Manuscript 2008-19-12

Acting with systems thinking: complex responsive processes and systems intelligence

Short title:

Acting with systems thinking

Jukka Luoma, Raimo P. Hämäläinen and Esa Saarinen

jukka.luoma@hut.fi, raimo@hut.fi, esa@hut.fi

Systems Analysis Laboratory

Helsinki University of Technology

Corresponding author:

Jukka Luoma

Helsinki University of Technology,

Systems Analysis Laboratory, P.O. Box 1100,

02150 HUT, Finland

Email: jukka.luoma@tkk.fi

Tel.: +358 9 451 3053

Fax: +358 9 451 3096

Abstract

The conception that systems thinking is relevant for managers is wide-spread. This fact stands in contrast to the fact that few organizations have adopted systems thinking. Ralph D. Stacey and his collaborators approach this gap by questioning the relevance of systems thinking altogether. They present the theory of complex responsive processes as an alternative to systems thinking. We analyse the complex responsive processes perspective and the related critique of systems thinking from the point of view of systems intelligence, introduced by Saarinen and Hämäläinen. We argue that systems thinking and the complex responsive processes perspective are complementary. The theory of complex responsive processes provides a vocabulary with which to describe processes of systems thinking. These processes are often an essential, but not sufficient, in effective management. We describe systems intelligence as a competence that incorporates systems thinking with other modes of effective managerial behavior.

Key words: systems thinking, complex responsive processes, systems intelligence, management

Short title: Acting with systems thinking

Introduction

We believe it is fair to say that, since its inception, systems thinking has been recognized as highly relevant to managers. At the same time, the challenge of translating this relevance into results is ongoing (Ackoff, 2006; Senge, 2006; Hämäläinen and Saarinen, forthcoming).

In this paper, we approach the multi-faceted issue of systems thinking in actual management practice by reflecting on two recent theories, complex responsive processes (CRP), introduced by Stacey et al. (2000) and systems intelligence (SI) introduced by Saarinen and Hämäläinen (2004).

Stacey et al. (2000) described systems thinking as the predominant mental model of mainstream managerial though. According to Stacey et al. (Stacey *et al*, 2000; Stacey, 2001; Stacey, 2003a; Stacey, 2003b; Stacey, 2005; Stacey, 2007a; Stacey, 2007b), systems thinking lacks, and, at its roots, is doomed to lack, an adequate explanation of novelty and change in organizations. Their alternative, the theory of complex responsive processes, on the other hand, offers such a theory. The theory yields an alternative *way of thinking* that is said to have implications in terms of how managers think about the nature of their organizations (Stacey *et al*, 2000, 6), as well as how managers see their role (Stacey, 2001, 218-234; Stacey, 2007a, 432-450). Moreover, the complex responsive processes perspective questions the usefulness of systems thinking in management altogether (Stacey 2007a, 405-429; Stacey, 2007b; but see Stacey *et al*, 2000, 77-82).

Saarinen and Hämäläinen (2004) introduced the concept of systems intelligence as one basic human competence in the multiple intelligence framework (see Gardner, 1983; Mayer and Salovey, 2001; Goleman, 2007). Systems intelligence refers to the ability of a subject to envision and grasp the systemic settings of one's environment in an adaptively relevant manner and and productively transform them. Systems intelligence emphasizes personal, social and on-the-spot dimensions of human action. The construct can be applied to understanding the process of creating positive change, in which the actors are considered to

have a central role. The concept, as argued by Hämäläinen and Saarinen (2006; 2007) is a natural perspective to understanding the actual practice of managers and leaders, as they involve a highly personal dimension and a pressure to act in complex systemic settings.

This paper analyses the arguments of Stacey and his colleagues. We describe *what* Stacey et al label as "systems thinking". We discuss the criterion that Stacey et al. use to justify *why* the complex responsive processes perspective is an alternative, and should replace, systems thinking. We shall argue that their criterion for rejecting systems thinking makes little managerial sense. The systems intelligence perspective, on the other hand, is well aligned with what we perceive to be the focal point of management: action that leads to improvement. From such an angle, an instrumental outlook – as opposed to an ideological or philosophical outlook – is called for with regard to both the theory of complex responsive processes as well as systems thinking. Applying structured approaches, such as systems thinking, to management is often extremely useful, notwithstanding the fact that any structured approach can only be part of the reality of management practice.

Stacey et al. on systems thinking

Stacey and his colleagues (Stacey *et al*, 2000; Stacey, 2001; Stacey, 2003a; Stacey, 2003b; Stacey, 2005; Stacey, 2007a; Stacey, 2007b), describe systems thinking as an array of ways of understanding organizations *as systems*. These systems include those that follow laws of the type "if…then", those that pursue some final state or pattern, as well as those that adapt to their environment so as to preserve some pre-determined identity. What is common for such systems is that change results from someone *outside* the system. This actor in organizational settings is typically conceived to be the manager who is depicted as creating, re-designing, or, at least, influencing the system so as to realize some more desirable future state for the system. Change that emerges from *within* systems is ascribed to chance or self-organizing evolutionary processes, such as natural selection. This way of thinking locates *choice* outside systems, to be applied by "special people [at] special moments" (Stacey et al. 2000, 185).

In effect, Stacey and his co-authors describe what could be called "organizations-as-systems thinking" (to borrow Jackson's (2000) expression). In this line of thought, organizations come to be taken as thing-like entities, objects to be manipulated and controlled. These views disregard the diversity in beliefs and values, distribution of power, and the conflicts that relate to these matters. The organization, an abstraction, is taken to be the real thing, like a machine or an organism. Yet the rich world of human subtleties and idiosyncrasies is an inherent part of the actual reality of organizational life.

This type of characterization of systems thinking, while polemically powerful, clearly misrepresents the field as a whole. In fact, the view that systems are not 'out there' as objective entities, is not new (see, e.g., Churchman, 1968; Ackoff, 1971). According to many versions of systems thinking (for examples, see, Jackson, 2006, 652-653) – sometimes called "soft" or "interpretive" systems thinking – systems are not in the world. They are abstractions that are shaped by the values, beliefs, experience and expectations of people. Different perspectives on what is the system yield different actions. Systems boundaries are conceptual markers that define what and who is to be included in an analysis or intervention: what should be improved and how that improvement should be defined, what are the means are to be considered, and who gets a say in determining these boundaries (e.g., Churchman, 1968; 1979; Ulrich, 1994; Foote *et al*, 2007).

We believe that tackling systems thinking on a basis that assumes some sort of objective existence for 'systems' sets us barking up the wrong tree. We argue that it is more useful to look into different ways of applying systems thinking, that is, into the *modes* and the *process* of systems thinking. Modeling, quantitative and qualitative, has a pivotal role in many writings on systems thinking. Soft systems methodology (SSM) (Checkland and Scholes, 1990; Checkland, 1985; 1999; 2000), for example, makes use of conceptual system models. In SSM, people seek joint action by making their worldviews explicit using systems language (but see, Checkland, 2000, S29). Modes of systems thinking that emphasize the use of methodologies tend to entail a (momentary, implicit, and, indeed, often useful) division between *thought* and *action*. Shared intention results from thinking that can be

aided by models and methodologies. Action means the materialization of that intention. If this division is taken for granted, there is, indeed, the risk that the focus on 'systems' results in the omission of the 'process'. The 'process' is of pivotal importance. It gives rise to the systems we envision and grasp. The theory of complex responsive processes provides an approach (within a set of approaches; see, e.g., Giddens, 1986; Sewell, 1992; Weick *et al*, 2005) to overcome the divide between systems and action.

The theory of complex responsive processes

The theory of *complex responsive processes* provides a process-oriented account of organizational life that emphasizes the unity of thought and action and the social understanding of individuals (Stacey *et al*, 2000; Griffin, 2002; Stacey, 2001; 2003b; 2003a; 2005; 2007a; 2007b) The theory draws from George Herbert Mead's (1962 [1934]) social understanding of individuals and Norbert Elias's (2001) process sociology. According to the complex responsive processes view, organizational transformation as well as organizational phenomena that withstand time both emerge and re-emerge in people's local interactions. Organizational transformation amounts to changing people's behavior in local situations whereas routines, established power relations, legitimate conversational themes, irrespective of their apparent stability, are sustained only if they are expressed locally. In other words, transformation and reproduction, or change and stability, are both intrinsically characteristic of all human interaction.

Mead (1934), the founding father of social psychology, linked the emergence of the human mind with the evolution of social forms, i.e., groups and societies, etc. Mead argued that sophisticated cognitive capabilities could not have evolved in isolation from sophisticated forms of interaction, or wise versa. They have co-evolved. Mead conceptualized the co-evolution of the human mind and social interaction as the singular and plural of the same process, namely, the process of symbolic interaction.

Mead approached his theory in terms of *gesturing* and *responding*. A gesture is a symbol that points to a meaning which becomes apparent in the response that it calls forth. Together

the gesture and its response constitute a social act and its meaning is constructed for both. Social acts form a conversation of gestures in which each gesture is a response to some previous gesture and so on. Gesturing takes forms such as facial expressions, postures, vocal gesticulations, language between human bodies. Rudimentary forms of knowing, or intuiting about the likely response of another human body, stems from the ability of humans to call forth similar responses in themselves as they call forth in each other. In other words, humans have a capacity to empathize or be attuned to other humans. Such a basic form of knowing, or consciousness, enables one to carry out a conversation of gestures in one's mind in order to reflect on what response a gesture might call forth. As people experience a history of gesturing and responding in which sometimes *similar situations evoke similar responses in a number of people*, people tend to "generalize" that experience. This "generalized other" is the basis for knowing how to act in groups, meetings, organizations and situations. The ability to attune to a "generalized other" facilitates more complex interaction patterns to emerge.

The theory of complex responsive processes employs the gesture-response model of Mead to devise a process view of organizations. In Griffin's words, "Complex responsive processes of relating are temporal processes of interaction between human bodies in the medium of symbols patterning themselves as themes in communicative interaction. These themes are continuously reproducing and potentially transforming themselves in the process of bodily interaction itself" (2002, p. 169). From the complex responsive processes perspective, organizational change, for example, does not result from operating on a leverage point of a system, but from the transformation of the communicative interaction between people, which is potentially amplified into a wider transformation in subsequent interaction.

An organization as a *whole*, in complex responsive processes terms, amounts to what Stacey (2005, 2007) calls an "imaginative construct". In Mead's terminology, organizations can be conceptualized as "generalized others", experienced as "population-wide" tendencies to judge or respond to similar situations in similar ways. Although Stacey and his collaborators

criticize systems thinking of focusing upon wholes, wholes seem essential to the complex responsive processes perspective also. People do experience wholes, such as families, organizations, societies, situations, and other "imaginative constructs", we would say, people experience systems. Obviously, being included in groups or in other "imaginative constructs", and being able to experience that, enables one to act in ways that would not be possible if one were excluded. Moreover, people's identities are inseparable from such constructs, because people identify themselves as parts of those groupings, as parents, as managers, as citizens, and so forth. Indeed it can be suggested that individuals are intrinsically motivated to belonging to groups. Bonding is a core human phenomenon and relationships create a space of possibilities and also of restraints. One cannot choose to do whatever one pleases because there is always a threat of *exclusion* (thereby losing the enabling 'benefits' of *inclusion*).

According to Stacey and his collaborators, choosing one act over another is done on the basis of the official and unofficial "ideologies" of an organization, that is, the values and norms that compel and constrain action. Values and norms are constantly negotiated in communicative interaction, in which those with more power, that is, those whose dependence on a relationship is relatively weaker to that of others in that relationship, have a bigger say in forming ideologies. Official ideologies, in turn, tend to sustain power figurations. Ideologies emerge and are transformed in power based relationships of gesturing and responding between individuals. Thus, ideologies and power relations are sustained only insofar as they are particularized locally. In the presence of conflicting values and norms, people *choose*, to some degree, to act in conformity with particular compulsions and constraints while contradicting others. Choices that people make locally, then, give rise to small differences that are dissipated or amplified in subsequent interaction. In the latter case, changes may be diffused into population-wide transformation in communicative interaction, that is, into shifts in ideologies, power relations and what are imaginatively conceived as organizations *as wholes*.

The main message here is that one can never shape organizations directly on the level of the organization as a whole. One can only make gestures that indicate one's desires for the whole. Communicating such desires simply calls forth responses in others, in a number of local interactions. These local interactions will determine whether a desire for a whole, say, a new strategy of an organization, is put to practice.

The systems intelligence perspective: re-framing the debate

Next we apply the systems intelligence perspective into the conflict between complex responsive processes and systems thinking, as raised by Stacey *et al* (2000).

Systems intelligence, was originally introduced by Saarinen and Hämäläinen (2004; see also Hämäläinen and Saarinen, 2006; 2007; 2008; Hämäläinen and Saarinen, forthcoming; Luoma *et al*, forthcoming), as "intelligent behaviour in the context of complex systems involving interaction and feedback. A subject acting with Systems Intelligence engages successfully and productively with the holistic feedback mechanisms of her environment. She perceives herself as a part of a whole, the influence of the whole upon herself as well as her own influence upon the whole. By observing her own interdependence in the feedback intensive environment, she is able to act intelligently." (Hämäläinen and Saarinen, 2006, 9) The concept refers to the ability of a subject to engage with her environment "from the point of view of *what works*" (Hämäläinen and Saarinen, 2008, vii). Since the inception of the concept, one of the key ideas has been that such ability involves procedural, relational, situational, and adaptive skills and knowledge that do not reduce to, and cannot be replaced with, rule-based propositional knowledge.

When we say that we take a systems intelligence perspective on organizational life, we mean that – first and foremost – we look for *what works*. Second, we take the position that *what works* results from human engagement with particular circumstances with the idea of *making* something work. In other words, the emergence of human agency and human action in the midst of generating an impact are of central concern here. The underlying methodology is secondary. Third, human action always takes place in the midst of what can

usefully be described as systems. On the one hand, individuals are always in a reciprocally regulating relationship with one another, while, at the same time, controlling and being constrained by the physical world. On the other hand, the way in which particular circumstances are viewed as desirable is relative and dynamic. In systems terms, that relativity is a result of the boundaries of the system which are not given as objective facts. Fourth, we want to emphasize that the creation of improvement necessarily is a first-person enterprise. This holds for planned change processes as well. At the very least, the process in which action plans are constructed involves the personal engagement of those who plan. Personal involvement is an important aspect of organizational life.

The systems intelligence perspective has its similarities and differences with other systems approaches. For example, Checkland's (see, e.g., Checkland, 1985; 1999; 2000) soft systems methodology places emphasis on the subjective, a central concern of systems intelligence as well. Action-orientedness and pragmatism in Ormerod's (1997, 2008) transformational competence perspective is in resonance with the systems intelligence perspective. The systems intelligence perspective features ideas with the critical systems thinking paradigm (see, e.g., Jackson, 1991; Midgley, 1996). Both perspectives emphasize improvement, and the need to reflect upon what is assumed as improvement.

From 'either...or' to 'both...and'

It is possible to view systems thinking and the complex responsive processes perspective as alternatives if one is looking for a theory *of* organizations. We believe it is fair to say that this is the primary criterion that Stacey et al. use to justify presenting these perspectives as alternatives and opting for the complex responsive processes perspective. Observe, for example, the following quotation from Stacey et al. (Stacey *et al*, 2000, 9; see also Stacey, 2003b, 8-9): "We suggest that there is nothing more important than the way managers think about the nature of their organization, particularly how it comes to be what it is."

Taking this path, one might try to understand the theoretical underpinnings of the 'system' concept, and compare those assumptions with those of the 'responsive process' concept.

However, there is also another aspect to systems thinking. Systems *thinking* refers to a process in which perceived circumstances are organized in systems terms. Actual managerial practice and discourse operates to a large in terms of *abstractions*. For instance, they facilitate communication which builds commitment to joint action. The manager may use words such as "the customer", "customer care", "customer system", recognizing that she is not talking about any particular customer or care for one but operating with an "imaginative whole" (in Stacey's terms), or social object (in Mead's terms). Changing the word from "system" to "imaginative whole" does not change the fact that people do consider, to some extent at least, the wider implications and contexts of their actions in their local interactions. Local interactions, in other words, involve processes of systems thinking. Systems do not need to be real things, in the same sense as cars or human bodies, in order the make the *process of systems thinking* a meaningful description of particular cognitive and communicative processes that take place in organizations.

To what extent should processes of systems thinking occupy managers' "thought-action repertoires" (to borrow Fredrickson's (2004) apt expression)? Stacey et al. argue that focusing attention upon systems, results in bypassing important local interactions. According to Stacey et al., preoccupation with what happens on the system-level leads to mechanistic command-and-control thinking and to the omission of the inescapable and immediate impacts of one's actions.

We see that disregarding systems thinking on these grounds leads to throwing away the baby with the bathwater. We propose that systems thinking and complex responsive processes perspectives are complementary. Systems thinking entails different levels of abstraction into consideration. Indeed, productive action often involves considering the situation at hand from the point of view of a number of abstraction levels. Questions such as "*What should be done?"*, "*How?"* and "W*hy?"* call for perspectives that are not restricted to any singe vantage point (see, e.g., Checkland, 2000) Relevant abstractions emerge in local interactions. The complex responsive processes perspective looks into the micro-mechanisms of such interactions. For instance, Stacey describes the definition of a

professional society as patterns of *including* some people, and *excluding* others, based on some criteria, such as what kind of professionals a given society represents (see, e.g., Stacey 2005). In systems terms, one could say that these patterns give rise to system boundaries that delineate the professional society from its environment. For another example, see Box 1.

Box 1. CASE: General Motors

David Welch's (2008) article "GM: Live Green or Die" in *BusinessWeek* tells a story of GM's failure to recognize the changes in the nature of the car industry for the 21st century. In the beginning of the century, GM had experimented with an electric car called EV1, and then killed the project as a failure. In 2005, after just two years from killing its former electric car project, Vice-Chairman Robert A. Lutz revisited the issue. Twenty months later, GM announced it would build a new electric car, called Volt, which would be ready in three years. Looking back, GM's CEO in 2008 G. Richard Wagoner Jr. regrets killing the former electric car project. In retrospect, his decision was not informed by notions such as that "oil prices were not going to return to earth, global warming was a de facto political reality, and Washington was serious about imposing tougher fuel economy rules" (Welch, 2008). At the same time, Toyota had become "a poster boy for the environmental movement" (Welch, 2008) with its hybrid car, Prius. In 2008, GM was left behind Toyota in building its own fleet of hybrids.

It is natural to assume the decision to kill the EV1 project was justified by a detailed and thoroughly analysed perception of the future of the car market. However, different interpretations of essentially the same market data can result in different conclusions and actions. Toyota saw a different big picture than GM. It is natural to say that Toyota acted *as if* the car industry was embedded in a wider system: a market in which there will be a demand for "green" products, and a political system that would impose new stringent fuel economy rules on car manufacturers. Based on this view, it was meaningful to set up a group dedicated to developing electric cars and hybrids in the mid-1990s which then resulted in the launch of the Prius.

In the complex responsive processes terms, Toyota's decision to start developing a hybrid was nothing more than a gesture that calls forth responses in a number of local interactions which, furthermore, provoke more gesturing and responding. However, such a decision becomes meaningful only through envisioning a wider system – for instance, a world in which green products are considered to be the norm.

From a theoretical standpoint, systems thinking and complex responsive processes are compatible. For instance, there are no major differences between the theoretical premises of the soft systems methodology and the complex responsive processes perspective. Both approaches say that people cannot step outside organizations. Both acknowledge the essential role of beliefs and values in determining people's actions. Of course, there are also differences. The soft systems methodology emphasizes looking into what beliefs and values people might have. The complex responsive processes perspective is concerned with explaining how particular beliefs and values emerge, become shared, and how they sustain particular power-figurations. Soft systems methodology is a problem-solving aid. The complex responsive processes perspective, in contrast, is best viewed as a descriptive theory.

The starting point of the systems intelligence perspective is that the identification of *what works* often results from considering a plurality of instruments for action. Looking at circumstances from different perspectives can give clues to finding points of leverage. Seeking a descriptively correct perspective is secondary. We should seek to investigate any given methodology or perspective, such as some systems approach or the complex responsive processes perspective, from the point of view of what works.

It seems safe to claim that the process of systems thinking – the process of trying to see the wider drivers and implications of situations – is an essential aspect of effective managerial action. However, if one is to treat the concerns of the organizational actors as primary, one should also be willing to look for thought-action repertoires that go beyond existing forms of systems *thinking*. The complex responsive processes perspective highlights some of these. Moreover, people's actual experience of organizational life is coloured by their first-person view of things that cannot be fully captured by explicit modelling.

Learning from Stacey

To describe something as a system is to simplify the complexity of the real world. In this process of abstracting away from one's "direct experience", using an expression from

(Stacey *et al*, 2000), there are matters that tend to get omitted from consideration. As Stacey (2006, 124, emphasis added) puts it

> *When organizations are written and talked about, attention is usually focused almost exclusively on emotionally detached, rational, step-by-step analysis and structured processes of planning and decision-making within monitoring forms of control. The emphasis is on predictability and the removal of uncertainty. This exclusive focus renders* rationally invisible *the unpredictable, emotional, responsive and spontaneous aspects of what people are doing in* highly rational *ways.*

What Stacey describes as "structured processes of planning and decision-making" necessarily involve a certain degree of uncertainty with regard to the outcomes of the processes. On the one hand, there is uncertainty with regard to what are the outcomes of planning. On the other hand, there is no general guarantee that plans will unfold as intended. Moreover, structured processes are but one means of creating improvement. There is always something more. We believe that systems thinking scholars would generally agree with this statement.

Stacey also suggests that rationality might involve spontaneous, responsive and emotionally-engaged aspects. These aspects are not only something to be lived with, but rather, a survival asset (e.g., Stacey, 2001, 63). This observation represents originality in the complex responsive processes perspective. The perspective of Stacey and his associates is useful in demonstrating the unpredictable nature of organizational life. However, one should also acknowledge that people are able to act in "highly rational" ways, although "There is no guarantee of success" (Stacey, 2007a, 436). This is what the systems intelligence perspective emphasizes. To us, this is a novel element within the field of systems thinking.

From complex responsive processes to systems intelligence

Zhu (2007) provides an analysis of the complex responsive processes perspective and its related critique of systems thinking. Much of what has been said here in our paper is in agreement with Zhu's arguments. Zhu credits Stacey and his collaborators. The complex responsive processes perspective draws attention to the ambiguity inherent in any pre-planned change initiatives in organizations. However, Zhu argues that "Stacey does not provide a refined alternative to systems thinking; he only fragments it" (ibid., 462). He calls for appreciating the complex responsive processes perspective without rejecting systems thinking. The introduction of the concept of systems intelligence, adds to Zhu's discussion. The concept of systems intelligence represents a development in systems thinking. It is a perspective that can integrate the complex responsive processes perspective into systems thinking.

Systems intelligence takes as a starting point the fact that people in organizations are often engaged with situations for which no models exist or which is only known partially. Quoting Hämäläinen and Saarinen (2008, vii-ix), the systems intelligence perspective maintains that "human beings have an instinctive capability to face their environment from the point of view of engagement. This fundamental capacity is action-oriented and adaptive, holistic, contextual and relational, and links the subject to her environment as an ongoing course of progression... the systems intelligence approach amounts to an extension of systems thinking... It recognizes the significance of the sensitivities-based, "soft", subjectivistic and first-person –related aspect of the human endowment as fundamental to the human systemic engagement."

The systems intelligence perspective thus shares a starting point with the complex responsive processes perspective: an integrative perspective on thought and action. However, the complex responsive processes perspective is geared towards explaining organizational life in terms of micro-mechanisms that produce macro-level structures. The

systems intelligence perspective is primarily concerned with understanding the logic of making things work.

The systems intelligence perspective maintains that if we are to understand to how things are *made to work*, it is useful to take the actual productive actions as the starting point. It is useful to build on a discourse of improvement as primary, and leave the discourse about methodology as secondary. Managers, we believe, subordinate knowledge to results, not vice versa. Eden *et al* (2009) come to a similar conclusion based on their extensive practical experiences of working with managers. Eden *et al* (2009, 10) report that "Managers are rarely concerned with theoretical integration. With good reason, they are more interested in what works and what helps them." Effective management action often involves processes of systems thinking. At the same time, management also often involves spontaneous, improvisational, and emotionally-driven aspects. The systems intelligence approach reflects an effort to take an integrative view on those aspects.

Conclusion

We do not see that there is real conflict between the complex responsive processes and systems thinking. Stacey and his colleagues aim at a descriptively accurate theory of organizations. We argue that what is more fundamental, from the point of view of the manager, is to find practical modes of action. The manager often needs to consider different perspectives and a plurality of methods when trying to find ways forward. The merits of the complex responsive processes perspective do not invalidate the fact that management action often involves processes of systems thinking, and that the processes are often beneficial and productive.

The perspective of systems intelligence emphasizes what we believe to be the focal point of management: the search for actions that lead to results. The systems intelligence perspective emphasizes the user and the application in the process of systems thinking. We believe that these emphases are important in the process of translating systems thinking into results.

References

Ackoff, Russell L. 1971. Towards a System of Systems Concepts. *Management Science* 17, no. 11 (July): 661-671.

---. 2006. Why few organizations adopt systems thinking. *Systems Research and Behavioral Science* 23, no. 5: 705-708. doi:10.1002/sres.791.

Checkland, Peter. 1985. From Optimizing to Learning: A Development of Systems Thinking for the 1990s. *The Journal of the Operational Research Society* 36, no. 9: 757-767.

---. 1999. *Systems thinking, systems practice*. J. Wiley & Sons.

---. 2000. Soft systems methodology: a thirty year retrospective. *Systems Research and Behavioral Science* 17, no. S1: S11-S58.

Checkland, Peter, and Jim Scholes. 1990. *Soft systems methodology in action*. John Wiley & Sons, Inc. New York, NY, USA.

Churchman, C. W. 1968. *The Systems Approach*. Delacorte Press.

---. 1979. *The Systems Approach and Its Enemies*. Basic Books.

Eden, Colin, Fran Ackermann, John M. Bryson, et al. 2009. Integrating modes of policy analysis and strategic management practice: requisite elements and dilemmas star. *Journal of the Operational Research Society* 60, no. 1.

Elias, N. 2001. *The Society of Individuals*. Continuum International Publishing Group.

Foote, J. L., J. E. Gregor, M. C. Hepi, et al. 2007. Systemic problem structuring applied to community involvement in water conservation. *Journal of the Operational Research Society* 58, no. 5: 645-654.

Fredrickson, B. L. 2004. The broaden-and-build theory of positive emotions. *Philosophical Transactions of the Royal Society B: Biological Sciences* 359, no. 1449: 1367-1377.

Gardner, H. 1983. Frames ofmind: The theory ofmultiple intelligences. *New York*.

Giddens, A. 1986. *The Constitution of Society: Outline of the Theory of Structuration*. University of California Press.

Goleman, D. 2007. Social Intelligence: The New Science of Human Relationships. *Prometheus???* 25, no. 2.

Griffin, D. 2002. *The Emergence of Leadership: Linking Self-Organization and Ethics*. Routledge.

Hämäläinen, Raimo P., and Esa Saarinen. 2006. Systems Intelligence: A Key Competence in Human Action and Organizational Life. *The Sol Journal, Vol. 7 No. 4, pp. 17-28.*

---. 2007. Systems intelligent leadership. *Systems Intelligence in Leadership and Everyday Life*: 3-38.

---. 2008. Why systems intelligence? In *Systems Intelligence: A New Lens on Human Engagement and Action*. Espoo: Helsinki University of Technology. http://www.systemsintelligence.tkk.fi/SI2008.html.

---. forthcoming. Systems intelligence - the way forward? A note on Ackoff's 'Why few organizations adopt systems thinking'. *Systems Research and Behavioral Science* 9999, no. 9999: n/a. doi:10.1002/sres.904.

Jackson, Michael C. 1991. The origins and nature of critical systems thinking. *Systemic Practice and Action Research* 4, no. 2 (April 1): 131-149. doi:10.1007/BF01068246.

---. 2000. *Systems Approaches to Management*. Kluwer Academic/Plenum Publishers.

---. 2006. Creative holism: a critical systems approach to complex problem situations. *Systems Research and Behavioral Science* 23, no. 5: 647-657. doi:10.1002/sres.799.

Luoma, Jukka, Raimo P. Hämäläinen, and Esa Saarinen. forthcoming. Perspectives on team dynamics: Meta learning and systems intelligence. *Systems Research and Behavioral Science* 9999, no. 9999: n/a. doi:10.1002/sres.905.

Mayer, J. D., and P. Salovey. 2001. What is Emotional Intelligence? *Handbook of Affect and Social Cognition*.

Mead, G. H., and C. Morris. 1962. *Mind, Self, and Society: From the Standpoint of a Social Behaviorist*. University of Chicago Press.

Midgley, G. 1996. What is this thing called CST. *Critical Systems Thinking: Current Research and Practice*: 11-24.

Saarinen, Esa, and Raimo P Hämäläinen. 2004. Systems Intelligence: Connecting Engineering Thinking with Human Sensitivity. In *Systems Intelligence: Discovering a Hidden Competence in Human Action and Organizational Life*, Hämäläinen R. P. and E. Saarinen (Eds.), Systems Analysis Laboratory Research Reports A88, Helsinki University of Technology, pp. 9-37, Espoo.

Senge, Peter. 2006. *The Fifth Discipline: The Art and Practice of the Learning Organization*. Currency.

Sewell, Jr. 1992. A Theory of Structure: Duality, Agency, and Transformation. *American Journal of Sociology* 98, no. 1: 1.

Stacey, R. 2005. Organizational identity: the paradox of continuity and potential transformation at the same time. *Group Analysis* 38, no. 4: 477-94.

Stacey, R. D. 2001. *Complex Responsive Processes in Organizations: Learning and Knowledge Creation*. Routledge.

---. 2003a. Learning as an activity of interdependent people. *The Learning Organization* 10, no. 6: 325-331.

---. 2003b. *Complexity and Group Processes: A Radically Social Understanding of Individuals*. Brunner-Routledge.

---. 2006. Complex responsive processes as a theory of organizational improvisation. *Experiencing Risk, Spontaneity and Improvisation in Organizational Change: Working Live*.

---. 2007a. *Strategic Management and Organisational Dynamics: The Challenge of Complexity to Ways of Thinking About Organisations*. Prentice Hall.

---. 2007b. The challenge of human interdependence. *European Business Review* 19, no. 4: 292-302.

Stacey, R. D., D. Griffin, and P. Shaw. 2000. *Complexity and Management: Fad Or Radical Challenge to Systems Thinking?* Routledge.

Ulrich, Werner. 1994. *Critical Heuristics of Social Planning: A New Approach to Practical Philosophy*. Wiley.

Weick, K. E., K. M. Sutcliffe, and D. Obstfeld. 2005. Organizing and the Process of Sensemaking. *ORGANIZATION SCIENCE* 16, no. 4: 409.

Welch, David. 2008. GM: Live Green or Die. *BusinessWeek: Online Magazine*, May 15. http://www.businessweek.com/print/magazine/content/08_21/b4085036665789.htm.