Systematic Innovation

e-zine

Issue 120, March 2012

In this month's issue:

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.

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Readers' comments and inputs are always welcome.
Send them to **darrell.mann@systematic-innovation.com**

The Attack/Defence Ratio S-Curve Inflection Point

The S-Curve represents one of the innovation universals; understanding the dynamics of innovation success demands that innovators understand the various different stages of the curve. And that any project inherently needs to be viewed from a variety of different hierarchically nested s-curves. In this article, we take the macro, project-level perspective of the S-curve, knowing that when we do so, what we say will also have relevance at other levels of the hierarchy. The traditional key phases of the curve are illustrated in Figure 1:

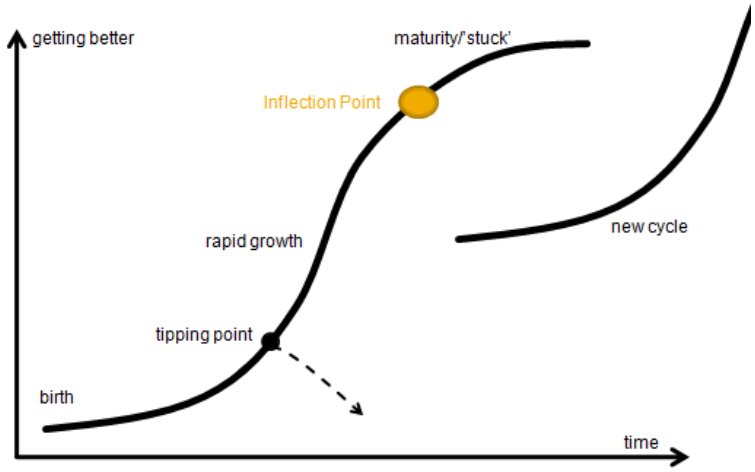


Figure 1: Key Phases Of System S-Curve

Although the transition between most phases – birth, growth, maturity, etc – is generally speaking a gradual one, it is also clear that occasionally the transition is closer to or actually a distinct step change. The 'tipping point' – shown in the figure – is perhaps traditionally seen as the clearest step-change (i.e. the required behaviours before and after tipping point are fundamentally different), the focus of this article is what we propose is a second step-change moment that occurs along the S-curve journey. It is the orange 'inflection point' shown in the figure that fundamentally occurs somewhere along the second half of the curve.

In order to best see where the step change occurs, it is useful to examine the 'before' and 'after' situations: prior to the inflection point, the s-curve is in its steeply upward 'growth' trajectory – post-tipping-point, the project has become a big success and the focus of the organisation is to maximise the commercial opportunity. After the inflection point, on the other hand, the curve is flattening as the project enters its mature and 'retirement' phase. The key job of the project team during this period is to optimise the business model and squeeze as much of the remaining benefit out of the system as possible before something else (i.e. the next S-curve) comes along to displace it.

There are a number of important business operations related differences between these pre- and post inflection point scenarios. The first, per the title of this article, is that somewhere between the two extremes the business focus has to shift from a perspective of attack to a perspective of defence. In the growth phase, emphasis has to be on maximising opportunity. While no organisation ought to devote all of its efforts to 'attack' during this growth phase (bad stuff can happen at any time), if we calculate the ratio of attack-to-defence effort, the number will inevitably be greater than unity: the organisation that attacks the market opportunity the best gets to be the biggest winner. Post-inflection point, however, and the emphasis is forced to shift in favour of the defender. Figure 2

illustrates how the attack/defence ratio is likely to evolve over the course of the whole project S-curve:

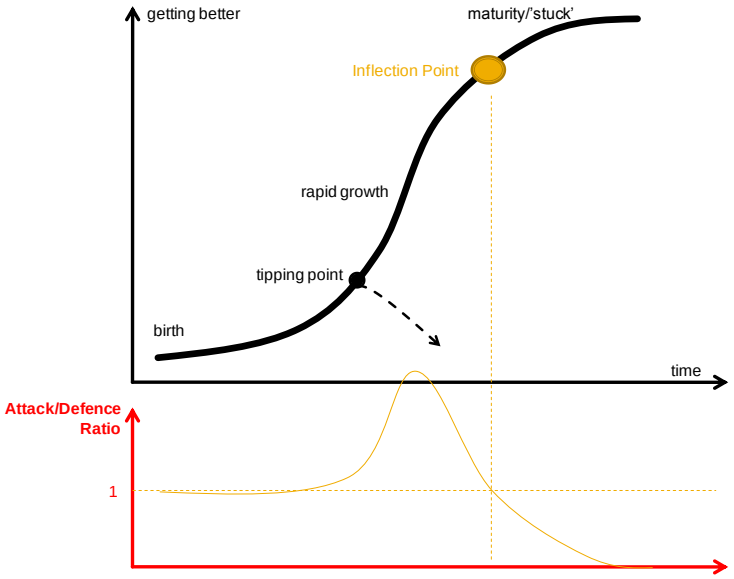


Figure 2: Evolution Of Attack/Defence Ratio Through S-Curve Journey

If the ratio follows something like the trajectory shown in this figure, then pure mathematics tells us that somewhere prior to the attack/defence polarity shift, there must occur a point at which the ratio is at its maximum. Although the precise moment of this peak is difficult to pin down, it very likely has a causal link with something like the first quarter when the sales or earnings forecast isn't met. In terms of the Hero's Journey, this peak might also be viewed as the 'call to adventure' moment.

While the peak is mathematically important, it doesn't trigger a step change in behaviour (in Hero's Journey terms, after the 'call to adventure' comes the 'refusal' of the call – i.e. the organisation, used to making lots of profit, doesn't like to contemplate the possibility that their world has changed). When the attack/defence ratio crosses the unity barrier, on the other hand, it is accompanied by a very definite need for a step-change in behaviour. In fact it creates a fundamental shift in the underpinning 'DNA' of the business. We can best see the dynamics of this shift and the step changes in DNA by thinking about the dynamics of the vertical/horizontal industry shift first described in Charles Fine's excellent management text 'Clockspeed'. Figure 3 illustrates the basic DNA strands that distinguish between the growing, 'new' (attacking) and mature, 'established' (defending) organisation:

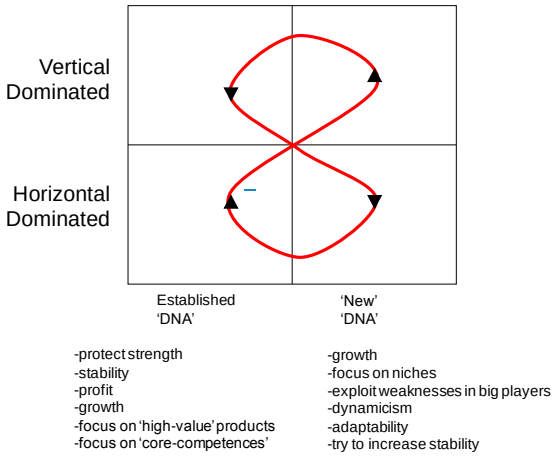


Figure 3: Shift In Management DNA Between Attacking & Defending Perspectives

According to Charles Fine, it is this shift in management attitudes that ultimately creates the industry-size shift from incumbent (defender) to new player (attacker). His main focus was the mega-trend shift from vertical to horizontally dominated industry models, but, we can safely generalise the model here to describe the shift in dynamic between attacking and defending mindsets and whatever demise that might ultimately lead to.

Reflecting back on the Gravesian Thinking Styles article from January (Issue 118), this attack/defence ratio transition also marks the point where the Scientific Orange-dominated 'find the best way' mindset requires to shift to the Blue, Order 'only way' mindset.

Thus far, the attack/defence ratio may be seen as a very tangible (i.e. measurable) aspect of the S-Curve inflection point. In keeping with the JP Morgan thought that people do things for both good and real reasons, this should lead us to think about whether there are any fundamental step-change shifts in (real reason) intangible attitudes when an organisation passes through the inflection point. We think there is:

One of the main intangible drivers of the growing attacker is 'dreams' – dreams of a bigger annual bonus, the brighter future, the medals, the successful career. For the defender, on the other hand, the primary intangible factor becomes memories of what more and more rapidly become the 'good old days'. The attack/defence ratio shift, we propose, is also accompanied by a similar shift in the dreams/memories ratio: prior to the inflection point, dreams/memories > 1; post inflection point, dreams/memories < 1.

Taken together, we propose that the combination of this intangible ratio shift and the tangible attack/defence ratio work together to create the step-change that must occur when an organisation or innovation project passes through the inflection point. Recognising the existence of the step-change is not any kind of solution of course (subject for another day!), but being aware that there is a step-change at all is, we propose, more than half the battle.

The TRIZ/SI Elevator Pitch

During a recent SI Certification workshop, some of the delegates asked how they might best return to their workplace and tell others about what they'd spent nine days of their lives doing. In true 'learning by doing is more effective than learning by listening to me' fashion (or was that 'lazy facilitator syndrome'?), I thought it more appropriate for them to solve the problem themselves. That said, the question also got me thinking. Mainly that in all my time as a user and developer of the Systematic Innovation tools, method and philosophy, I'd never felt there was such a thing as a meaningful short summary. Delivering the thirty second elevator pitch for SI feels a bit like asking someone to do the same for Physics or Chemistry. In other words, I've always felt the question was kind of inane: if someone's only willing to give me thirty seconds to explain something to them, they're probably not the sort of person I'm interested in working with.

While I still strongly believe in that view, it also started to feel a bit like I was abdicating my responsibility to those people that might simply be trying to tell their colleagues what they'd been doing. And possibly intrigue them enough to make them want to hear more. Get an elevator pitch right and maybe you open the door for a longer conversation. Hmm.

From this thought, the problem swiftly shifted to one of recognition that there could be no such thing as a single elevator pitch. The words that might hook a company CEO would likely need to be completely different from those that might stop an over-worked salesperson in their tracks. Both live in very different contexts, with very different needs and motivations. How to deliver a generic set of words to potentially seven billion completely different people? Answer: don't try.

Again, this dead-end answer didn't appear to be too satisfactory. And it certainly wasn't going to help my delegates. At least, though, they didn't have such a big problem: they didn't have a desire or need to talk about SI to everyone, merely people they already knew operating in the known context of the organization in which they were working. In this sense, they would know that, if the company was doing well, they might present the toolkit as a means of 'turbo-charging' the ongoing success, or helping to find new opportunities. Conversely, if the company was in the midst of tough times, it could be framed as a means of delivering cost-cutting solutions that didn't compromise other aspects of performance.

While that reduction of problem scope seemed to help, it didn't quite seem to go far enough. Mainly, the group I was working with commented, because I'd earlier in the workshop put up the Spiral Dynamic slide showing how the different Thinking Styles were or were not able to communicate with one another:

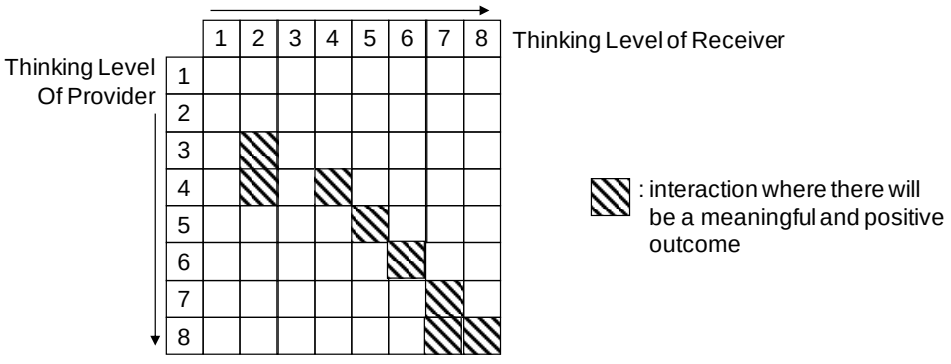


Figure 1: Thinking Style Interactions Where Positive Change Outcome May Occur

In simple terms, what this picture says is that the only way to possibly influence someone operating in one of the Thinking Styles was to communicate with them in the words of the same Thinking Style. Except the third, 'Red ('Feudal') level, which, according to the figure was not going to produce a positive outcome no matter what thinking style the communicator attempted to sue. From the overall picture, though, we concluded, that it ought to be closer to a viable problem to configure an elevator pitch for each of the Spiral levels likely to be present in the workplace. We decided, too, that for each relevant Level, we would define a title, a tag-line and a symbolic image to precede or accompany the 30 second elevator pitch.

Because we were feeling foolishly brave, and because we felt they were inevitably likely to be in the workplace, we decided to start with the impossible Red, Feudal, Level:

3. Feudal

MIDAS
The Success Machine.

Think about all those times in your life when you solved a difficult problem, when you created a 'wow' solution. All those wow moments (and a few million more) found their way into the MIDAS problem solving engine. It's the world's most powerful innovation toolkit. Access to the toolkit is strictly limited. You probably don't qualify.

(MIDAS, by the way, even though we thought it was not relevant to explain it during the Feudal pitch, is a name we've been experimenting with in recent times as a possible evolution of the rather dry (and, more importantly, un-ownable!) 'Systematic Innovation', it stands for Meta-Innovation Design Acceleration System… still a tad too forced to be viable more widely… but, we thought here, pretty well spot-on for the Red person looking to turn everything they touch in to gold.)

(We also figured that, the only possible way to get Reds to do what you want them to do – rather like the terrible-twos offspring – is to tell them they can't do it. Hence the final sentence of the 'pitch'.)

(In terms of a symbolic image, we thought this might work:)

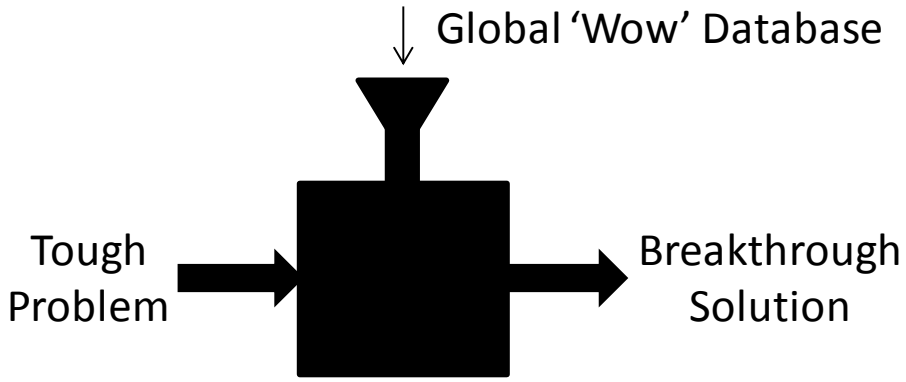


Figure 2: Possible SI Image For Red, 'Feudal' Thinking Style Person

4. Order

ISIS
The Science Of Success.

ISIS is the compilation of all the world's finest solutions. It offers teams' access to those solutions such that they can take on all the difficult challenges found in their industry and reliably and repeatably deliver successful technical and business success. It is the secret weapon used by the world's most successful organisations. It is something that offers a proven, sure-fire route to success for you, your teams and your organisation.

(Here, too, we felt that an unexplained acronym title was going to work the best, albeit for different reasons than was the case for Feudal thinkers: the main problem engaging with Order thinkers being the word 'innovation' – a word with all the connotations of disruption and change that they try and avoid in their world. For anyone interested, the acronym is another one we've been playing around with recently. It stands for 'Integrated Systematic Innovation Suite'… which also has the added benefit of 'SI Inside'.)

(And in terms of a symbolic image we thought that the most important thing was to keep things simple and, most of all, avoid any implication of the (inevitable) iterative loops and if-then decisions that would inherently be involved in the actual process. At the same time, we didn't wish to mis-represent the method, and so eventually decided on the generic definition-solution, divergent-convergent sequence idea:)

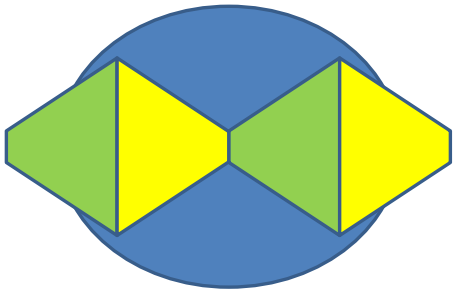


Figure 3: Possible SI Image For Blue, 'Order' Thinking Style Person

5. Scientific

SYSTEMATIC INNOVATION
Science. Results. Future. Delivered.

Systematic Innovation is the result of a twenty year, 1500PhD, 3.5 million case-study programme of research into the world's most successful innovations. It is a methodology for finding and delivering beyond-optimisation, step-change, breakthrough solutions. It offers a teachable, fully deployable science already deployed across world-best innovators like Apple, Samsung, P&G, Intel and [insert resonating company name here].
It is an under-the-hood innovation turbocharger. Added to their creative engine, it has already allowed users to accumulate multi-billion dollars of tangible, measurable benefit, and in the case of Samsung, to now average over 170 granted patents every week.

(Image-wise, given the Scientific Thinking Style desire for structured options, it was most sensible to present SI as a Six-Sigma-like process map. We went back to one we were using a few years ago, which in itself was quite telling:)

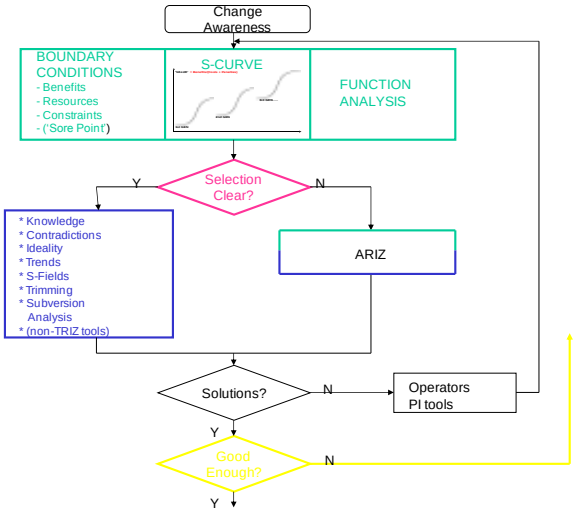


Figure 4: Possible SI Image For Orange, 'Scientific' Thinking Style Person

6. Communitarian

ISIS
Global Wisdom. Collective Difference.

In our ever-faster, ultra-connected, 'innovate or die' world, ISIS offers teams a holistic suite of win-win opportunity finding and problem solving strategies based on a sixty-year study of the world's finest minds, and collation of, to date, over 3.5 million silo-breaking, pan-domain cases.
None of us is as smart as all of us. ISIS is the portal to those smarts, offering teams a reliable, repeatable means of delivering meaningful difference in just about every walk of life.

(And here was the image we felt best encapsulated the inclusive, big-picture, everyone-equal-ness desired by the Green Meme (another telling indictment of one of our publications we felt!):)

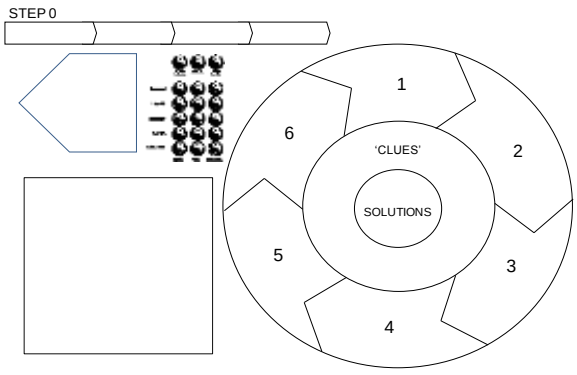


Figure 5: Possible SI Image For Green, 'Communitarian' Thinking Style Person

7. Holarchy

SYSTEMIC INNOVATION
Opportunity-Finding Playground.

Every problem is solvable. The real problem is finding the real problem. Systemic Innovation offers a wide-ranging spectrum of complexity-embracing, opportunity-revealing strategies, schemas and building blocks to help innovators unravel everything-connected-to-everything-else rats-nest situations.
Einstein famously said that no problem could be solved at the same level at which it was created. Systemic Innovation is all about enabling you to access and see those other levels. Truly standing on the shoulders of giants, seeing further and seeing more clearly.

And here was the icon that would best connect to the most SI-amenable of the Thinking Styles:

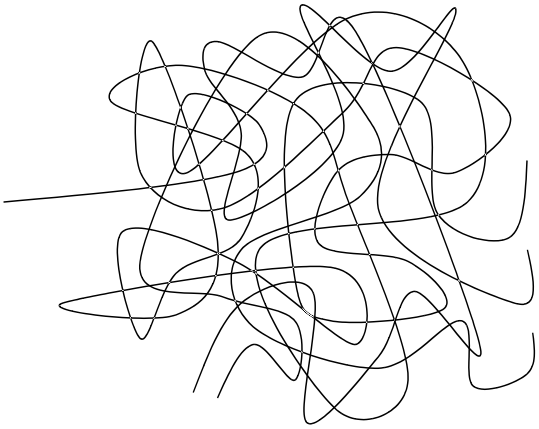


Figure 6: Possible SI Image For Yellow, 'Holarchy' Thinking Style Person

For the moment, you might like to consider each of the different pitches as a work in progress. We'd love to hear your views and thoughts on how – if indeed they are relevant at all – we might evolve them and make them resonate better with the start-from-zero SI newcomer.

Implied Dynamics

Inventive Principle 15, Dynamics provokes problem solvers to look for solution strategies that turn stationary things into movable ones. The usual interpretations involve physically making things move, but it is always worth contemplating the additional idea of implied dynamism. By which we mean creating a (simple) static system that creates in the mind of the viewer the impression of movement. There are many optical illusions that manage to achieve the effect. The more important issue is can we create the turn the illusion of movement into beneficial effect.

Here's an example of an advertiser making fairly spectacular use of the idea:

And here's another, this time from US auto-insurance company, Allstate:

Sometimes, though, the Dynamic effect works less well. Here's a Canadian example of an actually-dynamic design where, if they'd thought about the dynamic before they finished they might not have got things quite so wrong. Say hello, Hits FM:

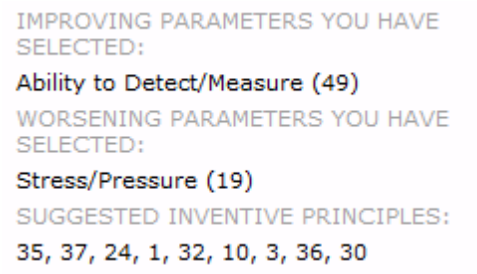
Then, finally, there's just getting the implication of movement as completely wrong as its possible to be:

Good example of Trimming though. Or solving a length contradiction.

Patent of the Month – Fluid-Based Acoustic Sensing

Patent of the month this month takes us to the University of Michigan in Ann Arbor. US8,130,986 was granted to the two named inventors on 6 March. The disclosure describes low-power, compact, low cost, integrated acoustic sensors and spectral analysis systems. According to the inventors, the intended areas of application include low power military systems such as unattended sensors, handheld sonar, or autonomous vehicles. They could also be used in medical applications such as a cochlear implant front-end. Additional applications may exist in environmental monitoring using a low-power unattended sensor. The unique architecture, it is further claimed, may allow the capacitively-sensed systems to be submerged in order that both airborne and waterborne noise sources may be detected in the single device.

The invention disclosure describes a range of problems that the invention purports to solve, making reference at several points to the mammalian ear ('The typical human cochlea operates over a two and a half decade frequency band, from 20 Hz-20 kHz, covers 120 dB of dynamic range, and can distinguish tones which differ by less than 0.5%. Sounds as quiet as 0 dB SPL (20 .mu.Pa RMS) can be heard'). The main problem focus seems to be a step change solution to the conflict between the desire to detect low levels of noise and the low levels of sound pressure difference associated with such low noise levels. Here's what that conflict looks like when mapped onto the Matrix:



Here's how the inventors solved the problem, as described in the main independent Claim:

1. *A micro system for acoustic transduction comprising: an input membrane configured to vibrate in response to an excitation from acoustic energy in a medium adjacent the input membrane and external to the system; a closed, liquid filled, acoustic chamber having chamber walls; and a conductive membrane having a variable acoustic impedance along its length, wherein the input membrane and the conductive membrane form portions of the chamber walls, wherein the liquid transfers acoustic energy from the input membrane to the conductive membrane, wherein the conductive membrane is configured to vibrate in response to an excitation from an acoustic pressure wave in the liquid adjacent the conductive membrane, and wherein a location of maximum displacement of the conductive membrane along its length depends on a frequency of the acoustic pressure wave.*

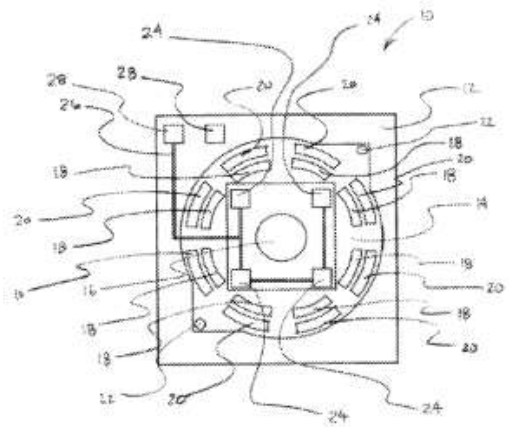
The incorporation of a fluid represents a clear illustration of Principle 35A (change physical state – typically mechanical or air are used as pressure transmission medium), and Principle 3, Local Quality ('variable acoustic impedance along its length'). Beyond that, here's a more detailed description from later sections in the disclosure:

A micromachined, trapped fluid acoustic sensor is disclosed. Some embodiments of invention include a silicon and glass micromachined (MEMS) acoustic sensor incorporating a novel trapped-fluid architecture. The trapped fluid serves as an acoustic transmission medium, allowing the input port to the system to be physically separated from the sensing location, providing mass-loading to

the sensor which allows it to be submerged without compromising system bandwidth, and providing tunable mass-loading and damping to the sensor. It also allows an approximate order of magnitude sensitivity increase by area multiplication effects. Experimental results in air demonstrate sensitivities and bandwidth which are competitive with commercial piezoelectric hydrophones. The invention may be manufactured using micromachining, using highly scalable batch processing techniques.

Some embodiments of the invention provide a unique geometry for a micro-machined condenser hydrophone. A trapped fluid provides mass loading and damping. Models predict that this will allow the system to be submerged without affecting performance. The fluid chamber is also used to transmit pressure from a large "input" area to a smaller "sensing" area. Finite element results show a 28 dB displacement gain at low frequencies between the "input" and "sensing" membranes, which directly results in a 28 dB improvement in sensitivity. This ratio is the area ratio of the two sets of membranes. The displacement gain can be increased by continuing to increase the number of input membranes, as long as the total radial extent of the input membranes remains smaller than the free wavelength of sound in the environment.

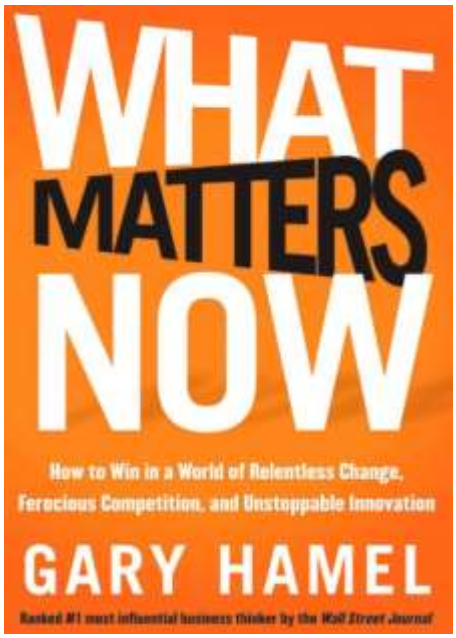
Inspiration for the design is taken from the structure of the mammalian cochlea. One technical innovation, which makes this device very unique, is the inclusion of both "cochlear-like" fluid-structure mechanics and integrating sensing elements into a single micro-machined device. This produces a sensor/filter which functions like a human ear. Previous devices are not fully micro-machined, nor do any previous cochlear-like devices include multiple-output-channel sensing.



Shifts from mechanical to fluid based solutions are always interesting. Partly because the jump away from mechanical is always the most difficult of the Object Segmentation or Dynamization trend jumps, and partly because when such jumps do occur, they very often leapfrog over the fluid stage and pass directly to make use of a field.

That's not to say that such a jump won't eventually occur in this domain ('the field always wins'), but in the interim, the simple elegance of the inventors' design makes it highly likely that it will give a field-based solution a good run for the money, offering, for example a host of simple opportunities to further increase sensitivity and range of frequencies detectable. In a hearing-aid application, we suspect it offers not only the potential for hearing recovery for a patient, but, for the first time, the opportunity for boosting hearing performance beyond that of even the healthiest human ear. 'Hearing Plus' – sounds like something I'd vote for… so long as it was possible to switch it off. On occasion.

Best of the Month – What Matters Now



Love him or loathe him, it's difficult to deny that arch-Boomer and 'world's most influential business thinker' Gary Hamel consistently manages to achieve the highest sound-bites-per page of anyone else on the planet. Three chapters in to this his latest tome and I've filled three sides of paper with an assortment of great, good and ugly statements ('companies miss the future not because it was unknowable, but because it was disconcerting'; 'the future starts on the shores of chaos not the mainstream') that I just know will be suitable to provoke someone somewhere into seeing their world differently.

I don't think this is Hamel's best work, but at the same time it is never less than readable, and almost always several furlongs ahead of other management authors writing today. My main problem this time around is that Hamel appears to have had some kind of religious (there are some fairly overt clues in his choice of case studies!) or spiritual epiphany (per many other Boomers at his moralistic life-stage?) whereby he feels it necessary to try and leave behind some kind of world-changing footprint. The primary subjects of his ire are the senior leaders inside MNCs, and specifically those that find themselves operating in the financial services sector.

The 2008 GFC occurred, Hamel suggests, because the 'immoral', fat-cat executives forgot some of the basic tenets of not just leadership but also basic humanity. Essentially the book builds itself against a set of five pillars of 'what matters now' in and around the world of business leadership. The five pillars are, in book sequence:

1) Values ('with trust in large organizations at an all time low, there is an urgent need to rebuild the ethical foundations of capitalism. What's required is nothing less than a moral renaissance in business')
2) Innovation ('.. is the only defence against margin-crushing competition and the only way to outgrow a dismal economy')
3) Adaptability ('the forces of inertia must be vanquished')
4) Passion ('in business as in life, the difference between insipid and inspired is passion. With mediocrity fast becoming a competitive liability, success depends on finding new ways to rouse the human spirit at work')

5) Ideology (‘bureaucracy and control have had their day. It’s time for a new ideology based on freedom and self-determination’)

If too often the text reads like a kind of Business School Sermon on the Mount, it is difficult to deny an awful lot of Hamel’s logic.

Logical and heartfelt as his arguments might be, I ultimately left the book *hoping* that the words would be listened to by those in power, but *feeling* that in all likelihood they wouldn’t. A bit like the plethora of celebrity chef cooking shows on British TV at the moment, everybody watches them, but almost no-one it seems acts upon the feeling of guilt the show is supposed to inspire. Cooking-by-proxy seems somehow to assuage the guilt of not being able to or not being willing to walk into the kitchen and chop up an onion. Hamel’s words will, I suspect, have the exact same effect. Leaders will come away from the book feeling guilty, but also that, ‘it’s okay, Hamel is on the case and will fix the problem so I don’t actually have to do anything myself’.

I suspect the underlying reason behind this likely reaction is that the book ultimately fails to take a sufficiently distanced perspective to properly tap into why leaders appear to be operating in the manner Hamel observes (i.e. it captures the ‘good’ reasons for the problem, but alas not the ‘real’ ones). I suspect also that leaders, like pretty much the rest of us, will do anything to avoid thinking. And ultimately this is a book designed to make the reader think and nothing more.

Not that that is a bad thing by any means. What Matters Now makes an elegant contrast to the sea of join-the-dots play-book management texts currently doing the rounds. And for that reason alone, if you’re a person who still enjoys actually reading in our ever more manic time-starved world, here’s something to tide you over for a couple of months at least.

Conference Report – Hargraves 2012

The big annual Hargraves Institute conference was held in Melbourne on the 14th and 15th of March. As ever, it was an event jam packed with insightful presentations and networking opportunities. Over 200 delegates registered for at least one of the two days, and judging by the feedback I heard, 2012 was the best conference yet, despite the fact that numbers were down slightly on the previous two years.

One of the big advantages that Hargraves has over other innovation conferences is that it is fundamentally a peer-network of non-competing organizations, with the majority of presentations coming from members willing to tell warts-and-all stories of what has worked and what hasn't worked inside their businesses.

The programme comprised everyone together in a single stream on Day 1, and then a split into two streams – 'innovation' and 'leadership and transformation' on Day 2. Details of the presentations can be found at the conference website (Note: they can be accessed by the public at large until 1 May - http://hargraves.com.au/members/library/000-CONFERENCE-2012/). Here's the programme, along with my personal highlights:

9.10 - 9.30 Order of the Day and Vision of Hargraves Institute
Allan Ryan, Executive Director, Hargraves Institute
9.30 - 10.00 Member Address : Ben Tilley, Organisational Development Manager, Bank of Queensland
The leadership journey
Engaging the business in leadership development and making it work. The Bank of Queensland is committed to developing a pool of talented future leaders. This journey tells the story of business engagement and creating outcomes through an in-house leadership development program designed to develop leadership capability and strength for potential successors in the Bank.
10.00 - 10.20 Member Address : Sibon Schouten, Step Change & Fuelling Growth Manager, Nestle
Building a powerhouse organisation that thrives in a challenging world
NESTLÉ Oceania has been on a journey of transformation to become a high performance organisation that thrives in the face of unprecedented change. From one person's humble perspective, this presentation will share highlights of the journey. Sibon will touch on the challenges and opportunities of working in a global organisation, embracing a dynamic market place plus the innovation and cultural challenge.
(A first big highlight of the day, if only because of the blinding-flash-of-obvious insight that a lot of the problems of long term planning can be resolved by switching from calendar year horizons to product generations – Nestle have '5G' long term plans. Also the KitKat evolution story holds the seeds of a very nice Evolution Potential case study:)

10.20 - 10.40 Guest Speaker : Thorsten Wichtendahl, Chief Operating Officer, University Co-operative Bookshop
Innovation in co-operatives and how to use the shared value concept to create a sustainable competitive advantage

In a 2011 Harvard Business Review article, Michael Porter argues that Shared Value, as the next evolution of capitalism, holds the key to unlock business innovation, productivity gains and growth. This case study will show the applicability of this model in Australia's 3rd largest co-operative.

10.40 - 11.10 MORNING TEA & NETWORKING

11.10 - 11.40 Not For Profit Member Address : Mandy Burns, Chief Executive Officer, Ardoch Youth Foundation

Doing a lot with a little - removing the barriers to education

11.40 - 12.10 Member Address : Sam Bucolo, Professor, Design School, Queensland University of Technology

(Design Led) Innovation - Let's start with a proposition

As part of the inaugural Hargraves Design Fellowship, participating companies have been grappling with the role of design in helping them build an innovation culture within their organisations. Although design thinking was a central focus of the fellowship, companies soon realised it required far more than a few design tools to begin to see the potential value of embedding design into their daily innovation practices. As the fellowship group explored over the past 12 months, design led innovation is all about creating a proposition. Therefore this presentation will propose and provoke you with two contrasting approaches to the role of design to build an innovation culture within your organisation by focusing your efforts on company growth whilst building deep customer insights.

12.10 - 12.40 Member Address : Derek O'Donnell, State Supply Chain Manager - Coca Cola Amatil

INNOV8 - The journey

Derek has been the CCA lead in building an innovation program called 'INNOV8' since late 2006, which focuses on Process Innovation, leveraging CCA's full workforce of 5,500 people to develop new ideas to add value to CCA and it's customers. The program has been a raging success and having started in just the Supply Chain function has now been rolled out across all teams, functions and divisions of CCA. Today, Derek will share the critical success factors of the journey, the challenges and the learnings and his passion for why the innovation program is so important to CCA's success, culturally and in business outcomes.

(A terrific example of an organisation doing the ICMM Level 1 job extremely well)

12.40 - 1.40 LUNCH

1.40 - 2.05 Guest Speaker : Emma Huntington, Founder, Evolve Strategy

Are we selling romance or carrots?

You're planning a special date with your partner… perhaps an anniversary or birthday occasion. You say to yourself 'what restaurant' and then some feelings come to mind – perhaps a romantic setting, water views, great food, that wonderful maitre d' who knows your name … But do you think about the carrots (or other ingredients) or whether the restaurant has passed the cleanliness rules or whether it could be a few dollars less than the one next door – probably not? Now – apply that to your financial decision making or more importantly to how financial institutions try to sell their wares. Many financial services institutions still try to push the benefits of their products to customers (*the carrots*) without understanding that most customers really don't care about the product at all – what they care about is what it can do for their life (*the romance*). The great news is that focusing on customers lives and working back from there does work – even in financial services! And we have real examples to prove it. This presentation will show how we used real customer insights to develop compelling offers that are relevant to customers lives – and delivered great financial results.

(Excellent example of 'selling the intangibles' in the financial services sector)

2.05 - 2.30 International Guest Speaker : Judith Thompson, Design Director, Better by Design, New Zealand Trade and Enterprise (NZTE)

Designing Business Transformations: the Better by Design story

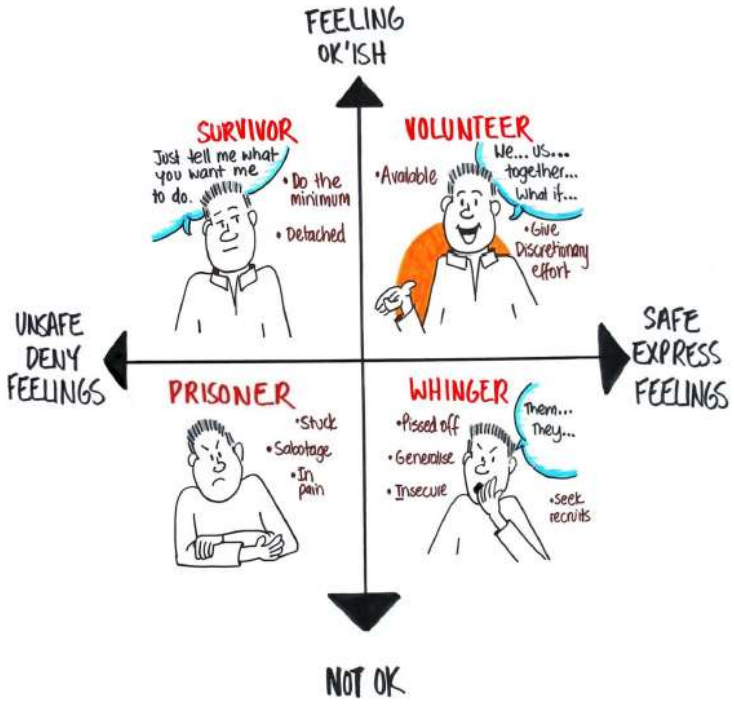
Created in 2004 as a government program charged with *inspiring New Zealand's best companies to success by design*, Better by Design has evolved its practice through working with over 100 successful export companies. Better by Design started life as a design audit program, using a design-led diagnostic process to uncover opportunities for companies to use design for strategic business advantage. Over the past seven years the program philosophy has evolved as the Better by Design team gained insights into customer needs and applied design thinking to themselves. This presentation shares the ambitions, challenges and success stories of the Better by Design program and the public-private partnership that underpins it.

(Excellent example of how great Design can tip a presentation over the threshold to greatness. Also really good strategy of engaging CEOs by exposing them to hands-on design and innovation.)

2.30 - 2.55 Guest Speaker : Colin Pidd, Managing Director, Conversant Asia Pacific

Connecting and discovering in a country of leaders, bosses and bastards

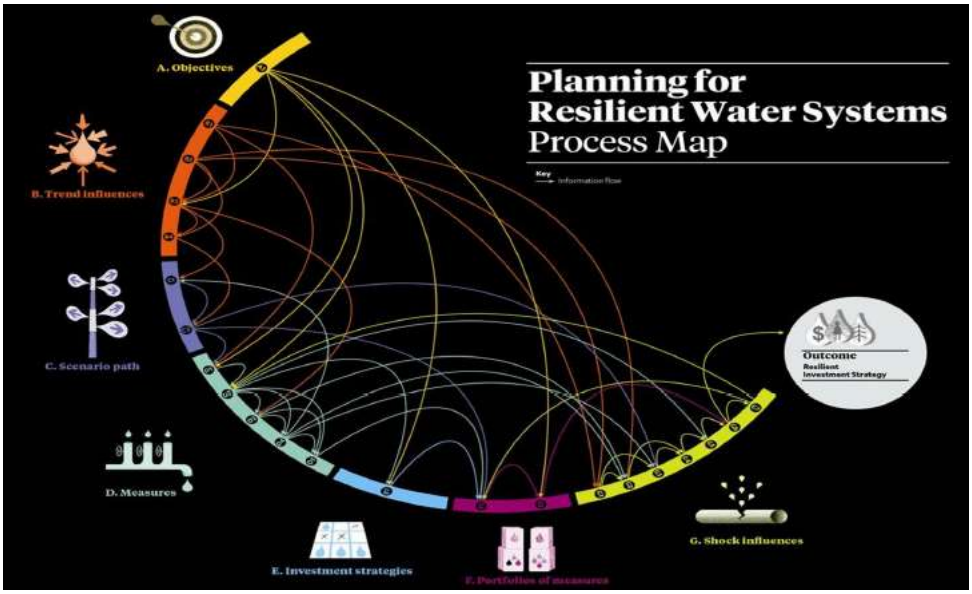
First undertaken in the 1990's and reviewed and updated in 2010 this fundamental research explains the cultural wavelengths that unconsciously underpin our nations behaviour. How do we culturally balance the tension between task and relationship at work and beyond? What sets off our finely tuned "BS" detectors and how can we avert the consequential fallout? As leaders and influencers what are the cultural keys to unlocking discretionary effort and building powerful connections and discovering new ways of being and doing? It's time to explode the tall poppy myth! We are an extraordinary country of endeavour and innovation… it just needs to be liberated on a wider scale.
(By a furlong, the best presenter of the day. And the most insightful 2x2 Matrix of the conference... or year)



2.55 - 3.35 AFTERNOON TEA & NETWORKING

3.35 - 4.45 Panel Session – Is Brainstorming Broken? Fixing the Process for Bottom-Line Benefits
Facilitated by Colin Pidd
Brainstorming has for years been lauded as an effective approach for creativity and idea-generation. Back in the 1940's, the inventor of brainstorming and founder of BBDO, Alex Osborn, gave birth to the process believing that only in a non-critical group environment could creativity flourish. Over the years however research has challenged those fundamental tenets with claims that individuals working alone generate more ideas than those working in groups and that criticism improves the idea-generation process. The level of planning, physical proximity of groups, and the experience of the facilitator are also believed to have an impact on the efficacy of the brainstorming process. In this session then, our guest panelists consider whether brainstorming is still a valid tool for creativity and innovation. And if so, what are the processes and practical techniques that will guarantee that brainstorming delivers quality ideas for organisations and teams.
Derek O'Donnell, State Supply Chain Manager - Victoria/Tasmania, Coca Cola Amatil
Carol Jadraque, Sustainability and Innovation Manager, Melbourne Water
Natalie Pavuk, Business Intelligence Manager, Roche Products
Darrell Mann, Director, Systematic Innovation, UK
4.45 - 5.00 Closing Address

DAY 2 : 15 MARCH 2012 - Stream 1 : Innovation
9.00-9.30 : Ashraf Abdelmoteleb, Chief Investment Manager, Smart Water Fund
Enabling transformation in the Victorian water industry
The Victorian Water Industry has faced significant events and pressures during the past 10 years, which challenged the suitability of traditional water planning and management approaches. Several emerging drivers are now reshaping the industry and require significant 'out of the box' thinking. In 2010, The Smart Water Fund, a joint venture between the four Melbourne Water Corporations and the Department of Sustainability and Environment was restructured to act as an enabling vehicle for investment in transformational thinking. This presentation will provide an insight into the drivers facing the industry, the choice of the Smart Water Fund structure and its approach to enabling the transformation.
(TRIZ-inspired piece of work and all around elegant example of building an innovation strategy that embraces complexity. I particularly liked the way of presenting the overall process and its iterative loops:)

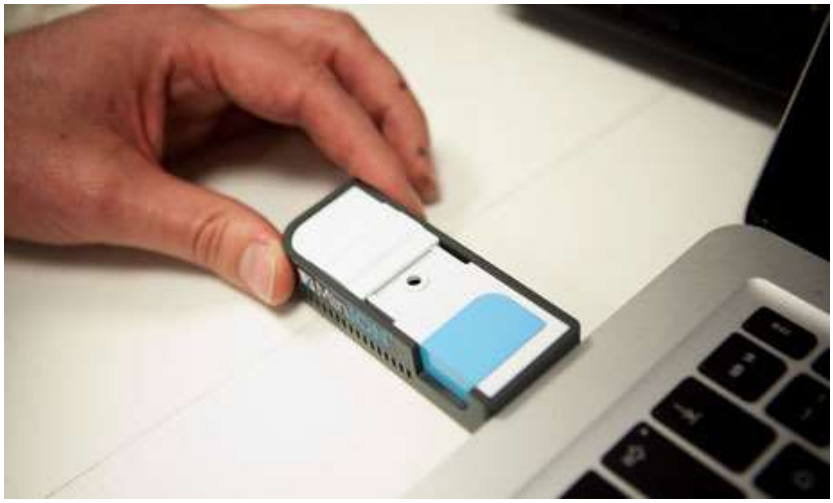


9.30-10.00 : Ian Moore, Innovation and Regulatory Affairs Manager, Sugar Australia
Collaborative innovation in practice
10.00-10.30 : Mark Redmond, Business Innovation Manager, Ergon Energy
Ergon Energy's innovation challenges
(Warning example of the perils of appointing 'innovation' job titles and then not giving people the ability to do anything)
10.30-11.00 : Morning Tea & Networking
11.00-11.40 : Treasure Jennings, Director Organisational Development and Learning, VicRoads and Frank Connolly, Principal, Think Quick
The X Teams X Factor
11.40-12.20 : Darrell Mann, Director, Systematic Innovation, UK
Success and the Innovation Capability Maturity Model
12.20-1.20 : Lunch
1.20-1.50 : Jane Cockburn, Senior Product Manager - Audiological Products and Services, Cochlear
Hargraves Design Fellowship - The STaR Experience
Jenine Ormandy, Packaging Development Manager and Lisa Chiew-Curran, Group Packaging Technologist, Cerebos
Learning's and challenges from our Design Led Innovation Fellowship journey
1.50-2.10 : Jon McCormick, Managing Director - Services, Brookfield Mulitplex Services
The Innovative and Sustainable Buildings Group
2.10-2.30 : John Maclay, Program Manager, Hargraves Institute
The value of the Process Innovation Fellowship
2.30-2.45 : Open Discussion
2.45-3.15 : Afternoon Tea & Networking

DAY 2 : 15 MARCH 2012 - Stream 2 : Leadership & Transformation
9.00-9.30 : Kristian Handberg, Project Manager - Low Emission Vehicles, Strategy & Resource Efficiency Policy, Policy & Communications Division - Department of Transport
Victorian Electric Vehicle Trial
9.30-10.00 : Greg Menz, National EHS Manager, Schweppes Australia and Andy Donnelly, Deputy Director and Head of Programs, Earthwatch
Schweppes Sustainability Leadership Program
10.00-10.30 : Munib Karavdic, Principal for Growth & Innovation, AMP
Crowd and open innovation sourcing
10.30-11.00 : Morning Tea & Networking
11.00-11.40 : Tess Julian, Director, Ratio
How to lead the way in practical innovation
11.40-12.20 : Cameron Ainslie, Company Director
Competitive simulations
1.20-1.50 : Matthias Hase, Head of Competence Domain Consulting, Region Asia South & Oceania, Ericsson Australia
Networked society and leadership
1.50-2.10 : Ed di Collalto, Director, Lockhart & Associates
What is the competitive advantage of sustainability?
2.10-2.30 : Mark Boulet, Manager - Education Programs, Monash Sustainability Institute
Green Steps @ work - Building staff capability to improve an organisation's sustainability performance
3.15-4.30 : Social Innovation Interactive Group Activity. Facilitated by Dr Amantha Imber and Dr Jason Fox

4.45 : Conference close

Investments – DNA Decoder



A UK firm spun out from Oxford University has come up with a DNA sequencing machine the size of a USB memory stick, a move that is set to revolutionise the industry.

Privately owned Oxford Nanopore, which was spun out of Oxford University in 2005, on Friday presented at a conference in Florida two new generation machines that can do the same job as current mainframe-sized devices, and can decode the building blocks of life within hours rather than days.

The technology could be used in the field to do on-the-spot tests and sequencing of rapidly mutating infectious diseases like HIV and malaria to work out how to treat them, as well as prenatal screening for genetic defects and screening for genetic mutations of plants. The firm expects major agricultural companies like BASF and Monsanto to be interested.

Oxford Nanopore has spent the last three years developing the machines in secrecy in collaboration with scientists at Harvard and University of California Santa Cruz. The devices are based on DNA "strand sequencing", and could be launched as soon as the second half of the year.

One of the machines, known as GridION, is the size of a DVD player. They can be stacked and plugged into each other to increase the speed. The other sequencer - the "MinION" which is expected to cost less than $900 (£569) - is as small as a USB memory stick.

Dr Gordon Sanghera, chief executive of Oxford Nanopore, said: "The exquisite science behind nanopore sensing has taken nearly two decades to reach this point; a truly disruptive single molecule analysis technique, designed alongside new electronics to be a universal sequencing system. GridION and MinION are poised to deliver a completely new range of benefits to researchers and clinicians."

The DNA sequencing machines currently on the market, made by Illumina and Life Technologies, both based in California, are much bigger and take far longer. Life Tech is now taking orders for a $149,000 benchtop machine which can transcribe a person's DNA in a day for around $1,000. Five years ago, it cost $10m to sequence a human genome. Oxford Nanopore's technology claims to do the job within hours - viruses can be decoded within seconds - and is "truly disruptive and game-changing," said Alan Aubrey, chief

executive of IP Group, which owns 21.5% of Oxford Nanopore. "The significance of this technology introduction is, in computing terms, analogous to moving from the mainframe to the laptop."

Strand sequencing is thought to be superior to a previous technology, exonuclease sequencing, as the DNA is read directly. In strand sequencing, an entire string of DNA passes intact through a tiny hole created by an engineered protein, or nanopore, in a cell membrane. "It's like sucking spaghetti really fast," said Sanghera. In exonuclease sequencing, the DNA building blocks are separated by an enzyme and drop through the hole one at a time.

The main challenges were to slow the process down from 1m bases of DNA sequence a second to 300 bases a second, so the DNA can be read, and to solve the problem of reading many bases.

Oxford Nanopore has a deal with Illumina for exonuclease sequencing but wants to commercialise its new machines itself. Whether or not this turns out to be a smart move remains to be sign. Either way, though, what they've developed looks set to find its way to market somehow.

Generational Cycles – Helicopters & Lawnmowers

There is no surprise that in society, today, people have come up with terms to describe different types of mothers in relation to how protective or non-protective of their children they are. What is surprising is how extreme these terms are and even more surprising is how extreme these moms truly are. Of course, it is essential to protect children, but at what expense do mothers go to?

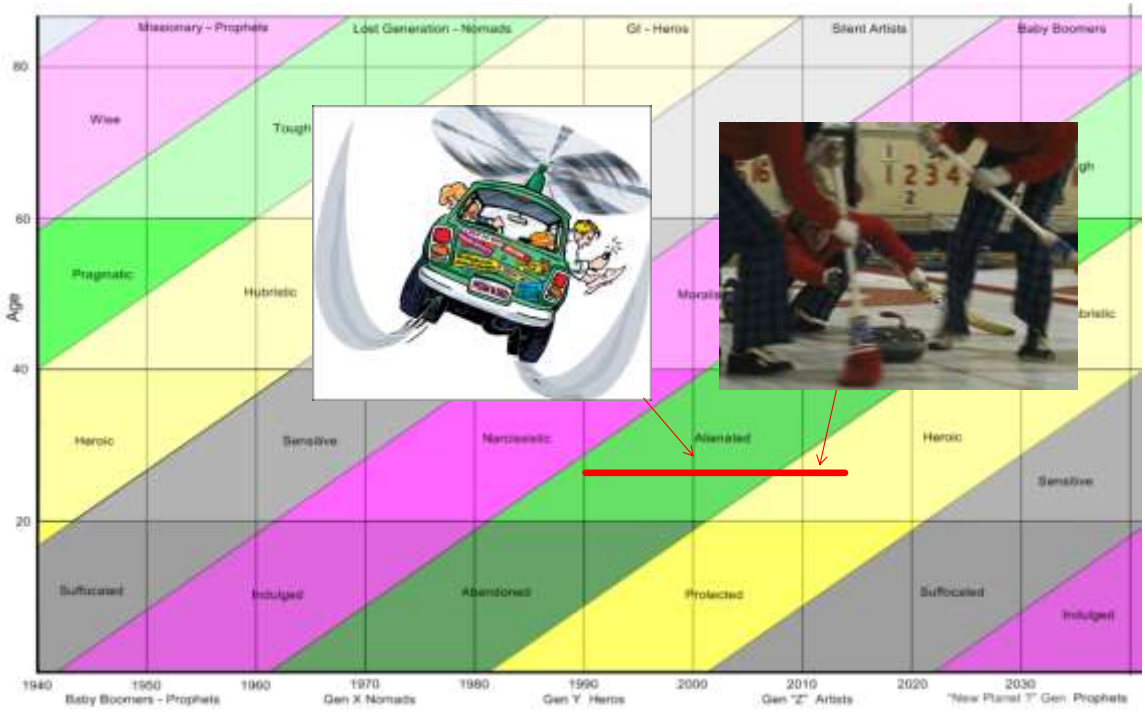
The first extreme is a Helicopter Mother. This is a mother that 'hovers' over her children continually. She not only makes sure her children are safe at all times, but she does not give them room to breathe let alone let them learn how to function for themselves. She does everything for them. Sally finishes eating her sandwich and mom takes her to the bathroom, helps her wash her hands (because there is no way Sally can do a satisfactory job washing her hands at 5 years old) and finishes it off by wiping Sally's little mouth. Now Sally is 10 years old and Mom is still helping her get dressed, bathe and doing her homework. How will Sally ever learn to do things on her own?

The expression 'helicopter mom' first appeared in 1990. More recently, a more extreme version of the helicopter parent has emerged. The so-called 'Lawnmower' parent expression first appearing in the early part of this century (the Scandinavian equivalent 'curling parent' appeared in 2006 – the curling expression coming from the image of the ice-scrapers frantically clearing the path in front of a curling stone as it makes its way to its target).

A Lawnmower Mother is a parent who attempts to mow down all obstacles on behalf of her child. When her child is young, she tries to control the child's friendships, choices and activities. As the child grows, she regularly makes stops at her child's school to correct the child's teachers in their erroneous ways. When the child goes off to college, mom is there to tell her what classes to take and to make sure things go smoothly. Many times these mothers interfere with their children's places of work even after they have graduated and moved out on their own. The Lawnmower Mother does not let her children experience things for themselves, nor does she let them handle life's experiences. One of two things ends up happening; either the child gets to a place where she has had enough and puts

her mother in her place (which many times does not end well), or the child becomes extremely socially inept and is in constant need of mommy's help.

Interestingly, this evolution from 'helicopter' to 'lawnmower' coincides pretty well with the transition from Generation X to Generation Y parents and the corresponding shift in the offspring they're tasked with raising. Alienated GenX'ers protect their Hero offspring: when the Heroes become parents, they heroically take what they learned from their parents and do even more of it, resulting in a suffocation of their Artist generation children:



Always nice to be able to put a name to these archetypes. Somehow we like the term 'curling' better than 'lawnmower' if only because, if you spend even just five minutes watching curling, the frantic ice-scrapers can very easily appear – to the lay-person – to be busy sweeping away obstacles that don't actually exist. Which kind of fits the metaphor better than cutting grass.

Helicopter parents:
1. Pay too close attention to and orchestrate their kids' entire lives. They talk a lot—and give too much advice.
2. Hover over their kids so that their kids don't make any mistakes or suffer any pain from experience.
3. Raise kids who are overly dependent, neurotic, and less open.

Curling parents:
1. Mow down all obstacles they see in their child's path.
2. Smooth over any problem their child has.
3. Make sure their kids always look perfect (and if they aren't, they'll intervene and make it better right away).

Biology – Scorpion Exo-Skeleton

As any graffiti-removal specialist will tell you, sand-blasting is definitely an effective method of removing substances that have bonded onto hard surfaces. Unfortunately, sand or other abrasive particles suspended in air or liquid also have a way of eroding not just spray paint, but pretty much anything they encounter. As a result, items such as helicopter rotor blades, airplane propellers, rocket motor nozzles and pipes regularly wear out and need to replaced. Interestingly enough, however, scorpions live their entire lives subjected to blowing sand, yet *they* never appear to ... well, to erode. A group of scientists recently set out to discover their secret, so it could be applied to man-made materials.

Zhiwu Han, Junqiu Zhang, and Wen Li led a team that examined the bumps and grooves on the exoskeleton of the yellow fattail scorpion. They started by scanning the creatures' backs with a 3D laser device, then used that data to create a computer model of the surface. A computer simulation was then applied to that model, to see how sand-laden air would flow over it. The digital model was also used as a template for an actual physical model, which was used in erosion wind tunnel tests.

The scientists subsequently applied what they observed in the scorpions' exoskeletons to man-made surfaces. They determined that the effects of erosion on steel surfaces could be significantly reduced, if that steel contained a series of small grooves set at a 30-degree angle to the flow of abrasive particles.

For the scorpion, close examination of the exo-skeleton reveals a rather more sophisticated pattern and shape of macro- and micro-level grooves and protrusions:

We suspect that that the various bumps work to prevent erosion through a combination of, firstly, acting as turbulators that create a thicker boundary-layer over the skin that serves to slow sand particles before they impact the skeleton, and secondly, when the skeleton does inevitably get impacted by said particles, they are deflected in many different angles such that the number of energy-dissipating particle-on-particle impacts is markedly increased… the theory here being that the energy present in one sand particle is better dissipated by banging into other particles rather than on exo-skeleton.

Only some more detailed experimental work will validate the extent of either mechanism. In the meantime, it just leaves us to examine the underlying conflict. Which is basically the desire to minimise exo-skeleton erosion ('Loss of Substance') being hazarded by the presence of high-speed, wind-blown sand particles impacting the skeleton:

IMPROVING PARAMETERS YOU HAVE SELECTED:

Loss of Substance (25)

WORSENING PARAMETERS YOU HAVE SELECTED:

Amount of Substance (10) and Speed (14) and Force/Torque (15) and Stress/Pressure (19)

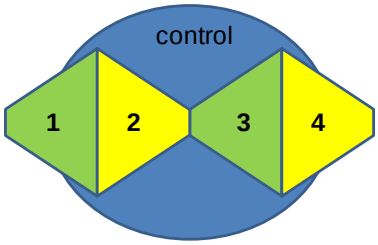
SUGGESTED INVENTIVE PRINCIPLES:

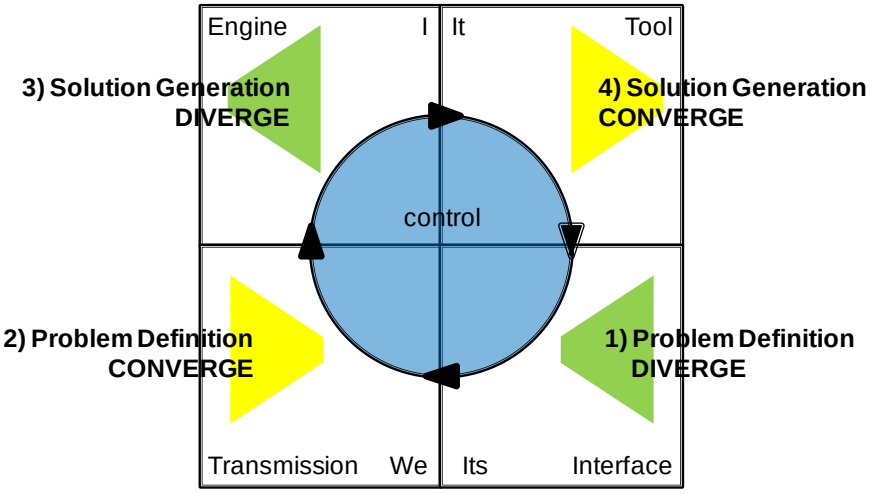
3, 10, 24, 9, 35, 17, 12, 28, 14, 19, 15, 37, 13, 6, 25, 18, 1, 40, 38, 16, 4, 36

Very encouragingly, we see Principle 3, Local Quality – the Principle most closely associated with grooves and protrusions – coming at the head of the likelihood list.

Short Thort

Links between divergent-convergent problem definition-solution cycles, Law Of System Completeness and Ken Wilber's 'Theory Of Everything' Framework:





News

Korea TRIZ Conference

It has just been announced that this year's big Systematic Innovation and 'Global' TRIZ conference will be held at the prestigious Yonsei University in Seoul, Korea. The dates are 10-12 July. We're expecting to be there to present a keynote address on the Innovation Capability Maturity Model. With a following wind, we're also aiming to schedule a 2-day 'Business TRIZ' workshop to precede or follow the conference. More details on the website as the plans become finalized.

Danish Technical University

We are happy to announce we will be teaching a new 'Innovation Management' module to run alongside an IDEO session on Design-Thinking and a UC Berkeley session on Leadership at the Copenhagen-based Executive MBA programme in November. Expect fireworks!

Systematic Innovation Fellowship

Our good friends at the Hargraves Institute in Australia are looking to establish a 12-month duration 'innovation fellowship' group in the coming months. The initiative comes in the wake of a recently completed equivalent on design-thinking. Up to 12 places are available for anyone interested. Being based in Australia would help; being in ready reach of Melbourne, where the group hub looks like it will be located, would help even more.

ETRIA

This year's European TRIZ Association conference will be held in Lisbon, Portugal during the latter part of October. Subject to our 'Trilemma' abstract being accepted (the academic referees have decided they don't like us in the last couple of years), we are planning to be

there. If only because it'll be nearly winter and 'Lisbon' sounds warmer than 'England'. The abstract deadline, for anyone else thinking of attending, is 2 April.

New Projects

This month's new projects from around the Network:

- Utility – Innovation Capability study
- FMCG – Consumer anthropology project
- Mining – Certification training workshops
- SMCG – 5-year NPD strategy definition
- Architecture – Built-Environment Long-Term Sustainability Study
- O&G – disruptive technology development project
- Financial Services – IP valuation services
- Financial Services – Generation Y engagement study
- Retail – innovation workshops