECIDE™
DECISION MAKING CARDS

Today, more often than not, decisions are made in teams. A great way to encourage structure in team decision making is to use DECIDE™ Decision Making Cards. Not every aspect of a decision-making process is needed when making a decision and these cards allow teams to pick the ones that are most applicable for them. Cards can then be distributed to support various team members in leading each part of the conversation. Here is an example of the DECIDE cards, but you can draw up your own cards like you would cue cards for a speech, or flash cards for an exam (remember those?).





OVER TO YOU

Introducing tools to improve decision making has had a profound impact in many parts of the world, from NGOs working in the Middle East, to rewriting history textbooks to make them more accurate and less biased, to reducing plastic waste and enhancing ethical decision making in Big Pharma. It's helped investment teams engage in more robust debate, improved returns on investment for various firms and it's helped me weather many personal and professional challenges over my career and life. I can only hope that, whatever form your new, enhanced decision-making process takes, it helps you live a little more bravely and with less regret, knowing that you've made the best possible choices.

Remember that the decisions you made in the past, and how you've chosen to react to what life throws at you, have resulted in your current reality; the decisions you make from today, will create your future.

Choose wisely.

AUTHOR'S NOTE

This book was written as part of my PhD thesis. The aims of the latter were:

1. to contribute to the theory of decision making through a case study that examines the creation of a behavioural decision-making process, and
2. to improve decision making in practice.

I realised that an academic thesis was not, in any way, going to improve decision making in practice and so extracted the best ideas from a very long academic submission and wrote them up in *DECIDE*. Informed readers will recognise this book in the thesis and vice versa.

REFERENCES

Part 1

[1] *Nudge* is narrowly focused and wouldn't qualify as a general treatment of decision making and so has limited applications, despite large helpings of food for thought.

[2] My current research covers behavioural decision systems/frameworks that can be used across organisations to improve the quality and ethics of organisation-wide decision making. Yes, there will be another book to cover my research, and I promise it won't be overly academic.

[3] From Pascal's *Pensées* Part III—'The Necessity of the Wager' (Trotter translation), available at Classical Library (Wager found at #233). Blaise Pascal was a 17th-century French philosopher, mathematician and physicist.

[4] https://en.oxforddictionaries.com/definition/rationality retrieved on 28/11/2018: 'logic'

[5] https://en.oxforddictionaries.com/definition/rationality retrieved on 28/11/2018: 'rationality'

[6] Simply multiply the payoff by the probability of it occurring, e.g., 400 x 0.2 = 80

[7] Bernoulli could not have been a Nobel laureate in the 1800s but his work, nevertheless, inspired several award-winning theories.

[8] The original currency quoted was a European trading currency consisting of gold, silver and other metallic coins called ducats.

[9] Probability: the extent to which an event is likely to occur, measured by the ratio of the favourable cases to the whole number of cases possible; see https://en.oxforddictionaries.com/definition/probability.

[10] The development of a rational decision theory was first posited by mathematician John van Neumann and economist Oskar Morgenstern in 1953, who offered a mathematical theory of decision making underpinned by Bernoulli's principle of maximising expected utility or rewards that may differ from the monetary value of a gamble. They explored the conditions under which the expected utility hypothesis would be valid.

[11] Quoted from Lewis, M. (2016) *The undoing project: a friendship that changed the world*. UK: Allen Lane. A favourite book of mine.

[12] In 1956 Herbert Simon suggested that since we suffer from limited computational facilities and are almost always subjected to limited information, we can be expected to employ an 'approximate' form of rationality that he called bounded rationality or satisficing. It describes how we strive for choices that return a satisfactory outcome and stop searching when we believe we have found this, rather than continuing until we have reached the optimum outcome, if such a thing exists.

[13] Conlisk, J. (1996) 'Why bounded rationality?', *Journal of Economic Literature* 34(2): pp. 669–700, p. 692

[14] Gigerenzer, Gerd (2008) *Rationality for Mortals: How People Cope with Uncertainty*. Cary: Oxford University Press, Incorporated.

[15] Hastie, R. and Dawes, R.M. (2010) 'Rational choice in an uncertain world: the psychology of judgment and decision making'. 2nd edn. Los Angeles: SAGE.

[16 & 17] Joseph le Doux (2015) 'Feelings: What Are They and How Does the Brain Make Them?' *Daedalus*. MIT Press, 144(1): pp. 96–111

[18 & 19] Keltner D., Lerner J.S. (2010) 'Emotion', *The Handbook of Social Psychology*; ed. D.T. Gilbert, S.T. Fiske, G. Lindzey: pp. 317–52. New York, NY: Wiley; and Lerner, J.S., Li, Y., Valdesolo, P. and Kassam, K.S. (2015) 'Emotion and Decision Making', *Annual Review of Psychology*, 66(1): pp. 799–823

[20] Lerner, J.S. and Keltner, D. (2001) 'Fear, Anger, and Risk', *Journal of Personality and Social Psychology*, 81(1): pp. 146–159

[21] If that relationship ended on a very negative note then you might not remember the full glow and glory of its positive beginning as these memories would have been tainted.

ABOUT THE AUTHOR

Tremaine du Preez is a behavioural economist and international thought leader on a mission to spread the art and science of good decision making. She is a researcher, global faculty member of Duke Corporate Education (a carve-out from Duke's Fuqua School of Business) and consultant to the private and public sectors on organisational decision making.

Since 2008, she has worked across Asia, Africa and Europe, diagnosing decision-making difficulties and building decision-making strategies for individuals and teams up to large multinational organisations. She lectures on behavioural finance, decision science and critical thinking to academic and professional audiences worldwide.

Tremaine is the author and co-author of five books and founder of DECIDE: Decision-Making Consultancy. She has lived in South Africa, Hong Kong and Singapore, and currently lives in London with her family.

www.decideconsultancy.com