



# The Role of Management Science in Forming Next Era Semantics

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## Abstract

The author has previously in a social system theoretical perspective outlined a position for engaged scholarship in bridging the gulf between theorizing and practice. Partaking as “midwives” for shared semantics in a polycentric network was analyzed as one role for engaged scholars to assist. This paper, however, argues that for a shared semantic reservoir for “next era” leadership and management to form, one more layer of reflection is needed: how to manage “backwards” from the future. The paper also addresses geographic inclusion/exclusion, which seems to be reinforced as digitalization and abstract knowledge are gaining ground, even though bits and abstract knowledge should easily be detached from spatial limitations. Research programs targeting “grand challenges” and “grand solutions” is defined by megaprojects defined and financed by large foundations or other large-scale actors, and well-connected international research centers and research networks are needed to influence this agenda-setting. The paper argues that forming regional polycentric networks (including scientific research scholars) may to a greater extent bridge the global agendas with local and regional issues to not be excluded in a transition process.

**Keywords** Social systems theory · Shared semantics and polycentric networks · Engaged scholarship · Rigor-relevance gap · Manage backwards from the future · Geographic inclusion/exclusion.

## Introduction

Leadership and management are being challenged and transformed due to an accelerated growth of inward-looking social systems driving an increased complexity and an unsustainable web of risks due to multiple blind spots. This actualizes Luhmann’s (Luhmann 2013, Chap. 4) considerations about the major historical societal shifts, all being characterized by a new societal structure capable of handling increasing complexity. Development of communication technologies, such as from oral to written and further to printed and mass media have shown to be crucial in enabling such transitions. Now, it once again seems, that both the technology and societal structures are changing. The internet, powerful computers, big data, and

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artificial intelligence are manifest as new communication technologies, and businesses and organizations are linking up in value added polycentric networks. These ways of organizing are highly flexible and capable of handling complexity. In combination with the new technology, these new ways of organizing seem to potentially become a new societal networked structure. Yet, major societal shifts also need new shared semantics, which is condensed meaning, that can be drawn upon by many events of communication. This has still not emerged.

This paper concerns the role of management science in forming a semantics for “next era” leadership and management. The paper resumes in a social system perspective a position for engaged scholarship in bridging the rigor-relevance gap between theorizing and practice when assisting the emergence of a shared semantic reservoir (Neisig, 2021). Engaged scholarship involves purposeful endeavors to establish links between the knowledge produced through research pursuits and the public, with the aim of jointly tackling societal problems as well as meeting community needs and addressing concerns. Consequently, the counter concept is when scholars do not intentionally do this. Neisig (2021) proposes that partaking as “mid wives” for shared semantics in a polycentric network may be one role for engaged scholars to assist. However, for a shared semantic reservoir for “next era” leadership and management to form, it is to be discussed if one more layer of reflection is needed: how to manage “backwards from the future”?

Mostly, research programs targeting “grand challenges” and “grand solutions” is defined by megaprojects defined and financed by large foundations or other large-scale actors. Well-connected international research centers and research networks are needed to influence this agenda-setting.

Peripheral regions are in risk to be left out (excluded) in this process. This paper argues that forming regional polycentric networks (including scientific research scholars) may to a greater extent bridge the global agendas with local and regional issues to not be excluded in a transition process.

The paper applies a social systems theory approach, while discussing the role of polycentric networks and double attribution to bridge the perspectives of different function systems. The paper also addresses geographic inclusion/exclusion, which seems to be reinforced as digitalization and abstract knowledge are gaining ground, even though bits and abstract knowledge should easily be detached from spatial limitations.

Subsections of the paper are:

- Resuming the discussion of the rigor-relevance gap between theory and practice.
- Explaining polycentric networks of organizations and the emergence of a shared semantic reservoir for the “next era”.
- The challenges of addressing grand challenges and solutions. Can engaged scholars facilitate “leading backwards from the future”, while honoring the rigor of science?
- The ex-/inclusion of peripheral regions, and “others”.

The paper concludes on possible roles for management and leadership scholars to engage in the formation of semantics for “next era” leadership and management.

## Resuming the Discussion of the Rigor-Relevance Gap Between Theory and Practice

The concept of the divide between theory and practice is rooted in Luhmann's differentiation of theory and practice (Luhmann 2018[2000]), which has resulted in what is commonly referred to as the "rigor-relevance gap" in discussions within social system theory (Kieser and Leiner 2009). This gap and engaged scholarship as a way not to bridge, but to narrow this gulf, has been analyzed and discussed in Neisig (2021). According to Kieser and Leiner, evaluating the relevance of research within the scientific function system is unfeasible, and consequently, the gap between academic rigor and practical relevance is insurmountable. Neisig (2021), however, contests this stance and proposes a "dual" structure for engaged scholarship in polycentric networks. Although the differentiation of function systems, and thus the rigor-relevance gap, cannot be eliminated, it can be reduced through the dual constituency proposed by Teubner (1993) in polycentric networks. As a result, engaged scholarship has a multifunctional aspect according to Neisig (2021, p. 766):

According to Luhmann (2018) *we have to be satisfied with the "loose coupling of cognition and action".* The reason is that *"a theory contains its own amelioration program"*. In this assertion, Luhmann highlights the differentiation between science and non-science, emphasizing that they are governed by distinct codes. Therefore, an engaged scholar must adhere to different codes when participating in a network of organizations versus producing scientific work. We concur with Luhmann on this point. Furthermore, Luhmann contends that if theory examines its impact on practice, the theory/practice differentiation reenters itself. With such a reentry, the calculus goes beyond the scope of application of the classical *modus operandi* for cognition and, one could say, becomes non-computable. The question is then how continuing the operation can still be steered with regard to objectivity or intersubjective congruence. ... no path to meaningful critique will be opened by the initial question about the practical use of theory. Whoever poses this question, therefore, espouses the interests of practice. They are free to do so. But it is not clear what this could contribute to improving what theory can be expected to provide (Luhmann 2018 [2000]: 394).

As also described in Neisig (2021), Kieser and Leiner (2009) examine the rigor-relevance gap in management research from a system theory perspective. They argue that science cannot be genuinely integrated into the communication of other systems, such as a business organization. Instead, social systems can only "irritate" each other, meaning they can alter conditions in a way that forces other systems to react. The authors contend that evaluating the relevance of research output within the scientific system is impossible, with which we agree. Additionally, they maintain that action research, Mode 2 research (knowledge generated in an applied context), and recent collaborative research approaches cannot produce research that is both rigorous and relevant. This, however, is disputed in Neisig (2021), a position maintained in this paper, while this paper is also carving out a possible role for management and leadership scholars to engage in the formation of semantics for "next era" leadership and management – while producing management science.

Kieser and Leiner (2009) argue that science and practice are fundamentally incompatible philosophically, and researchers and practitioners cannot collaborate to produce research. Instead, they can only irritate or provoke each other, potentially leading to inspiration. However, Neisig (2021) proposes that researchers and practitioners can have dual

positions in polycentric networks, paying attention to multiple codes while producing knowledge but communicating clear codes for different function systems is required.

Hodgkinson and Rousseau (2009) also challenge Kieser and Leiner's position, citing evidence from a variety of management research domains. They provide counterexamples of research in which scholars, in some cases collaborating with practitioners, have produced socially valuable and academically rigorous knowledge that has been assessed by both systems. Neisig (2021) argues that the function of sociology to provide a self-description of society must allow communication with the communication from systems other than science – not only with communication from scholars addressing the theory from within. Otherwise, the role of social science as being a *recursive* self-description of society is not fulfilled because not even a loose coupling with other social systems takes place. The self-description needs to irritate (disturb) other social systems for science to fulfill its role as the producer of a self-description of society – and it also needs to get disturbed by the society.

However, Luhmann also has elaborated on his standpoints concerning sociology's general issue with autological reference:

The question is...whether or not a sociological theory is capable of satisfying all technical requirements of the subsystem science and at the same time, and with the same set of texts, can contribute to the self-description of the society. Can sociology, in other words, *operate* as science and simultaneously *observe* the society in which it operates as observer? Can it observe itself as the observer?

We cannot give an “objective” and definite answer to this question. For the question itself implies a re-entry of the observer/observed distinction into itself. And this means that we shall have to face unresolvable indeterminacies, temporalization, oscillation, memory function and above all that must replace the computation of all possible statements by a feedback reference to the historical situation from which we have to start. (Luhmann 1997:78)

This will also count for research performed as engaged scholarship, that will need to include this feedback reference. Social system theory asserts that society and its description can only exist within society itself. As such, sociologists cannot stand outside of society to produce a critical understanding of their subject matter. Instead, social sciences produce a self-description of society within society (Luhmann and Fuchs 1994). This applies to the engagement of scholars with practitioners as well. When scholars interact with practitioners, they become part of a polycentric network of organizations but still also are persons related to scientific function system.

## Explaining Polycentric Networks of Organizations and the Emergence of a Shared Semantic Reservoir for the “Next Era”

Teubner (1993) proposed that polycentric networks have a unique structure that combines contract and organization into one institutional arrangement, resulting in emergent network operations. When the dual attribution of action is integrated into the self-description and operation of the network, it becomes an autonomous system through the creation of new elementary acts. These networks are considered higher order autopoietic systems that generate emergent elementary acts, or “network operations,” through dual attribution and connect them in a circular manner to form an operational system. (Teubner 1993, p. 49). This

duality allows for flexibility and adaptation to disturbances. For scholars, as described by Neisig (2021) the contribution to scientific research is an organizational goal within this dual pursuit. Thus, engaged scholarship has the potential to be integrated into a polycentric network, resulting in a dual constituency. This means that as an engaged scholar, the scientist is not only affiliated with the research organization, which is oriented towards the scientific function system, but also part of the networked higher-order system. Hence, participating in polycentric networks requires engaged scholars to be mindful of multiple codes and/or programs.

The argument that engaged scholarship results in a loss of scientific objectivity is unfounded because social science has always been a part of society and contributes to society's self-description.

During the process of communication, knowledge production may become framed or coded by various systems. Engaged management scholars, who seek solutions to practical problems, are no exception to this. For example, they may be involved in the development of semantics for "next era" leadership and management, while simultaneously using scientific codes for the scientific system that produces management science. This dual constituency aligns with Teubner's definition of participating in polycentric networks, which has been further explained in Neisig (2021), which is also illustrating how this approach is well-suited to Design Thinking, which we will not revisit in this paper.

When scholars engage with practitioners in the search for "next era" management semantics, the semantics must be deemed relevant by all systems to select the meaning in their own operational contribution to the network and to build trust in the social arrangement. This approach increases the sensitivity and openness for structural coupling, which is how systems shape each other's environment in Luhmannian terms (Luhmann 1995). It is essential to understand that participating organizations in polycentric networks have different idiosyncrasies and preferences for different function system's codes, and engaged scholarship cannot rationally predetermine a semantic or operationalize a shared semantic reservoir on behalf of the network. Instead, the emergence of a shared semantic reservoir will be continually shaped and reshaped in an ongoing process. The codes from the scientific system, such as true/untrue (Roth and Schütz 2015), do not directly apply to a shared semantic reservoir, whether it is a model or other shared tools, concepts, or words. According to Teubner's understanding of polycentric networks, the selection of meaning has a dual constituency belonging to both individual members i.e. organizations that are multifunctional and programmable decision machines by nature (Roth 2014; Will et al. 2018; Roth et al. 2020) and the network, which is a higher-order autopoietic system (Teubner, 1993). In this dual constitution, scholars must also ask scientific questions and communicate in scientific codes with the scientific system. The engaged scholar, therefore, must be attentive to multiple codes while communicating in clear codes for different function systems, which is also stated by Neisig (2021).

## **The Challenges of Addressing Grand Challenges and Solutions. Can Engaged Scholars Facilitate "Leading Backwards" from the Future, While Honoring the Rigor of Science?**

So far, we have maintained the position described by Neisig (2021). However, the dual position of the scholars demands that they also ask what interesting research questions would motivate engaging in such a process (i.e., what do we hope to learn and discover?)

– for instance, research question concerning scenarios of how “next era” management semantics emerge and how they may ameliorate society’s capacity for observing itself in a process of changing structures and semantics.

Working as an engaged management scholar as a midwife supporting a kick-start of shared semantics is a bottom-up process. However, would shared semantics for “next era” leadership and management need one more layer of reflection: how to manage “backwards from the future”? Adding such a layer of reflection is going beyond the bottom-up facilitation described by Neisig (2021).

To manage backwards from the future is a strategic management approach, that opposite to strategic planning, takes the point of departure in a future ideal, and then reflect on how to bridge the gap between today’s current state of operation and the vision. It is about a strategic mindset creating meaning instead of plans that fall by the wayside (Haines 2000 p.29). It may be an organizational way of reflecting on the fast-paced change processes in the 21st century, including how to deal with polycentric networks, digitalization, and skills.

It is important to underline the difference between a linear, micro-managed “fast forward and reverse” thinking, sometime also called reverse engineering of the future as approach (Zweibelson 2015,2016) versus the non-linear manage backwards from the future approaches based on complexity theory. The latter dates back from the 1970-90s (Bibri 2018). The linear reverse engineering in organizations, as well as in military strategic planning involves developing *a plan* that starts from a desired future end-state and works backwards. The process entails recognizing goals, consequences, critical points, and specific action plans that are traced back to the present time. Each action plan is associated with multiple indicators that differentiate between performance and effectiveness measures. Moreover, decision points are positioned across both the projected timeline and physical location. This approach of analyzing causal relationships using hierarchical structures for decision-making has been employed in the military domain for an extensive duration (Zweibelson 2015, 2016). On the other hand, the non-linear approaches of projecting future scenarios by working backwards from a desired future state surfaced as a substitute for traditional energy forecasting and planning. Bibri (2018) explains how such approaches, first described by Robinson (1982), is very useful when applied to complex issues such as sustainable urban development and elaborates that it is an innovative *participatory* approach to promoting sustainability by constructing normative sustainable futures with input from various stakeholders facilitating discussions among them, - an approach starting in the 1990s and lasting until today. Various such methods have been identified and explained by Damsø et al. (2014), which this paper will not delve further into. However, if meta-reflective methods such as non-linear ways of leading backwards from the future are to result in societal changes, there must emerge a collective pool of shared ideas, visions, heuristics, models, and other resources for the future. This means that a shared semantic reservoir is necessary. This we contend that engaged management scholars can assist in creating through application of a combination of the bottom-up design thinking methods elaborated by Neisig (2021) and the participatory, non-linear leading backwards methods as proposed in this paper. Design Thinking and working backwards from the future are both valuable problem-solving frameworks that can be used in different contexts. Design thinking is more focused on understanding and empathizing with end-users, while working backwards from the future is more focused on achieving a specific outcome. However, with a version based on complexity theory and using principle for the future vision rather than fixed imaginary both approaches can be combined to create an iterative learning process bringing about new shared semantics.

Czakon (2019) is claiming, that:

Grand challenges offer a unique opportunity to take management scholarship to the next level of social legitimacy reflected in meaningfulness, predictability, and trustworthiness (Suchman, 1995). By addressing socially relevant issues that are possibly solvable through coordinated action of various stakeholders, by improving research methods in view of more interactive and current methods, and by recognizing the unique advantage organizations and interorganizational settings have for eradicating the root causes of grand challenges – management can again become one of the most important human inventions (Hamel, 2009). (Czakoń 2019, p.21)

However, the pursuit of “grand challenges” and “grand solutions” in research is typically driven by megaprojects funded by major foundations or other large-scale entities. To shape this agenda, it is crucial to have well-connected international research centers and networks. Thus, there is a risk of excluding peripheral regions from this process.

## The Ex-/Inclusion of Peripheral Regions

One year before he passed away, Luhmann (1997) reflected on globalization versus the world society, in which he argues, that the world is not to be conceived of as regional societies but as a single world society.

Luhmann (1997:76) states, that:

... the worst imaginable scenario might be that the society of the next century will have to accept the metacode of inclusion/exclusion. And this would mean that some human beings will be persons and others only individuals, that some are included into functions systems for successful or unsuccessful careers and others are excluded from the careers and others are excluded from the systems remaining bodies that try to survive the next day; that some are emancipated as persons and others are emancipated as bodies; that concern and neglect become differentiated along this boundary; that tight coupling of exclusions and loose couplings of inclusion differentiate fate and fortunes and that two forms of integration will compete: the negative integration of exclusion and the positive integration of inclusions.

Luhmann states already in ) also argues for the use of inclusion and exclusion as a guiding distinction of the analysis of issues of ethnic and national background e.g., related to migration. This perspective, Jönhill (2012) argues, allows to deal with a multitude of matters and social issues, all demanding differentiated answers and ‘solutions’.

The signs of this worst-case scenario, outlined by Luhmann in 1997, may since then have gained ground, and can now be observed and described by the extreme inequality in wealth distribution described by Piketty (2014), or as the rise of the precariat (Standing 2011), feeding into the populist political movements. It also may feed into the scenarios build by Roth (2021), in which he envisions future possibilities of a re-stratification of the world society based on either a “capitalism scientocracy” scenario, or a scenario called “restorism”, which is an autocratic, digitalized society where health (for people, planet and livelihoods) is prioritized above all, but on the expense of privacy and liberal democracies. However, Luhmann (1997:69) states, that:

We have to come to terms, once and for all, with a society without human happiness..., without taste, without solidarity, without similarity of living conditions. It



makes no sense to insist on these aspirations, to revitalize or to supplement the list by renewing old names such as civil society or community. This can only mean dreaming up new utopias and generating new disappointments in a narrow span of political possibilities. These desirabilities serve as a central phantom that seems to guarantee the unity of the system. But one cannot introduce the unity of the system *into* the system. We may well recognize the hardships and the injustice of stratification, but this is no longer the main problem of society....

Thus, Luhmann disputes the notion of geographical stratification (or hierarchical) differentiation, as he claims that it has become more and more doubtful, that we can change the structure of society by appealing to reason, by critique, by reforming institutions, or by revolution. He states, that neither “exploitation” nor “suppression”, which is terms that refer to stratification, are adequate descriptions. He argues that these terms are “*outdated mythologies, negative utopias suggesting an easy way out of this situation*” (Luhmann 1997:70). Luhmann’s alternative way of addressing the problem is, through the notion of *inclusion and exclusion*; terms that relate to functional differentiation and not to stratification. He also recognizes that “*function systems presuppose inclusion of every human being, but in fact exclude persons that do not meet their requirements*” (Luhmann 1997:70), such as individuals without birth certificates or identity cards, or the capacity to call the police – and that one exclusion can explain the other. Luhmann (1997:75) also asks: “*What can we expect when the very success of the function systems depends on neglect?*” Instead of searching for a better society, he advises to search for “*what is the problem?*” (Luhmann 1997:77). He concludes that the problem is not suppression, but neglect.

By researching and illustrating semantics that ameliorate social systems ability to observe themselves “as from outside”, and to observe the way in which other systems (including non-social) observe, engaged management scholars working from a social systems approach, may engage with organizations and polycentric networks to uncover this neglect to set up strategies for a multifunctional inclusion – also of non-social systems. Further, this involved working with observations supporting reflection on how to constrain the social systems own autopoiesis in such a way, that previously externalities are reflexively included.

Luhmann (1997:70) also recognizes, that “*functional differentiation is a specific historical arrangement that has developed since the late Middle Ages and was disruptive only in the second half of the 18th century*”. Recognizing this, Luhmann (1997:70) asks, how it is “*possible that a system [the world society] can change its dominant form of internal differentiation?*”

Luhmann (199720212009)

the world society has reached a higher level of complexity with higher structural contingencies, more unexpected and unpredictable changes ... and above all, more inter-linked dependencies and inter dependencies. This means that causal construction, (calculations, plannings) are no longer possible from a central and therefore “objective” point of view. ... We have to live with a polycentric, polycontextual society.

Thus, how to perceive polycentricity and polycontextuality in the specific context is an important step to reach a reflective state. Luhman also states (Luhmann 1997:76):

Looking ahead to our future, we cannot see any other form of differentiation. Regression to earlier forms, say stratification or segmentary (tribal) differentiation, may be possible, but is probable only after some large-scale catastrophe. We cannot close



the list of possible types of differentiation on ontological or logical grounds, but we cannot conceive of another type either. (Likewise, the stratified societies of the past could think of functional differentiation only at the role level and not as primary differentiation of the societal system itself).

We suggest, that exactly a *polycentric, polycontextual society*, may produce polycentric networks interlinked by digitalization as a way to “compensate” for the “neglect” produced by the functional differentiation of the modernity.

Forming regional polycentric networks (including scientific research scholars) may to a greater extent bridge the global agendas with local and regional issues to not be excluded in a transition process. This seems to be increasingly important as digitalization and abstract knowledge are gaining ground, even though bits and abstract knowledge should easily be detached from spatial limitations.

In how to a greater extent bridge local and regional issues towards the strong global forces in a transition process, teaming up in regional collaborations may be “the missing link” to help peripheral regions not to be left out in the transition process.

The challenge in focusing at “grand challenges” however is: who may define and legitimize challenges as “grand challenges”, and who has a legit position to choose the perspective in which to study “grand challenges”? A multifunctional perspectivation and engaged scholarship in grand challenges is useful for such a broad scope.

## Conclusion

The paper discusses potential roles for management and leadership scholars in shaping the semantics for “next era” leadership and management. It addresses the concept of the rigor-relevance gap, which refers to the disconnect between scientific research and practical application.

Some argue that this gap is unbridgeable (Kieser and Leiner ), while others (Neisig ) argue that engaged scholarship in polycentric networks can bridge or narrow the gap by allowing communication by both researchers and practitioners to communicate and produce knowledge in different codes, while establishing a polycentric network. Teubner (1993) has theorized polycentric networks as higher order autopoietic systems with a dual constituency that may vary over time, as the network can react either as a whole, or the nodes can react autonomously allowing them a high capacity to handle complexity.

Neisig (2021) suggests that scholars may play a role in facilitating shared semantics in polycentric networks by acting as “midwives” for shared semantics in a polycentric network may be one role for engaged scholars to engage, with a dual role to as part of the network, and as persons paying attention to the scientific system.

Luhmann pointed out in 1997 that function systems may neglect certain individuals, peripheral regions, or the ecological environment. Instead of trying to create a better society, Luhmann advises to focus on identifying the problem of neglect by the functional systems. This paper suggests that management scholars who adopt a social systems theoretical approach may work with organizations and polycentric networks to uncover this neglect and develop strategies for multifunctional inclusion, as well as inclusion of non-social systems. This could be done by researching and illustrating semantics that improve social systems’ ability to understand themselves and other systems as from an outside perspective. Additionally, the paper suggests that this approach would involve types of observations supporting reflection on how to constrain social systems’ own autopoiesis in order to

include previously external factors. This type of semantics is seen as necessary for reorganizing structural couplings for a “next era.”

The paper suggests that for scholars to participate in a polycentric network in order to establish shared semantics, they must approach the process in a bottom-up manner. However, an additional layer of reflection may be needed - a reflection on how to manage “backwards” from the future. This means targeting “grand challenges” and “grand solutions” with a strategic mindset creating meaning, rather than creating plans that ultimately fail. However, the paper raises the question of who is being included or excluded in setting the agendas of “grand challenges” and “grand solutions”, as well as forming large research programs and selecting projects targeting these.

The paper argues that peripheral regions may be at risk of being left out in the process of shaping global agendas. It suggests that by forming regional polycentric networks, which include scientific research scholars, it may be possible to better bridge and align global agendas with local and regional issues, so that these peripheral regions are not excluded in the transition process.

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