Analyzing Roles and Leadership in Organizations From Cognitive Complexity and Meaning-Making Perspectives

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Organizations can be seen as social systems with hierarchical structures and roles at different levels of complexity with correspondingly different complexity of tasks. This article applies the perspectives of two theories from the field of adult development, namely, the model of hierarchical complexity (MHC) and ego development theory (EDT) to analyze stratified systems theory (SST). Although the theories are not regarded as strictly comparable and commensurable on account of differences in basic assumptions and methods of the theories, the analysis leads to the conclusion that descriptions of role complexity and individual capabilities in SST, to some extent, correspond to descriptions of developmental levels according to the MHC and EDT. Both comparisons support the notion that task and leadership complexity increases with organizational level, and thereby demonstrates support for the existence of qualitatively different levels of leadership. However, based on the methodological choices of the study, it is beyond the scope of the article to validate the key concepts, constructs in SST, as well as provide support or nonsupport for the proposed value of application in practice. Furthermore, we point out the lack of a more thorough analysis and comparison between the theories built on rich empirical material. Nevertheless, we conclude that the MHC, EDT and SST are fruitful lenses that can further the understanding of organizations as social systems with hierarchical structures.

Keywords: role complexity, leadership at different levels, the model of hierarchical complexity, ego development theory, stratified systems theory

Organizations adapt and cope externally with a complex and changing world, and internally with changes in employee values, capabilities, skills, and motivation, and so forth. In many ways, they do so by means of stratification, meaning that they are built up in layers or hierarchical structures. Hierarchies are fundamental structural principles governing the organization of systems: biological, physical, technological, and social (Prigozhin, 1989, quoted in Pfeffer, 2013). Simon (1962) noted that hierarchies are necessary for managing the complexity of social and physical systems. Different kinds of social structures are organized in hierarchies, according to, for example, Magee and Galinsky (2008) and Fiske (2010). Furthermore, Rajan and Wulf (2006) demonstrated that

organizations strive toward delegating as much responsibility as possible and eliminating unnecessary hierarchical levels. Thus, it can be argued that hierarchical structures exist naturally, and that we have the ability to simultaneously benefit from their advantages and minimize their disadvantages.

One of many new and contrasting approaches to address functional aspects in terms of adaption and employee motivation, as well as negative aspects of bureaucracy and power struggles, is to organize without traditional hierarchies and managers (Bernstein, Bunch, Canner, & Lee, 2016; Hamel, 2011; Laloux, 2014; Puranam & Håkonsson, 2015), two examples being Zappos and Valve (Bernstein et al., 2016; Puranam & Håkonsson, 2015). However, Gruenfeld and Tiedens (2010) noted that a closer investigation of these types of organizations shows that many hierarchical patterns remain in these organizations, and, generally, people form hierarchies to organize themselves, whether the task requires it or not, and they prefer hierarchy over other alternatives. In this article, we view all organizations as social systems with *general* hierarchical structures of complexity, scope, and purpose, with different degrees of hierarchy of power, status, and so forth. The focus here is to use the analytical lens of two different theories in the field of adult development, a subfield in developmental psychology, to analyze a theory called stratified systems theory (SST), a theory for leadership in hierarchical organizations.

Central concepts in SST are organizational structure, managerial roles, and managerial capability to deal with performance requirements, and their relationship. Furthermore, the theory provides a detailed division of leadership at different levels with corresponding organizational layers (Jacobs & Jaques, 1987, 1991; Jacobs & McGee, 2001; Jaques, 1976, 1986, 1990). The theory and its extension for organizational design improvement has been applied in many organizations (Clement & Clement, 2013; Shepard, Grey, & Hunt, 2007). To some extent, it has been applied in contemporary research (see, for example, Hunt, Osborn, & Boal, 2009; Mumford, Campion, & Morgeson, 2007; Osborn & Hunt, 2007). Thus, there is a rationale to examine the support and limitations of SST from related theories from the research field of developmental psychology.

Two prominent theories in the field of adult development that encompass cognitive complexity and meaning making, respectively, are the model of hierarchical complexity (MHC; Commons, Trudeau, Stein, Richards, & Krause, 1998; Commons & Pekker, 2008) and ego development theory (EDT; Cook-Greuter, 1999, 2004, 2013; Joiner & Josephs, 2006; Loevinger, 1966, 1976; Rooke & Torbert, 2005; Torbert et al., 2004). The MHC contains a number of distinct levels of task complexity, and EDT contains a number of ways of making meaning of reality, or action logics (Torbert et al., 2004). Both these theories have been applied to the domain of leadership (Cook-Greuter, 2004; Dawson & Heikkinen, 2009; Rooke & Torbert, 2005). In empirical studies, SST has, to some extent, been compared with and applied along with the MHC (Koplowitz, 2008), EDT (Mehltretter, 1995), the Ego Development and Adaptive Style Inventory (Perlmutter, 1990), as well as Kegan's constructive-developmental, subject-object theory (Lewis, 1995; Lewis & Jacobs, 1992).

Because the MHC and EDT have good empirical support and have been used in numerous scientific studies, it would be of value to further analyze SST from the perspective of the MHC and EDT. The two theories share the stepwise complexity and developmental view with SST and can thus be seen as related, but in different ways. The MHC relates to SST primarily regarding the construct of cognitive processes and in their common constructivist and Piagetian roots. The MHC and SST clearly focus on complexity. In comparison, EDT offers a broader view of psychological functioning in terms of meaning making, perspective taking, cognitive complexity, and social-emotional development, and can shed light on SST in terms of the different roles in organizations with their associated frames of reference, time span and time horizon, and cognitive process. In terms of construct as well as empirical correlation, the MHC shows a closer relationship to SST and seems more natural as a perspective. The empirically and inductively based EDT can possibly offer a broader perspective on leadership demands and managerial roles than SST. Both adult development theories represent different perspectives, are based on different assumptions and methodologies, and can unveil some contrasting assumptions in SST. Conversely, both the MHC

and EDT lack the integrative SST view of organizational structure, roles, and leadership, so SST can, in turn, contribute to further understanding of how the complexity of roles and leadership needs, and their interconnection with organizational structure, are manifested in organizations.

Aim

The aim of the article is to highlight the support, limitation, and relevance of SST from an adult development perspective. The objective is to examine whether SST's description and assumptions regarding different levels of organizational roles and cognitive processes are supported by theories and insights from the two adult development theories, the MHC and EDT.

The key aspects of SST included in the analysis are the concept of different types of cognitive processes, frames of reference associated with the respective stratum of a role, and assumptions regarding the hierarchical structure of organizations. First, cognitive processes are examined from a hierarchical complexity perspective using the MHC. Second, the notion of levels of work, strata, task complexity in role with their associated frames of reference, time span and time horizon, and cognitive process is examined from an EDT perspective.

Method

The study has an analytical design in which two models of adult development theory, the MHC and EDT, are employed as lenses to analyze SST. The analysis includes a comparison in which it is assumed that SST is comparable with the MHC and EDT, respectively. The analysis is based on the assumption that the different levels of the respective theories are commensurable, and thus comparable. The purpose of the analysis is not to investigate exact correspondence between the different levels in the theories but, rather, to shed light on how the different levels are defined and described from the theories' perspectives. The comparison also explores what aspects the two theories support or do not support in SST and which assumptions can be regarded as valid. The authors are well acquainted with the MHC, EDT, as well as SST, and the results of the comparisons were dis-

cussed among all three authors to reach consensus.

First, SST is introduced. Second, the MHC is introduced followed by an analysis in which SST is explored from an MHC perspective. The comparison takes a point of departure in Koplowitz's (2008) comparison between the MHC and SST. Third, EDT is introduced, including the different stages or action logics followed by an exploration of SST from an EDT perspective. Finally, we discuss our conclusions and some of the limitations of the theory.

Stratified Systems Theory

SST is an example of the integration of leadership and organizational theory, called for by Day and Lord (1988; as cited in Zaccaro, 2001), and a theory for leadership in hierarchical organizations (House, 1992, in Philips & Hunt, 1992). The theory is based on generations of empirical studies from primarily large organizations in capital-intensive industries (Jaques, Gibson, & Isaac, 1978) and, in addition, studies of military organizations (Harris & Lucas, 1991; Jacobs & Jaques, 1991; Jaques & Stamp, 1990; Markessini, Lucas, & Jacobs, 1994; Stamp, 1988). The extended framework, requisite organization, includes an extensive system for organizational design—a total management system (Jaques, 1989). The theory corresponds to and is in line with Weber's (1920/1947) notion of organizations as hierarchical systems with a specialization of labor, Simon's (1962) notion that hierarchies are needed to deal with complexity in all systems, D. Katz and Kahn's (1978) perspective on organizations as open systems (cited in Jacobs & Jaques, 1987) and their notion of three "layers" of leadership (cited in Zaccaro & Klimoski, 2001), and Ashby's (1952) concept that job complexity increases with organizational level (cited in Zaccaro & Klimoski, 2001). Furthermore, SST is in line with the stream of thoughts (Kotter, 2013; Zaleznik, 2004) arguing for a clear difference between leadership and management (see, for example, Kotter, 2013, and Zaleznik, 2004). Accordingly, SST holds the position that organizations contain, among other things, individuals in managerial roles that both *manage* (management) and *lead* (leadership) subordinates.

There are three major propositions in SST. First, having the right managerial support for

employees requires, in most cases, that a role should be managed by someone in a role at the next stratum up. Second, performance requirements of all work, including managerial work, differ qualitatively across organizational levels. This idea has a long history in management research and can be traced to D. Katz and Kahn (1978); R. L. Katz (1955), and Mann (1965). The systems framework of Katz and Kahn argues that there are three distinct levels of leadership: the creation of structure (strategic leadership), the interpretation of structure (organizational leadership), and the application of structure (production leadership). SST contains of a more detailed distinct of different levels of management/leadership (Jacobs & Jaques, 1987, 1990, 1991; Jaques, 1976, 1986, 1989, 1990). The theory defines eight specific organizational levels (strata, the first level is 'Stratum I,' the second is 'Stratum II,' and so on), with corresponding levels of leadership, based on the degree of complexity inherent in the tasks that is needed to be able to do the job at each organizational level. For example, the nature of the work of a second-line manager is qualitatively different from a first-line manager. One difference is the degree of complexity in the managerial roles. Third, individuals differ in their capability to carry out work in different roles in the organization. For example, an individual capable of doing work as a first-line manager might not be capable of doing work as a second-line manager. In varying degrees, the theory's propositions, key concepts, and constructs have been criticized (for elaborations on its strengths and weaknesses, see Kaiser, Craig, Overfield, & Yarborough, 2011; House, 1992, in Philips and Hunt, 1992; Törnblom, 2018; Zaccaro and Klimoski, 2001).

The Model of Hierarchical Complexity

The MHC is a formal theory applicable to all domains in which information is organized and accounts for increases in behavioral complexity, which includes cognitive or reasoning complexity (Commons & Pekker, 2008). The model illustrates how complex a task or amount of information is—in other words, how difficult the task is (Commons, 2008). The task can be to understand a text, to solve an equation, or to carry out some sort of behavior. This means that it is possible to evaluate the complexity of in-

formation in any domain. The measurement of complexity is performed through a validated assessment system, the hierarchical complexity scoring system (Commons et al., 2007; Dawson, 2002, 2003, 2004; Dawson, Xie, & Wilson, 2003). A brief introduction to a number of key concepts (structure, content, orders, stage, task, performance) is presented first, and then concepts needed to examine the strengths and weaknesses of SST (support, domains, and tasks) are reviewed.

The MHC describes 17 orders of hierarchical complexity (OHC) that are ideal forms or constructs that define the difficulty of a task consisting of at least two subtasks from a lower order being coordinated in a nonarbitrary way, according to the theory's axioms. The tasks are quantal in nature, in that they can be either completed correctly or not completed at all. The MHC measures performance of tasks, and *stage* refers to the successful performance of a certain order. Tasks can be understood as the activity of organizing information, in which the information being organized can be seen as the content, and *structure* refers to the way information is being organized. Thus, the MHC defines a content-free measure of the complexity of the structure regardless of content or subject area.

The MHC is employed in evaluating the stage of hierarchical complexity in two ways—first, by constructing instruments that consist of several tasks of varying OHC, and second, by scoring and interpreting interviews (e.g., Kjellström & Ross, 2011) or texts (Kjellström, Ross, & Fridlund, 2010) by means of the hierarchical complexity scoring system. Another way of employing the MHC is as a lens, or an evaluating framework for other stage theories for different domains, or with other content-free frameworks, such as the SOLO taxonomy (Stålne, Kjellström, & Utriainen, 2016). Such an evaluation has also been carried out for the individual aspect, or cognitive processes, of SST (Koplowitz, 2008).

Exploring SST From an MHC Perspective

The proposed comparison (Koplowitz, 2008) between MHC-OHC and SST-strata/cognitive process did not establish a one-to-one relationship between the theoretical frameworks. Abstract order 9 was found to correspond to both Strata I and II as well as metasystematic order

12 was found to correspond both to Strata V and VI. On the other hand, formal order 10 and systematic order 11 were found to respectively correspond to Strata III and IV. The comparison did not include the higher orders 13 and 14 and Strata VII and VIII, and should be regarded as tentative. Although the authors have no objection to the proposed comparison, it should be put into context. We aim to achieve this by employing some of the concepts associated with the MHC: support and domain.

Level of support specifies the amount of instruction needed to understand the task at hand, and perform at a functional, or even optimal, level (Commons & Goodheart, 2008; Fischer & Bidell, 2006). In later writings, Jaques (1989) described the practical support performed by managers to subordinates in terms of instructions, procedures, and coaching, which can thus be seen as a part of the full SST extended framework. However, level of support is not specifically defined and operationalized as in the MHC (Commons & Goodheart, 2008). Making this aspect explicit could be a way of addressing possible gaps between an individual's capability and the task's complexity, and further elucidate the design of support, instructions, and other types of "scaffolding" to aid individuals not quite up to the task at hand (Kegan, 1994; Kegan & Lahey, 2009).

In addition to the introduction of support from the MHC to the SST context, another useful concept in relation to the MHC is *domain*, which refers to the subject area in which tasks are being defined, such as logical-mathematical, moral reasoning, or social perspective taking (Mascolo, 2008). A consequence of the MHC only defining content-free OHC of the structure is that an individual is not necessarily at a certain developmental stage, according to the Piagetian concept of *structures d'ensemble* [structure of the whole]. Rather, according to the Piagetian concept of *décalage*, performance can, and is likely to, vary depending on domain, context, level of support, and other factors. Thus, décalage is, in the MHC, seen as a normal condition, compared with SST, in which a person's cognitive capability is seen as non-domain-specific, and the person is seen as being at a certain stratum (development stage) at a certain time. Furthermore, in SST, the actual performance of a person is domain-specific. This is because of the fact that in SST, the person's actual performance is a function of cognitive capability (non-domain-specific) and skills, values, and knowledge (domain-specific). The MHC is an academically more established theory on the complexity of information rather than on the cognitive process construct of SST that is derived closer to practice in work settings. The notion of domain clarifies that the cognitive processes, according to SST, should not be considered general intelligences or stage structures, but rather as the ability for complex reasoning with the domain of understanding the task at hand. The concept of domains in the MHC does seem to correspond to SST's distinction between cognitive *capability*, which is referred to as a more general ability for complex reasoning, and *skills*, which are specific abilities for complex reasoning and problem solving within the domain of the job task at hand, or in SST's notion of "skilled knowledge" (Jaques, 1989). On the other hand, and according to the MHC (Commons, 2008), the ability for complex reasoning, or stage of hierarchical complexity, could be significantly higher in other domains, such as within the area of an individual's expertise. In comparison, according to SST, individuals who, for example, occupy Stratum II roles might have a cognitive capability ranging between Strata I to VIII, and skills, values, and knowledge that match, or do not match, the role's specific domain.

According to House (1992, in Philips & Hunt, 1992, pp. 267–272), SST focuses mainly on cognitive processes, whereas motivation, values, knowledge, and personality are paid minor attention. This is an issue worthy of further exploration, as several studies show that a significant share of the workforce consider work unengaging (Crabtree, 2013; Harter, Schmidt, Agrawal, & Plowman, 2013). Ways of addressing this problem can be to adjust external incentives, working to foster transformative leadership, and designing new types of managerial practices, as, for example, Zappos (Bernstein et al., 2016) and Valve (Puranam & Håkonsson, 2015). However, in order to further explore motivation and meaning of job tasks and leadership, we will explore it from a broader perspective and an inside-out perspective of personal meaning making (Hagström & Stålne, 2015; Kegan, 1982, 1994).

The notion of "frames of reference," which is often closely related to that of meaning making,

is also discussed by Jacobs and McGee (2001) as containing intangible elements "such as values, ethical mandates, and the degree of self-reference (subjectivity) that the decision maker exhibits. It also includes deeply held beliefs and assumptions about the nature of the organization and proper ways for the organization to conduct business" (pp. 63–64). Further, different "frames of reference" can also be associated with time span and time horizon, and are central features of SST, which have no correspondence in the MHC.

Ego Development Theory

In the following we turn to another adult development theory, EDT, that is best suited to describe such frames of reference, and explore how such a perspective can enrich SST and its view on roles, tasks, and cognitive processes.

Individual development can be described as a sequence of ways of making sense of reality or different action logics. The development of sequential action logics is presented here through the work of Torbert and others (Brown, 2011; Cook-Greuter, 1999, 2004, 2013; Fisher & Torbert, 1991; Rooke & Torbert, 2005; Torbert et al., 2004; Torbert, 1987). Action logics provide a framework for understanding the development of individuals', particularly leaders', ways of constructing meaning throughout a lifetime. The concept of action logics has its roots from Loevinger (1966, 1976), and its extension by Cook-Greuter (1999, 2004, 2013; labeled "constructive developmental theory of ego development") and the measurement of the Washington University Sentence Completion Test (WUSCT; Loevinger, 1998). WUSCT is one of the most widely used in the field of adult development, and the theory has solid empirical support (Cohn & Westenberg, 2004; Hauser, 1976; Loevinger, 1979; Manners & Durkin, 2001). Cook-Greuter and Torbert adapted WUSCT into an instrument (Leadership Development Profile) for application in organizations and researched the managerial population during the 1980s and 1990s. In total, 10 action-logics are defined (Cook-Greuter, 1999, 2004; Rooke & Torbert, 2005; Torbert et al., 2004; Torbert, 1987; see also Brown, 2011).

Action logics are defined as "ways in which they interpret their surroundings and react when their power of safety is challenged" (Rooke & Torbert, 2005, p. 3), "they" in this quote refers to individuals. Action logics describes developmental stages of meaning making that informs and drives thinking and action. They contain what we think about ourselves and the world, what we see as the purpose of life, what goals we move toward, our experience of being, our emotions, and what needs we act upon (Cook-Greuter, 1999; Torbert et al., 2004). They can be described as a psychological system with three interrelated components (Cook-Greuter, 2004, 2013): the behavioral dimension (doing), the affective dimension (being), and the cognitive dimension (thinking). Torbert and colleagues adapted the WUSCT and the Leadership Development Profile, combining them into the Global Leadership Profile (Torbert et al., 2004). Joiner and Josephs (2006) elaborated and applied the framework for leadership development in their book, *Leadership Agility: Five Levels of Mastery for Anticipating and Initiating Change*, and Boiral, Cayer, and Baron (2009) applied the framework to examine leadership, meaning making, and environmental issues.

Exploring SST From an EDT Perspective

In this section, we explore Strata I to VIII of SST based on seven of the EDT's action logics according to Torbert et al.'s (2004) labeling: diplomat, expert, achiever, individualist, strategist, alchemist, and ironist. The term "action logic" as well as Torbert's emphasis on action and task focus in work life is appropriate, as it is the main focus of the description of SST's strata.

It is worth repeating that the aim of this analysis is not to establish an exact relation or correspondence between the levels or stages of SST and EDT, nor between EDT and the MHC, but rather to demonstrate how levels of leadership can be viewed, not only as a task to perform but also as a role and persona to be filled. The focus on task and cognitive complexity in both SST and the MHC places aspects such as affective, meaning-making, perspective-taking, and motivational aspects in the background. The notion of ego development captures these wider aspects of leadership, all of which can offer support to and complement SST.

Each stratum and action logic is described with respect to the following three aspects: role characteristics, time span and time horizon, and

cognitive processes. Stage descriptions according to Cook-Greuter (1994, 1999, 2004, 2013), Joiner and Josephs (2006), and Brown (2011) are also used to enrich the descriptions of the different action logics (Torbert et al., 2004; Rooke & Torbert, 2005). The higher strata, VI to VIII, and the poststrategist action logics (alchemist and ironist) are explored together, on account of the lack of empirical data supporting more detailed and structured comparisons.

Definition of Time Span and Time Horizon

Time span is the target completion time for the longest task or task sequence associated with a certain role. Thus, it measures the level of work (complexity) in a role. Time horizon is the scale of the ability to work in the future so that a task of a certain time span requires the corresponding time horizon of the person assigned to the task (Jaques & Clement, 1991; Jaques, 1989). Correspondence regarding SST's concepts of time span and time horizon with EDT's concept of time horizon was corroborated by William R. Torbert.[1]

Definition of Cognitive Process, Also Denoted as Capability for Information Processes or Information Processes

According to Jaques and Clement (1991), "cognitive processes are the mental processes by means of which a person is able to organize information to make it available for doing work" (p. 57). There are four types of cognitive processes (Jaques, 1989; Jaques & Clement, 1991). *Declarative processing* is organizing information and pulling it together in the form of direct association and assertions relevant to the immediate situation. *Cumulative processing* refers to reasoning by accumulating possibly significant pieces of information and organizing them so as to be able to combine them into a conclusion and decision. Serial processing refers to reasoning by putting pieces of information together in a linear serial form in some logical sequence (e.g., a progressive story, or algorithm, or logic/decision tree) as a cause-and-effect series of events connected through time, leading to envisaged consequences and possibly predicting future courses of events. *Parallel processing* refers to reasoning by organizing pieces of information into a number of

separate serial processes, and then dealing with the information in each of those processes in parallel to each other, making relationships between the processes themselves as found relevant; that is to say, showing impact upon each other.

These cognitive processes can be observed in each of two orders of information complexity (symbolic and abstract) used by adult subjects; they are recursive and maintain their hierarchy of complexity. The symbolic (third) order of information complexity contains abstract thoughts and language, beyond the world of concrete objects, used by most adults. The abstract conceptual (fourth) order of information complexity contains a more complex order of information used in the conceptual world (see Jaques & Clement [1991] and Jaques [1989] for detailed descriptions, definitions of third and fourth, as well as the first and second orders of information complexity).

Stratum I and the Diplomat Action Logic

Main characteristic in roles and examples. Typical examples of roles at Stratum I are routine manual work, clerical work, working on the workshop floor, working as a cashier, and so forth. Tasks are assigned in terms of output, and work is done by followings routines, and use of specific methods to deal with the unexpected. Work for which practical judgment is needed to solve ongoing problems. According to EDT, individuals who operate from the diplomat action logic generally focus on routine tasks and work within a short time horizon (Torbert, 1991; Torbert et al., 2004). According to Cook-Greuter (2013), individuals who mostly apply, or prefer to use the diplomat action logic, prefer roles within clearly defined hierarchical structures and instructions.

Time span and time horizon. The time span and time horizon for Stratum I is stated as 1 day to 3 months. The time horizon for the diplomat action logic is stated as 1 week to 3 month.

Cognitive process. At Stratum I, individuals use declarative processing, organizing information and pulling it together in the form of direct associations and assertions relevant to the

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[1] William R. Torbert, Professor Emeritus, personal conversation October 21, 2016.

immediate situation. At Stratum I, individuals proceed along a prescribed linear pathway to a goal, gaining continual feedback in order to proceed, and using previously learned methods for overcoming immediate obstacles when encountered (Jaques, 1989; Jaques & Clement, 1991). According to EDT, individuals who operate from a diplomat action logic typically conform, are committed to organizational routines, and imitate the behavior of high-status group members. They are interested in the concrete, visible aspects of experience, and asking a superior for instruction is the most natural way of dealing with difficulties. They generally focuses on routine tasks, and rules and norms are accepted without questions.

Conclusion. The former comparison demonstrates similarities regarding role characteristics, time span and time horizon, and cognitive process. Both descriptions of characteristics include work with clear instructions and routines. The upper range for time span and time horizon is the same, but the lower range differs from 1 day to 1 week, which we consider marginal. Regarding both the comparison of cognitive process and the overall comparison, we conclude that the diplomat action logic match Stratum I better than other strata, but we do not argue that they are strictly comparable and/or equal.

Stratum II and the Expert Action Logic

Main characteristic in roles and examples. Typical Stratum II roles consist of first-line managerial work and what is ordinarily described as specialist work, such as that of engineers, scientists, therapists, and so forth. Task output cannot be completely specified and needs some interpretation. Important managerial tasks at Stratum II are directing work and allocating resources, anticipating and solving current problems, and implementing changes within the current year (Jaques, 1989). According to EDT, individuals who operate from the expert action logic can typically be found in roles such as an accountant, investment analyst, marketing researcher, software engineer, or consultant (Rooke & Torbert, 2005; Torbert et al., 2004), and Cook-Greuter (2013) adds engineers, technocrats, and bureaucrats. Empirical studies by Torbert (1991) and Cook-Greuter

(1999) indicate that a majority of managers operate from the expert action logic.

Time span and time horizon. Time span and time horizon for Stratum II is stated as 3 months to 1 year. Time horizon for the expert action logic is stated as 6 months to 1 year.

Cognitive process. At Stratum II, individuals are capable of using cumulative processing—reasoning by accumulating possibly significant bits of information, and organizing and combining them into a conclusion and decision. According to Jacobs and McGee (2001, p. 50), leaders at Stratum II exercise diagnostic judgment to overcome obstacles in a linear way. At the same time, they are accumulating experience and learning in order to diagnose emerging problems and initiate action to deal with identified problems. According to EDT, individuals who operate from the expert action logic are interested in problem solving and seeking causes. They see themselves as *experts* in their roles and "have it all figured it out" (Cook-Greuter, 2013, p. 38). Furthermore, they are primarily interested in efficiency, incremental improvements of existing strategies, and solving problems within one's own unit (Joiner & Josephs, 2006). They are self-conscious individuals capable of abstract thought and operations, including multiple views, permutations, and careful comparisons among variables. This action logic operates from a third-person perspective, which permits operating with abstract objects and concepts (Cook-Greuter, 2013). Individuals who operate from the expert action logic often fail when they are promoted to manager, as "they can't see the bigger picture and aims of their department or organization and thus can't prioritize accordingly" (Cook-Greuter, 2013, p. 37).

Conclusion. The former comparison demonstrates similarities regarding role characteristics, time span and time horizon, and cognitive process. The examples of roles at Stratum II and roles that individuals who operate from the expert action logic often occupy have similarities, but the definitions of roles are less specific in EDT compared with SST. The similarity in time span and time horizon indicates similar characteristics and degrees of complexity. The upper range for time span and time horizon is the same, but the lower range differs from 3 (Stratum II) to 6 months (the expert action logic). We consider this as marginal, but from an EDT

perspective, individuals who operate from the expert action logic will be able to operate best at the upper range (6 months to 1 year) in a Stratum II role, and will not be as motivated to operate at the lower range of Stratum II (3 to 6 months). The previous statement by Cook-Greuter (2013, p. 37) is logical if we define the managerial role as a Stratum III role, and the expert action logic at Stratum II. Furthermore, SST postulates that an individual with a maximum capability of cumulative processing (Stratum II) will fail in a Stratum III role (serial processing), regardless of having the right motivation and personality. Therefore, when individuals who operate from the expert action logic (most comparable with Stratum II) are promoted to manager (Stratum III), they are not likely to succeed in their new and more complex role. On the other hand, individuals who operate from the expert action logic (most comparable with Stratum II) being promoted to a managerial position at Stratum II will have sufficient cognitive capability (cumulative processing) for managing individuals in Stratum I roles (declarative processing). This means that SST takes into consideration the stratum of the managerial role, and on what stratum the individual manager operates. Therefore, SST claims to predict and explain why some individuals fail or succeed in their roles. To summarize, we conclude that the expert action logic match Stratum II better than other strata, but we do not argue that they are strictly comparable and/or equal.

Stratum III and the Achiever Action Logic

Main characteristic in roles and examples. Stratum III roles can typically be "senior" or "chief" engineers, scientists, and so forth, or lawyers and doctors, as well as managers of department/units employing up to a maximum of 200 to 250 individuals. Important managerial tasks at Stratum III are developing and executing plans to implement a policy or mission (Jaques, 1989). According to EDT, individuals who operate from achiever action logic are more common in roles as junior and middle managers, senior managers, and executives than as first-line supervisors (Torbert, 1991, cited in Joiner & Josephs, 2006). One example of typical roles among individuals who operate from achiever action logic is as a manager of individuals who operate from the expert action logic, for example, a lab manager who manages research engineers at high-tech companies.

Time span and time horizon. Time span and time horizon for Stratum III is stated as 1–2 years. Time horizon for achiever action logic is stated as 1–3 years.

Cognitive process. At Stratum III, individuals are capable of using serial processing—reasoning by gathering information in a linear serial form in some logical sequence (e.g., a progressive story, or algorithm, or logic/decision tree) as a cause-and-effect series of events connected through time, leading to envisaged consequences and possibly to predict future courses of events (Jaques, 1989). Individuals that operate at Stratum III must not only use direct judgment and diagnostic accumulation but also be able to encompass the entire process within a plan, with a pathway to goal completion that has already been worked out—and to have preplanned alternative paths, if necessary. According to EDT, individuals who operate from achiever action logic can lead a team to implement new strategies over a 1- to 3-year period, balancing immediate and long-term goals (Torbert et al., 2004). They have the capacity to lead organizations when strategies need to shift (Joiner & Josephs, 2006) and focus on effectiveness of the organization, questioning whether the organization is performing the right tasks. They can improve results in the current local or global system (McEwen & Schmidt, 2007).

Conclusion. The former comparison demonstrates similar characteristics between Stratum III and achiever action logic. Both descriptions of characteristics, and the examples of roles, have similarities. Similarity in time span and time horizon indicates similar characteristics and degrees of complexity. The lower range for the time span and time horizon is the same, but the higher range differs from 2 (Stratum III) to 3 years (achiever). This may indicate that achiever action logic also have similarities with the lower Stratum IV (time span of 2–5 years). Another argument that achiever action logic should correspond with both Stratum III and low Stratum IV might be empirical data from Torbert (1991), showing the following distribution of achievers: 8% of first-line supervisors, 40% of junior or middle managers, 33% of senior managers, and 39.5% of executives. However, a limitation of Torbert's data is that

types of managerial roles are not defined on the basis of SST. For example, in Torbert's data, the role of executive could probably be Strata IV, V, or VI, depending on the size of the organization. To summarize, the conclusion of the comparison was that Stratum III showed most similarities with achiever action logic, but some similarities were also found between Stratum IV and achiever action logic. Thus, this comparison illustrates how one stratum could match more than one action logic and/or when two action logics might overlap. Such ambiguity and uncertainty is an expected outcome of the performed analysis. As in the previous comparison, we do not argue that they are strictly comparable and/or equal.

Stratum IV and the Individualist Action Logic

Main characteristic in roles and examples. Managers in Stratum IV roles are typically responsible for a major subdivision of functions within the larger organization—production, sales, or research and development (Jaques, 1989). We also find more senior project managers, researchers, or analysts at this stratum. This is one of two strata of the general management domain in large organizations, the middle of the leadership hierarchy (Zaccaro & Klimoski, 2001). Important managerial tasks at Stratum IV are to parallel process several interacting projects, pacing them in relation to one another in resourcing and time, and making trade-offs between tasks to maintain progress along the composite route to the goal. Empirical studies (Torbert, 1991, cited in Joiner & Josephs, 2006) show that the postconventional group (individualist, strategist and achemist action logics) is more often characterized by senior managers and executives than as first-line supervisors and junior and middle managers.

Time span and time horizon. Time span and time horizon for Stratum IV is stated as 2-5 years. Torbert (1991) and Torbert et al., (2004) does not state a time horizon for individualist action logic. However, Cook-Greuter (2013, p. 62) states that the strategist action logic includes the *perspective of* a 5- to 10-year plan. The "perspective" is interpreted here as similar to SST's notion of *time horizon*, and it could thus be argued that the time horizon for the strategist action logic is 5 to 10 years. From that follows

an estimated time horizon for individualist action logic of 3 to 5 years. An important note here is that *time plan* is not the same as time span or time horizon.

Cognitive process. At Stratum IV, individuals are capable of using parallel processing—reasoning by organizing information into a number of separate serial processes and then dealing with the information in each of the processes parallel to each other, making relationships between the processes themselves as found relevant—that is to say, showing the processes' impact upon each other (Jaques, 1989). According to Jacobs and McGee (2001, p. 52), stratum IV managers; "are important translators who understand objectives and policies in their larger competitive context and formulate the more explicitly tangible and concrete objectives and plans necessary for those conducting operations." According to EDT, individuals who operate from individualist action logic have a cognitive ability that comprises "recognition of multiple perspectives, beginning awareness of the complexity of systems and cultural conditioning" (Cook-Greuter, 2013, p. 53). Individualist action logic questions underlying assumptions of the business and understands the importance (and has the capability) of creating a culture of teamwork, participation, and empowerment (Joiner & Josephs, 2006). The individualist stage or action logic is considered to be the first of the postconventional stages, in which the person can step out of their embeddedness in the culture or organization. Thus, postconventional individuals are more effective in implementing organizational transformation (Rooke & Torbert, 1998) but may be harder to motivate extrinsically if their own ideals are inconsistent with the visions and values of the organization. Thus, a large organization with traditional hierarchies and top-down management may find it more difficult to recruit and keep employees with postconventional action logics (PwC, 2015).

Individuals who operate from individualist action logic recognize that no action logic are "natural"—they are all constructions of themselves and the world. This makes individualists capable of successfully communicating with those who have other action logics than themselves (Cook-Greuter, 2013). They have an authentic interest in different stakeholder perspectives needed to make qualitative decisions. This

perspective marks a major shift away from strict rational analysis to more organismic, holistic, relativistic approaches, in which context, body sensations, and feelings are taken into account. Thus, they can bridge and integrate nonlinear approaches with rational thought to gain information (Cook-Greuter, 2013; Torbert et al., 2004).

Conclusion. The former comparison demonstrates similarities in role characteristics, time span and time horizon, and cognitive process. The description of characteristics in roles, and examples of roles common for the individualist action logic, are less detailed than the descriptions of the earlier action logics, which makes the comparison more challenging and beset with uncertainty. Regarding time horizon, when comparing the Stratum IV time span and time horizon (2–5 years) with the (limited) estimate of the time horizon for the individualist action logic (3–5 years), it could be argued that Stratum IV is, to some extent, comparable with both achiever (1–3 years) and the individualist (3–5 years) action logic. The comparison of cognitive process results in both similarities and differences. One similarity is the notion of "recognition of multiple perspectives" for the individualist action logic and the characteristic of individuals operating at Stratum IV. One difference is that people who operate from the individualist action logic integrate their view of life, work, and society. That kind of wide and integrative perspective is not mentioned for individuals operating at Stratum IV. Furthermore, in SST, the shift from Stratum IV to V is considered a major transition, and in EDT, one major transition is seen in the shift from achiever to individualist action logic, from the conventional and heroic style of leadership to a postconventional and postheroic one. This indicates there may also be similarities between the individualist action logic and Stratum V. As in the previous comparison, we do not argue that they are strictly comparable and equal.

Stratum V and the Strategist Action Logic

Main characteristic in roles and examples. Stratum V roles frequently include responsibilities for a full-scale business unit in a large organization. The Stratum V manager is typically the president of a division or the managing director of a relatively large free-standing enterprise (Jaques, 1989). This is the stratum immediately below the executive level (Strata VI and VII) and one of the two strata (along with IV) in the general management domain in large organizations—the middle domain of the leadership hierarchy (Zaccaro & Klimoski, 2001). At Stratum V, important managerial tasks are to benchmark the competition (context) and find ways to attain competitive advantages. Performing the tasks requires the devotion of a considerable amount of time. The Stratum V manager is responsible for constructing and directing the system as well as transforming existing ones. Empirical studies (Torbert, 1991) show that those in the postconventional group (individualist, strategist and alchemist action logics) more often work as senior managers and executives than as first-line supervisors and junior and middle managers. As with the previous postconventional individualist, the strategist action logic is more likely to be found among individuals working outside traditional organizations, such as consultants (Cook-Greuter, 2013; PwC, 2015).

Time span and time horizon. A Stratum V role is associated with a 5- to 10-year time span. Cook-Greuter (2013, p. 62) associates the *perspective* of a 5- to 10-year plan to the strategist action logic. As we noted earlier, "the perspective of" could be viewed as similar to SST's notion of time horizon (and that time plan is not the same as time span or time horizon). Therefore, it could be argued that the time horizon for the strategist action logic is 5 to 10 years.

Cognitive process. At Stratum V, individuals use declarative processing of conceptual abstract information complexity (situation response). At this level, individuals need to sense interconnections between variables in the organization and environment, and continually adjust them reciprocally, with a sense of all the internal and environmental second- and third-order effects (Jaques, 1989). At Stratum V, individuals construct *unified whole systems*. According to EDT, individuals who operate from the strategist action logic are capable of (and interested in) creating ethical principles, practices beyond organizations, and their own interests, incorporating multiple bottom lines when evaluating the success of an organization. They can link overarching principles with organizational strategies and systems. They can initiate and sustain double-loop learning (Torbert et al., 2004) and lead transformative change, including

change in culture and practice (Bushe & Gibbs, 1990; McCauley, Drath, Palus, O'Conner, & Baker, 2006; Rooke & Torbert, 1998, 2005). Cognitively, individuals that operate from the strategist action logic are considered metasystematic thinkers and can comprehend multiple, interconnected systems of relationships and processes, including those within themselves (Cook-Greuter, 1994, 1999, cited in Brown, 2011, p. 40). They sees how multiple systems and complex relationships contradict each other and are capable of embracing paradoxes and seemingly unsolvable issues, allowing them to create realistic evaluations of situations. They use a language of complex, flexible syntax with a wide array of topics and concerns.

Conclusion. The former comparison demonstrates similarities regarding role characteristics, time span and time horizon, and cognitive process. The description of characteristics in roles, and examples of roles mostly occupied by individuals using the strategist action logic, are less detailed than both the description of Stratum V and earlier action logics. Thus, it is challenging to compare Stratum V roles and typical roles in line with the strategist action logic. The time span and time horizon is estimated to be in range similar to Stratum V and the strategist action logic. But the key similarity is that both Stratum V and the strategist action logic describe systems thinking; A similar feature of Stratum V and the strategist action logic is the formation of generalized systems, which corresponds to metasystematic order of hierarchical complexity.

Furthermore, the earlier analysis of SST from an MHC lens compared Stratum V and VI with the same MHC order, indicating that, from a complexity perspective, Strata V and VI are more similar than Strata IV and V. This raises the question of whether Stratum VI may be more similar to the strategist action logic than the alchemist action logic, a question elaborated on in the next section. Nota bene, this and the following comparison, is more challenging to conduct than the previous ones, thereby limiting comparability.

Strata VI–VIII and the Poststrategist Action Logics

Main characteristics in roles and examples. In very large organizations, Strata VI and VII are the two strata at the executive level, the systems/strategic domain, and at the top domain of the leadership hierarchy. At Strata VI and VII, managers are responsible for extensive context analysis, strategy development, structural change, and both vertical and horizontal integration (Jacobs & McGee, 2001).

Stratum VI roles are typically executive vice presidents in very large organizations, with a CEO role at Stratum VII (Jaques, 1989). Important managerial tasks at Stratum VI are to oversee operations of subordinate systems (several corporate division). Stratum VII roles are typically CEO, COO, and presidents of very large organizations. Important managerial tasks at Stratum VII are to create complex systems, organize acquisitions of major resources (Jacobs & McGee, 2001), and make decisions regarding which business units (Stratum V) to create to satisfy the needs of society, nationally and internationally. The Stratum VII managers create the policies that Stratum VI managers apply. In later writings, Jaques and Clement (1991) define a Stratum VIII for super corporations. The Stratum VIII roles can be found at the top of supercorporations such as General Electric, General Motors, IBM, and so forth. They consist of a number of Stratum VII divisions of the same size as an ordinary Stratum VII corporation. We define the alchemist and ironist action logics as EDT's poststrategist action logics, corresponding to Cook-Greuter's (1999, 2004, 2013) postautonomous stages *construct-aware* and *unitive*, respectively. Individuals operating from the alchemist action logic are very rare and are estimated to constitute no more than 1% of the sample in empirical studies by Torbert (1991), but there is little empirical data regarding what types of managerial roles individuals that operate from alchemist action logic occupy. The available empirical data (Torbert, 1991) indicate that the alchemist action logic are more common among senior managers and executives rather than first-line supervisors and junior and middle managers.

Time span and time horizon. Time span and time horizon for Stratum VI is stated as 10–20 years, for Stratum VII 20–50 years, and Stratum VIII 50+ years. Torbert et al., (2004) state no time span and time horizon for the poststrategist action logics, but Cook-Greuter (2013) describes the time frame for alchemists as beyond their lifetime, in a global-historical

perspective. Thus, the time span and time horizon for the alchemist may be in line with Strata VII to VIII, or even longer.

Cognitive process. At Stratum VI, individuals use cumulative processing of conceptual abstract information complexity (Jaques, 1989). They develop networks, enhance the value of corporate assets as reflected in balance sheets, and contribute to long-term success and survival. At Stratum VII, individuals use serial processing of conceptual abstract information complexity, and are thereby capable of developing and pursuing alternative worldwide strategic plans, producing Stratum V businesses as a result of developments, acquisitions, mergers, and joint ventures, built on internationally supported financial resources. At Stratum VIII, individuals use parallel processing of conceptual abstract information complexity. Stratum VIII individuals have a more complex cognitive capability, although there is a lack of more detailed description of these higher levels of cognitive processes from the literature. Regarding cognitive style for the alchemist and ironist action logic, the empirical data for the poststrategist action logics are very scarce. Individuals that operate from alchemist action logic focus on creating social transformations, integrating material, spiritual, and societal transformation (Cook-Greuter, 2013; Torbert et al., 2004). According to Brown (2011), very little is known about leaders or change agents that operate from ironist action logic, and they are rarely found in formal leadership positions. They account for only 0.5% of a sample of a mixed adult population in the United States, and less than 1% among managers, supervisors, and consultants in the United States and United Kingdom (Cook-Greuter, 1994, 1999, 2004).

Conclusions. It is more difficult to compare Strata VI, VII, and VIII with respective poststrategist action logics than to compare the lower strata and earlier action logics. First, there are relatively few organizations with roles at Stratum VI–VIII (from an SST perspective, our understanding is that only very large organizations are organized with Stratum IV–VIII roles, and there are not that many large organizations), and therefore there are fewer empirical examples. Second, EDT literature contains very few examples of specific roles in organizations that individuals with alchemist and ironist action logics usually occupy (Brown, 2011; Cook-

Greuter, 1999, 2013). Alchemist action logic are suited for leading society-wide transformations (Rooke & Torbert, 2005), and from an SST perspective, that type of role can be found at both Strata VII and VIII. Third, there are limitations in the comparison of time span and time horizon. They are not specified for the poststrategist action logics in more detail than "time frame" for alchemists being beyond a lifetime, and taking a global-historical perspective. Fourth, it is difficult to compare the cognitive process on account of the limited amount of empirical data regarding the poststrategist action logics. Furthermore, empirical data that do exist for the poststrategist action logics are both vague and not as strongly related to specific leadership roles in traditional large organizations such as in SST. Therefore, we limit our conclusion to Strata I to V. Strata VI–VIII and above are, to some extent, comparable with the poststrategist action logics, but further research is needed to support detailed comparisons between the higher strata and subsequent action logics.

Despite the difficulties in comparing Strata VI, VII, and VIII with the poststrategist action logics, an explorative comparison of possible similarities is conducted as follows: the cognitive processes at Stratum VI can be seen as relatively similar to the cognitive processes at Stratum V, and relatively different than the cognitive processes at Stratum VII, which might be an argument for both Strata V and VI as comparable with the strategist action logic. Furthermore, Stratum VII might be comparable with the alchemist action logic.

Discussion

The analytical comparison of SST from the MHC and EDT perspectives shows that SST describes levels of leadership (complexity) that, to some extent, are comparable with the MHC and EDT. This being said, it is important to note that the MHC-SST analysis did not include the most complex levels and that the MHC-SST comparison did not result in a total 1:1 comparability. The EDT-SST comparison indicates overlaps and the most complex levels were difficult to compare. We highlight these limitations in order to emphasize for the readers that the theories should not be interpreted as strictly comparable and commensurable. Furthermore, we find the comparison be-

tween EDT and SST more tentative, in contrast to the comparison between the MHC and SST.

Generally, the analytical comparison confirms the proposition that task complexity increases with organizational level (Ashby, 1952; Hunt, 1991; Jaques, 1989; D. Katz & Kahn, 1978; R. L. Katz, 1955; Mann, 1965; Zaccaro, 1996). Next, we discuss methodological considerations before we turn to the most interesting findings and recommendations for future research.

Methodological Considerations

The comparison between SST and the MHC took Koplowitz (2008) as a point of departure, an analysis that ranged up to Stratum VI. Comparisons between SST and EDT were restricted because of the limited descriptions of the later action logics in EDT, and strata in SST. Furthermore, the comparison between SST and EDT was limited by the fact that SST has more exactly defined stratum/differences between stratum relative action logics/differences between action logics in EDT. Furthermore, SST puts strong emphasis on the cognitive dimension, and EDT has a broader emphasis on both the behavioral, affective, and cognitive dimensions. This difference between SST and EDT was noted by Mehltretter (1995), whose findings indicate that it might be problematic to strictly correlate strata in SST with action logics in EDT without empirical investigation.

However, the purpose of the analysis was not primarily to investigate exact correspondence but to shed light on the different levels and to point out similarities and differences. The results of the comparisons were discussed among all three authors to reach consensus. A more thorough analysis and comparison should be built on richer empirical material of the different levels, with several scorers independently assessing interrater reliability, as well as more accurate correspondence, where it can be quantified (Dawson, 2003).

The description of the stages of ego development (Cook-Greuter, 2013) associates a certain stage of hierarchical complexity, although it is not clear how the stages have been derived. Therefore, this aspect has been omitted from the analysis. Although the present comparison would allow for the indirect analytical matching of stages of ego development with OHC, we strongly discourage such an endeavor. For a theoretical discussion on the difficulties of comparing the two incommen-

surable theories of hierarchical complexity, and meaning making, or socioemotional development, and a possible interaction between them, see Hagström and Stålne (2015) and Sjölander, Lindström, Ericsson, and Kjellström (2014).

Discussion of Main Findings

In this section we discuss the results regarding main characteristic in role, time span and time horizon, cognitive process, and comparability with the MHC and EDT.

Main characteristic of roles (strata and levels of work). The results show a possible 1:1 comparability between SST and EDT, but both the overlaps and limited amount of empirical descriptions of the later action logics create some uncertainties. Furthermore, the lack of exactly defined differences between different action logics limits the comparability between SST and EDT. Koplowitz's (2008) previously performed comparison with the MHC did not support the distinct division between Strata I and II and Strata V and VI. Having said that, the distinction between Strata I and II was well established by Jaques and colleagues (Harris & Lucas, 1991; Jacobs & Jaques, 1987, 1991; Jaques, 1976; Markessini et al., 1994). Furthermore, the MHC-SST comparison did not include Strata VII to VIII. Until empirical research exists supporting argumentation for a more detailed comparison of the more complex levels, we must, from an MHC and EDT comparison, question the relevance of such a detailed breakdown of Strata VI to VIII that SST proposes.

Time span and time horizon. The results show a reasonably good correspondence of time span and time horizon between SST and EDT for the lower strata, but for the higher strata, a comparison was not possible. Furthermore, we conclude that the time span and time horizon aspect is better operationalized and defined in SST than in EDT.

Cognitive process. In addition to the previously performed comparison with the MHC, it can be noted that the notion of meaning making or frames of reference according to EDT is broader and includes cognitive capability as a significant dimension. The meaning-making perspective on the individual and the comparison between SST and EDT show the strong focus on the cognitive aspect in SST. In the following, we describe SSTs comparability with the MHC and EDT.

Comparability with the MHC and EDT.
The fact that both the MHC and EDT have good empirical support and have been used in numerous scientific studies is an argument that strengthen the theoretical support for SST regarding that role and leadership complexity increase with organizational level. The conclusion that Strata I to V, to some degree, match the MHC's orders 9 to 12, and EDT's diplomat to strategist action logics, can be seen as a supportive argument for SST's more detailed division of leadership levels relative to the three domains of leadership (D. Katz & Kahn, 1978), commonly used by both scholars and practitioners. We argue that from the MHC comparison, there are at least five levels of leadership (MHC orders 9–13), and from the EDT comparison, there are at least five levels of leadership (the expert, achiever, individualist, strategist, and alchemist/ironist action logics). These are conceptually in line with, for example, popular business literature, such as *Good to Great: Why Some Companies Make the Leap . . . and Others Don't* (Collins, 2001), and practical application of EDT, such as *Leadership Agility: Five Levels of Mastery for Anticipating and Initiating Change* (Joiner & Josephs, 2006).

Concluding Remarks and Future Directions

This article confirms the proposition that role and leadership complexity increases with organizational level, and that the described levels of role and leadership complexity in SST are, to some extent, comparable with the MHC and EDT. However, based on the methodological choices of the study, it is beyond the scope of this article to validate the key concepts, constructs in SST, or provide support or nonsupport for the proposed value of implementing SST and its extension for organizational improvements. Furthermore, we point out the lack of a more thorough analysis and comparison between the theories built on rich empirical material. Nevertheless, we conclude that the MHC, EDT and SST are fruitful lenses that can further the understanding of organizations as social systems with hierarchical structures.

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