Complexity, Emergence, Resilience, and Coherence

Gaining Perspective on Organizations and their Study

September 30, 2002 · Emergence
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Abstract

We should view organizations as complex cognitive systems, made up of people who see and interpret the world around them, and who strive to create values which have meaning to them and coherence with the group. Our corporations are populated with individuals who are striving for meaning, trying to understand what the company is about and what they have to do to succeed. If we view organizations in this way, we must have an acute awareness of how we create meaning in our organizations, of the messages which are sent, the symbols which define our organizations, and the cues given by the policies and practices. (Gratton, 2000)

Managerial texts, both trade and academic, have jumped on a new bandwagon: combining cognitive reasoning with complexity “theory” as a means of explaining both the degree of change experienced in the current economy and the high level of stress and anxiety that accompanies the reactions to such change. As the Gratton quote above reveals, however, these attempts at popular psychology can only “work” if they address the more philosophical questions of meaning, identity, and coherence.

We have taken this lesson to heart. Our recently completed book, Converging on Coherence (Lissack & Letiche, 2004), examines organizational coherence as an experienced phenomenon intimately associated with meaning and identity. In the book, we distinguish the phenomenology of experience from the retrospection of judgment, and critically examine the day-to-day reality of action in the absence of reflective thought. In this article we summarize our perspective.

Managers will note that we are rejecting much of the foundation on which MBA programs and management consultants build their respective product offerings. Organizational studies-oriented academics will note that we are suggesting a need for a narrative turn. Both audiences are advised that this article is not intended as a persuasive argument but as an introduction. The takeaway is that complexity science notions, and cognitive science notions, cannot be literally applied to managerial situations as “readable models” capable of generating or revealing answers in some problem space. Instead, the value of these models and perspectives lies in the questions they evoke and the narratives that get told in response to such questions. It is in the questions and the resulting narratives that renewed organizational understanding and guidance lie—not in complexity; not in cognition; and not in the models of traditional organization science.
COMPLEXITY

Complexity science as a term encompasses a variety of techniques, disciplines, paradigms, and perspectives, including nonlinear dynamic systems theory, nonequilibrium thermodynamics, dissipative structures, catastrophe theory, the theory of self-organized criticality, chaos and fractal theory, self-organization, artificial neural network learning/training theories, “swarm” learning theory, statistical physics, thermodynamics, entropy, power-law scaling phenomena, differential geometry, information theory, critical phenomena and phase transition theory, turbulence theory, spatiotemporal correlation functions, stochastic and deterministic differential equations, and social and economic network theory. Complex systems research is, in reality, not quite a science but rather a glom of ideas, interpretations, and techniques. As Carlson and Doyle (2002) note:

A vision shared by most researchers in complex systems is that certain intrinsic, perhaps even universal features capture fundamental aspects of complexity in a manner which transcends specific domains. It is in identifying these features that sharp differences arise. In disciplines such as biology, engineering, sociology, economics, and ecology, individual complex systems are necessarily the objects of study, but there often appears to be little common ground between their models, abstractions, and methods.

Nonetheless, this disparate collection of researchers sometimes choose to present themselves as engaging in complex systems research, and their numbers include organizational researchers. When arguments from the complexity sciences are incorporated in presentations of organizational phenomena, some of the central notions expressed are often those of change, evolution, adaptive and emergent behaviors.

Human organizations can be viewed as complex systems in that they comprise interrelated entities with a large number of elements that interact; are characterized by feedback; are open to the environment; operate far from equilibrium; are historical; and are composed of elements (be they single people, groups, teams, or larger entities) such that each element operates according to local information only (and is generally ignorant of the behavior of the whole). What the study of complex systems tells us is that boundary questions, definitions, and observations are an integral part of the makeup and self-reflective quality of complex systems. With human organizations, these issues further arise as questions of identity and coherence. In the language of complex systems: Boundary issues are challenged by the notions of emergence and the means of their resolution is indicated by the notion of resilience.
There is considerable managerial hype associated with notions of complexity. Often it is claimed (as one of the present authors did in an earlier trade book, see Lissack & Roos, 1999, 2001) that by tackling problems from a complex systems perspective, new understandings, and thus new possibilities for action, emerge. What one should do, see, understand, or communicate is not governed by absolutes—so much for the dictates of the One Minute Manager (Blanchard & Johnson, 1982). The demands of the local situation, rooted in an understanding of that situation’s innate complexity, must prevail. We agree that the metaphors and models derived from complexity can be used retrospectively to make sense of observations, and proactively to help create a new sensible environment. But we have found no supporting evidence for the claim that a shared language, based on the insights of complexity can have an important role in a management context. Nor have we found evidence that the “lessons” of complexity have a direct application to management or organizations. The argument for applicability is far subtler than is normally presented; and, we suspect, when explored in depth, far more profound.

In both the complexity science and managerial literature, one “normal” argument is that the use of complexity theory metaphors can change the way managers think about the problems they face. Instead of competing in a game or a war, managers of a complexity thinking enterprise try to find their way through an ever-changing, ever-turbulent landscape. Such a conception of their organization’s basic task can, in turn, change the day-to-day decisions that managers make. It is then argued that those decisions and the sensemaking associated with them affect the day-to-day lives of the remaining members of the organization, whose actions affect the organization’s tasks, and so on through an ever-emergent spiral. While assertions such as these abound in the trade press and are supported by a collection of anecdotes and a variety of “new economy” magazine articles, evidence for sustained results, rather than short-term interventions (such as a workshop or a training exercise), is scarce. Instead, one finds interpretations of events and cases drawn from a complexity science viewpoint. This amounts to an “ascribed” complexity perspective, where recognition of the complexity science concepts lies with the ascriber and not with the ascribed.

Richardson (2001, 2002) distinguishes between complex and complicated systems:

Complex systems display many possible qualitatively different behavioral regimes (the nature and variety of which evolve), as well as exhibiting emergence, i.e. the emergence of macroscopic system structures and behaviors that are not at all obvious from their microscopic make-up (Allen, 1999). Complicated systems do not. The order parameters that best describe the current behavior of a complex system are not fixed, they evolve qualitatively as well as quantitatively. Complicated systems have qualitatively fixed order parameters. The subsystems of a complex system are emergent and temporary (and possibly critically organized—Bak, 1996), whereas the subsystems of a complicated system are prescribed and fixed.

The last differentiator listed hints at a boundary issue; that is, the boundaries describing subsystems in a complicated system are prescribed and fixed, whereas the boundaries delimiting subsystems in a complex system are emergent, critically organized, and temporary. Such boundary issues are critical to justifications of why organizational studies should address complexity science at all. And such boundary issues are at the heart of what managers in organizations address every day.

Organizations and managers in these organizations need to acknowledge what complexity scientists call “emergence.” Emergence is what makes the organization more than the sum of its parts. It is the recognition of new items, when scale or levels change or perspectives shift. Emergence makes organization exciting, creative,
and powerful—the sum of the parts is much more potent than the elements alone. Coherence is, itself, intimately associated with emergence or the awareness of something new at a different level or perspective than what went before. As scholars of coherence phrase it, it is about having the missing links at hand when confronted with something new. In the absence of those “links at hand” we resort to “I’m lost” or “fill me in” or even “hunh?” (Bublitz & Lenk, 1997). Organizations have possibilities that extend far beyond those of individuals alone. Coherence occurs when these possibilities are perceived together, and felt as a shared destiny.

Emergence is the ability of groups of agents (e.g., ants, neurons, stock traders, nations) to exhibit behavior when acting collectively in cooperation or in competition that is qualitatively different than their behavior when acting alone. “Emergent phenomena are conceptualized as occurring on the macro level, in contrast to the micro-level components and processes out of which they arise” (Goldstein, 2000). Emergence can be thought of as the recognition (or the ascription of ontological status) of a concept, situation, process, or entity, at a level different from the level of prior observation that cannot be predicted or calculated from observations at that prior level. Thus, for example, family dynamics cannot be predicted from observations of individual family members, in the absence of observations of interactions. Emergence is above all a product of coupled, context-dependent interaction.

The essence of emergence was as captured by Johnson (2002):

In the case of an ant colony, a couple of the emergent properties are the robust ability to locate and retrieve food due to the chemical communication of the ants, as well as survival of the colony due to the different specialization modes of the different ants. In the case of the brain composed of neurons, some of the emergent properties include manic-depression, epilepsy, consciousness, creativity, and love. In the case of artificial and natural intelligence systems composed of neurons, emergence gives us pattern recognition of faces, of fingerprints, of atmospheric turbulence and weather, of stock market prices, of relationships between medical/economic/social variables. In the case of the stock and currencies market composed of traders and economic policies, emergence can give the economy such things as bull and bear markets for years, worldwide depression, stock market crashes, market efficiency, and collective price oscillations. In the case of the biological immune and hormonal system, the combination of antibodies/proteins and the levels of certain chemicals, we get the incredible natural ability to combat diseases, the ability to maintain physical and mental health, as well the need to develop artificial weapons against the horrible effects of unusual viruses and breakdown of the usually robust immune and hormone systems. And in the case of the political, environmental, social and economic world, we find the wonderful world in which we live and of which we need to learn to be better stewards, marked by such emergent properties as law, morality, spirituality, international and inter-ethnic war, fascination with sports and arts, depletion of natural and economic and human resources, the ozone hole, the greenhouse effect, slavery, monument-building, democracy, socialism, “the Third Way”, dictatorship, technocracy, the need for homeostasis and controlled growth, the arms buildup in the Cold War, complex social rules and personal/social/cultural preferences.

Emergence has import because we encounter it all the time. The collapse of Lernout & Hauspie was emergent for the Belgian business community. The collapse of Swissair was emergent for the Swiss. The events of September 11, 2001 were emergent for Americans. For those directly involved in the tragedy, of course, the changes were obvious: loved ones departed, workplaces destroyed, relationships irreparably damaged. But for many, the changes were far more subtle yet equally pernicious. As the media and pundits were oft to describe it, the America they lived in was no more; they now lived in a new America. Whatever vision, experience, or sense
of America many had on September 10 was no longer coherent on September 12. The loss of coherence was related to a subtle change in identity; although it is not clear at the time of this writing whether that change is with regard to self, environment, interactions, base assumptions, philosophy, or some combination thereof. America was reacting to the emergent.

Similar but far less dramatic tales are told in many organizations. The coherence and collective spirit, the “we” and the “team” ascribed to members of the organization by senior management, differ distinctly from the reality experienced by those same members. At times, there are sufficient forces present to obfuscate the distinction: There is work to be done, money to be paid, projects are accomplished, and maybe an external enemy has to be fought. But at other times, the gap between ascription and experience leaves the organization and its members open to what both might perceive to be subversive change. The scandals of Wall Street, HIV-infected blood infusions, and the shift manager who helps him/herself to a bit of cash from the till are all examples of such subversive changes.

Due to emergent events and behavior, boundaries shift. Coherence and identity act as countervailing forces to the short-term aspects of emergence. Both can shift in response to emergent behavior. The focus is on *Who am I?* and *What do I see? as adjacent possibles.* We only can move to next steps, one at a time. Are the possibilities consistent with the existing sense of identity and boundary—are they coherence preserving? If I can make coherent sense of my next step, then I can act. For “I” one can substitute the team, the group, the unit, or the company. Action across all these scales is what organization is all about.

**IDENTITY AND THE LOOSENESS OF METAPHOR**

Identity and boundary questions pervade organizations and their members. As Lesser and Storck (2001) describe it:

> One might think of a group of people playing on a field defined by the domain of skills and techniques over which the members of the group interact. In the “game” played on the field, the number of “players” is indeterminate. In fact, being able to maintain the community by bringing new members onto the field is an important defining characteristic. Being on the field provides members with a sense of identity—both in the individual sense and in a contextual sense, that is, how the individual relates to the community as a whole. A sense of identity is important because it determines how an individual directs his or her attention. What one pays attention to is, in turn, a primary factor in learning. Therefore, identity shapes the learning process. The relationships within the community are enacted on the field, which provides an initial set of boundaries on the interactions among its members and on their goals. And, as with most field-based games, overall community welfare ultimately is more important than individual goals.

In a recent *Academy of Management Review* special issue, Albert *et al.* (2000) phrased such notions of identity and boundary as follows:

> Identity and identification are powerful terms. Because they speak to the very definition of an
entity—an organization, a group, a person—they have been a subtext of many strategy sessions, organization development initiatives, team-building exercises, and socialization efforts. Identity and identification, in short, are root constructs in organizational phenomena and have been a subtext of many organizational behaviors. As conventional organizational forms are dismantled, so too are many of the institutionalized repositories of organizational history and method, and the institutionalized means by which organizations perpetuate themselves. Increasingly, an organization must reside in the heads and hearts of its members. In the absence of an externalized bureaucratic structure, it becomes more important to have an internalized cognitive structure of what the organization stands for and where it intends to go. A sense of identity serves as a rudder for navigating difficult waters.

Organizing is a social communicative process. To communicate the new and unexpected, one has to point to an event; one needs an indexical to focus attention. Before the new is identified, analyzed, and known it is raw event, unexpected circumstance, and fairly indeterminate. Each event has to be named, labeled, and described to be thought, discussed, and assessed. Normal hypothetical-deductive logic is not equipped to report on occurring emergent circumstances. Indexicals are used (somewhat like neologisms) to make the unique situation known. Dialog about change, emergence, boundaries, and indexicals is critical to identity—to both its labeling and preservation. All too often in organizational studies, identity, boundaries, indexicals, and emergence are expressed in metaphors and analogies. Awareness that something is happening/has happened is shared, but often many ideas of what has been seen/said go unrecognized and unexamined. Metaphor and analogy may be rich in their evocative value, but they mask the working of the hermeneutic circle, thereby blocking genuine critical thought and the power of dialog and narrativity in processing change and preserving or strengthening identity.

Complexity theory can be seen either as a source of descriptive metaphors or as a contribution to the study of the ontology of organization. If complexity theory is employed as a metaphorical mechanism, one gets organizations that are “on the edge of chaos,” “occupy fitness landscapes,” and (perhaps) are derived from a “make-a-person kit” (that is, a “make-an-organization kit”). In all these metaphors, the positivist assumptions of mainstream social science are maintained. Organizations are something out there that the researcher studies. In effect, the “organization-ness” of organization is the key theoretic assumption. This organization-ness can be cast in a more or less grandiose manner. If seen as “grand narratives” then organizations are fully fledged objects, requiring a theory of their own; and if seen as “small stories” then they require applied narratives describing their specific aspects. Such small applied narratives would identify organization-ness as complexes of activity, forms of accountability, and behavioral norms that apply to collective, organized economic action. When people come together in economic interaction, they organize themselves in a particular way. To a large degree organization-ness is merely a subset of culture, the particular values and actions, behaviors and assumptions that apply in certain (fairly vast) regions of social intercourse. Culture studies make use of metaphors and analogies as a means of communicating ideas about groups. Culture studies make use of ethnography and the examination of narrative when conveying ideas about individuals. Organization science has not adequately learned such a differentiation between group (or organization) and individuals.

An organizational science made up of metaphors and analogies is very sloppy and inexact—it is an invitation to approximate thinking and disguised (mis)understanding. The alternative is to examine the affordances of the metaphors: to situate them in concrete context and experience, and to examine the questions arising from the “not like this” or the other side of metaphorical comparisons. Metaphors, plus a study of their affordances, can lead to meaningful homologies.

Affordances sharpen up cognition. They are statements with which a circumstance’s identity gets filled in; they are ideas, observations, and descriptions that narrow down the ascription of what is seen. For instance, it is not
only an organization but a high-tech consulting organization, it not only does high-tech consulting but develops its own technologies, and so on. The more affordances or clear limits that are set on what the object is and is not, the more specifically an event is identified.

Homologies are rigorously examined comparisons. The nature and criteria of the ascribed identity/identities are categorized and intersubjectively examined. Homologies are boundary objects; that is, they define the outer limits of agreed identity. Systems are defined by their boundaries, and organizations are systems. Thus, their boundary definitions are crucial to organizational identity and action.

Most of the time, analogies are shared without being analyzed. People agree about what actions are to be taken, about the identity of their organization, or about what has (just) occurred, without examining how they arrived at the agreements. Homologies are shared cognitive systems that set boundaries around significance and cognition. They make circumstantial agreement possible. Metaphors and analogies are loose bundles of like-minded comparisons (gloms), where the points of agreement and difference are not surfaced. If they were to be surfaced, so much disagreement and discrepancy would be made visible that the linkages would become (virtually) untenable.

Homologies are (in effect) metaphors or analogies that can withstand rigorous examination. Such examination is social, shared, and communicative; it is not solely analytical. This is because homologies are a form of shared understanding—the truth criteria are social. But the communicative sharing of the homology leaves much room for difference. There is a model that is tight and that is the source of the coherence, but in empirical work there is always contextual looseness. The one situation is not the other; the one circumstance, even if homologous to another one, is not the other circumstance. Seely Brown (Seely Brown & Duguid, 2000a), Star (Star & Griesemer, 1989) and others (Lave & Wenger, 1991) refer to aspects of such situations as “boundary objects” and suggest that it is boundary objects that allow for the creation of shared understandings.

The issue of what boundary objects, what labels, what homologies to use has increasingly been challenged in modern corporate settings. Nardi et al. (2000)

argue that it is increasingly common for workers to replace the organizational backdrop and predetermined roles of old style corporate working with their own personal assemblages of people who come together to collaborate for short or long periods. These assemblages are recruited to meet the needs of the current particular work project. Once joint work is completed, the network has some persistence; the shared experience of the joint work serves to establish relationships that may form the basis for future joint work.

What label attaches to such a grouping? How can it be attended to and managed?

No longer can we accept that organizational identity is core, distinctive, and enduring (Albert & Whetten, 1985). Gioia et al. (2000) argue that “the seeming durability of identity is actually contained in the stability of the labels used by organizational members to express who or what they believe the organization to be.” Luhmann’s Social Systems (1995) echoes the point:

There is agreement within the discipline [of sociology] today that the point of departure for all
systems-theoretical analysis must be the difference between system and environment. Systems are oriented by their environment not just occasionally and adaptively, but structurally, and they cannot exist without an environment. They constitute and maintain themselves by creating and maintaining a difference from their environment, and they use their boundaries to regulate this difference. Without difference from an environment, there would not even be self-reference, because difference is the functional premise of self-referential operations. In this sense, boundary maintenance is system maintenance.

If it is only the labels, metaphors, and “words” that are enduring, then organizational identity questions have to be preoccupied with philosophical arguments, which imply a need to attend to and actively discuss those very boundary and identity issues. Such discussion needs to be just that: dialog among parties and not dictates from above.

**RESILIENCE**

Coherence is a byproduct of resilience or robustness. Using Holling’s (1973) definition of resilience—“the capacity of a system to absorb and utilize or even benefit from perturbations and changes that attain it, and so to persist without a qualitative change in the system’s structure”—coherence is both the label ascribed to such persistence and the qualitative experience of the persistence itself. Resilience deals with the flexibility of responses to stress and the capacity for learning, selforganization, and adaptation at multiple scales. Resilience depends on the behavior of a system, due to the structure of its attributes and the interactions between them, and the perception of perturbations and change, especially unexpected emergent events.

Erica Jen, of the Santa Fe Institute, refers to resilience as robustness:

Robustness is an approach to feature persistence in systems that compels us to focus on perturbations, and often assemblages of perturbations, to the system different from those considered in the design of the system, or from those encountered in its prior history. To address feature persistence under these sorts of perturbations, we are naturally led to study the coupling between dynamics and organizational architecture, implicit rather than explicit assumptions about the environment, the role of a system’s evolutionary history in determining its current state and thereby its future state, the sense in which robustness characterizes the fitness of the “strategic options” open to the system, the intentionality of the insults directed at, and responses generated by, the system, and the incorporation of mechanisms for learning, innovation, and creative problem-solving.

Robustness moreover is especially appropriate for systems whose behavior results from the interplay of dynamics with a definite organizational architecture. Examples of organizational architectures include those based on modularity, redundancy, degeneracy, or hierarchy, among other possibilities, together with the linkages among organizational units. Even more importantly, these organizational features are in many systems spliced together into what social scientists term “heterarchies” [Stark]; namely, interconnected, overlapping, often hierarchical networks with individual components simultaneously belonging to and acting in multiple networks, and with the overall dynamics of the system both emerging and governing the interactions of these networks. Human societies in which individuals act simultaneously as members of numerous
networks—familial, political, economic, professional, among others—are one example of heterarchies, and signaling pathways in biological systems are another, but in fact the paradigm is a powerful one with relevance to many natural, engineering, and social contexts. (Jen, 2001)

The Santa Fe researchers note that the concept of resilience or robustness is meaningful only when accompanied by specification of the “level” of the system being so characterized. Resilience may exist on the level of the individual components, or on an intermediate level, or on the level of the whole, or not at all. Resilience on one level need not imply robustness on any other level. Presence or absence of resilience at one level does not imply presence or absence at another level. Echoing some of the rationale behind the complexity community’s focus on interrelationships, it is certainly possible for interconnections among components, not themselves robust, to give rise to resilience at the aggregate level.

COHERENCE

Resilience or robustness entails a preservation of qualities, functions, or identity. Coherence can be thought of as socially agreed significance that is capable of providing the sensemaking crucial to organizing, and that leads to emergence as a guiding principle of rapidly adaptive organizing. Coherence alone, however, is not enough. Applied coherence, of the experienced and indexical variety, is a task potentially fulfilled by action science. The complex swirl of our modern economic and psychological lives demands something more. That something cannot be satisficed by coercion, economic resources, or efficiency. All three of these are fragile in the face of emergent change.

Coherence is not an instantaneous, superficial experience of situational sameness, followed by confusion and chaos. It implies a shared meaning and signifying apparatus of some rigor and sustainability. Coherence may be temporary, but it is not entirely fleeting. It demands robustness, just as the fate of the modern organization or team demands resilience. It takes a special kind of coherence to provide that robustness; that is, the coherence of preparedness, of identity, of action. Such coherence entails being prepared to engage in dialog.

Coherence is a popular stand-in for “meaning,” “significance,” and “purpose.” Phrases such as “being-in-the-flow” are fashionable, seductive, and very vague. Coherence is about people and circumstances being powerfully linked to one another. It is enabling, which means that people in organizations who “cohere” demonstrate a shared and thereby more powerful “will.” From Habermas’s social philosophy to Weick’s organizational studies, there has been an assumption that what coheres is good. Supposedly, if people are tightly coupled, in interactions that they have interactively defined, then what emerges will be “good” or “valuable.” The managerial literature seems to assume that coherence is a good thing, leading to (increased) business success. However, research can offer no such assurances. Coherence itself makes no performative claim—there is no claim that coherence is a technique for business success.

A very approximative, popular management literature has typified coherence as “peak experience” or “flow” (Csikszentmihalyi, 1990). Highly successful groups do seem to get more done than anyone had thought possible, because of the way they cohere into a committed selforganizing unit. This literature is metaphorical and analogical: Experiential coherence or “flow” is “how to live life as a work of art, rather than as a chaotic response to external events.” Flow implies a harmony of being. Flow is obvious when things happen effortlessly, everything falls into place, obstacles melt away, and our timing is perfect. We feel a deep sense of harmony and underlying order. Coherence is then conceived of as a field of meaning(s) wherein people share complex structures of cognition and relate to one another from their shared rhetorical circumstance. Coherence entails an evolving, constantly changing, social cognitive situation. Experience of shared situation is crucial to
coherence. In any situation, there are multiple possibilities; coherence is not one truth or an inevitable course of action. It is an acknowledged commonality of awareness, of circumstance.

Organizational coherence mirrors the personality coherence defined by Cervone and Shoda (1999):

Modern lives require multiple roles and impose disruptive life transitions. People must adapt to social demands that vary across contexts and across the life course. Despite all this, the individual’s life is rarely chaotic, disorganized or fragmented. People somehow manage to achieve an integrated sense of self. They plan courses of action that organize their lives over extended periods. They display stable patterns of behavior that distinguish them from one another … Social-cognitive theories of personality stress that persons and social settings are viewed as reciprocally interacting systems (Bandura, 1978) where people select and shape their environments (Caspi, 1998) and give meaning to events by interpreting them according to personal beliefs (Higgins, 1992, 1999). The sociocultural environment in turn shapes self-views, knowledge mechanisms, and psychological tendencies. People construct a coherent sense of identity through psychological processes that are attuned to (Kitayama et al., 1997) their surrounding social and structural contexts. Coherence in personality functioning is viewed as an emergent property of interactions among multiple psychological mechanisms (Cervone, 1997; Mischel & Shoda, 1995). When people try to explain other people’s behavior, upon observing them, they activate in their minds such constructs as goals, plans, resources, beliefs and scripts (Miller & Read, 1991). These constructs are activated initially rather promiscuously (Kintsch, 1998) without regard to the consistency among them. But, as soon as these constructs are activated they become part of a shake down process so that the constructs which are mutually consistent support each other while those that are inconsistent lose their activation. The result is an emergence of a set of constructs that are consistent to form a picture, similar to the process of generating a coherent picture of a gestalt figure.

We define coherence as a preparedness to engage in dialog. This form of coherence can be distinguished from the ascriptive coherence of Thagard (2000), which is a retrospective judgment of the maximum satisfaction of constraints. Ascriptive coherence is incomplete, as a concept and as a descriptor. We often act without simultaneous reflective judgments. Ascriptive coherence has no room for such actions. There is tension between the ascribed coherence of the managerial literature and the experienced incoherence of day-to-day organizational life. The bulk of the managers with whom we have dealt are searching for means of reconciling the tension between the world of mission, vision, and strategy, and that of change and self. What they are striving for is what we term experiential coherence: a way of holding complex circumstance together and of it resonating. Much coherence is ascribed coherence—a pointing after-the-fact to the supposed single significance of circumstance. Ascriptive coherence focuses on the judgment calls of the Weickian future-perfect, rather than on the immediately experienced. Thagard’s analysis of ascribed coherence is the definitive work on that theme, and Weick’s (1979, 1995) analysis of sensemaking applies the self-same logic to organization. But ascribed coherence does not resemble experienced coherence. What ascribed coherence leaves out is the emergent complex quality of process and event. Experienced coherence is a social cognitive field of ongoing possibility and emergent event(s).

Following Thagard’s definition, the loss of coherence in America on September 11 was, itself, not coherent. However, coherence can be more than merely a label or category. There is another kind of coherence—that of experience. It is this latter kind that was lost on September 11. What those events demonstrated to many Americans was that the coherence they assumed and took for granted was actually fragile and difficult to explain. Experienced coherence is a “more than the sum of the parts” phenomenon. Ascribed coherence is not.
Experienced coherence, thus, differs from ascribed coherence. Experienced coherence includes and confronts emergence—emergence understood in terms of the prospect of an ever-increasing and nondelimitable possibility space.

Either coherence is understood as a shared social process, or it is ascriptive in the sense that Weick (and Thagard) argue. Saying after the fact that something coheres is not always very helpful. It has no proactive value and does not assist in the organizing process. Experiential coherence, or events of shared understanding and practice, need to precede labeling. In terms of actual organizing, experiential coherence is much more important than retrospective sensemaking. Organizing is about doing and making; what after the fact is thought about its processes counts for much less.

Retrospective coherence has the disadvantage, in a practical circumstance, that it directs attention to the past. It supports an episteme of repetition, gradualism, and cumulative change, and not one of radical renewal, change, or innovation. As Weick has argued, managers probably dread change and innovation more than they welcome it. If managers only choose to deal with concepts enabling their exertion of control, then they will inevitably choose for ascriptive coherence. If experiential coherence negates managerial control, it may be a very hard sell getting managers to attend to it. Yet without such attention, the social effects of experiential coherence may work to counter whatever it is that the managers intend. Some may suggest that such counter-effects are inevitable; we would suggest that they demand managerial attention to experiential coherence and its absence.

**IMPLICATIONS**

Meaning is created in organizations in many ways: the language of senior managers; the behavior of colleagues and peers; expressions of values and norms; stated policies, manuals, and pronouncements; symbolic expressions; and each member’s understanding of the history and reputation of the organization. As the business environment, strategies, and goals change, so do the meanings of the organization. In the absence of a sense of coherence we drift; our attention wanders and we behave as if we are without purpose. Thus coherence in organizations exists as a social phenomenon in the recursive social interactions between individuals. Group and organizational members come to hold (relatively) aligned interpretations of the world, (relatively) aligned goals, and (relatively) aligned identities because they tend to be surrounded by their own actions … Through the experiencing of actions by participation or by observation, individuals construct, reconstruct, and/or modify the scripts, goals, and identities that make up their relevant schema. (Hargadon & Fanelli, 2002)

Coherence can be viewed as socially tested awareness of a situation in which a group has found a way for the parts of their narration—facts, observations, data—to fit together meaningfully. Coherence is not embedded or sedimented. It manifests itself in an ongoing social process in which shared values (hermeneutics) support it and make it possible. Coherence is not integrity. While integrity (seemingly) describes the (possible) characteristics of a closed system, coherence is typical of an open system. Integrity implies stability; coherence implies resilience.

Coherence welcomes resonance. Integrity is threatened by it. Integrity stares down emergence, coherence embraces it. Integrity is an application. Coherence is a transient state. Integrity invites judgment and measurement. Coherence can be spoiled by the very act of judging or measuring it. Traditional organization
science is about integrity. We argue that there needs to be a new focus on coherence.

Organizational theory, as taught in graduate management programs (although perhaps not as offered to the MBA student), recognizes the need for coherence. Many management gurus do as well. But both the theorists and the gurus see coherence as an attribute, a quality about something else—the vision, the mission, or the strategy. Within this definition the mission, vision, and strategy are “objective” measures against which a set of constraints can be postulated and prospective actions and behaviors evaluated. Thus, a successful vision is deemed both to motivate the troops and to aid in evaluating their “progress.” Comparisons of action to mission, action to vision, action to strategy are all possible and the relative degree of coherence can thus be measured.

Yet, missions and visions are situated and indexical, despite the desire of many managers and gurus to make them absolute and objective. The ascribed view of coherence would suggest that the degree to which a company is coherent is the degree to which its observed behaviors are aligned with the mission statement. Thus, from this viewpoint, it is important to define the mission statement, obtain “buy-in” from employees, and monitor deviance.

The degree of coherence, when measured against the target, represents an important managerial control parameter. This control is worthy of the expenditure of significant management time and significant corporate dollars, at each step in the control process. The senior executive team will go on a retreat to write and rewrite the mission statement until it is “perfect.” Group heads and team leaders will spend days learning both how to obtain “buy-in” and how to monitor for deviance. Employees will receive pamphlets, wallet cards, and wall posters with the mission on them, for inspiration. A similar process will be undergone with regard to the targets of vision and values. With this trinity (mission, vision, and values) in place, traditional procedures for control can be exercised and, in theory, a well-running machine will result.

Occasionally, the traditional view will be right. More often, it will be partially right for some period of time. Adherents of the traditional view draw comfort from these “correct times” and use them to argue that if only the theory were better understood or better implemented, there would be better management and better outcomes.

Concepts such as mission and values are both situated and progressively developed through activity. One needs to abandon any notion that they are abstract, self-contained entities. It may be more useful to consider conceptual knowledge as in some ways similar to a set of tools. Tools share several significant features with knowledge: They can only be fully understood through use, and using them entails both changing the user’s view of the world and adopting the belief system of the culture in which they are used. Learning how to use a tool involves far more than can be accounted for in any set of explicit rules. The occasions and conditions for use arise directly out of the context of the activities of each community that uses the tool, and are framed by the way members of that community see the world.

What the organizational theorists and management gurus fail to mention is that last year’s great insight is this year’s fad and next year’s disaster. Conformance and correspondence with the situation of another form an invitation to a lack of personal coherence, as situations evolve and change. Indeed, the emphasis on such conformance directly contradicts several important tenets of current cognitive neuroscience. Lipton (1996) notes that visions and visioning fail because the executives’ walk doesn’t match the vision’s talk, the vision isn’t the holy grail, the vision presents an ideal future irreconciled with the present, the vision is either too abstract or too concrete and is imposed from the top. These tendencies continue to the present day.

In arguing for a new focus on coherence, we do not see much pragmatic value in Thagardian coherence as a guide to action in corporate settings, while acknowledging its value as a classificatory scheme for researchers and consultants. There has, to the best of our knowledge, been no research demonstrating that higher degrees of Thagardian coherence (by any measure—and if such studies did exist measurement questions would be rampant) correspond to higher degrees of corporate or organizational performance (the above comment about
measurement can and should be repeated here). While there are theorists and gurus (see, for example, Cartwright, 1999; Haeckel, 1999; Levesque, 1998; Marlow, 1997; Simons, 1995; Taffinder, 1998; Tapscott, 1996; Weinzimer, 1998) who exhort the value added of cohering around mission, vision, and strategy—in the guise of alignment, synchronicity, and synergy—the many exhortations are at best accompanied by retrospective anecdotal, selectively revealed evidence. Indeed, most popular business trade books offer repetitions of a leading management fad or “best practices,” where “it worked here, so it will work for you, conform to this” is repeated, for nearly every surging stock market performance, successful product introduction, or corporate turnaround. The Thagardian notion of coherence as maximal constraint satisfaction becomes twisted into conformance with the success of another—whose circumstances, environment, and competitive conditions all vary from yours—because correspondence has been transformed into ascribed coherence in Thagard’s terms.

The focus we seek is on experienced coherence. Such coherence can be thought of as socially agreed significance, capable of providing the sensemaking crucial to organizing. It entails emergence as a guiding principle of rapidly adaptive organizing. Organizing is a constant struggle between the necessary energy of disorder and the desired structure of order. Organizing is an emergent struggle—wanting the struggle to go away actually tries to destroy it. Successful managing draws its energy from disorder, and expresses itself in order. Organizational coherence is sustained by emergence and by the ever-present possibility of emergence. Conceptual coherence seems to be an important element in social coherence, but social coherence or organizational coherence is much more.

The need for coherence is a need for alignment, for a sense of identity, and for a sense of purpose with regard to the manifold adjacent possibles surrounding us. We strive to interpret our world, not simply by imposing structure but by translating events and developing frameworks for understanding it. Cognitive models of the world form the basis on which we notice and construe meaning, and on which we act. Experience of shared situation is crucial to coherence. In situation there are multiple possibilities—coherence is not one truth or inevitable course of action. It is an acknowledged commonality of awareness of a circumstance.

At best, organizing is purposive—a directed engagement with process that leaves enough space for self-organization. Organizing can attempt, via boundary objects and constraints, to operate within an agreed territory, but emergence can jump the borders and change the territory. Thus a meaningful definition of organizational coherence must include perception as activity, identity as a transformable system, and communication as shared activity. What complexity theory teaches us is to try and describe activity while being aware of the power of “weak signals.” The most powerful factors (forces) are not always determinant; the results of action do not follow simple, linear patterns. Social interaction is a constantly changing process of emergence, in which organizing leads to an ever-evolving situation of organization. Coherence is a field of meaning(s) in which people share complex structures of cognition, and relate to one another from their shared rhetorical circumstances. Coherence is an evolving, constantly changing, social cognitive situation, where the determinative roles of the situation and context play off one another.

Organizations, even more than individuals, have the ability to make and remake the cognitive connections that define and constrain their world (see, e.g., Clark, 1993; Fodor, 2001; Horgan & Tienson, 1996; Macdonald, 1995). Prigogine suggested that self-organization was really organization by a system, once in a container; that is, for “self” one should substitute self-contained or self-constrained. For organizations, as for brains, some aspects of the container are the attentions, affordances, and cognitive connections that they bring with them and to which they are attuned. The possibility space of organizations includes emergence. One can attempt to narrow that possibility space via a variety of coercive measures, but the vast possibility of emergence will triumph in the end.

Thus the practicing manager must learn to acknowledge emergence and perhaps even to embrace it. Academics...
who study managers must learn to include emergence in their espoused understanding. And those who are managed, as well as those who manage, must find the narrative voice inclusive of emergence and of its possibilities. Managers who attend to the affordances of the narratives that make up their environment can perhaps make a difference—to their teams, their organizations, and themselves.

Word choice alone is not enough. Metaphors and analogies are not enough. Best practices are not enough. Models of organizations, and of organizing, are not enough. As Cantwell-Smith (1996) reminds us, “registration is a precondition for representation.” Perhaps each of these would suffice if the world did not include emergence, if resilience were not important, and if individual identity were supervened by group membership or label. But the world of managers and of organizations does include emergence; resilience is important; and individual identity is the watchword of our time. The failure to register affordances is a failure to re-present the nature of (social) cognition in the ongoing emergence of identity and action. Those re-presentations are articulated through narrative. We tell narratives to find coherence—and we tell them to others as well as ourselves. If the manager can guide those narratives, or even attend to them, purposive intervention regarding the selection among adjacent possibles has a much better chance of achieving fruition. If the manager ignores them, or instead chooses to process only those aspects that “fit” some preconceived picture, coherence is but coincidence, and strategy is but collective illusion.

References

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