Open boundaries: Creating business innovation through complexity

by Howard Sherman and Ron Schultz

Book Review by Chris Lucas

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This book concentrates on the important issue of revising the philosophical axioms behind our approach to business. Corporate success is now said to need cognitive success, with information replacing infrastructure in the transition from Industrial age business thinking to what is now called Postindustrial or Postmodern. The book starts with the impact of Newtonian thinking on company structure, showing that in-built assumptions of a static external environment, fixed rules, deterministic action and centralised control lead to failure in today's changing environment. Complexity thinking replaces such closed views with open, adaptive and distributed control systems (Complex Adaptive Systems or CAS) that can encourage the emergence of new solutions, at a cost of abandoning those outdated abstractions inherent in conventional thought. Recognition that the market always adapts unexpectedly to company activity, allows a co-evolutionary, non-linear paradigm to supersede linear and rigid models, replacing clear, static targets with ambiguous, moving ones, and going beyond a single dimensional measure of 'profit' to include other, more relevant, values.

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 book ends with information on selling the new paradigm to management, plus a useful appendix summarising the philosophical contrasts between Modern and Postmodern thinking. Each chapter also ends with a Nonlinear Investigation, suggesting questions that will aid a company in relating their current operations to the complexity ideas presented.

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. This is the strength of this book and much attention is rightly given to this aspect, both theoretically (in the metaphysics) and practically (in the investigations). A number of case studies are presented throughout the book, but disappointingly these are fairly weak, with complexity ideas seemingly tagged on retrospectively, rather than themselves being the instigating force for change. Nevertheless, 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 (not covered) 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 introduced (not all complexity based) 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, is missing here, 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'), but such data is sadly missing here. The overall writing style is...
lively, if unstructured and unclear in places, but nevertheless it is a useful introduction to this new mode of thinking for those already considering a need for change. 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.

Open Boundaries: Creating Business Innovation Through Complexity—ExLibrary. C $4.91. Buy It Now. eBay determines this price through a machine-learned model of the product's sale prices within the last 90 days. Top Rated Plus. Sellers with highest buyer ratings. Returns, money back. Ships in a business day with tracking. Learn More. Top Rated Plus. Sellers with highest buyer ratings. Returns, money back. Ships in a business day with tracking. Learn More. Search refinements. Today's businesses are constantly under pressure to innovate to develop new products, processes. Howard Sherman is a managing director of the Santa Fe Center for Emergent Strategies, a leader in the application of complexity thinking to business. A former member of the Santa Fe Institute's Business Network, he has also served as an executive at Midas Inc. and president of Dion Corporation. He lives in Santa Fe, New Mexico. Ron Schultz is a director at Senn-Delaney Leadership Consulting Group. Formerly a senior consultant to the Santa Fe Center for Emergent Strategies and a contributor to Omni magazine, he is a founding partner in Learning Arts Publications and has written and cowritten Innovation and Open Boundaries: The Firm in the Context of Distributed Innovation. In contexts where computational costs are low and widely available and where distributed communication is inexpensive, open or peer innovation communities displace organization-based innovation (Baldwin & von Hippel 2011). Such communities of developers rely on the availability of easy communication, the modularity of the project and intrinsic motivation. This open software innovation regime creates robust products and is equivalent to private market software development methods in features, functionality and quality (Raymond 1999; Benkler 2006; Lerner & Schankerman 2010). Community-based innovation is not limited to software development.