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# Leadership, Complex Adaptive Systems, and Equivocality: The Role of Managers in Emergent Change

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When managers are confronted with the necessity to change their organization owing to a turbulent and unpredictable environment, their change efforts are often not very successful. As managers are part of the change context itself, they have to act in a way that is different from the traditional role of the administrative leader to become successful change leaders. This article attempts to redefine organizational change using complexity theory and the work of Karl Weick and Ralph Stacey as a basis. Organizational change can be defined as emergent change in complex adaptive systems and is based on self-organizational principles. One important attractor that guides the process of emergence is equivocality. This article expounds the concept of equivocality as a main attractor for emergent change and how managers can make use of this attractor to make change successful. Research directions are also discussed. *Organization Management Journal*, 9: 4–19, 2012. doi: 10.1080/15416518.2012.666946

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**Keywords** leadership; complexity; equivocality; attractor; emergence

## INTRODUCTION

Although managers face unpredicted levels of change within their organizations, change initiatives are often not very successful (Boonstra, 2000; Burnes, 2004; Higgs & Rowland, 2001; Huczynski & Buchanan, 2001; Styhre, 2002). Scholars stress that the ability to manage change should be a core organizational competence (Dawson, 2003; Dunphy, Griffiths, & Benn, 2003; Johnson & Scholes, 2002). Organizational change may be defined as a purposeful consideration to bring about a desired change in the organization most effectively with a specific goal in mind. This purposeful consideration is related to

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the perspective held by organizational members of environmental events and how these events are perceived as possible threats to or challenges for the survival of the organization in the short and long term (e.g., Dunphy et al., 2003; Mezias & Glynn, 1993). Change in an organization results in internal social action that makes it possible to cope with these threats and challenges and that produces continuity. Hence, the perceived impact of environmental changes on the organization's survival and continuity and the urge to adapt to its environment bring about organizational change.

There are three dimensions to organizational change: content, process, and context (Self, Armenakis, & Schraeder, 2007). The first two dimensions refer to the choices related to formulating a change strategy, that is, which changes should be made and how to bring about change. Which changes should be made refers to a focal point where change needs to occur, such as in the structure of the organization, personnel policy, technology, quality management, and physical circumstances (Folger & Cropanzano, 1998). How change is brought about often refers to the strategies and tactics used by change managers, such as communication, influence techniques, active participation, and different shapes and symbols. The change context is the context in which the change will take place. This could be an organization in its entirety or parts of the organization such as departments. Accepting and following through on change initiatives will determine the success of a planned change (Self et al., 2007). With a planned change, external circumstances such as economic fluctuations or political factors influence how an organization functions and are often the reason for the change (Kelly & Amburgey, 1991). In the change context, group dynamics and attitudes, as well as the intentions and behavior of the employees themselves, are important factors that determine the success of the change (Kavanagh & Ashkanasy, 2006; Devos, Buelens & Bouckenoghe, 2007).

In order to make the right decision regarding a particular change strategy, various authors have developed different contingency models to understand why certain change strategies are successful in one change context but not in another (Hope Hailey & Balogun, 2002). Hope Hailey and Balogun

(2002) claim that these contingency models always encompass four elements: the change purpose, change interventions, the focal objects of change, and the change context. Effective change, which is defined as the fulfillment of a change purpose, is only possible when the change interventions and the objects of change are attuned with the possibilities and impossibilities the change context provides. Hence, important contingency factors for successful change are the specific characteristics of the change context such as the change capability, change capacity, change readiness, power, awareness of the necessity of change, and availability of time (e.g., Hope Hailey & Balogun, 2002).

The change strategy can be adjusted to the dynamics of the internal environment by keeping a sharp eye on the contingency factors described. In the attempt to make continuous adjustments, restructuring the management of the business and raising the quality of new forms of organizing are a challenge. Coping with increasing external turbulence, internal tension, and more complex problems that exceed the boundaries of personal qualities and the qualities of the organization requires continuous adjustment (Hope Hailey & Balogun, 2002). Researchers argue that this explains why change is becoming more complex and radical (Higgs & Rowland, 2001) and why a large number of organizations cannot effectuate successful change (Devos et al., 2007).

### **Purpose of the Article**

In this article I examine the change context from a complex and emergent perspective and discuss the consequences for managers who are responsible for organizational change. I argue that when considering organizations as closed emergent systems, managers become an integral part of emergent processes. It could therefore be argued that managers who are part of the emergent event and who are unable to step aside are unable to take an objective position with regard to change. Although they are part of a closed system, they are simultaneously a product of emergence and an input for self-organization. In this article I put forward arguments to substantiate this proposition. These arguments support the claim that change in closed emergent systems are primarily incremental rather than transformational, and secondly remedial rather than developmental.

Moreover, arguments are presented to support this proposition in line with Giddens's (1979) perspective that managers can think and act differently and that although they take part in self-organizing processes, they can carry out deliberate interventions to bring about change. As such, although managers have a limited objective stance, they can influence the effectiveness of change in the social network. However, because of this limited objective stance, managers are only able to carry out unplanned change. Postulating the assumption that managers are not able to take the dynamics of the change context sufficiently into consideration as they are part of the change context itself, how should managers act when attempting to bring

about change successfully? This article attempts to answer this question and presents a framework that shows how managers can operate more effectively in a change process.

### **Outline of This Article**

In order to answer this question, I first examine what function managers have in the change context. I examine the concept of leadership and change from a traditional perspective and argue why this perspective has certain limitations in bringing about effective change in a change context. I then consider emergence and self-organization from a complexity perspective to understand the dynamics of the change context. This is followed by a discussion on the theories put forward to underpin the proposition presented in the previous section. After giving arguments for this proposition, I discuss what managers should do to operate more effectively in a change context that is complex and emergent. In order to do so, I develop and discuss a framework to understand the underlying mechanisms of emergence and self-organization with the input of two important scholars, namely, Ralph Stacey (e.g., Stacey, 2001 2006, 2007) and Karl Weick (e.g., Weick, 1979; Weick & Roberts, 1993; Weick, Sutcliffe, & Obst, 2005). I also present a perspective with regard to the specific role of managers in emergent change and the points of application in an organization. I conclude this article by giving suggestions for further research purposes.

## **MANAGERS AS CHANGE AGENTS**

### **A Traditional Perspective**

Management can be seen as the administrative leaders in an organization (e.g., French & Raven, 1959). The traditional conception of leadership is "interpersonal influence" (Marion & Uhl-Bien, 2007). Yukl (1999) points out that this conception views leadership as the way in which people (leaders) deliberately influence others to achieve a specific outcome. Lord (2008) claims that theories of leadership that originate from this conception show a disparity between two types of leadership. In one approach, influence on followers is exerted by imposing rules, by using extrinsic stimuli, by carefully monitoring outcomes, and by rewarding those whose outcomes are the result of behavior that is in line with the goals of the organization. In contrast, another approach focuses on the ability of visionary leaders to inspire followers to the extent that they contribute voluntarily to the goals of the organization and identify themselves with the identity of the organization, which forms an important part of their self-concept. The dichotomy between the "command-control" approach and the self-regulatory approach can be compared with the difference between transactional and transformational leadership (Bass, 1997; Yukl, 1999). In transactional leadership, the followers' interests are made meaningful through successful transactions with the (work) environment, whereas transformational leadership focuses on the

higher moral values organizations and individuals can transform (Den Hartog, Van Muijen, & Koopman, 1997). These approaches assume that leadership takes place in an organized system; organizations are hierarchically run from the top downward and emphasize intentional change. Leaders are seen as a legitimate authority with the right to influence followers (Tyler & Blader, 2005). Jennings and Dooley (2007) argue that this conception is based on the premise of predictability, that is, it is based on a recognizable world, a predictable social system, and predictable results in the organization, all of which result from the behavior of leaders and the reactions of followers.

### Unsuccessful Change

Change may not be successful if managers do not take the dynamics of the change context sufficiently into consideration when they choose their change strategies (Kotter & Schlesinger, 2008). Van De Ven and Poole maintain that this change context is shaped by four drivers (Van De Ven & Poole, 1995). The four drivers—life cycle, dialectic, evolution, and teleology—produce their own dynamic in which the intended change path is embedded and aligned. Employing the correct change interventions at the right time is contingent upon the ability to gain insight into this organizational dynamic. In general, it is the complexity of this dynamic and the effect change interventions have on this complexity that are difficult to predict (Weick, Sutcliffe, & Obstfeld, 2005). Linear models that show causal relationships that allow outcomes to be predicted using linearity as a basis do not really provide enough insight into the dynamics of an organization (Marion & Uhl-Bien, 2007; Stacey, 2007). As organizations are made up of people who are themselves perpetually dynamic, they are constantly undergoing change; it is simply that the change may take different forms, and may vary in predictability and periodicity. Chiles, Meyer, and Hench (2004) point out that the dynamics in organizations often have an emergent character: In other words, change goes hand in hand with the substitution of the structural characteristics of social interactions with new structural characteristics. The appearance of a new order is brought about by the system itself, which I refer to as the concept of emergence (Bich, 2006).

### Emergence

The central idea of emergence is that the order of behavior is emergent (Drazin & Sandelands, 1992). Drazin and Sandelands (1992) postulate that structure or order emerge from the interactions of participants within a system. We refer to the system's participants as agents (Yolles, 2006). Collins (1981) claims that this order has a conceptual or cognitive status; it exists as a mental representation and does not only constitute social interactions between individuals. Berger and Luckman (1996) argue that social structure is a mental construct as displayed by categorisation schemes used by agents as a means to make sense

of their flow of experience. Emergence is not a static property of a system but a perceived moment in time (Abraham & Shaw, 1987; Gleick, 1988). Drazin and Sandelands (1992) argue that an emergent order is based on its own logic. This logic exists as rules played out by the agents (Drazin & Sandelands, 1992). The process of emergence can also be explained as the process of structuration; structure or order is not an omnipresent force that continuously reproduces itself, but a process in which the agents are empowered by the logic provided to act. Moreover, with their capacities and inclination, agents are able to change that logic when interacting with other participants, and with the establishment of a new logic, a new related structure emerges (Giddens, 1979). Structuration is an ongoing process that requires continuous adaptation and adjustment. Hence, change can be defined as the breakdown of an old logic and structure and the establishment of a new logic and related structure (e.g., Mezas & Glynn, 1993). The environment functions as an important input for emergent change. Exogenous change exerts pressures on the behavioral system, which determines its own emergent actions. These actions are then further shaped by internal and external forces with a further continuation of the cycle. Emergent change will take place when exogenous change leads to a decrease in the system's performance and agents are aware that the current logics are no longer working effectively (Mezas & Glynn, 1993). Hence, emergent change can be defined as the structuration process of agents in which the structure and underlying logics are perceived as unworkable and in which agents make sense of new logics and related structures that will eventually work (e.g., Knights & Wilmott, 1989).

If we examine the role of management, the emergent perspective maintains that there is no difference between the organization and those who make up the organization. An organization consists of people, and these same people make up the organization, which means that the organization cannot be an objective entity. How can people change an organization if they themselves are part of it (e.g., Tsoukas & Chia, 2002)? In line with the emergent perspective, Law (2004) provides an explanation for this. All the events in a social system are embedded in a social context. How people act in such a context is the result of the experiences and artifacts which people have accumulated in the past. Law stresses that the way in which people attempt to understand their reality also creates the reality they want to understand. Linstead and Thanem (2007) also criticize the modernist distinction between organization and change. Change is seen as the opposite of organization. In the beginning the organization is stable; change is then induced in the organization. The change process is brought to a halt once the appropriate ultimate state of organizing has been achieved. Elaborating on the work of Burrell (1997), Linstead and Thanem (2007) maintain that change and the organization are not opposites: The organization itself is precisely where changes continuously take place. Therefore, a manager does not change the organization. The manager's actions are the result of the change process which the manager him- or herself has brought about because as an



agent the manager is part of the change context itself. Hence, we could say that the traditional perspective of change and the change manager is not applicable anymore when it comes to bringing about change effectively in organizations.

### Emergent Change

This explanation enables us to characterize emergent change. First let's address the incremental aspect of emergent change. In contrast to transformational perspectives of change in which organizations redefine structures and new business processes (e.g., Child & Smith, 1987; Greenwood & Hinings, 1996), emergent change passes through small steps, unfolding new logics and structures as it does so. We could also argue that change is an unplanned process, which contradicts the theories of planned change, such as those found in the institutional perspective (e.g., Greenwood & Hinings, 1996) or in the resource-based value perspective (e.g., Sirmon, Hitt & Ireland, 2007). Emergent change is a reaction to the perceived exogenous changes by the system's agents. We could also conclude that from an emergent perspective, change is remedial rather than developmental. Emergent change will take place when the underlying logics cannot help in dealing with an exogenous change that results in a decline in performance to an unacceptable level (Mezias & Glynn, 1993). Without these exogenous changes, agents are inclined to instantiate their own logics. This is different from the developmental change perspective in which agents are willing to change their logic without there being an exogenous threat (Miller & Friessen, 1984; Drizin & Kazanjin, 1990). As such, emergent change can be characterized as incremental, unplanned, and remedial.

Emergence is increasingly becoming an important concept in understanding the dynamics of social systems (see, e.g., Chiles et al., 2004; Goldstein, 1999; Guastello, 2002; Marion & Uhl-Bien, 2001) and has a strong connotation with concepts like spontaneous change, autopoiesis and self-organization (Maturana & Varela, 1987). A considerable number of studies on behavioral dynamics in organizations share the same premise: that emergence is the result of self-organizing processes in an organizational system that can be considered to be closed, that it is free of external interventions, and that it produces unpredictable outcomes (Cilliers, 2001; Hazy, 2006; Schreiber & Carley, 2006). Brown and Eisenhardt (1997) argue that their concept of continuous change—the emergence and establishment of semistuctures and the links in time that are rather similar to the concept of emergent change—has a strong link with complexity theory. The process of emergence suggests that an organization is evolving from one state of behavior into another state of behavior. The outcome of this evolution, a state of behavior, is unpredictable. Emergence is an important characteristic of a complexity approach to social systems. The use of complexity theory has not restricted itself to the hard natural sciences only (Steward, 1989). Since roughly the mid-1990s organizations have become increasingly interested

in complexity theory as a way to approach organizational dynamics (Maguire & McKelvey, 1999)

### COMPLEXITY THEORY

In 1987 James Gleick published his book *Chaos: Making A New Science*, which would herald a stream of publications on chaos, complexity, and human behavior in the 1990s and the beginning of the 20th century. Gleick's seminal work made it possible to think about behavior and dynamical systems from the perspective of chaos theory. Several publications followed (e.g., Baumol & Benhabib, 1989; Goldstein, 1995; Lewin, 1992; Steward, 1989; Waldrop, 1992) and provided a lengthy discussion on insights gained from complexity theory and how these would change the way in which human behavior could be described.

Complexity theory is a system theory. In a system theory the delineated entity (system) is the focal point from which we attempt to predict behavior. The connection with the outside world is determined by the input—the “things” that the system needs to display a particular behavior—and the output—the “things” that result from behavior. In complexity theory, the nonlinear comparison is important when describing the behavior of the system (Harvey & Reed, 2010). This comparison is a mathematical model of relationships in which the effect of a cause is not proportional and in which a cause has more than one effect. This nonlinear relationship between input and output can be found especially in the supplementary positive feedback loops, in contrast to the negative feedback loops, which form the basis of a linear comparison of system behavior (the cybernetic approach). In principle, the nonlinear relationships are deterministic; that is, the relationships themselves do not change or evolve (Thiéart & Forgues, 1995).

Nonlinear systems may display different types of temporal patterns depending on the balance between positive (deviation-amplifying) and negative (deviation-reducing) feedback loops over a particular period of time. Nonlinear systems can attain stable equilibrium, either static or cyclical, over a certain period of time. Nonlinear systems, however, may also show behavior that can be characterized as states of bounded instability and explosive instability (Morel & Ramanujam, 1999). Nonlinear behavior depends on the interaction between positive feedback, which leads the system toward instability, and negative feedback, which ensures that variations in behavior are damped (Thiéart & Forgues, 1995). Positive feedback ensures that a system is destabilized, whereby existing patterns of behavior in the system are no longer followed (Levy, 1994). The feedback loops consist of the responses of the social groups outside the system boundaries. This could be the behavior of people outside the system boundaries, physical resources, and information, for example.

### Complex Systems and Agents

In the system, interaction occurs between large groups of agents. Agents adapt their behavior to other agents. This

produces patterns of interactions. Another characteristic of these agents is that they each try to attain their own goals, which in turn allows them to obtain an independent relationship with some of the other agents (Stacey, 2007). Agents also realize that success can be measured according to the actions performed by others. The patterns of interactions, the sharing of common goals, mutual dependence, and the nature of that independence allow some agents to belong to the system but not others. The agents that belong to the system are referred to as a population. It is the aforementioned factors that produce a type of order in a complex adaptive system that is changeable and diverse, and that occurs spontaneously (Maguire et al., 2006; Stacey, 2007).

Therefore, the emphasis is more on the relations between the entities than on the individual constituents themselves. This removes the central position the cognizant individual was once accorded by previous systems theories. Moreover, what has been newly created is essentially unpredictable. The position of an external, objective observer is problematic because the new complex theories argue that new forms develop spontaneously through the process of self-organization in which agents are participants (Anderson, 1999). The following question still remains: How does emergence occur in such a complex adaptive system? In a state of stability, behavior follows point attractors, which represent the ordering of behavior in the system. Behavior that is in line with the point attractors represents stability in the system (Johnson & Nowak, 2002). In a state of stability, behavior tends to adhere to the system order every time, in spite of destabilizing influences from both inside and outside the system. Negative feedback will have a damping effect on these destabilizing influences, which causes unusual behavior to conform with existing point attractors. However, if the influence of positive feedback is greater, instability will increase and the point attractors will increasingly change into complicated, cyclical attractors.

### Feedback Loops

When we speak of cyclical attractors, we describe behavior as being several states between which system behavior fluctuates (Johnson & Nowak, 2002). This is what we call the state of bounded instability. It follows from this that a simple nonlinear relationship, a completely deterministic relationship, produces very complex behavior patterns after a period of time. Negative feedback loops will bring the organization behavior back to the existing point attractor, and positive feedback loops will take the behavior away from these point attractors (Maguire et al., 2006; Marion, 1999). There is a complex boundary between stability and instability that unites the two within it. These patterns are paradoxically both regular and irregular, and both stable and unstable at the same time. A predominance of positive feedback will take the system far away from the existing point attractors. An example of how positive feedback loops work when these exceed the impact of negative feedback loops can be displayed with the process of a bank run. Normally a bank has as a primary task to collect savings from its customers and invest this money

in ventures. A negative feedback loop consists of the number of customers who are willing to deposit their money; the more deposits there are, the more quickly the bank will grow. Take a bank that acts professionally as an example. One bad day, a large number of customers come to the bank at once without any exact reason. Some customers, being confronted with so many others at the bank, start to worry. Their worry starts to fuel false rumors that something is wrong with the bank. Hearing these rumors, other customers rush to the bank to try to get some of their money out. The number of customers at the bank increases, as do their excitement and nervousness. This fuels the false rumors of the bank's insolvency and impending bankruptcy more and more, with an effect that more customers come to the bank and try to withdraw their money while they still can. At the end of the day the rumor of insolvency has caused such a sudden demand by too many customers asking to withdraw their money, which the bank could not comply with. The bank run ends with the bank becoming insolvent and as a consequence declaring bankruptcy. If we apply the theory of complex adaptive systems to this case, we can address the false rumors about the instability of the bank as positive feedback loops. Over a period of time we see that the customers' withdrawal of cash enforces new withdrawals, which in turn produces new positive feedback loops and results in the bank's bankruptcy.

### Change in a Complex System

If a system attains a state of explosive instability, self-organization will occur (Koput, 1997). From this spontaneous self-organization, new structures and behavior are created that cannot be predicted in earlier stages. This new, complex structure is called a dissipative structure because it disperses (dissipates) energy to maintain the system in the new mode (Nicolis & Prigogine, 1989; Prigogine & Stengers, 1984). In contrast to a state of stability or bounded instability, which requires hardly any energy to maintain and a considerable amount of energy to change, a dissipative structure requires a lot of energy to keep it going and little energy to change it. Fluctuations in the form of variations are incorporated and provide a nonlinear system with the capacity to define new attractors spontaneously. This is known as "order by fluctuations" and occurs by means of a process of spontaneous self-organization. In summary, when a deterministic, nonlinear system moves from a stable equilibrium to a state of explosive instability, it passes through a stage of bounded instability, where it demonstrates very complex behavior (Lichtenstein, 2000; McKelvey, 1999; Thiéart & Forgues, 1995).

This is a border area between equilibrium and instability, where both forces are endlessly rearranged in different, but similar patterns at the same time. These patterns arise through self-organization as a characteristic of the system itself, and are not the result of external positive and negative feedback. We might suggest that the system's agents are inclined to leave

the system. Most often they do not. This pertains to the notion that organizational systems have an organizing principle that holds things together and bounds the instability (e.g., Yolles, 2006). An example of an organizational system that goes into a dissipative structure is when an organization is running out of cash and is on the brink of bankruptcy. This means the end is very near. What happens is that the system is trying to restructure its activities and interactions away from bankruptcy. Agents will leave the organization, but a substantial part will stay. During this restructuring process, close attention is paid to how these interactions change and not to how the changes are taking place in the outside world. The agents' behavior and their mutual responses will display unpredictable patterns and are geared toward accomplishing the system's survival. When the organization is moved away from this threat, the agents' activities and interactions will stabilize and become patterned.

### Self-Organization

Hence, according to the complexity approach, systems can evolve and change with respect to self-organization. This provided a link to other perspectives regarding self-organization, such as the autopoietic approach (e.g., Maturana & Varela, 1987), the viable systems approach (e.g., Beer, 1966), and ideas about how organizations evolve (e.g., Aldric, 2000; Van De Ven & Poole, 1995). The view of a human behavior system as a complex system assumes that the ordering of the movements of people who are influenced by the same movements can change, which changes the nonlinear relationship (e.g., Langston, 1986; Lewin, 1992). Applying the ideas of complexity theory to social systems is known as the theory of complex adaptive systems (CAS) (e.g., Blomme, 2003; Chiles et al., 2004; Holland, 1998; Langton, 1996; Plowman & Duchon, 2008). Researchers define change in the existing structure or order as *emergence* (e.g., Bich, 2004; Kaufman, 1995). Human behavior tends to follow a structure and order and seems to be attracted to socially defined isomorphic preferences for acting and organizing, which can also be defined as an attractor (e.g., Uhl-Bien & Marion, 2009). An attractor is a state of behavior that the system tends toward or is attracted to. In other words, it is the final state of behavior in which the system resides. The attractor establishes a state of stable equilibrium in a behavior system. Therefore, emergence is brought about whenever there is a change of attractor. However, the appearance of a different order in the behavior system with which behavior is aligned is unpredictable. Outside influences may influence emergence but they are not the decisive factor in it. It is the behavior system that determines its own change (Carver & Schreier, 2002; Vallacher & Nowak, 2008).

### Point Attractors and Latent Attractors

Although the functionality of attractors is discussed at length in the literature, little attention is paid to what exactly these attractors are. Coupled with this are the methodological problems that complexity theory poses when behavior systems

are studied from the complexity perspective (e.g., Maguire, McKelvey, Mirabeau, & Oztas, 2006; Schreiber & Carley, 2007). Various scholars from psychology, social psychology, and sociology have tried to define what attractors actually are.

From a psychological and social psychological perspective, Vallacher and Nowak (2008), for example, define attractors as the way in which agents influence each other in a behavior system. For many authors, social influence is the essence of social psychology (Latane, 1981; Vallacher, Nowak & Miller, 2003); it brings about changes in thoughts, feelings, and the behavior of individuals, and is considered to be the most influential mechanism underlying group behavior. Plowman and Duchon (2008) take this further but focus on the interaction between formal leaders and followers in particular. They define attractors as formal leadership behavior. The behavior of formal leaders largely determines the ordering of behavior in an organization. If the behavior of formal leaders changes, then something also changes in the ordering of the behavior of followers and with it the entire system population. Lord (2008) provides a different perspective. Lord argues also from the psychological perspective that the presence of and the ability to realize objectives are important attractors for behavior.

From a sociological perspective, Stacey (2007), on the other hand, draws attention to the way in which agents find meaning and identity in the process of interaction. In the behavior system, meaning and identity are developed in narratives. In brief, in Stacey's view, these narratives with their themes and history determine the ordering of behavior and can therefore be considered to be attractors. This idea of attractors has also been supported by other scholars (e.g., Fonseca, 2002; Griffin, 2002; Shaw, 2002; Streatfield, 2001).

Although these definitions of attractors can be used in various research methodologies, they do not specify the conditions under which the intensity and nature of the attractors change. This is why Vallacher and Nowak (2008) distinguish between two types of attractors: point attractors and latent attractors. The examples given in the previous section refer to point attractors. Point attractors shape behavior and create an order aligned with human behavior. Vallacher and Nowak (2008) also argue that the latent attractor is an indicator for change in point attractors. Although latent attractors are difficult to identify, they are important when it comes to explaining system behavior and emergence (e.g., Coleman et al., 2007; Vallacher, Coleman, Nowak, & Bui-Wrzosinska, 2010). Recognizing the significance of latent attractors in explaining the behavior of point attractors is important not only for researchers, but also for change managers and human resource managers (HRM). Latent attractors are the key to change in an emergent complex system.

### Discussion

I have argued that it is the processes of interaction between the actors in the organization in particular that bring about



emergent change. From the perspective of the organization as an emergent system, managers can be defined as agents who can be considered as actors, causes, and working means (Reynolds, 1987). A complex adaptive system produces a type of order that is changeable and diverse, and that occurs spontaneously. This order is not programmed and there is no design or plan. Moreover, this spontaneous self-organizing activity is vitally important for the continuous evolution of the system and its ability to create something new. However, we *cannot* predict the new form and in this sense the system is chaotic. In the adaptive system competition is also important, particularly when this competition is closely linked with cooperation. Agents act locally with each other in a complex system because they share an identity which has a historical development (Yolles, 2006). They do this without knowing how the entire system will continue to develop, even without having any understanding at all about the entire system's current situation (Thiéart & Forgues, 1995). As discussed in previous paragraphs, organizations are based on interconnected *behavior* and not on inter-connected individuals. Individuals do not dedicate "all" of themselves to a particular organization; rather, they only give a part of themselves. Obligations and interconnectedness are spread over different groups. Therefore, the emphasis is more on the relationships between the entities than on the individual constituents themselves. This removes the central influential position managers have in an organization. The position of the manager as an external, objective observer is very doubtful; it is argued that new routines of behavior develop spontaneously through the process of self-organization and emergence. As agents, managers are always participants in this system and none of them is able to step out of the system to obtain an overview of the system as a whole, let alone have any idea about the evolution of the system. The essential point about self-organization is precisely that none of the agents—either as individuals or as members of the group—can plan or shape the evolution of the system in any other way than by their local interaction. Point attractors and latent attractors are responsible for this shaping process.

Although the agents' shared interaction contributes to the evolution of the system, none of the agents organizes the interaction, the self-organization across the system as a whole. No single agent determines the rules for the other agents to subsequently "allow" them to organize themselves (Stacey, 2001). If this indeed were to happen, we could no longer consider a system like this to be self-organizing. Although managers in this local interaction are agents who have to act with a bounded perspective and are subject to and influenced by both past and present relationships (Yolles, 2006), I claim that managers can make sense of their situation, devise their own plans, and act accordingly. I have argued that actions that directly influence other people's behavior do not necessarily bring about effective change. My arguments lead to the conclusion that what drives emergent change is the development of interventions by which latent attractors, which are responsible for the states

of organizational behavior, will be changed. These arguments support the claim that managers may be capable of managing change in organizations. However, it is not people or, for example, procedures and structures that are the direct object of change; managers have to reconsider that these are the possible means by which latent attractors may become the subject of change. These findings may support Van de Ven and Sun's (2011) arguments that agents who are better able to comprehend the underlying drivers of human behavior become more successful at change.

Although these insights describe how the process of emergence occurs in general and the possibilities for managers to drive change, they do not explain the conditions under which emergence occurs. I have supported the idea that the traditional perspective of leadership does not match the concept of emergence. The question remains of how managers as administrative leaders should act to make change happen and what the nature of their interventions should be. In order to answer this question, we first have to answer the question: What could latent attractors as points of attraction for point attractors and organizational behavior possibly be? Another question we would like to raise is: What characteristics are the direct cause of organizing behavior? Moreover, since we have a potential answer to this question, it will be interesting to discuss the implications this has for managers as a condition for change.

In the next section I argue that the concepts put forward by Ralph Stacey (e.g., Stacey, 2001, 2006, 2007) and Weick (e.g., Weick, 1979; Weick & Roberts, 1993; Weick et al., 2005) may contribute to the development of a conception of latent variables and therefore to emergence. To structure the discussion, I first examine the concept of complex adaptive systems in more detail. I then elaborate on the ideas put forward first by Stacey and then by Weick, and how both can contribute to the further development of the conception of latent attractors.

#### STACEY'S AND WEICK'S NOTIONS ABOUT THE MANAGEMENT OF CHANGE

In this section I elaborate the ideas of Ralph Stacey (e.g., Stacey, 2001, 2006, 2007) and Karl Weick (e.g., Weick, 1979; Weick & Roberts, 1993; Weick et al., 2005) and link these to the findings presented in the preliminary paragraphs. The ideas of these two scholars are similar to other perspectives, such as the social movement theory (e.g., Snow, Soule, & Kriest, 2010; Ganz, 2010) and other system perspectives (e.g., Beer, 1968; Yolles, 2010). However, I want to apply the two scholars' unique notions to the questions put forward in the previous section, and I argue that these notions will help managers better understand how they should conduct change. With these insights I then explore the concept of latent attractors and use this concept to discuss the implications for change management. First I introduce the idea of complex responsive systems, after which I elaborate the concept of equivocality as a possible



definition of a latent attractor. In the last part of this section I discuss the implications for managers.

### Stacey's Framework of Complex Responsive Systems

Stacey has distinguished himself from other CAS researchers because he argues that human behavior systems are complex responsive processes rather than complex adaptive processes. The theory of complex responsive systems is an interpretation of the general thinking on complex adaptive systems. The researchers who work at the Complexity and Management Centre or who obtained their PhD under Stacey's supervision (e.g., Fonseca, 2002; Shaw, 2002; Streatfield, 2001) study organizations from this perspective. Stacey's later work and revised publications also provide deeper insights into the theory of complex responsive systems and where it can be applied (e.g., Stacey, 2001, 2006, 2007). Stacey's approach to complexity is based on the ideas put forward by the sociologists Herbert Mead and Norbert Elias. The basic idea behind complex responsive systems is that human experience is organized by themes, narratives, and interactions. The analogy with point attractors for human interaction is a recognizable pattern in the sequence of organizing themes, which in turn elicit other organizing themes. According to Stacey and his colleagues (e.g., Fonseca, 2002; Shaw, 2002; Stacey, 2001, 2006, 2007; Streatfield, 2001), the analogy between this approach and the thinking behind complex adaptive systems is human interaction itself. There is a considerable difference, however. Human interaction is certainly complex, but describing it as adaptive would not be doing justice to the true meaning of complexity. People do not just simply "adapt." It is therefore better to talk about human actions and interaction as being responsive, or as reacting or responding to something, and whether a behavior may be adaptive in this responsiveness or not. Experiences, that is, the interaction between groups of people and between individuals, are therefore complex responsive processes that are similar to complex adaptive systems.

### Change in Complex Responsive Systems

Interactions lead to the ordering of behavior. In an interaction, such as a conversation, a theme arises and the conversation develops around this theme until a turning point—a certain remark, for example—gives rise to another theme. New (discourse) attractors arise, patterns of themes that are brought about by certain self-organizing associations. These processes organize the experiences of a group of people who talk to each other, enabling individual and group experiences to arise simultaneously. Change only occurs if the pattern of conversation changes. Individual behavior changes only if an individual, silent conversation changes, and that in turn can only change if the individual experience in a social relationship changes. In this sense, change in a group and change in an individual are the same; they happen simultaneously. This way of thinking about change has significant implications for both management

and organizations: in brief, it means that organizations can only change if the people in the organization begin to talk to each other in a different way. Change means making different forms of conversation possible. This means that an organization can no longer be thought of as an adaptive *thing-like* system or network, but rather as a series of responsive processes. The self-organizing agents are not individuals but symbols arranged in propositional and narrative themes that connect them to each other. Themes organize the responsive experiences of individuals. In other words, it is the themes that bring about interaction, and not the individuals. Narrative and propositional themes are organized in conversations, both privately and publicly, which can assume different forms such as fantasies, myths, rituals, ideologies, culture, gossip, and rumors. In this sense, themes organize complexity in organizations. Although Stacey et al. do not state explicitly what interaction elicits between agents, they do draw attention to Herbert Mead's assumption about interactions, that is, that each type of presence (social act) produces responses from others, which gives rise to interactions and conversations. They also argue that agents' attitudes have a considerable influence on interaction. In line with Mead's conception, Stacey gives a broad definition of attitude as the tendency to act (2007, p. 307). Stacey et al. do not elaborate on the concept of attitude in any detail. Although they describe agents' attitudes in case studies in several publications, they do not specify how these attitudes develop. However, these attitudes refer to point attractors. The way in which attitudes are shaped determines the nature of interactions, and these typify the extent to which the prevailing point attractors are followed.

### Equivocality as Input for Responses

One possible conception of Mead's explanation of attitude is presented in the work of Karl Weick (e.g., Weick, 1979; Weick & Roberts, 1993; Weick, Sutcliff & Obst, 2005). The variety and diversity necessary in an organization are maintained by the *imperfection* of human communication (Allen, 1989). This variety in turn produces equivocality (Aldrich, 2000). Weick sees the process of organizing in terms of evolution.

The starting point for the process of organizing is a situation in which people experience equivocality. According to Weick, the picture one does not want to conjure up through equivocality is that of an environment that is confused, uncertain, and chaotic. On the contrary, we imagine an environment that has an abundance of possible connections, which we impose on an equally abundant assortment of possible variables we have selected. Weick believes that the term "equivocality" describes these nuances the most accurately. It is especially the wealth and multiplicity of meanings we can apply to a situation that an organization has to deal with. Equivocality only becomes apparent when people are preoccupied with the world around them, when they attempt to grasp it, study it, and fashion it. Weick calls the behavior through which people as it were "grab hold of" a part of their environment and make it available for further inspection "enactment." Enactment is not the same as "reaction."

It is the active process that enables people to focus on the world and thereby create experience. In Weick's vision, this process precedes thoughts about reality. Acting and attention must precede reflection. The concept of a "fashioned environment" is not the same as the concept of a "perceived environment." If the essence of "fashioning" is the perceived environment, then the phenomenon would be called "enthinkment" and not "enactment." Weick maintains that actors reach at least some degree of consensus about their behavior and that they look for patterns, which form the basis of phenomena, actions, and events. These patterns are assumed to be independent of their interpretations.

### **Equivocality Leading to Interpretations**

The outcome of enactment is formed by equivocal images, which require an answer to the question: What is going on here? Several interpretations can provide an answer to this question, and in the second step of the evolution model—the "selection"—the number of interpretations is reduced. Useful interpretations can subsequently be stored for future use, just as evolution preserves useful genes. In this context Weick talks about "retention," that is, the storing of useful interpretations in the memory. There are two feedback loops that emanate from retention: One feedback loop leads to enactment and the other to selection. This means that memory steers not only the attention and the actions of people (the "enactment"), but also the interpretation of what they subsequently experience (selection). The model shows the meaning of processes that reinforce themselves. What individuals do depends on what they know about the environment. What individuals know about the environment is in turn determined by what they perceive. What individuals perceive depends on what they do. This closes the circle: The process of thinking and acting reinforces itself. Weick uses the term "enacted environment" to describe this. People live in a world that they themselves have created by their own actions. The process of organizing is concerned with collective processes in which people act in mutual dependence (enactment), perceive and interpret (selection), and retain images in their shared memory (retention). The collective process of organizing always begins in situations that cannot be solved by existing routines. In the model the driving force behind evolution is the spontaneous processes of acting and attention. This is where the raw material—that is, equivocality—for sense-making is made. Only then will it be possible to produce useful interpretations (Weick et al., 2005). Hence, I argue that an enacted environment is ordered by point attractors.

### **Further Understanding of the Change Context**

The idea that equivocality is an important characteristic of latent attractors provides an interesting perspective from which to explain emergence and feedback loops. If we follow Mead's conception of attitude, we could argue that feedback loops are the most important input for agents' attitudes. Before I proceed with this argumentation, it is important to note what Mead

means by attitude. The conception of attitude goes further than the traditional explanation of an opinion. Mead argues that an attitude is a tendency to act. Attitudes emerge in the interaction process between a focal person and that person's social environment. In this interaction process people do not only develop significations of the social world outside them, but these significations always have an action component within them. As such, if people are making sense of other people's behavior, they will always respond. Mead's concept of attitude is an important component of Stacey's conception of complex responsive systems. Feedback loops may be considered to be the channels through which variation in the information concerning the person's outside social world is received, interpreted, and molded into an attitude. However, attitudes also determine how people make sense of this information. As such, present attitudes will give rise to similar reactions to similar responses from the outside world, which will then produce patterns of responses and behavior. Hence, I argue that present attitudes function as point attractors that guide people's responses and behavior.

Feedback loops allow variation from outside to enter the system. The variation in information may produce equivocality and is induced by feedback loops, whereas variation that causes a reduction in equivocality is induced by negative feedback loops. If positive loops increase the input, then the perceived equivocality in the system will increase, and if equivocality increases, so will the degree of turbulence. The turbulence will ensure that behavior will deviate more and more from the point attractors. In concrete terms, agents will experiment more and more with behavior that deviates from the existing order of behavior, which will necessitate a return to previous behavior patterns from time to time. In this case the system will have moved from a state of stability to a state of bounded instability. If the experimental behavior brings about a reduction in equivocality—which means that the new behavior is successful—then this behavior will be fixed in new prescribed patterns of behavior and hence in new point attractors. This point where all agents concentrate on reducing equivocality and in which new patterns of behavior arise is the stage of explosive instability. If the influence of negative feedback loops increases—that is, the new behavior is successful—with regard to the positive feedback loops, then the patterns of interaction will produce new point attractors and the system will move from one of explosive instability via bounded instability to stability. Therefore, we could argue that equivocality is an important input for (a) the development and/or change in attitudes where there is an increase in the influence of positive feedback loops and the increase in equivocality, and for (b) the maintenance and preservation of present attitudes when the influence of negative feedback loops increases and equivocality decreases. As such, I argue that equivocality is an important indicator in which emergent change exists. These arguments support the conclusion that the degree of equivocality determines the possible change of point attractors, and as such we could argue that the degree of equivocality is a latent attractor.

## MANAGERIAL IMPLICATIONS

I next discuss a number of implications for the management of change within organizations. The findings discussed in the previous sections have serious consequences for the traditional conception of leadership in relation to change.

### First Implication—The Importance of the Linguistic Domain

The first implication I would like to address is the importance of the linguistic domain in emergent change. Agents are involved in relationships through symbols that are gestures and responses intertwined with feelings and emotions. These symbols generate themes, which organize human experience and actions. As discussed in the section about complex responsive systems, themes are an important part of emergent change. Hence, managers should know how followers interpret and make sense of the symbolism of their behavior and interactions. As such, an important notion is that the manager has to consider that what he or she is doing is not that important. It is the symbolic value of the actions in the perception of the followers that counts. In practice, managers should know how followers respond to their own behavior.

### Second Implication—Emergent Change Drives Deliberate Change

As a result of the preliminary discussion, I put forward a new definition of change. In spite of the suggestion put forward by many researchers (see, e.g., Beer & Nohria, 2000; Kavanagh & Ashkanasy, 2006; Self et al., 2007) that there are many typologies of organizational change, it could be concluded that deliberate change can only be driven by emergent change. This means that planning and carrying out change strategies are not organizational change; rather, the extent to which emergent change occurs as a result of these interventions determines whether there is organizational change or not. The most important implication for managers is that if they intend to effectuate change in the organization, they can only achieve this by raising the perceived level of equivocality in the organization. Variation can be achieved by meeting challenges and addressing problems that are perceived as ambiguous, real, and radical. However, this is not enough. Other agents who acknowledge these problems and their severity should do their best to make this more prominent so that other agents will take action. In this emerging movement, these challenges and problems will be framed as real and have real consequences (e.g., Morris & Staggenborg, 2010).

There is an important implication here: The key to emergent change is to mobilize a movement of challenges and problems that activate equivocality, and as a consequence bring about a shift in interactions patterns and behavior. An administrative leader may activate a movement by introducing variation, which may be represented by the substitution of existing agents with new agents or the placement of new, possibly temporary, agents.

The possible variation brought in by these newcomers may comprise new or unfamiliar perspectives, opinions, preconceptions, gestures, and responses, which are perceived as deviant, confrontational, and stimulating a movement. The consequence is that administrative leaders do not take the lead when it comes to aligning these different frameworks. Instead, they set the right conditions for interactions, which give rise to the emergence of processes, which organize the experiences of a group of people and consequently the reduction of equivocality. As a result, the pattern of conversation will change, and subsequently people's behavior.

### Third Implication—The Reduction of Equivocality Is a Key to Change

The previous sections show an important characteristic of administrative leaders and their followers: Administrative leaders are able to reduce the equivocality of their followers, and together with their followers they can create a world by acting from a common base. This thinking is supported by different research studies. Hogg (2001), for example, argues that social identity is acquired by becoming a member of a group and by developing a social identity in the group by means of interactive processes. Reducing the equivocality of *whether* an agent can belong to a group depends on whether the leader in a particular group allows the agent to become part of the in-group. Being accepted by others and becoming established in the group is an important motivator of behavior (see, e.g., Chemers 2003; Tajfel & Turner, 1986). In this sense, people want to become members of a group so that they can construct a social identity by acting and interacting in concert. Belonging to a group means there will be equivocality regarding the goals and tasks of the group. Actions here will also focus on reducing equivocality; the administrative leader will be the first to be called upon to support behavior that will ensure this equivocality is reduced (Hollander & Julian, 1970).

Credibility with regard to the ability and competences of leaders plays an important role in this. With regard to the second implication, managers can set the right conditions for members to interact by providing them with the assurance that they are a part of the in-group, that they are confronted with the same issues and that in working through these issues they are developing a collective social identity. In practice, managers should first pay attention to whether followers feel as if they are part of the group in question. If followers show that they feel that they are included, managers can proceed with working on the goals and tasks.

### Fourth Implication—Power Is Located in Relations, Not With Persons

An important lesson that may be derived from the preliminary discussions is the position of the change manager and his power position. Power is located not in a manipulating or dominating individual but in human relations. These relations limit



all of us, and the pattern of these limitations—which appears in our relations—is the configuration of power relations. The majority of themes that organize experience are unconscious. An example of such a theme is when people unconsciously support power relations by talking about differences that foster the exclusion of other agents and by acting accordingly. This illustrates the dynamics of those who are “in” or “out.” Although people are well aware of this distinction, they are not usually aware of the purpose this distinction is meant to serve, that is, the categorizing of experience in binary opposites, which subsequently become ideologies that make their behavior seem logical and natural. The importance the traditional approach to leadership has given to the leader, personality, and behavior during the change process has a much less significant role in emergent theory, in that the administrative leader is only an agent in a field of other agents and a participant in the interaction process. If no emergent change occurs in an organizational system, the relationship between administrative leaders and followers will be preserved. However, if emergent change occurs and a shift in attractors takes place, then the nature of the relationships between the agents will change and there will be a shift in power. It will now be possible to transfer the power originally accorded to administrative leaders by different agents to new, informal leaders, which will bring about a shift in power positions and in behavior in the organization. In practice, this issue concerns the willingness and ability of managers to delegate certain responsibilities concerning the change process to these followers. The question that emerges is whether managers in times of uncertainty are capable of empowering informal leaders and losing control and at the same time whether they are willing to take overall responsibility for the change process. As a result, I may claim that an important skill of a manager is the ability to cope with the emotional consequences such as anxiety due that manager’s actions of delegation and empowerment.

### **Fifth Implication—Three Leadership Functions Are the Keys to Change**

Following the previous implication, I examine the possible effects change interventions have in organizations as another implication. We could argue that the interventions of managers could either be that the existing attractors will not shift and the power relations between agents will be maintained, or that a shift in these attractors will take place, causing a shift in power relations. As such, interventions that cause emergent change will affect existing attitudes and the relationship between manager and coworker. Emergent change will bring about a change in the manager’s power position. Following Van de Ven and Sun’s argument (2011) that a successful change manager understands the dynamics of the change context, we could argue that a change manager’s power position will become firmer if this manager can reduce equivocality for his or her followers. However, if a change manager is also struggling with

equivocality, the manager’s power position and influence on the emergent change process will erode because his or her followers will look for other agents in their attempts to reduce their equivocality and attitudes will change as a consequence. Agents who can help other agents reduce equivocality will be perceived as leaders. As I argued in the previous sections, this is not predictable. Lord (2008) argues that especially in emergent change, administrative leaders will not be competent enough to reduce equivocality among followers (Lord, 2008) because in times of emergent change new group structures are formed that are separate from formal departmental structures (Weick & Roberts, 1993), and new questions arise with regard to social identification that are linked to emotion (Barsade, 2002) and new cognitions (Porac, Thomas, & Baden-Fuller, 1989). Uhl-Bien et al. (2008) stress that apart from the role administrative leadership has as an extension of the existing hierarchy, leaders are needed who are able to support this emergent process and reduce equivocality. In addition to administrative leadership, they distinguish between adaptive and enabling leadership.

Adaptive leadership may be described as behavior that leads to emergent change, is seen as legitimate by followers in the circumstances of emergent change, and is able to reduce the equivocality of followers in this context. Adaptive leadership can be defined as an important component of emergent leadership. “Enabling” leadership attempts to form a bridge between the agents who are the administrative leaders and the agents who adopt the role of adaptive leaders. It is a role that is adopted by both administrative leaders and adaptive leaders, because allowing emergent change to take place and delegating authority and responsibility to adaptive leaders is an important role for administrative leaders, and requesting administrative authority and securing the conditions for successful emergent change is an important role for adaptive leaders. We can define the combination of these three forms of leadership, which are spread over the different agents and occur in emergent change as emergent leadership. We can therefore assume that the presence of emergent leadership in times of emergent change is an important factor for success. The consequence of this is that administrative leaders should be able in the enabling function to transfer power to other agents in the organization who are able to reduce equivocality. If administrative managers try to hold their power position firmly without making adaptive leadership among their coworkers possible, this may give rise to attitudes of mistrust, conflict, and negative emotions and consequently a lack of collaboration and no successful change. I argue that successful change managers are the agents who are able to allow adaptive leadership competences amongst other agents to develop. In practice, not only should managers be able to empower informal leaders with delegated responsibilities as a reactive action, but they should also continuously pay attention to developing the capabilities of followers to take up these informal leadership roles. Also, when necessary, managers should attempt to team up the right people when setting the right conditions for deploying informal leadership.



### Sixth Implication—Reducing Equivocality by Empowerment

When exploring the concept of equivocality in more depth, following the implications of the previous sections, managers should pay attention to the various definitions of the term itself. Weick and Roberts (1993) list a number of organizational aspects that may contain equivocality: equivocal goals and perspectives, equivocal work processes, and equivocal participation. Equivocal goals and perspectives occur when objectives are defined in vague terms and may even be contradictory. Individuals will interpret these objectives differently, and their interpretations may even serve to legitimize their own defined actions and behaviors. Strategic plans and intentions are often equivocal, as these often have no interface with the world as it is experienced by other groups in the organization, such as those on the shop floor. Equivocality in work processes may occur when the outcomes and added value of activity systems lack clarity and are vague. Individuals tend to make their own interpretations about the relationship between their own activities and their added value to the organization. Equivocality in participation can be found in who is now in which role and who has power in the organization. Equivocality in participation may cause stress reactions, which are expressed in the form of psychological and physiological tension. In a situation of stress, coworkers will be even more inclined to reject new routines and will fall back on existing ones. Trust in the organization will decrease, which may lead to a reduction in affective involvement. A situation will occur that Argyris (1986) describes as defensive behavior patterns. As a consequence I argue that managers should make a clear distinction between the different types of equivocality and their interventions in reducing equivocality accordingly.

This brings us to an important sixth implication. As discussed in the previous implication, administrative managers should enable other agents to take up adaptive leadership roles. I argue that administrative managers have a very important function in this enabling role, namely, the reduction of equivocality in participation. If an administrative manager is successful in this, other agents will be more inclined to take up adaptive leadership roles. This could refer to the principles of empowerment, but this implication goes one step further. Empowerment entails delegating responsibilities and mandates to the lower ranks, but there is always the preconception that overall control lies with the higher management ranks. Empowerment refers to a predictable and manageable organization, and with the arguments put forward in the previous paragraphs I have concluded that this is a myth. In emergent change agents go from one stage to another stage of behavior with unpredictable characteristics. In practice, this has an important consequence for effective administrative managers. Administrative managers should have a good understanding of their own attitudes and potential responses in states of equivocality. Also, administrative managers should have the capacity to comprehend the attitudes and potential responses of others and how this might affect

the emergent change process. This refers to the conception of primal leadership (e.g., Goleman, Boyatzis, & McKee, 2002), which describes two important aspects of leadership: personal competence (self-awareness and self-management) and social competence (social awareness and relationship management).

### RESEARCH IMPLICATIONS

With regard to research, the notions of Weick, Stacey, and others discussed earlier might help to translate CAS theory into concrete research methods and practice. Most CAS research is carried out using computer simulations where mathematical models are developed to model system behavior and to make predictions (e.g., Phelps & Hubler, 2007; Vallacher & Nowak, 2008). One reason for this is that providing an empirical description of all human interaction over a period of time is very labor-intensive and, bearing in mind the demands of scientific rigor, is extremely difficult to carry out. During the past few years, however, there has been an increase in the amount of experimental research that has been carried out (e.g., Dal Forno & Merlone, 2007; Spada, 2007), together with an increase in the amount of research that combines both approaches (e.g., Chiles, Meyer, & Hench, 2004; Schreiber & Carly, 2007). The point of application for research is the agents' interactions that lead to the identification and development of point attractors. In the journal *Emergence: Complexity and Organization*, which pays a great deal of attention to complexity in organizations, empirical studies are often qualitative (e.g., Goldspink, 2007; Meek, De Ladurantey, & Newell, 2007). Although qualitative research produces valuable knowledge, which contributes to our understanding of successful management behavior in organizations, I would also like to discuss the potential contribution of quantitative methods for the further development of the conception of emergence and complex adaptive systems (e.g., Phelps & Hubler, 2007).

Linking the two perspectives to CAS theory may provide new insights, which will contribute to the development of a conception of CAS. A recommendation for research therefore is to carry out empirical research that explores the conception of equivocality as a latent attractor further. Research done to show the relationship between equivocality and point attractors could take place in experimental settings and could subsequently be developed using computer simulations. To determine point attractors, further use could be made of the conceptions that have resulted from recent research (e.g., Phelps & Hubler, 2007; Plowman & Duchon, 2008; Vallacher & Nowak, 2008). However, a qualitative exploration is necessary to understand the nature of equivocality as a latent attractor and its effects on point attractors, which may differ per organization, and consequently how emergence unfolds in organizations and how this affects organizational themes, conversations, and behavior. A deeper understanding of the relationships between these concepts will facilitate the creation of a framework for managers

who are willing to carry out change interventions. Follow-up research could investigate the dynamics in the relationship between the three different types of equivocality and point attractors and the consequences for emergence and the role of management

## CONCLUSION

In this article I have argued that the traditional perspective on leadership has certain limitations in examining the effectiveness of managers in organizational change. I have substantiated this claim by using the emergent perspective on organizational behavior. The emergent perspective holds that the order of organizational behavior is adaptive to exogenous changes under the condition that agents are aware that the current logics are no longer working effectively due to these exogenous changes. In the emergent perspective managers are just agents; there is no difference between the organization and those who make up the organization. Organizations are based on interconnected behavior and not on interconnected individuals. Using this perspective as an important characteristic of complexity theory, I discussed how this process of emergent organizational behavior works. An important notion from complexity theory is that organizational change comprises the capability of organizations to evolve from one state of behavior into another state of behavior. Once positioned in a specific state, organizational behavior is attracted to socially defined preferences for acting and organizing, which I define as an attractor. I have made a distinction between point attractors and latent attractors. Point attractors shape directly behavior and an order aligned with organizational behavior. Latent attractors are the guiding principles of organizational behavior and drive the emergence of point attractors. Negative feedback loops help the system to maintain a specific state of organizational behavior; positive feedback loops help an organization to evolve into another state. I have discussed that this process of evolution is nonlinear and unpredictable; we cannot predict the order of the next state and in this sense the system is chaotic. From this stance, the perspective of a manager as an objective external observer who brings about change in an organization is no longer sustainable. Although I have put this conclusion forward, I argue that managers can become an important pivot for emergent change processes. Managers can influence the process of organizational change by interventions by which latent attractors, which are responsible for states of organizational behavior, will be changed. I conclude that we need a supplementary framework to examine which interventions may have the potential to bring about change.

I have defined this framework by discussing the contributions made by Stacey (2001, 2006, 2007), and Weick and his colleagues (e.g., Weick, 1979; Weick & Roberts, 1993; Weick et al., 2005) to the current understanding of emergence and the theory of complex systems. First, I concluded that point attractors are organizational themes that are constructed and

maintained by interactions. Hence, interactions such as the conversation are key to the development of new themes and as a consequence a new order of behavior. Second, I concluded that equivocality is the driver that develops new themes and can be defined as a latent attractor. The perception of equivocality of the exogenous world leads to a process of sensemaking; interaction patterns will be ordered and reordered so that people can make sense of the exogenous environment. Hence, I conclude that equivocality drives emergent change, which may be reduced by the development of new themes in interactions.

Building on this main conclusion, I have identified six implications for the management of change, which should be examined to gain a better understanding of the characteristics and effectiveness of emergent leadership. As a first implication I want to stress the importance of the linguistic domain. Interactions and their symbolic value lead to the construction of new themes, and managers should be aware of their position as storytellers in words and deeds. A second implication holds the conclusion that emergent change drives deliberate change. In this article I discussed that organizational change is emergent change. If an agent such as a manager wants to bring about change, the manager should make interventions aimed at the evolution of a new order of behavior. As a third implication, I want to stress the importance of equivocality as a condition to change. Managers should be aware that the reduction of equivocality in the construction of a social identity of organizational agents will lead to the acceptance of the manager by them as a leader. This is an important step in organizational change because the manager will be the first to be called upon to support behavior with which equivocality will be reduced. This notion brings us to the fourth implication, which holds that power is located in relations and not with persons. A manager should always wonder whether he or she is still accepted and acknowledged as a leader in the "in-group" during emergent change in which the nature of relationships between agents is changing. As a fifth implication, I argued the distinction between three leadership functions: administrative leadership, adaptive leadership, and enabling leadership. In the sixth implication I stressed the importance of administrative leaders to empower other agents with adaptive and enabling leadership authorizations to help other agents in reducing equivocality and the emergence of a new order of behavior.

Although there have been empirical studies conducted on organizational change from the perspective of emergence and complexity theory, the proposed framework needs proper empirical examination. I propose quantitative and qualitative approaches to find support for this discussed framework.

In this article I have developed, with an extensive discussion of the literature, a new framework with six managerial implications. These six managerial implications may be of help for managers who bring about change in their organizations. The emergent perspective holds important consequences that probably contradict important notions of the more traditional approaches of change management. However, I stress the

importance of this perspective to reflect on the interventions managers make in organizations to discuss its effectiveness. I invite other scholars, researchers, and practitioners to reflect on the arguments and proposed framework in this article.

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