Systematic Innovation

e-zine

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In this month's issue:

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Readers' comments and inputs are always welcome.
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Case Study: Coal-Mine Land Restoration (Pt1: Stakeholder Perspectives)

"What cannot be said above all must not be silenced but written."
Jacques Derrida

When none of the three parties involved in a dispute are prepared to be in the same room as one another, safe to say the negotiations are not going well. This is the start point for this case study analysis. The specific details have been removed, partly to protect those involved, but mainly to demonstrate that the scenario is relevant to a whole host of equivalent situations. In general terms, the three parties comprised a commercial operator responsible for a now de-commissioned coal-mine, the government that let the contract, and the local community that has to live with the consequences of the operator's actions.

Looking through the transcripts of the earlier meetings when the three parties had been willing to sit down together, it quickly becomes clear that there's a lot of political manoeuvring going on, a lot of not telling the truth, whole truth and nothing but the truth, and a lot of trying to work out the strengths and weaknesses of the other two parties. Fairly typical, in other words, of many situations where people that aren't used to being in the same room having difficult conversations have been put into precisely that room.

Put people in these kinds of situation and, with a little coaxing, it is possible to get them to share all the 'good' reasons why they hold the views that they do. The biggest challenge is getting them to share all the 'real' reasons. Even when the psychological safety level is high, people tend not to want to share the emotional stuff. For a start, its often embarrassing. And if not embarrassing, it is almost certainly incriminating in a negotiating sense. Which in turn means that the likelihood of coming to any kind of common understanding sits somewhere between slim and zero.

People being people, and nature abhorring vacuums, when the real reasons aren't verbalised, the other people in the negotiation are busy filling them in with their own assumptions. And because the portfolio of real reasons is quite limited (we're all driven by desires for Autonomy, Belonging, to feel and be seen as Competent, and to want to do things that are Meaningful – Reference 1), we are all pretty good at working out what other peoples' real reasons are. Manipulative negotiators, thanks to the training they received during their time at their University's Debating Society, are often well versed in techniques that will progressively drive their opponents along a street, stripping away all their good reasons, and leaving them, at the dead-end of the street, with only the real reason left to talk about.

The Perception Mapping process has proven itself over the years to be a potent way of taking the sting out of these kinds of situation. Manipulators quickly get shown up as manipulators. Attempted distortions of reality are exposed for what they are, until all that's left is an objective answer that emerges as if by magic right at the end of the process. Perception Mapping is a tool that acknowledges and works with the (anthro) complexities of a situation rather than trying to subsume them. It will frequently, therefore, reveal the real-reason stuff even though no-one has explicitly said it.

The key word in that last sentence is 'frequently'. When the stakes are high like the three parties caught in the stand-off situation this fictionalised case study is describing, a

facilitator would be well-advised to do all they can to increase the likelihood of reaching a positive outcome. One in which the reluctant negotiatees all see merit in continuing the dialogue.

The way we sought to do that in this case was to act as a neutral fourth party (somewhere between ‘devil’s advocate, court jester and ventriloquist’s dummy) that would write down the unspoken real-reasons of the other three not-so-neutral parties. Here’s the resulting overall list of Perceptions, including all the ‘good-reason’ statements one or more of the three parties has already shared either in the first meetings before the relationship broke down, or that have been reported as quotes in the media. The labelling convention used prefixes Community perceptions with a ‘C’, Government perceptions with a ‘G’ and mine operator with an ‘M’. (Readers can decide for themselves which are the ‘unspoken’ perceptions – we decided it was a good idea to mix them up.)

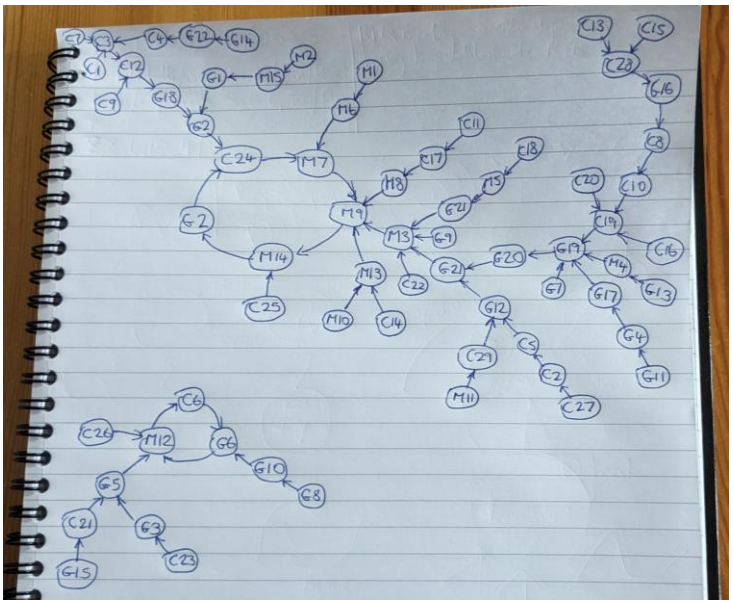
C1	It is taking to long to revise the restoration plan everyone is trying to dodge their responsibilities	c3
C2	Both the government and mine operator have epically mismanaged the mine for a long time why would the restoration be any different	c5
C3	The local community seem to be at the bottom of everybody's priorities	c12
C4	‘Being hung out to dry’ broken promises have broken trust in the government and the mine operator	c3
C5	Other restitution projects in the industry have failed to meet obligations why will this one be different	g12
C6	The mine operator is trying to ‘play chicken’ with the govt and threatening administration and other measures to dodge its commitments	g6
C7	We have no stake / ownership, so we are powerless in the ongoing interactions between govt & mine	c3
C8	Trust in government low as they didn’t stop the illegal operation of the mine	c10
C9	Feel like both are taking the piss, the land restitution was a major part of allowing the work in the first place	c12
C10	Doesn’t feel like the Govt is really bothered about future generations and the environment when it really matters	c19
C11	The mine is the ‘neighbour from hell’ ‘16 years of coal dust and pollution’	c17
C12	The community want a public enquiry into the entire handling of this mine	g18
C13	There are concerns about rising water level and pollution of the water table	c28
C14	There are concerns about site security and the historic trend for ‘death by misadventure’ from children trespassing into the mine or the mine being left in a dangerous state.	m13
C15	There are concerns about the mine being left geologically unstable	c28
C16	Belief the mining operations will be a permanent scar on the local landscape it won't be returned to a ‘green hillside’	c19

C17	Someone somewhere has made a lot of money operating this mine it is morally repugnant & criminally negligent to try and dodge restitution by claiming poverty now ‘the committee heard evidence that since 2017 the company has paid out nearly £50million in dividends and royalties out of the business’	m8
C18	Immediate concern of workers livelihoods and the impact on local business	m5
C19	Fear of social and economic decline of the region. No local opportunities for their children	g19
C20	Anger that the land has been savaged, and the local people and wildlife will pay the price for generations to come.	c19
C21	Fears that the money for the restitution will be wasted / line the pockets of the ‘wrong people’	g5
C22	Creative uses of the mine or alterations to the restitution that could benefit the community long term aren’t being considered by the Govt or mine operator	m3
C23	Government / Mine operator should compensate local community for failings / breaches over the working life of the mine	g3
C24	Restitution could take 3 decades to complete local area needs assistance now	m7
C25	Frustration that bad actors who have deliberately caused these circumstances won't be prosecuted for their criminality ('unaccountability machine')	m14
C26	Feels like the restitution is being held hostage between elements within both the government and mining operator who have serious questions to answer about failings of how the mine has operated and where the money has gone over the operational life of the mine.	m12
C27	If the restitution is managed by the same people to the same level scrutiny it will fail the community and environment	c2
C28	where are the objective experts that can provide the information we need?	g16
C29	Community proud of their heritage, 'Welshness'	g12
G1	Govt underestimates severity of public frustration and distrust	g2
G2	Govt is motivated to stall / cover its ass ahead of a likely future enquiry	c24
G3	Govt must enforce contractual terms or risk other contractors shirking their responsibilities	g5
G4	This issue embarrasses the govt as weak on real environment & future generation issues	g17
G5	Does the Govt have the desire and resources to enforce the contractual terms	m12
G6	Does the Govt have the political capital to renegotiate terms with mining operator	m12
G7	Is this issue strong enough to change how residents vote in future elections	g19
G8	What additional support can Govt give to workers and local businesses	g10
G9	Has the Govt investigated other potential govt uses for the land	m3

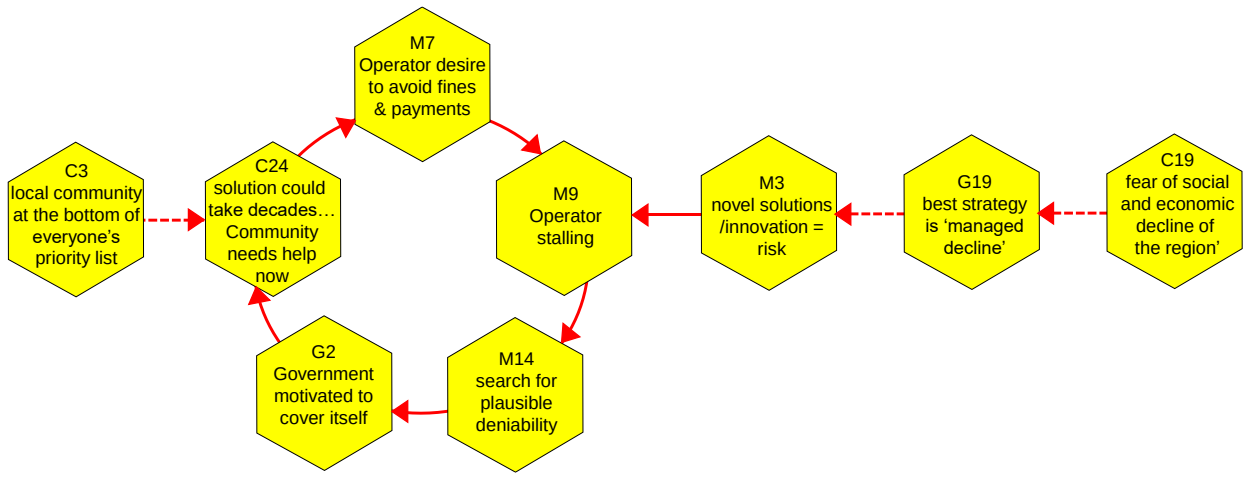
G10	Political climate is hostile with Labour govt and devolved Govt under spotlight	g6
G11	Welsh government campaigns heavily on Environmental, Future Generations and Welsh Heritage	g4
G12	Need to rebrand the Merthyr Tydfil area whist honoring its mining heritage	g21
G13	Govt must ensure mine operator closes an environmental and geologically safe mine	m4
G14	"This is why it's so important for community ownership to be considered in any new development, which could lead to more responsible management of mining sites.	g22
G15	"Residents told us they felt they had been completely failed by the public authorities who are meant to protect them. Too often they have seemed to be on the side of the mining companies.	c21
G16	“Transparency has been a real problem with residents struggling to get answers from their councils when they have asked legitimate questions about mining near their homes.	c8
G17	Government has too many other burning issues… that are easier to deal with	g19
G18	Public enquiry will be really expensive and bill will be footed by Government	g2
G19	Best strategy is 'managed decline', but this is politically unacceptable to talk about	g20
G20	Government knows that when things get 'bad enough' community members will leave of their own volition	g21
G21	No vision for how to re-invigorate the community	m3
G22	No mechanisms for 'trusting the community' to manage the situation	c4
M1	Removal of all hazardous material, stabilization of site, treating water soil and air quality, replanting vegetation and restoring wildlife habitat. Plus, ongoing monitoring and maintenance	m6
M2	Mine operator reluctant to engage with local community regards to future uses of restored land (perceived as no-win)	m15
M3	reluctant to seek innovative solutions as they carry innate risk that might make the cost worse	m9
M4	Mine operator is threatening to go into administration to avoid its restitution commitments	g19
M5	Mine operators CSR obligation to retrain or redeploy workforce	g21
M6	Mine operators desire to restore mine as quickly and cheaply as possible	m7
M7	Mine operators desire to avoid fines / pay compensation or to be found in breach of contract	m9
M8	Mine operators primary desire is to protect financial interest of board of directors	m9

M9	Belief that mine operator is obstructing the process to stall for time and prevent any claims of criminality / mismanagement	m14
M10	"Mining companies have racked up enormous profits but when it's time to fulfil their restoration promises, the wallet is empty. They do as they please and local communities foot the bill.	m13
M11	"This report details some of the most egregious examples of the broken promises made to communities across Wales.	c29
M12	Operator knows that the Government are weak negotiators	c6
M13	Operator is already in a public-relations nightmare that couldn't get any worse	m9
M14	Operator looking for plausible deniability	g2
M15	the more the public sees, the worse things will look	g1

And then, per convention, here's the resulting Map:

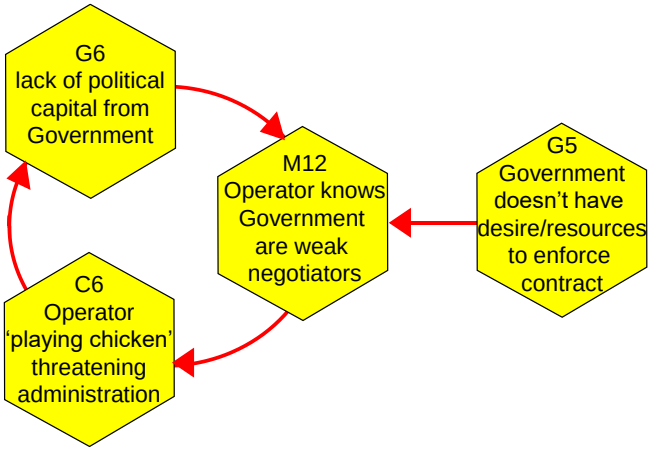


Here then are close-up views of the two vicious-cycle loops and the collectors driving them, starting with the big one at the top of the graphic:



This loop seems to be about plausible deniability and stalling on the part of both Operator and Government as they both play a form of Blame Game, all the while leaving the local Community powerless and forgotten. Both Government and Operator in reality knowing but not being able to say that if quality of life in the Community falls far enough, people will leave the region and the problem will slowly solve itself.

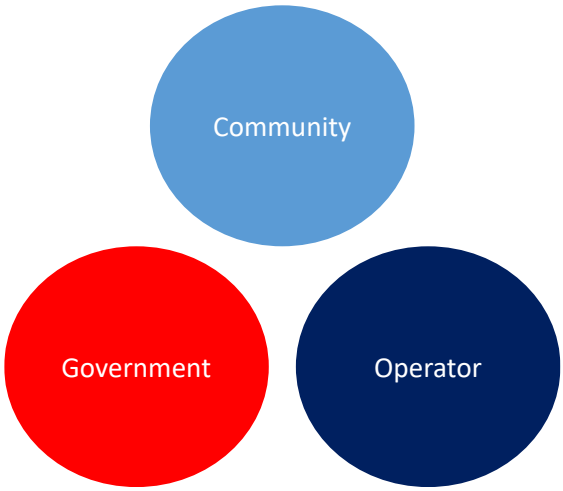
And then here's the second, smaller, vicious cycle, and its driving collector:



We might think of this as the 'weak negotiator' loop, a loop in which the Operator knows they could apply the 'nuclear option' of putting their Company into administration, and the Government having little or no political capital to counter the threat.

Both loops appear to make it clear why neither of the two most powerful parties have a strong interest in getting together. It's not clear that were either of them to see these 'generic' Maps and the root contradictions they have revealed, they would feel any more inclined to participate in the needed three-way negotiation. Other than, of course, the prospect that, now we know what the core contradictions are, we're in a much better place to start formulating solutions that will allow all three parties to win… that will be where we head in the next part of the story.

(In the meantime, we invite readers to have a think about what you would do if you were a member of either the Community, the Operator or the Government to now try and resolve the impasse and get the three circles to intersect.)



Horizontal Wisdom #43: Over-Optimisation

At first glance, there's no obvious connection between Attention Deficit Hyperactivity Disorder (ADHD), the 20% of bees that explore, Lean management, an African tribe's method for processing a poisonous vegetable, and Chesterton's Fence. What possible thread could tie together a neurodevelopmental disorder, insect behaviour, a business philosophy, a culinary survival strategy, and an old philosophical metaphor about fences? The answer lies in the tension between exploration and efficiency—how systems evolve, adapt, and sometimes destroy themselves in the pursuit of optimisation.

The world is full of systems, and the most successful ones achieve a balance between stability and adaptability. Yet modern thinking, particularly in the West, tends to focus obsessively on eliminating "waste" and maximising efficiency. This is a mistake. Time and again, systems that prioritise short-term efficiency over resilience and adaptability meet catastrophic failure. By examining these seemingly unrelated concepts side by side, we can illuminate a common blind spot in our understanding of complex systems: the hidden value of what appears, at first glance, to be inefficiency.

ADHD: The Evolutionary Need for Explorers

For decades, ADHD has been framed as a deficit, a disorder that needs to be managed, medicated, and suppressed. Yet an alternative perspective suggests that ADHD traits are not malfunctions but essential features in a broader system. Individuals with ADHD tend to be novelty-seekers, quick to shift attention, and hyper-responsive to their environment. These traits may not fit neatly into rigid, industrial-era education and work systems, but they serve an essential evolutionary purpose.

Consider human history. Every civilisation needed its diligent planners and workers, but it also needed its explorers—those willing to venture into the unknown, try new solutions, and take risks others wouldn't. The ADHD mind is wired for exploration, scanning the horizon for opportunities and dangers that the rest of the population might overlook. In an age obsessed with efficiency, we increasingly view this as a problem. Yet as we will see, no successful system thrives without exploration.

The 20% of Bees That Explore

Bees operate in one of the most efficient and highly structured social systems in nature. Yet even in this seemingly rigid hierarchy, there is built-in inefficiency. Research has shown that around 20% of bees act as scouts, deviating from established routes and searching for new food sources. At first glance, this seems counterproductive—why waste energy when a perfectly good process for gathering nectar already exists?

The answer is simple: risk and uncertainty. The environment is constantly changing, and food sources that are abundant today may disappear tomorrow. Without a subset of the population dedicated to exploration, the hive would eventually collapse due to a lack of adaptation.

Now, apply this to human systems. Organisations, economies, and even individual minds that become too rigid and efficient risk stagnation. The ADHD mind functions much like an exploring bee—constantly scanning for alternatives, unwilling to commit to a single repetitive task, and often seeing opportunities that others ignore. This exploratory

behaviour may seem inefficient in the moment, but over time, it ensures survival in a changing world.

Lean Thinking: The Pitfalls of Over-Optimisation
Enter Lean management, the dominant business philosophy of the past few decades. At its core, Lean is about eliminating waste and maximising efficiency. In manufacturing, this means cutting unnecessary steps, streamlining processes, and focusing only on what delivers direct, measurable value. Toyota pioneered this approach, and soon, industries everywhere followed suit.

But what happens when efficiency is taken too far? The danger of Lean is that it assumes we can always identify waste correctly. Yet history tells us otherwise. When companies strip away exploratory roles, research divisions, or “non-essential” activities, they often unknowingly remove the very mechanisms that could have prevented future crises. The 2008 financial meltdown was, in part, a product of over-optimisation—banks streamlined risk models to such an extent that they failed to account for real-world uncertainties.

The same applies to individuals. When education systems demand rigid focus and punish curiosity, they are essentially trying to turn every student into a worker bee, eliminating the exploring 20% as though they were defects. The result? A society optimised for short-term efficiency but increasingly incapable of adaptation.

The African Tribe and the Poisonous Vegetable
Imagine an outsider observing a traditional African tribe painstakingly processing a poisonous cassava-like vegetable before eating it. To the untrained eye, this process looks wasteful. There are long soaking periods, drying steps, and multiple layers of preparation. A Lean consultant might ask, “Why not cut a few steps? Why not optimise?”

Yet, remove just one step, and the result is deadly poisoning. Only not immediate poisoning. That would allow the tribe to re-think. No, the deadly poisoning in this case took over ten years to manifest itself. The process, refined over generations, is not wasteful – it is survival. The problem is that the reason for each step is not always obvious – including those working on some of those steps, especially to those who lack a deep understanding of the system.

This is precisely what happens when societies, businesses, or individuals eliminate practices simply because they do not immediately appear useful. It is the same mistake that occurs when businesses cut research departments in pursuit of short-term gains or when education systems prioritise rote memorisation over exploration.

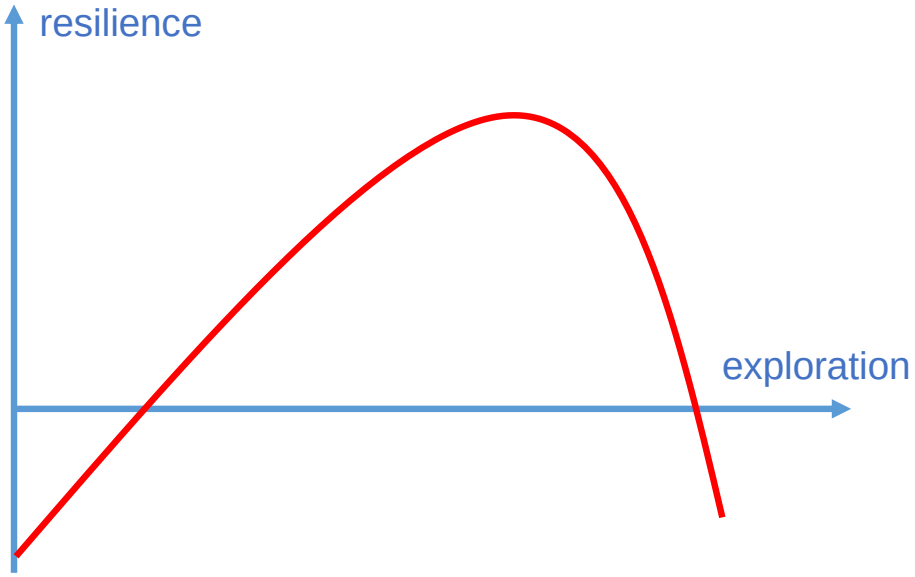
Chesterton’s Fence: A Warning Against Blind Optimisation
Chesterton’s Fence is a simple yet powerful concept: If you come across a fence in the middle of a field and don’t know why it’s there, you shouldn’t remove it until you do. Many efficiency-driven decisions fall into the trap of ignoring this principle. Businesses discard “inefficiencies,” policymakers eliminate regulations, and schools cut “unnecessary” subjects, all without fully understanding the long-term consequences.

JunkDNA
In perhaps the most iconic example of the modern age, the term "junk DNA" was originally used by biologists to describe portions of the genome that do not code for proteins and were thought to have no function. A genetic engineer might be tempted to somehow trim it from future DNA. Human scientists thinking they know better than billions of years of evolution. In a survival-of-the-fittest world, why would anyone think that Nature would

somehow allow the continued presence of “junk”? Of course, now we know, thanks to more recent research that much of this so-called "junk" actually plays crucial roles in genetic regulation and cellular function. Not least of which, our “Junk DNA" provides raw material for evolutionary changes, as mutations in non-coding regions can sometimes lead to new functions without disrupting essential genes. “JunkDNA” is the body’s Skunkworks.

In JunkDNA and each of the previous examples – ADHD, exploring bees, Lean thinking, and traditional knowledge – Chesterton’s Fence looms large. ADHD is often dismissed as a disorder rather than recognised as a feature necessary for human adaptability. The exploring bees could be seen as inefficient but turn out to be essential for the hive’s survival. Lean thinking, when taken too far, destroys resilience. The African tribe’s “inefficient” methods are, in fact, an existential necessity…

…albeit one that is subject to another Goldilocks Curve:



The bee story suggests that the Goldilocks ‘just-right’ level of exploration is 20%. Emerging evidence, however, suggests that non-coding “JunkDNA” becomes more functionally active in response to existential stress—such as environmental pressures, disease, and cellular crises. Which, translated into enterprise resilience terms, appears to suggest that during the sort of ‘omni-crisis’ period which most industries are currently having to endure, the Goldilocks level of exploration needs to go up. Which in turn means the Red-World ‘Lean’ consultants need to back off for a while. Or possibly recognise they are the ‘waste’ that now needs to be shed.

The Bigger Picture: Systems Need Both Efficiency and Exploration
What all these examples reveal is that successful systems do not eliminate inefficiency—they balance it. The healthiest ecosystems have both specialists and generalists, the most resilient organisations invest in both efficiency and exploration, and the most adaptable minds embrace both focus and curiosity.

For individuals with ADHD, the message is clear: society may frame your mind as inefficient, but in reality, you are part of an essential balance. For businesses, the warning is to avoid over-optimisation at the cost of long-term adaptability. For policymakers, the lesson is to think twice before dismantling traditional systems whose value may not be immediately obvious.

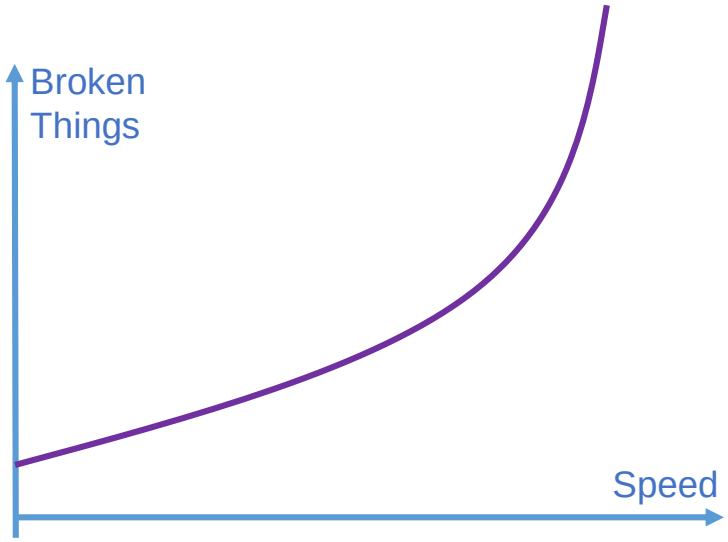
The world is not a static machine that can be optimised to perfection. It is a dynamic, evolving system that requires both structure and flexibility. And if we continue down the path of unchecked efficiency, eliminating exploration, tradition, and seemingly redundant processes, we may one day find ourselves in a world that is perfectly optimised… for catastrophic, irreversible failure.

Definitely Not Funny – Move Fast And (Really, Really) Break Things

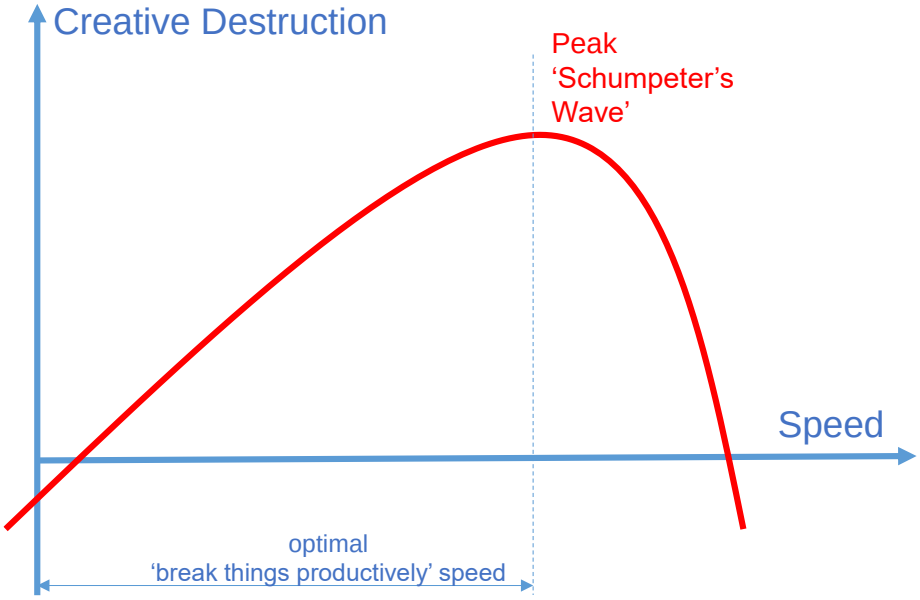
As shown in the above cartoon, I think it is fair to say that the ever-glorious XKCD website understands the reality of 'move fast and break things' better than Mark Zuckerberg ever has.

With Donald Trump now back in power, and Elon Musk apparently pulling a lot of the strings, we might also think about adding 'Presidents' and 'DOGE' onto the XKCD list of occupations where the only guaranteed outcome of going faster is that you create an exponentially greater pile of broken things. Like, possibly, the US economy. Or maybe

even the global one. If human beings are involved at least, Speed and Damage are related like this:



We spend a lot of time in SIEZ towers thinking about Goldilocks Curves. This is kind of the opposite of a Goldilocks Curve. We can, however, turn it into one if we try to think about the person that gave Mark Zuckerberg his quote. An, as far as I know, unknown person that had a better grasp on agile development, hacker culture, and disruptive innovation theories than Zuckerberg has ever demonstrated. These theories are trying to tell innovators that the jump from one s-curve to the next inherently requires things to get worse before they get better. Breaking things is a way of getting through the 'get worse' part of the trajectory as quickly as possible, so that – the important bit – you then get to create new things that take everyone to a better place than they were before. In this context, a Goldilocks Curve relating to speed looks something like this:



The peak of the curve defines the optimum breaking-things speed where the goal is to burn the dead wood and get to the new forest as quickly as possible. This kind of creative destruction is often called 'Schumpeter's Wave'. In honour of Schumpeter, we might label the peak of the curve 'Peak Schumpeter'.

Thinking about the increasingly precarious state of global politics, it would be nice to think that ‘someone’ on the team understands this curve and is actively managing to achieve the Peak Schumpeter point. Ripping off the band-aid at ‘just the right’ speed. Or at least staying on the left-hand side of the Peak.

My instincts tell me, sadly, that this isn’t happening. And by the time anyone thinks about it, given the speed-of-light way in which many things happen today, it will be too late.

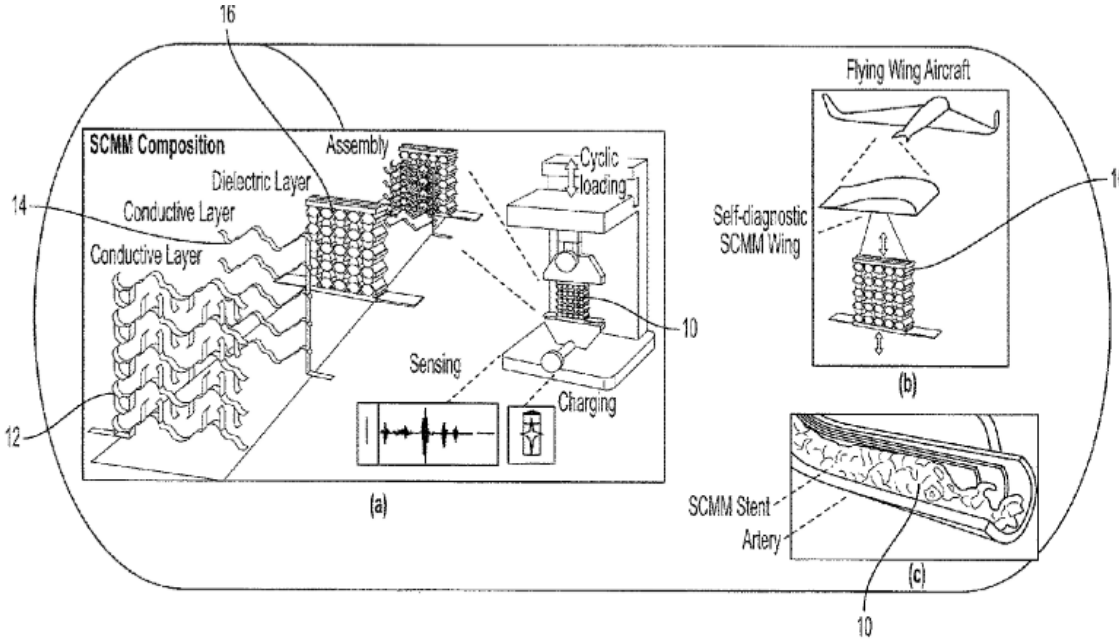
Not to mention how it will likely be too late to go one better and actually solve the contradiction…

Not quite as amusing, but maybe the author John Cowper Powys also has something to say on the matter:

‘The hardest thing to learn is knowing bold uncritical action is necessary. But we are heading for fresh disaster if a portion of our interior soul doesn't function in critical detachment. We must commit to the tide, keeping a weather-eye on the horizons.’

Meanwhile, I’m on the lookout for shares to buy in a Repair Café franchise…
Keep safe.

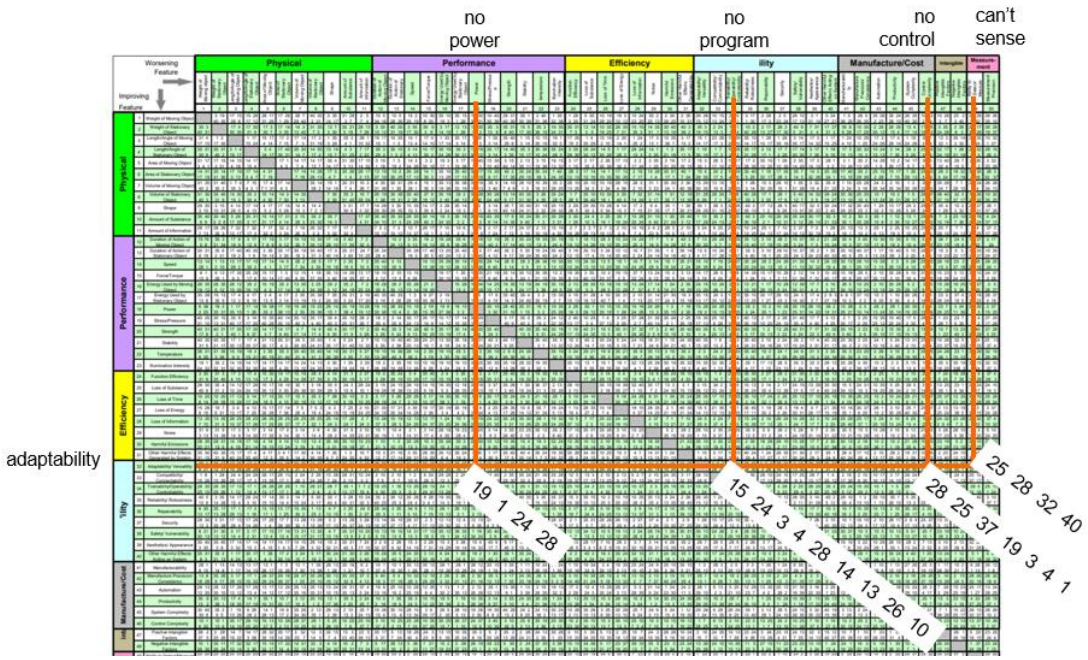
Patent of the Month – Self-Aware Metamaterials



Our patent of the month this month comes from a pair of inventors at the University of Pittsburgh. US12,241,798 was granted to the pair om the 4th of March. Here's what the pair have to say about the problem needing to be solved:

The next generation of materials preferably will be adaptive, multifunctional and tunable. This goal can be achieved by metamaterials that enable development of advanced artificial materials with novel functionalities. During the last few years, the emerging concept of structure-dominated mechanical metamaterials (MMs) has received increasing attention. MMs gain their tailored unprecedented/counterintuitive mechanical properties from their rationally-designed structures rather than inheriting them directly from their chemical composition. The main reason for developing MMs is to engineer materials with unique properties that are not found in naturally occurring materials. Additive manufacturing has been a major driving force in the exploration of MMs since virtually any topology can be obtained to probe the vast design space created by geometric changes in the material structure. However, a substantial portion of the current effort in the arena of MMs has been merely going into exploring new geometrical design of micro/nano-architectures to improve or identify unusual sets of mechanical properties. Currently, there is a critical shortage in research needed to engineer new aspects of intelligence into the texture of mechanical metamaterials for multifunctional applications. In this context, the next stage of this technological revolution is development of self-aware MMs that can sense, empower and program themselves. To address this challenge, the present disclosure introduces a new class of multifunctional MMs that offers new sensing and energy harvesting functionalities in addition to the enhanced mechanical properties of "classical MMs".

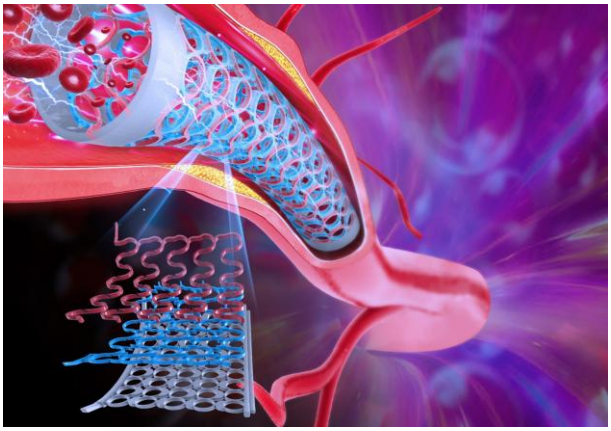
The opening sentence provides a clear steer on the thing the inventors are trying to improve – in Contradiction Matrix terms, Adaptability. As to what's stopping the desired increase in adaptability, the remainder of the description highlights a number of parameters. On a general level, the main stopper is 'lack of intelligence', but more specifically the conflicts are about lack of power, lack of ability to sense what needs to adapt, lack of control and lack of ability to 'program themselves'. In other words, this is a suite of problems. We could try and map each of them individually, or, as shown below, look up several boxes in the Contradiction Matrix simultaneously…



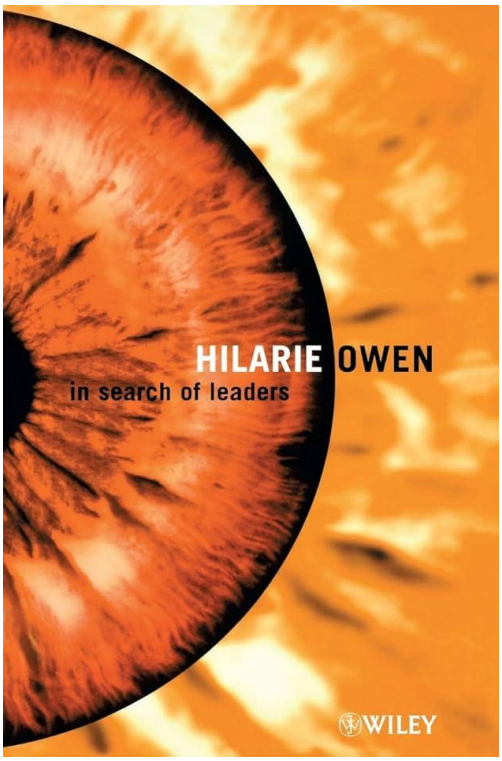
At the risk of doing the inventors a major dis-service, here's what we can observe when looking at the main Claim of the patent through the lens of Inventive Principles that have been used to derive the solution:

A [Principle 25] *self-aware composite mechanical metamaterial, comprising:* [Principle 1] *first and second electrically conductive components disposed relative to each other to act as opposite electrodes to induce contact* [Principle 28] *electrification; wherein the first and second electrically conductive components, along with a dielectric component serving as a* [Principles 10, 24] *skeleton of the self-aware composite mechanical metamaterial, form a lattice of snapping* [Principle 14] *curved semicircular-shaped segments, wherein each of the snapping curved semicircular-shaped segments has* [Principles 37, 15] *an elastic snap-through instability mechanism; and wherein the lattice comprises periodic repeatable parallel rows of the snapping curved semicircular-shaped segments.*

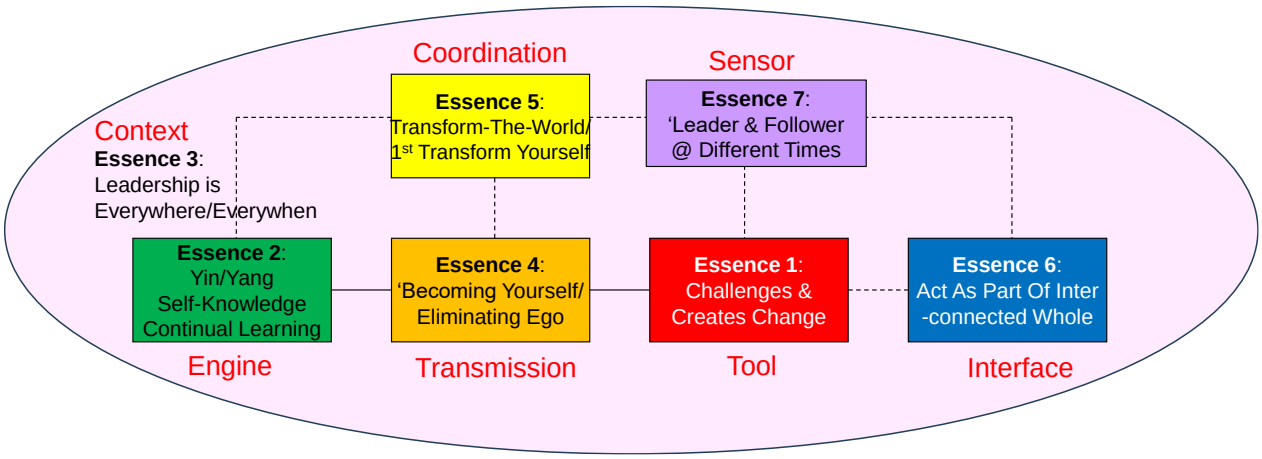
This is a technology we've been tracking for some time now – it has been an amazing 5+ year journey from patent application to grant. The patent claim really only gives a tiny insight into the bigger picture application possibilities of what the inventors have been focusing on. A bigger picture challenge with the 'self-aware metamaterials is scalability. To that end, when we take a peak at the eminently more readable website, two of the target applications for the solution are, at the small-scale, coronary stents (image below), and at the larger scale, intelligent aircraft wings. Read more: https://news.engineering.pitt.edu/self-aware-materials-for-living-structures/



Best of the Month – In Search Of Leaders



This is a tricky one. Hilarie Owen's book, 'In Search Of Leaders' was published in 2000. Reviews at the time sat at various points along a spectrum from confused to hostile. Part of me can see the case for both ends. The first premise of the book is that the world has forgotten how to create leaders. This is not a unique message. The second premise is the belief that because we tend to think of leaders as 'one-in-a-million wunderkinds, the way we try and create and nurture them is essentially dysfunction. (We only need to look at the parlous state of the thousands of utterly useless Entrepreneurship programmes being taught at increasing number of universities to witness the truth of this belief.) Owen's premise flips that belief on its head through a starting assumption that says we all of us have the potential to be a leader. This is a somewhat rarer perspective on the leadership challenge, and probably goes some way to explaining the hostility of some of the reviewers. That hostility, I'm sure gets ramped up an order of magnitude by Owen's insistence on a more holistic view of what leadership is than the vast majority of other leadership texts. Owen's view, to say the least, is not the usual Capitalist view of the thrusting business leader (i.e. the Orange, 'Scientific' value system found in Clare Graves' work). Orange-World wants clear definitions, clear rules and clear lists of things to do. Owen provides none of these things. In the chapter called 'The Seven Essences of Leadership', none of the seven essences is given anything like the sort of definition Orange is looking for. I'm not sure it helps, but as I was reading the chapter, I made my own version of the essences and how they work together to form a coherent and complete system. Here's what that picture looks like in case you choose to get hold of a copy of the book (quite reasonably priced on Amazon!) and want to add a meta level perspective of the essences:



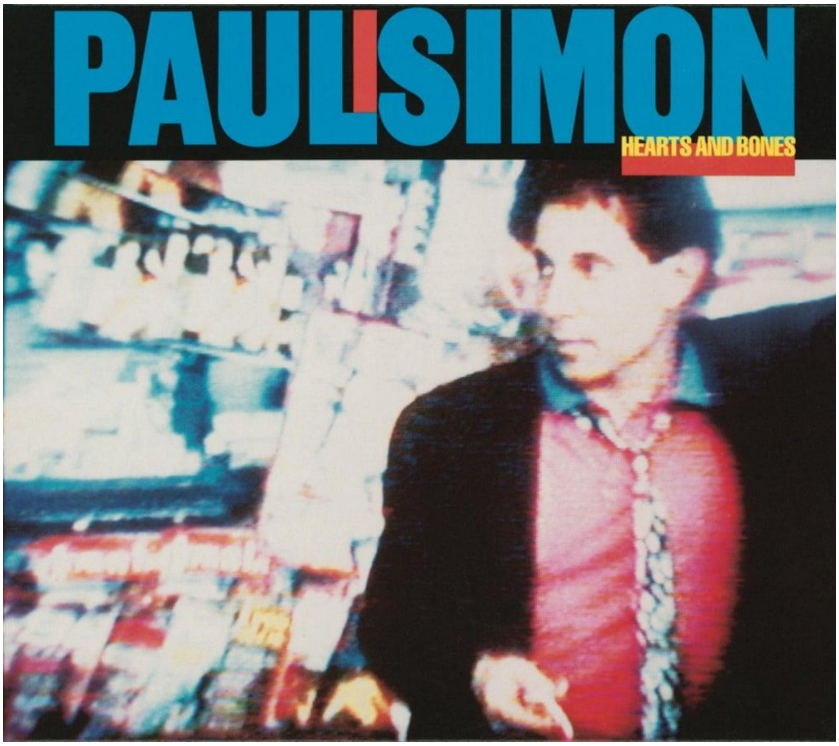
This graphic might also provide a clue about Owen's stance on the leadership question. Namely that, anyone needing to deal with complex systems (as is inherently present in any group of people needing to be lead), needs to understand complex systems. Meaning ultimately that this is a book for the Green and (especially) Yellow leadership candidates. Leaders that are willing to use the Right hemisphere of their brain as well as the Left hemisphere.

The book is a very readable 154 pages. A lot manages to get condensed into such a short space because Owen has a knack for creating or quoting short, pithy sentences that don't necessarily provide clear answers, but do an incredible job of forcing the reader to think about deeper questions.

The large majority of business, political or NGO leaders back in 2000 were either Orange Or Blue on the Graves value system scale. In which case I can well imagine that any of them picking up a copy of 'In Search Of Leaders' would very likely move onto something less annoyingly challenging. I'm not sure the leadership profile has changed that much since 2000, but what I am sure of is a growing sense amongst Senior Leadership Teams that their Orange and Blue ways are no longer working. That maybe the answers they need don't exist in 'recipe books', and that maybe a systems-lead, 'never step in the same river twice', beginner-mindset is more akin to what their organisations and the world needs right now. In other words, even though In Search Of Leaders was published in 2000, everything in it is as relevant today as it was back then. Probably more so.

One for the Yellow thinkers beginning to realise that even though being a leader in the world today is a mug's game, they are the only people up to Owen's challenge. Call it a Hero's Leadership Journey. One in which the reluctance is a more than okay start point.

Wow In Music – Hearts And Bones



Hearts and Bones is the sixth solo studio album by American singer-songwriter Paul Simon. It was released in 1983 at around the peak time of New Wave music. Which meant that it was kind of ignored on one hand, and perhaps also saw Simon attempting to update his sound to suit the new industry surroundings. More recent thinking has consolidated around the word ‘patchy’ – with the New-Wavey songs being seen as something of a mis-step, but several of the others ranking up with some of Simon’s best ever songs. One of the very best being the title track of the album.

It’s as beautiful a song as Simon has ever written I think. It’s also one of the most beautifully produced songs that Simon has ever released. Production is one of Paul Simon’s overlooked talents—the aural palette, the sonic composite. Hearts And Bones apparently had a long gestation period, and also took a long time to record.

Technically, the song ‘Hearts and Bones’ is rather unassuming. A very simple AABA structure, mostly in 4/4 time, except (Principle 3) at the start of the second sentence in each verse (“On the last leg”, “These events” “Easy time”) where he adds two beats and simultaneously shifts the accent from the backbeat to stressing each beat (ب/ب/, ب/ب/, // ب/ب/), creating a momentary (Principle 13) reverse movement. Note that we don’t have the bass drum guiding us through that section (Principle 2), enabling the fluid shift.

The instrumentation employed is standard Simon. The first verse is based on (Principle 5) two (three?) acoustic guitars, one (Principle 3) heavily strummed Everly-style to provide the rhythmic counterpart to the pattering hand drum of Steve Gadd. Two or three background voices and a strange little creak which becomes rhythmic provide a rich tapestry of ambient colourings, followed later in the first verse by some touches of electric guitars, a Fender Rhodes filler, a marimba and a vibraphone for good measure (Principle 40) – all backing Paul’s (Principle 37) unadorned, very naked voice.

SYSTEM ·ATIC INNOVAT· ION

All musicians are in top form here. Dean Parks, famous for the Talkbox guitar on Steely Dan's Haitian Divorce, plays the delicate acoustic guitar line at the beginning of the song. Airto Moreira is on percussion, and his beat on the triangle, along with Steve Gadd's hand drumming on the drum set, propels the song forward. Subtle as the triangle is, the first time I really listened to what Moreira is doing with it – a triangle! – I nearly fell off my chair.

Also deserving special mention is Mike Mainieri, who had a stellar year in 1983, releasing the fantastic second Steps Ahead album, is on marimba and vibes. The most notable, however, is the contribution from Anthony Jackson, playing the riff during the verse on a six-string bass guitar, the contrabass guitar.

Interviewed in the book Songwriters on Songwriters, Simon said, 'That was one of my best songs. It took a long time to write it and it was very true. It was about things that happened. The characters are very near to autobiographical. It's probably the only track that I really like on that album.'

Then: 'Had "Hearts and Bones" been a hit, I would never have written "Graceland". So for me, it was a tremendous flop. In "Hearts and Bones" the language starts to get more interesting. The imagery started to get a little interesting. And that's what I was trying to learn to do, was to be able to write vernacular speech, and then intersperse it with enriched language, and then go back to vernacular (Principle 37). So the thing would go along smoothly, then (Principle 3) some image would come out that was interesting, then it would go back to this very smooth, conversational thing. So that was a technique that I was learning… I don't know where it came from.'

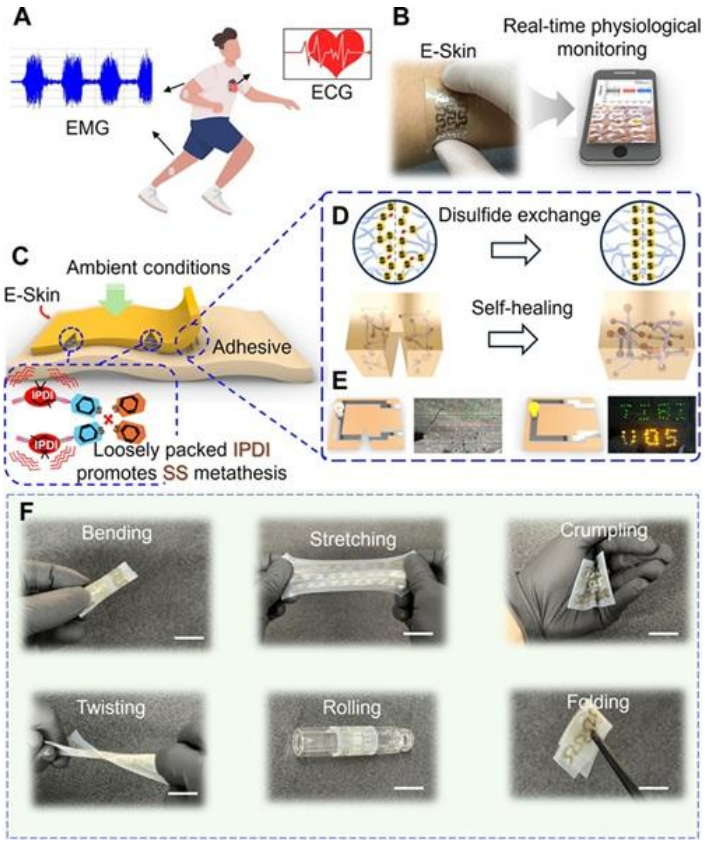
Most people who talk about the song like to address the autobiographical elements. The memorable opening line, "One and one-half wandering Jews" according to even Simon himself, refers to him and his half-Jewish, soon-to-be wife, Carrie Fisher (Princess Leia of "Star Wars", the author and subject of "Postcards from the Edge"). If I had to make a top-five opening lines list, Hearts And Bones would be in it.

Of course, in the end, it comes down to The Song. 'Hearts and Bones' is a work of utter beauty, describing the disintegration of the very core of two people's shared life, about the emotional essence (heart) coming undone from its framework (bones). The soft and hard, that which can only feel pain, and that which can only be broken. The vital and the inflexible, the palpitating and the rigid. The pulsating, quivering, throbbing passions within us, and the structures and strictures and scaffoldings that hold it all up. It's about how they cohabit within us – intimate, interdependent, synergetic, yet profoundly and inherently separate. Like a married couple. Contradictions everywhere.

Rather like the rest of the lyrics of the song. Including the exquisite coda at the end of the song:

The arc of a love affair waiting to be restored.
You take two bodies and you twirl them into one
Their hearts and their bones, they won't come undone.
Hearts and bones

Investments – Self-Healing Electronic Skin



For years, electronic skin (E-Skin) has been an almost-but-not-quite technology. The promise? Wearable sensors capable of real-time health monitoring, fatigue detection, and even muscle strength assessment. The problem? They break. Easily. And when they do, they either stop working entirely or take hours to repair—rendering them impractical for real-world use.

Now, a team of researchers has broken through the contradiction at the heart of E-Skin technology: durability versus sensitivity. In a study published in Science Advances, they have demonstrated a self-healing E-Skin that recovers over 80% of its functionality within 10 seconds of damage—orders of magnitude faster than anything before it.

The Core Contradiction: Sensitivity vs. Durability
For an E-Skin to be useful, it must be thin, flexible, and sensitive enough to detect tiny changes in muscle activity. The problem? These same characteristics make it fragile, vulnerable to damage from even minor wear and tear. Previous solutions tried to reinforce E-Skin, but at the cost of losing sensitivity. Others pursued self-healing, but at speeds too slow to be useful.

The breakthrough here is the elimination of the trade-off. This new E-Skin simultaneously achieves:

- ✅ Ultra-fast self-repair – Seconds, not hours.
- ✅ Extreme condition resilience – It works even underwater.
- ✅ Advanced AI integration – Real-time muscle and fatigue tracking.
- ✅ Uncompromised accuracy – No trade-off between durability and performance.

Professor Yangzhi Zhu of the Teraski Insititute for Biomedical Innovation puts it bluntly: "This isn't just an incremental improvement; it's the difference between a research prototype and something you can actually use in daily life."

Beyond the Lab: Real-World Implications
Athletes pushing their limits. Patients recovering from injury. Everyday users tracking their health. The potential applications extend far beyond the laboratory, into areas where previous E-Skin technologies simply couldn't survive.

Professor Ali Khademhosseini highlights the significance: "We've created a technology that doesn't just work—it thrives under real-world conditions. It heals itself, keeps monitoring, and doesn't break down the moment life gets messy. That's the real revolution here."

The contradiction is no longer a roadblock. Durability no longer comes at the cost of functionality. This E-Skin marks the transition from a promising idea to a practical, deployable solution—a technology finally fit for the unpredictable, wear-and-tear realities of human life.

Read more:
Yongju Lee, Xinyu Tian, Jaewon Park, Dong Hyun Nam, Zhuohong Wu, Hyojeong Choi, Juhwan Kim, Dong-Wook Park, Keren Zhou, Sang Won Lee, Tanveer A. Tabish, Xuanbing Cheng, Sam Emaminejad, Tae-Woo Lee, Hyeok Kim, Ali Khademhosseini, Yangzhi Zhu. Rapidly self-healing electronic skin for machine learning–assisted physiological and movement evaluation. Science Advances, 2025; 11 (7) DOI: 10.1126/sciadv.ads1301

Generational Cycles – Joni, Brandi & Alanis



I was in Australia a few years ago advising a company about how best to reward the young innovators inside their organisation. 'Young' at the time meant Millennials. The early GenZ Artists were still another couple of years away from leaving school. Millennials being Heroic at the time looked like they needed to be given lots of gold stars and trophies for their sterling efforts. They also, therefore, needed a big showy Awards ceremony, with (everyone gets a prize) 'winners' being invited up onto the stage to be presented with their award by someone from the Senior Leadership Team. So far so good. The final bit of the puzzle was deciding which member of the Team should do the honours. Most of them were grizzly, grumpy GenX Nomads. None of them felt like the right choice. When feelers were sent out to solicit their opinions, they agreed. To the extent they thought the whole dog-and-pony show was a waste of time and money. This perception might also have had something to do with the fact that the working relationship between GenX and GenY is one of the most difficult of all the inter-generational situations. The Strauss/Howe generations model tells us why. It also tells us that the relationship between Baby-Boomer Prophets and Heroic Millennials was much more likely to be synergistic. One wants to pass on their hard-earned world experience and the other wants to be mentored by someone that's going to help them realise their Heroic ambitions. A suitable Prophet was found and the ceremony passed off like a dream. Everyone was talking about it months later. Well, almost. The GenXers were, it has to be said, a little quiet on the subject. Something the Award-presenting Prophet was still finding more than a little disheartening.

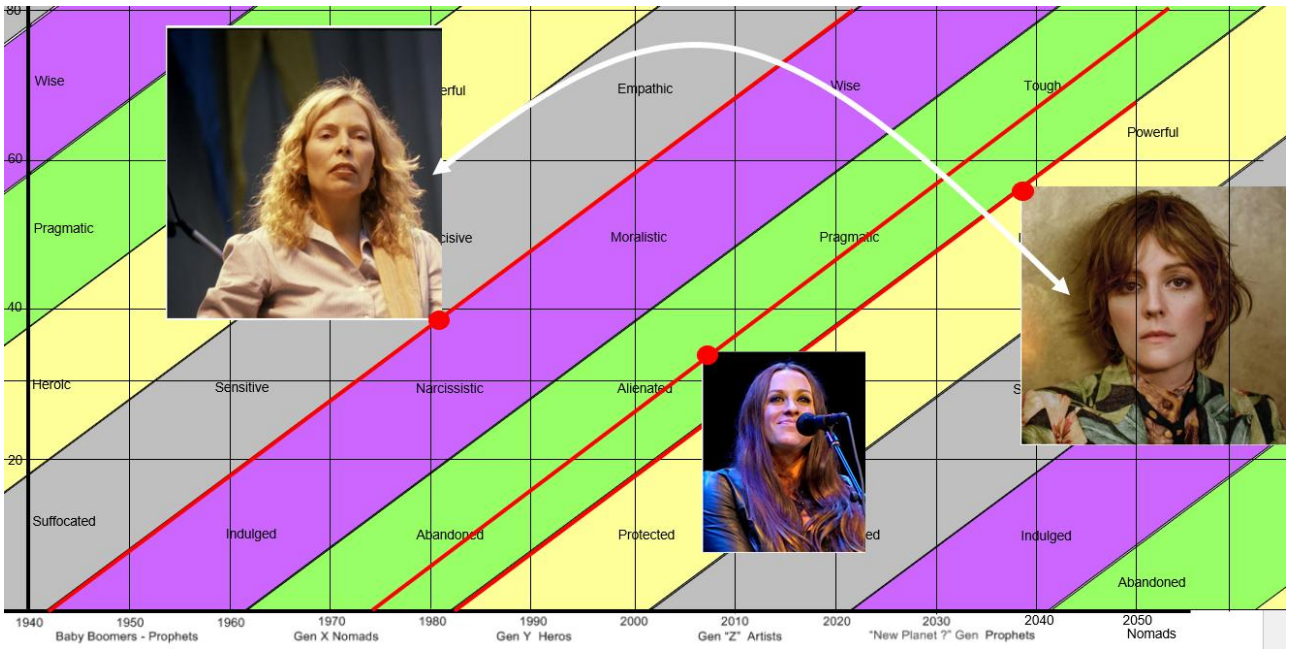
Meanwhile, back to the future, one of my New Year books this year was 'Travelling: On The Path Of Joni Mitchell', by Ann Powers. In it I learned that, in the last few years, (early-Boomer) Joni's BFF has become (early Millennial) singer-songwriter, Brandi Carlile. Best friends to the extent that Joni attended and endorsed Brandi's live tribute performance of Joni's all-time classic album, Blue. Quite the opposite of her reaction when other (female) artists have had the temerity to cover her songs.

What was initially strange about the friendship between the two stars was that for most of her career, Joni has been dismissive at best and downright rude at worst when it comes to not just cover-versions, but the entire existence of other female singer-songwriters that have followed the door-opening feat she had achieved in her own career. The most vitriolic of the criticisms started in the late 1970s, partly, I suspect, because some of the artists following in Joni's wake started sell a lot more records than she was managing. Interview transcripts from the time reveal Joni's strongest criticisms have been about how

artists diluted or over-commercialised her music rather than expanded it. Fellow Baby Boomers (albeit born at the end of the generation), Rickie Lee Jones and Suzanne Vega both escaped the brunt of her attacks, but nevertheless it was apparent Mitchell did not hold them in particularly high regard. The problem was that both artists were late enough in the generation that they were being bought and listened to by GenXers, whereas Joni's primary fanbase had always been fellow Boomers (one of the advantages of being born at the beginning of a cohort).

Then we get into the 1990s and Joni's record sales are still on the decline. And as if to twist the knife, along comes fellow Canadian confessional singer-songwriter, Alanis Morrissette and her 33-million-selling breakthrough album, Jagged Little Pill. That was a step too far. Mitchell hadn't sold that many records in her whole career and Morrissette's introspective, raw emotional approach. Mitchell couldn't contain her frustration, dismissing Morrissette's work as unsophisticated in comparison to her own introspective work. "I think she's just another angry woman throwing her head around. There are plenty of them," Mitchell was quoted as saying about Morrissette and the swarm of other Mitchell acolytes that arrived in her wake. In an attempt to try and diffuse the situation, Morrissette declared her thanks and admiration to Mitchell. It didn't help. Mitchell has never had a great reputation for forgiveness. Especially if you happened to be a 'competing' female artist.

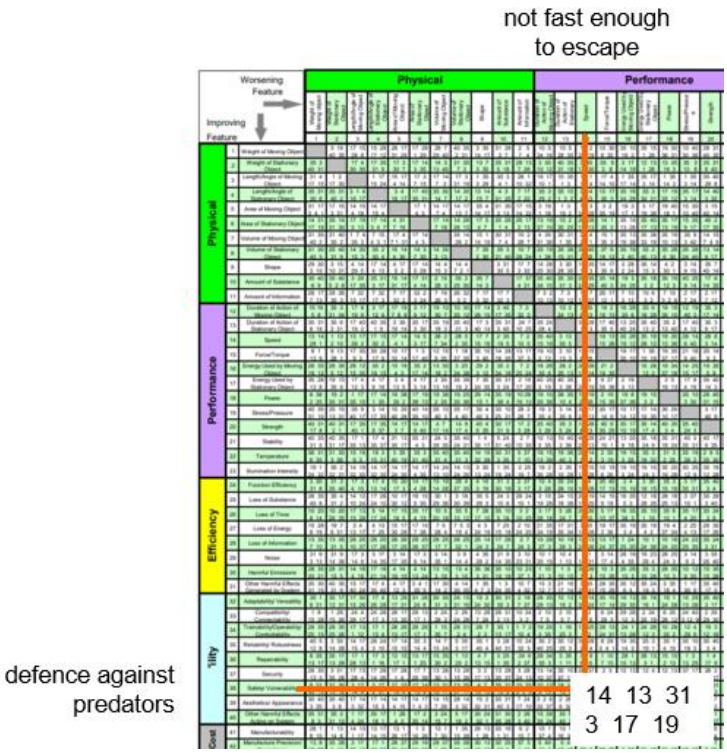
The point here being that the Joni-Brandi, Prophet-Hero love-fest was a precise repeat of the young innovator awards ceremony in Australia. As was the Joni-Alanis, Prophet-Nomad antagonism. Here's what the two pleasure/pain relationships look like when plotted onto the Strauss/Howe map:



Ultimately, it's the same old song for everyone: it's much easier to pass on admiration and to spoil your grandchildren than your kids. Plus ça change.

Biology – Boulenger's Garter Snake (Elapsoidea boulengeri)

It's a classic contradiction in the 'red-in-tooth-and-claw' natural world – the need to defend against predators that are faster than you are. The little known Boulenger's Garter snake, typically found in the southern parts of Africa has recently gone slightly viral on social media (well, as viral as any other snake) for its novel solution strategy to the problem. First, here's the problem as mapped onto the Contradiction Matrix:

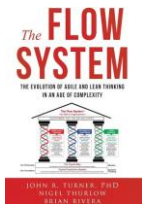


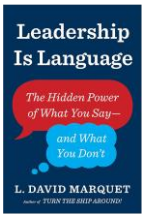
It's difficult to fully portray the garter snake's solution here. Readers need to check out the viral video. We found it here: https://www.instagram.com/world_of_snakes_/reel/C5HGAQYNuW5/, although there are several other places if you search for 'boulenger's garter snake defense strategy' in your search engine of choice. What you'll see there is a cunning illustration of what happens when Inventive Principles 17 and 19 are combined together.

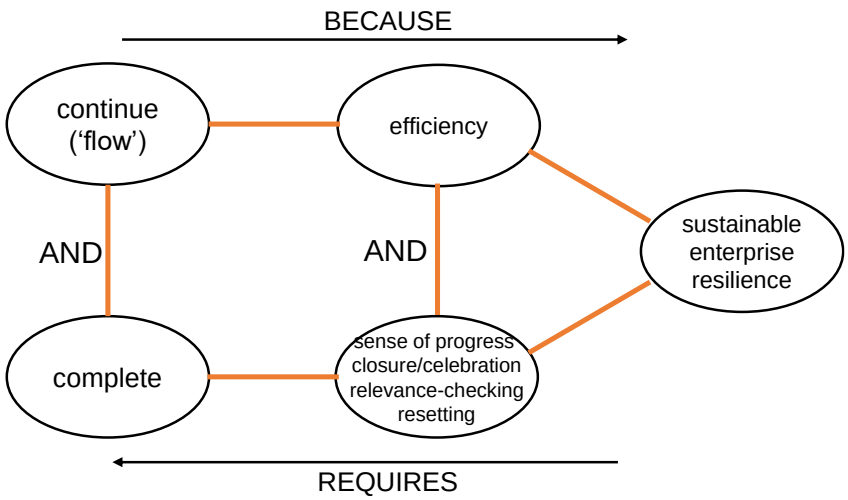
Or, put another way, if we think of the garter snake's strategy as a dance-based version of dazzle camouflage, Principle 13. If ever SI predators get within a decade of catching up with us, I'm already planning a similar solution strategy :)

Short Thort

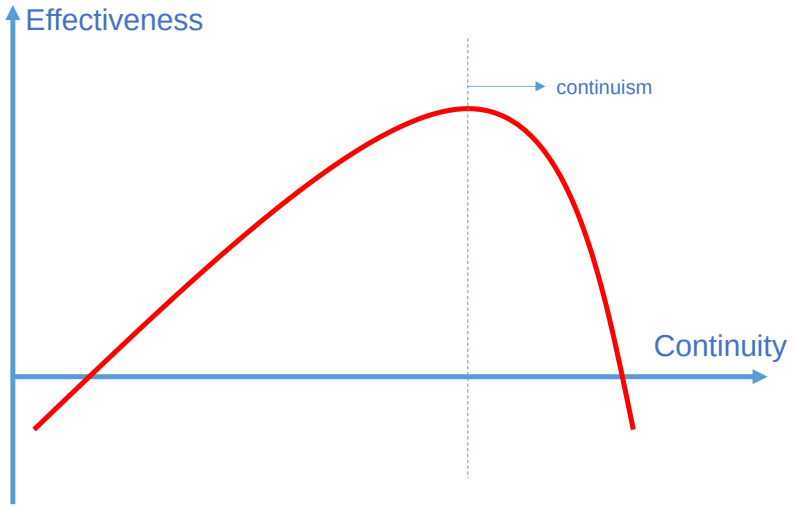
Lean practice tells us to aim for continuous flow.
That's how we maximise operational efficiency and minimise waste.
But, there's a contradiction…







…and therefore also a Goldilocks Curve:



News

Workshops
The schedule for our new online workshops has now been finalised (including another new title). Here they are:
NEPTUNE/Seven Habits Of Highly Effective Innovation Project Managers (2x4hrs) – 13 and 20 May.
CERTAIN Troubleshooting (repeat) (4x4hrs) – 5, 6, 11, 12 June
Zen & The Art Of Motorcycle Maintenance & Innovation Quality In The 21st Century (2x4hrs) – 1 and 8 July
The Hero's Intrapreneur Journey (2x4hrs) – 10 and 17 September

FutureProof: Re-Balancing The Organisation (4x4hrs) – 15, 16, 22, 23 October
Ethicall (Innovation Ethics) (2x4hrs) – 13 and 20 November
Anyone interested in any of them will find details in the shop - https://si-shop.org.uk/workshops-and-training/.

TRIZ Mastery Hub
Long-time friend, Robert Adunka has instituted an online hub for people around the world interested in building their TRIZ knowledge. Part of the idea being that it is often more practical to drip-feed TRIZ learning in once-a-month chunks rather than drinking through the usual conference firehose. Check out the TRIZ Mastery Hub here: https://www.triz-consulting.de/offers/triz-course-booking/?course=TRIZ+Mastery+Hub&lang=en

By the time you read this, you will have missed Darrell's 10 March session. You'll still have time to attend the session scheduled for 28 April.

Spot The Robot
SIUK is currently sponsoring an AI-based PhD programme at the University of Nottingham. The team has just finished a short piece of research to see how good people are at spotting robot-authored fake reviews. The result suggest that none of us are. If you wish to try and beat the odds, feel free to take the test: https://sites.google.com/view/gpt-radar. More news on this one as the work progresses.

New Projects
This month's new projects from around the Network:

- Medical Devices – SI Workshops
- FMCG – Innovation Strategy Project
- Service – SI/DT Workshop
- Aerospace – Innovation Strategy Project
- Healthcare – Business Development Project
- Healthcare – PanSensic Project
- Finance – Innovation Dashboard Design Project
- O&G – Asset Sweat Project