

# Understanding Organizational Change: A theoretical account and case study of the micro-macro patterns underlying organizational dynamics.

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## Abstract

A persistent challenge in the practice of organizational change is the ability to understand the complexity of the patterns of micro interaction at the level of the organizational actors, which serve to maintain the current macro behaviors at the level of the organization. Many organizational change initiatives fail, by addressing only the superficial manifestation – the symptoms – of the deeply embedded and historically entrenched mechanisms shaping the organization. In particular, many managers tend to focus on the formal aspects of organization (artifacts such as performance indicators, organizational structure, or task design) when planning change interventions. Often this proves ineffective as the existing patterns of behavior simply re-organize to accommodate the change. In this paper, we will approach organizations as complex systems providing an account of the theoretical perspective this implies. In order to ground this understanding we also describe a case study of organizational change which illustrates the power of underlying behavioral attractors, methods useful for their identification and how these insights can be used to design interventions more likely to shift the organization to an alternative attractor.

**Key words:** Organizational change, complex systems, autopoiesis, social attractors, financial services, case study.

## Introduction

Many theories of organizational change approach *the organization* as a relatively stable entity. By contrast Tsoukas and Chia have argued that change is ontologically prior to organization. (2002: 570), a perspective which assumes organization is the *result of a process* of change not an entity to have change thrust upon it. This view is consistent with the idea that organizations are complex systems. and while this has become an increasingly popular metaphor within management and organization theory, there have been few attempts to provide a substantive account of the generative mechanisms implied by this perspective, or identification of appropriate methods for their study. We would argue both are needed if a complex systems perspective is to provide a useful guide to practice.

In order to provide a theoretical account and associated methodological approach we will draw on Humberto Matutana and Francisco Varela's (1980) autopoietic theory. Autopoietic theory provides a description of the characteristics of biological agents and, as we have argued elsewhere (Goldspink & Kay 2003;2004), a foundation for understanding how these agents (viewed as social actors) participate in generating the macro-social phenomena we call organization. It will be argued that when combined with Complexity theory we are able to further explain the dynamics that result when these agents enter into recurrent interaction, reflexively generating the emergent patterns we describe as an organization.

To illustrate the implications of these ideas for understanding these emergent patterns in practice, we provide a case study of a failed collaboration project in a large financial services organization. The case study, involving the application of narrative and repertory grid interviewing techniques to understanding why the project had failed. The case study illustrates the way in which the underlying micro-level drivers of behavior interact, leading to the eventual failure of the project.

## The Theoretical Basis of our approach

The theory of autopoietic systems was developed to provide an explanation of the nature and characteristics of living systems (biological cells and meta-cellular organisms). Living systems are characterized by their self-production: the components of the system producing the components of the

system. A key implication being that the requirements for the maintenance of self-production constrain the way in which individuals interact with and 'know' their environments.

The theory argues that an individual's behaviour is determined by particular states of nervous system activity (Maturana & Varela, 1980), defined by the concept of operational closure. Operational closure requires that in all cases nervous system activity results from and leads to further nervous system activity in a closed cycle (Maturana & Varela 1980). Possible and actual changes in state of the nervous system are therefore defined by the nervous system's structure and not external events. External or environmental events may act as triggers for change but it is the nervous system's structure that dictates which events can be a trigger (Mingers, 1991). Changes to the structure of an agent's nervous system, and consequently their behavior, will be unique to that agent. Therefore environmental perturbations that act as a change trigger in one person will not necessarily trigger a change in another, or if they do, the change that is triggered may take a different form and/or have different implications for the viability of that person in his/her environment, given his/her history. Individuals may contribute to the emergence of a stable pattern of social interaction, but they do so by acting on the basis of their unique history.

Although operational closure constrains the range of behaviors possible, it does not imply rigidity. The nervous system exhibits 'plasticity', its structure changes over time and it is this quality that allows for changes in behavior and subsequently what we describe as learning (Mingers 1991). Therefore as the state of the nervous system changes, so too will the potential range of behaviors that its structural-determinacy makes possible. The term used for this history of structural change is ontogeny (Maturana & Varela, 1992).

Use of terminology that relates to neurological functioning may appear at first glance to be at too low (micro) a level – when we have theories of cognition, thinking, knowing and learning which we use every day. Our concern with these theories is that many of them lack sufficient evidential support. The work of Maturana and Varela, and more recent neurology (see for example Thompson, 2004) show us that many of our taken for granted assumptions are false. Knowledge is not something which can be represented in the mind. The reason for reverting to a more fundamental conceptualization is that it requires a rethink of these assumptions and leads us to an alternative conception of knowledge and a different way of understanding coordinated activity and hence the mechanism of organization. This new perspective resolves many age old tensions including that of freedom vs determinacy of human action.

Barandiaran (2005) for example, has argued, that the advent of the central nervous system in organisms allowed them to exploit the rapid response times of the neural system and that this supported a significantly increased set of responses to environmental perturbation. The responsiveness of the central nervous system is further enhanced as it operates as a far-from-equilibrium system, at the edge of chaos, as has been argued within the emerging field of neuro-dynamics (Cosmelli et al., 2007; Kelso, 1995; Rocha, 1996; Thompson & Varela, 2001; van Gelder, 1998). It is the resulting asymmetry between the state space of possible configurations and the range of response needed to maintain immediate regulation in a given environment that gives rise to 'agency' in individuals. According to Barandiaran *'The higher the agent's capacity for adaptively guided self-restructuring (plasticity) the higher its behavioural adaptive autonomy and hence its agency'*, (2005). Autopoietic theory casts light on the nature and origins of this agency in micro level agents and we would argue provides the building blocks for describing the mechanisms of social emergence, by specifying the biological processes that support and constrain interaction.

Hejl pre-empted this more recent perspective, (1993a) referring to it as “cerebral overcapacity”. He noted that it provided both advantages and disadvantages for the agent. The advantage is that a capacity to generate a wide range of responses (requisite variety) improves the agent’s survivability in a wide range of environments. The disadvantage is that this plasticity contributes to the breadth of agent-agent and agent-environment interactions, dramatically increasing the non-linearity of the system and reducing its stability. The resulting variability can therefore only be harnessed by the agent to the extent that it can be channeled or constrained at least over short time frames. Hejl notes, “*The only ‘solution’ to this problem seems to be society*” (1993a:229). In other words social structures (such as conventions and norms) represent dynamic attractors which imply a temporary reduction in complexity. This supports the agent’s viability in the short term while at the same time giving up none of the intrinsic and open ended flexibility to adjust to changing circumstances in the medium term.

These social attractors are a product of the recurrent interaction – structural coupling in Maturana and Varela’s terminology – between agents. Previously we have argued (Goldspink & Kay 2003; 2004) that structural coupling is the basic mechanism through which social emergence in biological systems is supported a view shared by De Jaegher & Di Paolo (2007). The behavior of one agent triggers a reciprocal behavior in those with which it is coupled as part of a closed network, or in Maturana and Varela’s terms a phenomenal domain of reciprocal interaction. In human social systems, language plays a critical role in the formation of a phenomenal domain.

*...whenever we engage in social interactions that we label as dialogue or conversation, these constitute autonomous aggregates, which exhibit all the properties of other autonomous units (Varela, 1979: 269)*

As a consequence in human systems, domains of interaction are primarily brought forth and maintained in language. This fairly obvious observation has a number of significant implications for organizational change, the most significant of which is that an ‘observer’ is able to engage simultaneously in multiple forms of emergent activity, with significant consequences for the self-organizing dynamics that result.

Through language the observer (agent) can now distinguish within three domains:

- the physico-chemical (metabolic) domain in which the autopoietic entity exists, (or its physical environment);
- the sensorimotor domain, including the somatic (affective) system and;
- ‘their’ linguistic domain or the non-physical domain of distinctions.

All three interact in complex ways. The former establishes the fundamental basis for their existence as a viable cognitive organism and specifies their autonomy. The second establishes the means by which they may enter into and become coupled as a higher order autonomous system operating in an immediate context (De Jaegher, 2008; Gallagher, 2008) and, the later through interactions (in language) between agents in a physical domain. All three domains of interaction give rise to emergence that is distinguishable by an observer, with the latter two conforming to what would normally be regarded as social domains. All domains are indicative of closed networks of interaction, and are constrained in their emergence by the biology of the observer and the agents that populate them (this later point being the bridge that links the domains). There are however important differences that we would argue have been largely ignored by the literature to date and that hold significant implications for our understanding of organizational change.

What we argue for here is an emergentist view of organization drawing on an autopoietic perspective. From this perspective an organization’s apparent coherence is an observer’s distinction of operationally

closed patterns of interaction (Hejl, 1984, 1993b) generated as emergent structures. These structures being simultaneously created through and (via feedback) constraining the nature and range of agent (seen as autopoietic systems) interaction and behaviour<sup>1</sup>. What we generally regard as social structures, including norms, institutions and cultures are quasi stable patterns which emerge from these underlying levels of interaction. They are, in the language of complex systems, social attractors.

Observing the interplay between agent level (micro) behaviour and the (macro) pattern that, in concert, these behaviours give rise to provides insight into how any change in the agents and/or their relationships might change the macro pattern – that is to say influence norms, institutions and cultures.

In human social systems structural coupling happens primarily in and through linguistic coordination of coordination of action (Maturana, 1988a; Maturana & Varela, 1980; Maturana, 1988b). Much of what will be interesting will therefore happen in the linguistic domain. However from the theoretical perspective being followed here there is a need to suspend our normal taken for granted assumptions about the role of language – particularly its denotative role in communicating information. Rather there is a need to see it as a ‘... *multimodal way of toying with persons.*’ (Cowley & Macdorman, 2006). Much of the pattern which results as people participate in the reciprocal dance we call languaging will be subtle and operate through the illocutionary force of language (pragmatics) (Habermas, 1976; Searle, 1969)<sup>2</sup>, it may however be revealed indirectly by agents narrative account of their experience of the dance and by the structure of their sense-making about themselves and others.

Thus way in which people make sense of themselves in the context of organising, as well as the way in which they make sense about others, and place themselves in relation to physical (e.g. building layout, geography) and social artefacts (such as norms, rules and structures and information technology) will reveal a great deal about the constitutive mechanism of the organization as a distinct social phenomena. It will not however be able to be read like a book, with a clearly unfolding plot. The resulting whole is a complex dynamic product of the individual and shared meaning-making which combine to give rise to it. By capturing multiple accounts from the various perspectives of those involved, and examining how they relate to one another, it may be possible to identify primary orientating drivers which explain higher order patterns of coherence in the resulting collective structures.

This emerging whole will rest on nested patterns of stability and points of potential instability which provide targets for intervention. For an intervention to be effective it needs to be designed with an appreciation of the patterns and the drivers that serve to maintain them. These will be specific to an organization at a given point of time. The patterns are attractors of the system and the drivers are the states specific to maintaining the operation of the system on any particular attractor. For many managers detecting these drivers is an intuitive process or one based on experience, however, more systematic research methods may also be used to surface them. Once the key drivers influencing such patterns have been identified the manager can take action to disrupt those that appear to support undesired stability and/or stimulate those that might support desired change

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<sup>1</sup> It is important to emphasize that the perspective suggested here disagrees with the theory put forward by Niklas Luhmann (1990), which describes social systems as autopoietic. As we have argued elsewhere (see Kay, 2001), social systems do not satisfy the requirements of an autopoietic system (at least as it is described in Maturana and Varela’s (1980) original conceptualisation) but exist as a function of the continuous interaction and distinction of patterns by autopoietic entities.

<sup>2</sup> We are examining this in another case study on normative self-organization in the Wikipedia - see Goldspink, C. 2007. Normative self-regulation in the emergence of global network institutions: The Case of Wikipedia. , [ANZSYS07](#). Auckland, New Zealand.

Normal qualitative or quantitative techniques will often provide a static snapshot of pattern at one or more levels but leave much of the generative process unclear. In particular, many conventional methods, founded as they are on reductionism, fail to support any analysis of the interplay between micro and macro levels. However creative recombination of existing techniques sometimes makes them more useful. In this case study we combine two well established methods; narrative analysis (Browning & Boudes, 2005; Bruner, 1991a, 1991b; Snowden, 2001) and repertory grid technique (Fransella et al., 2004; Jankowics, 2004) to generate deep insights into factors which influence the dynamics of an organization.

### **The Case study**

The research context was a small business unit within a large financial services institution. The business unit in which the case study was conducted was lead by a General Manager and a team of six Heads of Department, each with multiple direct reports, in a strongly hierarchical structure. Each Department in the business unit was responsible for the management of different outsourcing arrangements and contracts with suppliers. The leadership team were concerned at the low level of collaboration between the different Departments and the effect this had on innovation and the quality of decisions making. In response they designed a small intervention to facilitate collaboration across the silos within the Business Unit. The task involved bringing together Senior Managers from the different Departments to solve a set problem.

### **The Change Initiative**

The senior managers were asked to establish a taxonomy against which the top 100 suppliers could be categorized, according to whether they were strategic (bringing new capability), aligned (providing improved capability to an existing strategy) or standard (providing supply to a non-strategic function). It was intended that the taxonomy would form the basis for new relationship management models. Participation in the project was voluntary and undirected: those who volunteered to participate were expected to self-organize in order to clarify and generate strategies to address the problem. The voluntary nature of participation resulted in only about half of the potential participants taking part.

The outcome of the project was seen by most people associated with it, including the General Manager, to be unsatisfactory, both in terms of the solution to the problem that was proposed and the collaboration objective set for it. The group, working on the project fragmented into two sub-groups with each advocating incompatible solutions to the problem. The fact that such a relatively simple task could not be completed came as a shock to the general manager, who suspected there were deeper issues at play. We were asked, as people independent of the institution, to explore the reasons why the exercise failed. Our brief was to understand the factors affecting the group's ability to collaborate: why couldn't a group of intelligent, experienced managers, organize themselves to complete a relatively simply problem solving activity?

### **Methodology**

We sought to gain an understanding of the recent history of interactions, the environment and how both individual (micro) sense-making and (macro) institutional structures combined to limit collaboration. To achieve this, a methodology which combined narrative and Repertory Grid methods

was employed. Both narratives and the repertory grids were collected in a single interview, which lasted on average about one and half hours.

Eleven Senior Managers took part in our study drawn from a group of eighteen possible participants. Participants were selected at random from a list of all the senior managers. Six out of the eleven interviewees had taken part in the exercise, whilst the others, although aware of it, had either specifically chosen not to be involved, or had sent a representative from their team.

## **Narrative**

Narrative is seen from a number of perspectives within the social and organizational sciences. Most commonly it is encountered as a method – one particularly appropriate to:

*...examine the interconnectedness of human agency and social structure and the temporality of historical events in processual ways. (Gotham & Staples, 1996: 481).*

It has, however, been argued to be at the core of the functioning of human meaning making – the narrative mode of thought (Bruner, 1991a; Dautenhahn, 2002). Bruner observes that there is a sense in which:

*...narrative, rather than referring to 'reality' may in fact create or constitute it...' (1991a: 13).*

From this perspective, narrative data provides an account both of how people interpret past events and how those interpretations play a role in embedding particular ways of thinking and knowing in the culture of the organization – how they come to be constitutive of the organizational reality. When we construct narratives we place ourselves as a character, even if it is one of innocent bystander. Narrative can reveal a lot about the part and future role an actor may play. We can and do of course revise our narratives. We will, however, be very reluctant to change the central character – ourselves: the grand narrative that is our sense of identity. Narrative data then provides insight into the relationship between events – i.e. how the observer/participant sees how events are linked in time. More than this, and significantly for this study, it captures individual and collective accounts of the interplay between individual behavior and collective consequences. These accounts play a part in the maintenance of existing order and/or to reflect the basis for change in established routines by revealing contradiction in existing meaning making at individual and collective levels.

In this case study a very simple narrative collection was undertaken. This involved asking participants to recall two recent collaboration experiences with which they had been involved within the institution: one a positive experience and the other a negative experience. Not all participants were able to think of two stories that they felt were worth telling and as a result 14 stories were collected out of a possible 22. The stories were analyzed with the participant at the time of the interview. Six key events were selected that 'stuck in their mind'. These events were equivalent to what David Snowden (2000) would describe as an *anecdote*. Breaking the stories down into anecdotes supported analysis of the stories as a whole but also identified discrete events for subsequent thematic analysis across narratives.

Eighty four separate anecdotes were collected. These were clustered according to commonalities in their content, i.e. common words, depiction of similar events etc. In essence this was a typical thematic analysis process, with the distinction that it was the participants themselves who defined the key themes within their individual stories through the definition of the anecdotes, the researcher then undertook the theme analysis *across* the stories.

## Grid Interviews

Personal Construct Theory was developed by George Kelly (1963) in the 1950s. Central to the theory is the idea of constructive alternativism (Bannister & Fransella, 1989). This simply states that any event or situation is subject to alternative construal by different individuals. An event can carry many different meanings and the meaning it carries for any individual will depend on how he/she construes it at that time and how it fits within to his/her existing construct system. His/her existing construct system is a product of prior acts of construal and forms a hierarchical system of more or less tightly held conceptual distinctions which orientate behaviour. Kelly saw this construct system as dynamic – being constantly modified as the agent acts in the world and attempts to be effective within it.

This modification involves the agent making distinctions on prior distinctions with higher order distinctions necessarily more general or abstract and therefore having a wider 'range of convenience'. The lower level distinctions are more concrete and situation specific. So, while a construct system is specific to the individual and forms the basis of that individual's agency, it is a product of his/her history of interaction in the current and other social domains. Constructs low in the hierarchy have fewer dependent connections with other constructs and can be surrendered or modified more readily than those at the top of the hierarchy. Super-ordinate constructs form primary orientating distinctions: they are associated with world-views and individuals will generally be reluctant to change them as they have profound implications for the way he/she sees and orientates him/herself in the world. Kelly (1963) argues that all social processes necessarily involve the mutual construal of others construction and that this gives rise to some commonality of construction (consensuality) in that domain of interaction.

Repertory grid (Fransella et al., 2004; Jankowics, 2004) is one of a family of related methods developed by Kelly and others to make Personal Construct Theory operational. In the context of this case study Repertory Grid offered a systematic means for mapping both individual (micro) and collective (macro) patterns of construal within a particular social domain. Furthermore, Grid analysis supports the development of metrics which allow some prediction of how willing or likely individuals would be to change their construal and thus how responsive they may be to alternative change interventions.

Repertory grids collect fine grained data about individuals sense-making about some target. While the data is fine grained it is also sharply focused so the challenge in using grid as a means for data collection is to ensure that the data converges well onto the topic of inquiry. Critical here are the choice of items of experience ('elements') that will be used to 'elicit' 'constructs' and the focus question used during elicitation (Jankowics, 2004). Elements need to be tangible items of experience (i.e. time bound events, things or people). It is important also that the respondents have had direct experience of the elements. For this exercise we chose to use relational descriptors as prompts and to have the respondents supply specific people who matched the descriptor<sup>3</sup>. These people then became the elements in that respondent's grid. Each respondent would have different individuals, but individuals which were selected against criteria common to all respondents.

In this case the criteria related to qualities of relationships associated with collaboration. These were drawn from the collaboration literature and so formed place-markers, linking this study to the wider research. They also assembled into an approximate continuum or relational strength. The minimum quality of relationship upon which any level of collaboration could be built was taken as that which involved a 'willingness to share information' with the strongest being 'trust implicitly'. To provide a basis

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<sup>3</sup> In a more recent related study which focused on innovation rather than collaboration and trust as with the case study reported here, in this latter case 'innovation events' were taken from the narratives and used as elements.

for contrast (Fransella, 1977), people who the respondents regarded as having the opposite quality were also sought (i.e. 'a person I do not trust').

Constructs were then elicited using the triadic method (Fransella, 1977) using the comparison question 'Which two of these people is similar to one another and different from the third in terms of *how they helped or hindered collaboration*'?. The answers were captured directly on a grid and scored by the respondent in the normal way.

### Analysis

All the people involved selected and described the same negative experience—the exercise in generating collaboration discussed earlier. As might be expected the narratives captured quite distinct and different accounts and interpretations of events – unique personal histories of the shared experience. These narratives provided anchoring events against which the individual sense-making of the participants (as revealed by the repertory grids) could be interpreted. They also revealed the wider environmental factors and historical sequence, as well as the individuals reading of cultural rules, norms and institutional practices, which they believed influenced the outcome.

Grids were analyzed using the software package Idiogrid (Grice, 2002). Patterns in the relationship between elements and constructs were examined using Principal Component Analysis. This enabled us to identify, for each respondent, the type of person he she was likely to share information with compared to those with whom he/she would be unlikely to share; what type of person he/she would trust compared to not trust etc. It also revealed the degree of association between the element classes; if likelihood to 'share information' was closely associated with 'trust' or based on different factors in a relationship for example.

According to Kelly, a person's construct system provides them with a basis for hypothesizing about consequences of their and others actions. Tight construal suggests that a respondent would have relatively unvarying predictions based on his/her construal of a situation. In other words, the characteristics the respondent attributes to individuals would, from his/her perspective, be expected to provide good prediction of the collaborative behavior of others. Loose construal, by contrast, would suggest a person with more flexible views, someone open to surprise. Inferences can therefore be drawn about a respondent's openness to change, likely willingness to expose themselves to uncertainty etc.

Constructs are argued also to be ordered hierarchically with higher ordination constructs being both more meaningful and abstract – covering a wider range of situations (Landfield & Cannell, 1988). Individuals are less likely to be willing to change higher order constructs as they have significant implications for how he/she makes sense of the world (Bannister & Fransella, 1989; Kelly, 1963). Stable clusters of core constructs arguably form part of the persons self schema (Markus, 1977; Markus & Wurf, 1987; Sheeran & Orbell, 2000) and identity framing self-narrative (Ezzy, 1998), both linked to decisions about action. On the face of it the existence of such core constructs should enable some prediction of behavior. However, (Onorato & Turner, 2004) have shown that there is a need to distinguish between self salient and group salient schemas and that group salient schemas can override self salient constructs. This reinforces the need for the analysis across grids as shared constructs are more likely to reveal group relevant constructs. This can be confirmed through triangulation with the narrative data which can establish how the constructs are a) shared and b) link to group identity. In combination then these scores provide an indication of the level of flexibility the respondents have

when it comes to changing the way they perceive events. This willingness to change, as will be discussed below, is extremely important for understanding the emergent dynamics of a social system.

### **Combining the results**

A comparative analysis of the results of the two data sets was undertaken on two levels. Firstly, individual stories were mapped to individual repertory grids. These two data sets revealed insight into which constructs in each individual's meaning system primarily orientate their construal of events and guide their action.

Secondly, the narrative clusters emerging from the thematic analysis of the stories were mapped to the output from the group grid analysis. Usually repertory grid analysis is undertaken at the individual level, however, in this instance we conducted a thematic analysis across the constructs of the entire group (see Jankowics, 2004 for a systematic process for doing this). This analysis provided insight into how each agent made sense of their situation and the degree to which there were commonalities to this sense-making at a fine grained level. Mapping these two together revealed the areas of common construal around a distinct series of events. It also means we could see the depth with which that construal is held and therefore also which dimensions of the social system's patterns can easily change, and those that will not.

## **Findings**

### **Distinctions shaping emergent structure**

From the combined analysis it was possible to discern three primary distinctions that orientated respondents toward one another and influenced their willingness to collaborate. These can be summarized as follows:

- Not in my team / haven't worked with them vs In my team/worked with them before
- Different knowledge base / perceived as specialized vs Same knowledge base as me / more of a generalist
- New to the bank vs long time bank employee

Approximately two thirds of the respondents had one or more of the above as key characteristics in the way they distinguished collaboration between members of the group. These three distinctions would appear to form the basis for the creation of sub-groups within the broader team, where people of like characteristics have a much higher propensity to trust and collaborate with each other rather than those they perceived as being different. The combination of depth with which these constructs were held and the degree to which they were shared across the group strongly drove the eventual outcome of the particular activity we studied, i.e. the group that was supposed to be collaborating split to create sub-groups closely aligned to the constructs described above.

More than half of the total sample also had high mean correlations between constructs. This means that these people have fairly firm (tending towards inflexible) opinions regarding the people they identified and consequently their views will not be easily changed.

This was not the case for all those identified however, with some respondents proving to be quite open and willing to explore new views. It should be stressed however, that this group was smaller (at least in

terms of the sample interviewed). It is also interesting to note that these views were held regardless of length of tenure. Both closed and open positions were represented amongst those who were long term employees (more than 5 years in the institution) and those who were relatively new to the institution (5 years or less). It is also significant to note that someone who may have worked in the institution for an extended period, but was new to the business unit, would be treated the same way as a new external hire.

A fourth distinction that was present in many of the grids, related to whether an individual was perceived to “work for themselves” or “work for the greater good”. This particular distinction impacted on the ‘Comfortable asking for advice’ dimension of collaboration. It is positive to note that nearly all the respondents did not want to be seen as “working for themselves” and preferred to collaborate with those they saw as “working for the greater good”. The issue in terms of collaboration is how they make that assessment, and this was overwhelming driven by the three main distinctions described above of team membership, professional background and length of tenure.

### **Observations**

What is interesting here, is that overtly all the participants, wanted to collaborate, and indeed initially did collaborate around the problem they had been set, thus creating a new pattern of interaction that had not existed before. However, over a relatively short period, this new pattern broke down with a slightly modified version of the pre-existing pattern of interaction re-emerging. In the evidence collected there is a clear explanation for this. Individuals were construed through established constructs and these influenced subsequent behavior. As there was nothing in the design of the intervention which was directed at challenging or disrupting the existing ways of making sense of the situation, and in particular, nothing powerful enough to compel the need to reconsider deeply held constructs, no change was achieved; on the contrary, the existing patterns reappeared in a slightly modified form.

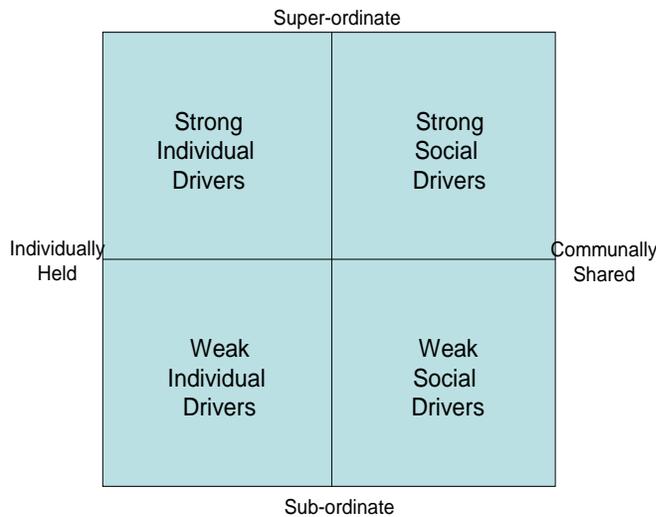
While the methodology developed was designed to meet the particular requirements of this study, the findings suggested a more general approach with wide potential application to organizational and social change. While the model does not and cannot predict specific outcomes it can provide insight into attractors which influence outcomes (both desired and undesired) in a range of social contexts and can therefore be used to reduce risk in change by reducing uncertainty. It does not offer a general diagnostic tool as it requires considerable insight and experience to frame the design and skill, given the non-conventional use of methods. Nevertheless it offers a rare example of a method which can do more than describe attractors – going some way towards surfacing drivers which contribute to their maintenance and/or potential disruption.

### **The change model**

The results of the repertory grid interviews, when combined with the narrative data allowed us to see the way in which the structure-determined behaviors of the participants were triggered by and simultaneously influenced the outcomes of shared events in a social context. More importantly, the studies showed quite clearly that, where certain constructs were both deeply held by an individual and at the same strongly shared by the group, these constructs would drive the emergent pattern of activity despite a change to the environment of the system. This situation often surfaces in social contexts where senior management desires a particular social dynamic and puts in place measures they feel will achieve the dynamic, only to find that subsequent to the change, the original patterns of behavior prove unexpectedly resilient.

These observations have led us to propose the following model (see Figure one) as a way of informing any proposed attempt to change existing organizational patterns. The simple two by two matrix places the depth with which a construct is held on one dimension and the level to which it is shared on another. By mapping the constructs onto this matrix it becomes very clear, very quickly, which constructs or drivers of structure-determined behavior will be difficult to address, and indeed if not targeted by an intervention, will work against any proposed change.

**Figure One**



We argue that where a series of constructs occur in the top right hand corner – *strong social drivers* – of the matrix, it will be extremely difficult to affect a change to the dynamics of the social system without interventions directed at challenging the deep cultural meaning: including how it is embedded in social and technical artifacts AND the sense-making of individuals. Constructs where there is little or no collective sharing but which are deeply held by an individual may play only a minor role in the emergent social dynamics. However this may not always be the case. For example, a firmly held construct (such as a religious belief) which stands in contrast to an alternative which is widely shared may lead to the denotation of the individual as an ‘out-group’ member and this could shape emergent behavior. Strongly held individual constructs may also play a role in other social domains in which the individual participates as well as being self-definitional. They are unlikely to be responsive to organizational interventions. Constructs which are not widely shared nor deeply held by individuals will be easily changed but probably play minimal role in generating social emergence and need not be considered in the design of interventions. Constructs which are collectively shared but not deeply held at the level of individuals are more likely embedded in social artifacts (including artifacts which reflect historical ways of operating) but are not deeply meaningful to individuals currently within that context. These are likely amenable to interventions designed to change those artifacts. These constructs may also become more significant over time or they may reflect superficial points of meaning convergence in one context which take on greater salience in a different context. The context specific nature of the data must always be kept in mind. It is not possible to generalize how constructs elicited about a particular domain of activity might change in form, or in implication in alternative contexts.

## Conclusion

This case selected for this research centered on an intervention designed to address a limited capacity for innovation in a senior management team – i.e. a perceived inability for managers to bring new ideas, understandings and capabilities to challenging situations. We have examined the reasons for the failure of this intervention by seeking better to understand the way in which individuals contribute to maintaining current patterns in the organization and how the intervention failed to address these. This represented a move away from approaches which treat ‘organizations’ in a reified way to a complex systems view focusing in particular on understanding the interplay between macro and micro levels. The approach is based on a theory of sociality which incorporates a model of human agency taken from autopoietic systems theory combined with a complex systems view.

The intervention initially used to try to build collaboration in this work unit, assumed that collaboration was not occurring due to formal structural inhibitors (institutional silos and or physical distance) and/or lack of opportunity. It was anticipated that providing different people from different backgrounds with the opportunity to work on a common project would be all that was required to overcome the problem of lack of collaboration. This proved too simplistic as it failed to identify the way in which individual and collective meaning-making around who and when to share information or trust had developed within the organization and had come to constrain the range and type of relationships members were prepared to participate in.

The data gathered using both narrative and repertory grid methods revealed a more complex picture. The senior management group was shown to have formed a set of ways of interpreting their environment which limited their willingness to engage on the basis of three dimensions of relationship. These were not related to the formal structure or to physical proximity directly (although these would have influenced the formation and maintenance of the dimensions found) but were culturally stable dimensions which had become self-maintaining. This combined with a pattern of tight construal contributed to a very stable system whereby individuals sense-making reinforced cultural patterns which shaped interaction so as to reinforce individuals sense-making in a manner which restricted the scope and possibility of change.

This analysis supported the argument that organizational behavior is a complex product of the interplay between individual agency and institutional structure and that these come together to form phenomenal domains. We have argued that unless insights can be gained into the drivers which support attractors in these domains intervention is likely to be ineffective. To assist with this analysis we have presented a model which helps to sort significant constructs from less significant as a part of a process of intervention design.

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