Leadership in a complex world
- a conceptual framework

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Contents

In this article, we propose a conceptual framework for leadership mobilizing people in an increasingly complex world. We suggest that the leaders ability to influence followers, toward both unpredictable and predictable outcomes, is crucial for success in operational practice.

These acts of influence take place in partly formal and partly informal organizations. These organizations operate in complex contexts where people can be regarded as more or less autonomous agents carrying different identities, values and capabilities.

As agents they are exponents of intentional design and action, but they are also impacted by emergence as a product of other agents actions. This creates complexity regardless of the degree of formal regulation of the system where the interactions take place.

Leadership in complex systems is thus a locus of power in processes of interaction among human agents. We claim that successful leaders, as agents with influence, lead following agents based on a strong context dependent sustainability that makes them attractive and legitimate.

Leading agent's sustainability is constituted of a sense of autonomy, intrinsic motivation, a high conciseness of a diverse and resilient self, the ability to build trust and take actions that balance change of, and adaption to, different relations and different contexts.

To make sense of good leadership in a complex world, we have taken a closer look at the old philosophical distinctions ontology and epistemology.

Complexity as ontology and epistemology

Different sciences have different ontologies and epistemologies. *Ontology* defines the basic categories of reality, summarized in the question: "What is?" *Domain ontology* as distinct from *formal ontology* is related to focus of study. Where formal ontology inquiry is to say *something general about reality*, domain ontology says *something specific about different areas of reality*. "The world is complex", is an ontological statement. "Organizations are complex", is a domain ontological statement.

Epistemology defines how we can know and reason that reality: "How do we make sense of *what is*?" As for domain ontology, each research field has specific epistemologies.

Applying Complex Systems Theory as an epistemology in this paper means that we try to make sense of the world, organizations and leadership through a complexity perspective. We apply this epistemology, because we presuppose that the world and everything in it is ontological getting more complex. We argue that traditional reductionist, positivistic and mechanistic approaches to organizations and leadership do not make sense of the world in a reliable and valid way anymore.

Complex Systems Theory is a cross scientific approach to explore and explain different physical, biological, ecological, digital and social systems, and possibly the relationship between them as well. Complex Systems Theory can be applied on different aggregation levels, depending of what we define as the system we are studying.

One way to recognize Complex Systems is to look for (Vada 2009):

- Hierarchy of parts in wholes that are parts of greater wholes.
- High degree of various links between the parts

- High degree of interdependence between the parts.
- Constant change and emergence over time, also called evolution.
- The parts always change or adapt to surroundings
- The parts have limited input from the whole of the surrounding system

Examples of systems that can be regarded as complex are the world markets, biotopes, internet, ant hills, organizations, the human body, the nation state and the European Union to mentioned a few.

As said our ontological presupposition of the world, nations and organizations in the world is that they are getting more and more complex. Globalization represents increased communication and dynamics of closer and closer connected countries, markets and societies. Organizations adapt to contexts of constant change, and at the same time these organizations *are,* by intention or not, the causes of that same change. In sum the organizations of the world get and give input and output to their local and/or global markets and environments creating dynamics that influence the whole globe. In these organizations individuals with different educational, cultural and social backgrounds increase their interaction and mobility adding even more complexity to the world. Some of these interactions can be regarded as acts of leadership.

Leadership and agents

What is leadership and what is the purpose of leadership? The answers given have diverged according to changing assumptions about the world, organizations and the purpose of leadership.

Like all terms in social science, the concept of leadership is obviously arbitrary. An observation by Bennis (1959, p. 259) is as true today as it was many years ago: *the concept of leadership eludes us or turns up in another form to taunt us again with its slipperiness and complexity. So, we have invented an endless proliferation of terms to deal with it….*

Leadership is a topic for a variety of issues that has received attention in empirical studies, theoretical work, and books offering more or less well-grounded recipes for effective leadership. Most scholars seem to have little doubt that leadership is a phenomenon that creates effects in organizations.

Leadership can be regarded as a highly shaky construction (Alvesson & Sveningsson, 2003). The numerous definitions of leadership appear to have little in common apart from involving an influence process towards objectives (Yukl, 2006). Given the numerous definitions of leadership, any instance of acting in organisations can be seen as leadership, as well as not leadership. This is because the term 'leadership' can be used to make sense of situations, relations, or people under certain preconditions (Alvesson & Sveningsson, 2003).

One way to make leadership something distinct from other behaviours in organizations is to introduce the word "followship". To lead as an activity assumes that someone is following. To follow presupposes someone leading. To be a leader presupposes that you lead. Some lead mainly on the basis of formal legitimacy, others lead mostly on the basis of informal legitimacy. To lead is to act. We shift between leading and following each other in organizations through e.g. choice of words, pace and focus of the subject matter.

If we treat leaders and followers as agents constantly shifting between doing leadership and "followship", we are approaching a leadership concept applicable from a complexity perspective.

An agent can be regarded as free in the sense it operates in different contexts with different relations *on behalf* of an interest, or as Francis Heylighen (2008) puts it they are "individual systems that act upon their environment in response to the events they experience".

Agents are in other words not instrumentally led; instead they are equipped with the capabilities necessary to operate on their own. The interest an agent represents can be its own and the organization(s) it belong(s)too. Agents carry different identities, values and capabilities. As agents they are exponents of intentional design and action, but they are also impacted by emergence as a product of other agents actions. This creates complexity regardless of the degree of formal regulation of the context and system where the interactions take place.

Agents lead and follow each other both consciously and unconsciously, both in a formal and in an informal manner and both based on self-interest and common interest.

Organizations and Complexity

Based on the perspectives above, complexity science becomes a way of thinking about life in organisations that focuses attention on how agents cope with the unknown as they perpetually create organisational futures together. This has come to be known as the complex adaptive systems approach to organisational and leadership studies, highlighting the importance and meaning of phenomena of complexity in organizations and their context.

Scholars within the complexity sciences have promoted 'substitutes' to leadership by minimising the traditional leadership role in order to make way for self-organising or enabling principles. To date, findings from complexity approaches have not been widely accepted in organisation and leadership studies. A chief difficulty with the complexity theory view involves the role of structure within the organisation. Mainstream leadership theorists will not accept the notion of influence or coordination yielding nonlinear and essentially unpredictable future conditions. Essentially, a lot of them see leadership as a steering mechanism yielding predictable outcomes.

A complex adaptive system consists of a large number of agents, each of which behaves according to their own, other agents and the organizations goals, norms and regulations. Complexity Science does not look for an overall designed plan for the whole organization, but studies agent interaction within and between organizations. Dooley (1996) describes complex adaptive systems as an aggregate of interacting agents that behaves according to three key principles:

- Order is emergent as opposed to predetermined,
- The system's history is irreversible,
- The system's future is often unpredictable.

According to Plowman *et al.* (2007) characteristics of complex adaptive systems:

- Are made up of many agents who act and interact with each other in unpredictable ways
- They are sensitive to changes in initial conditions
- They adjust their behaviour to their environment in unpredictable ways
- They oscillate between stability and instability
- They produce emergent actions when approaching disequilibrium.

From a complex adaptive systems perspective, organizations are dynamic and non-linear, and not explained by simple cause-effect relationships. Complex adaptive systems are also different from systems that are merely complicated.

If a system can be described in terms of its parts it is *complicated*. If firstly, the interactions among the constituent parts of the system, and secondly the interaction between the system and its environment are of such nature that the system as a whole cannot be fully understood understanding its parts, it is *complex*. Where emergence and evolution takes place, we have a complex system. Emergence refers to a nonlinear suddenness that characterises change. Emergence is the consequence of local interaction between agents.

It derives from the collapse of built up tensions (Prigogine, 1997), sudden mergers of formerly separate parts or divergence of connected parts resulting in changes of network connections. Creativity, learning and change occur when emergence forms a previously unknown solution to a problem and creates new outcomes. Complex adaptive systems exist far from equilibrium where the ongoing interaction of agents leads to emergent and self-organising behaviour of the aggregated organizations.

In complex systems, order comes from the actions of interdependent agents who lead and follow each other based on the exchange of information through change and adaption to each other, rather than the power of a central authority. These dynamics occur in a highly non-linear fashion.

Key aspects of complexity theory are these notions of nonlinear dynamics yielding bounded instability. The system is deterministic but there is human agency.

Each time an agent interacts with another, the agent is free to follow, ignore or slightly alter the other. Actions and interactions have consequences in the form of feedback loops. Where the organisation faces a dynamic and unpredictable environment, the feedback is nonlinear. Where nonlinear feedback operates in a state poised at instability, behaviour is both stable and unstable, simultaneously. The behaviour is unstable and thus unpredictable over the long term, but it is stable and predictable in terms of its structure or pattern, thus allows one to predict short-term outcomes (Osborn, *et al.*, 2002).

Different agents within a system resonate with each other and may augment the capabilities of the broader organisation, thus influencing an organisation's 'self-organising' capabilities. A transformative causation of micro-interaction is in each moment influenced by agent's memories of previous moments. Each moment is for the agents a repetition of the past, but with the potential for future transformation and continuity at the same time. Formal or informal leadership is then the influence toward both an unknown and unpredictable state and a known and predictable state.

Time, leadership and effects

The past is what the agents remember. The future is also present in the form of the agent's expectations, ambitions, hope, dreams, and so on. It too forms the basis of action in the present. The present, therefore, has a circular time structure that arises because agents have the capacity to know what they are doing. This epistemology is in contrast to classical organisational science where the future is separated and presented in the form of visions, goals, values, strategies, and plans, so distracting attention from the present and reducing the future to simple 'bullet-points' that can be manipulated to determine the present.

Consistent with the arguments of Marion and Uhl-Bien (2001) and McKelvey (2000), complexity science aims to broaden the view of leadership as individual interpersonal influence to stress collective influence processes. Leadership is seen as a relationship that emerges in the interaction between agents. Such leadership may also not be allocated to a single agent, but be taken up by different agents in a group, initiated at their own discretion (van Eijnatten, 2004). Leadership occurs through interaction, and by enabling rather than controlling the future (Plowman *et al.,* 2007). Agents in organizations interact locally with each other on the basis of their identity (Stacey, 2003). They do so without knowing in advance how the whole system is going to evolve, or even understanding its current situation as a whole. Complexity science related to organisation sciences therefore focuses attention not on some abstract macro-system but on what agents are doing in their relationships with each other on a micro-level creating effects on higher levels.

Understanding organisations as complex adaptive systems redirects therefore focus to what agents are doing in their relationships with each other on a micro-level. Leadership influencing in such systems must

therefore be directed towards micro-level interactions between agents, and not to macro-level interventions.

When agents interact locally with each other, they do so without knowing in advance how the whole system is going to evolve, or even understanding the current situation as a whole.

Interactions are based on ongoing receptiveness rather than on pre-determined perceptions about the future.

Agents actively rely on each other to create conditions under which mutual influence is possible. The role of the leading agent emerges, and is continually iterated in processes of recognition. What emerges, and is continually iterated is diversity of identities; including that of leading agents. This identity of a leading agent operates as a force in its own right by being actively involved in the construction of reality, rather than being a mere reflection of reality. Hence, agent identity both shapes and is shaped by social exchanges with others because identity emerges in relationships.

The role of the leading agent is co-created by all other agents in processes of social interaction. In such processes of interaction, agents interpret what it means to be a leader and a group.

Power

Two conceptions of power have dominated Western thought in modern days (Hindess, 1996). One is the idea of power as a simple quantitative phenomenon. Power in this sense is a capacity to act. This notion of power is often attributed to Hobbes (1928, 1968) who argued that power is a necessary condition of human agency and a ubiquitous feature of human existence. Further examples of this tradition are Weber (1978) who suggests that there will be an unequal relationship between those who employ power and those who are subject to its effects. Or Lukes (2005) who maintains that while the concept of power is 'contested' by agents holding different values, power may nevertheless be reduced to capacity. In the words of Giddens (1984, p. 14): *power is the capability of the individual 'to make a difference' to a pre-existing state of affairs.* This understanding of power has also been dominant in organisational and leadership theory (e.g. French & Raven, 1959; Pettigrew, 1972; Yukl & Falbe, 1991; Bass, 1960; Etzioni, 1991).

Although the conception of power as a capacity resting in a single individual is widely employed in political, sociological, organisational, and leadership studies, there are other views.

Power is not only as a capacity but also as a right to act; with both capacity and right being seen to rest on the consent of those over whom power is exercised (Hindess, 1996). Both capacity and right must be present in order for power to be seen as power (Hobbes, 1996). Elias (1939, 2000) also suggests that power is not something anyone possesses but is a characteristic of all human relating. Foucault (1980) argues that power is a structure of actions bearing on the actions of individuals who are free. This eschews the determinism of power as a quantitative capacity. Instead, power is seen as a matter of instruments, techniques and procedures employed in an attempt to influence the actions of those who have a choice about how they might behave (Hindess, 1996). If power consists of the attempt to act on the actions of others, then power is an inescapable feature of human interaction and so too is resistance (Foucault, 1980). Following this, power is then understood in complex adaptive organisational systems as a concept involving a capacity and right to act resting on the consent of those over whom power is exercised. Power therefore manifests itself in a relational manner (Simmel, 1964). Power operates both relationally and reciprocally; all parties to relationships have power. Power therefore appears as a process, an aspect of an ongoing social structure, and may be understood as a dialectical process; oppositions work together and in tension with each other.

Hence, in a complexity perspective, power is the ongoing patterns that paradoxically both form and at the time are formed by the processes of relating between agents (Griffin & Stacey, 2005). In order to form and stay in a relationship with others, one cannot do whatever one wants. Agents constrain and are being constrained by other agents and, of course, agents also enable and are enabled by others. In action, power is this enabling-constraining relationship where the power balance is tilted in favour of some and against others (Stacey, 2006).

In organisations, power is spread around in groups with vested interests (Greiner & Schein, 1988). As mentioned, the typical organisation does not have a system with powerful leaders at the top controlling what goes on in the organisation. Instead there are powerful subsidiary companies and powerful departments in many different parts of the organisation and those at the top have to sustain enough support to govern (Stacey, 2003). These can be regarded as clusters of individual agents. *It is astounding that we continue to hold fantasies that single persons or small cliques of*

persons can steer such complexity to achieve targets that they have set in advance (Griffin, 2002, p. 200). As the human interactions, organisational structures, and organisational cultures become more complex, so also do the power relations. A leading agent, formal or informal, may tilt the power balance in its favour by influencing other agent's behaviour, thoughts, desires, needs, feelings, ambitions, dreams, or hopes. The enabling and constraining mechanisms of social interactions between agents mean that influence will arise from combinations of *consent* and *capacity*.

The impact of 'leading by example' or role modelling as a source of influence is frequently cited in the popular press, often in the form of authentic leadership (Bennis, 2003; George, 2003), as well as in the literature of social cognitive (Bandura, 1997), ethics (Trevino *et al.*, 2000), and neo-charismatic (House & Aditya, 1997) theory. This also includes theories of charismatic (Conger & Kanungo, 1987; Gardner & Avolio, 1998; Kark & Shamir, 2002; Shamir *et al.*, 1993) and transformational leadership (Avolio, 1999; Bass, 1985; Bass & Avolio, 1994). Among core behaviours leading agents seek to model or exemplify are confidence, high moral standards, innovative problem solving, commitment, and self-sacrifice, which may influence following agents to emulate the behaviours and actions (Bass *et al.*, 1987; Choi & Mai-Dalton, 1998, 1999; Gardner & Avolio, 1998; Luthans & Avilio, 2003). Such phenomena may partly be explained by social identity theory (e.g. Tajfel, 1978) which is concerned with when and why agents identify with, and behave as part of, social groups, adopting shared attitudes. Agents in organisations have a repertoire of identities open to them, each identity informing the individual of who it is and what this identity entails. Which of these many identities is most salient for an agent at any time will vary according to the context. Where identity is salient, agents will relate in the organisation dependent on their identity and the relationships.

Another reason for power tilt in favour of leading agents may be found in attribution theory (Heider, 1958; Green & Mitchell, 1979; Martinko & Gardner, 1987). Attribution theory is concerned with the ways in which agents attribute the behaviour of others or themselves. Each agent holds an implicit theory of the leadership role, including appropriate behaviour, the cause of leaders' behaviours, and external constraints to effective leadership.

Within a system, when the leading agents behaviour matches another agent's implicit standards of effective leadership, the leading agent will be given the consent to lead.

Agents and power tilts

The influence proposed above by a leading agent can be termed agent power. Agent power is a concept similar to personal power, as proposed by Yukl and Falbe (1991). Agent power is understood as the influence deriving from a leading agent's self.

It is the display of personality traits and specific behaviour in a particular context and in a particular social interaction setting, tilting the power balance in favour of the leading agent. This suggestion also implies a shift of focus from 'blueprints' for leadership skills, traits, and behavioural styles to dynamic and individual development perspectives – by emphasising a leading agent's conception of self in the form of self-awareness, self-knowledge, self-esteem, self-efficacy, self-motivation, and self-development.

We suggest that enabling and constraining mechanisms influence the process of social interaction in organisations, as follows:

An explanation of power tilt may be found in the dynamics of relating in organisations. Shifting relationships between agents in a group are predominately governed by:

- Agent's internal emotional dynamics such as trust and motivation
- Agent's external and collective dynamics such as group forming and creation of social identity.
- Agent's internal cognitive dynamics such as perception, learning, knowledge gathering

Movements in the power balance alter agent's experience of enabling-constraining action, can be seen as the movement of the leader-follower relationship created through power relating (Stacey, 2006; Griffin, 2002; Holmgren, 2006). This patterning of power may be understood as ongoing iterations of agents in a group. Leading agents influence and tilt power in his/her favour by actively engaging in other agents interaction. It follows that those agents in a position to direct a group, are those who are seen to be the most prototypical of the group position in a given context (Reicher, *et al.,* 2005). In recent years, these ideas have been

repackaged as social identity models of leadership (see for instance Haslam, 2001).

Influence may also come by providing a response to agent's needs (Stacey, 2006; Griffin, 2002). Needs are psychological features that arouse a agent to act toward a goal, as well as being the reason for that action. Needs in a leader-follower dynamic may include sense making, support, trust, acceptance, motivation, knowledge, experience, aspirations, and dreams. Such needs may explain the reasons for agents to engage in particular behaviours (e.g. Geen, 1994; McClelland, 1985; Maslow, 1954; Alderferd, 1972).

Sheldon (2004) proposes that different adaptations of agent's behaviours in organisations serve at least three psychological needs:

- to sustain a basic sense of self (autonomy)
- to manipulate the environment in order to achieve instrumental goals (competence)
- to form cooperative relationships with other agents (relatedness).

In a similar vein, Hogan (1982) posited that such behaviours as getting along and getting ahead in social interaction make up much of social life in groups. Social acceptance (getting along) and status (getting ahead) are prime needs around which much social life is organised. A leading agent's ability to cater for such needs may tilt the power balance is its favour.

A final explanation offered for the power tilt in favour of a leading agent may be found in classic leader-member exchange theory (Dansereau *et al.*, 1975; Graen & Cashman, 1975; Deluga, 1998; Liden, *et al.*, 1997). This theory describes the role-making process between the agents and the exchange relationship that develops over time. Graen & Cashman (1975) suggested that exchange relationships are formed on the basis of personal compatibility and follower competence and dependability. In addition to exchange of labour, competence, rewards, and other formal matters, the exchange of trust in organisations plays a vital role. According to many authors, following agent's trust is a prerequisite for leadership (e.g. Shamir & Lapidot, 2003). Leading agents may promote trust (George, *et al.,* 2007). Trust involves a voluntary transfer of resources (physical, financial, intellectual, or temporal) from the truster to the trustee, with no commitment from the trustee. Placement of trust allows actions in organisations that are otherwise not possible (Coleman, 1986). Trust

therefore creates conditions for interaction. Power and trust are interdependent.

Giddens (1984) proposes that power is inherent to social systems, as well as to individuals and groups within them. Following, we suggest that the sources of influence proposed above are inherent to social systems as organisations, and in particular, to relationships. Such sources of influence will be defined as *relational power*. Relational power is the influence deriving from the dynamics of relating in organisations, tilting the power balance in favour of leading agents. This entails a view of power as a relational mechanism, pending the development of dynamics of the enabling-constraining mechanisms among members in organisations.

Efforts to understand power in leadership theory usually involve distinctions between different types of power according to their source. Following the above, we suggest that in complexity leadership theory, (when contrasted with classical leadership science), the act of leadership should be understood as follows:

	Classical Leadership Science	Complexity Leadership Theory
Leadership goal	Influence toward known/predictable objectives (future is knowable). ↓	Influence toward both known/predictable AND unknown/unpredictable objectives (future is unknowable). ↓
Leadership objectives	Leaders influence by planning interventions, directing behaviours, and controlling movement within organisational frameworks. ↓	Leading agents influence the ongoing interactions between agents by dealing with realities within changing organisational frameworks. ↓
Leadership sources of influence	Legitimate power. Reward power. Coercive power. Information power. Expert power. Ecological power. ↓	Relational power through: Influencing the ongoing enabling-constraining power relating in organisations. Providing responses to agents's needs. Exchanges of trust. Identity power through: Attributing behaviours. Personalising aspects, traits, or what it means to be a member of the organisation. ↓
The act of leadership	Is a function of the pre-defined and sanctioned position, as well as the ability to use assigned power sources to influence within structural, cultural, or contextual frameworks.	Design for emergence as a function of agents, relationships, and a leading agents abilities to: • Engage in processes of ongoing and shifting social interaction. • Know one's self and the effect one has on other agents. • Develop one's self and other agents.

The above suggests that leadership emerges as a result of the ongoing relationship by the agents involved. Leadership is to design for such emergence by enabling contexts for strengthening the quantity and quality of these relationships.

The actual leadership influence is pending both capacity and consents to power. Leading agents may or may not exhibit influence on the ongoing social interactions in the present by dealing with fluctuating realities within changing structural, cultural, and systemic frameworks. As a consequence of, the act of leadership emerges, as opposed to being predefined within established and given frameworks and/or role expectations.

We postulate that the emergent act of leadership is a function of:

- Free agents self and identity
- Shifting informal and formal contexts
- Shifting relationships and legitimacy

Emergent processes may occur within formal frames, whereby group members designate an individual officially to be the leader, or within informal frames, whereby an individual evolves as a group's leader without official designation. These dynamics takes place in systems and organizations that are getting more and more complex in a world also evolving into greater complexity.

Applying complexity perspectives to make sense of how we interact: lead and follow each other, is in its very beginning as an epistemology. We propose to consider and further develop this approach as a cross-scientific way to better understand human activity and endeavors.