



# ‘Wicked Problems’ & ‘Infinite Games’

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In 1973, design theorists Horst Rittel and Melvin Webber articulated the concept of [‘wicked problems.’](#) What makes wicked problems wicked is that they are not ‘solvable’ in the traditional sense of the term. They do not yield to simple linear solutions, nor even to multifaceted solutions. A wicked problem is one for which each attempt to create a solution changes the nature and understanding of the problem itself, such that the definition of the problem evolves as new possible solutions are considered and/or trialed.



As such, wicked problems offer no explicit basis for the termination of problem-solving activity. Any proposed solution can be further developed, and because numerous plausible alternative solutions can always be provided, proposed solutions can be neither necessarily correct nor incorrect.

In his 1986 *Finite and Infinite Games: A Vision of Life as Play and Possibility*, James Carse – a professor of history, literature and religion – proposed a means by which we may sidle up to wicked problems. For Carse, ‘finite games’ are recognizable as having specific beginnings and ends. Think chess, for instance. The sale of a product or a trade in stock would also fall into this category. But ‘infinite games’ are more challenging, as they never really end. Instead, they evolve perpetually to present themselves anew, persistently demanding – and re-demanding – that we offer new responses.

“A finite game is played for the purpose of winning,” Carse writes, “an infinite game for the purpose of continuing the play.” Moreover, where the rules of a finite game can generally be discovered over time, in an infinite game the rules themselves continually adapt to the maneuvers of the responsive players. Think of ‘winning’ in the war for market-share, for instance. Or, for a particularly timely example, consider the way in which governments worldwide have sought to respond to the Covid-19 pandemic.

Modeling and predicting the projected progression of the coronavirus has proven fiendishly difficult. Early models, released in the Spring of 2020, predicted deaths worldwide in the millions. Fortunately, the worst projections were not realized. In fact, even infection rates fell well below initial projections and, as spring turned to summer, there was cause for hope that the pandemic might prove manageable. [Projections](#) from the US CDC showed a relative ‘flattening of the curve’ and a feared ‘summer surge’ never quite materialized. But then winter arrived, and with it, the virus was back with renewed ferocity.

Long after the immediate threat has diminished, and life resumes some version of normalcy, scholars will pick through the countless pandemic-inspired social experiments that took place as we struggled to contend with this *evolving* threat. In the face of difficult trade-offs, between potential loss of life and massive economic dislocation, governments and societies around the world reacted in at times radically different ways. Many will claim that their adopted approach proved most successful in navigating the crisis, but we may never reach agreement as to which claims have merit – if any.

The pandemic is a wicked problem and, in our efforts to address it, we are caught in an infinite game. For wicked problems there is no ‘endgame’. Rather, such challenges are better seen as presenting us with problem environments or *problem ecologies*. Their complex, interrelated, and systemic nature demands equally complex, interrelated, and systemic responsive action – the results of which will only become clear over time, as the shape of the problem, and the trialed solutions, shift in an endlessly recursive loop.

## Culture and Conduct Risk as Ecosystem Design Challenges

Such thinking holds lessons for those aspiring to manage complex organizations in a ‘whitewater world’ grown increasingly volatile, uncertain, complex, and ambiguous (or ‘VUCA’, to borrow from the military). This is perhaps especially true for those charged with managing culture and conduct related ‘soft risks’ in any organization, be it a business, government or social enterprise.

The need for such a shift in management thinking around culture and the conduct it espouses is amply evident in the banking sector, which has struggled perpetually despite hundreds of billions in aggregate annual investment in risk governance processes,

systems and personnel. These risk management tasks may be approached, with some degree of success, only by viewing them as *eco-systemic* in nature. This demands a reformulation of the risk and compliance function, and the adoption of new tools.

Current management methods in this context have failed, to a large extent, perhaps because bankers and regulators alike have operated on the presumption that culture and conduct problems can be 'solved' in the first place. So long as the problem is seen as *methodological* – better systems, processes and people – rather than *conceptual*, these efforts will continue to produce suboptimal outcomes.

Prevalent management concepts leave us wedded to unsuccessful management methods. Believing that bad behavior is driven by bad actors, the task of managing organizational culture and the behavior it promotes has been cast as one that involves methods of oversight which aim to identify malefactors so that 'bad apples' won't be permitted to spoil the barrel. But the problem lies with the barrel, not the apples: it is the organizational ecosystem that sets the conditions for spoilage.

Management theory often starts from the view that behavior is shaped most powerfully by financial incentives dangled before 'rational actors.' In any organization, however, management is confronted not by independently incentivized individuals, but by dynamic, complex, and adaptive *collectives* of individuals – groups of employees with their own values, norms, and rules for behavior.

Achieving good standing among respective peers is a critical concern for those who make up such groups – perhaps *the* critical concern – and that standing is won and maintained through what the sociologist calls "normative compliance." The imperative to conform to peer expectations is indeed so strong that it almost invariably overwhelms 'tone from the

top' and the policies, surveillance measures and other methods of control that management may deploy in an effort to implement its intent.

Just as socially reinforced reactions to the spread of the coronavirus undermined our modeling efforts, so too for social networks among groups of collaborative peers within an organization: these networks react to management efforts and may work to *counter-act* those efforts. As surveillance and monitoring increase, for instance, employees have adopted the use of code words, alternative communications channels, or have simply gone off-line in an attempt to 'game the system'.

Controls designed to restrict behavior instead promote workarounds. Such is the nature of wicked problems and infinite games, which differ from other types of problems in several significant ways. Wicked problems are, as Pendleton-Jullian characterizes them, *polyarchic*, *polycentric*, *polymorphic* and *polylemmic* and, as such, they require an extreme form of adaptability in behavior and agility in decision-making.

Firstly, they are *polyarchic*. They tend to have multiple centers of power. Operational reality in any organization involves a complex web of relationships between leaders, with stated authority and accountability, and staff at work across various business units, corporate functions, and geographies. Some of these interactions are collaborative, others competitive, and performance outcomes depend on their ebb and flow.

Second, they are *polycentric*. Wicked problem spaces do not have a single focal point, nor do infinite games afford a 'winning move'. Rarely is there a single 'bad actor' or 'malicious insider' to occupy our attention when tackling culture and conduct related risks. Research has shown that behavior is a social construct; people take their behavioral cues from peers with whom identify – their 'reference network' – and particularly from those whom they trust most deeply. Because people operate within any number

of reference networks within an organization, we are confronted by multiple and overlapping focal points of relevance.

Third, they are *polymorphic*. The multiple and overlapping focal points of relevance are constantly shifting as new alliances and behaviors adapt. The shape of the connections and network is constantly changing.

Fourth, they are *polylemmic*. One often must choose between multiple unsatisfactory, or even undesirable, options just to keep the problem moving. As outlined above, the effectiveness of interventions is constantly changing form in the context of wicked problems and infinite games. Wicked problems may have many potential solutions – none of which may be optimal. Managers must actively seek out solutions that will regularly lay far beyond their own limited expertise and this demands the highest form of coordinated action, agile enough to course correct as needed, while engaging all relevant staff – itself a fluid consideration

In sum, wicked problems and infinite games are contextually-bound and dealing with them effectively demands that management possess the instinct and courage to try lots of things; to create and invent partial and provisional responses that affect the web of relationships and exchanges that characterize operations; to probe and study employee responses to management efforts while adapting perception of the ‘problem space’ until the gap between the wickedness of the problem and the effectiveness of response is sufficiently narrowed. This requires us to think in terms of [\*ecosystem-design\*](#).

## Where to from Here?

During the industrial revolution Marx argued that, in a commodity-obsessed society, we focus on the relationship between people and things. But in so doing, we ignore the underlying and crucial social relations that connect people to one another and allow for them to make such things. He called this “commodity-fetishism.” Today, management appears to be enthralled by “process fetishism.”

Process thinking focuses on the way things work when everything goes according to plan. It assumes that people follow the ‘proper’ steps as intended and that all people do so in the same way. But people aren’t like that. The understandings and beliefs that shape their decisions and actions do not reduce to a set of rules that structure their experience. Rather, their practices *emerge* from their experience and, most of all, from their experience of *one another* in the workplace context.

Processes are an *abstraction* from the real work of a business – the work done by real people. Process thinking must yield to *practice thinking*, which takes as its starting point the observation of that great management theorist, heavyweight boxing champ Mike Tyson: “everyone has a plan until they get punched in the mouth.”

Management is an infinite game, and people present managers with ceaselessly wicked problems. Contending with this may seem overwhelming, but the challenge is a common one, and well known to boxers and battlefield commanders, emergency room triage teams and jazz ensembles, technology innovators and celebrity chefs. All must strive to be masters of the moment.

Designing for an emergent future requires understanding that action is not driven by plans that one implements but, rather, by norms of practice within an ecosystem of actors – a network – that one seeks to orchestrate. Computational social science

technologies today afford us the ability to obtain a real-time appreciation of such networks as they operate, *in vivo*.

Such capabilities equip us with a means to master the moment with tools designed for the wickedness of ecosystem design work. And, in time, we may hope that such tools help to restore a sense of play to the infinite game of management.

## About Starling

A globally recognized RegTech pioneer, Starling is an applied behavioral sciences company that helps customers to create, preserve, and restore value. Combining machine learning and network science, Starling's Predictive Behavioral Analytics platform allows managers to anticipate the behavior of employees and teams, and to shape it proactively.



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