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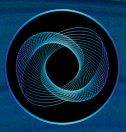
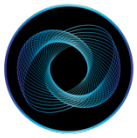
How to Tame Wicked Problems with Smart Leadership Thinking



DR CLIVE SMALLMAN



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Welcome

This is the Introduction of my new book, which will be out later this year. The manuscript is currently with my publishers, *The Grammar Factory*.

If you have questions or observations to make or indeed would like to reserve a copy of the book, just drop me a message: clive@clivesmallman.com.

Be well. Be Wise.

May 2023

Salamander Bay, NSW, Australia

Introduction – Wicked Problems?

On 11 April 1970, astronauts Jim Lovell, Jim Swigert and Fred Haise are 330,000 km from Earth in the command and service module (CSM) of Apollo 13 on their way to land on the Moon [1]. Mission Control asks Swigert to perform a routine process to stir the oxygen tanks vital to powering the CSM and ensuring the crew has breathable air.

One and a half minutes after Swigert throws the switch, there's a 'pretty large bang'. The CSM's electrical power fluctuates, and the module's positional thrusters fire. Communications with and tracking by Earth are broken for a little under two seconds. Lovell looks out the window and sees 'a gas of some sort' venting. Re-establishing contact with Mission Control, Lovell utters the famous phrase: "Ah, Houston, we've had a problem."

If you watched the ensuing drama live on television at the time — or saw the 1995 movie starring Tom Hanks — you'll recall what happened. As was revealed later, Swigert's routine maintenance action ignited damaged wire insulation inside the CSM's oxygen tanks. The resulting explosion vented the contents of both tanks into space. The CSM's propulsion and life support systems could not operate without oxygen. There was no replacement for the oxygen, and resources for re-entry to Earth were limited. At that point, no one on the CSM or back at Mission Control knew the true extent of the damage. All anybody knew was that Apollo 13 was at risk, the crew's lives were at stake, and they were 330,000 km away from home in the black vacuum of space.

Three years later, a pair of design theorists working at the University of California at Berkeley would define a term encapsulating what the endangered astronauts and their support team on the ground were facing. The Apollo 13 mission hadn't just had a problem, but a *wicked* problem.

WHY 'WICKED'?

Wicked problems possess some characteristics associated with the classical idea of evil in that they threaten the common good. Some also have a moral dimension. However, properly defined, they are problems that are either complex or chaotic and which:

1. Exist in open systems,
2. Are challenging to define,
3. Have lots of interacting sub-problems (some obvious, others not),
4. Have multiple stakeholders who struggle to agree on the relative ranking of the sub-problem,
5. Are only partially or temporarily resolvable,
6. Have no single solution, and
7. Resist resolution.

What's the difference between complex and chaotic wicked problems? In complex problems, we have some understanding of the constraints of the problem. The hope is to radically repurpose existing practices to solve them (e.g., Apollo 13). In chaotic problems, there are no constraints; it's 'open season', and we need novel solutions (e.g., the climate crisis).

That may sound a little anodyne, but when you start fleshing that definition out with examples, you begin to realise the sometimes-terrifying scale of what we're talking about. The wickedest chaotic problems include the climate crisis, war, terrorism, pandemics and mass refugee migrations.[1] Such problems bring disorder and chaos; they damage people, property, businesses and the planet in wide-open systems at many different levels and in many ways. Moreover, they are problems that are so endemic to existence that, even though the term has only been with us for a little more than fifty years, they even predate humanity itself. To give only one particularly infamous example,

[1] See https://www.wicked7.org/what-is-a-wicked-problem/acessed 22 June 2022

the asteroid strike that instigated the demise of the dinosaurs was undoubtedly a wicked problem. Lest we forget, asteroids continue to be an existential threat to all life on Earth.

There is a danger that we will overload our brains and emotions with cataclysmic threats. So, let's pull back momentarily. Let's consider how the concept of wicked problems originated. Scientists have taken the time to conceptualise such potentially destructive forces. That means we've also been trying to strategise ways to deal with them.

The concept of wicked problems was first popularised in 1973 by Horst Rittel and Melvin Webber, the Berkeley design theorists referred to above. Building on the work of artificial intelligence pioneer, economist, organisation scientist and Nobel laureate Herbert Simon — who had first outlined what he referred to as 'ill-structured problems' in 1969 [2] — Rittel and Webber defined 'wicked problems' thus [3]:

1. Problems that are not easily and certainly nor definitively formulated.
2. Unless they run out of 'fuel' (of whatever sort), they don't stop.
3. Their 'solutions' are not true or false, but good or bad.
4. It is difficult to immediately or ultimately test a 'solution'.
5. Every 'solution' is a 'one-shot operation.' There is no opportunity to learn by trial and error; every attempt counts significantly.
6. They do not have an enumerable set of potential 'solutions', nor is there a well-described set of permissible operations.
7. They are essentially unique.
8. They are sometimes a symptom of another problem.
9. The choice of explanation determines the nature of the problem's 'resolution'.
10. The problem-'solver' has no right to be wrong.

You'll have noticed above that words like 'solve', 'solution,' and related terms are always in speech marks. Why is this? Precisely because of perhaps the most defining characteristic of wicked problems, which is:

We can never solve wicked problems, only *tame* them.

The most wicked aspect of wicked problems is that they resist resolution: they rarely have a final, fixed solution. Like that killer cyborg in *The Terminator*, a wicked problem normally will always be back in some form. Such persistence is why we can only *tame* wicked problems. Tacking such issues is akin to herding cats. You can never ultimately succeed, but at least get some of them moving in the direction you want for a time.

To give you an Illustration of taming a wicked problem, let's return to the story of Apollo 13.

With the CSM's oxygen leaking into space, Mission Control cancelled Apollo 13's planned lunar landing. Instead, bringing the crew home alive became the sole mission objective. As the first step, the crew shut down the CSM's systems to conserve its remaining resources. At the same time, Lovell, Swigert and Haise transferred into the ship's landing module (LM). The LM design provided two days oxygen supply for two men on the lunar surface. Mission Control improvised new procedures to support three men for four days, allowing it to function as a 'lifeboat'. Nevertheless, the crew still experienced considerable hardship, with limited power, a chilly, wet cabin, and a shortage of drinking water. Moreover, they had no assurance that Mission Control's plan to 'slingshot' the ship around the Moon to provide It with enough velocity to return to Earth would work.

As we know, Apollo 13's landing capsule and crew ultimately did return safely. However, that success was because their wicked problem was tamed and eventually, literally and metaphorically, ran out of fuel.

FROM OBJECTIVE TO SUBJECTIVE: MEASURING THE DAMAGE (OR POTENTIAL DAMAGE) CAUSED BY WICKED PROBLEMS

We all know the COVID-19 pandemic has resulted in millions of deaths worldwide. The pandemic has also taken an enormous economic toll in lost income for individuals and families and drastically declined productivity and profits for businesses. One early estimate put the cost of COVID in the U.S. alone at US$16 trillion — and I reckon that's an underestimate [4].

But how do we properly gauge the subjective emotional and psychological impact of the pandemic on hundreds of millions of people worldwide? And in case you think that sounds too 'touchy-feely', consider that the emotional and psychological well-being of those hundreds of millions of people channels directly into their degree of participation in those economic, social and ecosystemic realms. In other words:

The subjective impacts of a wicked problem have a direct but immeasurable bearing on its objective impacts.

And the truly wicked aspect of this relation between subjective and objective impact is that it applies just as much *before* the manifestation of a wicked problem as after — and the *subjective perception* of the impact of a wicked problem can contribute to its manifestation.

When confronted with a wicked problem, our subjective response to its potential severity is influenced by three dimensions that determine how we react [14-16]:

1. **Interest-induced** - the extent to which we want to learn more about a problem. As we become more interested in a potentially wicked problem, we may develop a more significant emotional investment in it.
2. **Emotion-induced** is our affective response to a problem. We may feel various emotions, such as fear or anxiety, as we perceive the potential severity of a wicked problem.
3. **Relevance-induced** refers to the extent to which we feel personally involved in and affected by a problem. As we perceive a problem as more relevant to us, we may be more interested in it and feel more emotionally invested in finding a solution.

These dimensions are interrelated and amplify each other in our perception of a wicked problem and our response to it. For instance, what may have initially been a purely academic interest in a wicked problem elicits a more significant emotional response as we understand its potential severity, leading us to feel that it is more relevant to us because it could negatively impact ourselves and others.

On the other hand, if we don't feel that a potentially wicked problem is relevant to us, even if data suggests that it could be, we are less likely to be interested or emotionally invested in it. This is akin to 'having skin in the game'. For instance, individuals living on Pacific islands may view the climate crisis as a more pressing issue than those living in inland Australia or New Zealand. Pacific islanders see its effects daily, making it more relevant to them as a lived reality.

When conducting my doctoral research in the early 1990s, I presented a paper at a conference on risk management. I was asked, "Can you identify a significant means of improving managerial perceptions of health and safety risk in the chemical industry?" My half-joking response was: "Move the Managing Director's office closer to the site of the most hazardous operation."

The truth is that senior managers generally seem not to easily recognise risks associated with wicked problems (and some research I did backs this up). The list of catastrophic failures over the

past 50 years offers endless examples. If senior managers don't perceive a wicked risk, its effective management is minimal, whilst its horrifying potential remains undiminished.

THE AMPLIFICATION OF WICKED PROBLEMS

We've shown above how powerful perception is in prevention and, much less helpfully, the exacerbation of wicked problems. Worse yet, perception retains that power even *after* a wicked problem manifests. Deepening perception helps generate a whole field of secondary negative impacts, resonating far beyond the actual event itself. Beyond the immediate, direct, and objective harm that a wicked problem can have on organisations, people, or the surrounding environment, the sum of *subjective interpretations* of that harm can *amplify* the effects of that original problem.

For all the statistics usually thrown around when risk is discussed by professionals like engineers or actuaries, in real-time, none of us appraises risk in any situation by calculating a probability. Instead, we make a subjective judgment.

For example, in the summer of 2022-2023, a shark was spotted offshore at a popular swimming beach near where my wife and I live in Australia. That beach was closed for a couple of days. We live a five-minute drive from another beach on the opposite side of the headland from the closed beach. It was hot, and we fancied a swim. We didn't calculate the probability of a shark attack. We subjectively decided it was safe enough. Other people at the beach made different judgments; they stayed out of the water.

And that is what people do with risk. We make subjective judgment calls all the time. Hence, when we each look at a wicked problem, we each have a different perspective based on our model of the world and our view of the context in which we operate. Sometimes we hold two or more perspectives simultaneously, depending on our roles (e.g., employee, private citizen, a member of a particular social group or organisation). And, thanks to our current age of largely friction-free digital communications, those responses can quickly spread from the local level of those directly implicated in and affected by the problem to regional, national and global levels with breath-taking speed and with concomitant impacts on political, economic, social and technological spheres.

For example, consider the wildly different perceptions of the wicked problem of the attack on the United States Capitol on 6 January 2021. The Final Report of the Select Committee that investigated the attack reveals wildly differing perceptions of that day's events [5]. For some, it was about self-righteous righting of non-existent electoral fraud. For others, it simply marked an opportunity to attack institutions they blamed for perceived wrongs. For many, many more, it was an insurrection, an attempted *coup d'état*.

Such various perceived risks further amplify the challenge of wicked problems simply because finding a response that satisfies most people will be exceedingly difficult.

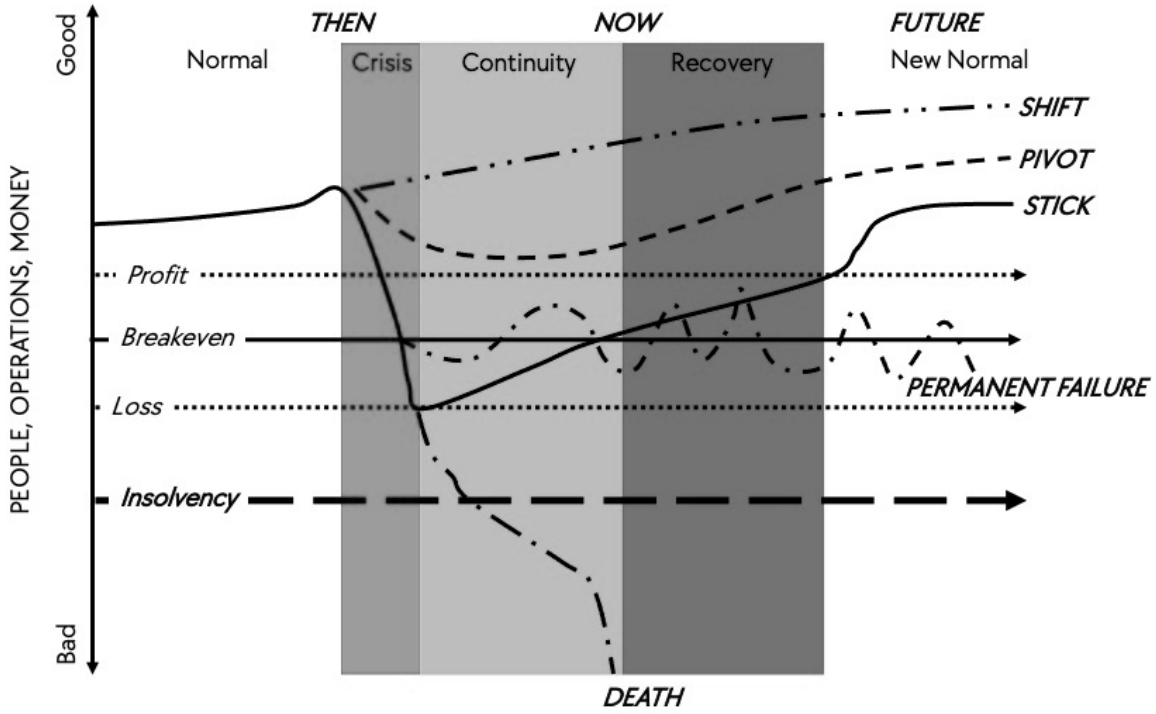
Pair all these dynamics together. Think of it as the difference between throwing a pebble in a pond, watching the ripples spread from that single source, and throwing a whole handful of pebbles in at once. The first has a certain elegance. The second is *chaos*, which often comes at a heavy price.

CRITICAL CURVES: RECOVERING (OR NOT) FROM WICKED PROBLEMS

Let's now look at how organisations and businesses attempt to carry on in the wake of the wicked problems that have disrupted their everyday operations — some of which are more effective than others, depending on the nature of the particular wicked problem that they face.

Typically, organisations hit with a wicked problem hew to one of five 'critical curves' (Figure 1).

Figure 1: Critical curves



A company may move into continuity, recovery, and a 'new' normal, depending on their response:

1. A **shift** strategy means looking for new customer segments and making substantial changes in cost drivers and other factors that drive revenue. Shifts are radical solutions wherein the move to the new normal is usually immediately positive.
2. If businesses **pivot** strategically, performance will dip but recover rapidly. There are two types of pivot strategy– to new customer segments or making substantial changes in cost drivers and other factors that drive revenue.
3. A **stick** strategy means sticking with existing customers and making minimal changes to other business model elements. It leads to less certain outcomes. Indeed, it sounds like the standard definition of madness, i.e., doing the same thing repeatedly and expecting a different result. Sticking for most leads to financial difficulty, but they may recover as the problem eases due to external influences.
4. Others with no clear strategy (not even 'stick') permanently fail (the organisational equivalent of a persistent vegetative state). Their existence continues more by luck than judgment.
5. Organisation death ensues for a minority following a 'stick' strategy [6, 7].

FROM GO TO WOE AND GO AGAIN (SOMETIMES)

Wicked problems usually have multiple sources: political, economic, social, technological or from the natural environment. Human, organisational or technological factors exacerbate latent and sometimes blindingly apparent wickedness, further leveraged by regulatory, infrastructural or preparedness failures. Moreover, the number of perspectives problem witnesses hold often amplifies the risks and impacts of wicked problems.

Recovery from complex problems is, well ... complex, and there are many routes to (a new) normality. Some of us get to reinvent ourselves or our businesses in whole or part. Others stumble along — a few more fade to complete darkness.

Given their complexity and impact, politics, society, and business must learn how to manage wicked problems better.

WICKED ORGANISATIONAL PROBLEMS

As we've seen, wicked problems manifest themselves in many ways and on any scale, from a malfunction that imperilled the lives of three men to a cosmic event that wiped out an entire species. But let's narrow things down to the field where I've mainly studied wicked problems over 30 years as a risk and crisis management specialist: organisations and businesses.

Wicked organisational problems have existed for as long as there have been organisations. Christine Pearson and Ian Mitroff find that wicked problems routinely faced by organisations include: environmental accidents; hostile takeovers; sexual harassment; health and safety failures; product recalls; industrial espionage; reputational damage, and more [8]. We'll return to their work when we look at planning responses to wicked organisational problems.

As I said above, wicked organisational problems have been around as long as there have been organisations. Still, the last several years seem to have seen a marked Increase In both their frequency and their severity, with the COVID-19 pandemic being only the most evident and large-scale example. And while we can wonder about the reasons behind this — is it simply that the reporting of these problems has increased, or because our natural, political, economic, social and technical environments truly are becoming increasingly volatile, uncertain, complex and ambiguous? — the cold, hard fact is this: wicked problems are here, they're multiplying, and they need to be tamed.

As a leader, you've doubtless encountered and had to deal with your share of wicked problems already (and if you're one of the lucky ones that haven't, believe me, you will have to at some point!). However, an unfortunate truth — which you may already be aware of from your own experience —applies no matter how well you may have tamed the wicked problems you've had to face. Sadly, for every new one that crops up, you'll have to reckon with the seventh characteristic on Rittel and Webber's ten-point list: that *every wicked problem is unique*. This truth means you can't use your prior experience with them to devise a one-size-fits-all solution. (And, of course, were there a solution, the problem wouldn't be wicked in the first place.) Instead, you must adapt.

There's another critical point we need to acknowledge. Organisations comprise individuals, and people fix problems, not the organisation.

And here's the thing, even the most successful of us hit walls. Accordingly, there are some common issues that we all face when dealing with wicked problems or opportunities:

- **Fear of failure**. The problem or opportunity we're dealing with is so wicked that we might not live up to other people's expectations.
- **They are wicked problems**. Their complexity means standard problem-solving methods probably won't work.
- **Double jeopardy**. It's not just the impact of wicked problems that threatens us. They jeopardise long-term investments and innovation.

What's more, finding someone to speak to who understands these types of problems or opportunities is challenging. As a result, we get isolated and need a sounding board.

So, what perpetuates the challenge of dealing with wicked problems?

1. People struggle to identify and describe the wicked problems they face.
2. People struggle to describe the outcome they want by taming their problems.
3. People fantasise about their actual position; they don't think critically.
4. People focus too much on perfecting solutions when only a sketch is needed.
5. People's default state with wicked problems is inaction; it's so complex what can we do?
6. People put a solution in place and think, "That's it". Yet, the solution might not work, and wicked problems tend to evolve.

SO, WHAT DO WE NEED?

Specialising in risk and crisis management, I've spent the last 40 years or so coaching, researching and training all sorts of people in all types of businesses of all sizes. I've walked alongside them as they've encountered wicked individual and organisational problems and opportunities. I use that experience to equip entrepreneurs, founders, owners and leaders to tame wicked individual and organisational problems using smart leadership thinking.

Based on my experiences and observations of others, what we need is a principled approach to tackle each of the six barriers I identified above. When facing wicked problems or opportunities, it is, I argue, time to get ***SORTED***.

SORTED: TAMING WICKED PROBLEMS WITH SMART LEADERSHIP THINKING

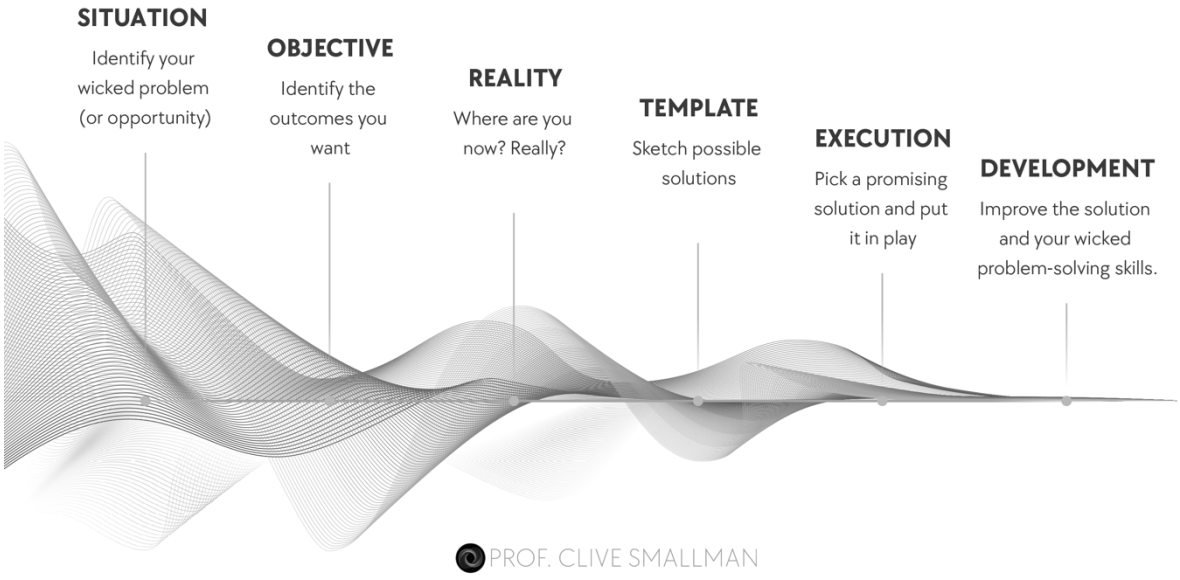
What does 'sorted' mean?

In brief, it's London slang for having your work-life well-organised and in order — or, in other words, 'having your s**t together.' And those organisations and leaders that best have their s**t sorted are best set up to handle wicked problems.

What does 'SORTED' mean when dealing with wicked organisational problems? I sum it up in six steps, which form the basis of my coaching practice (Figure 2):

1. **S**ITUATION - Identify your wicked problem (or opportunity) by sharpening your *situational awareness,* developing *deep understanding,* and being attuned to the *weak signals* of those problems before they arise.
2. **O**BJECTIVE - Identify the outcomes you want from a 'solution' by defining purposeful, authentic goals,
3. **R**EALITY - Where are you now? Really? Assess your position with reference to the problem, grounded by critical thinking.
4. **T**EMPLATE - Sketch possible solutions (perhaps using design thinking) to develop future paths.
5. **E**XECUTION - Pick the most promising solution and put it in play, achieving change through a bias for action.
6. **D**EVELOPMENT - Improve the solution and your wicked problem-solving skills so that we can build *reliably safe organisations* better equipped to deal with them in the future and foster a *resilient style of leadership* within ourselves so that we improve our performance and spearhead the building of those organisations — a style that I call *wicked leadership*.

Figure 2: The SORTED Principles



Understanding your situation is paramount. Developing deep understanding at the outset is crucial to achieving clarity in the later stages of the process of becoming SORTED. This approach establishes a foundation for creating clear objectives, which are further strengthened by a reality check informed by critical thinking. Grounding the process paves the way for developing templates to address problems or seize opportunities. The concise nature of such templates further fosters greater clarity, which reduces friction in execution. When tackling complex issues or opportunities, action is key, but friction limits progress. An excessive focus on detailed planning exacerbates such friction. By continuing to develop our understanding of problems and opportunities, and the skills needed to tackle them, we gain greater clarity and enhance our ability to address them.

These are the principles that I will lay out for you in the following pages. This book will not provide you with some utterly fictional quick fix to eradicate wicked problems or some fantastical plan to develop an organisation immune to them. From the 'unsinkable' *Titanic* to the 'Impregnable' Maginot Line to banks that were 'too big to fail', recent history alone gives us all too many hubristic examples of supposedly foolproof constructions and indestructible institutions that had nothing to offer the wicked problems they ultimately had to face.

No, what I hope to show you with this book is something much different. By demonstrating how you better 'sort' wicked problems, I'm not just trying to help you make the best of a bad situation but to reveal that in taming wicked problems, you:

- Learn from moments of truth and improve your performance (and that of your organisation) in taming wicked problems and leveraging wicked opportunities, taking less time, money and risk.
- Take wicked decisions, improving leadership capacity, problem-solving, creativity and innovation.
- Become doubly secure by securing long-term investments and innovations.

BEAUTIFUL CHAOS LEADS TO WICKED OPPORTUNITIES

We've all heard that cliché phrase, "For every cloud, there's a silver lining," and we've all winced, grimaced or rolled our eyes when hearing it. However, in the world of wicked problems, the

ultimate taming occurs when we take them not simply as unwelcome challenges but as opportunities to navigate a state of endemic disorder successfully.

Although our 'mental maps' naturally synchronise with conventional ways of thinking and acting, in a world of accelerating volatility, uncertainty, complexity, ambiguity, turbulence and contradictions, we don't need to buttress mindsets that may have served us successfully in the past. Instead, leaders need to *embrace* volatility, uncertainty, complexity, ambiguity, turbulence and contradictions as *foundations* for taming the wicked problems that this world presents to us.

Businesses, organisations, leaders, innovators and entrepreneurs need to *shift their models of thinking* and *adopt a new operating platform* that will allow them to operate not in fear of wicked problems but in the faith that the creative templates we develop to tame them will deliver new ideas and value propositions [3, 9-13].[2] We must accept that we live not In a state of reliable normalcy that is subject to sporadic disruptions but rather In a state of perpetual, beautiful chaos. Hence, we can better discover the wicked opportunities that take our organisations — and our performance as leaders — to the next level.

So, get your boots and hat on and saddle up. It's time to go into the wild.

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[2] https://www.fastcompany.com/2682062/turning-wickedproblems-into-wicked-opportunities accessed 22 June 2022

About the Author

Looking back, Clive's adult life started with a wicked problem: he failed high school.

His plans of studying geography or oceanography at a top university were torn-up in the space of three letters printed on his high school examination results: 'D E O' (D and E explain themselves. 'O' signifies he didn't even make it to the advanced grades and was the shape his mouth made when reading said results).

Clive became and remains a serial student, having blotted his copybook so spectacularly. This culminated in a PhD in, ironically, operational risk management. In his doctoral research, Clive worked with a chemical company that had recently lost five colleagues in an explosion and fire, with 200 seriously injured.

Clive is also a serial student of 'wickedness', coaching researching, educating, and mentoring in the space of risk and crisis management for over 30 years. Clive couples that deep expertise with an earlier career in artificial intelligence, where he applied machine learning to wicked problems (for example, tomato plant disease diagnosis; adaptive battlefield technology; gas well analysis).

Clive specialises in deep coaching that equips executive leaders to tame wicked individual and organisational problems through improved critical thinking and creative problem-solving.

He aims to develop deep insight into clients' challenges, generating clarity, reducing friction and enabling purposeful, transformative action.

What sets Clive apart?

- Current experience as the CEO of a higher education start-up and independent director of another two. Independent director of a charity addressing wicked problems in the developing world.
- Recent experience of advisory work in a difficult regulatory environment.
- Experience of large-scale change management and leading large complex, spatially dispersed organisations.
- Thirty years of research, education, mentoring, coaching and training in risk and crisis management, culminating in the conferral of the title Professor Emeritus.
- Honours degree with a climatology specialism (now there is a wicked problem!).
- Master's degree in artificial intelligence (ill-structured problem-solving).
- PhD in operational risk management.
- A Cambridge research fellow in health, safety and environmental management.
- Trained in negotiation at Harvard.
- Trained in positive psychology with the University of California, Berkley.
- Trained in design thinking with IDEO.
- Worked with major brands in taming wicked problems (e.g., GEC (now Ericsson and Siemens), Centrica, Avivia, Ford, Coca Cola).
- Master Coach training.