

Managing Complexity in Organizations: Analyzing and Discussing a Managerial Perspective on the Nature of Organizational Leadership

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Alternative ways of organizing are emerging, questioning and challenging conventional assumptions regarding organizational structures, managerial roles, and leadership. In addition, new emerging industries, such as the Internet industry, possibly fuel the development of new ways of organizing. This article examines and discusses stratified systems theory in terms of its key concepts, constructs, support, and limitations, as well as discussing its perspectives and underlying assumptions, applicability in academic research, and usefulness for practitioners. The theory is positioned as a modernistic approach and an early attempt, and, in some ways, a contribution to the integration of leadership and organizational theory, and of theory and practice. From the practitioner's perspective, this article provides no general academic support for the proposed value of applying the theory and its extension for organizational design and improvement. However, applicability of the theory in contemporary research has some support, but there are differences in its support, and limitations to the key concepts and constructs should be considered. This article calls for further research exploring the support and limitations of the key concepts and constructs from theories within the field of adult development, and furthermore, research that explores what is really new regarding hierarchical structures, managerial roles, and leadership in new types of organizations. Finally, research that explores how organizational design can shape and leverage leadership development is called for.

Keywords: managing complexity, organizational design, organizational structures, hierarchies, managerial roles

Organizations can be viewed as complex systems coping with technology shifts, evolving cultural contexts, and changes in employee motivation and values. Traditionally, organizations have been designed with hierarchical structures of managerial roles and manager–subordinate relationships, to foster effective and efficient

ways of working. However, new alternative ideas are challenging these conventional assumptions (Gino, Staats, Hall, & Chang, 2013; Hamel, 2011; Laloux, 2014) (see, e.g., Zappos, Bernstein, Bunch, Canner, & Lee, 2016, and Valve, Birkinshaw, 2015; Puranam & Håkansson, 2015). In addition, new emerging industries, such as the Internet, possibly fuel the development of new ways of organizing. Nevertheless, a valuable effect of introducing new and alternative ideas is that they question whether conventional and traditional assumptions regarding organizational structures, managerial roles, and leadership, can be motivated.

There is a large body of research demonstrating how social structures are organized in hierarchies (see, e.g., Fiske, 2010; Gruenfeld & Tiedens, 2010; Magee & Galinsky, 2008). Arguments that hierarchical structures in organizations are here to stay can be extracted from Simon's (1962) notion that hierarchies are needed to make complex social and physical

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systems possible, and Prigozhin's (1989, quoted by Pfeffer, 2013) notion that hierarchies are fundamentally structural principles governing the organization of a system.

A number of researchers have stressed the qualitative shift in the nature of leadership between organizational levels (Day & Lord, 1988; Hunt, 1991; Jacobs & Jaques, 1987; D. Katz & Kahn, 1978; Zaccaro, 1996) which was also demonstrated empirically by Kaiser and Craig (2011). This notion is a widely accepted concept, and numerous frameworks are based on D. Katz and Kahn's (1978) three distinct domains of leadership: system, organizational, and direct leadership. The stratified systems theory (SST) contains a finer division of leadership at different levels with corresponding organizational layers (Jacobs & Jaques, 1987, 1991; Jacobs & McGee, 2001; Jaques, 1990), and is an example of the integration of leadership and organizational theory called for by Day and Lord (1988), cited by Zaccaro (2001). In SST, leadership is defined as "a process of giving purpose (meaningful direction) to a collective effort, and causing willing effort to be expanded to achieve purpose" Jacobs & Jaques (1990, p. 281), and management is defined as "the act of managing subordinate; but not used as a status term such as "the management" (Jaques, 1989, glossary and index). By making this distinction, SST is in line with stream of thoughts that argues for a clear difference between leadership and management, see, for example Kotter (2013) and Zaleznik (2004). According to SST, organizations contain individuals in managerial roles that both manage (management) and lead (leadership) subordinate. Central aspects of the theory are organizational structure, managerial roles, and managerial capability to deal with performance requirements (Jacobs & Lewis, 1992, p. 17). Even though some contemporary scholars apply aspects of SST, the theory and its extension seems to be more applied by practitioners.

Aim and Outline

The aim of this article is to examine and discuss SST in terms of its assumptions, support, limitations, and relevance for application from both a research and practical perspective. Furthermore, the theory's perspective, underlying assumptions, and research approach are discussed, as well as

practical applicability in today's rapidly changing world and organizational landscape, with the emergence of new forms of organizations and traditional organizations operating parallel. As a whole, the article offers a discussion regarding: first, what may still be valid in SST, which was mainly formulated in the 1950s to 1970s, and second, that scientific support for applying a theory in research, and scientific support for applying a theory for practical organizational development are two different things, and it is important to be aware of that potential difference.

The article comprises a number of steps. First, SST's theoretical background and relationship to other theories is introduced. Second, the key concepts and constructs are described along with a discussion of the support or contrast to other views in the scientific literature. Third, a discussion regarding perspective, underlying assumptions, support for application in academic research, and usefulness for practitioners, is conducted and followed by suggested further research.

Stratified Systems Theory

Background

According to Jacobs and Lewis (1992, p. 17),

SST is thus primarily a theory of organizational structures in relation to the competitiveness required for survival in a world environment. Secondly, it is a theory of managerial performance requirements derived from that structure, and of managerial capability necessary to deal with the performance requirements.

The theory is based on observations of large-scale organizations mainly in capital-intensive industries during the 1950s to 1970s (Jaques, Gibson, & Isaacs, 1978; Jaques, 1976, cited by Osborn & Hunt, 2007), and empirical validations by the U.S. Army during the 1980s and early 1990s. An extensive framework for designing and managing hierarchical organizations, requisite organization, was developed based on SST. The empirical roots can be traced back to the Glacier project that began at the Tawistock Institute, one of the first large-scale empirical research project in this field (Pugh & Hickson, 2016). The theory began mainly with an action research design with the aim of designing the good workplace within the good society, from the starting point in observations of what made manager-subordinate relation-

ships successful or not. The theory is in line with D. Katz and Kahn's (1978) notion of three "layers" of leadership (cited by Zaccaro, 2001) and their perspective on organizations as open systems (cited by Jacobs & Jaques, 1987). It is in accordance with Ashby's (1952) argument that job complexity increases with organizational level (cited by Zaccaro, 2001). Furthermore, it is in line with Weber's (1947) notion of organizations as hierarchical systems with a specialization of labor, and Simon's (1962) notion that hierarchies are needed to deal with complexity in all systems. One of SST's central propositions is the principle that one organizational level could be distinguished from another by means of the complexity of the role at the respective level, which in turn is associated with the longest targeted completion time for the tasks in the role (Jacobs & Jaques, 1987, 1991; Jaques & Clement, 1991; Jaques, 1976, 1986, 1989). Role complexity increases at an increasingly higher organizational level, and with that, the targeted completion time. The theory argues that in order to function effectively, a (bureaucratic) organization requires a requisite number of hierarchical levels, or strata, of complexity, appropriately defined roles, consistency between demands of a role, and the individual's capability to handle complexity and information processing. SST postulates that for a given size and scope of an organization there is a correct number of organizational levels, or strata.

House (1992, pp. 267–269) classifies SST as a compensatory approach such as the Path–Goal–Theory of leadership (House & Mitchell, 1975) and Multiple-Influence Model of Leadership (Hunt, Osborn, & Martin, 1981), whereby the leaders "add value," that is, are important to their organizations. According to this approach, leaders are assumed to provide strategic direction for the organization, complementing the formal organization by systematically and rationally integrating the levels of organization. A leader's contribution in SST is specifically described as discretionary, in that the leader fills in the gaps in the formal organizational system by acting proactively to accomplish the tasks associated with the role (Jacobs & Lewis, 1992). Furthermore, the theory can be classified as a middle-range theory (a theory with limited scope, not a general theory) for hierarchical organizations (business firms, governmental organizations, and armed services, etc.) but not

"associations," such as universities/professors, churches/clergy, or hospitals/medical doctors (House, 1992).

Key Concepts—Description and Discussion

In the following, key concepts of SST (Jacobs & Jaques, 1987, 1991; Jaques & Clement, 1991; Jaques, 1976, 1986, 1989) will be further presented along with a discussion of the support or contrast to other views in the scientific literature.

Levels of work (also referred to as levels of leadership or strata) and task complexity in role. (Managerial) work and performance requirements of work differ qualitatively between tasks in roles across organizational levels according to SST. The theory contains detailed distinctions of the different levels of work and defines eight specific levels of work denoted by Roman numerals (Strata I–VIII). The definition of levels is based on the degree of complexity inherent in the tasks (task complexity in roles). Thereby, at each level of work, roles have a specific degree of task complexity. The theory proposes that every level of work has a specific category of task complexity corresponding to a specific category of cognitive processes. See Jaques (1989) and Jacobs and McGee (2001) for a detailed description of general task requirements and examples of roles at different strata.

Osborn and Hunt (2007) concluded that both D. Katz and Kahn (1978) and SST conceptualize varying and increasingly complex requirements as one moves higher up in the organization. Designing a hierarchical structure of roles according to level of task complexity is to some degree theoretically commensurable with, for example, the Model of Hierarchical Complexity (Commons, 2008; see a description and analysis of SST from the perspectives of the Model of Hierarchical Complexity and Ego Development Theory, respectively, in the work of Törnblom, Stålné, & Kjellström, 2018). SST's proposition that every level of work correspond to a specific category of cognitive processes is reasonable, but there is a lack of published validation studies regarding this correspondence.

The notion of levels of leadership has a long history in management research, and the roots can be traced to R. L. Katz (1955); Mann (1965); D. Katz and Kahn (1978), although there are commonly fewer levels or domains

used (domains as in Katz and Kahn's three distinct domains of leadership: system, organizational, and direct leadership). Jacobs and Clement (2007) noted possible "paired" levels (Strata II & III, IV & V, VI & VII), thereby a possible support for the notion that demands on different roles within a domain are very similar but qualitatively different between domains. Hunt and Ropo (1995) pointed out that for normative and cross-organizational comparisons research, three domains of leadership are often sufficient, but it may be useful for any specific organization to use a finer distinction (cited by Kaiser, Craig, Overfield, & Yarborough, 2011). Thus, levels of leadership have wide support in management research, although SST offers the most and finest divided levels, in comparison.

Time span (of discretion). The theory states that, in a well-structured organization complexity increases continuously as one moves up within the organizational structure. Thus, there are qualitative changes in the nature of some of the tasks from one organizational level to the next. Another aspect of this task complexity is time span, which is defined as "the longest period which can elapse in a role before the manager can be sure that his subordinate has not been exercising marginally substandard discretion continuously in balancing the pace and the quality of his work" (Jaques, 1964, p. 17). The core of the construct is the concept of discretion—the capacity to function proactively (Jacobs & Lewis, 1992). Generally, time span is "the intended length of the longest task a manager delegates to a subordinate and holds the subordinate accountable for." For example, time span for a general manager in a large-scale organization can have tasks intended to take 2–5 years to carry out, and a line manager may have tasks intended to take 1–2 years to complete. Thus, time span increases with each consecutive level of task complexity and level of work.

Fast-moving and dynamic situations create "compressed time," so the time span construct is not applicable to all organizations at all times (Hunt & Philips, 1992, p. 258). Other scholars have also argued for limitations in the time span construct (Streufert, Pogash, & Piasecki, 1988; Lord, 2001). Furthermore, there are ways other than time span to operationalize the complexity (managerial) roles such as functional activity, primary requisite skills, and organizational re-

sponsibility (Kaiser et al., 2011). In conclusion, despite criticism, and to some extent, limitations, time span can be considered an adequate variable to describe an aspect of complexity in roles, specifically in relatively stable capital-intensive industries (long investment cycles). In other more dynamic industries and organizations, time span might be of less use. In addition to the time span construct, SST proposed the related construct, *time horizon*, defined as the scale of the ability for the individual to work into the future, the longest time span the individual can handle. Neither of the two concepts are equivalent to a time plan (Gantt chart, project plan, etc.), which is something else.

Cognitive processes, also denoted capability for information processes or information processes. A role at each level of work has a specific task complexity and time span, and corresponds to different individual cognitive processes and capabilities. "Cognitive processes are the mental processes by means of which a person is able to organize information to make it available for doing work" (Jaques & Clement, 1991, p. 57). For detailed description of definitions, see Jaques and Clement (1991) and Jaques (1989).

From a cognitive-process perspective, there are two main critical arguments toward the theory (House, 1992, pp. 267–272). First, the theory focuses mainly on cognitive processes, while motivation, values, knowledge, and personality, are paid minor attention. Second, the cognitive-process construct is still at a conceptual stage and needs further development and validation. In response to the first argument, Jaques and colleagues developed a capability framework model including the cognitive-process construct as well as values, skills, knowledge, and so forth, but the central construct regarding the individual aspect in SST remained the cognitive process. In response to the second argument, validation was partially carried out by Lewis (1995, 1993). At present, the cognitive-processes construct is not part of contemporary research in adult development, a subfield in developmental psychology. For a review of the cognitive-process/complexity/ability literature, see Hunt (1991) or Streufert and Nogami (1989).

The evaluation of cognitive processes by means of speech analysis has not been psychometrically validated, which could be achieved

by analytical comparison with the Model of Hierarchical Complexity Commons, Trudeau, Stein, Richards, and Krause (1998), and empirically by scoring the same material by means of cognitive processes and the Hierarchical Complexity Scoring System (Commons et al., 2007; Dawson, 2002, 2003, 2004; Dawson, Xie, & Wilson, 2003). The focus on how information is being organized and how the four types of cognitive processes are recurring in different orders originates from a Piaget constructivist view, and neo-Piagetian, respectively, which will be further elaborated in a comparison between SST and the neo-Piagetian Model of Hierarchical Complexity in a second article (Törnblom et al., 2018). Laske (2008), argued that SST's cognitive process construct disregards the transformational aspects as well as the social-emotional or meaning-making aspects of adult development. The relationship between the latter and SST will be further explored in the second article.

This article first argues that since SST's forms of individual capability was analytically derived by Jaques from Piaget's theory of cognitive development, they can be seen as theoretical constructs and ideal forms rather than empirically based categories (Commons, 2008). Hence, there is a difference between the ideal form of individual capability and applied capability to perform a task on a particular occasion; and performance can vary, depending on context, domain, level of support, motivation, and other factors. Second, the assumptions in SST regarding the progression of individual development can be positioned as based on a relatively deterministic approach, as noted by Zaccaro (2001), in contrast to, for example, Ego Development Theory (Loevinger, 1976) and the Subject-Object Theory (Kegan, 1982, 1994). A view, contrasting the SST approach, is empirically described by Kegan and Lahey (2016). These organizations deliberately provide individuals with roles too big for them, and at the same time develop structures, routines, and cultures that create a "pull" for the individual to develop, that is, organizations designed on the belief that the right supporting structures can leverage individual development. To summarize the key criticism regarding the cognitive processes: SST's approach to individual development is positioned to be relatively deterministic, the construct needs further development

and validation, and it is currently not part of contemporary adult development research.

Extension, Validation, and Applications in Research

In the following section, extension and validation of the theory, as well as application in research and practical application in the military context, are presented. During the 1980s and 1990s research was conducted mainly for validation of the time span construct, level of work, and cognitive processes for the U.S. Army (Harris & Lucas, 1991; Jacobs & Jaques, 1991; Jaques & Stamp, 1990; Markessini, Lucas, & Jacobs, 1994; Stamp, 1988) to validate, develop, and apply the theory in a military context, mainly as an assessment instrument (Zaccaro & Horn, 2003). Conceptual principles from SST were adopted as part of the army training doctrine (U.S. Army, 1987, 1990), and a number of training products and tools were developed for army leader development programs and schools (Industrial College of the Armed Forces, 1997; Stewart, Archer, Barber, Tuddenham, & Jacobs, 1993; U.S. Army War College, 1998). Stamp (1988) developed a partly validated instrument for the assessment of an individual's ability to handle complexity. According to Zaccaro and Horn (2003), these studies support the use of the instrument (Stamp, 1988) in leadership and executive assessment, such as at several army training schools (Lewis, 1995; McGee, Jacobs, Kilcullen, & Barber, 1999). Later Jaques (1989) added values, task knowledge, and motivation, although the cognitive-process construct remained the focal point (House, 1992, p. 270). Furthermore, an instrument called the Strategic Leaders Development Inventory (SLDI), which except for the cognitive process construct, includes constructs from McCall and Lombardo (1983) and Kegan (1982), was developed by Army-sponsored research.

Some studies have compared SST to other theories: Ego Development Theory and Adaptive Style Inventory (Perlmutter, 1990), Ego Development Theory (Mehltretter, 1995), Subject-Object theory (Lewis, 1995), and Model of Hierarchical Complexity (Koplowitz, 2008). These studies have directly or indirectly compared certain aspects of SST, and to some degree, demonstrated a relationship. SST has been

applied in empirical studies for analyzing structures, roles, the individual's ability to deal with complexity, organizational defects, change, and so forth (see, e.g., Edwards & Gill, 2012; Ivanov, 2013; King, 2003; King, Solomon, & Fernald, 2001; and Lewis, 1996). Furthermore, the theory has been applied as theoretical framework and for a conceptual analysis of leadership at different levels (see, e.g., Hunt, Osborn, & Boal, 2009; Mumford, Campion, & Morgeson, 2007; Osborn & Hunt, 2007).

Discussion

This section positions the theory, discuss its underlying assumptions, followed by limitations and support for its general propositions and key concepts, and applicability in academic research. Finally, usefulness for practitioners is discussed.

Perspective, Underlying Assumptions, and Research Approach

This article presents a view that SST and its extension implicitly holds a modernistic perspective and mechanistic view on organizations. This includes assumptions that hierarchy is natural, necessary, and effective; that managers have the task to manage subordinates; and that there is but one correct answer regarding organizational design. But some of the proponents of postmodern organization ("post" as after modern, after bureaucracy, hierarchy, and the industrial era) argued that there exist either hybrid or pure forms of postmodern organization (Boje & Dennehy, 1993; Clegg, 1990). Furthermore, Hamel (2011) and Laloux (2014) argued that hierarchical structures and traditional managerial roles are old fashioned and that new means of organization are emerging. Thus, a modernistic perspective and mechanistic view of organizations might have less applicability today.

To challenge that claim, it could be argued that all organizations have some kind of hierarchical structure. Principal theoretical support for the underlying assumptions in SST regarding the need for a hierarchical structure in organizations can be extracted from Prigozhin (1989, quoted by Pfeffer, 2013), that hierarchies are fundamentally structural principles governing the organization of systems—biological,

physical, technological, and social—as well as the notions that hierarchies make complex social and physical systems possible (Simon, 1962), and we organize social structures in hierarchies (Fiske, 2010; Gruenfeld & Tiedens, 2010; Magee & Galinsky, 2008). Thus, it is argued in this article that the underlying assumptions in SST regarding the necessity of hierarchical structures are accurate, and that all types of organizations, regardless of their modernistic, or postmodern assumptions need some kind of hierarchical structure. This is not to say that there is general theoretical support for all the key concepts and the proposition that practically applying SST and its extension for organizational design results in organizational improvement.

The theory of SST is based upon one of the first large-scale, longitudinal, empirical, qualitative, action research projects during the 1950s–1970s, which aimed to understand and design the good working life. The strength of the approach was its ambition to integrate theory and practice. The downside was the lack of focus on theoretical foundation, validation, and integration with other theories. See, for example, House (1992, p. 270): “the manuscripts reporting this evidence have not undergone the normal editorial review process in social scientific journals, and book reviews, the quality and strengths of evidence remains unassessed by independent scholars of leadership or cognitive psychology.” This article views SST as an attempt to, and in some parts a contribution to the integration of theory and practice. In addition, an early attempt to integrate leadership and organizational theory, as well as organizational design and adult development/developmental psychology.

From the perspective of Burrell and Morgan's (1979) social research paradigms this article positions the research approach of SST in the functionalist paradigm.

The functionalist approach to social science tends to assume that the social world is composed of relatively concrete empirical artifacts and relationships which can be identified, studied and measured through approaches derived from the natural sciences. The use of mechanical and biological analogies as a means of modeling and understanding the social world is particularly favored in many functionalist theories. (p. 25)

SSTs scientific aims are positioned as inspired by natural science, that is, claims regarding

general theories and causal relationship, and so forth. This background is in line with the earlier argument regarding SST's modernistic perspective of organizations. Thus, there is a risk that the theory contains major simplifications and generalizations due to the fact that organizational and leadership studies deal with social science, a field that has to relate to social constructions, subjectivism, and the wide differences between organizations.

General Propositions and Key Concepts

As a whole, the theory contains a number of key concepts that are linked to each other. The key concepts have various degrees of support and limitations, as was discussed in the previous section. On a more general level, the proposition that in a well-designed organization, complexity (in roles) increases with organizational level, and the proposition that leadership demands vary between organizational levels, has support from a number of scholars (Hunt et al., 2009; Zaccaro & Klimoski, 2001). The proposition to match complexity of role with an individual's capability to handle complexity sounds reasonable, but as noted in the previous section, contradicting propositions exist among other researchers (see, e.g., Kegan & Lahey, 2016). Overall, these general propositions of the theory and key concept of level of work (strata) are to some extent applied by researchers (see, e.g., application in contemporary leadership research by Hunt et al., 2009; Mumford et al., 2007; Osborn & Hunt, 2007).

This article notes the limitations of the key concepts and constructs, and highlights the lack of published validation studies regarding the exact number of levels of work, limitations in the time span construct, and the need for further operationalization and validation of the cognitive process construct. In addition, the cognitive process construct lacks psychometric validation and the proposed correspondence between level of work and cognitive processes lack published validation studies.

Having said that, the key concepts and constructs still have the potential to be, in different ways, of value for both researches and practitioners. But it is of importance that the limitations of the key concepts and constructs are understood and taken into account. If doing so, SST can be a valuable lens for understanding

the intersection of organizational structure, roles, and leadership, thereby increasing the understanding of the complexity in roles, leadership's needs, and managing complexity in organizations. In the next section the discussion focuses on practical usefulness for practitioners.

Usefulness for Practitioners

In practice, SST and its extension are used among practitioners to different degrees. Large-scale organizations in particular have applied different parts of the theory, to varying degrees, for organizational improvement. The proposed value has been described extensively (see, e.g., Clement & Clement, 2013; Jaques, 1989; Kopolowitz, 2008; Shepard, Gray, & Hunt, 2007). But from a practitioner's perspective it is important to note a lack of a clearly defined aggregated construct regarding the proposed link between implementing SST, and its extension, and organizational effectiveness (House, 1992). Nevertheless, practitioners might still gain value by applying SST, and the extended requisite organization framework, to practice. On the other hand, the fact that some organizations in various degrees are designed (deliberately or nondeliberately) according to SST and its extension does not make them more effective, it just means they are designed according to SST. Thus, the conventional and stratified design of the organization that SST proposes might be a problem in itself, and it is relevant to direct critique toward the underlying propositions in SST from other theoretical fields, and question the practical applicability in new forms of organization.

First, there could be an argument against the general applicability and value creation of using SST, and its extension for organizational design, from contingency theory (Burton & Obel, 2004; Donaldson, 2001). According to contingency theory there is no one best universal structure or design that fits all organizations. For every organization there is one most suitable structure, and that depends upon the contingencies of the unique external and internal situation of each organization. Due to the fact that there are many types of industries and organizations with different types of contexts and organizational logic it is reasonable to argue that there are limitations to the applicability of SST as a general framework for organizational

design. Thus, practitioners need to balance the decision between implementing theories and frameworks such as SST, adjusted or not, or to develop unique solutions not based on theory.

Second, from the perspective of new forms of organizations (Bernstein et al., 2016; Gino et al., 2013; Hamel, 2011; Laloux, 2014; Puranam & Håkansson, 2015), SST and its extension is probably generally less applicable as a framework for organizational design in alternative “postbureaucratic,” nontraditional hierarchical organizations than in traditional organizations. First, SST can be described as built on a mechanical view, that is, it is possible to create effectiveness and efficiency by designing the optimal number of organizational levels and roles, and match roles and individuals. In comparison, these new forms of organizations can be described as having a less mechanical, “optimal organizational design-seeking” approach. Thus, and second, the working process of organizational design in these new kinds of organizations is likely to be more participatory, iterative, open, organic, and bottom-up, than SST’s top-down, mechanic, normative, managerial scientific approach to organizational design. Thus, SST and its extension are probably, from both a content and an implementation perspective, not that applicable to organizational design in these new forms of organizations.

From an industrial level of analysis, SST and its extension is reasonably more applicable to organizational design in organizations similar to the organizations that were the main empirical basis for the development of SST, such as manufacturing industries (relative stable structure, capital intensive, long investment cycles). Thus, it is possibly more suitable in industries characterized by organizations that over a reasonable time will continue to deliver approximately the same service/product in roughly the same way (for example, replicating organizations, Backetman, Giertz, & Arvidsson, 2014; Winter & Szulanski, 2001). Furthermore, probably less applicable in highly dynamic and changeable industries, such as the Internet industry. In conclusion, first, practitioners apply SST and its extension in different ways and to different extents. Second, there is a lack of validated studies regarding the proposed value of implementing SST and its extension in organizations. Third, the applicability probably varies between industry and type of organization.

Concluding Remarks and Further Directions

This article clarifies SST’s assumptions, support, and limitations, as well as discusses the theory regarding its perspective and underlying assumptions, its applicability in academic research, and its usefulness to practitioners. The applicability of some of the propositions of SST in contemporary research is supported, but there are differences in the support and limitations of the key concepts and constructs to be aware of. Practitioners apply the theory and its extension, but this article notes the lack of published validation studies regarding the proposed link between implementing SST and organizational improvement. Thus, this article is an example of a clarifying discussion: first, regarding what might still be valid in an “old” theory like SST and what is not valid, or out of date; and second, the difference between scientific support for a theory, and scientific support for the proposed value of applying the theory for organizational improvement. In the case of SST, there are differences in both the first and second examples.

In addition, SST can be seen as an early contribution to the understanding of the complexity crisis (Dawson & Stein, 2004). When organizations eliminate less complex roles in favor of more complex roles, more individuals will be “in over their heads” (Kegan, 1994), if individuals fail to develop at the same time and pace as their organizational roles. From the perspective of a complexity crisis, SST can be used as a lens to understand the shift or nonshift in complexity of roles in different industries and types of organizations.

Furthermore, this article views SST as a modernistic approach and contribution, and an early attempt to integrate theory and practice. In addition, it is an early attempt to integrate leadership and organizational theory, as well as organizational design and adult development/developmental psychology. This article calls for further research exploring the support and limitations of the key assumptions, concepts, and constructs of SST from theories within the field of adult development. Another interesting area is to analyze “postbureaucratic,” nontraditional, hierarchical organizations, as well as organizations in the volatile, uncertain, complex, and ambiguous Internet industry, in order to chal-

lence what is really new regarding hierarchical structures, managerial roles, and leadership in these types of organizations, and finally, research that explores how organizational design can shape and leverage leadership development.

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