The Architecture of Strategic Leadership Near the Edge of Chaos

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Some would argue that a systematic emphasis on executive leadership goes back nearly 70 years to the classic work of Barnard (1938); see Hunt (1991) and Jacobs and McGee (2001) for reviews. More recently we see related work by those such as Hambrick and his colleagues, much of it summarized in Finkelstein and Hambrick (1996). To this work we can add the early work of Jaques (1976) and his later writings with those such as Jacobs (e.g., Jacobs & Jaques, 1987) with Hunt extending this work in his 1991 book (Hunt, 1991) followed by Phillips and Hunt (1992) and later work by Jaques and associates. Akin to these writing is that of Zaccaro (1996). Most recently Jacobs and McGee (2001) have prepared an insightful extension. Beyond these pieces Boal and Hooijberg (2001) and Boal (2004) have prepared reviews, the former relatively extensive in nature. Also, Zaccaro and Klimoski (2001) have edited a comprehensive book on the topic and Sosik, Jung, Berson, Dionne, & Jaussi (2004) have written a executive leadership book with the kind of high tech twist.

These earlier cited works have contributed to what appears to be a "tipping point" (Gladwell, 2002) in systematic executive leadership and related work on top of the current renewed interest in leadership in general. We argue that an especially important thrust in extending this tipping point is explicit consideration of organizational contexts and especially a context emphasizing executive leadership at the edge of chaos (see Osborn, Hunt & Jauch, 2003).

With all of the attention on the very top of the organizational pyramid and the extensive treatments of the top management team as well as the leadership of CEO's, we think it is time to discuss a more neglected collection of leaders- those operating between the top management team and middle management. This is in keeping with the call to focus on a "meso" paradigm (House, Rousseau, and Thomas-Hunt, 1995) which attends to the isomorphisms and discontinuities that occur across the micro/macro levels of analysis. Most leadership research within this meso-paradigm seeks to understand the effects of leadership at multilevels or at cross levels of analysis (Dansereau, Yammarino, & Markam, 1995; Yammarino, Dionne, Chun, & Dansereau, 2005). In keeping with the meso paradigm, Jacob and Jacques (1987) view leadership as uncertainly reduction through acquiring and interpreting information to determine appropriate courses of action. Their theory, known as Stratified Systems Theory (SST) is based on three core concepts:

Adaptation requirements: The need for the organization to adapt to their environment, characterized by varying degrees of complexity and dynamism, in order to acquire scare resources and use them efficiently

Requisite frame of reference for appropriate exercise of discretion: The level of the frame of reference needs to increase with strata since the interdependencies and environmental complexity and uncertainties increase.

Information acquisition and use: Since uncertainly reduction is the core of leadership at the systems level requisite capacity for acquiring and interpreting information to cope with uncertainty is a key factor in leadership.

Jacobs and Jacques suggest that organizations and leadership can be divided into seven strata. Levels 6 & 7 comprise the strategic level while levels 4 & 5 comprise the middle level. Levels 1, 2,

& 3 comprise the lower levels and are not of concern here. They suggest that different levels of leadership, with their specific tasks and challenges, can be compared across organizations. We focus on the roles of leadership both at the strategic apex of the organization versus the roles of leadership at the middle level (e.g., divisional head) and their interaction. We will use a description of strategic leadership offered by Boal (2004; Boal Schultz, 2007) to frame our discussion of the interplay between leadership at the strategic apex and leadership in the middle level.

Central Tenants of Leadership Near the Edge of Chaos

Complexity theory has been suggested as a useful framework for examining leadership (Marion & Uhl-Bien, 2001). Complex adaptive systems consists of aggregates of interacting subunits or agents with simple individual behavioral characteristics combine to produce complicated coordinated patterns of group behaviors that change and adapt to environmental circumstances (Anderson, 1999; Holland, 1995). Such systems are characterized by unpredictability and non-linearity resulting in surprising and innovative behaviors without the necessity of centralized control. Influencing complex adaptive systems, nonetheless, can be accomplished through intervention in the maintenance and modification of the structure of agent interactions and the context in which their behaviors occur (Anderson, 1999; Levinthal & Warglien, 1999). However, such systems are seen as operating far from any sort of steady state or equilibrium. Complex adaptive systems operate in a transition zone between stable equilibrium and complete randomness, between order and chaos, referred to as the "edge of chaos," that many complex adaptive systems seem to naturally evolve toward and is a key part of complexity theory (Hunt & Ropo, 2003; Marion, 1999; Osborn, Hunt & Jauch, 2002, Osborn and Hunt, 2006). Complex adaptive systems operating at the edge of chaos are expected to be maximally fit (e.g. Anderson, 1999). There may be a number of zones of activity that the systems regularly visits, providing a broad set of constraints on overall

systems behavior but allowing the systems to move between activity zones as the system develops (Williams, 1997).

We suggest that the goals of an organization are not a fixed set of criteria but a shifting array of partially conflicting desired conditions. The combinations of these conditions represent a strange attractor to the organization (cf. Sanders, 1998). The attractor is "strange" and is neither periodic nor quasi-periodic – the behavior of the system it represents never repeats itself. However, the attractor is patterned (has a geometric system in finite space and is stable) – for example, one can predict the weather short term but not long term. In a similar vein, one can predict aspects of the goal configuration for a single system for a short period of time as a representation of selected desired conditions. However, it is not possible to predict how a particular pattern of selected desired conditions will yield an unspecified future desired pattern.

Edge-of-chaos systems with strange attractors are stable enough to maintain information about themselves and their environment while being sufficiently vibrant to process that information. They map their environment by interacting with and becoming a part of that environment. Different actors within a system resonate (release energy through interactions) with each other and augment the capabilities of the broader organization. In turn, they influence self-organizing capabilities through resonance, autocatalysis (the behaviors of the components tend to correlate with each other because of the interactions and to catalyze interactions because of the energy combined in the resources) and unpredictability that inspires creation and renewal (Marion, 1999, p. xiii).

This non-predictability is due not only to interaction, resonance, and auto catalytic forces, but to path dependent initial conditions (e.g. the so-called "butterfly effect"). That is, history matters. In the organization theory literature, path dependence is a directionally fixed force pushing the organization to stability, routine replication, resistance to change and, of course, death in a changing environment (e.g. Boal, 2007   ). While history is also a source of stability in

complexity theory, our interpretation stresses the malleability of history. While it is not possible for leaders to create a history out of whole cloth, it is possible for them to draw different lessons from the past, emphasize different causal elements, alter existing perceptions of prior actions and highlight neglected elements.

Globally operating high tech firms are classic examples of those at the edge of chaos (categorized as context 4 of those specified by Osborn, Hunt and Jauch, [2002]). There are at least three aspects of instability for such firms. First is market and environmental instability, including hyper-competition (e.g., Dess & Beard, 1984) where there is inability to predict the state of nature because of the overwhelming instability.

Second is technological instability, recognized especially in the well-known work on punctuated equilibrium (e.g., Tushman & Anderson, 1986). Finally, there is firm instability with a special emphasis on process and procedure or internal administration instability. Emphases here have come from those such as Eisenhardt and Brown (1999). Here, an example is an internal production and delivery system that needs changing but the instability is so great that the design changes cannot keep up with system demands (an Alphonse and Gustave scenario of freezing, unfreezing refreezing, etc. quite common in the computer industry). These changes create strategic inflection points (Burgelman and Grove, 1997). Strategic inflections point are cause by fundamental changes in industry dynamics, technologies, and strategies and create opportunities for leaders to develop new visions, create new strategies, and move the organization in new directions (Boal & Schultz, 2007), and as such operate as "opportunity tensions" (Uhl-Bien and Marion, this volume). Opportunity tensions may either be "rule following" or rule changing." ((Buirgelman and Grove, 2007). Rule following tensions can lead to either stable industry structures or controlled industry change. On the other hand rule changing tensions can either lead to independent industry change, where one organization gains a competitive advantage, or run

away industry change that can quickly lead to chaos. Rule breaking change typically originates at the periphery of the industry (Leblebici, Salancik, Kopay, and King, 1991). Burgelman and Grove suggest rule breaking change typically originates at the middle level of management, (i.e., levels 4 & 5 in Jacobs and Jacques strata), or are a result of serendipity and lluck. What keeps multiple tensions from running out of control is negative feedback from upper level management (levels 5 & 6) that seeks to limit the number of changes, pick those to legitimate and develop, and stabilize the organization at a new level of equilibrium.

Many authors have tended to emphasize one of the above categories as a driving force. For us, near the edge of chaos situations involve instability across more than one of these categories. Indeed, the guiding thesis, here consistent with system theory, is that there must be some rough fit among environment, technology and structure and that the fit is a dynamic one, where punctuated equilibrium is quite important. Obtaining and maintaining such a fit and even recognizing it after the fact tells us that we cannot expect an uber leader on a white horse to be able to determine it. For instance, with environmental, technological and organizational instability, it would appear desirable to establish a single vision with a clear-cut priority for some goals over others. If selected correctly, then, targeted efforts toward the vision should yield greater success, but if selected wrongly can lead to organizational death. However, we postulate that only in retrospect can one clearly identify the appropriate vision and actions when the system is involved in simultaneously changing environmental, technological and internal conditions. Of course, it is easy to isolate systems that did thrive after the fact in much the same manner as picking the best stock analyst after the fact.

With multiple factors changing in unpredictable ways, this is where Kauffman's (1993) "order is free notion" comes into play, where order comes from the bottom up. However, we have argued earlier (Osborn and Hunt, 2006 and Osborn et al., 2002) that though order is indeed free,

the desired order is not, so when we "drop seeds of emergence" (Boal, Hunt, & Jaros, 2003; Marion, 1999; Marion & Uhl-Bien, 2001) to encourage followers, we want to be in a position to have some influence over this emergence. Thus, we are proposing an "architecture" for executive leadership to guide emergence.

Core Constructs

We see such desired emergence as the key leadership role near the edge of chaos. Indeed, we can articulate this as four challenges to executive leadership near the edge of chaos.

1. to channel emergence

2. to link the organization's past, present, and future as Boal (2004) has argued for,

3. to develop over-all meaning.

4. to alter and adjust (a) the size of the system and the number of subunits within it (N), (b) the interdependence among component units (K), (c) the collective schema of members (P) and (d) and the interdependence of the system on others(C)

Osborn and Hunt (2006) suggest that the channeling of emergence is a chief function of the organizational hierarchy. Boal and his colleague (Boal, 2004; Boal and Schultz, 2007) argues, that collective meaning can be accomplished via stories (day-to-day vignettes) and dialogue about the organization, its founders, how it dealt with issues in the past and the implications of that for the present and future. The key to all this is not, we will argue, to kill emergence and to remember that leadership should be the opposite of that of the uber leader on a white horse syndrome as explained below. We will focus on how executives need to adjust their influence attempt to alter N, K, P and C. We will discuss the role of executives as tags for the strategies emerging from others. Finally, we will suggest that transforming initiatives into viable sustaining businesses also class for considerable emphasis on processes and stability enhancement.

We contend that while traditional transformational/charismatic and transactional leadership can partially deal with the challenges above, and, of course, are important executive leadership components additional behaviors are needed. As we argue below, these additional behaviors, in a sense, help more tightly link transformational and transactional leadership, suggest boundaries on the use of these leadership dimensions and when used judiciously more completely deal with the previously mentioned challenges.

Definition of Leadership Used

First of all, we define leadership in general in terms of incremental influence of position holders exercised via direct and indirect means to maintain and/or alter the existing dynamics in and of a system. In essence, leadership has an impact beyond other formally designated aspects of the organization, (cf. Finkelstein & Hambrick, 1996; Osborn et al, 2002, p. 804). Further, our conception explicitly attempts to go beyond the direct interpersonal influence attempts of the individual position holder. Our leadership highlights the indirect influence of a system's position holders individually and collectively and emphasizes the dynamics of their collective influence (cf. Hunt, 1991). Here, we focus on the predictable collective linkages among leadership and system outcomes, along with the potential for more dramatic alterations, not routinely picked up in traditional models (Osborn et al, 2002, p. 804).

Specific Dimensions

Borrowing from the extensive leadership literature, it is quite clear that transformational and transactional aspects of leadership are important. (See extensive reviews by House and Aditka, 1997; Boal and Hooijberg, 2001). It is also quite clear that the causal mechanism evoked by transactional leadership is instrumental appeals – alterations in the deal between the individual, the leader and/or the organization. In contrast the causal mechanism evoked by transformational

leadership is based on normative appeals - alterations in salience, attractiveness and/or perceived value of the individual's contribution to the leader and/or the organization. To emphasize the core reliance upon normative appeals, Avolio and Gardner (2005) show that it is a small step from analyses of transformational leadership to authentic leadership to spiritual leadership. While each is unique as noted by Avolio and Gardner(2005) all appear firmly rooted in normative appeals.

Following Etzioni (1961) an exclusive stress on instrumentalism is expected to yield utilitarian compliance while an exclusive stress on normative appeals is expected to yield moral commitment. There is clear evidence that the stress on normative appeals can have profound effects on followers who work in traditional bureaucracies (e.g. Rubin, Munz and Bommer, 2005). It is far from clear how normative appeals can generate the innovation and creativity needed in systems operating near the edge of chaos. Complexity theory suggests that such dynamic emergence is based on knowledge and information and comes from dialog and discussion (e.g., Kauffman, 1995; Marion 1999) rather than from the inspiration and vision of a formal leader.

Following Osborn and Hunt (2006), we are suggesting the importance of influence attempts based on dialog and discussion to generate new knowledge and participation. The casual mechanisms evoked are affiliation and inclusion. If storytelling, dialogue and discussion is emphasized we think it will be matched with social construction (See Osborn and Hunt, 2006) to generate new taken for granted actions, interactions and sentiments(ala Homans, 19xx; Washington, Boal, and Davis, forthcoming).

Following this view, social construction may form around the well-known issues of internal integration and external adaptation among relative peers (e.g. Klimoski and Mohammed ,1994) Via storytelling, dialog and discussion peers may develop a coherent shared mental model of their collective experience as shown in numerous studies (See   ). It is also quite possible where the

overall setting of the organization is fluid, dialog and discussion may yield new, emergent, and novel mental models (See Marion, 1999).

Social construction around emergent shared mental models is particularly important in complex adaptive systems. Recall, in these systems there is sufficient stability and information for participants to active collectively and to use their existing skills and connections with one another to make some sense out of their collective exposure to the current setting. However, there is also sufficient dynamism and novelty to invalidate prior definitions of problems and opportunities, prior solutions and prior path-goal linkages. In complex adaptive systems this instability is attributable to alterations in the environment, the technology as well as the internal operations of the entity.

In complex dynamic systems, individuals may establish new and revised collective mental model models via storytelling, dialog and discussion. In Kauffman's terminology, there is a need to analyze the evolution of P- the degree to which there is a common schemata among the subunits (here individuals) (See Kauffman, 1989, 1991, 1993, 1995). Following Kauffman and the interpretation of Schneider and Somers (LQ2006), the higher the degree of commonality of the schemata, the lower the probability individuals will develop a new adaptive schema, ie., rule breaking, particularly for an established collective of individuals. In simple terms, the same folks who have worked together for years are unlikely to develop new approaches to problems and opportunity definition, novel solutions and new ways to link paths and goals when confronted with change.

However, even existing groups are not isolated from other groups and individuals above, at or below their level within the organization. Such is particularly the case if the formal hierarchical leader is introduced into the analysis. The formally appointed leader can encourage targeted emergence toward a new schemata via what Osborn Hunt and Jauch(2002) have labeled patterning of attention and network development. Essentially, patterning of attention by the formal

leader is an influence attempt pointing out general questions, issues and information for

subordinates. Network development involves connecting subordinates to others both inside and

outside the formal group. Both separately and combined, then, these influence attempts may

change the basis for schema development as well as the participants in the dialog and discussion.

In complexity terms, these influence attempts may alter P- the degree of homogeneity in the

schemata held by members via information, questions and challenges to what members believe is

important. Opening the group to new individuals is an alteration in N or the effective size of those

engaged dialog and discussion. With alterations in N and P we would also expect a increase in K-

the number and intensity of the interactions among sub-units (individuals) . With a more diverse

schema, a larger number of individuals and more interaction among the individuals, we would

expected to see resonance yielding newly emergent initiatives.

It is critical at this point to note the fundamental differences between the patterning of

attention and network development on the one hand and transformation and transactional

leadership on the other had. Transformational leaders operate on an underlying causal mechanism

that promotes uniformity and linearity using normative appeals to get individuals to work harder

toward the vision of the leader while transactional leaders also promote uniformity and linearity via

greater compliance using instrumental appeals. In contrast, increases in P, N and K increase the

potential for non-linearity. In systems characterized as complex adaptive systems replete with

strange attractors for different units, not knowing what the issue is probably not uncommon. Here,

there is a need to make sense out of apparent nonsense because the existing mental models are

insufficient. There is a need for social knowledge production. While this social knowledge might be

provided directly by transformational leadership when they emphasize intellectual stimulation, it

can also be developed via dialog and discussion. Why are they engaged? Individuals believe they

are part of the definition of the problem, the solutions as well as the implementation. They are the

authors. While transformational leadership might provide answers, patterning of attention and network development can stimulate the development of new shared knowledge and understanding.

In different terms, transformational leadership focuses employees on a vision, provides encouragement to reach this vision, stimulates intellectual effort to reach this vision and provides individuals rewards for movement toward this vision. There is little question of the power of transformational leadership in reaching toward a defined, shared, positive ideal (e.g. (e.g. Aviolo and Gardner,2005 LQ ; Rubin, Munz and Bommer, 2005 AMJ). Transactional leadership does not intend to inspire but merely alters the instrumental deal between individuals and the firm. In contrast, patterning of attention and network development stimulate social construction.

For patterning of attention we can state this dynamic in complexity terms with a strong cautionary note. With an increase in diversity of P and K under comparative stable N- the number of identifiable subunits in a system and stable C- the connected of the system to other systems, the adaptive capacity of the system may or may not be increased. We say may or may not because complexity theory posits interactive non-linear interactions from combinations of N, K P and C. At the extremes, it is clear that if any of these is comparatively high a simple increase may push to system toward chaos. Some analyses suggest that the levels of N and K may not need to be very high to produce deleterious effects (See Kauffman, 1995, Marion, 1999). Thus, comparatively small changes may yield substantial positive results or substantial deleterious effects. Network development, by changing N and K and possibly C can also have potentially powerful function or dysfunctional effects.

Boal (2004) suggested that strategic leadership forges a bridge through which the past (who we are), the present (what we do), and the future (who we can become) of the organization coalesce. Strategic leadership does this by reaffirming core values and identity to ensure continuity and integrity as the organization struggles with known and unknown possibilities.

Strategic leadership develops, focuses, and enables an organization's resources and capabilities to meet real time needs. And strategic leadership makes senses of and gives meaning to environmental turbulence and ambiguity, and provides a vision and road map that allows organizations to evolve and grow. Boal and Schultz (2007) suggests that strategic leader serve as both tags and control the tagging process. Holland (1995) identified tags and tagging as one of the crucial processes of complex adaptive systems. Tagging is a mechanism that facilitates the creations of aggregates and allows agents to distinguish among each other signaling when interactions are possible. Tags serve to coordinate activities and act as mediators between differentiated agents (Holland, 1995). Serving as a fundamental source of differentiation, Tags impact the flow of resources defining the connections between agents and creating niches for them to fill tied to those flows. Tags shape agents into organizational structures like "departments," "functions," and "teams." As such, tags are a reference signal against which behavior can be compared and mutual adjustment can occur (Heylighen, 2006). Boal and Schultz (2007) suggest that leaders can carry their own tags that reform the interactions among other agents and transform the activity of the entire organization, disseminating information, spreading new tags, and potentially recreating the entire organizational structure. As a result, new interaction patterns and activity flows leverage existing agent capabilities into new organizational properties and novel behaviors directed to finding new resources and resulting in new capabilities/

Boal and Schultz (2007) suggests that at the strategic level, (level 6 & 7), leaders use dialogue and stories as mechanisms through which the tagging process is controlled. We think that a parallel process occurs at the middle levels of an organization. For example while strategic leaders promote dialogue and tell stories that re/invent the values and culture of the organization, middle level managers promote dialogue and tell stories about the history of the division, the department, or the function. In this way, both strategic and middle level leaders re/invent the past

in ways understandable to those in the present. While strategic leaders pattern the attention of the organization deciding which threats and opportunities to address and where and why these need addressing, the middle level leader is left with the task of addressing the who and how. Strategic leaders make sense and give meaning to the environment forging a road map by which the organization can evolve. But earlier it was mentioned that rule breaking behaviors typically originate with middle level managers. Thus, organizational learning and potential innovation emerge at the middle level. It is left for the strategic level to sort through the many possible changes, and decide which ones to legitimate, support and elaborate.

NEED

1. Reconnecting Past Present and Future to Alter P and C.

2. What to do when a new strategy emerges

    a. Influence Up

    b. Influence across

3. Collective verses Individual Patterns

    a. not all executives need to perform all aspects

    b. analysis of collective pattern rather than individual pattern

4. Institutional consolidation of emergent pattern

Material from Prior Versions

We think a key to understanding leadership from this perspective is to also recognize that leadership is embedded in organizations. Specifically, organizations have

levels of management where it is unusual for individuals at different levels to believe they are in the same group. In terms of Boal (   ), managers at different levels have different tags. When dialog and discussion between individuals at different levels involves known issues, researchers have often characterized this in terms of the degree of participation, delegation or say "given " to subordinates as if the power to decide was exclusively held by the individual in the hierarchically superior position. From a complexity standpoint, the underlying dynamic is somewhat different. The unwillingness of a position holder to encourage and permit participation limits dialog and discussion. It is a reduction in K. Further, a likely secondary effect is to reduce the effective degree of lateral exchange involving group members because of their lack of knowledge. The result is less adaptation in a context that calls for change.

NEED TO WORK IN THE FOLLOWING

We think this social construction can be viewed as a form of mental modeling and social knowledge. At the team mental model level we are suggesting that important social construction comes from dialog and discussion based upon the education and experience of organizational members when affiliation is stressed as a basis for attachment. Specifically, we estimate that a key aspect of organizational social construction is concerned with team mental models dealing with both issues of internal integration as well as external adaptation (Klimoski & Mohammed, 1994).

Collections of individuals may interact and develop their own goals and ways of working together. This emphasis on emergent processes and goals is similar to expectations drawn from cultural analyses. Groups of individuals are expected to develop ways of living together (so called issues of internal integration as seen in Schien, 1985). The desire for affiliation can also be translated into issues of external cultural adaptation-- what the group wants to accomplish. It is

comparatively easy to see how order is free if the group alone chooses how members are to work and live together and decide what it wants to be accomplished.

If affiliation yields social construction it is also clear that individuals can collectively create their own environment. The environment is not totally imposed from the outside; dialog and discussion can create a collective view of the setting. Dialog and discussion may also create emergent work processes (i.e., a key aspect of technology), an operative informal structure, clear or vague rules of conduct, and the like. All of this is far from new to leadership researchers. For us, what *is* new is a switch of perspective to suggest that the managerial leader may have a substantial influence on social knowledge production by those at lower levels and echelons. In most conventional analyses of leadership, influence attempts based on instrumental or normative appeals are expected to alter such factors as emergent work processes and/or informational structures without altering the form of commitment and attachment of the individual to the organization. For instance, the leader provides meaning consistent with a normative appeal. We are proposing that by emphasizing social knowledge development the managerial leader can tap into a different basis of attachment to influence social knowledge construction

The leader as a tag up and across the system KIM

Linking Past Present and Future (KIM)

MATERIAL FROM much EARLIER DRAFT

In terms of specific dimensions, we emphasize two: patterning of attention and network development that are both different and similar from more widely used leadership

components. In simplest terms, patterning of attention is a leadership choice in terms of what is important and what is the general focus. While it may sound like initiating structure, it is not. Nor is it the same as empowerment when one focuses on bottom up behaviors. Patterning separates the critical from the mundane.

Some examples should make patterning less abstract while also indicating why it is particularly important in the present context and its similarities and differences from transformational and transactional leadership. First suppose you were instructed to think about a "move west strategy". In terms of "patterning", you are told moving west is important and to emphasize various places rather than just one. You are not told what nor how. Essentially, you are told to focus on moving west but neither you nor your colleagues or followers know how to proceed. This is the "desired order" notion mentioned earlier.

Alternatively, assume your dean walks in and is looking for an agenda based on research, teaching, publishing (maybe even in top ten journals). Beyond one or more of the above, the dean does not care what specifically we as a faculty do. Maybe the dean wants a response to what he or she envisions practitioners as doing. Or maybe the dean is interested in emphasizing technology or being known for quality students, etc. To summarize, patterning is dynamic and not static and it emphasizes leadership choice about what is important and what is not. There is a systematic reconfiguration across time. It is a kind of laying out bread crumbs to help provide a trail.

As previously mentioned, patterning might well be considered as an intermediate link between transformational and transactional leadership. It is more mundane than transformational leadership but does help in developing consistency among visionary

type behaviors, patterning of behavior, and the mundane transactional behaviors. Also, patterning can help with the linkage of Boal's past, present, and future strategic leadership components.

The primary causal mechanism evoked by patterning of attention is affiliation

Shifting now to network development leadership, we first note that the underlying incremental aspects apply here as they do in the patterning of attention dimension. As specifically applied, they cover two broad kinds of networking: internal and external. In both cases, Boal's (2004) treatment in terms of cohesive, bridging, strong, and weak (Gulati, Dialdin, & Wang, 2002) ties are relevant.

Described here in terms of external networks, cohesive strategic ties connect a focal organization with another organization which is also connected with at least one other strategic partner of the focal organization. Bridging strategic ties connect a focal organization with another one that is not connected with a strategic partner of the focal organization. Strong strategic ties connect the focal organization and another one with which the focal organization has intensive supplier or customer interactions. To conclude, weak strategic ties consist of the focal organization and another organization with which the focal organization has very few strategic interactions (see Boal, 2004). Similar definitions apply to internal ties.

As with patterning, such network development is crucial in terms of promoting dynamic emergence and to connecting the system with others and with their potential resources. Returning to the dean example, it might be suggested that methodologists or marketing experts might need to be networked or perhaps practitioners, if those were the pattern of attention.

We can also think in terms of a "skunkworks" example. The Pontiac Fiero was a case in point that was virtually an underground development using off the shelf parts. There was certainly patterning of attention and focus along with emergence. What there was not enough of was external network development, thus the car, while a brilliant sports car conception, was starved for resources to sustain and develop it much beyond where it started. It simply lacked the necessary formal backing.

More recently, GM hired Lutz, the former Chrysler top executive, to help suggest "cool stuff" in terms of current and future GM cars. Lutz appears to be strong in both the patterning and networking dimensions and in a position to foster emergence. Whether he actually will be allowed to and then will rely on bottom-up or even middle-up emergence remains to be seen. He does, however, appear to be in a position to encourage such emergence. Basically, what we are arguing is to start conditions where one finds them and not insist on top down behaviors. Here, we have emphasized context 4, which is reasonably consistent with traditional work in the TIM division.

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