

# Systematic Innovation

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Readers' comments and inputs are always welcome.

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# The Finite Enterprise?

*“Every act of creation is first an act of destruction.”*

Pablo Picasso

*“If you do not change direction, you may end up where you are heading.”*

Lao Tzu

For more than a decade, a powerful idea has taken hold in business thinking: the notion that the most successful organisations are those designed to endure. Popularised by Simon Sinek in *The Infinite Game* (Reference 1), the argument is both compelling and intuitive. Great companies, we are told, do not play to win in the short term; they play to keep playing. They prioritise purpose over profit, resilience over speed, and long-term relevance over short-term gain.

It is a seductive idea. And, at a philosophical level, it is difficult to disagree with. Who would not want to build an organisation that stands the test of time?

Yet the empirical evidence paints a far less reassuring picture.

The average lifespan of companies listed in the Fortune 500 has been steadily declining for decades. Of the firms that dominated the index in the 1950s, only a small fraction remain today. Entire industries rise and fall within a single generation. Market leaders become laggards with alarming regularity. The aspiration toward infinity appears to collide, repeatedly, with the reality of finitude.

This is not for lack of ambition. Almost every CEO, when asked, will describe their goal in terms of durability, legacy and long-term value creation. The problem is not intent. The problem is design.

## **Built to Optimise, Not to Transform**

Modern enterprises are, in large part, the product of a management philosophy that dates back over a century. The principles of Frederick Winslow Taylor – efficiency, standardisation, measurement and control – have shaped the architecture of organisations across the globe. These principles have been extraordinarily successful. They enabled the scaling of industrial production, the rise of global supply chains, and the creation of vast, complex enterprises capable of delivering consistent value at unprecedented scale. They are, in many respects, the foundation of modern economic prosperity.

But they come with a hidden cost.

Taylorist systems are designed to eliminate variation. They reward predictability, repeatability and incremental improvement. They assume that the task is known, the process is stable, and the objective is optimisation. In other words, they are perfectly suited to climbing an S-curve. What they are not suited to is jumping to a new one.

## The S-Curve Trap

Every product, service and business model follows a broadly similar trajectory: a period of emergence, rapid growth, maturity and eventual decline. This S-curve dynamic is well understood. What is less well understood is the organisational implication. Climbing an S-curve requires one set of capabilities:

- operational excellence
- cost control
- process optimisation
- risk minimisation

Jumping to a new S-curve requires a very different set:

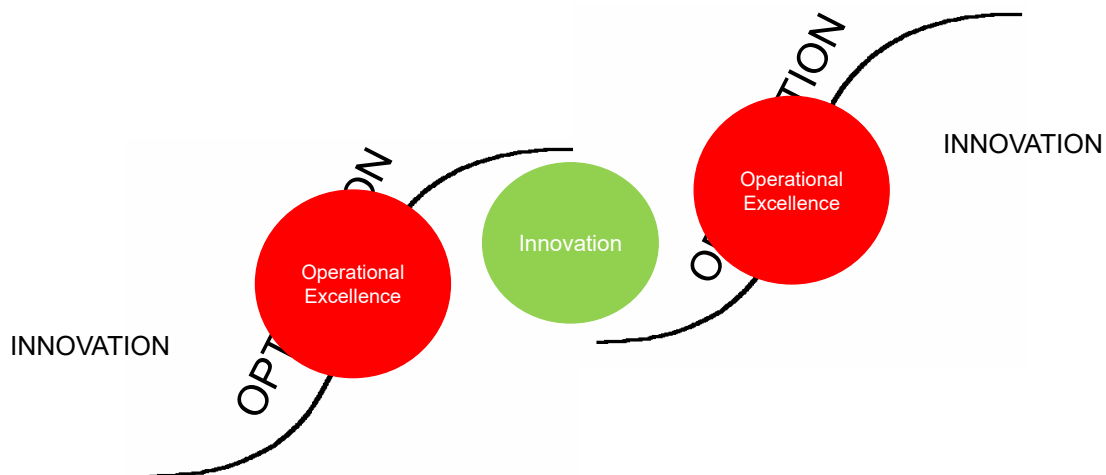
- exploration
- experimentation
- tolerance for failure
- creation of entirely new solutions

The problem is that most organisations are optimised for the first set, not the second. Over time, success reinforces this bias. The better a company becomes at operational excellence, the more deeply those capabilities are embedded – in its processes, its culture, its metrics and, crucially, its people. The organisation becomes, quite literally, a machine for doing what it already knows how to do. And that is precisely why it struggles to do anything else.

## The Red World Dominance

In previous work, we have described this phenomenon in terms of two distinct domains: “Red World” and “Green World” (Reference 2). The Red World encompasses the vast majority of organisational activity – very consistently around 94%. It is the domain of execution, efficiency and control. It is where processes are defined, performance is measured, and variation is minimised. It is the world that Frederick Winslow Taylor would recognise and celebrate.

The Green World, by contrast, is the other 6% of the organisation. It is the domain of innovation: the creation of new solutions, new business models and new value propositions. It thrives on uncertainty, diversity of thinking and the willingness to challenge existing assumptions.



In theory, a healthy organisation would maintain a dynamic balance between the two. The Green World would generate new S-curves, and the Red World would scale and optimise them. As one curve matures, the next would already be emerging. In practice, however,

the Red World dominates. Not because organisations consciously choose it, but because everything about their design reinforces it:

- performance metrics favour efficiency over exploration
- career paths reward operational success
- governance structures prioritise risk reduction
- cultural norms value predictability over experimentation

The result is an organisation that becomes progressively more Red in the boardroom and hence less capable of leading the very innovation projects it needs to survive.

### **The Innovation Capability Gap**

This imbalance is not merely theoretical. It is measurable. Across industries, the large majority of organisations exhibit low levels of Innovation Capability as discussed in our extensive range of publications on the Innovation Capability Maturity Model (ICMM) (Reference 3). While many invest in research and development, few possess the structured processes, skills and governance required to consistently translate ideas into viable, scalable businesses.

The consequence is a growing gap between the rate at which markets demand change, and the rate at which organisations can deliver it.

This gap is widening.

Technological advances, shifting customer expectations and increasing global competition are accelerating the pace of change across almost every sector. The “innovation pulse rate” of markets has increased dramatically. Yet the proportion of the workforce capable of contributing to genuine innovation remains stubbornly small. A system in which 6% of people are expected to generate the future, while 94% are optimised for the past, is increasingly unsustainable.

### **The Economics of Starting Over**

Compounding the problem is a simple but powerful economic reality: it is fundamentally easier to start a new organisation than to transform an existing one.

This is the familiar contrast between greenfield and brownfield development. Building on a blank slate allows for:

- clean architectures
- modern technologies
- aligned incentives
- cultural coherence

Transforming an existing organisation, by contrast, requires:

- dismantling legacy systems
- overcoming entrenched behaviours
- navigating internal politics
- managing ongoing operations during change

The costs – financial, organisational and psychological – are significantly higher. Investors, unsurprisingly, tend to favour growth over reinvention. Capital flows more readily to new ventures than to the uncertain and often protracted process of transforming established ones. Governments, too, tend to prioritise employment and stability, even as they recognise the need for innovation. The result is a system that implicitly encourages the creation of new enterprises rather than the renewal of existing ones.

## **The AI Misinterpretation**

One might expect that recent advances in artificial intelligence would help address this imbalance. In theory, AI has the potential to augment human capability, accelerate learning and enable new forms of innovation. In practice, however, its initial application has largely reinforced existing patterns. Within many organisations, AI is being deployed primarily as a tool for efficiency:

- automating routine tasks
- reducing headcount
- optimising existing processes

In other words, it is being absorbed into Red World. This is not surprising. Organisations tend to apply new technologies in ways that align with their existing capabilities and incentives. A system optimised for efficiency will use AI to replace expensive human labour to become more efficient. But this raises a critical question: if the primary effect of AI is to further strengthen the Red World, what happens to the already fragile Green World?

## **The Structural Paradox**

We are left, then, with a fundamental paradox. Organisations aspire to be infinite – to endure, to adapt, to remain relevant over time. Yet they are built in ways that make such endurance increasingly difficult. They are:

- designed for stability in a world of change
- optimised for efficiency in a context that demands creativity
- structured for control when adaptability is required

In seeking to eliminate variation, they eliminate the very conditions under which innovation thrives. In seeking to minimise risk, they increase the risk of obsolescence. In seeking to endure, they become finite.

## **Rethinking the Enterprise**

If this diagnosis is correct, it raises an uncomfortable possibility. What if the problem is not that organisations fail to achieve the ideal of the “infinite enterprise”?

What if the problem is the ideal itself?

To design an organisation for indefinite continuity is to assume that it can repeatedly reinvent itself, jumping from one S-curve to the next without losing coherence, capability or identity. The evidence suggests that this is, at best, extremely difficult and, at worst, fundamentally unrealistic for most organisations.

Perhaps, instead of trying to make enterprises infinite, we should accept that they are, by their nature, finite. Not in the sense that they are destined to fail, but in the sense that:

- each organisational form is optimised for a particular S-curve
- each has a natural lifecycle
- and each will eventually reach the limits of its effectiveness

The question then becomes not how to make a single organisation last forever, but how to design a system in which value creation can continue even as individual enterprises rise and fall.

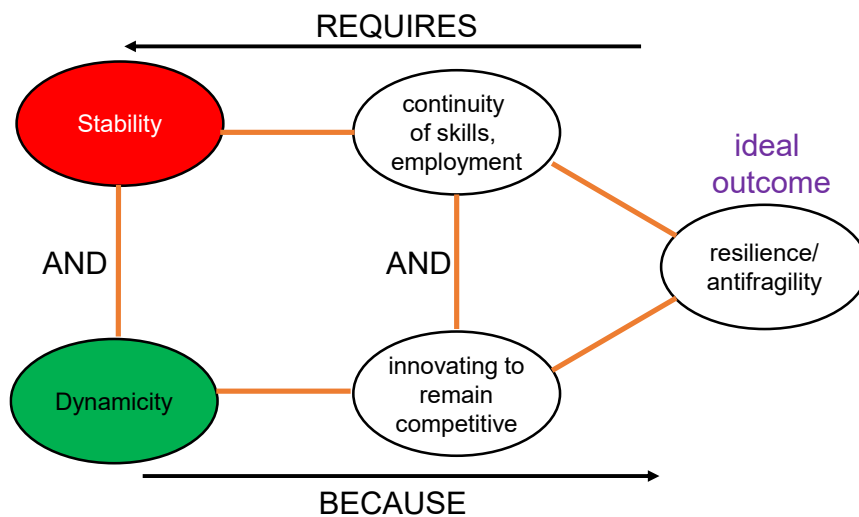
## **Toward a Different Model**

If enterprises are, in reality, finite – each optimised for a particular S-curve – then the question becomes how best to respond when that curve begins to plateau. Broadly speaking, three strategic options present themselves.

The first is to accept finitude explicitly. In this model, organisations are designed with a defined lifespan, much like productions in the theatre or film industry. Teams are assembled to deliver a specific outcome, value is created and captured, and then the organisation disbands, releasing its people and assets back into the wider economy. We might think of this as the “pop-up enterprise” model: highly flexible, low legacy burden, and inherently aligned to the lifecycle of a single opportunity. It is a model that avoids the cost and complexity of transformation altogether, but at the expense of continuity.

The second option is to double down on the ambition of the infinite enterprise. Here, leadership invests deliberately in building high-level innovation capability, developing the Green World structures, skills and governance required to repeatedly jump from one S-curve to the next. Crucially, this approach acknowledges the need for periodic dismantling and reinvention and seeks to incorporate these costs into the operating model. Transformation is no longer an exceptional event, but a designed feature of the system. Few organisations have achieved this consistently, but it remains the dominant aspiration.

The third, less obvious, option takes a different path. Rather than attempting to reconcile the fundamentally conflicting demands of operational excellence and innovation within a single organisational entity, it separates them. It recognises the inherent tension between Red World’s need for stability, efficiency and continuous employment, and Green World’s need for exploration, disruption and rapid change. Instead of forcing one system to serve both masters, it asks a more radical question: what if they were organised differently? It is this third model – and the emergence of what might be termed the “Infinite Entrepreneur” – that we explore in the second half of this article.



### Toward the Infinite Entrepreneur

If the challenge facing modern enterprises is structural, then it follows that the solution is unlikely to come from incremental change. It requires a different way of organising the relationship between innovation and operations. In practice, however, we are not starting from a blank sheet of paper. Early forms of such a model already exist. One of the most instructive can be found in the pharmaceutical industry.

### A Prototype: Pharma’s Distributed Innovation Model

Over the past few decades, large pharmaceutical companies have increasingly shifted away from attempting to conduct all research and development internally. Instead, they have built ecosystems of smaller, independent laboratories – biotech startups, university spinouts and specialist research firms – tasked with discovering the next generation of

therapeutic breakthroughs. In the language of the first half of this article, these small labs represent Green World: highly focused, exploratory, tolerant of uncertainty and structurally optimised for discovery rather than efficiency. The large pharmaceutical firms, by contrast, remain firmly in the Red World. Their strengths lie in:

- large-scale clinical trials
- regulatory navigation
- manufacturing at scale
- global distribution

The division of labour is clear. Green explores. Red exploits.

Most of these small labs will fail. The economics of drug discovery are unforgiving, and the probability of any single molecule becoming a commercially viable therapy is low. But the system is designed with this in mind. The occasional “blockbuster” success more than compensates for the many failures. At least for the Red World OEMs.

At first glance, this appears to be a working example of the kind of separation described at the end of the first half of the article. Innovation is not forced into the structures of operational excellence. Instead, it is allowed to exist in environments better suited to its nature. Yet, on closer inspection, the model remains incomplete.

### **The Integration Problem**

The pharmaceutical ecosystem relies on two primary mechanisms for transferring successful innovations from the Green to the Red World: acquisition and licensing. Acquisition has been the more visible route. When a small lab demonstrates a promising molecule – typically after early-stage trials – the larger firm acquires the company outright, bringing both the intellectual property and the people into the organisation. In theory, this provides a seamless transition from discovery to scale. In practice, it often creates the very problem identified in Part 1. The acquired organisation, previously optimised for exploration, is absorbed into a system optimised for efficiency. Processes become more rigid. Risk tolerance declines. Metrics shift from learning to performance. Over time, the Green World behaviours that enabled the original breakthrough are eroded. The innovators are, in effect, turned into operators.

The result is a familiar pattern: the acquired team’s ability to generate the *next* breakthrough diminishes, even as the current one is brought to market. The system captures value but struggles to regenerate it.

Licensing offers an alternative. Rather than acquiring the innovating organisation, the larger firm licenses the rights to develop, manufacture and distribute the drug. The originating lab remains independent, free to continue its exploratory work. In principle, this better preserves the distinction between Green and Red. Each domain continues to operate according to its own logic. Yet licensing has been used less extensively than one might expect. It introduces complexities around control, coordination and long-term alignment. The handover between discovery and scale remains a delicate process, requiring careful management of knowledge, incentives and risk. In other words, while the pharmaceutical model points in the right direction, it does not fully resolve the underlying contradiction.

### **Other Glimpses of the Model**

Pharmaceuticals are not alone in this partial separation of innovation and operations. The original Lockheed Skunk Works provides another early example. Established to develop breakthrough aerospace technologies, Skunk Works operated with a high degree

of autonomy, insulated from the processes and constraints of the broader organisation. It was, in essence, a deliberately constructed Green World within a larger Red World enterprise.

Similarly, Formula One has long served as a high-intensity innovation engine for the automotive industry. Technologies developed under the extreme conditions of racing – materials, aerodynamics, hybrid systems – eventually find their way into mass-market vehicles. The racing teams explore; the manufacturers scale.

In both cases, we see the same pattern:

- a protected environment for exploration
- a separate system for exploitation
- and an often imperfect interface between the two

These are not fully formed solutions. They are prototypes – evidence that the separation of Green and Red is both possible and, under certain conditions, highly effective. But they also highlight the central unresolved challenge.

### **The Handover Problem**

The difficulty lies not in generating new ideas, nor in scaling proven ones, but in the transition between the two. This transition is inherently complex. It involves:

- translating uncertain, evolving knowledge into stable, repeatable processes
- shifting from learning-driven metrics to performance-driven ones
- aligning incentives across fundamentally different operating logics

It is, in effect, a change of state.

Most organisations struggle with this transition because they lack the capability to manage it systematically. The skills required are rare, and the processes are poorly understood. As a result, the handover from Green to Red is often:

- delayed
- inefficient
- or, in some cases, unsuccessful

This is where many promising innovations stall.

In our recent work, captured in *1%ers: How New Things Get Done* (Reference 4), we describe the small group of individuals capable of navigating this transition effectively. These “1%ers” possess the unique ability to bridge the gap between exploration and execution – to translate emerging solutions into scalable systems without destroying the conditions that created them. They are, however, as the label suggests, scarce. And a system that depends on scarce individuals is unlikely to scale.

### **Toward the Infinite Entrepreneur, Step 2**

If we step back from these examples, a pattern begins to emerge. Across industries, we see repeated attempts to:

- separate exploration from exploitation
- preserve the integrity of each domain
- and create mechanisms for transferring value between them

What is missing is a coherent model that brings these elements together in a way that resolves the underlying contradiction.

This is where the concept of the “Infinite Entrepreneur” begins to take shape.

Rather than embedding Green World capability within large organisations, or attempting to retrofit it into Red World structures, the model externalises it entirely. Green World activity becomes the domain of a distributed ecosystem of entrepreneurs: individuals and small teams whose primary function is to create new S-curves. Their role is not to scale or operate businesses, but to bring new solutions to the point at which they are ready for scale. In System Readiness Level terms (Reference 5), this corresponds to the Tipping Point – Level 10 in our SRL introduction article – where the solution has been sufficiently validated to justify full-scale deployment.

At this point, the solution transitions to the Red World: highly optimised, increasingly automated “factories” designed to deliver efficiency, reliability and scale.

Crucially, the Green World does not follow. The entrepreneurs remain free to move on – to explore, experiment and create the next opportunity.

In this model, innovation is not a function within the enterprise. It is an ecosystem. And the enterprise itself becomes something different: not an infinite entity attempting to do everything, but a finite component within a larger, continuously renewing system.

### **Amplification: Why the Model Strengthens with AI and Robotics**

If the separation of Green and Red Worlds offers a structural resolution to the innovation dilemma, then advances in artificial intelligence and robotics act as powerful amplifiers of that solution. What was previously difficult, slow and expensive is becoming faster, cheaper and more accessible. And, crucially, this acceleration is occurring on both sides of the divide.

### **AI and the Acceleration of the Green World**

In Green World, the primary constraint has always been the speed and cost of learning. Innovation is, at its core, a search process: generating hypotheses, testing them, refining them and, often, discarding them. Historically, this process has been:

- time-consuming
- resource-intensive
- and heavily dependent on scarce expertise

Artificial intelligence is beginning to change this equation. A well-known example being AlphaFold, whose open availability has dramatically accelerated early-stage drug discovery. Tasks that once required months or years of laboratory work can now be performed digitally in a fraction of the time. Entire classes of hypotheses can be explored computationally before a single physical experiment is conducted. In System Readiness Level terms, this has a profound effect on the earliest stages – SRL 1/2. The cost of exploring the “adjacent possible” collapses. The search space expands. The feedback loop tightens. And perhaps most importantly, the barriers to entry fall. What was once the domain of large, well-funded research institutions becomes accessible to smaller teams and individual entrepreneurs. The Green World becomes not only faster, but more distributed. This has two important consequences.

First, the rate at which potential new S-curves can be generated increases. More ideas are explored, more quickly, and with greater diversity of approach.

Second, the relative advantage of scale in early-stage innovation diminishes. Large organisations no longer hold a monopoly on discovery. In many cases, they become dependent on the broader ecosystem.

In effect, AI strengthens the case for externalising the Green World.

## Robotics and the Reprogrammable Red World

At the same time, advances in robotics and automation are transforming the nature of Red World. Traditionally, large-scale production has been characterised by rigidity. Factories are designed for efficiency within a narrow range of outputs. Changing what they produce – particularly in a fundamental way – has been costly, slow and disruptive. This is the classic “brownfield problem”:

- legacy equipment
- fixed processes
- high switching costs

But this, too, is changing. Modern production systems are increasingly:

- modular
- software-defined
- and reconfigurable

Robotic systems can be reprogrammed. Digital twins allow processes to be simulated and optimised before physical changes are made. Additive manufacturing enables new forms of flexibility. AI-driven control systems adapt in real time to changing conditions.

The result is the emergence of what might be described as the *reprogrammable factory*.

In such a system, the transition from one product or service to another becomes less about physical reconstruction and more about software reconfiguration. The time and cost required to shift from one S-curve to the next are dramatically reduced.

This has profound implications.

It means that the Red World no longer needs to be permanently tied to a single product or business model. Instead, it can become a platform. One capable of supporting multiple successive waves of innovation. In other words, the Red World becomes more compatible with the finite enterprise model. It, too, becomes part of a larger, continuously renewing system.

## Convergence: A System That Learns and Adapts

Taken together, these developments create a powerful convergence.

On one side:

- AI accelerates exploration
- lowers barriers to entry
- and distributes innovation across a broader ecosystem

On the other:

- robotics and automation increase flexibility
- reduce switching costs
- and enable rapid reconfiguration at scale

Green World becomes faster and more prolific.

Red World becomes more adaptable and less constrained.

And the interface between the two – while still challenging – becomes more manageable. This is the point at which the “Infinite Entrepreneur” model shifts from being merely plausible to increasingly practical. A distributed network of entrepreneurs generates new opportunities at an accelerating pace. Reprogrammable production systems absorb and

scale those opportunities with increasing efficiency. Value flows between the two, without requiring either to compromise its fundamental nature.

The system, as a whole, begins to exhibit the characteristics that individual enterprises have struggled to achieve:

- adaptability
- resilience
- and continuity over time

Not because any single organisation is infinite, but because the system is.

### **Toward a Human-Centred Enterprise System**

There is, however, a deeper implication. For much of the past century, businesses have been designed around the needs of the system:

- roles defined by processes
- careers shaped by organisational hierarchies
- individuals fitted into predefined structures

This made sense in a world where efficiency and scale were the dominant priorities. But as the nature of work shifts – toward creativity in Green World and automation in Red – the limitations of this model become increasingly apparent. The Infinite Entrepreneur framework suggests a different possibility. One in which:

- those who are naturally inclined toward exploration are able to operate in environments that support it
- those who excel at execution are supported by systems that amplify their effectiveness
- and individuals are not forced to switch between fundamentally incompatible modes of working

Rather than asking people to adapt to the organisation, the organisation adapts to the nature of human capability.

### **The Next Contradiction**

Of course, no model is final.

Each solution resolves a set of contradictions, only to reveal new ones. This is the nature of progress. The challenge is not to eliminate contradiction, but to manage it. To move from one resolution to the next in a deliberate and systematic way.

In this context, the role of the “1%ers” becomes even more significant.

These are the individuals who:

- recognise emerging contradictions
- navigate the transition between states
- and enable the system to evolve

They are not simply innovators or operators, but translators. People capable of bridging worlds that operate according to different rules.

As the pace of change increases, so too does the need for such capability.

### **Conclusion: From Infinite Enterprises to Infinite Systems**

The ambition to build infinite enterprises is understandable. It speaks to a desire for continuity, impact and legacy.

But the evidence suggests that this ambition is, for most organisations, misplaced.

Enterprises are, by their nature, finite. They are optimised for particular contexts, particular S-curves, particular moments in time.

The alternative is not to abandon the idea of continuity, but to relocate it.

From the level of the individual organisation to the level of the system.

A system in which:

- innovation and execution are structurally aligned rather than forced together
- new value is created and scaled without friction
- and both human and technological capabilities are deployed where they are most effective

Such a system does not eliminate change. It embraces it.

It does not seek stability at all costs. It creates stability through adaptation.

And it does not attempt to make organisations infinite.

It makes innovation – and value creation – so.

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# The System Decides

From time to time I receive thoughtful attempts to improve the way we explain TRIZ, Systematic Innovation, or the NEPTUNE/1%er idea. The underlying belief is always the same: that somewhere out there exists 'the perfect' description. A combination of words so clear and compelling that once people hear it they will immediately understand. It is an appealing idea. If only we could find the right words, adoption would follow. Unfortunately, this belief rests on a flawed assumption. It assumes that messages determine outcomes.

To paraphrase one of the 1%er book's Seven Veils:

*The message doesn't decide. The system decides.*

The message is only one component in a much larger system that determines whether an idea spreads or disappears. Messages matter, but they are never decisive on their own. People differ, contexts change, and audiences are never static. There is no such thing as a perfect description because there is no such thing as a fixed listener or a fixed moment. Perfect messages exist only in hindsight.

History remembers the message.

*The system did the work.*

## The Myth of the Perfect Message

After a cultural shift has occurred, it is natural to look backwards and identify the words that seemed to trigger the change. Famous speeches, books and songs acquire almost mythical status, as if they contained some unique persuasive power that made success inevitable.

Consider the famous speech by Martin Luther King Jr. now remembered simply as '*I Have a Dream*.' The speech is often treated as a turning point in the civil rights movement, and the power of its language is undeniable. Yet historians have documented that King delivered multiple earlier versions of similar speeches before the 1963 version achieved its iconic status. The words evolved, but more importantly the surrounding conditions evolved. When the speech finally resonated at scale, it did so not because the perfect wording had finally been discovered, but because the broader social system had become ready to hear it.

The same pattern appears repeatedly in cultural history. Once an idea succeeds, the message receives the credit. The speeches, books or songs that coincide with the tipping point become symbols of the change, even though similar messages often existed long before adoption occurred.

The message becomes visible because the system has already shifted.

## When Systems Tip

The same principle applies to music. It is tempting to imagine that The Beatles succeeded because they discovered the perfect sound or wrote the perfect lyrics. Consider *I Want to Hold Your Hand*. Did the song contain some magical combination of words and chords that instantly convinced millions of listeners that this was exactly what they had been waiting for?

Absolutely not.

What existed instead was a system that had become ready for a change.

Looking at the Beatles phenomenon as a system reveals multiple interacting components:

**Tool:** four talented, charismatic performers with a distinctive but accessible image: slightly unconventional but not too alien.

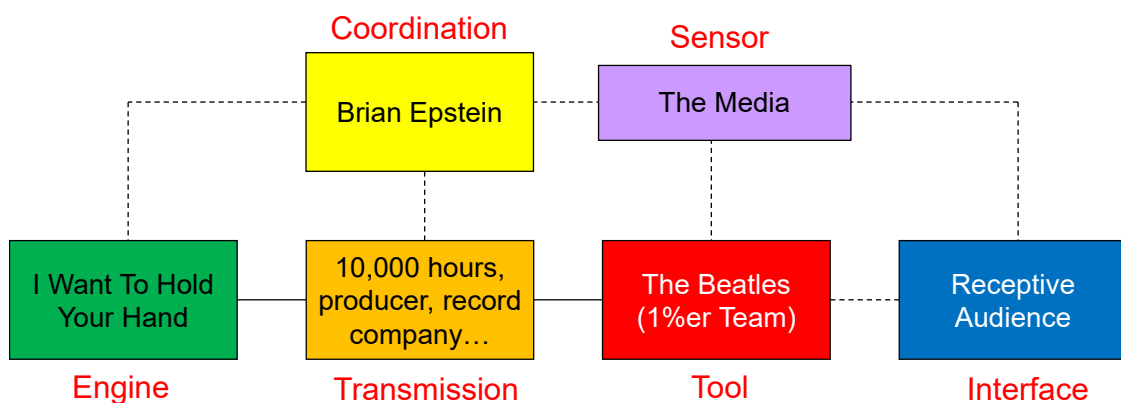
**Engine:** an adjacent-possible sound – recognisably rock'n'roll but with slightly unusual chord changes, tight harmonies and just enough emotional edge to feel new.

**Transmission:** thousands of hours of practice playing long sets in demanding venues (10,000 hours according to Malcolm Gladwell, who used the band as one of his examples in his meme-generating book, *Outliers*). By the time success arrived they were already a highly capable 1%er team. Add a skilled producer and a record company capable of pressing and distributing records.

**Coordination:** a manager with a clear vision, a rolodex full of contacts, and the chutzpah-dominated determination to execute it. Enter Brian Epstein.

**Sensor:** a feedback loop provided by a media industry hungry for the next cultural sensation.

**Interface:** a receptive audience – a critical mass of young people dissatisfied with the music and culture offered by the previous generation and ready for something that felt like their own.



Dozens of bands possessed similar musical capabilities. It could easily have been (heaven help us!) the Dave Clark Five or Herman's Hermits or Cliff Richard and the Shadows. The Beatles did not win because of a perfect message. They succeeded because their system aligned slightly better than the alternatives. And because, at one critical – random! – moment, the surrounding environment proved ready. Check out <https://www.tiktok.com/@thebeatles/video/7604246974157573398> and keep your eye on Ringo.

Success looked inevitable only afterwards.

### The Interface Problem

When the goal is to change a culture – whether introducing a new technology, a new management method, or a new way of thinking – the most difficult part of the system is almost always the Interface.

There are eight billion people on the planet, each with what appears to be a unique open-to-change combination lock. Every individual has different experiences, assumptions and motivations. No single message can unlock all of them.

In practice, however, large-scale change rarely requires universal persuasion. Once a relatively small minority becomes convinced, the majority tends to follow. Roughly speaking, perhaps 3.5% of the population forms the group that decides whether an idea is legitimate. Once that group signals acceptance, the remaining 96.5% largely follow their lead.

Most Beatles fans did not perform detailed musical analysis before deciding that the Beatles were important. They responded to the social signals that told them the Beatles mattered.

The same dynamic applies to ideas. Most people do not adopt new methods because they have studied them carefully. They adopt them because the right minority has signalled that adoption is sensible.

The challenge facing advocates of TRIZ/Systematic Innovation or any other 'thing' today is therefore not primarily a problem of wording. It is an Interface problem. The world is crowded with competing messages, and almost everyone is in transmit mode rather than listen mode. Countless books, podcasts and articles are effectively saying, 'The solution is over here.' The audience, meanwhile, is bewildered.

No one, elite or otherwise, possesses the complete system.

### **Readiness and Random Moments**

System change rarely follows a predictable path. Cultural tipping points often appear sudden and accidental, yet in retrospect they reveal long periods of preparation. The Beatles' breakthrough did not occur because a single song appeared at the right moment. It occurred because years of preparation had produced a group capable of responding when the opportunity arose.



When their moment arrived, they were ready.

This suggests a more realistic model for cultural change. Rather than searching for the perfect message, the task is to develop the surrounding system: capability, transmission

channels, coordination mechanisms and feedback loops. The message matters, but it is only one element among many.

Adoption events often appear random because they depend on the alignment of many independent factors. A single broadcast, article or conversation can trigger a cascade... but only when the system is already near a tipping point.

Preparation makes randomness useful.

### **Implications for Any Message**

The implication for 1%ers is straightforward. Adoption will not be determined by discovering the perfect description. No set of words will unlock every listener, and no explanation will remain optimal as contexts change. Attempts to refine the perfect message may improve clarity at the margins, but they cannot substitute for a functioning adoption system.

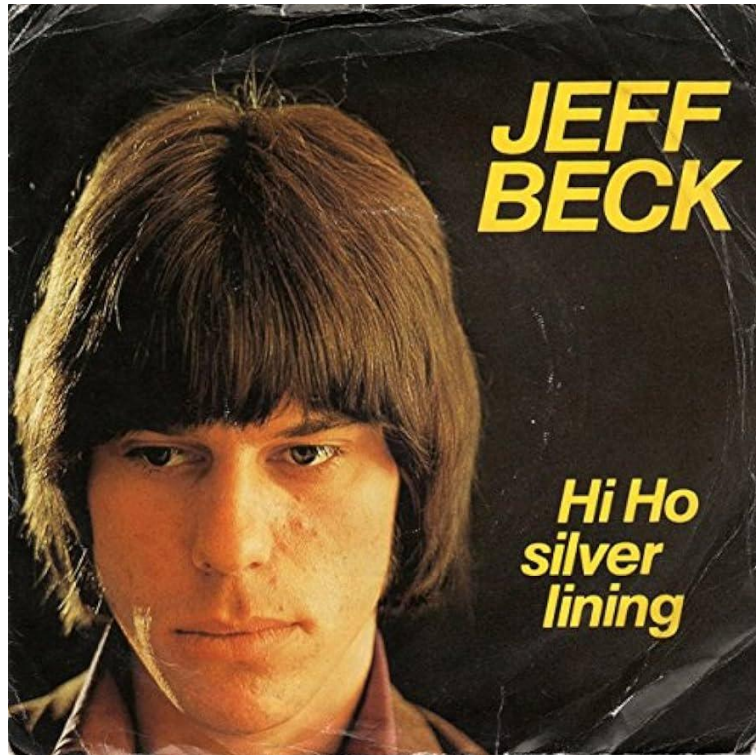
Progress depends instead on building capability, strengthening transmission channels, developing coordination, and gradually expanding the receptive Interface. The goal is not to engineer a decisive moment but to be ready when one occurs.

Meanwhile the most practical strategy is simply to continue building the system – accumulating experience, refining tools, and developing practitioners – so that when an opportunity arises the capability already exists to respond.

Getting the 10,000 hours in helps.

Finding a Brian Epstein might help even more.

## Not So Funny – The System Decides Redux – Be Careful What You Wish For



For some strange reason I never really mixed with my fellow engineers when I was at university. One of my best friends was, in theory at least, studying Philosophy, the other was an Archaeologist. Both subjects seemed to be a lot more fun. And definitely involved a lot more alcohol. Now I look back, I realise their main function was to ensure that I never developed an ego. I imagine it being a bit like being waterboarded for three years. In a good way. A big part of the ego-destruction job – which worked three ways – centred around musical taste. Or lack thereof. My taste, as you might expect, was impeccable. The archaeologist owned U2 and The Alarm. The philosopher was mostly stuck in a 60s time-warp of The Doors, CCR, Jethro Tull and, the only thing that would get him onto the dancefloor, Jeff Beck's hit single, Hi Ho Silver Lining. Needless to say, that permanently placed the Philosopher at the permanent bottom of the music appreciation scale. Hi Ho Silver Lining was and will ever remain the worst hit single ever made.

How do I know this? Because Jeff Beck, from the moment the single became a hit to the end of his life agreed with me.

Innovators spend most of their lives worrying about failure. Will the idea work? Will anyone care? Will the message land? But occasionally the opposite problem occurs: the idea succeeds... and the innovator wishes it hadn't.

In the article preceding this one, I argued that messages don't change cultures, systems do. History remembers the message – the hit song, the famous speech, the breakthrough book – but beneath every apparent overnight success lies a system that made the outcome possible. When the system is ready, almost any one of several similar messages might have succeeded. The Beatles became the Beatles not because *I Want to Hold Your Hand* contained a great chorus or a slightly strange but nevertheless inspired B7 chord,

but because a receptive audience, a distribution machine, media amplification and a coordinated team made success inevitable.

What innovators often forget is that the same system that creates success also decides what kind of success you get. And sometimes the system gets it wrong. At least from the innovator's point of view.

Success can become a trap.

So here, starting with my Philosopher friend's embarrassment, is a short catalogue of innovators who discovered that the system sometimes gives you fame for exactly the thing you would most prefer to forget.

#### 1. The Song That Wouldn't Go Away

Jeff Beck scored his first hit with *Hi Ho Silver Lining* – a cheerful sing-along that audiences adored and Beck came to hate. Beck saw himself as a serious guitarist pushing musical boundaries and breaking all the rules. Unfortunately for him, thousands of fans saw him as the man who sang *Hi Ho Silver Lining*. Decades later audiences still demanded it. The system had spoken. His musical ambitions were negotiable. His hit single was permanent.

#### 2. The Song That Was Too Simple

Radiohead has built one of the most respected catalogues in modern music, yet their biggest hit remains *Creep*, a song the band themselves eventually came to see as crude and unrepresentative. At various points they stopped playing it altogether. Audiences, however, disagreed. For many listeners Radiohead was – and remains – the band that wrote *Creep*. The system decided what Radiohead meant. Radiohead did not.

#### 3. The Novel That Became an Embarrassment

Anthony Burgess described *A Clockwork Orange* as a minor work – "a jeu d'esprit knocked off for money in three weeks." Then the book escaped his control. The film adaptation transformed it into a cultural flashpoint associated with violence and moral panic. Burgess spent the rest of his life trying to persuade interviewers that he had written many better books. Few listeners cared. The system had decided which book mattered.

#### 4. The Song That Should Never Have Happened

David Bowie spent his career reinventing himself – Ziggy Stardust, the Thin White Duke, Berlin experimentalist, global pop icon. Yet one of his earliest hits was the novelty single *The Laughing Gnome*. It featured sped-up cartoon voices and a chorus of "ha ha ha, hee hee hee." Bowie later pretended the song didn't exist. Unfortunately for Bowie, record companies and journalists remembered perfectly well. Most famously when, announcing that he was going to do a Greatest Hits tour and opened up a telephone hotline so that fans could vote for what songs he should play, uber-cool music newspaper, *New Musical Express* started a Laughing Gnome campaign, encouraging non-Bowie fans to vote for the song so that Bowie would be forced into either playing the monstrosity or losing face. I rang in a dozen times. Even a musical chameleon cannot escape the system's memory.

#### 5. The Film He Could Never Escape

Christopher Plummer built a long and distinguished career on stage and screen. But he became globally famous for playing Captain von Trapp in *The Sound of Music* – a role he famously referred to as "*The Sound of Mucus*." Audiences adored the film. Plummer spent decades trying to be recognised for everything else. The system preferred Captain von Trapp. And the system usually wins.

The Real, albeit slightly tongue in cheek, Lesson here is this: innovators tend to assume that success is something they control. That if they work hard enough and craft the perfect message, the world will respond in exactly the right way.

History suggests otherwise.

The system decides:

- what succeeds
- when it succeeds
- and what it will mean.

Innovators worry about failure.

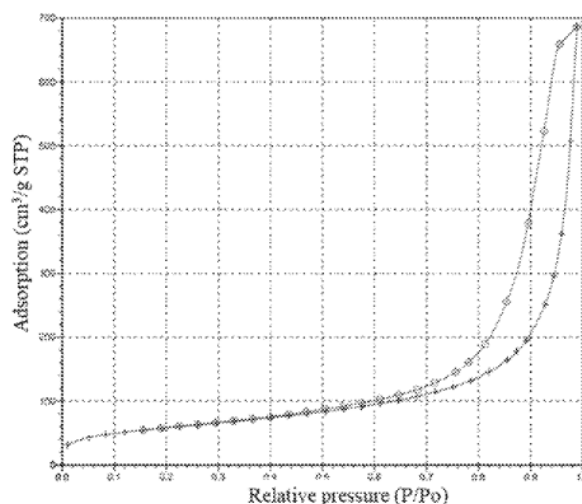
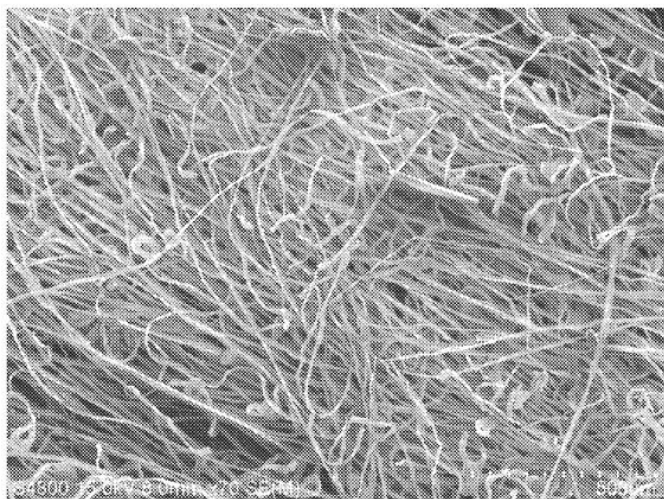
The wiser ones, like Jeff Beck later realised, also worry about success.

Failure is negotiable.

Success is permanent.



## Patent of the Month – (Preparation Method Of) Aerogel Fibre



A trip to China and the Suzhou Institute Of Nano-Tech And Nano-Bionics for our Patent of the Month this month. US12,595,593 was awarded to a pair of inventors at the Institute on 7 April. Here's what the patent document has to say about the problem the inventors were working on:

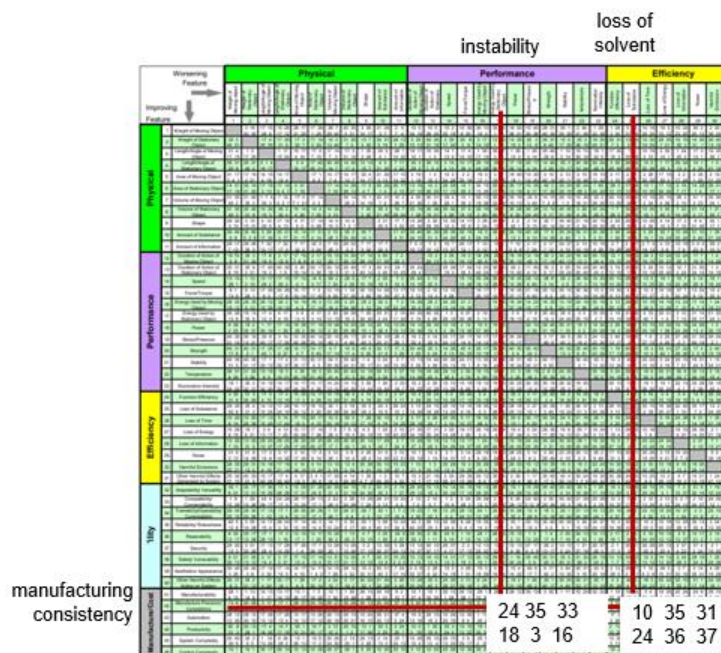
*Accompanied by the common development and progress of human culture and technology, fibre materials become important materials in human production and life. The emergence of synthetic fibres has changed the state where humans have only natural fibre materials such as cotton, hemp and wool for thousands of years, thereby liberating productivity and greatly improving human quality of life. The synthetic fibre is an important achievement in the development of human technology. After nearly 180 years of vigorous development, synthetic fibres have passed the early stage of rapid expansion and entered a refined development stage of pursuing high quality, high performance and high cost-effectiveness. The focus of the development direction of synthetic fibres has shifted from exploring new fibre materials to exploring new fibre structures. Deformed fibres, ultra-fine fibres, and multi-layer functional fibres are all representatives of new structural fibres.*

*An aerogel material is a new porous material with a three-dimensional nano network structure. Aerogel structurally has high porosity, high specific surface area, ultra-low density and other structural characteristics. The unique structure endows the aerogel material with unique properties such as low thermal conductivity, low dielectric constant, low refractive index and high acoustic impedance. Since the preparation of aerogel in 1931, aerogel materials have shown great application prospects in thermal insulation, aerospace, thermal management of energy storage, adsorption catalysis, sound insulation and other fields. The introduction of an aerogel nano porous network structure into a fibre material should significantly improve the thermal insulation performance of fibres and bring new performance and application direction to fibre materials. However, due to poor mechanical properties, the commercial application forms of aerogel materials are mostly aerogel powders, blocks and aerogel gel composite materials, and a small amount of aerogel films, while the preparation and application of aerogel fibres are rarely reported. The inventor of this case invented the technology of wet spinning to prepare polyamide aerogel fibre earlier and was authorised (CN110468461A). In practical application, it was found that because of a complex mesoporous structure inside the aerogel fibre, the complex spinning, weaving and other processing techniques were used to prepare the aerogel fibre into textiles often damaged its structure and performance. Therefore, the inventor of this case has explored an aerogel fibre preparation technology that can enable the aerogel fibre to bypass the complex processing process and directly apply it to the product, so as to maximize the retention of the structure and performance of the aerogel fibre.*

Blow spinning is an emerging non-woven technology. The currently reported blow spinning method specifically refers to a method that high-speed airflow acts on a spinning solution to form a polymer jet flow while evaporating the solvent in the spinning solution and a continuous fibre is formed on the collection device. The resulting fibres are in the form of flocs or non-woven fabrics, which can be directly used as functional materials. Usually, blow spinning equipment includes a high-pressure gas source for transporting a gas and an injection pump for pumping a polymer solution to gather them together to form a stable jet flow jetting device. Blow spinning has unique advantages in the aspect of nano-fibre preparation, has simple preparation device, safe preparation process, high preparation speed that is more than ten times that of the traditional electrostatic spinning, and good large-scale production potential. The products obtained are in the form of flocs, non-woven fabrics and other products, and can be directly used as products without destructive post-processing process, which is what the existing aerogel fibre preparation technology lacks. However, the existing blow spinning technologies often use low boiling point solvents, a large amount of solvent in the spinning solution is evaporated under the action of airflow, leading to the precipitation of polymer precipitation and the formation of fibres in the spinning solution. The fibres prepared by this technology reported today are dense and non-porous precipitation fibres, while the preparation process of aerogel fibres is required to avoid the formation of precipitation to form uniform and stable gel fibres, so it is impossible to directly apply the blow spinning technology to the preparation of aerogel fibres.

The first reason for selecting this patent is that it symbolises a near universal problem in the evolution of inventions in the physical world. Namely, that the invention of the basic technology – aerogels in this case – represents a necessary but insufficient step towards eventual innovation. The missing part of these kinds of story is the invention of an effective, economically viable means of producing the technology. Aerogels have long shown enormous promise, but as hinted in the above background description, have still seen commercial success only in very niche areas. This new invention now opens up the possibility of broadening the range of viable applications considerably.

The basic contradiction needing to be solved is all about the need to improve (blow spinning) manufacturability being impeded by loss of substance (evaporated solvents) and lack of aerogel consistency. Here’s what those two conflict pairs look like when mapped onto the Contradiction Matrix:



And here’s how the inventors solved these conflicts, as described in the main Claim of the patent:

*A preparation method of an aerogel fibre, comprising: mixing a solvent with a polymer material to form a spinning solution; driving the spinning solution with a [Principle 24] airflow by using a blow spinning technology to form a jet flow, and forming a gel fibre through a [Principle 36] sol-gel transition; and performing a solvent replacement on the gel fibre and then performing a drying treatment to prepare the aerogel fibre, wherein the preparation method further comprises: using a spinneret plate as a spinning solution outlet, wherein a [Principle 31] spinneret opening of the spinning solution outlet has an opening number of 1-500 and a diameter of 0.07-3 mm, and [Principle 3] tapping around the spinneret opening to form an airflow channel so that the airflow drafts the spinning solution to form the jet flow; wherein the airflow is dried air, or a mixed airflow of dried air and vapor, with an air pressure of [Principle 35] 0.1-5 MPa; the vapor comprises one or a combination of more than two of water vapor, alcohol vapor, hydrochloric acid, ammonia gas, and acetone vapor.*

Let's hope the breakthrough makes its way out of the Institute lab and into full commercialisation. Being in China probably helps... if the country becomes the world's production centre for aerogel solutions, it likely started with US\$12,595,593.

## Best of the Month – Tactical Performance



The works of Niccolò Machiavelli, Robert Greene and Sun Tzu have long occupied an uncomfortable place in popular discourse. Their ideas – whether codified in *The Prince*, *The 48 Laws of Power*, or *The Art of War* – are frequently labelled as manipulative, cynical, or even immoral. “Machiavellian” has become shorthand for behaviour that prioritises outcomes over ethics.

In many cases, this judgement is justified. When such strategies are deployed by those already in positions of power, they often reinforce imbalance, entrench control and exacerbate injustice. The ethical critique, in these contexts, holds firm.

But context matters.

When similar strategic thinking is adopted by those without power – those seeking to challenge entrenched systems, expose injustice or simply be heard – the moral equation shifts. What appears manipulative from above can feel like ingenuity from below. Strategy becomes not a tool of domination, but a mechanism of visibility. A way of speaking truth to power in a world where straightforward appeals are too easily ignored.

It is precisely this reframing that sits at the heart of *Tactical Performance* by L.M. Bogad. The book offers a rich catalogue of creative protest tactics – ingenious, theatrical, and often subversive interventions designed not merely to oppose, but to *be seen opposing*. One of the most powerful early examples comes from the Civil Rights Movement in the United States. In Nashville, students staged non-violent sit-ins at segregated lunch counters, including those in Woolworth's stores. Their strategy was deceptively simple: arrive well-dressed, remain calm and polite, and refuse to leave.

The response was anything but.

White patrons subjected the protestors to verbal abuse, physical intimidation, and the throwing of food and drink. The scenes, when photographed and circulated, created a stark and undeniable contrast. On one side: composed, dignified individuals quietly asserting their rights. On the other: overt, performative hostility.



From a Systematic Innovation perspective, this is a near-perfect illustration of TRIZ Inventive Principle 13: ‘The Other Way Round’. Rather than directly confronting power through force or argument, the protestors inverted expectations. They created conditions in which their opponents’ behaviour became the message. The result was not just protest, but narrative control. And it is in this space – where creativity, strategy and ethics intersect – that Bogad’s work becomes both provocative and deeply relevant.

While L.M. Bogad presents *Tactical Performance* as a collection of inventive protest strategies, its deeper significance becomes apparent when viewed through a broader systemic lens.

At first glance, the book is about creativity in activism – what Bogad calls “serious play.” But in the context of today’s socio-economic landscape, it begins to look like something more fundamental: a mechanism by which societies navigate moments of transition. To understand why this matters, it is useful to consider the work of Clare Graves, whose model of human value systems describes how societies evolve through distinct stages.

Modern capitalism, in this framework, is rooted in what Graves termed the “Orange” value system – characterised by rationality, individual achievement, optimisation and growth. Orange has been extraordinarily successful. It has driven innovation, lifted billions out of poverty and created unprecedented wealth. But like all systems, it follows an S-curve. And as it approaches maturity, familiar symptoms begin to appear:

- institutional brittleness
- declining trust in authority
- increasing polarisation
- diminishing returns on optimisation

In such conditions, the system becomes harder to change. The very tools that built it – data, logic, efficiency – lose their persuasive power. Rational arguments are dismissed as

technocratic. Moral appeals are perceived as coercive. Direct confrontation tends to entrench positions rather than shift them. This is the impasse of late-stage Orange. The question, then, is how societies move beyond it.

Traditional protest, for all its energy and intent, often struggles at this point. By its nature, it is oppositional. It defines sides, escalates conflict and invites resistance. In Gravesian terms, it risks triggering regression into earlier value systems – authoritarian Blue or aggressive Red – rather than enabling progression toward the more empathetic, community-oriented Green. This is where Bogad’s concept of “serious play” reveals its true power.

Play operates differently.

It does not confront authority directly; it sidesteps it. It does not argue within the logic of the existing system; it disrupts that logic altogether. It creates moments of ambiguity. Situations in which the usual rules no longer quite apply. And in doing so, it achieves something remarkable: it allows movement without triggering defence. From a Graves perspective, this is precisely what is required for transition from Orange to Green.

- It slips past Blue authority structures because it appears non-threatening, “just theatre”
- It disarms Orange rationalism because it refuses to engage on purely analytical terms
- It embodies Green values – empathy, inclusion, shared experience
- And, at its most sophisticated, it hints at the next level beyond, what Graves would later describe as systemic or Yellow thinking

In this sense, play is not incidental to social change. It is a *delivery mechanism* for it.

### **Play as a Transition Technology**

Seen through the lens of S-curve dynamics, the challenge of societal progress is not simply one of recognising the need for change. It is one of crossing the unstable space between one system and the next.

This is a discontinuity. And discontinuities are inherently difficult. They require not just new ideas, but a loosening of identity. People must be able to step outside established roles, beliefs and assumptions. Even if only temporarily.

Direct challenge rarely achieves this. Attack tends to harden identity rather than soften it. Play, by contrast, creates safe spaces for experimentation. It allows:

- temporary role reversals
- exploration without commitment
- participation without risk of immediate judgement
- and, crucially, the ability to withdraw without loss of face

In Bogad’s examples, power is not confronted head-on; it is made to look strange, inconsistent or even absurd. The audience – whether participants or observers – is invited not to take sides immediately, but to *notice*.

And that moment of noticing is critical.

It is the point at which the existing system is no longer taken for granted.

### **Why This Matters Now**

If this analysis holds, then the relevance of *Tactical Performance* extends far beyond activism. We are currently living through what might reasonably be described as an “omni-

crisis” – a convergence of economic, environmental, technological and social pressures that are placing increasing strain on existing systems. In this environment:

- expert authority is often mistrusted
- moral arguments quickly polarise
- fear-based narratives drive regression rather than progress

The risk is not simply stagnation, but reversal.

What Bogad’s work suggests is that progress does not fail because societies lack awareness of their problems. It fails because they lack mechanisms for transitioning between systems without triggering defensive backlash.

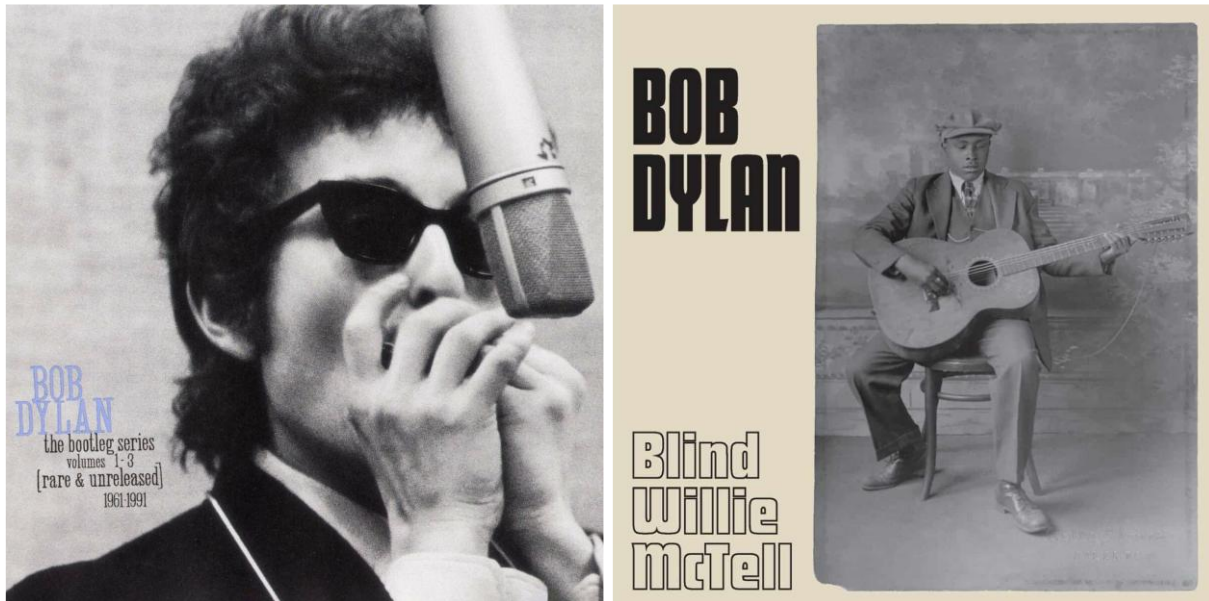
In this sense, *Tactical Performance* complements and extends the insights of systemic thinkers. Where models of collapse describe what happens when systems fail, and developmental frameworks explain why they become stuck, Bogad provides something more practical: a set of tools for moving forward.

Not through force. Not through argument. But through carefully constructed moments of play that make new possibilities visible. And, just as importantly, *feelable*.

### **A Missed Opportunity... and a Future One**

What is striking is that Bogad does not explicitly connect his work to frameworks such as those developed by Clare W. Graves or methodologies like TRIZ. Yet the alignment is clear. If protest movements (or, ahem, frustrated TRIZ users) were to combine Bogad’s inventive tactics with a deeper understanding of how value systems evolve, where the current system sits on its S-curve, and which contradictions need to be resolved to enable transition, their effectiveness could increase dramatically. Instead of reacting to symptoms, they could design interventions that are developmentally precise. Targeted not just at what is wrong, but at what is *next*.

## Wow In Music – Blind Willie McTell



### The Greatest Unfinished Song?

Bob Dylan once compared the release of *Blind Willie McTell* to someone breaking into Picasso's house, stealing a half-finished painting, and selling it to the public. The song had been recorded during the sessions for *Infidels* in 1983 but was left off the album, and Dylan later suggested it had never been properly completed. When it finally appeared years later on *The Bootleg Series*, it arrived not as a polished studio centerpiece but as something closer to a sketch: just Dylan's voice and piano, with guitar from Mark Knopfler.

Yet this supposedly unfinished recording has come to be widely regarded as one of the finest things Dylan ever wrote. Like the half-finished painting of his analogy, it feels less like an incomplete work than a glimpse into the moment of creation. A song caught in the (Principle 9) act of becoming.

At first hearing, *Blind Willie McTell* sounds like a blues. It draws loosely on the traditional framework behind "St James Infirmary Blues," but it (Principle 16) never settles into a strict twelve-bar pattern. The harmony shifts with a quiet unpredictability, and Knopfler's guitar occasionally slips into unexpected territory – most strikingly an E minor figure leaning toward a flattened fifth, a note that seems less like a planned gesture than a moment of instinct. The effect is subtle but profound: the song inhabits the blues without ever quite submitting to it.

This creates one of the song's central contradictions. The blues traditionally depends on repetition and resolution, a musical form built to contain sorrow. But Dylan's song refuses that containment. Each verse feels like a fragment of a larger story that cannot be finished: chain gangs and plantations, gamblers and ghosts, East Texas and New Orleans. The history unfolds without narrative direction, like scenes glimpsed from a passing train.

At the edge of these fragments stands the blind bluesman of the title – the historical musician Blind Willie McTell – invoked less as a character than as a witness. The narrator sees landscapes and events stretching across time, yet again and again returns to the same conclusion:

*Nobody can sing the blues like Blind Willie McTell.*

The paradox is striking. The song surveys a vast historical panorama – slavery, violence, faith and survival – yet the truest witness is the one who cannot see. Vision belongs to the narrator; understanding belongs to the blind singer.

The final verse brings all of these elements into focus with a single unexpected image. The narrator is suddenly stationary, gazing out of the window of the St James Hotel. The movement through history collapses into a single still point, as if the entire journey has been taking place in memory or imagination. Past and present blur together. The song does not conclude so much as come to rest.

Even the recording itself carries a quiet tension. It sounds provisional – voice, piano and guitar captured without ornament – yet it feels strangely permanent. Dylan did not abandon the song after the *Infidels* sessions. He returned to it repeatedly, recording later versions with fuller arrangements, including a finely played band performance featuring Mick Taylor on guitar. These recordings sound more deliberate and more obviously finished.

Yet listeners almost always return to the spare Dylan–Knopfler version. Over time, the performance Dylan rejected has quietly become the definitive one. The artist kept trying to finish the song; the system decided it was already complete.

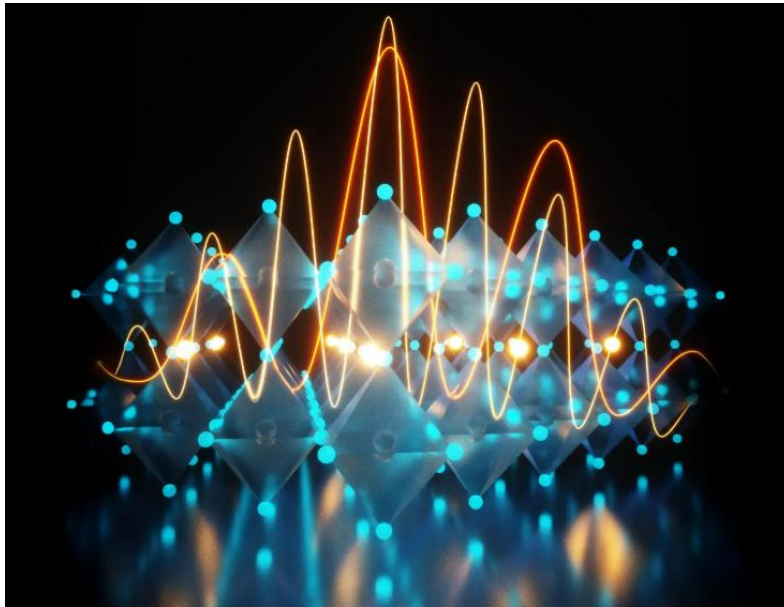
Perhaps this helps explain the song's enduring power. Most compositions aim for resolution. Musical, emotional, or narrative. *Blind Willie McTell* never quite arrives there. The harmony wanders, the timeline slips, the narrator watches from an uncertain distance, and the story refuses to close.

It remains what Dylan once called it: unfinished.

And maybe that is why it feels complete.

It is beautiful, and maybe that is enough. But the deeper truth may be that it is beautiful because it never resolves.

## Investments – Smart Photostriction Crystals



A recent breakthrough from University of California, Davis offers a compelling glimpse into the future of smart materials, and, more importantly, into the kinds of contradictions that next-generation innovation must resolve. The research centres on a phenomenon known as photostriction: the ability of a material to change its shape in response to light. While this effect has been observed before, the UC Davis team has demonstrated something far more powerful: a rapid, reversible, and tunable structural transformation in halide perovskite crystals. At first glance, this may sound like just another incremental advance in materials science. It is anything but.

### Resolving the “Control vs Complexity” Contradiction

Traditional semiconductor materials such as silicon are prized for their predictability. Apply an electrical signal, and you get a consistent response. This stability, however, comes at a cost: limited adaptability. Materials are engineered to behave in fixed, predefined ways.

Perovskites flip this logic on its head.

The UC Davis work shows that when exposed to light, these materials undergo a dramatic shift in their internal lattice structure, physically deforming and then snapping back when the stimulus is removed. The key insight is not just that the effect exists, but that it is continuously tunable – the magnitude of the deformation depends on both the intensity and wavelength of the light.

This resolves a classic contradiction:

- We want materials that are stable and predictable
- But we also want materials that are adaptive and controllable in real time

Photostriction in perovskites delivers both. The material remains structurally coherent, yet behaves like a dynamic system rather than a static component.

### Resolving the “Binary vs Analogue” Contradiction

Most modern electronics are built on binary logic: on/off, 0/1. Even when we simulate analogue behaviour, the underlying mechanisms are discrete. The UC Davis team explicitly highlights that photostriction is not a binary effect. Instead, it behaves more like a “dimmer switch” than a simple toggle. This opens up a second important contradiction:

- We rely on binary systems for reliability and scalability
- But many real-world interactions are inherently analogue and continuous

Photostrictive materials provide a pathway to native analogue functionality at the material level. Rather than approximating continuous behaviour through digital abstraction, the material itself embodies it.

### **Resolving the “Energy Input vs Functional Output” Contradiction**

Conventional actuation – whether mechanical, thermal, or electrical – typically requires relatively large energy inputs and often involves multiple conversion steps. Here, light directly induces mechanical change. That collapses another contradiction:

- We want high functional output (movement, sensing, adaptation)
- But we want minimal energy and system complexity

Photostriction enables direct energy transduction from photons to mechanical motion, bypassing intermediate systems. The implication is not just efficiency, but architectural simplification.

### **New Capabilities: From Passive Components to Active Matter**

What emerges from this research is not just a new effect, but a new category of capability. First, light-controlled actuation. Devices could be triggered, tuned, or reconfigured purely through optical signals, eliminating the need for wiring or embedded electronics.

Second, programmable material behaviour. Because the response depends on both composition and light characteristics, engineers gain multiple levers for control. Materials become design spaces, not just components.

Third, reversible and repeatable transformation. The fact that the lattice distortion can cycle repeatedly without degradation is critical. This is not a one-time morphing, but a stable, reusable functionality.

Finally, and perhaps most importantly, a shift from devices to systems. As the researchers note, these materials behave less like simple switches and more like “adjustable systems.” That distinction matters. It signals a move toward materials that embody system-level intelligence.

From a systematic innovation perspective, the significance of this work lies in its multi-contradiction resolution. It does not optimise a single parameter, it reframes the design space.

- Stable *and* adaptive
- Binary-compatible *and* analogue-native
- Energy-efficient *and* functionally rich

These are exactly the kinds of breakthroughs that tend to underpin step-change innovation. In practical terms, the immediate applications may emerge in light-driven sensors, actuators, and photonic devices. But the longer-term implication is more profound: the emergence of materials that can be controlled, tuned, and reconfigured in real time using light alone.

In other words, we are moving closer to a world where matter itself becomes programmable. Not through code, but through physics. And that, we propose, is an investment worth watching.

Read more: Mansha Dubey, Bekir Turedi, Andrii Kanak, Maksym V. Kovalenko, Marina S. Leite. Reversible, Photo-Induced Lattice Distortions in Halide Perovskites. *Advanced Materials*, 2026; DOI: 10.1002/adma.202521800

## Generational Cycles – 1984 and Generational Signal-Processing



This article feels like it is going to turn into a series. Probably occasional. Ostensibly, it attempts to build on Joseph Campbell's work to decipher the 'DNA' of great literature. Why do some books become enduring classics while the majority disappear almost instantaneously. Despite being pushed hard by publishers. Specifically, this possible-series sets about bringing a generational lens to the enduring classics challenge. Sometimes, in theory at least, an enduring classic endures because it's just a great book. In reality, what we're beginning to see is that while multiple different generations might come to love a particular book, it's far from clear that they come to love it for the same reasons. The question, then, is how great books come to mean different things to different generations. The emerging theory starts with this:

Every generation inherits the same world, but not the same *meaning*.

The events may be shared, the institutions identical, even the books unchanged. And yet what is perceived, amplified, ignored, or resisted differs profoundly depending on where a generation sits in the wider historical cycle. In that sense, generations act less like demographic cohorts and more like *distinct signal-processing systems*, each tuned to detect particular threats, hopes, and contradictions.

Literature, at its best, is one of the clearest places where this difference shows up. Certain books feel "obvious" to one generation and strangely irrelevant to another. Some are embraced passionately, others dismissed as over-rated... only to be rediscovered decades later when the cultural frequency shifts.

George Orwell's *1984* is a perfect case in point. Written in 1948, it has never gone out of print since. Yet its cultural *intensity* rises and falls in waves. In 2026, it is once again being widely quoted, re-read, and argued over. Not because the book has changed, but because the collective anxieties it speaks to have realigned across multiple generations at once.

To understand why, we need to step back and look at what literature is *doing* for each of the four generational archetypes.

### **Literature as generational infrastructure**

Across the Strauss–Howe cycle, each archetype uses stories differently. Not consciously, but structurally:

#### **Prophets: literature as moral signal**

Prophet generations use literature to:

- Define values
- Draw moral boundaries
- Warn of transgression

Stories tend to function as *sermons* and *signals*. The question is not “Is this realistic?” but “What does this mean, and where does it lead?”

#### **Nomads: literature as survival manual**

Nomad generations read for:

- Power dynamics
- Institutional behaviour
- What actually happens when ideals collide with reality

They tend to be suspicious of neat resolutions. What matters is not intention, but consequence.

#### **Heroes: literature as quest narrative**

Hero generations look for:

- Agency
- Progress
- The possibility that effort matters

Stories are maps for action. Even dark ones are expected to contain the seeds of redemption, reform, or victory.

#### **Artists: literature as emotional and psychological mirror**

Artist generations read for:

- Inner truth
- Emotional safety
- The felt experience of living inside a system

They are exquisitely sensitive to coercion, erasure, and distortion, especially of identity and meaning.

A truly enduring book is one that can be *re-read through all four lenses*. Even if different generations latch onto different aspects at different times.

*1984* is such a book.

#### **What *1984* is really about** (beneath the slogans)

Despite its reputation, *1984* is not fundamentally a novel about surveillance, authoritarianism, or technology. Those are surface mechanisms. At its core, *1984* is about something far more disturbing: The systematic destruction of interior truth.

Orwell is not asking “What if the government watches you?” He is asking: what happens when a system no longer cares whether its claims correspond to reality... only that they are *accepted*?

In the book:

- Language is severed from meaning

- Memory becomes unreliable
- Inner resistance is reframed as pathology
- Eventually, even the desire for truth feels dangerous

This is why the book keeps returning. It describes a form of power that does not merely repress opposition, it renders opposition psychologically incoherent. Each archetype encounters that threat differently. *1984* may thus be seen as four different books:

### **Prophets: 1984 as moral prophecy**

Prophet generations read *1984* as a warning flare.

What resonates:

- Big Brother
- Thoughtcrime
- The Ministry of Truth

The book functions as a moral boundary marker: *this is what must never be allowed*. It is read as evidence that vigilance, values, and ethical leadership matter enormously. The danger, for Prophets, is that they often interpret the novel as a call to moral mobilisation, while missing its quieter claim: that systems like this do not fail because people stop believing, they succeed when belief becomes irrelevant.

### **Nomads: 1984 as power realism**

For Nomads, *1984* is unsettling precisely because it feels plausible. They notice:

- The bureaucratic calm of oppression
- The predictability of dissent
- The competence of O'Brien

Winston is not a tragic hero so much as an exposed variable. The system does not hate him; it *understands* him. Nomads often read *1984* and think: "Yes. This is exactly how it would work." There is no romance here, only mechanisms.

### **Heroes: 1984 as failed quest**

Hero generations experience *1984* almost as a betrayal. They expect:

- Growth
- Resistance
- Transformation

Instead, they get collapse. The love story fails. The rebellion is hollow. The protagonist does not transcend the system... he is re-programmed by it. For Heroes, this is deeply destabilising. The novel violates the implicit contract that effort, courage, or authenticity will eventually count for something. It confronts them with a possibility they find hardest to accept: some systems are not waiting to be fixed. Rather, they are designed to absorb and neutralise idealism itself.

### **Artists: 1984 as psychological horror**

For Artist generations, *1984* lands as something closer to trauma literature than political fiction. They focus on:

- Gaslighting
- Memory manipulation
- Forced emotional conformity

The most terrifying moment is not torture; it is *loving Big Brother*. To Artists, the novel describes the destruction of inner safety. It reads like an abusive relationship scaled to a society, where the victim is gradually taught to distrust their own perceptions. This is why *1984* resonates so strongly with Gen Z readers in particular. It mirrors fears about:

- Algorithmic reality shaping
- Emotional coercion

- The erosion of nuance and ambiguity

### **Why 1984 is surging again now**

Books return when multiple generations simultaneously feel their core defences weakening. In 2026:

- **Prophets** sense moral authority fracturing
- **Nomads** see institutions lying without embarrassment
- **Heroes** feel effort failing to produce change
- **Artists** experience reality itself becoming unstable

Very few books speak to all four anxieties at once.

*1984* does. Not by offering solutions, but by naming the shape of the danger.

### **What this means for the series**

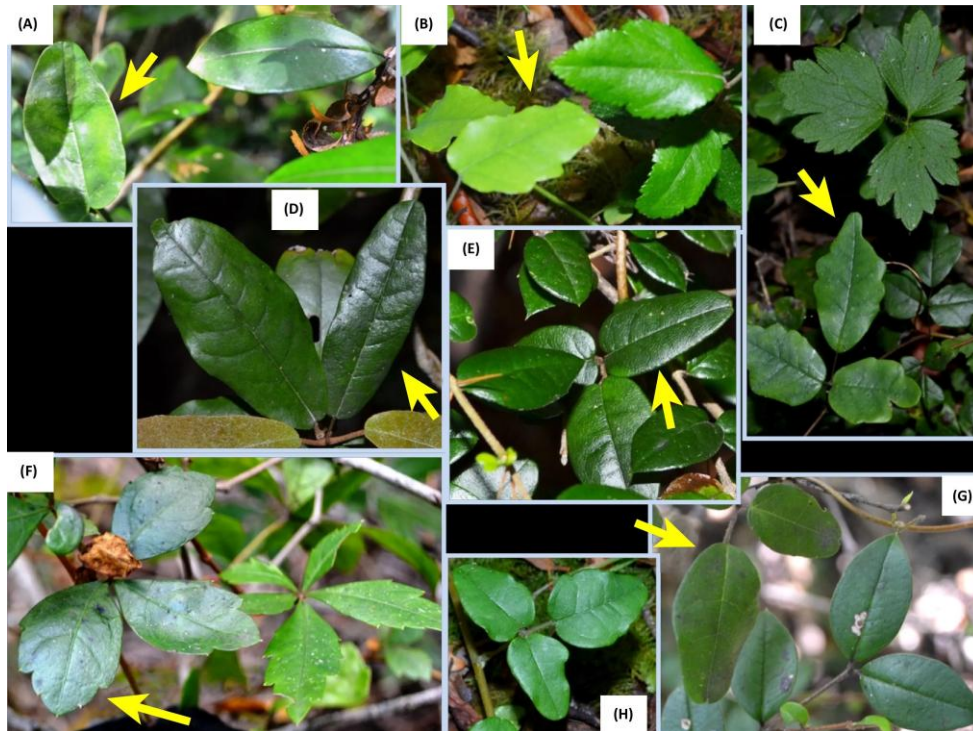
This is why I think a generational reading of literature matters. Great books do not merely “age well.” They *wait*. They wait until the cycle turns and a new generation suddenly recognises itself in a story it once ignored, misunderstood, or dismissed. *1984* is not trending because we are “becoming Orwellian.” It is trending because multiple generations are recognising, in different ways, the moment when power stops caring what you believe... and starts caring only that you comply, adapt, and forget.

That is not a political warning.

It is a psychological one.

One that authors like Orwell got right perhaps merely through post-Crisis happenstance. Other authors, as we hope to explore in future articles, managed to span the generations through deliberate planning. While others perhaps fell foul of their moment in history and wrote work that resonated beautifully with one generation but completely failed to connect to others.

## Biology – Boquila trifoliolata (The Plant That Copies Other Plants)



Most plants face a simple problem.

They are edible.

Being eaten is therefore one of the fundamental contradictions of plant evolution:

*The plant needs to remain visible enough to grow and photosynthesise, but invisible enough to avoid being eaten.*

Plants manage this contradiction in many ways:

- spines
- toxins
- toughness
- rapid regrowth
- camouflage

Camouflage is normally a limited solution. Most plants can only resemble their own species. Evolution fixes the leaf shape and colour long before the plant encounters a predator. Which creates a constraint:

*A plant cannot match surroundings that do not yet exist.*

Except one.

Enter *Boquila trifoliolata*. A climbing vine found in the temperate rainforests of South America. It possesses one of the most extraordinary adaptive capabilities known in the plant kingdom.

Instead of producing a fixed leaf shape, the vine changes its leaves to match nearby plants. Researchers have documented mimicry of more than a dozen host species. The vine alters:



At surface level, while the dynamic-adaptation capability Boquilla has evolved is impressive, how it has done it – being dynamic and measuring external information – may be deemed ‘obvious’. Not that this should ever detract from the existence of the breakthrough solution, but rather that outsider observers – like ourselves in this case – don’t necessarily learn much from it.

Perhaps much more intriguing from this perspective is the deeper contradiction that Boquilla has had to solve: how to copy without knowing:

*To copy another plant, Boquilla must detect the features of that plant.*

*But plants have no eyes.  
No nervous systems.  
No central processing.*

Yet Boquilla reproduces surprisingly detailed features:

- vein patterns
- lobes
- aspect ratios
- spines
- orientation

And in many cases it does this without direct contact, with a visible air gap between vine and host.

So, here’s the deeper contradiction:

*Mimicry requires sensing. But plants lack obvious sensing mechanisms capable of detailed visual comparison.*

Here’s what this second contradiction looks like when mapped onto the Contradiction Matrix:

**49**  
**Parameter We Want to Improve – Ability To Detect/Measure**

**List of Principles relevant to each specific worsening parameter:**

:

45	System Complexity	28	37	25	10	15	3	24	32
46	Control Complexity	28	32	37	3	7	10	24	6

Biologists still do not know how Boquilla resolves this contradiction. But several candidate mechanisms have been proposed. Maybe, to somehow help resolve the ongoing mystery we can use TRIZ in reverse: if lots of other people/Nature has solved a contradiction using these (ranked) strategies, perhaps they offer some clues as to how Boquilla might have achieved its breakthrough solution.

Here are the three main candidates being suggested by biologists:

**Hypothesis 1: Chemical Sensing**

The simplest idea is that nearby plants release volatile chemicals that the vine detects. Plants communicate chemically in many contexts, and airborne signals could explain mimicry without physical contact.

The difficulty is specificity. Chemical signals typically produce broad responses – stress reactions, defence changes, growth shifts – not detailed geometric adjustments like leaf

lobes and vein density. This hypothesis explains distance sensing. But not precision copying.

### **Hypothesis 2: Microbial Information Transfer**

Another hypothesis proposes that micro-organisms carry information between plants. One study found that mimicking Boquila leaves share similar bacterial communities with the host plant, while non-mimicking leaves do not. This suggests microbes might influence gene expression or epigenetic regulation in ways that shape leaf development.

In TRIZ terms, this would represent, using a (Principle 24) intermediary carrier to transfer information. An elegant solution if true. But still unproven.

According to the Matrix, Principle 24 is certainly on the list of strategies used in this conflict type, albeit towards the bottom of the ranking. Let's see what Hypothesis three has to say:

### **Hypothesis 3: Visual Detection**

The most controversial idea is that Boquila may detect leaf shape optically. Some experiments suggest the vine will approximate the shapes of nearby artificial leaves, leading to speculation about primitive "plant vision." As to be expected, this remains highly disputed. Even if correct, the mechanism would still need explanation, since it would imply a sensory capability far more sophisticated than normally attributed to plants. On the other hand, an optical solution would fit very closely to the most frequently used strategy for solving this kind of problem: Principle 28, Mechanics Substitution. Which gives a clear steer away from 'mechanical' solution (like 'micro-organisms) towards using a 'field'. Light being one of the most available.

Likelihood – even if it is based on millions of previous examples – is, of course, no form of proof. Merely, in this case, perhaps a message to say that, given high likelihood, it would be sensible to devote more experimental resources to exploring this direction. Light and optics are readily available fields, but maybe there are others we haven't tested yet?

### **Meanwhile... The Real Innovation**

Regardless of mechanism, Boquila represents a deeper evolutionary innovation. Most camouflage systems are static. Boquila's is adaptive. It behaves less like a plant trait and more like a real-time feedback system. Instead of evolving one solution, the vine evolved a solution generator.

And that is the real resolution of the contradiction. Not: Which leaf shape works best?  
But: How can the plant produce whatever leaf shape is required?

Boquilla did not solve the camouflage problem. It solved the problem of needing to solve the camouflage problem repeatedly.

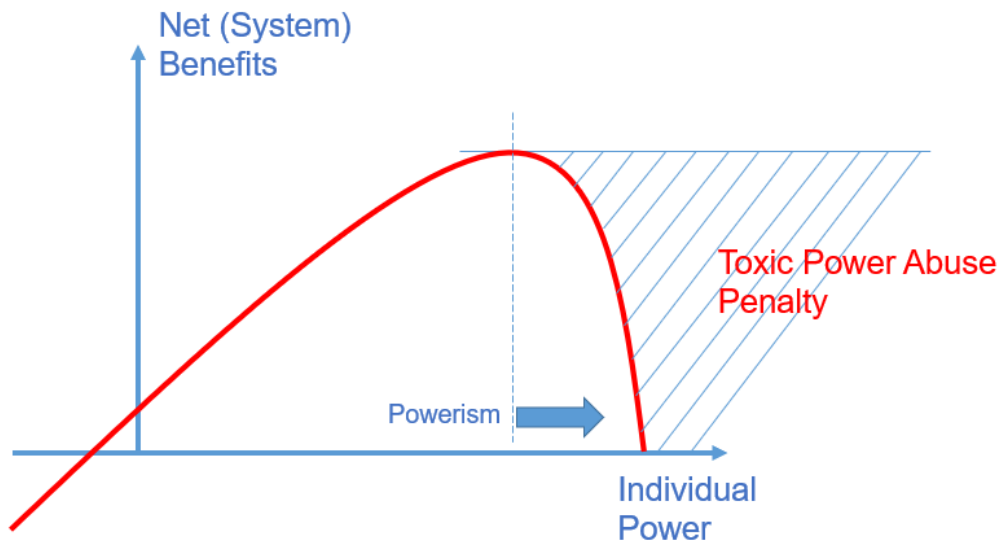
When the environment cannot be predicted, the best solution is not optimisation. It is adaptability.

Read more:

[https://www.researchgate.net/publication/261917750\\_Leaf\\_Mimicry\\_in\\_a\\_Climbing\\_Plant\\_Protects\\_against\\_Herbivory](https://www.researchgate.net/publication/261917750_Leaf_Mimicry_in_a_Climbing_Plant_Protects_against_Herbivory)

## Short Thort

*“Nothing discloses real character like the use of power.  
It is easy for the weak to be gentle.  
Most people can bear adversity.  
But if you wish to know what a man really is, give him power.  
This is the supreme test.”*  
Robert G. Ingersoll



*“Authority, when first detecting chaos at its heels,  
will entertain the vilest schemes to save its orderly facade.”*  
Alan Moore

## News

### TRIZ Mastery Hub

Darrell will be doing another of his Monday afternoon sessions on Robert Adunka's online Mastery Hub. 'Meta-Pattern Learnings From A Miscellany Of TRIZ Case-Study Failures' is the planned title, the session will be an opportunity to explore whether the best way to write the long-promised HOSI Case Studies book is to write a book about the failed case studies. Join the session on June 8 and let us know what you think. Joining instructions in the usual places.

### DangerMouth

As we wind down towards the end of Season #3 of DangerMouth, we've got a final swathe of bursting-with-insight guests coming up. Listen out for our chats with Gopichand Katragadda, former CTO of Tata, John Bicheno, one of the godfathers of the modern Lean movement, and Sally Shaw MBE, the force of Nature running the Firstsite art gallery and community creative space in Colchester, and her ambition to turbocharge creativity in the UK.

### USA

Darrell is in the process of assembling his itinerary for a trip to the US in late June and early July. If anyone is interested in having him visit, please get in touch with him directly.

## **New Projects**

This month's new projects from around the Network:

- Retail – FutureProofing Project
- Pharma – Innovation Strategy Project
- Conglomerate – IP Bulletproofing Project
- Industry Network – SI Workshops
- NGO – Future Growth Strategy Study
- Government – Measurement Design Project
- Logistics – Business Transformation Strategy Study
- Fintech – Innovation Dashboard Design

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