IDEALITY AND 'SELF-X'
Part 3: Business Context and Case Studies

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Introduction

This article forms the third in a series of three discussing the importance of systems that incorporate solutions incorporating the word 'self' in the context of their relationship – in the true TRIZ sense – to the concept of ideality. The first two articles - found in the February and March issues of the Journal – described the relevance of self in a technical context. This third article attempts to illustrate that the relevance and importance of self- and ideality is just as great, if not greater, in its business context. The article is split into two parts; the first is a short section examining some of the theoretical background and implications of business 'self-x' solutions; the second examining a number of case study examples of the theory in practice. Each of the case studies is intended to both show the importance of 'self' as a solution direction, and also some of the important additional implications of thinking about this word in a business innovation context – whether it be applied to internal organization or the way of conducting business with external customers. More detailed descriptions of all the case studies featured here will shortly be found in Reference 1.

Ideality and Self-X in Business Systems

The over-riding trend of evolution for successful technical systems uncovered by the original TRIZ researchers was the drive towards increasing ideality. Successful innovations very simply head in a direction of delivering more good stuff, less cost and less harm.

As far as can be observed from a similar level of analysis of what makes organizations and businesses successful is that the same drive towards increasing ideality is present. Hopefully, this should not be too great a surprise to readers.

Similarly, the idea of getting systems to handle functions by 'themselves' also seems to be highly relevant in a business context, providing we keep in mind the difference between conventional and ideality-driven strategies – Figure 1. In this characteristic, we see the 'conventional' evolution of systems following a trend of increasing complexity followed by decreasing complexity. This trend can be observed in very many organization systems as they evolve from birth through growth and on to maturity. In the early stages of a business, if their offerings to the market are in sufficient demand to create opportunities for growth to happen, it is usually the case that the focus of the business is very much on increasing output rather than optimization of processes. This optimization in fact frequently only becomes a consideration *after* several competitors have emerged and the organization needs to find better ways of conducting its business in order to maintain an edge. Examples of this phenomenon can be seen in industries from the old bricks and mortar manufacture sector through to the succeeding e-businesses – which have only relatively recently been forced to transform themselves from burn-rate supernovas into professionally managed operations.
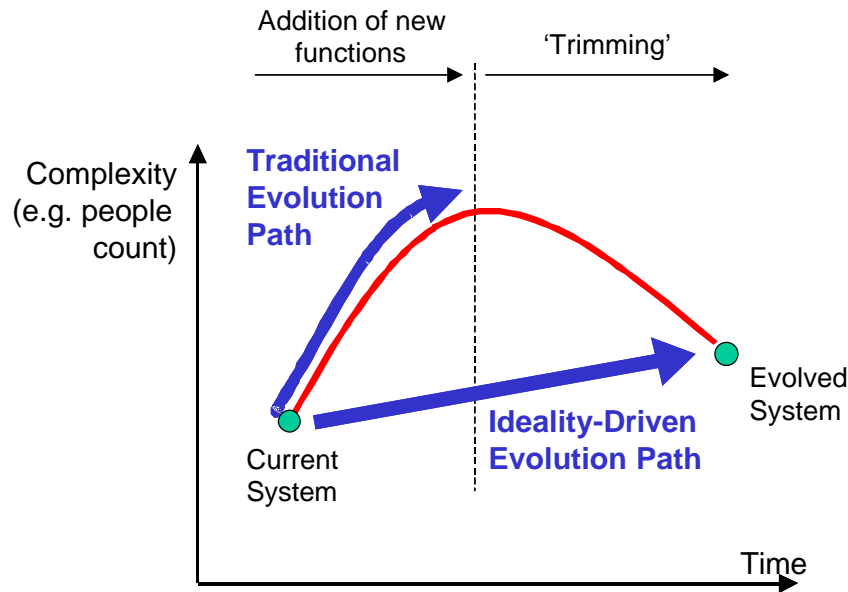
Figure 1: Conventional versus Ideality-Driven Evolution in Business

In the evolution of technical systems, the trend towards increasing and then decreasing complexity is often driven by a fundamental lack of knowledge regarding the technology during the early stages of evolution. In business, a similar lack of knowledge can also be a factor, but more often it may be speculated that the characteristic actually occurs because the emphasis of the business is heavily driven by a need to grow the customer base as fast as possible, and the need for things like operating procedures, quality manuals, human resources functions, etc – all of which are frequently added without due consideration of their impact on the existing systems – are often given a lowly second place in the full scheme of things. It may well be, therefore, that there are rather fewer justifiable reasons why the increasing-decreasing complexity characteristic needs to be present in a business system, provided the right foundations can be put in place early in the life of the business. See also Reference 2 for additional interpretations of this trend – which, although discussed in the context of technical systems, are also highly applicable in business settings.

What the TRIZ interpreted use of the word 'self' (and its synonyms of course) is trying to imply is that by thinking about getting systems to deliver useful functions 'by themselves', it is highly possible that systems will be able to avoid some of the waste that inevitably accompanies the excessive increase in complexity suggested by the trend.

The rest of the article now looks at a number of examples where such ideality-driven 'self-x' cases have been shown to produce important success in the business context. Rather than focusing on simply those instances where businesses are at the start of their s-curve, we will also examine examples in which relatively mature organizations have successfully adopted self-x strategies later on in their evolution.

Case Study 1 – Self Regulation of Quality at Toyota

The first such case involves Toyota specifically, but also, thanks to the extensive studies published on the Toyota 'lean' model, to an increasing number of other organisations. Albeit, few of these new examples have successfully managed to introduce the full philosophy behind the Toyota model. Particularly when it comes to thinking about the human elements

of the design of that model. The case study itself is very simple. It relates primarily to the role of inspection and Quality functions within an organisation.

In many organisations, the creation of a 'Quality Department' or recruiting of inspectors, etc occurs in response to failures of the system to deliver the desired levels of quality during the production of whatever the product or service that is being delivered to the customer. The 'common sense' logic underlying the increase in complexity of the system resulting from adding people with specific responsibilities for quality is that these people will be able to check the output of the producing elements of the business in order to identify defects before they hit the customer.

Common sense has the unfortunate habit of turning out to be flawed as we think harder about situations (see Reference 2 which suggests that in fact just about all successful new ideas and models run counter to the prevailing common sense logic). With regard to quality systems, the logic has proved itself to be severely flawed on just about every possible occasion. The net result of that flawed thinking is that most 'quality systems' actually serve to decrease overall quality (albeit the customer fortunately doesn't get to see any of it – at least not directly), and increase costs (the bit the customers do see).

Why is this so? From the perspective of the people doing the productive work, the appearance of a downstream Quality checking function sends out a strong yet unspoken implication that 'someone else' will worry about quality. The consequence of this is that there is less need to worry about doing things right. From the perspective of those people put in place to worry about the quality, there is an opposite perception that the upstream producers will produce quality goods and that only a small amount of poor quality will reach them. The net result of the two perceptions is that more mistakes get made during production, and the inspectors pick less of them up.

At Toyota, they have achieved the ideal 'Quality Department'. The ideal final result quality department is one in which we get quality without the quality department. At Toyota, the system 'itself' delivers the required levels of quality.

Toyota, of course, didn't use TRIZ to get to this outcome. By applying the 'get the system to deliver the function by itself' question, on the other hand, it becomes possible for us to at least be thinking about the same end point that Toyota have reached. Furthermore, the self-regulating capability achieved at Toyota represents part of a database of 'someone, somewhere has already solved our self-x problem' that we can apply in our own context.

Case Study 2– Self Regulating Systems at Semco

Ricardo Semler is the CEO of Semco, a Brazilian company made famous (in the US and Europe at least) following the publication of the book Maverick (Reference 3). Semler is the son of a wealthy Brazilian industrialist. He was not accepted at Harvard University and so at 21 was instead placed in charge of Semco. Maverick tells the story of the revolutionary changes Ricardo Semler made in the company. When he started, Semco was a traditionally structured and struggling industrial pump manufacturer. Young Semler proceeded to fire most of the top managers in an effort to perform emergency surgery on the foundering company. Initially, Semler concentrated on keeping the company afloat. But once the company's financial position stabilized, he proceeded to buy other companies and diversify. As Semco grew, Semler gradually made innovations, such as doing away with dress codes, introducing flex time, and encouraging employees to take more ownership of their work. These are all areas that many companies have experimented with over the last fifteen years. However, Semler went much further. He questioned many standard office practices and

reinvented many of them – often with a very TRIZ-like 'get the system to fix the system by itself' strategy in mind. After seeing a company order for $50,000 worth of file cabinets, for example, he decreed that every person would clean out their own file cabinets and keep only what was absolutely necessary. The system, in other words, became transformed into a self regulating system in which only the stuff important to the future of the business (as opposed to future of an individual bent on covering his/her tracks) was retained. Everyone takes on a responsibility for determining what gets stored and what gets thrown away.

Another explicitly self-x solution from the Maverick book is the example of self-regulating pay and reward systems. The basic concept may appear to be quite radical in the context of many business systems, but appears to be one of the major success factors underlying the Semco strategy. From the book:-

"Paying people whtever they want seems a sure route to bankrupcy, but we've been doing this for years and we've never done better. A 10% rise turns out to be an exception. Nearly 25% of our employees now set their own salaries, including most of our co-ordinators, and I don't see why factory workers shouldn't one day determine their own pay."

Yet another piece of prevailing common sense (if you let people set their own salaries they will take a lot and in the process suck all of the resource out of the business) that proves to be a fallacy in the cold light of day.

One reason for the continuing existence of Semco has been the willingness of Semler and the Semco's manager to adapt themeselves to changing external circumstances. Brazil's economy has forced thousands of companies to shut down, laying off hundreds of thousands of workers. While Semco has had some layoffs and has closed some plants (in several instances, a manager's job is often to try and remove the need for his job and have the system be self-regulating instead), it also spun off nearly two dozen satellite companies. In an effort to decentralize, these satellite companies contract back some services to Semco in addition to soliciting independent business.

This whole concept of self-regulation and self-organisation within business systems lies also at the heart of the book 'Complexity Advantage' (Reference 4) – which contains many fine examples of how this Semco kind of self-x direction setting in the DNA of the business results in a successful system that emerges ('by itself') from the complex soup of employees, structures, interactions and customers.

Case Study 3– Self Limiting Systems

Many organisations talk about the need for some kind of tension within the business in order to get things done. Tension, as we probably all know can be both a useful and a harmful thing. The tension of an upcoming deadline is often the essential incentive to spur us into action (think of how many college assignments you used to begin writing only on the day before they were due to be handed in). On the other hand, too much tension can be highly destructive – resulting in, amongst other things, depression, illness and time off work. Taken together, it seems clear that we have contradictory requirements for both tension and no-tension. The phenomenon is illustrated in Figure 2. The figure describes the effect of changing tension (x-axis) on the outcomes from a system. System in this sense meaning anything from an individual to a whole organisation. What the characteristic of the graph shows is that as tension increases up to a certain 'optimum' level, its effect is beneficial, but beyond this, the positive effect rapidly turns into a negative one. In this situation, no matter what happens, the tension level will not go beyond a certain level (since either people will become ill or leave for a more amenable environment). Tension, in other words, self-limits inside a system.
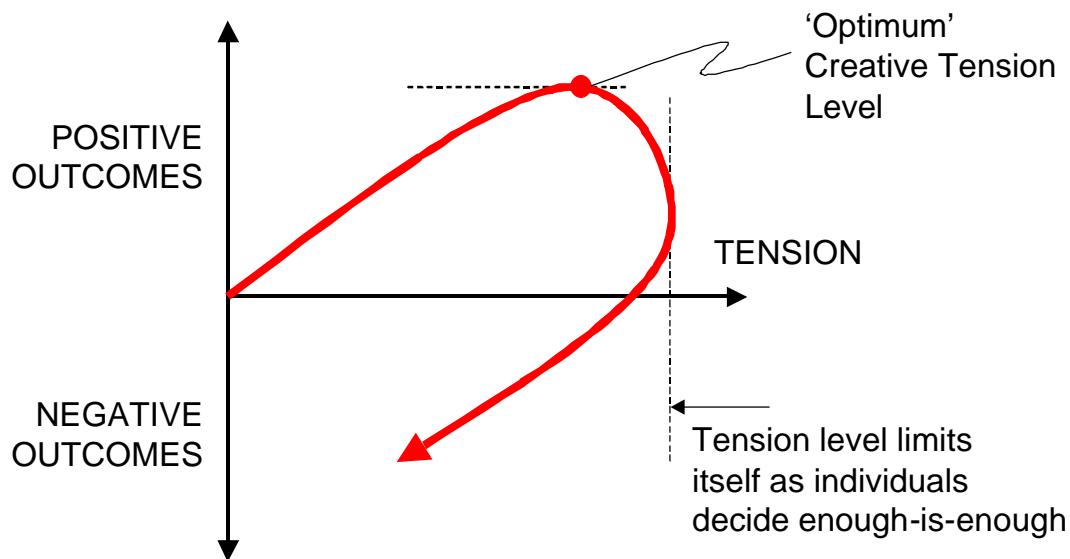
Figure 2: Self-Limiting Tension and Impact on The Overall Business

The characteristic further describes a high level of hysteresis in the system – since trying to force the tension level above the self-limiting maximum serves only to force more and more negative outcomes. In many senses, we might think of this lower part of the hysteresis curve as the Dilbert zone – the place where things are so bad that the only possible human response is to laugh.

The self-limiting tension phenomenon is in itself hardly a TRIZ-like definition of the self-x and ideality concepts. What is, however, are systems that are able to manage themselves into the 'optimum' tension position (recognising that this value is dynamic and variable depending on a wide variety of different external situations). Several organisations are beginning to talk about 'creative tension management' and, in keeping with the emergent systems ideas of Reference 4, attempts to define the DNA rules that allow systems to find this 'in the zone' tension level by themselves.

Case Study 4 – Self Financing

How does a rock band finance their next record when the record label has dropped them? That is the problem faced by famous progressive rock band Marillion when it came to writing, recording and releasing new material at the beginning of this century. Although the band was not expecting to sell the millions of records it was able to ship during the 80s and 90s, the band nevertheless knew that there was a substantial audience still wanting to hear from them. The strategy used by the band to resolve the problem of self-financing the new record involved tapping into the existing resource provided by that loyal fan base. The band asked fans to buy the album before they had even written it. This advance money (which would normally have come from the record company) was then used to buy the studio time needed to write, record and release the record. In all over 13,000 fans had sufficient faith in the quality and integrity of the band to pay for the new record in this way (Reference 5). The record – Figure 3 – has since become a high selling record (not chart-wise, but nevertheless very respectable) and the basic idea of pre-financing the record is undoubtedly still being talked about in music industry circles and in the press over two years later. In many senses, the self-financing idea of using existing resources, looks set to play a strong influence in the future of an industry that has been subject to increasing levels of fragmentation and Scarcity Theory effect (Reference 6) in recent times. Reference 5 has recently been updated to detail the next stage in the evolution of this self-x example.

Figure 3: Marillion Album Anoraknophobia – Financed By Fans Before It Was Recorded
(the names of all 13,000 fans that pre-ordered were included in the album cover art)

Case Study 5 – Self Organisation

The traditional role of management within businesses is to 'manage' the activities that take place within the organisation. The evidence emerging from books like the Complexity Advantage (Reference 4) is that this kind of top-down approach to management is in many instances fundamentally flawed. Bad top-down management results in unhappy workers who devote increasing proportions of their creative efforts designing ways around the systems imposed on them. The way that SAP, for example, is deployed (or rather mis-deployed) in several organisations offers powerful evidence of the conflicts that can arise when a management team think that SAP has given them more control over their business, while the day-to-day working level reality is that the 'real' work goes on despite the system – with workers devoting ever more time to servicing a system that delivers the required rather than actual truth.

There are an increasing number of examples of organisations taking heed of the problems created by top-down management styles (another example of common sense pointing managers in the wrong direction) and are instead shifting to higher and higher degrees of self-organisation. SouthWest Airlines (Reference 7), for example, is famously free of bureaucracy and top-down rules, insisting instead that everyone takes responsibility for not just their own jobs, but also for the welfare of the organisation as a whole as they perform their work.

Perhaps even more striking is the shift in management that has taken place in military circles in recent times. Traditionally, the military has represented the epitome of top-down management – the prevailing logic being that people following order without question is the best way to achieve a desired end. The evidence provided by campaign after campaign, and exercise after exercise is that this kind of approach often produces highly non-ideal results. If soldiers are encouraged not to think, they won't think. This can be okay if the situation in which those soldiers find themselves is as per the plan, but if the plan changes, what used to be an appropriate command, can turn into something that is quite the opposite. NATO commanders, having recognised this phenomenon, and the high likelihood that plan's will change on a very regular basis, have shifted to a structure known as 'Commanders Intent' (Reference 8). Commanders Intent works by passing on instructions in the form of desired outcomes (e.g. 'capture that bridge and hold it, because it is a unique supply route that will both cut off the enemy and help us'), and then allowing soldiers to organise themselves to deliver the desired intent. This level of flexibility permits the soldiers to adapt (themselves) to suit emerging conditions in the field, without the need to wait for further instructions from the commander when a situation changes from a fixed plan.

Case Study 6 – Self Replicating

All life forms have a certain life-span. The same applies to businesses, although few managers have recognised that a connection exists as yet. Nature solves the problem of death by having systems that are capable of reproducing themselves. The self-reproducing idea is rather less well established in industry, but is beginning to be seen as a natural (albeit often also uncomfortable) way of enabling businesses to achieve long term survival. As one product or market dies out, another one emerges to take its place. We can see this shift taking place in the photographic industries at the moment – where all the smart organisations are busy trying to shift from film to digital products and services.

One of the best self-replicating examples comes from Richard Branson's Virgin group of companies. Virgin has spawned a broad range (airlines to banks to cola drinks to name but three) of outlets for its capabilities, and frequently uses the 150 people rule (which says that when an organisation structure gets above 150 people, the evolution of a social network makes it increasingly unlikely that everyone can know everyone else, and that bonding and interaction suffers exponentially – Reference 9) as a means of deciding when an organisation is ripe for (self-)dividing into new entities. The culture within the company actively supports this kind of self-replication function – the most well known case perhaps being Virgin Brides (great name!) – which was the brainchild of a cabin attendant flying Virgin Atlantic who was having logistical difficulties organising the multitude of different elements of her wedding, and had the idea of a one-stop shop for bringing into one place the co-ordination of church, flowers, photographer, reception, cake, dress, etc, etc. The organisation gave her the freedom to develop the idea into a business plan that has now turned into a successful part of the Virgin empire. Similar self-replicating strategies can also be seen to be emerging in companies like GE and IDEO.

Conclusions

There is no reason to doubt that self-x as an evolutionary end point is as important in a business context as it is in technological systems. As in technical systems, business systems are destined to evolve towards an ideal final result heavily dependent on self-x solutions. As suggested by Figure 4 , this evolution is convergent on that ideal final result end point.
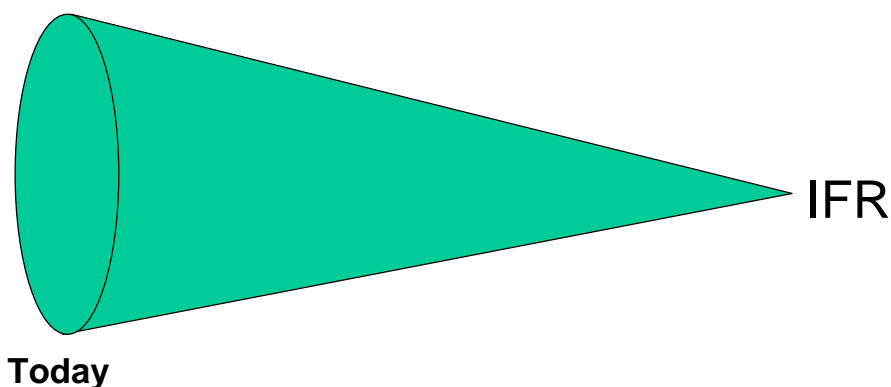

Today

Figure 4: Evolution of Business Systems Converges Towards an Ideal Final Result

The growing database of business examples of self-x in action – of which just a few instances have been relayed here – means that it is increasingly likely that someone, somewhere has already been thinking about and has generated valuable solutions to your business self-x problem or opportunity situation.

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