

Systematic Innovation

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e-zine

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The Systematic Innovation e-zine is a monthly, subscription only, publication. Each month will feature articles and features aimed at advancing the state of the art in TRIZ and related problem-solving methodologies.

Our guarantee to the subscriber is that the material featured in the e-zine will not be published elsewhere for a period of at least 6 months after a new issue is released.

Readers' comments and inputs are always welcome.

Send them to darrell.mann@systematic-innovation.com

The Importance Of Being (Innovator) Lazy



I remember attending an innovation conference in Sydney with good friend, Simon Dewulf*. We somehow managed to get ourselves trapped in a seminar lead by a creativity consultant. Somewhere close to the beginning of the session, after we'd all introduced ourselves, the consultant asked the question, 'so, what do you think are some of the character traits that make a creative person?' The room went noticeably and predictably silent. After some also predictable prompting from the consultant, we started to hear some of the usual-suspect answers. Ability to think out-of-the-box. Right brain dominance. Extroversion. Uninhibited. Then more silence. We clearly hadn't given the consultant what they wanted to hear. Enter Simon with what I thought was the first insightful response to the question. 'Laziness,' he said. The consultant looked at him as if he was either crazy or deliberately trying to disrupt the faltering session. 'No,' she said, looking like one of my old school teachers, 'creativity is the opposite of laziness.' Needless to say, the expectation was that Simon would remain silent for the remainder of the seminar. He and I looked at one another, shrugged our shoulders, and decided to comply. For the next couple of hours, this was going to be an insight-free zone.

'Laziness' never sounds like a great way of describing your best self. Particularly if you're operating in the Red World of Operational Excellence. Being excellent means always working diligently, energetically and efficiently. 'Don't just stand there, do something.' Procrastination is the enemy. Laziness is the sort of trait that's going to result in written warnings and, if the problem persists, a letter of termination.

In Green World, on the other hand, innovators have usually learned that not standing there, and doing something can easily become a recipe for wasting a lot of time and money heading down a dead-end street. 'Don't just do something, stand there' is more often than not a far more effective operating strategy. This might look like laziness to outsiders (another reason why Red World leaders tend to get frustrated with their apparently recalcitrant Green World underlings) but is usually the exact opposite. If the innovator's goal is to 'spend the least to learn the most', laziness is a great way of looking at all the annoying, dull, repetitive jobs on the list and working out ways of *not* having to do them.

* of patentinspiration.com fame, and, slightly less well known, managing to take twenty years to complete his PhD. During which time, to my knowledge and lifelong admiration, he never read a single book. Or paper.

It is often said that the worst way to get people to 'be creative' is to take away all of their constraints. The best way is to put people into surroundings with impossible sounding constraints, then letting their bloody-minded refusal to comply with 'stupid rules' work out a genius-like escape route. An escape route that will almost always start with a 'lazy' belief that 'stupid rules' aren't just stupid they involve doing a lot of nugatory hard-labour. The opposite of 'working smart'.

Admittedly, in today's typical workplace (where, according to the latest data, 86% of people are disengaged from their work) a lot of this way of thinking is best done out of earshot of Red World managers. In the typical workplace, it is always better to be seen to be busy doing something rather than sitting back in your chair, scratching your chin. Or, worse, walking around the building aimlessly (always carry a notebook and pen, and occasionally stop and write something into it, is my advice on this front).

Or maybe, this prelude is perhaps about the strategic importance of laziness in innovation, why doing nothing might be the smartest move you make, and how one day maybe your Red World boss will understand this.

Military leaders kind of already get it. Here's the Army's model for identifying the leadership potential of new officers in the form of a 2x2 matrix:



The usual focus for this matrix is the red, 'Danger Zone' – the sensible leader seeks to identify the hardworking-idiots and remove them from the systems as soon as possible, before they have the opportunity to make everyone else's life go downhill very quickly. In laziness terms, however, it is the green zone 'lazy intelligent' soldiers that leaders learn are their biggest asset in terms of making a big positive difference to overall effectiveness. There's an awful lot of busy-work needing to be done in the Army. Marching troops up and down a parade ground, polishing belt-buckles and cleaning latrines with toothbrushes. Lazy-intelligent soldiers work out how to avoid doing as much of this stuff as possible.

Crucially, however, they're exactly the kind of valuable resource Commanders need when the shit hits the proverbial fan, as will invariably happen when life gets real.

One of my favourite fictional characters, Dr Gregory House, Head of Diagnostic Medicine at the fictional Princeton-Plainsboro Teaching Hospital, is such a Valuable Resource. He doesn't do any of the busy work at the hospital (well, unless he's bribed into doing it), but he's the doctor everyone looks to when there's a difficult case to solve.

One of my favourite non-fictional characters was Pete Upsher, one of my mentors when I worked at Rolls-Royce. When it came to assigning everyone's work at the beginning of each quarter, all the Chief Engineers were loaded with about 120% of the tasks that needed to be accomplished. Pete's workload on the other hand never exceeded 50%. The idea being that, if his commitments were set above that level, a) he wouldn't do them, and, more importantly, b) he was the person that could always get to the bottom of things when the best laid plans went unexpectedly wrong.

In theory, we see the same thing in companies like 3M and Google today. Employees get to spend 20% of their time working on their own projects. A little less well known, but the origins of this kind of discretionary 80/20 time seem to come from the Incas: in effect, 'plan 80% with rigour and cunning and then leave 20% for the unpredictable scary stuff'. Thinking up new stuff, better ways of living, etc needs time. Incubation time. Unscheduled time. Lazy time.

This article, therefore, explores how laziness—often seen as a liability—functions as a highly valuable trait in the innovator's toolkit. We'll focus on two key aspects. Here's the first:

The Innovator's Contradiction

The old saying, "necessity is the mother of invention," is wrong. Or, at best, it's missing the bigger picture. More often than not, laziness is the real catalyst of breakthrough innovation. The most successful innovators don't just solve problems—they solve them in a way that requires the least amount of work possible. They search for shortcuts, break rules, and challenge conventional processes, not out of some philosophical commitment to progress, but because they really can't be bothered to do things the hard way.

Laziness as a provocation for rule-breaking and shortcut-seeking—why cutting corners leads to groundbreaking ideas.

The value of slowing down and not rushing into execution—why the best ideas often come from allowing "slow hunches" to form. This is often described by Red World people as 'procrastination', the evil twin of laziness.

Part 1: The Innovator's Shortcut—How Laziness Provokes Rule-Breaking

Throughout history, some of the greatest innovations have emerged not from hard work, but from a deliberate refusal to work harder than necessary. The truly disruptive innovators aren't the hardest workers—they're the ones looking for a way to do nothing and still get results.

The Power of the Shortcut. Consider some of the most transformative inventions of the past century:

Remote Controls: The television remote was not invented because people needed it—it was created because people didn't want to get up from the couch.

Email and Messaging Apps: The entire field of digital communication is a monument to human laziness. Walking across an office to talk to someone takes effort. Even picking up a phone requires more engagement than typing a short message.

Automation and AI: Most of modern artificial intelligence exists not to expand human capabilities, but to eliminate the need for people to do boring, repetitive tasks.

If the lazy innovator's mindset had a guiding question, it would be: "How can I make this happen with the least effort possible?" And from that question, disruptive efficiency gains follow.

The Rule-Breaking Mindset

The lazy innovator is naturally inclined to challenge rules. If a process is slow, tedious, or inefficient, they ask, "Why are we doing it this way?" More often than not, the answer is some variation of "Because that's how we've always done it." That's where laziness becomes a superpower.

The Wright Brothers didn't try to build bigger wings or stronger engines like everyone else. They focused on aerodynamics and shortcutted their way to the first powered flight.

Henry Ford didn't try to make better carriages. He created the assembly line because he was too lazy to build one car at a time.

Richard Feynman once said, "I was born not knowing and have had only a little time to change that here and there." His breakthroughs in physics were often a result of him trying to simplify problems to the point where he didn't actually have to solve them in the traditional way.

Lazy innovators don't just look for efficiency—they look for a way to reframe the problem so that it disappears entirely.

Part 2: The Importance of Not Rushing—Why the Best Ideas Need Time to Form

The other key function of laziness in innovation is its ability to slow things down. Contrary to popular belief, speed is not always an advantage in innovation. Some of the best ideas don't come from aggressive brainstorming, rapid prototyping, or constant iteration. They come from doing nothing and letting slow hunches develop.

The Myth of the "Eureka" Moment

Most people imagine innovation as a lightbulb moment—an instant of genius that strikes suddenly. In reality, the best ideas emerge gradually. Steven Johnson, in his book *Where Good Ideas Come From*, describes how groundbreaking discoveries often start as weak signals in the mind, taking months or even years to develop into fully formed concepts. The brain needs downtime to make unexpected connections.

Take Charles Darwin: his theory of evolution didn't arrive in a sudden flash of insight. Instead, it percolated in his mind for decades, drawing on slow observations and disconnected insights before finally forming a coherent framework.

Laziness as an Incubator for "Slow Hunches"

If you're constantly working, constantly executing, you don't leave space for slow hunches to develop. Being lazy—taking time to step away from active problem-solving—is critical to allowing deep, innovative ideas to form.

Consider how many transformative ideas have come from deliberate inaction:

Archimedes and Buoyancy: The classic Eureka! moment didn't happen in a lab. It happened in a bath. Archimedes wasn't actively trying to solve the problem of volume displacement—he was relaxing.

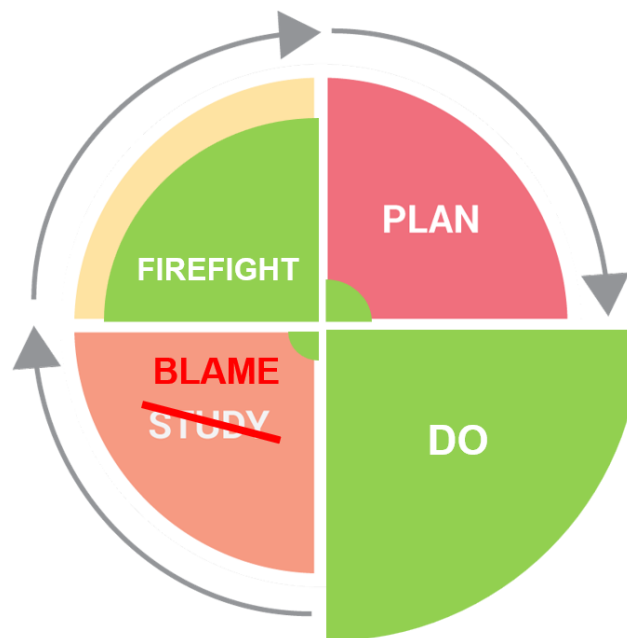
Newton and Gravity: The apple didn't hit Newton while he was in a physics lecture. It happened while he was sitting under a tree, doing nothing.

Einstein and Relativity: Some of Einstein's biggest breakthroughs didn't come while he was feverishly writing equations. They came when he was imagining himself riding a beam of light—a daydream rather than a calculation.

In each of these cases, the breakthrough idea didn't come from active effort. It came from allowing the subconscious to process problems in the background. Laziness, in this sense, isn't a lack of effort—it's a deliberate avoidance of premature action.

The Trap of Overwork and Premature Execution

In modern innovation culture, there's a dangerous bias toward immediate execution. Here's a picture I show at the end of nearly all the workshops where I've forced Red World people to experience two or more days of Green World confusion, rule-breaking and, yes, laziness:



Per the W. Edwards Deming suggestion that Planning, Doing, Studying and Acting should all have approximately the same amount of time dedicated to them, the reality is that we're all wired to want to spend the majority of our time Doing and Firefighting. Even after we've been through several pointless spins of the PDSA wheel because we didn't spend enough time during the Planning stage. A place where laziness is a key trait. The right kind of laziness at least – the sort where we're trying to find better questions, precisely so we don't have to do a bunch of pointless Doing-work further down the line.

Startups talk about failing fast and moving fast and breaking things. While rapid iteration has its place, it often leads to local optimisations—solutions that slightly improve the current system but fail to make a real leap forward. Radical innovation, on the other hand, often requires long periods of doing nothing at all. Or rather trying to work out what the

better questions are. Questions like, ‘what’s the Ideal Final Result?’ and ‘what are the things that are preventing me from achieving it?’

If Jeff Bezos had simply focused on iterating the existing bookstore model in the early days of Amazon, he might have created a slightly better Barnes & Noble. Instead, by taking time to let big ideas develop, Amazon became a new kind of platform entirely.

Conclusion: The Smartest Innovators Are the Laziest

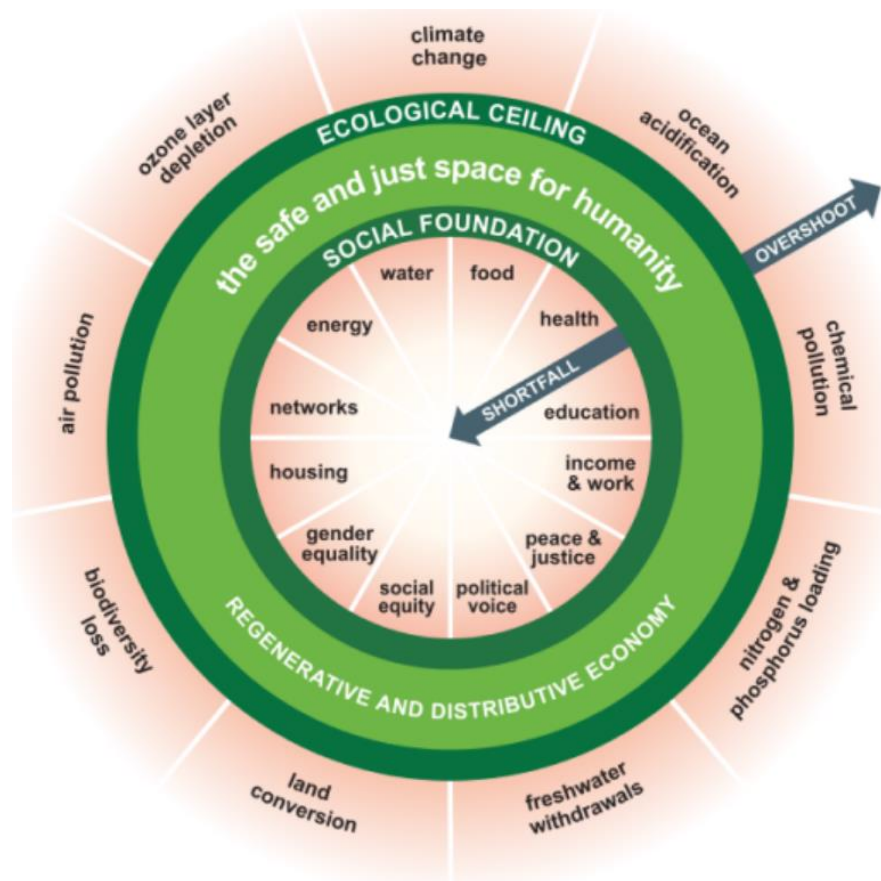
Laziness is one of the most underrated tools in the innovator’s arsenal. It drives two critical behaviours that fuel breakthrough thinking:

The search for shortcuts and rule-breaking efficiencies—which leads to radical simplification.

The ability to slow down and allow slow hunches to mature—which prevents premature execution and leads to deeper insights.

The best innovators aren’t the ones working the hardest. They’re the ones strategically avoiding work, questioning every assumption, and allowing time for great ideas to emerge. Laziness, when applied intelligently, isn’t a vice – if we do it right, it’s the engine of true innovation.

Doughnut (Contradiction) Economics



Doughnut economics originated from renegade economist, Kate Raworth, in a paper first published in 2012 in an Oxfam report. The concept of the Doughnut rapidly gained traction internationally, from the Pope and the UN General Assembly to Extinction Rebellion. Thus providing an iconic example of how a pithy name and a striking infographic is all you need sometimes to create a viral call to action. In effect, since the paper turned into a 2017 book (Reference 1), the doughnut has become thought of as a compass for holistic, human prosperity in the 21st century, with the aim of meeting the needs of all people within the means of the living planet.

As shown in the above example, the Doughnut consists of two concentric rings: a social foundation, to ensure that no one is left falling short on life's essentials, and an ecological ceiling, to ensure that humanity does not collectively overshoot the planetary boundaries that protect Earth's life-supporting systems. Between these two sets of boundaries lies a doughnut-shaped space that is both ecologically safe and socially just: a space in which humanity can thrive. The Doughnut is the core concept at the heart of Doughnut Economics.

It's great to see attempts to get the economists of the world to think better go viral. Even greater when we see other economists begin to adapt the graphic to include other sustainability-related parameters around the doughnut. It becomes less great when we begin to recognise that the doughnut metaphor and the implication that each measured parameter can be 'too little' or 'just right' (the green area of the doughnut) or 'too much' means that the tool is in effect an optimisation tool. And, as soon as we recognise that

fact, it doesn't take too much longer to realise that, other than providing the world with a cool infographic, it doesn't do anything to help make the world a more sustainable place. It's one thing to measure where you are ('what gets measured gets managed'), quite another to create a measurement that helps those responsible for acting upon the results to change what they're doing to make things better ('you don't fatten a pig by weighing it').

The most damaging aspect of the doughnut, though, is the failure to recognise that the majority of the parameters included at some point conflict with some or all of the other ones. The only reliable outcome of this failure is a lot of nugatory effort on the part of managers. Classic whack-a-mole management: attempts to improve the score against one of the parameters ends up making one or more of the others get worse.

We first saw this happening when we were putting together a paper for the big UNESCO Engineering conference in 2023 (Reference 2). The subject of the presentation was the seventeen Strategic Development Goals, and our assessment that the whole laudable initiative was inevitably going to result in a ghastly global version of whack-a-mole. Now we know that this is the reality. There are apparently over a million people employed around the world to ensure that the seventeen goals are achieved, and all of them – **all** of them – are getting worse.

If ever there was a case of The Basic Laws Of Human Stupidity (Reference 3) in action UNESCO's initiative is it. Good intentions are not enough. People with good intentions and insufficient knowledge will always – 'Laws' – deliver negative consequences. Lose-lose.

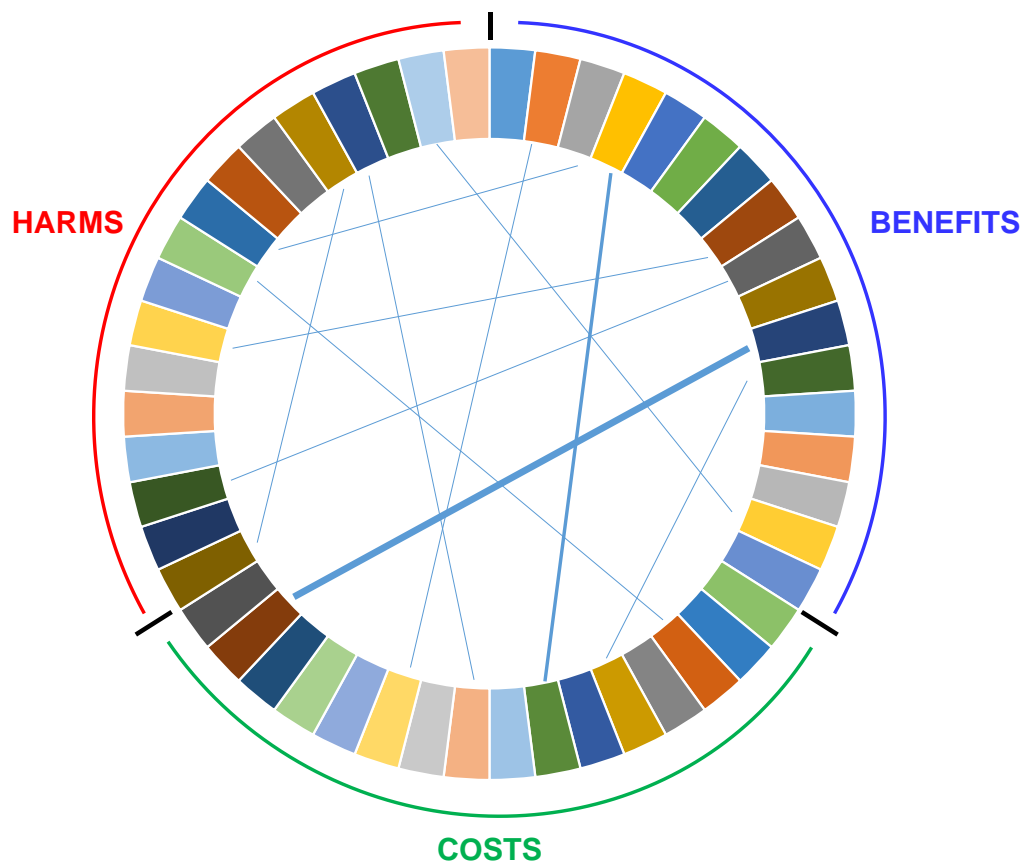
The fundamental 'insufficient knowledge' in UNESCO is exactly the same 'insufficient knowledge' driving Doughnut Economics: it's not so much the individual goals (or parameters) that determine whether an initiative will be successful, it's the relationships *between* the goals. And specifically, relationships where one goal is in conflict with another. I was too lazy at the Prague conference to map out all the conflicts that occur between the seventeen SDGs, but hopefully I found enough of them to make attendees of the conference realise that there were enough of them to cause for a pause, focus less on the individual goals and start looking more at the between:



Not unexpectedly, there's a lot of overlap between the seventeen goals and Raworth's original doughnut (Reference 4). Both have largely the same goal of getting leaders to focus their attention on important metrics related to ESG. This is – naturally – an important

thing to do. If, however, the real challenge is to get leaders to focus on the relationships between the various metrics so that the conflicts between them become visible (and therefore 'manageable'), it makes no sense to focus on only the things that you want to achieve. It is also necessary to focus on all the other metrics that will prevent you from achieving the things you'd like to achieve. It is necessary, in other words to identify *all* the parameter that make up the overall ecosystem. That's the only way to make all the contradictions visible. And therefore, the only way to manage our way to progress. The doughnut metrics are merely the pretty picture that shows us where we stand on the things we might be interested in. But, in true you-don't-fatten-the-pig-by-weighing-it fashion, fattening the pig only becomes possible when leaders actively work to start working their way through the myriad contradictions.

'All' is a somewhat daunting task, of course. Fortunately, someone somewhere has done some hard work for us. Namely the various TRIZ Contradiction Matrix parameter taxonomies. Perhaps re-arranged to make the three big categories that make up the Value equation – Benefits, Costs and Harms – more readily identifiable so that the sustainability-pig measurers can more easily extract the information required to see how much progress is being made along the dimensions they're interested in. The bigger questions – as represented by the lines connecting the various parameters as shown in the following revised doughnut – are: what are the contradictions? Which ones are more important than others? And, which ones do we possess the requisite resources to tackle right now?



What gets measured gets managed.

Especially if the measurements are presented in a lovely graphic.

But the real (dirty) work of delivering positive change only becomes visible when we measure the right things. The right things are the contradictions between all the individual metrics.

Then comes the even dirtier work of, one after the other, solving those contradictions. Only then do we stand a chance that the metrics we care about will move in the desired direction.

References

- 1) Raworth, K, 'Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist', Random House Business, April 2017.
- 2) Mann, D.L., 'TRIZ, Truth, AI and The UNESCO Strategic Development Goals', keynote address presented at the 7th World Engineers Convention, Prague, 11 October 2023.
- 3) https://gandalf.fee.urv.cat/professors/AntonioQuesada/Curs1920/Cipolla_laws.pdf
- 4) <https://www.scrypt.media/2021/02/17/doughnut-model-sdg-esg-mapping/>

Not So Funny – 40 Inventive (Gardening) Principles

With the days getting longer again and the prospect of Spring looms large, it is that time of year when it becomes necessary to think about the garden and gardening. Maybe, in addition to two seasons of back-breaking labour, 2025 offers up an opportunity to do something creative besides finding new ways to get rid of brambles, moles and other annoying lifeforms. Time to reach for the TRIZ book...

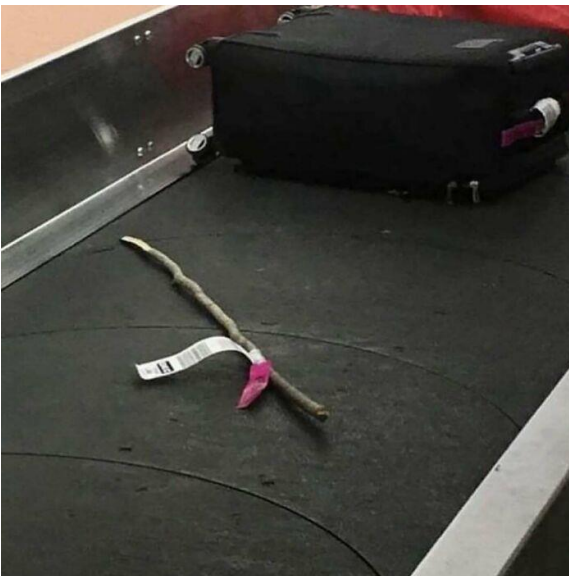
Principle 1, Segmentation



Principle 3, Local Quality



Principle 2, Taking-Out/Separation



Principle 4, Asymmetry



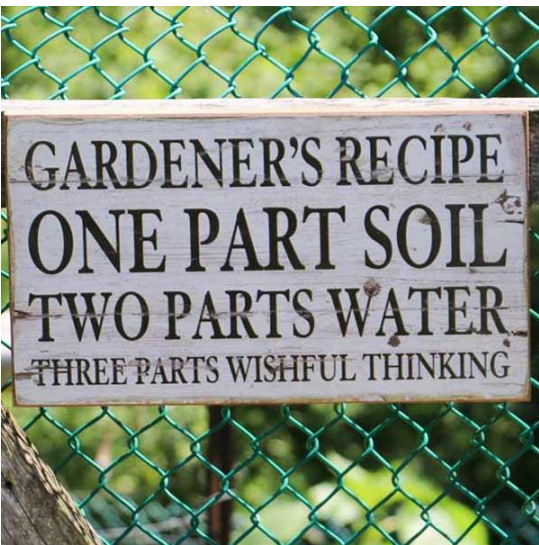
Principle 5, Merging



Principle 8, Anti-Weight



Principle 6, Universality



Principle 9, Prior Counteraction



Principle 7, Nested Doll



Principle 10, Preliminary Action



Principle 11, Beforehand Cushioning



Principle 12, Equipotentiality



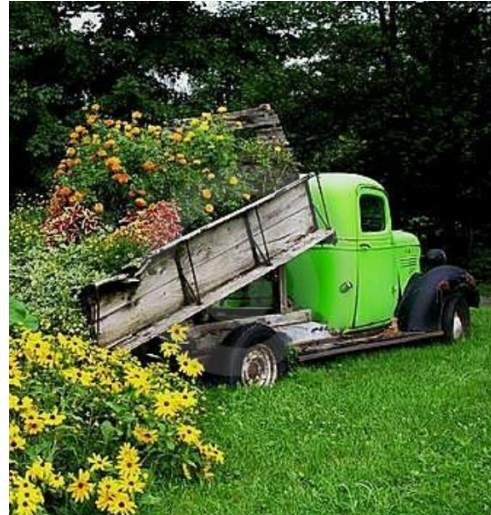
Principle 13, The Other Way Around



Principle 14, Spheroidality



Principle 15, Dynamisation



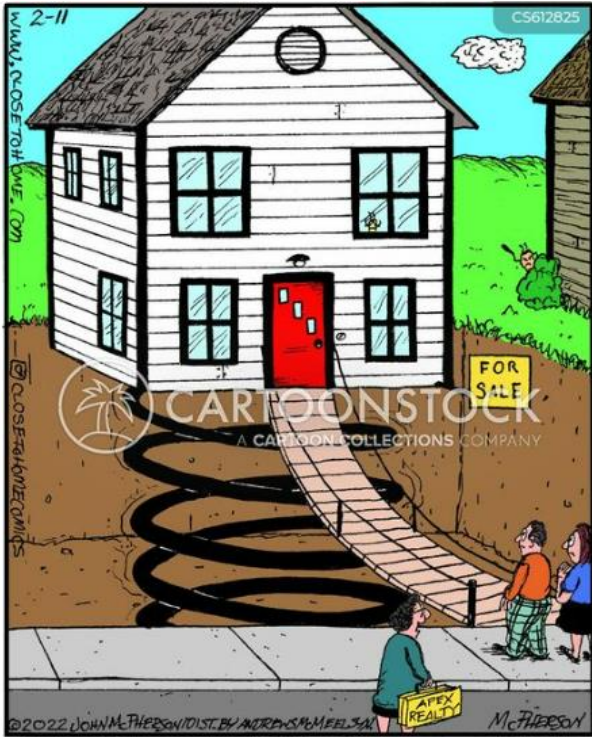
Principle 16, Slightly-Less/Slightly-More



Principle 17, Another Dimension



Principle 18, Vibration



"One great feature is that it's 100 percent earthquake-proof!"

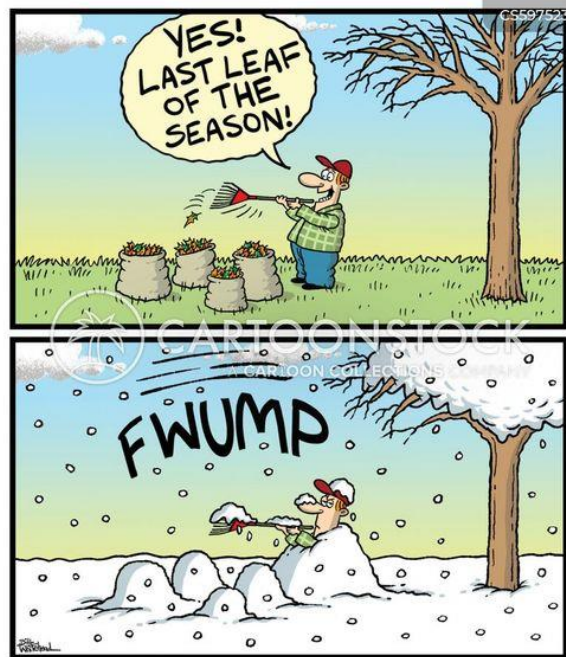
Principle 19, Periodic Action



Principle 20, Continuity Of Useful Action



Principle 21, Skipping



Principle 22, Blessing-In-Disguise



Principle 23, Feedback



Principle 24, Intermediary



Principle 25, Self-Service



Principle 26, Copying



Principle 27, Cheap Disposable



Principle 28, Mechanics Substitution ('Fields')



Principle 29, Pneumatics & Hydraulics



Principle 32, Colour Changes



Principle 30, Flexible Shells & Thin Films



Principle 33, Homogeneity



Principle 31, Porous Materials ('Holes')



Principle 34, Discarding & Recovering



Principle 35, Parameter Changes

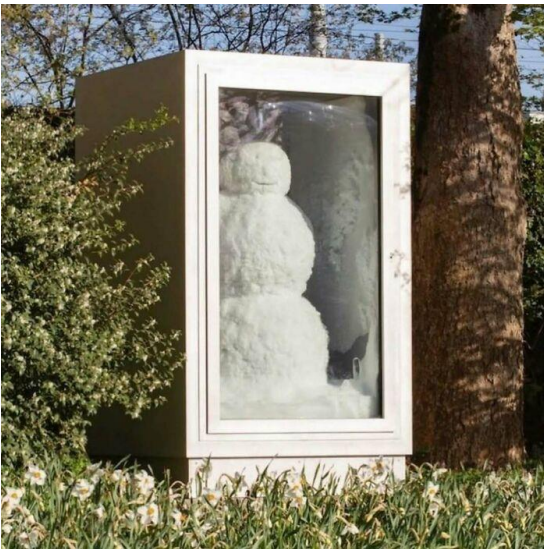


Principle 38, Enriched Atmosphere



(hen rave?)

Principle 36, Phase Transition



Principle 39, Calmed Atmosphere



Principle 37, Relative Change



Principle 40, Composite

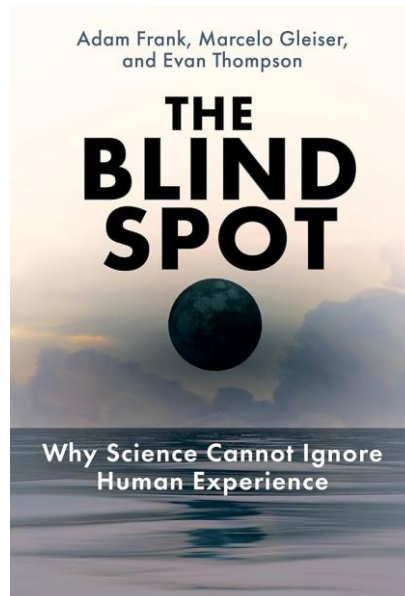


And here's how the inventor has resolved the problem, as described in the main Claim of the patent:

A subwavelength electromagnetic antenna, comprising a piezoelectric substrate; an [Principle 5] array of magnetostrictive nanomagnets in [Principle 35] elastic contact with the piezoelectric substrate; and a driver configured to actuate the array by causing [Principle 19] magnetization oscillations in the magnetostrictive nanomagnets using surface acoustic waves (SAWs) launched in the piezoelectric substrate, wherein the driver is configured to [Principle 15] change SAW frequencies to cause the array to radiate electromagnetic waves at multiple frequencies that match the SAW frequencies up to a predetermined limit, wherein the array of magnetostrictive nanomagnets is configured to (i) [Principle 35] convert phonons of the SAWs to magnons via phonon-magnon coupling and (ii) convert the [Principle 35] magnons to photons of the electromagnetic waves via magnon-photon coupling.

Unusual these days to see evidence of so many Inventive Principle jumps – especially noting that each of the mentions of Principle 35 in the Claim is a different jump. As such, given the strong correlation between number of jumps and Level of Invention, this might just be the highest Level invention of the month too.

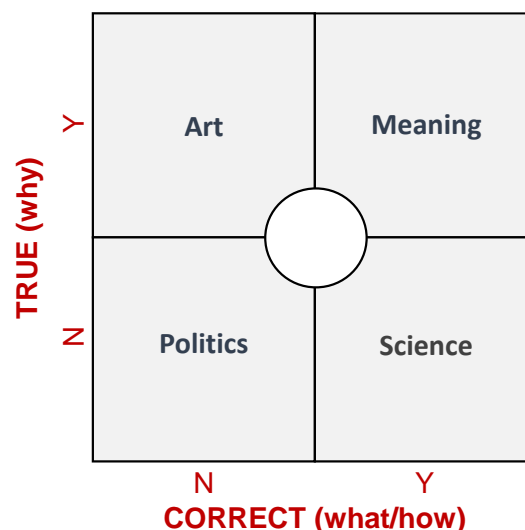
Best of the Month – The Blind Spot



Ambition. That's the first word that comes to mind with *The Blind Spot: Why Science Cannot Ignore Human Experience* (2024). Adam Frank, Marcelo Gleiser, and Evan Thompson lay down a challenge to the very foundation of how we think about science, arguing that our collective future—civilisation itself—is at risk unless we reconsider the worldview that dominates our political, economic, and social structures.

Frank and Gleiser bring their credentials as physicist-astronomers, while Thompson adds his expertise as a philosopher and cognitive scientist. Their journey takes us through relativity, quantum mechanics, cognitive science, and planetary studies, highlighting the dazzling achievements of modern science—while simultaneously exposing the blind spots that arise when we assume reality can be fully described in objective terms.

Their argument flips the conventional scientific perspective on its head: before we can engage in science, we must first experience the world. As they put it, “We must live the world before we conceptualise it.” In so many words, the book is about how we reach the top-right hand corner of our True/Correct matrix:



And how passing the Sciences through the subjective world of the Arts is now perhaps the only way to achieve Meaning? Here as everywhere, the map is not the territory, even when the scientists manage to fool themselves into thinking their maps are somehow better than the territory.

Science doesn't lose credibility from this realisation—it gains a firmer footing. It is a win-win for both Arts and Sciences. Helped here no doubt (i.e. 'the one with the best story wins') by writing that is crisp, engaging, and even witty. Non-scientists will find clear explanations of notoriously complex ideas like phase space, quantum mechanics, and the integrated information theory of consciousness. But more than just explaining science, the authors probe the fundamental assumptions that lead scientists to mistake their concepts for reality itself. Science maps the world—but the danger comes when we confuse the map for the territory.

Drawing from Edmund Husserl's *The Crisis of European Sciences and Transcendental Phenomenology* (1936), the authors argue that the West has flourished while simultaneously being misled by its "surreptitious substitution" of theoretical models for reality. We split the world into "objective" (Science/'out there') and "subjective" (Arts/'in here'), assuming that the former is real, and the latter is secondary. But this split, they argue, is an illusion—one that has only deepened over time. Scientists, they suggest, often become obsessed with mapping every aspect of reality, to the point where they start mapping their own mapping—a self-referential loop that, if taken to its extreme, produces paradoxes and logical dead ends. "You cannot be a mapmaker if you cannot see what you are mapping," they warn.

One of their most compelling examples is the contrast between "Lived Time" and "Clock Time." Right now, as you read these words, you are experiencing the flow of time. Yet some physicists argue that this flow is an illusion—that time is nothing more than a variable in equations, a sequence of measurable instants that could, theoretically, run backward. But the authors argue that our experience of time is foundational. Clocks don't measure time by themselves; people use clocks to track something they already experience. Nobody consults a clock to understand what time is, only to check what time it is.

The book systematically dissects paradoxes in physics—relativity's twin paradox, Loschmidt's paradox on time irreversibility, and the bizarre contradictions of quantum mechanics—showing how they arise from attempts to treat experience as something external and objectifiable. The same logic applies to biology, where attempts to reduce life to mechanistic processes fail to account for the very nature of living beings. As they put it, "It takes life to recognise life." Cognitive science, they argue, falls into the same trap when it tries to treat thinking as computation.

Many of these ideas are not new – philosophers from Kant to Husserl, Bergson, and Whitehead have argued for the primacy of experience. But the authors highlight how deeply the "Blind Spot worldview" has saturated Western thought. Even those who grasp the philosophical arguments often slip back into treating experience as secondary. What's fresh about *The Blind Spot* is its insistence that this mistake is not just a philosophical oversight – it actively creates problems for scientists themselves.

The authors hammer their central point home relentlessly. The phrase "surreptitious substitution" appears dozens of times. But given that the Blind Spot has been reinforced by centuries of scientific success, repetition may be necessary. Their arguments also have real-world implications. After suffering a head injury, one of the authors was given

cognitive tests that measured logical reasoning and vocabulary recall—but ignored intuition, metaphor, and meaning. The assumption? That intelligence is just logic-driven computation.

At times, their effort to describe direct experience without objectifying it leads them into tricky territory. Terms like “mindful meta-awareness” and “suchness” verge on the mystical. But this struggle is the point: our impulse to explain everything is precisely what blinds us to the primacy of experience.

Their boldest argument comes at the book’s close, where they link the Blind Spot to the failure to act on climate change. Conventional wisdom holds that climate inaction stems from ignorance, self-interest, or political obstruction. But the authors propose a deeper cause: a worldview that treats the Earth as an assemblage of objects and human decisions as driven by quantifiable metrics. Science and capitalism, they argue, have co-evolved to reinforce this perspective. Tackling climate change, then, requires more than just carbon caps and geoengineering—it demands a fundamental shift in how we perceive the world.

In the end, *The Blind Spot* is more than a critique of science—it’s a call to bridge the gap between the sciences and the humanities. Philosophers have long sought a way to demonstrate their relevance to scientific progress. With this book, Frank, Gleiser, and Thompson may have finally done it. Or at least given us a major ‘more left brain’ kick in a more productive direction.

Wow In Music – Broken English



30 January marked the passing of Marianne Faithfull, a case study in the interplay between image, talent, and survival. Her early trajectory had more to do with network dynamics than raw musical ability—a system optimised for visibility rather than substance. The Swinging London era needed icons, and Faithfull, with her archetypal ingénue aesthetic, fit the bill. The industry, like any self-perpetuating system, thrives on convenient archetypes: in this case, the ethereal blonde with a dark undercurrent. Embedded in the right circles—Donovan, Dylan, The Stones—she played the role seamlessly. Peripheral engagement in cultural moments (e.g., Yellow Submarine cameo, Mick Jagger’s fur rug scandal) reinforced her brand positioning, ensuring her presence even when the music failed to justify it.

Then, the inevitable systemic collapse. Hit records dried up, and the industry, operating on the principle of maximum utility, reassigned its resources. Faithfull became a muse, a cautionary tale, and a liability all at once. The trade-off for proximity to Jagger’s creative engine? A heroin habit. As he pivoted toward more future-compatible partners, Faithfull found herself discarded. Pattern recognition suggests predictable outcomes: substance abuse, custody loss, failed suicide attempt. By the late '60s, she had transitioned from cultural asset to societal outcast, a shift as ruthless as it was inevitable.

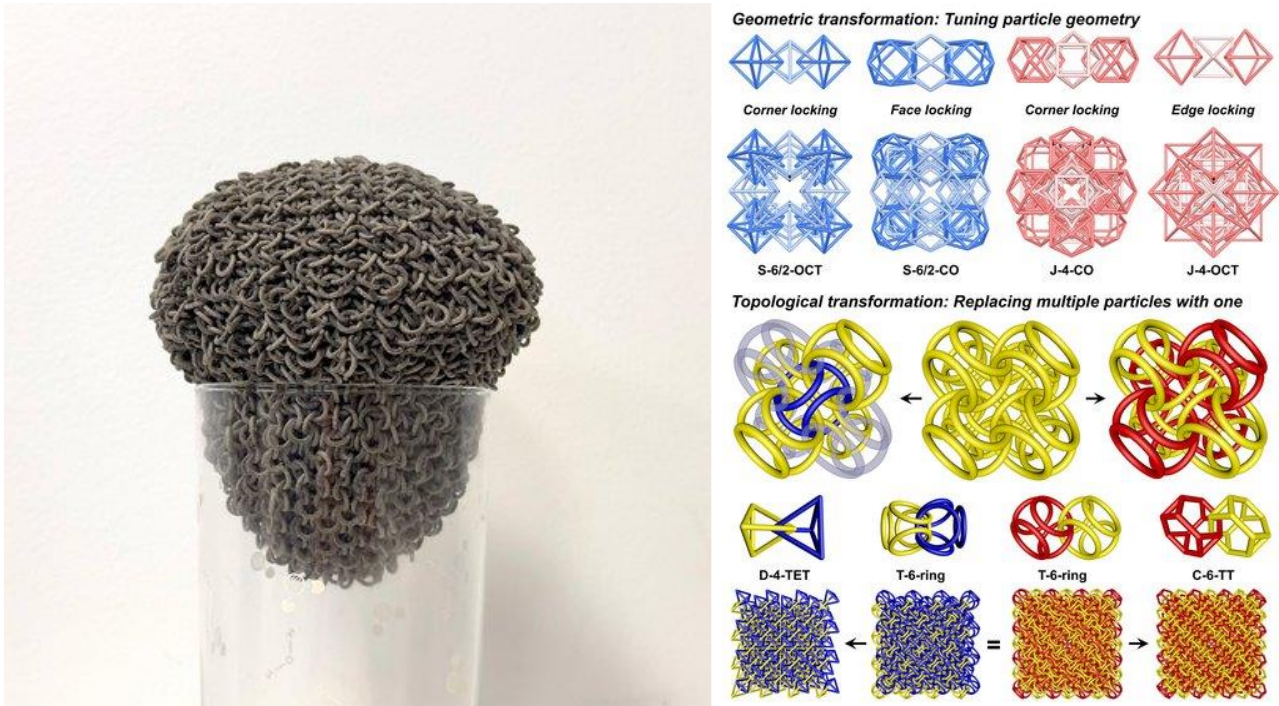
The paradox of decline is that it often generates the conditions for reinvention. Faithfull’s exile—first to the streets of Soho, then to electricity-deprived squats—produced an unintentional but highly effective innovation strategy: (Principle 35) radical voice transformation. Years of exposure to pollutants, smoke, and general neglect converted the fairytale princess timbre into a textured, nicotine-stained weapon of raw expression (Principle 22!). The industry, ever the opportunist, recognised value in this new, marketable contradiction: the fallen angel with a razor-blade voice. Enter Barry Reynolds, enter Chris Blackwell, enter the deal with Island Records.

By 2022, Faithfull had amassed 22 studio albums—a number that speaks less to commercial success and more to persistence in an industry that rarely forgives reinvention attempts. Most were ignored. But every now and then, she hacked the system. Broken English was the first and most defining of these re-entry strategies. Her masterpiece. Gone were the optimistic folk textures of her early work; in their place, edgy punk/new-wave influenced narratives of terrorism, self-destruction, and betrayal, all amplified by a voice that forced audiences to engage differently. The contradictions were now strengths: where once she had been soft, surreal, romantic, she was now abrasive, immediate, confrontational.

The pattern of Broken English—part collaboration, part curation—mirrored her career model. Faithfull, despite claiming the title singer-songwriter, functioned primarily as an interpreter, a repurposer of raw material. Here, that material included Barry Reynolds, Joe Mavety, Ben Brierley, John Lennon, and Shel Silverstein. The title track, ostensibly about Ulrike Meinhof and the Baader-Meinhof group, could have just as easily applied to any violent radical masquerading as a revolutionary. The question at the heart of the song—“What the fuck are you doing?”—isn’t just about terrorism. It’s about identity shifts, self-sabotage, and system failures.

Which, in the end, makes it the most appropriate summation of Faithfull’s career. The Archetypal Reinvention Paradox. RIP.

Investments – Chain Mail



Chiara Daraio's team at Caltech has done something that, by traditional material science logic, shouldn't be possible: they've created a material that behaves like a solid when compressed and a fluid when sheared—a contradiction that defies classical classification systems. Dubbed PAM (poly-catenated architected material), this breakthrough opens new frontiers in protective gear, biomedical devices, and robotics, all of which rely on materials that can dynamically adapt to different forms of stress.

Breaking the Solid-Granular Binary: Nature has spent billions of years refining materials, but PAMs don't exist in natural systems. The closest historical equivalent? Chain mail. But if chain mail was a two-dimensional solution to impact resistance, PAMs are chain mail in 3D, at the molecular level, with structural complexity orders of magnitude beyond its medieval predecessor.

The fundamental principle: interlocking structures. Instead of rigid atomic lattices, PAMs use entangled rings and cages, allowing movement where needed and rigidity where required. The team, led by postdoc Wenjie Zhou, first modelled these structures computationally, designing materials that mimic crystalline lattices but replace fixed atomic bonds with interwoven mechanical linkages. Once 3D printed (in polymers, nylon, and metal), they revealed their unique properties through a series of controlled deformations.

Contradiction-Based Innovation: A Material That Decides What It Wants to Be. Standard materials behave predictably under stress: solids resist deformation; granular materials flow. PAMs do both. When sheared, they behave like water—offering virtually zero resistance. When compressed, they lock into rigidity, absorbing energy more effectively than conventional materials. This duality represents an entirely new class of matter.

Daraio breaks it down:

Solids → Traditional materials, defined by stable crystalline lattices.
Granular Matter → Sand, flour, rice—discrete particles that slide and shift.
PAMs → Linked like crystals, but flow like grains. A material that transitions dynamically. This functional contradiction—rigid yet fluid, adaptable yet structured—is what makes PAMs so significant. Unlike foams (which dissipate energy by compression alone), PAMs redistribute energy through internal reconfiguration, making them perfect for helmets, protective gear, and impact-resistant packaging.

The Next Frontier: Smart, AI-Optimised Materials: The real potential of PAMs isn't just in their mechanical properties—it's in their adaptability. Early microscale experiments show that PAMs respond to electrical charges as well as mechanical stress, suggesting applications in biomedical implants, soft robotics, and AI-driven material optimization.

Liuchi Li, co-author and Princeton professor, sees PAMs as a design space rather than a single innovation: "By integrating AI into material discovery, we can exponentially accelerate the search for optimised structures. We've only scratched the surface."

Daraio sums it up: "Architected materials have been around for decades, but PAMs are something new. We have models for solids, models for granular materials—nothing for this. It's a fundamental shift in how we think about material behaviour."

In other words: PAMs aren't just a new material. They're a new way of thinking about materials altogether.

Read more:

This research is published in *Science* under the title "3D polycatenated architected materials." Co-authors include Zhou, Daraio, Sujeeka Nadarajah, Hujie Yan (MS '24), Aashutosh K. Prachet, and Payal Patel of Caltech; Li of Princeton University; and Anna Guell Izard and Xiaoxing Xia (PhD '19) of Lawrence Livermore National Laboratory (LLNL).

Generational Cycles – A Complete Unknown



Like a lot of people in the UK, I went to see the Bob Dylan early-life biopic, *A Complete Unknown*, this month. And a thing of great beauty it was too, thanks in no small part to the acting skills of Timothée Chalamet (of *Wonka* fame), who played the young Bob in utterly convincing manner. Even though Chalamet (b1995) is a late Millennial, *Wonka* meant that he has a lot of GenZ fans. Which probably helps to explain that contrary to my expectation that the cinema would be full of grisly-eyed Baby Boomers, the majority of people in the audience were members of Gen Z. In retrospect, my surprise shouldn't have been too great. I think the *Complete Unknown* production team very much had the upcoming Artist generation in mind when the film was conceived.

For role-model seeking GenZers, Bob Dylan is probably as good as it gets. The majority of them wouldn't know it, but Dylan was also an Artist generation member. Born in 1941 before the USA entered the Second World War, Dylan was too old to be part of the Boomer generation born after the end of the War. Of course, his revolution-calling early songs – the ones featured in the movie – were acted upon primarily by the young Boomers who formed the majority of his audience. These Boomers wanted someone to follow. Dylan, being the archetypal Artist told them, 'don't follow leaders', and absented himself from the role.

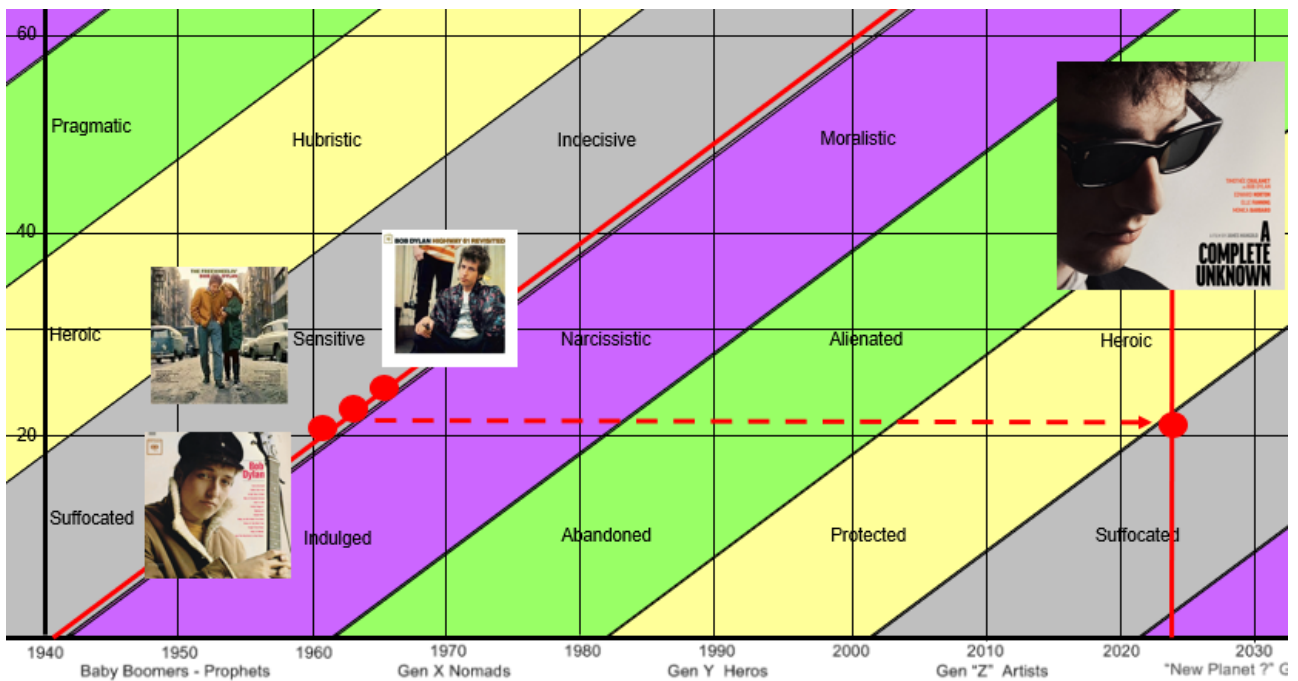
We know, like other Artists, Gen Z has shown a strong interest in revisiting and reinterpreting past cultural figures, especially through social media (e.g., TikTok's role in reviving older music). Dylan, as a figure of counterculture and protest, is thus likely to resonate with Gen Z's activist and introspective tendencies. Interestingly on this front, the usually invisible Mr Dylan, has recently been quite active on Instagram and X talking about *A Complete Unknown*.

The movie very specifically focuses on the re-inventions Dylan made during the crucial first five years of his career – firstly shifting away from the folk movement's penchant for hundred-year old songs and towards writing his own, then (the climax of the movie) betraying his folk audience by 'going electric' at the 1965 Newport Folk Festival. 'Judas' shouts a Boomer member of the Newport audience (a slightly disingenuous appropriation by the movie's production team – the famous 'Judas' shout actually taking in place in

Manchester the following year). 'I don't believe you', Dylan shouts back at them (also Manchester!), thus tying beautifully into the Artist and Gen Z's fluid approach to identity, whether in terms of self-expression, career paths, or social activism.

A Complete Unknown joins a recent cluster of other films (Bohemian Rhapsody, Rocket Man and especially, Elvis) have introduced younger audiences to legendary musicians. If A Complete Unknown could capture Dylan's rebellious spirit in an engaging way, it could create a renewed appreciation among Gen Z. On the evidence of my Sunday afternoon at the cinema and the GenZ buzz I observed when people were leaving the cinema, it felt like this goal was lighting all the right fires.

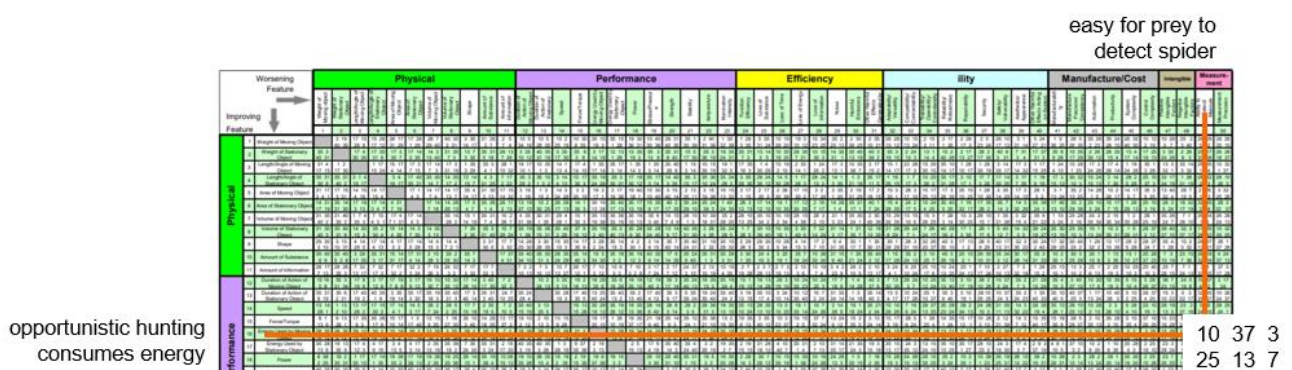
Time will tell, of course, but when looked at on the Strauss/Howe generations map, the four-generation passing on of the baton from one Artist generation to the next becomes crystal clear:



Biology – Wolf Spider



Found pretty much everywhere on the planet, wolf spiders are members of the family Lycosidae (from Ancient Greek λύκος (lúkos) 'wolf'), named for their robust and agile hunting skills and excellent eyesight. They live mostly in solitude, hunt alone, and usually do not spin webs. Most are opportunistic hunters. The usual problem with this kind of feeding strategy is that you either burn up a lot of energy doing the hunting, or, if you instead decide to sit around and wait, face the problem that your prey can easily detect you. Here's what the conflict between those two conflicting desires looks like when mapped onto the Contradiction Matrix:

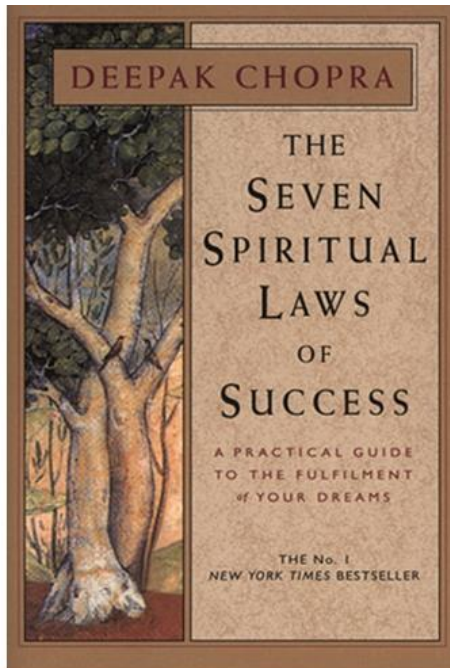


Perhaps offering up a clue to the wolf-spider's cunning solution to the problem, the feature to the left of the spider in the photo at the top of this article is a trapdoor (in some parts of the world, the wolf spider is also known as the 'trapdoor spider'). Essentially, the spider burrows a (Principle 10) hole in the ground (Principle 7, Nested Doll), then covers it with a trapdoor, so that when peeking through the slightly open door, the spider sees dinner, it can pounce. Amazingly quickly – as can be seen in this video clip:

<https://x.com/i/status/1878739616016351365>

Boom.

Short Thort



1) The Law of Pure Potentiality

The source of all creation is pure consciousness...pure potentiality seeking expression from the unmanifest to the manifest.

2) The Law of Giving

The universe operates through dynamic exchange... giving and receiving are different aspects of the flow of energy in the universe.

3) The Law of Karma or Cause and Effect

Every action generates a force of energy that returns to us in like kind. What we sow is what we reap.

4) The Law of Least Effort

Nature's intelligence functions with effortless ease...with carefreeness, harmony, and love.

5) The Law of Intention and Desire

Inherent in every intention and desire is the mechanics for its fulfillment.

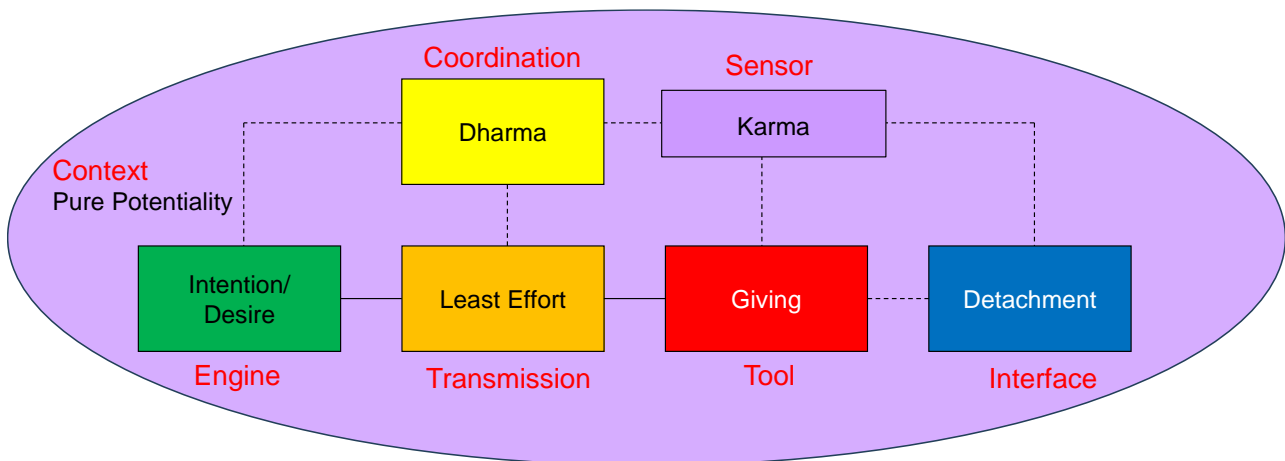
6) The Law of Detachment

In detachment lies the wisdom of uncertainty...in our willingness to step into the unknown, the field of all possibilities, we surrender ourselves to the creative mind that orchestrates the dance of the universe.

7) The Law of "Dharma" or Purpose In Life

And when we blend this unique talent with service to others, we experience the ecstasy and exultation of our own spirit, which is the ultimate goal.

Achieving Success requires existence of a Viable System:



News

New Workshops

2025 will see the launch of several new and repeat online workshops. Here's the currently planned schedule:

NEPTUNE/Seven Habits Of Highly Effective Innovation Project Managers (2x4hrs) – May

CERTAIN Troubleshooting (repeat) (4x4hrs) – June

Zen & The Art Of Motorcycle Maintenance & Innovation Quality In The 21st Century (2x4hrs) – early July

The Hero's Intrapreneur Journey (2x4hrs) – September

FutureProof: Re-Balancing The Organisation (4x4hrs) – October

Anyone interested in any of them will find details appearing on our online shop - <https://si-shop.org.uk/workshops-and-training/> in the coming weeks. Go to the page now and you'll still be able to book a place on a re-run of the SI/AI workshop in March.

Everything

We are happy to announce that translation of the Everything book into Farsi has been completed, and a project to make a German version has just begun. More news on both as the launch plans emerge.

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>



Darrell will be presenting one-hour sessions on 10 March and 24 March.

New Projects

This month's new projects from around the Network:

- Healthcare – TrenDNA Project
- Healthcare – Process Innovation Project
- Consulting – Innovation Tool Development Project
- Government – Land Restitution Strategy Project
- Government – Community Engagement Project
- Finance – Leadership Resilience Study
- Healthcare – Scale-Up Strategic Study
- Agriculture – IP Bulletproofing Project
- Service – SI/Design-Thinking Workshops
- Energy – Spend-The-Least-To-Learn-The-Most Strategy Project
- Education – Product Deployment Strategy Project
- Government – Healthcare Innovation Strategy Project

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