

## Stories from the frontier

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This is the first manifestation of a feature which is designed to be a more or less eclectic and personal diary of experiences, thoughts and cases from the frontiers of applying complexity (and other related sciences) to the field of management. It comes to you courtesy of a small study attached to a villa in Bali to which I have retreated. In part this is a holiday, but in large part it represents a desperate attempt to get on top of 'the book', the manuscript for which is now overdue to the point where even my normally tolerant editor is reaching the edge of her patience. Bali itself is a complex society in all senses of the word. It is the only Hindu island in the world's most populous Islamic nation. One in which the best part of 2000 men, women and children in ceremonial dress, having prepared themselves for a *peputan* or ritual fight to the death, walked directly into the fire of Dutch guns under a century ago in 1906. In contrast the same community adapted to the Indonesia law requiring all approved religions to be monotheistic (a problem for a Hindu religion with strong influences from animism) by emphasizing the role of their supreme deity, *Sanhyang Widi Wasa*: confrontation, integration and intelligent adaptation all the features of human complexity.

As the member of the editorial board who sits uneasily between the two regrettably separated worlds of academia and practice, all too frequently dismissed by practitioners as academic and vice versa, it fell to me to attempt a regular review of the application frontiers of complexity. I should immediately warn readers that the feature is going to reflect my experience and will be both eclectic and polemical in nature. To some it may seem better titled 'travels with a demagogue' as the experiences are also geographically dispersed. The early adopters of what I term *social complexity* seem to be primarily located in the Commonwealth nations of Australia, New Zealand,

Singapore, South Africa and more recently Canada. Unkind critics have noticed that these countries in the main all play Rugby Union football and that my own trips have a miraculous habit of coinciding with visits by the Welsh team. This may be more than a coincidence, and I will later develop a comparison with the American entertainments that pass by name of football (the jury is out on if it is sport) to illustrate what I think is the fundamental distinction between complex and ordered approaches to management.

As this is the introductory article in a series, I intend to use it to make some general observations about the current state of practice in the context of permitted management theory and practice. Many complexity practitioners will tell you they often feel like Galileo, who was permitted to say that the earth went round the sun for the purpose of mathematical calculation provided he made no claim that it actually did! We get a similar phenomenon today in which managers will acknowledge the value of complexity, but would like it made more familiar so that they can live with it. Now there are two temptations here and I have good friends who have consciously or unconsciously fallen for each. One is to retreat to a circle of people *who really understand*, to only deal with the *cognoscenti* and avoid the difficulties of encountering the century old entrained patterns of scientific management and its inheritors (BPR, Six Sigma, etc.). The second is to conform, to make the new theory fit the patterns of the old to make it comfortable and reduce the challenge. The first in catholic dogma is a sin of omission, the second one of commission; both are generally mortal not venial.

The latter case, the desire to conform, to be respectable; affects the most learned paper in the Academy of Management, and the latest management 'do these seven things and you will have no

more problems' text book. It is to my mind the most dangerous. The argument against it was brilliantly summarized in a Sufi story (Shah, 1985), which I reproduce below.

Nasrudin found a weary falcon sitting one day on his window-sill. He had never seen a bird like this before.

"You poor thing," he said, "how ever were you to allowed to get into this state?"

He clipped the falcon's talons and cut its beak straight, and trimmed its feathers.

"Now you look more like a bird," said Nasrudin.

We need to make sure that our falcons are not made to look like pigeons and that necessitates avoiding the easy comforts of best practice and recipe book consulting.

### Where should we start?

**M**y view is that progress is not enabled by retreat or by consensus but by a constructive challenge to norms of adoption of new management theory. This involves bounding the application of current approaches, switching away from the use of illustrative cases and above all avoiding the pattern of 'faddism' that prevails in the popular literature. I will summarize those three points now and then elaborate on them in the following sections.

1. Foremost is to challenge the prevailing simplistic approaches in management that use a nineteenth century concept of science. That approach prevailed for a over a hundred years and has now maximized its utility, but has no where else to go. Like Catholic dogma at the trial of Galileo, it is deeply entrenched and respectable. It is best challenged by the Socratic technique of questioning, to achieve a *reductio ad absurdum* through which the old way of thinking is unsustainable and people are open to the new. At an academic level we also need to get rid of the tiresome debates between the modernists and the post-modernists in the application of complexity to social systems. Even before complexity this debate was reflected in the popular literature. In a Hegelian sense they are thesis and anti-thesis in their claims for universality, both can be synthesized via that same theory. Social constructivism is not necessarily opposed to critical realism, their application can be determined by the ontological context. A key area of my own work in strategy and decision

making which is referenced at the end.

2. Rather than cases, we need to switch to metaphors as a means of creating understanding of a new set of concepts. For someone to understand something new, it first has to resonate with something they currently understand. Metaphor can do that and I will illustrate this later; cases or examples in contrast tend to recipes and inauthentic imitation. Metaphor can create a compelling need to act and can also engage people in a key aspect of early complexity project, namely that understanding is achieved through engagement and action.
3. We need to avoid complexity becoming a fad at all costs, in effect complexity properly understood does not replace the theory that preceded it, it bounds its applicability and creates new methods and tools in the open spaces created by the act of bounding. It needs to be distinguished (especially from systems dynamics with which it is too frequently confused), and contrasted but not opposed to more traditional approaches.

This first thought piece is then a reflection on many cases over the past seven years, future episodes will look at and reflect on current projects from myself and also from other practitioners in the Cynefin network. The remainder of the material elaborates on the above three points before concluding.

### Simplistic or simple?

**T**here is a general unwillingness in government and business alike to engage in conceptual debate or break away from a 'proven path'. This either leads to, or is caused by a seeming universal need for simple recipes, the application of which follows the old adage of the IT Industry 'no one gets fired for buying IBM' otherwise translated as 'lets play safe'. Only this morning I was in conversation with a colleague who is dealing with a Government Body who have been given a year to improve. Now we have already done enough complexity work with this particular Government to have established the credibility of complexity approaches and their essential simplicity compared with tradition methods. They accept that a complex systems approach is far more likely to be successful than a traditional one, but faced with political pressure it will be easier for them just to buy a simplistic change management programme from an established consultancy firm, even through they know such programmes only provide an illusion of sustainable change in the longer term. Using a conventional approach with a major consultancy firm represents low risk, low reward, but above all an ability to avoid responsibility for sustainable change. In this context I am reminded of the Socrates's rejection

of the arguments in *Crito* that he should escape rather than accept execution, where the easy acceptance of conformity is advocated not only by authority as a means of avoiding responsibility, but by those who know the old models are no longer sustainable, but who do not want to risk a challenge to their comfortable existence.

Management schools regrettably seem to be more part of the problem than the solution. Ben- nis and O'Toole (2005) in a HBR recently accused academics in the business schools of being guilty of something they wryly call "physics envy": by which they mean writing increasingly obscure papers for increasingly specialized audiences in order to achieve a pseudo comparison with colleagues in the hard sciences. He makes a plea for relevance that is heartfelt and timely. However relevance does not mean the simplistic recipes created by too many an academic or consultant where a study of a range of companies is used to distil a number (seven is popular) of things that an organization should do to be successful. In philosophy this is the confusion of properties with qualities, in science the confusion of correlation with causation. Christensen and Raynor (2003) also writing in the HBR use a wonderful metaphor to illustrate the paucity of the simplistic recipe approach: they posit a patient going to see a doctor who prescribes before examination, on the basis that the cure offered worked for the last five patients in their social class. They argue forcibly for managers to engage with theory in order to validate the solutions being offered to them.

In effect we need a coevolution of practice and academic work. It should not always be the case that academic work *follows* practice to study it and make it more rigorous, it is more that we need a coevolutionary process that engages academics with real world problems, and practitioners with the coherency of theory to inform and critically, to scale practice. I have hopes that complexity science may offer an opportunity for social science (and by implication management science) to break a pseudo-empirical model of enquiry, something it can only do by recognizing the inherent uncertainty of human systems. If I see one more PhD student in a social discipline being forced into statistical analysis of questionnaire based material or longitudinal studies that assume the independence of the observer I will scream. Complexity allows us to consider the possibility of emergent, rather than retrospective understanding.

## Case studies, illustrations and the role of metaphor

Business Schools, Software Companies and Consultancy firms, tend to place a heavy reliance on case studies. The development of which has become a minor industry in its own right. I have always seen the teaching value of a case; provided the case has high levels of ambiguity and there is not a 'right answer'. However, coupled with the increasingly modular nature of education it seems to be having a dumbing down effect. Students rapidly progress through material, expecting to receive 'right' answers that can be reproduced in exams and then clear their memory before progressing to the next module. It reminds me of a conversation in a pub in the Yorkshire Dales some years ago. I had spent a week exploring the area on foot having never visited that part of Britain before. In the pub I met a tourist party who were 'doing' Britain in 10 days. They actually had a book of the major sights and were ticking them off as they progressed; each site was recorded, documented and forgotten as they proceeded to the next destination. They could acquire a superficial knowledge at best, possibly develop a desire to study deeper, but this is no qualification to practice.

Having engaged over the years in the various Faustian bargains that are associated with the creation of commercial case studies to support sales I see even less value; such case studies generally reflect high levels of idealism and retrospective coherence. They are also frequently written or authorized by those people in the company who were responsible for the original procurement and thus have a vested interest in its success. However even that pales into insignificance with the blatant use of hindsight in management text books; here we see two approaches:

1. A book or article is produced based on a study of a certain number of cases from which general conclusions are drawn on the legitimate assumption that the things those companies did contributed to their success or failure. However the assumption is then made that those 'things' can be identified by the expert and generalized in order that future generations can do the same 'things' and achieve the same results. This ignores context and more importantly runs the risk of (to adopt a standard example from 101 Philosophy) of confusing the observation that a group of Frenchmen wear glasses, with the assumptive prediction that if you wear glasses you will become French!
2. While the above approach does have some intellectual integrity, the worst and all too common case is where a theory is developed and then illus-

trated by selecting actual cases that ‘prove’ their theory. This is retrospective coherence at its worst and a basic survey of any of the popular management journals will show the same organizations being used time and time again to illustrate contradictory theories. You often see this in professional text book writers and the ‘pop’ scientists who excel in single theory approaches.

In both cases the researchers are looking backwards, and are selecting those aspects of the cases that enable them to make sense of their own theory. Importantly they have to select for relevancy and in doing so make it easy to forget the importance of context. Weick and Sutcliffe (2001) for example identify trust behavior in fire fighting crews and suggest its wider adoption in industry. Something that could probably be achieved if I burnt the office down every morning, but without the context will not repeat. The real proof of a method or theory is if people consciously adopt it in advance of practice, and the method then works as predicted. This very basic aspect of scientific method seems to have been largely lost in management science.

Of course one of the main reasons why cases are used in this way is to create resonance with the hearer, to contextualize their understanding of otherwise difficult to comprehend material. Cases and examples do that as they represent something that ‘people like us have done’. The danger is that no organization has ever innovated by doing something that is established practice in their industry sector, or by copying someone else. Innovation comes from doing something new or different. One of the things I have always done (the Faustian compromise) if asked for a case, is to give one from a different industry sector. At least this forces people to reconceptualize not imitate.

An alternative approach and one with a solid history in human intellectual development is the use of metaphor. A metaphor will create resonance with the audience without offering an recipe, it is a way by which people can see things from a new perspective and start to think about the implications of their new understanding.

As an illustration of this I offer one of my favorite stories, the children’s party metaphor, which is about a year old now and one of the most successful. This metaphor asks questions to force contradictions in traditional management theory (the Socratic approach referenced earlier) by getting the audience to imagine that they are organizing a party for a 12 year

old son and posits two approaches they could adopt.

1. the first requires that they set learning objectives for the party, aligned to the mission statement for education in their country. It suggests the use of motivational videos and incentive schemes to align behavior with those objectives. Milestones should of course be created to measure (empirically) progress against ideal party outcomes. When the party finishes an after action review should be conducted and best practice databases updated. Finally, alternations should be made to standard ‘party management processes’ for future direction.
2. The second complexity approaches creates some limits or barriers to behavior, and then uses attractors to coalesce patterns of play into coherent self managing identities. The adult can then manage by disrupting negative patterns and reinforcing positive ones. It is pointed out that adults also soon learn the value of negotiable and elastic barriers, rigid ones have a bad habit of collapsing catastrophically.

More developed versions of this teaching metaphor delve the murky depths of the 16 year old daughter’s party which represents an entirely different order of magnitude in problem solving: dealing with complexity verging on chaos.

The story is created to satirize the use of methods appropriate to highly ordered, causal systems and contrast them with complex ones in a way that any human could understand. It can be used to establish the basic mantra: *if it’s complex you manage the emergence of identities around attractors within barriers*. The metaphor does not remove the need to manage in a complex world, but it switches the focus of management from measurable end states, to that of starting conditions and emergence. It indirectly argues that there will never be a predictable right answer and that abandoning that Quixotic search will enable less time to be spent in meaningless construction of policy documents and plans that everyone knows will never come to fruition; it focuses instead on managing the ecology of the organization and its environments.

### Avoiding faddism

One way in which you can detect the *end of days* is by the increasing number of cure all panaceas being peddled. Modern day management theorists (both consultants and academics) are not adverse to participation in the creation of commercial recipes. Of recent years the sheer num-

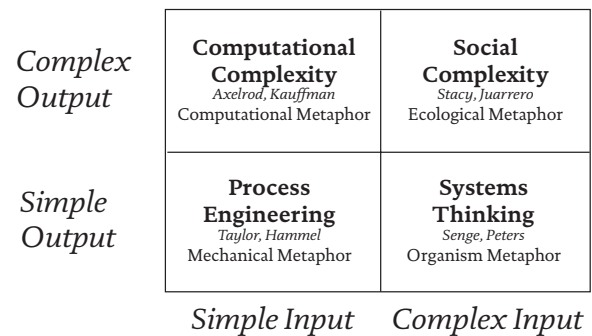
ber of fads appears to have increased exponentially, but all of them sit within the traditions of proof and acceptance established by scientific management. Business Process Re-engineering (BPR) was just the logical working out of Taylor’s mechanical metaphor of the firm. Six Sigma is a combination of BPR, the balanced score card, an obsession with numbers and in some cases the worst aspects of Bible belt fundamentalism. All of these approaches assume a mechanical and reductionist model of the organization, in which outcomes can be determined and uncertainty reduced or eliminated by ‘proper’ management and control.

Gary Oliver and I recently completed a book chapter on the history of narrative in which we contrasted Art-Luddism and Techno-Fabulism (Oliver & Snowden, 2005). To quote: “Art-Luddites are individuals who believe in giving primacy to human creativity and interaction on a personal basis. They may also reject mechanical metaphors in favor of organic approaches or humanist values” and, “Techno-fabulists are believers in technology who seek opportunities to improve efficiency in the mediation processes through advocating the benefits available when technology is put into use.” Without too much difficulty it is possible to extend this slightly unflattering dichotomy to current complexity practice. Those who focus more or less entirely on modeling fall into the Techno-Fabulist school, whereas those who are captivated by the ideas of self-organizing systems such as Margaret Wheatley and others represent the Art-Luddites.

Both approaches in practice have value, but neither have universal application. In the first issue of *E:CO* I wrote an article with Peter Standbridge (Snowden & Stanbridge, 2004) summarizing a recent report to the EU which had created a simple two by two to illustrate the landscape of management theory (see Figure 1). I would now like to adapt that model to offer a solution to faddism, namely *bounded applicability* and also to deal with the wider issue of metaphors.

The model in this manifestation contrasts input and output states. The two dominant theories of management, which at their extreme are represented by the Art-Luddites and Techno-Fabulists, both focus on simple output as key to management. Process engineers argue that ultimately things are fairly simple (although it may take a computer to handle the volume) and it is a matter of focusing on the essentials and getting those right. Systems dynamics on the other hand argues that the world is complex, but can be made simple through clear direction (mission statements, value alignment, etc.) or by establishing

systems with proper feedback loops and control. Here there is a strong tendency to see the organization as an organism with close analogies made to the human body; we see references to the DNA of the organization as the metaphor is pursued. Both approaches are reductionist in nature and both tend to the confusion of correlation with causation if we look at the supporting literature.



**Figure 1** *The landscape of management*

As we start to look at complex output we find that a lot of complexity theory follows the computational metaphor of simulation. It argues that very simple things provide complex outputs which are inherently unknowable, but which can be stimulated. At its extreme, practitioners in this field are Techno-Fabulists, seeing human beings as ants. It’s all a matter of discovering the rules by which atomistic individuals make decisions and you can then create a simulation from which you can make management choices. Some, faced with the children’s party metaphor with its simple mantra of *identities form around attractors within boundaries*, get precious about first and second order constraints and worry away at the impossible task of using the same language to create credibility with a PhD in physics and a manager in a logging company. The approach, while it does not confuse correlation with causation, does have a tendency to confuse simulation with prediction.

In contrast social complexity has a growing body of work. Stacey (2001) and Tsoukas (2005) are both doing interesting developments rooted in the work of Mead, the work of the Cynefin centre adds neuroscience to complexity theory to argue that people make decisions on patterns that cannot be modeled as rules, and which also challenge the atomism of individual decision making. As a field it deals with systems in which both input and output are complex. It is a different world and a different discipline from complexity in the hard sciences, as it deals with human abstractions. However, despite

appearing in the top right hand box of the matrix, it is not privileged over the others, it is just different. One of the things that makes humans different from ants is the fact that they are capable of creating valid social interactions in all of the four boxes; they display a Promethean capability to structure systems to reduce complexity and create order which can, and has been taken to excess but which should not be abandoned. As such the purpose of the matrix is to establish that all its quadrants have validity depending on the context - it is an argument against universalism.

## Conclusion

A few weeks ago in the context a jointly authored paper, which may shortly see the light of day, I got an email from Prof. Max Boisot, one of the few remaining polymaths in the world, who at various stages has been intellectual conscience, disputant and colleague to myself and to many others. I quote verbatim: "I kept wondering where on Earth your thundering denunciations of reductionism and positivism came from - after all, these are not exactly Welsh words, are they? Then I read Isaiah Berlin's *Three critics of the Enlightenment: Vico, Harman, Herder* (2000) and I understood. You really should get the book. It will add some necessary lightning to your thunder and thus simultaneously reduce my perplexity while enhancing your rhetorical reach." I did buy the book and he was right. In working with complexity we are not challenging the value of the Enlightenment, but we are challenging its universality. I was particularly struck by Vico's foreshadowing of what to me is one of the most significant aspects of social complexity, namely the ability of humans to socially construct meaning, and thus create their own rationalities to which the understanding of history is vital. Vico's concept of *fantasia* for example, in which knowledge can be achieved by entering into the mental life of other cultures to conceive and correlate with the process of social change, echoes into complexity-informed concepts of social systems and action research, and takes us beyond the limitations of deductive, empirical and sensory forms of knowledge. Vico challenges the concept that the nature of man is static and unalterable, but that attempts to understand the world transform substance. In particular he argues that those who make something are able to understand it in ways that mere observers are not. Social systems and myth structures inhabit these spaces, and form an essential part of the understanding of human complex systems where artifacts and aesthetics are as, if not more, important than rule-using agents. This is of importance as much computational complexity has inherited the atomistic ontological assumptions of Western society that were so effectively criticized by

Weissman (2000).

Finally I want to return to the question of the entertainment/sport that is American Football. Few people know the origins, but it started when a Harvard graduate decided that Rugby Union was undisciplined and lacked order, so he and others went about devising a game in which order prevails. In American football, the coach calls all the plays, there are offense teams and defence teams who can be called into play following a time out. Strategy can be reassessed and redirected top-down during the game and above all everything can be measured. American Football is the fundamental metaphor for Six Sigma. This is in stark contrast to Rugby Union and Soccer where the players are continuously on the field, substitutions are limited and players have to switch from defence to offence without thinking, they have to adapt and practice patterns of play that will never be fully stable.

A society can be heavily influenced by the games it plays, and you can see the clear influence of American Football on modern management methods. My basic argument is that complexity requires the flexibility of Rugby and Soccer, not the structure of the Grid Iron.

A final quote to conclude, from a seminal baby boomer text, Robert Pirsig's *Zen and the art of motorcycle maintenance* (1974) which makes the argument for *bounded applicability* in a succinct phrase:

"Traditional scientific method has always been at the very best 20-20 hindsight. It's good for seeing where you've been. It's good for testing the truth of what you think you know, but it can't tell you where you ought to go."

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