

Management: innovation

[Business](#), [Management](#)



Business is said to consist of four elements: Principles, Models, Rules and Behaviours, the first constrains the company scope, the third the procedures, both being static elements. The interplay (feedback) between changing models and behaviours however is what drives innovation - the exploration of adjacent new possibilities. This is a step at a time mode of innovation, yet rules actually prevent these improvements which, it is shown, derive largely from the staff breaking rules.

After looking more closely at complexity concepts (see later), the importance of language and metaphor is considered, especially the need for free format communications (stories) between employees. The knowledge and ideas thus exchanged are considered far more valuable to the company, in the new thinking, than any time wasted. This leads on to applications of the co-evolution metaphor central to complexity thinking, stressing that the future is no longer predictable from the past.

The importance of ideas in defining company possibilities, and the need for a high ratio of information (ideas) to infrastructure (events), brings us to the successful franchise system, said to be the current best model of CAS thinking in action. This highlights the importance of independent feedback between control levels in achieving adaptation, plus the superiority of information flow over infrastructure change.

The ramifications of understanding and challenging our basic assumptions (including principles) in order to make the necessary paradigm shift cannot be stressed enough, otherwise we merely tinker with the parts. Anyway, these serve to illustrate the benefits of devolving power and decision making

to individuals or groups in the company (who form purposeful agents in the CAS). The self-organization that then occurs allows the rule transcendence (going beyond routine) necessary to generate that flexibility crucial to success in a modern co-evolutionary environment.

The point that such emergence takes time is well made, and highlights one possible problem in the management of such complexity based systems - impatience. Another problem is the ability of staff to adopt such lateral, divergent thinking (the creative basis of adjacent innovation), and this requires that the employees change their mindset also, to embrace and not abuse the new freedoms. This both necessitates and will drive a society wide change, following the same devolution of power - complexity thinking isn't a change just to company behaviour, but to overall lifestyle.

Many of the concepts are presented in a guru style, as claimed 'truths', without justification, and this lack of depth means that inadequate background is given to many of the complexity terms used (e. g. attractor, fractal, fitness), so much so that their true relevance could be missed by the intended business audience. For example, the important idea of crossover, the re-combination of old ideas in new ways to cause step jumps in performance, with stress being placed instead on mutation style evolution (a move to an adjacent point on the fitness landscape).

Additionally the emphasis on breaking down barriers, and the resultant freedom and unpredictability, neglects the spontaneously appearance of new dynamic barriers (by self-organization effects), which can prevent the feared chaos dissolving the business.

On a more detailed level, there is inadequate mention of the many computer programs using complexity techniques available (outside the Santa Fe environment), which could help businesses gradually introduce this style of thinking, targeting specific existing problems (e. g. using Genetic Algorithms, Neural Networks, Fuzzy Logic, Artificial Life and Cellular Automata techniques). Those seeking a more in depth knowledge of general complexity ideas should therefore look elsewhere, but considerable scope is still provided here for the remodelling of overall business structures, along the lines of the organic complexity paradigms recommended.

It would have been nice to have seen simulations used to give quantitative comparisons between the new, complexity, assumptions and the old (in the style of Epstein & Axtell's 'Growing Artificial Societies'). It is not specific enough however, in my opinion, to convince old style managers to alter their ways. The implications that they must give up power, status and possibly reward for unpredictable 'cognitive' gains is unlikely to appeal to closed minds, unless a suitable 'bottom-line' accountant focus is given, emphasising a point that the book itself makes - that new thinking must be phrased in terms of the old concepts to make an impact.

It is suggested that there are different types of patterns found in the organizational structure of a group. The patterns are referred to as paradigms.

Closed Paradigm

The structure is a traditional hierarchy of authority (similar to a CC team). This kind of team is good at creating software that is similar to its previous experience and it is less likely to be imaginative.

Random Paradigm

The team is not strictly centered and depends upon the members of team to be responsible for their tasks. When innovation or technological breakthrough is required, teams following the random paradigm will excel. Unfortunately, this type of team will not always excel if everything is completely organized.

Open Paradigm

The open paradigm is a combination of the closed and random paradigms. It structures the team so that there is control of tasks similar to the closed paradigm and has the attempts at innovation found in a random paradigm. Work is performed collaboratively with heavy communication and consensus-based decision making. This type of team structure is appropriate for teams that must deal with complex problems. Unfortunately, it may not be well suited for many people.

Synchronous Paradigm

This depends on the modularity of the entire project that is being solved. The problem can be broken down into smaller parts where team members work on a section independently. There is not much communication required among members.

Such patterns, when changed to another pattern, can be called paradigm shifts, and form the underlying structure for talking about the future. They are pervasive and would be included in the driving forces as well as scenarios. They are the "unwritten rules" of how the emerging society might function.).