The architecture of managerial leadership: Stimulation and channeling of organizational emergence☆

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A B S T R A C T
This conceptual manuscript emphasizes the indirect influence of senior managers who occupy positions between the strategic apex of the organization and its middle management. It combines a traditional organization behavior/theory perspective with that of a complex adaptive theory approach to examine why and how leaders should and can stimulate “emergence” and channel “emergence.” In technical terms, we emphasize the level VI managerial leadership (ala Elliott Jaques) level just below the level VII strategic apex. We argue that these managerial leaders should use the complexity theory “order for free” notions to traverse the narrow path between order and disorder to simultaneously improve the fitness of the organization and benefit its members. We emphasize alterations in the character of the system, its processes, its procedures and its informal structure to help the organization stimulate bottom up order for free activities and also combine these initiatives into viable adaptations. Thus, it emphasizes the architecture established by these leaders. A number of propositions are also provided.

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1. Introduction

The specific purpose of this manuscript is to discuss the architecture of managerial leadership, that is leadership just below the strategic apex. We emphasize the term architecture to place the emphasis on the context of leadership, its collective character, and the knowledge and information management needed for success and potential for analytical study. While the interpersonal dynamics of leaders and their followers, the personality of the individual leader, and the collective idiosyncrasies of followers, have been historically important, these factors have all but driven out a consideration of the indirect leadership mechanisms available to executives. Furthermore, we think the corporate world for upper-level leadership in general, and this level in particular, is dramatically changing—there is a new context confronting many firms. This new context is not only different but calls for a different perspective on leadership. We argue that who should lead how they should lead and which casual mechanisms to use should also change.

2. Organization of article

This article is organized as follows: First we briefly focus on the historical development of leadership and our view of the neglected side of leadership emphasizing the different levels of leadership, its context, along with a brief description of complex adaptive systems (CASs). It is here we introduce level VI leaders and leadership (see Jaques, 1976, 1989). Next, we examine the old versus the new roles and expectations for leaders leading to a more expanded discussion of level VI leaders and complexity theory. As a continuation, we discuss a framework for examining managerial leadership1 in firms at the “edge of chaos” and next focus on

☆ This article is dedicated to the memory of James G. (Jerry) Hunt, friend and colleague who passed away while this manuscript was being revised.
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1 We believe that the upper level managers treated in this manuscript exert both leadership and management (Bedeian & Hunt, 2006) and we therefore tend to refer to them as “managerial leaders”.

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choice and initiative in a CAS. We then focus on two related critical challenges for level VI leaders, the stimulating and challenging emergence which they face in their role in developing the architecture of managerial leadership, using both traditional organization theory and CAS approaches. We then devote much of the remainder of the article to the in-depth revisiting of stimulating and channeling emergence and linking challenges of past, present, and future actions, along with tags. Tags are a mechanism that facilitates the creation of aggregates by permitting agents to distinguish among each other; e.g. trademarks, brands, or uniforms (Boal & Schultz, 2007). As such, they enable managerial leaders to carry out their major challenges. Along the way, with the previously mentioned steps, we generate eight propositions, and briefly discuss the levels of hierarchy and levels of analyses involved in this meso framework. Finally, we have a conclusions and limitations section.

2.1. What’s old is new again

As Porter and McLaughlin (2006) reminded leadership scholars, “Leadership in organizations does not take place in a vacuum. It takes place in organizational contexts” (p. 559). In this article on meso models, it is important to recognize that multiple level approaches to leadership have a long tradition in leadership research. During the late seventies and early eighties of the previous century a small minority of leadership scholars were concerned with macro and systems approaches, (e.g., Hunt & Osborn, 1981b; Hunt, Osborn, & Martin, 1983). Some more recent work in this tradition embeds leadership within the environment, structure, and technology of organizations (e.g., House & Aditya, 1997).

Collectively these contributions provide a rich array of hypotheses dealing with combinations of environment, technology, organizational design and the transactional dimensions of leadership when predicting aspects of organizational performance and employee satisfaction for large scale bureaucratic systems. However, the competitive world of corporations has fundamentally changed and recent work suggests that some new aspects of leadership may be particularly important in this new world. Porter and McLaughlin (2006) call for research that makes context, “a primary object of interest, rather than treating it as almost an afterthought” (p. 573). Consistent with this call for context based research we incorporate elements of the complex adaptive systems literature (Kauffman, 1993, 1995; Osborn & Hunt, 2007; Uhl-Bien, Marion, & McKelvey, 2007) with new dimensions of leadership relying upon casual mechanisms evoked by the setting. The newer complexity based approaches also utilize such new terminology and concepts (e.g., tags, emergence) that leadership researchers may have a problem linking these complex adaptive systems views to more traditional perspectives. Thus, we will devote some space to clarifying definitions. We begin with a brief discussion of the challenges facing our target leaders and then turn to the notion of context.

2.2. Whose leadership are we discussing and what are the challenges?

So who is our target? It is that group of people between the top management cadre and middle management depending on the type of organization structure, e.g., functional or divisional (cf. Jaques, 1976, 1989). There can be one or many of these people. With all of the attention on the very top of the organizational pyramid and the extensive treatments of the top management team (Hambrick & Mason, 1984; Finkelstein & Hambrick, 1996) as well as the leadership of CEOs (Grove, 1996), we think it is time to discuss a more neglected collection of leaders—those operating between the top management team and middle management, namely, those upper but not top level or strategic apex managerial leaders. As this manuscript suggests, this is a neglected collection of managerial leaders. Yet, for us, complexity theory suggests this level is the collection of people in the best position to provide the impetuous for organizational adaptation.

Drawing from complexity theory (e.g., Kauffman, 1993, 1995) we will suggest that these individuals are in a position to effectively alter (a) the size of the system and the number of sub-units 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). These leaders can also change the allocation of key resources including personnel, technical support, organizational legitimacy, and, of course, budgets. These alterations change the architecture.

What challenges do these target executives face? In the terminology of complexity theory, they need to first stimulate and then channel emergence. In the complexity terminology used here, emergence is some activity occurring that is not induced by the environment, but instead, results from the interdependence of system agents and components (Schneider & Somers, 2006). In more conventional terms these executives need to promote experimentation, change, innovation and invention without specifying what is to be altered and precisely how it will be evaluated. In stimulating this emergence we will stress two dimensions of leadership—paying attention and network development (Osborn, Hunt & Jauch, 2002).

Effective adaptation to improve the fitness (performance) of the system also calls for combining, modifying and implementing potentially important changes, innovations and inventions. Here, we will stress that the channeling emergence is enabled by linking the past (who we are), present (what we do), and the future (where do we want to go). That is, in a sea of turbulence, leaders need to provide meaning in a conventional way by interpretations of the past, which articulate the values, beliefs, and identity of the organizational sub-unit consistent with the organization’s values, beliefs, and identity. In the present, they need to strike a balance among the sub-units’ core competencies to exploit the present while also encouraging continued learning and innovation. Finally, in the future, they make sense of and give meaning to, environmental ambiguity and turbulence. Channeling is more that just selecting among promising alternatives presented by middle managers. It involves combining and crafting the new initiatives with others to foster, develop and enable growth and evolution. In the terminology of Yukl (2006) executives need to lead both directly via interpersonal influence and indirectly via alterations of particular systemic components, such as formal programs, management systems, or aspects of formal structure.
We suggest that they do this through the use of tags. Holland (1995) identified tags and tagging as one of the crucial processes of complex adaptive systems. Tagging is a mechanism that facilitates the creation 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 connection between agents and creating niches for them to fill tied to those flows. Tags shape agents into organizational structures such as “departments,” “functions,” and “teams.” As such, tags are a reference signal against which behavior can be compared and mutual adjustment can occur (Heylighen, 2006).

Tags and the tagging process provide the dynamic system that result in different states of N, K, P, and C. Some tags are ideological in nature and thus influence values and beliefs. Ideological tags draw the boundaries of the schema of members (or aspects of P in Kauffman’s terms). Douglas MacArthur’s farewell to the corps at West Point is an example. For that speech he used the tags, “duty, honor, country” (Boal & Schultz, 2007). Some tags are structural in nature and influence the size and shape of the organization thus identifying potential membership (or aspects of N in Kauffman’s terms). This can be seen when a leader makes the decision to delayer and flatten the hierarchy. Some tags are informational and specify and control who can talk to whom, on what issues, over coming structural wholes (or aspects of K in Kauffman’s terms). Finally, some tags are representational and differentiate who has potential in and out of a subsystem and may indicate how the agents are to interact with outsiders. As such representational tags influence how, where, and why the system will interact with other systems (or aspects of C in Kauffman’s terms). Through tags, leaders channel emergence via subtle combinations of changes in N, K, P, and C.

Emergence can be defined as merely, “the arising of novel and coherent structures, patterns and properties driving the process of self-organization in complex systems” (Goldstein, 1999; p 49). Level VI leaders need to promote strong desired emergence. Emergence can either be weak or strong. Weak emergence describes properties occurring in systems as a result of the interactions at an elemental level within a component such as a department. Strong emergence arises because systems can have qualities not directly traceable to a system’s component, but rather to how components interact. In other words, when major components interact, it can produce unique combined effects for the whole system. Of course, the ultimate impact on fitness (performance) of the system may be co-determined by the context and the interaction between the whole system and its environment (Corning, 2002). Thus, we also argue that the task of level VI leaders is to facilitate desirable emergence. That is, these leaders are expected to be centrally involved in developing an architecture where the firm chooses an order, rather than having an order foisted upon it as an order for free surprise from below (see Osborn & Hunt 2007 for a discussion of order for free and a sustained desired order).

We can summarize this discussion to date in terms of a simple proposition.

**Proposition 1.** The key upper-level managerial leadership challenges, in firms operating near the edge of chaos, are to stimulate and channel strong emergence so that the firm chooses a desired order.

### 2.3. The context

Before moving on it is important to clearly define the often used term context. Here we adopt Gary Johns’ (2006, p. 386) definition of context as: “situational opportunities and constraints that affect the occurrence and meaning of organizational behavior as well as functional relationships between variables.” We emphasize corporations that may be considered as if they are emerging as complex adaptive systems (CASs) with the characteristics outlined by Plowman, Solansky, Beck, Baker, Kulkarni, and Travis (2007). The Plowman et al. (2007) characteristics stress non-linearity; numerous agents acting and interacting in unpredictable ways; being sensitive to changes in initial conditions; agents adjusting their behavior in the aggregate to their environment in unpredictable ways; systems oscillating between stability and instability; and systems producing emergent actions when approaching disequilibria. From a complexity perspective, the context is the corporation as it operates near the edge of chaos (the boundary between order and disorder) where there is a repertoire of responses that keep systems both on balance and off balance (McDaniel, 1957; Schneider & Somers, 2006).

In more conventional organization theory terms, these organizations are often large scale, modern, multinational corporations operating in globally competitive industries with dynamic technologies (e.g., Eisenhardt & Brown, 1999). They are much like the “high-velocity firm” where business models are evolving and the roles of the market players continuously change. Changes in demand, competition, regulation and technology are both constant but unpredictable (e.g. Wirtz, Mathieu, & Schilke, 2007).

### 2.4. The context and a meso approach

The paper stresses a meso approach. We consider a leadership approach meso if: (a) leadership analysis involves the simultaneous examination of at least two levels of analysis and/or (b) the organizational context impacts leader and member behaviors, and vice versa (such that macro phenomena surface from the interaction of micro-level behaviors (cf. House, Rousseau, & Thomas-Hunt, 1995). Here, we move from the strategic apex organizational level, through the next level down, and then down some more to then examine initiatives as they move back up through the hierarchy. While some managerial leadership activities are direct one-on-one influence attempts, we stress indirect influence attempts that adjust aspects of the context (e.g. changes in the connections of subordinate units to external agents and alterations in dialog and discussion leading to emergence based on the interdependence of system components).

In our view, a meso approach has shifting rules of aggregation based on the questions being asked and whether the analysis is moving from the bottom up, across the same organizational level, or examining the top down actions of individuals or collectives.
3. Leadership near the apex

With a few notable exceptions (see Hunt, 1991 for a review), the analyses of senior-level managerial leadership has focused on the very top of the typical corporate hierarchy. From Chester Barnard (1938) onward scholars have been enthralled with those at the very top of the pyramid (see Hunt, 1991, and Jacobs & 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 perspective we can add the early work of Jaques (1976) and his later writings with those such as Jacobs (e.g., Jacobs & Jaques, 1987). Hunt extended this work in his 1991 book (Hunt, 1991) followed by Phillips & Hunt (1992) and later writings by Jacobs & Lewis (1992). Akin to these works is one by Zaccaro (1996) who focuses on the role of the leader’s cognitive complexity, especially the social intelligence of the leader. More recently Jacobs and McGee (2001) have prepared an insightful extension. Beyond these pieces Boal and Hooijberg (2000) 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, and Jaussi (2004) have written a senior-level managerial leadership book with a high tech twist. Collectively, these works have focused on the leadership “of” organizations rather than leadership “in” organizations. Boal and Hooijberg (2000) suggest that leadership “in” organizations (e.g., path–goal, LMX, contingency theory) focuses on task and person-oriented behaviors as they attempt to provide guidance, support, and feedback to subordinates. Whereas, the leadership “of” organizations focuses on the creation of meaning and purpose, and is concerned with the evolution of the organization as a whole and its changing aims and capabilities and the context in which it takes place.

Our emphasis on those operating between top and middle management is consistent with a focus on the previously mentioned “meso” paradigm (House, Rousseau, & 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, & Markham, 1995; Yammarino, Dionne, Chun, & Dansereau, 2005). In keeping with the meso paradigm, Jacobs and Jaques (1987) view leadership as uncertainty reduction through acquiring and interpreting information to determine appropriate courses of action. The meso paradigm also provides a set of requirements often confronting individuals at different levels of analysis. We emphasize an organization-wide perspective to more carefully delineate role expectations.

3.1. Role expectations by level

For us, the above mentioned Jacobs and Jaques (1987) paradigm, known as Stratified Systems Theory (SST) or Requisite Organization Theory (RO) is especially useful to identify individuals with similar role requirement across different types of organizations. Their view is based on three core concepts:

1. Adaptation requirements: The need for the organization to adapt to its environment, characterized by varying degrees of complexity and dynamism, in order to acquire scarce resources and use them efficiently.
2. 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.
3. Information acquisition and use: Since uncertainly reduction is a core of leadership at the strategic apex level requisite capacity for acquiring and interpreting information to cope with uncertainty is a key factor in leadership.

Based on these core concepts, those at each strata are expected to encounter increasing degrees of required task complexity and dynamism which are combined into three domains corresponding to top, middle and bottom, respectively. Jacobs and Jaques include strata VII and VI in the top domain, V and IV in the middle domain, and III, II and I in the lowest domain, which is not of concern here (Fig. 1). They also provide detailed measurement metrics, which we do not specifically discuss here. However, with their specific tasks and challenges, these metrics allow for rough comparison within and across organizations as is now being recognized by complexity researchers such as Uhl-Bien, Marion, and McKelvey (2007).

We concentrate on the role of managerial leadership at level VI, where individuals typically must adjudicate long term corporate evolution and the month to month operations of middle management as a part of their resource allocation and related responsibilities.

It is easy to think of these level VI people as simply linkage agents between the strategic apex of the organization (level VII) and the leadership at the middle level (e.g., divisional head or equivalent) and their interaction. When organizations operate in very stable environments with well-known, stable technologies and seek limited specific goals, the formation of strategy is expected at the apex of the organization (level VII). The formulation of implementation plans and linkages to operating units is expected from those occupying level VI. Even with variations in the environment and the technology these role expectations are often presumed in many analyses of corporate strategy (cf. Canella & Monroe, 1997).

3.2. New role expectations emanating from new conditions: the dilemma of change

Over the last decade or so, a number of writers have suggested that some corporations may face more dramatic and simultaneous alterations in their environment, technology and internal operations than suggested by many analyses of strategy or
strategic leadership (See Wirtz et al., 2007 for an interesting review). This recognition of a different set of challenges for some firms has also started to be recognized in some analyses of leadership, as shown below. For instance, Osborn, Hunt, and Jauch (2002) describe four contexts within which leadership could occur. In context 1 (Stability), stable conditions exist among macro variables and leadership for individuals in levels VI and VII focuses on adjusting and creating internal operations to enhance system goals. This was often the context for earlier macro leadership research (e.g., Hunt & Osborn 1981a,b). In context 2 (Crisis), dramatic departures from prior practice and sudden threats to high priority goals give little or no response time. Charismatic leadership often is associated with such conditions (Boal & Bryson, 1988). In context 3 (Dynamic Equilibrium), organizational stability only occurs within a range of shifting priorities with programmatic change efforts. This is the well-known dynamic equilibrium setting found in many analyses of corporate strategy (e.g., Finkelstein & Hambrick, 1996).

Context 4 (Edge of Chaos), known as edge of chaos, is the transition zone delicately poised between order and chaos. Here, the system must rapidly adjust while still maintaining sufficient stability to learn (e.g., Marion, 1999). While globally operating high tech firms are classic examples of those at the edge of chaos (Osborn et al., 2002), more conventional analyses of today's corporations have also suggested many firms are moving toward the edge of chaos.

In more conventional terms prior research has identified at least three aspects of instability for such firms. First is market and environmental instability, including hyper-competition (e.g., Illinitch, D'Aveni, & Lewin, 1996) where there is inability to predict the state of nature. 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

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Time Span</th>
<th>Domain</th>
<th>Domain Function</th>
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<tbody>
<tr>
<td>VII</td>
<td>Beyond 20 Years</td>
<td>STRATEGIC SYSTEMS</td>
<td>Incumbents operate in the world political, economic, sociocultural, and technological environments; conceptualize feasible futures, build consensus on them, and develop necessary resource base. Create subordinate strategic business units. Create corporate culture and values consistent with corporate aims and sociocultural context.</td>
</tr>
<tr>
<td>VI</td>
<td>Beyond 10 Years</td>
<td>ORGANIZATIONAL</td>
<td>Maintains organizational climate. Responsible for Profit- and- Loss bottom line.</td>
</tr>
<tr>
<td>V</td>
<td>Beyond 5 Years</td>
<td>PRODUCTION</td>
<td>Manages interdependency with other similar units. Stratum II interfaces within a formalized structure-context and boundaries set by the larger system. Stratum I is the shop floor.</td>
</tr>
<tr>
<td>II</td>
<td>Beyond 3 Months</td>
<td>STRATEGIC SYSTEMS</td>
<td>Operates mutual recognition or mutual knowledge subsystem or groups engaged in specific differentiated functions.</td>
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<tr>
<td>I</td>
<td>Up to 3 Months</td>
<td>STRATEGIC SYSTEMS</td>
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administration instability. Organizational survival and growth depend on maintaining a fit between the organization and its environment (Summer et al., 1990). Thus survival, learning and change go hand in hand. But effectiveness and survival also require maintaining a balance between flexibility and stability (Brown & Eisenhardt, 1988). Without stability, a firm would not be able to accumulate knowledge, and would be in a constant state of flux never being able to move any distance from a random state because improvement would vaporize at every new fad. 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, resulting in an Alphonse and Guston scenario of freezing, unfreezing refreezing, etc. quite common in the computer industry. Here, making the first move is costly to both parties so they prefer to wait and let the other party go first. The result is that neither party moves at all.

In combination, environmental, technological and strategic instability, create what Grove (1996) calls “strategic inflection points”. Strategic inflection points create opportunities for leaders to develop new visions, create new strategies, and move the organization in new directions (Boal & Schultz, 2007). In the leadership complexity literature these strategic inflection points are “opportunity tensions” (Uhl-Bien & Marion, this volume). Opportunity tensions may range from purely “rule changing” to purely “rule following” (cf. Grove, 1996). Rule changing tensions can lead to independent industry change, where one organization gains a competitive advantage. Following Leblebici, Salancik, Copay, and King (1991), “frame-breaking” changes typically originate at the periphery of the industry. Grove (1996) also suggests rule changing tensions typically originate at the middle level of management (i.e., level IV & V in Jacobs and Jacques strata), or are the result of serendipity and luck. If left uncontrolled, rule changing can yield run away industry change that can quickly lead to chaos (Grove, 1996). While rule following tensions can lead to a more stable industry structure and/or controlled industry change, there is also a danger to a single firm of too much emphasis on rule following. Unresponsive firms are left to deteriorate near the “edge of chaos.” There is the need to exploit as well as explore (cf., March, 1991). Thus, the dilemma-whether change to enhance adaptation by stimulating emergence or change to enhance stability by channeling emergence.

A careful reading of the reports by Grove (1996), the recommendations of Marion (1999) and the analysis of the near edge of chaos context 4 by Osborn et al. (2002), suggest that effective adaptation is not identical across all major units of an organization. While it is often convenient to suggest that the entire organization is dramatically changing, such is rarely the case. Vast portions of the organization are often quite stable. Rather, change is most often centered on identifiable combinations of environment, technology and structure. So, for example, the accounting, legal and human resource management units may be stable even when marketing and operations are undergoing rapid change. Again using more conventional terms consistent with systems theory, there must be some rough fit among environment, strategy and structure to increase the chances of survival technology by technology. For large organizations with several technologies, it is the level VI leader who is in a unique position to both stimulate emergence or what Grove (1996) called rule breaking change and channel emergence or what Grove (1996) called rule enhancing change. It is at this level where both types of change must come together to constitute effective adaptation.

**Proposition 2.** In context 4, at the edge of chaos, when the level VI leader combines rule changing and rule enhancing changes into viable adaptations the fitness of the organization and benefits to organizational members increases.

### 4. Stimulating emergence via leadership

We contend that while traditional transformational/charismatic and transactional leadership can partially deal with the concerns above, and, of course, are important level VI managerial leadership components, additional behaviors are needed. To develop these additional components it is important that we more clearly define what we mean by leadership.

#### 4.1. Definition of leadership used

Following Osborn et al. (2002), we define leadership as 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; Katz & Kahn, 1978). Further, our interpretation explicitly attempts to go beyond the direct interpersonal influence attempts of the individual position holder. Our view of 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 non-linear, non-proportional, and temporal alterations, not routinely picked up in traditional models (Osborn et al., 2002, p. 804). In keeping with the key purpose of our manuscript, our approach emphasizes a hybrid between traditional and complexity emphases.

#### 4.2. Using transformational and transactional leadership

Using conventional terms, (e.g., Thompson, 1967), the leaders in and of an organization undergoing intricate multiple changes in the environment, technology, and strategy need to isolate and maintain an appropriate “fit” among these competing forces. However, as Brown and Eisenhardt (1998) note, the firm cannot constantly change its strategy and organizational design even though

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2 Based upon an American comic strip by Frederick Burr Opper, “Alphonse and Guston,” which was popular in the early 1900s. The comic strip poked fun at overly polite gentlemen who repeatedly say to each other, “After you, Alphonse,” “No, after you Guston.”
the environment is volatile and the technology is changing rapidly. Yet, if it does not adjust to environmental and technological imperatives, it will die.

The difficulty of obtaining and maintaining such a fit and even recognizing it after the fact tells us that we cannot expect an Über leader with a white hat and a white horse to be able to come in and “change the town” (“my work here is done”) or obtain and maintain the fit using transactional leadership. It is beyond the intellectual cognitive capacity of a single individual (cf. Simon, 1962). For instance, with environmental, technological and organizational instability, it would appear undesirable to establish a single vision with a clear-cut priority for some goals over others followed a definitive roadmap. Only if the ends and the means were selected correctly would targeted efforts toward a single goal yield greater success. Only in retrospect can one clearly identify the appropriate goals and actions when the system is involved in simultaneously changing environmental, technological and internal conditions. Nevertheless, 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. Looking forward however, most level VI and even level VII leaders are not rare geniuses replete with flawless foresight who are so selfless they are or should be candidates for the Priory of Scion. Rather, we see self-interested executives who sometimes lose it just like the rest of us (Hambrick, Finkelstein, & Mooney, 2005). Yet, their world is strange. It is a world replete with incomplete hierarchies, and conflicting tensions where change emanates from above, below and outside the class of individuals we target for analysis. So this world is messy; it is non-linear; it is the leaders who are ordinary.

Of course the immediate response of many leadership researchers would be to evoke the literature on transformational leadership (Avolio & Bass, 1987; Bass, 1985). Borrowing from the extensive leadership literature, it is quite clear that transformational aspects of leadership are important. (cf., Boal & Hooijberg, 2000; House & Aditya, 1997). Higher level 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., Avolio & Gardner, 2005; Rubin, Murray & Borman, 2005).

It is also quite clear that 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. 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, & Bommer, 2005).

Following Etzioni (1961), an exclusive stress on normative appeals is expected to yield moral commitment. However, it is far from clear how normative appeals can generate the needed innovation and creativity (see Osborn & Marion, 2009). An emphasis on normative appeals narrows the schemata individuals use to interpret their world (in Kauffman’s terminology, there is a lower P: the degree to which there are different schemata among the sub-units, here individuals; see Kauffman, 1993). Following Schneider and Somers (2006), the higher the degree of commonality of the schemata, all else being held constant, the lower the probability individuals will develop a new adaptive schema. Without the development of new schemata, greater innovation and creativity are unlikely.

Proposition 3. With simultaneous dramatic changes in environment, technology and internal operations the development and implementation of greater transactional and/or transformational leadership from level VI leaders will be at best sub-optimal, at worse dysfunctional.

4.3. Level VI leadership and characteristics of a CAS

As noted earlier, for firms confronting and instituting dramatic multiple-based changes, complexity theory has been suggested as a useful framework for examining leadership (e.g., Marion & Uhl-Bien, 2001). Firms facing and instituting dramatic change may be seen as complex adaptive systems. Also as previously mentioned, CASs may be envisioned as composed of aggregates of interacting sub-units or agents with simple individual behavioral characteristics. The interacting individuals and units combine to produce complex coordinated patterns of collective behaviors (emergence) that change and adapt (Anderson, 1999; Holland, 1995). To some CASs 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; McDaniel, 1997).

Such systems are seen as operating far from any sort of steady state or equilibrium, however, as we have argued, firms operating between order and chaos, referred to as near the “edge of chaos” are in a transition zone between stable equilibrium and complete randomness, which many complex adaptive systems seem to naturally evolve toward and that is a key part of complexity theory (Hunt & Ropo, 2003; Marion, 1999; Osborn & Hunt, 2007). If firms operate as CASs near the edge of chaos, they are expected to be maximally fit (e.g., Anderson, 1999).

Footnote 1: Here, a brief discussion of fitness is in order. The dynamic can be represented as a fitness landscape—a notion drawn from biology and discussed by Kauffman (1993, 1995). In simple terms, these landscapes represent different choices in terms of consequences. The range of all possible consequences may be depicted as a fitness landscape representing specific choices a population could make. For example, higher fitness strategies may be shown as a higher peak on the landscape. Across all consequences, the fitness landscape may show variations in ruggedness or in the number of peaks and in the variation between the fitness levels across the peaks. Note that the fitness landscape for a single complex adaptive system is altered by attempts of other complex adaptive systems to improve their standing. Fitness may be represented by a single criterion of interest or more realistically by a mix of variables related to articulations of desired conditions (cf. Caldart & Ricart, 2004; Osborn et al., 2002).
Yet, this notion of fitness goes far beyond the conventional notion of fitness often presumed in interpretations of systems theory. It is not static. It is not an ideal end point. It is activity in a number of zones (see Osborn & Hunt, 2007). There may be a number of zones of activity that systems regularly visit, providing a broad set of constraints on overall systems behavior but allowing the systems to move between activity zones over time (Williams, 1997). For example, many leadership analyses presume that the goals of the units they study are fixed (see Osborn et al., 2002). We suggest that the goals of an organization, operating as a complex adaptive system, 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” since it is neither periodic nor quasi-periodic and the desired combination never repeats itself. However, the attractor is patterned as with a geometric system in finite space and is stable. For instance, 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 organization for a short period of time as a representation of selected desired conditions (see Osborn & Hunt, 2007). Even so, it is not possible to predict how a particular pattern of selected desired conditions will yield an unspecified future desired pattern.

Complex adaptive systems near the edge-of-chaos 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 relate to each other because of the interactions and to catalyze interactions because of the energy combined in the resources) with 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”). 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 & Schultz, 2007). However, we must not forget that in a complex adaptive system, new agents, schemata, and connections appear and disappear and existing ones may evolve into new ones. In a process, termed “patching” (Kauffman, 1995), agents can come into the system, exit, split into two agents, or combine with other agents. The system is not closed or fixed. While the history of patching influences both the current pattern and the future pattern, we will shortly suggest that interpretation of this past can be important and provide a mechanism for influence. In other words, there is a degree of choice involved in path dependent conditions. While the notion of choosing path dependent conditions appears inconsistent, it is not if a complexity perspective is combined with a more traditional view. Thus, we turn to the notion of choice in a complex adaptive system.

4.4. Choice and initiative in a complex adaptive system

With a complexity paradigm, it is comparatively easy to see a series of automatic adjustments for complex adaptive systems at the edge of chaos. For instance, a strict interpretation of Kauffman (1993) would suggest that there is “order for free.” The complex adaptive system will continually adjust to be maximally fit. However, organizations are not biological systems, they are constructed by humans. While there may be “order for free,” a desired order is not free (see Osborn & Hunt, 2007; Osborn et al., 2002). Thus, we “drop seeds of emergence” (spawn emergent behavior and create surprises rather than control activities and also foster development of structures in which ideas can emerge freely and find one another; 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. That is why we initially stated that two key challenges to level VI leaders are to stimulate and channel emergence. We do not expect to see automatic adjustments. While some leadership researchers would relegate changes in the structure of the firm, the connections within it, and the connections externally to “management,” we will argue that for those at level VI, there are important choices about structure, connections and external linkages.

As noted earlier, the level VI leader can encourage targeted emergence via what Osborn and his colleagues have labeled “patterning of attention” and “network development” (Osborn, 1985; Osborn & Strickstein, 1985; Osborn et al., 2002; see also Ocasio, 1997). Essentially, patterning of attention by the formal leader is an influence attempt pointing out general questions, issues and information for subordinates. In Kauffman’s (1995) terms it is an attempt to increase $K$ (number of interactions) with a given $N$ (size of the group) and constant $C$ (connections to the outside). Patterning of attention involves questions of why, for whom, and how. Following complexity theory, 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. The causal mechanisms evoked to increase and sustain dialog and discussion are affiliation and inclusion. If dialog and discussion are emphasized we think they will be matched with social construction (see Osborn & Hunt, 2007) to generate new taken for granted actions, interactions and sentiments (Homans, 1950; Washington, Boal, & Davis, 2008).

Following this view, social construction may form around the well-known issues of internal integration and external adaptation among relative peers (e.g., Klimoski & Mohammed, 1994). Via dialog and discussion, peers may develop a new coherent shared mental model ($P$) of their collective experience (Boal & Schultz, 2007). 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).

The patterning of attention is not telling people what to do as in initiating structure. Initiating structure assumes the leader knows where the system is going and how to get there. The patterning of attention makes no such claim. The patterning of attention is not the establishment of a plan or roadmap. It is not a series of actions regarding implementation. Instead, it
involves isolating and communicating what information is important and what is given attention from a potentially endless stream of events, actions, and outcomes. An example is Intel's strategy making process for the i860 chip in which middle level managers favoring either a Complex Instruction Set Computer (CISC) or a Reduced Instruction Set Computer (RISC) architecture competed. Level VI management provided the money and autonomy which allowed competition, but in the end level VI leaders chose the CISC technology. Top management let the best idea win, adapted by ruthlessly exiting businesses, and was the referee who waited to see who won and then rearticulated the strategy and matched evolving skills with evolving opportunities. This was not a pretty sight during the competition. Even in retrospect the process looks reactive, lacks focus, and has no consistency of purpose. However, it fits well with the edge of chaos leadership emphasized here (see Burgelman & Grove, 1997).

Network development involves altering the connections among individuals both inside and outside the system. Both separately and combined, then, these influence attempts may change the basis for schema development as well as the participants’ pattern of interaction and, thus, knowledge development. In complexity terms, these influence attempts may alter $P$: the degree of homogeneity/heterogeneity in the schemata held by members via information, questions and challenges to what members believe is important (leader sensemaking). Opening the group to new individuals is an alteration in $N$ or the effective size of those engaged in dialog and discussion. With alterations in $N$ and $P$ we would also expect an 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 expect to see resonance yielding newly emergent initiatives.

In systems, characterized as complex adaptive systems replete with previously defined strange attractors for different units, not knowing what the issues are is probably not uncommon. Here, there is a need to make sense out of apparent confusion 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 leaders emphasize intellectual stimulation, it can also be developed via dialog and discussion. Why are people 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, we expect that patterning of attention and network development, as sensemaking mechanisms, can stimulate the development of new shared knowledge and understanding.

We think a key to understanding leadership from this perspective is also to 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 and Schultz (2007), managers at different levels have different tags that permit differentiation from each other. 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 were 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.

4.5. Emergence within limits

There are three important considerations that precede interpretation of two immediate propositions (3 and 4) and two later propositions (5 and 6). First, small changes in $N$, $K$, $P$ or $C$ may induce a large number of new initiatives. For instance, work by Marion (1999) suggests that a small change $K$ (interaction among agents) even with a fixed $N$ (number of agents) is likely to increase the number of new initiatives. In a similar manner, Osborn & Hunt (2007) note the expected positive curvilinear combination between $P$ (the number and similarity of agent schema) and adjustment to the environment such that a little diversity goes a long way. At the extremes, small changes may push the system into chaos. Second, the development of new initiatives is not in itself an appropriate adaptation expected in a complex adaptive system. Many firms may develop initiatives that are commercial failures, fewer firms successfully commercialize initiatives. For instance, many years ago Ford introduced the Edsel as a change in configuration and it gasped and sunk without a trace. Third, there is precious little research on how a change in the combination among $N$, $K$, $P$ and $C$ alter level VI leaders themselves? Ropo and Hunt (1999) present an example of where three bank managers were involved in frame-breaking change. The roles of all three changed dramatically following the change and one was forced into short term retirement.

Thus, to investigate the dynamics among leader influence, alterations in $N$, $K$, $P$, and $C$, and the expected strange attractor of adaptation, is both a theoretical and empirical challenge of the first order. With these cautions, however, we can state the two intermediate propositions to start the analysis.

**Proposition 4.** In context 4, at the edge of chaos, an increase in the use of patterning of attention by a level VI managerial leader will alter the interconnections among individuals ($K$) and the homogeneity of the schemata of individuals ($P$) to increase the probability of resonance yielding new initiatives.

**Proposition 5.** In context 4, at the edge of chaos, an increase in the network development by a level VI managerial leader will alter the number of interacting individuals ($N$) and the connections to previously excluded individuals ($C$) to increase the probability of resonance yielding new initiatives.
5. Channeling emergence

In addition to stimulating emergence, its channeling is crucial if initiatives are to be transformed into viable adaptations. Level VI leaders can develop, allocate and enable an organization’s resources and capabilities to meet what they define as real time needs. They may also channel emergence indirectly.

5.1. Channeling via allocation

In a conventional view of leadership, these action choices would be relegated to management because they appear not to involve interpersonal influence (cf., Bedeian & Hunt, 2006). While we recognize that level VI leaders have the charge to “keep the trains running,” they also have the potential to channel the initiatives of others into viable adaptations. The ability (power) of the level VI leader to allocate resources is fundamental to transforming scattered initiatives into viable adaptations. Rather than suggesting the level VI leader needs to pick and choose as some potentate, we suggest that these individuals are unlikely to know which if any of the initiatives can be transformed into viable adaptations. Further, if an initiative is to move forward, it seems reasonable to believe it will need the support of many others and need to be modified as the goals, technology and environment evolve.

Here, it is important to emphasize the resource allocation capacity of level VI leaders and their formal hierarchical position over a number of units, departments and individuals. Organizations are not democracies with equal power across all members but hierarchical power structures where those near to the top can allocate resources, change individual job assignments, form specialized units, alter reward systems, and the like. Level VI leaders are individuals with real clout. We are also aware that such leaders neither are kings or queens with unbridled power nor are they modern day princes with serf followers who await the latest utterance of the leader. If no other fact has been established by decades of leadership research, it is that subordinates choose whether or not to follow.

With the fact that subordinates and peers choose to follow, we suggest that much of the channeling from initiative to viable adaptation by level VI managerial leaders is done indirectly via informal processes rather than via formal allocative decisions. That is, the formal allocative decision follows an informal agreement. Further, a formal allocative decision moving an initiative toward an adaptation is likely to be justified as a bridge to the future.

5.2. Indirect methods of channeling

Organizations are not static entities where history is irrelevant. While history can be seen a source of stability in complexity theory, our interpretation stresses the malleability of history. Even though 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.

5.2.1. Linking past present and future

Recall, in organizations operating near the edge of chaos there is sufficient stability and information for participants to collectively achieve, 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 other terms, social construction around emergent shared mental models is particularly important in complex adaptive systems.

In CASs instability is attributable to alterations in the environment and the technology, as well as the internal operations of the entity. In CASs, individuals will establish new and revised collective mental models via dialogue and discussion as a part of their sense making to create a new social order (cf., Osborn & Hunt, 2007). We are suggesting that the level VI leader can alter the pattern of sense making and the dimensions of the new order by articulating connections among past present and future that point in a direction desired by the leader. As Boal and Schultz (2007) argue, collective meaning can be altered via stories (day-to-day vignettes) about the organization, its founders, how it dealt with similar issues in the past, and the implications of that experience for the present and future. The stories allow leaders to interpret core values and identity to ensure continuity and integrity as key components of the organization struggle with unknown possibilities. Thus, linking past, present and future in an uncertain context via stories is a critical but neglected aspect of level VI leadership.

5.2.2. Tags and tagging

Level VI leaders can make sense of and give meaning to environmental turbulence and ambiguity, and provide integration that allows portions of the organization to evolve and grow. That is, level VI leaders can serve as both tags and control the tagging process (Boal & Schultz, 2007). Boal and Schultz (2007) suggest that leaders can carry their own tags that re-form the interactions among other agents and transform the activity of the entire organization, disseminating information, spreading new tags, and potentially re-creating 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. Note that the process involves choices on both the part of the level VI leader and subordinates. As individuals are drawn by the tag into collectivities, their dynamic interaction changes the adaptation and the level VI leader, through sensemaking, may alter the interpretation and thus the tag as it moves from initiative to adaptation.
5.2.3. Combining stories and tagging

Level VI leaders can use dialogue, discussion and storytelling as mechanisms through which the tagging process is controlled (cf., Boal & Schultz, 2007) in a parallel process that occurs at the middle levels of an organization. For example, while strategic leaders at the apex of the organization can tell stories that reinvent the values and culture of the organization, middle level managers can promote dialogue and tell stories about the history of the division, the department, or the function that reinforce the values and culture of the organization. In this way, leaders reinvent the past in ways understandable to those in the present.

At level VI the opportunity to develop tagging processes and interpretations of the linkages among past, present and future may be intricately intertwined to combine apparently disparate initiatives into more integrative movement to adaptation. That is, the level VI leader can use stories and dialog about interpretations of the past to bring apparently disconnected actors together under a potentially emerging stream of resources. The tagging process and stories to link past, present, and future provide a flexible interpretation of the threats and opportunities to address “why we must act,” “who needs to be involved,” and “what would we get from the change” in a way that presents these evolutionary choices involving many individuals, not a revolution solely instituted at the top. The linkage allows middle level leaders to concentrate on addressing the when, where, and how. The tagging process allows the collection of interacting agents addressing the issues of when, where and how to grow and evolve as initiatives are combined and modified into potentially viable adaptations. Since middle level managerial leaders initiate how much rule following versus rule changing behavior to engage in, it is middle level leaders that initiate exploitation and/or exploration. As a middle level manager promotes organizational learning targeted toward operations, level VI leaders need to sort through the many possible changes proposed by the middle level, and decide which ones to legitimate, support, and elaborate.

Once the adaptation appears viable, the level VI leaders again need to make sense of and give meaning by forging a road map for implementation by the whole organization so it can evolve and grow.

**Proposition 6.** In context 4 when level VI managerial leaders develop and allocate resources to transform initiatives into adaptations, innovations, and inventions the probability of fitness increases.

**Proposition 7.** In context 4, when level VI managerial leaders use stories, dialog and discussion to enable the past to be experienced in the present, and the present to be linked to a desirable future, the chances of transforming initiatives into viable adaptations, innovations, and inventions increases.

**Proposition 8.** In context 4, via tagging processes level VI managerial leaders can influence information and resource flows, sub-unit diversity, and self-organization around organizational issues promoting new organizational capabilities to transform initiatives into viable adaptations, innovations, and inventions.

While emergence can lead to unpredictable actions, we think it is important here to recognize the unique role of individuals holding level VI positions and the limits on these individuals. Since we are emphasizing stories, it is time to recount two old stories. The first is of failure, the second success. The Pontiac Fiero is our first story. This was a sports car developed under a division head (level VI) at General Motors from the ideas and initiatives of lower level managers and engineers. The design evolved via an underground, skunk works development without a formally approved budget. The tag–Pontiac could develop a cool, affordable sports car. Without the huge billion dollar budget for a brand new platform, the design was modified to use off the shelf parts. When introduced it appeared to be a big success. Then why do few people know of the Fiero? While a brilliant sports car conception, it was starved for resources to sustain and develop it much beyond where it started. It essentially lacked the necessary formal backing by a centralized level VII choice maker at the very top of the organization.

Our second story concerns the development of Post-It-Notes. While it is so used the story appears in Wikipedia, it is instructive to take another look. In 1968, Dr. Spenser Silver developed a low tack adhesive. For 5 years he tried, without success, to get support for his idea with 3M. Art Fry, a colleague at 3M, one day became frustrated that notes kept falling out of his hymnal. Having heard Silver give a presentation on his low tack adhesive, he tried it one day as a way of anchoring his bookmarks. Fry, taking advantage of 3M’s officially sanctioned “permitted bootlegging” policy, set about developing it. By 1977, 3M launched the product to a resounding thud. The following year they gave free samples to individuals living in Boise, Idaho. Reports indicated that over 90% of the residents said they would buy it. By 1980 it was sold all over the US, and a year later it entered the Canadian and European markets. As they say, the rest is history (Wikipedia, The Free Encyclopedia). This second story emphasizes how 3M’s policy that allows middle level managers to use part of their budgets off line encourages creativity, innovation, and invention. It also emphasizes how the strength of weak ties, or small changes in K, can foster innovation. Note, in both cases, innovation emerged, and was either crushed, in the case of GM, or supported, in the case of 3M, by level VII leaders.

6. Limitations and conclusion

6.1. Limitations

Our focus on level VI leaders operating in a complex adaptive system is far from complete. Some may be dismayed that our integrative attempt does not provide a new typology of leadership styles or leadership behavior. Even though we have not chosen to classify leaders by type, it is readily apparent to leadership scholars that our treatment of patterning of attention
and network development would fit nicely into the analysis of pragmatic leadership by Mumford and his colleagues (e.g., Mumford, Antes, Caughron, & Friedrich, 2008). Our analysis of the tagging process to develop an attractive schema is very close to what Mumford and his colleagues (e.g., Mumford et al., 2008) discuss in their treatment of ideological leadership. While we have also refrained from a singular typology of leader behaviors in complex adaptive systems, readers familiar with complexity leadership analysis of Uhl-Bien, Marion, and McKelvey (2007) may see parallels between our discussion of stimulating and challenging emergence and their depiction of emergent dynamics via administrative and enabling leadership.

It is clear from the analysis of Porter and McLaughlin (2006), for example, that our treatment of context mentions but a few of the potentially salient variables leadership scholars should consider. We have not discussed such potentially important factors as culture, the history of the firm, the precise nature of the competition within the firm’s industry or the composition of the top management team to list but a few.

Our translation of complexity theory would likely horrify the purist as we have violated many critical assumptions of the underlying theory. For example, we have decomposed a system of interactive agents without knowing which if any interactive effects have been ignored (e.g., Osborn & Hunt, 2007). Yet, despite these and other unrecognized limitations, we have assumed that the level VI leaders and middle managers are interested in improving and can improve their part of the firm and that dialog and discussion lie at the heart of dynamic emergence as individuals socially construct their corporate world.

6.2. Recapitulation and conclusion

In our discussion we made a number of key points concerning the context, the leadership dimensions level VI leaders may use, and how level VI leaders can stimulate as well as channel emergence. In regard to the context, our focus in this conceptual article has been on large scale, modern corporations operating in a globally competitive industry with a dynamic technology. We have combined concepts from both traditional organization theory and aspects of CASs as these organizations operate near “the edge of chaos”. This edge of chaos is conceptualized as a transition zone delicately poised between stability and chaos that many CASs, especially of the kind we emphasized, seem naturally to evolve toward. This edge of chaos context was dynamic, non-linear and unpredictable but not so much so that an organization could not survive (as in chaos). However, firms cannot linger or even seek a dynamic equilibrium. Systems are required to move to a different fitness landscape or suffer the consequences. Thus, organizational goals become a “strange attractor” not a fixed desired endpoint. When organizations operate in a state poised at instability, behavior is considered to be simultaneously both stable and unstable. The behavior is unstable and unpredictable over the long term, but stable and predictable in terms of patterns. Edge of chaos theory is thus boundedly unstable. These characteristics are in sharp contrast to those of classical science, which seeks order and stability as opposed to recognizing dynamism, non-linearity and unpredictability (Prigogine, 1997).

Edge of chaos leadership moves the analysis from studying the combined impact of context and leadership on performance to examining the co-evolutionary dynamics among the organization’s environment, its viability in the setting and its leadership at multiple levels. All this is in contrast to the white hat rider on a white horse Über leader with a transformational vision.

In the edge of chaos organization we suggested that level VI leaders are in a unique position to combine incremental influence with managerial clout to stimulate and channel emergence to increase the number of new initiatives, channel these initiatives, and move portions of the organization toward successful adaptation—adaptation that changes the environment for others in a manner that benefits the firm. We found that these managerial leaders have generally been neglected with much of the attention going to the strategic apex of the firm or to managerial leaders deeper within the system. With a focus on these individuals, we argued that to stimulate and channel emergence level VI leaders should rely upon information and knowledge as the basis of their influence rather than affect, coercion, ideology or command.

To stimulate emergence and the production of new initiatives for change, we suggested that these level VI leaders needed to emphasize “patterning of attention” and “network development.” The underlying rationale was based on both traditional organizational views and complexity views. From a traditional viewpoint, patterning of attention and network development stimulates social construction to create new information and knowledge from the dialog and discussion of all participants. From a complexity perspective, these influence attempts may alter N, K, P and C. That is, new individuals within the system may be included (a change of N), new combinations of interaction may be fostered (a change in K), new schema may emerge (a change in P), and new connections with those traditionally outside the system may be made (a change in C).

After presenting propositions regarding the linkages among leadership and emergence, we were careful to note the theoretical and empirical challenge evoked by our simple statements. We expect non-linear unknown interactions among the complexity dimensions of N, K, P and C when predicting the number of new initiatives in a setting where the environment, technology and other aspects of the organization are also changing. We particularly noted the potential for too much of a good thing and our current inability to empirically examine such a complex pattern of interacting variables over time.

Of course, the development of new initiatives itself does not change the system in its attempts to adapt to a higher fitness plane. Initiatives need to be turned into adaptation. While the level VI leaders clearly have the clout to order individuals to transform an initiative into a broader organizational adaptation, we suggested that formal allocative decisions come after a series of informal processes. We argued that the key to understanding these informal processes was to examine tags and the process of tagging. We focused on level VI managerial leaders as individuals who not only acted as a tag, but backed this up with meaningful interpretations to link past, present and future as they built capability. So the adaptation appears to be evolutionary, not revolutionary, and appears to involve many rather than a few. The astute level VI managerial leader can also use the tagging process
to control emergence by the selection of some tags over others and the restriction of $N, K, P$ and $C$ as the system moves toward implementation.

With the emphasis on emergence and controlling emergence via managerial allocation by the level VI managerial leaders and via influence, we have outlined an architecture of managerial leadership. We have deliberately crossed the imaginary line between management and leadership (see Bedeian & Hunt, 2006) to suggest that the organizational clout held by level VI managerial leaders is important alone and in combination with leadership. We do not see leadership and management standing alone as much as they are intertwined. Thus, the potential to allocate is combined with the challenge to stimulate and channel emergence. Here, we stressed knowledge and information as the basis for the development of initiatives and the channeling of these initiatives. It is not that affect, coercion, or ideology are unimportant; it is our contention that information based influence combined with managerial allocation clout provides a higher probability of moving the organization toward a higher fitness plane when it needs to operate as a complex adaptive system.

Finally, we recognized at least one limit on level VI leaders— their bosses. The implementation of an adaptation, even if successful in market terms, does not guarantee it will be continued, just the lack of attention and support at the strategic apex may be sufficient to kill an apparently promising adaptation. And so it is with the study of leadership.

We offer a perspective and propositions for examination knowing it is incomplete and easily neglected by those interested in other agendas. Here, the agenda is based on knowledge and information using a combination of traditional organization views and complexity views. We have provided an initiative. We hope others will make it an adaptation to move the field to a higher level of understanding.

References


