1 Introduction: A Grand Challenge and One Organization Theory Response

The starting place for this Element is one of the grand challenges for humanity: climate change (United Nations, 2017). The Royal Society and the US National Academy of Sciences call it "one of the defining issues of our time" (Showstack, 2014). The World Economic Forum has repeatedly placed it in the top ten risks and future worries for the planet (World Economic Forum, 2017). Recently, the British medical consortium, The *Lancet* Commission, pronounced climate change to be "the biggest global threat of the 21st century" (Costello et al., 2009: 1693), and in recent months, the government of China has seen "climate change as a pressing danger, responsible for rising sea levels that threaten coastal cities as well as for aggravating droughts in the north, floods in the south and, as it now turns out, the omnipresent smog" (*Economist*, 2017a).

While the actual phenomenon of climate change has a physical science foundation, an investigation into its underlying causes and solutions lies within the realm of organization theory. "Organizations play a leading role in our modern world. Their presence affects – some would insist that the proper term is *infects* – virtually every sector of contemporary social life" (Scott & Davis, 2015: 1). The actions of organizations, as much as those of the individuals who inhabit them, greatly shape how we will live and adapt in a world that climate change has altered. As the goal of this *Elements in Organization Theory* series makes clear, organizations can, at their best, "be vehicles of social progress and the solution to basic problems such as the provision of food, healthcare, education and other human needs and wants" and, at their worst, "provide the tools to multiply the effects of the darkest of human impulses and result in terrorism, genocide, and labor camps." In short, "organizations matter," and it only makes sense, then, to consider what we know theoretically and empirically about organizations in order to reshape, or redress, this grand challenge. The initial question that guided this Element, then, was, "How might organization theory help us deal with the grand challenge of climate change?" As we will explain, that question will be rescoped to reflect the entirety of the challenge we now face.

1.1 Rescoping the Challenge

According to scientists (Rockström et al., 2009; Steffen et al., 2015), climate change represents just one marker of an even broader challenge, that we are living within what has been labeled "the Anthropocene," a new geophysical epoch in which human activity is having a documentable influence on the fabric

of the planet. This is far different from the litany of damage we have inflicted on the environment for centuries. Instead, we are now inadvertently taking control of some aspects of ecosystem operations. In this new age, the effects of the world's 7.5 billion people (to be nearly 10 billion by 2050) can be seen through breakdowns in multiple planetary systems, climate change being just one of them.

Such a monumental shift in our physical reality must, by definition, be accompanied by an equally monumental shift in our social reality, as it is the system failures created by our organizational and institutional structures that are the cause of these breakdowns. From an empirical point of view, the markers of the Anthropocene present humans with the potential to render the environment unfit for life as we now know it. From a conceptual point of view, this issue overshadows all prior scholarly work on the interactions between social and natural systems.

In the Anthropocene, our possible futures are diverse – potentially bright or possibly stark. But where past efforts at addressing environmental protection have focused on "reducing unsustainability," efforts in the Anthropocene must focus on "creating sustainability" (Ehrenfeld, 2009). The former will slow the velocity at which we are approaching a system collapse, but it will not reverse direction. Only the latter will address the challenge in any meaningful way. Therefore, this topic must become a major, if not predominant, focus of future work on environmental issues. Such a shift in focus directs an examination of the causes, effects, and responses of the whole of the phenomenon. So, in this Element, we will address the broader and more pertinent question: "How might organization theory respond to the grand challenge represented by the Anthropocene Era?" To answer this question, we must first examine the nature of this grand challenge in more depth.

1.1.1 The Anthropocene Era

By professional agreement, geophysicists have labeled the current geological epoch the "Holocene," signifying an era of relative stability and warmth within the Quaternary Period compared to the ice ages preceding it. More recently, these scientists have noted the increasing evidence of an overwhelming impact of human activity in geological strata. One branch, working with anthropologists and archeologists, has examined the rise of hominid groups and their lasting impact on the natural environment, for example, as one factor in the extinction of species such as mammoths around 12,000 years ago and many other species today (Kolbert, 2014). Another has focused on increasing deposits of carbon, particulates, plastics, and radioactive isotopes. Still a third has

noted the extent to which humans have altered broader systems by which Earth operates, as seen in freshwater balances and temperature levels. These biophysical traces, combined with a foundation in evolutionary theory, have led to a reconceptualization of the role of humans in the planet's history and health (Crutzen & Stoermer, 2000; Kolbert, 2014; Zalasiewicz et al., 2016). To mark that reconceptualization, geophysicists have proposed that we have now entered the "Anthropocene."

Currently, the concept is moving through the process of formal recognition by geophysical societies. In September 2016, the Working Group on the Anthropocene recommended a declaration of the International Geological Congress in favor of formal designation (thirty members voted yes, three voted no, and two abstained). The demarcation of this era, its key characteristics, and its underlying model – and, indeed, whether all of science, not just a subset of geophysicists, will accept it – are being debated (Zalasiewicz et al., 2016). To date, three different versions of the Anthropocene Era have evolved. None is mutually exclusive; all rely on one another and some scientists subscribe to more than one.

The first version is the "Great Acceleration" (Crutzen, 2002; Crutzen & Stoermer, 2000; IPCC, 2017; Monastersky, 2015; Steffen, Crutzen, & McNeil, 2007; Zalasiewicz et al., 2016). As displayed in numerous documents (IPCC, 2017; Steffen et al., 2015; WWF, 2016), there have been geometric increases in indices of declining environmental and human health, such as greenhouse gas (GHG) concentrations, industrialization, urbanization, consumption, and species loss. These mirror the trends in the "hockey stick" graph – the parallel and dramatic increases in GHG concentrations and global mean temperature since the Industrial Revolution (Mann, Bradley, & Hughes 1999). There are also indications of recent declines in human happiness, particularly in developed countries (Cobb, Halstead, & Rowe, 1995; Hamilton, 1999) and increases in within-country and cross-national inequity (Piketty, 2014; Sachs, 2008). These data trends suggest a decline in the social well-being of societies, along with accelerating degradation of the environment.

The second approach, "Planetary Boundaries" (PBs), is built upon nine planetary-level proxies that measure threats to global ecological health. Each proxy represents "thresholds below which humanity can safely operate and beyond which the stability of planetary-scale systems cannot be relied upon" (Gillings & Hagan-Lawson, 2014: 2). Hence, they are seen as boundaries, with thresholds that are periodically adjusted based on evolving scientific knowledge and human response to alleviating environmental damage. Currently, they include (1) rapid climate change, (2) high rates of novel entity introduction, (3)

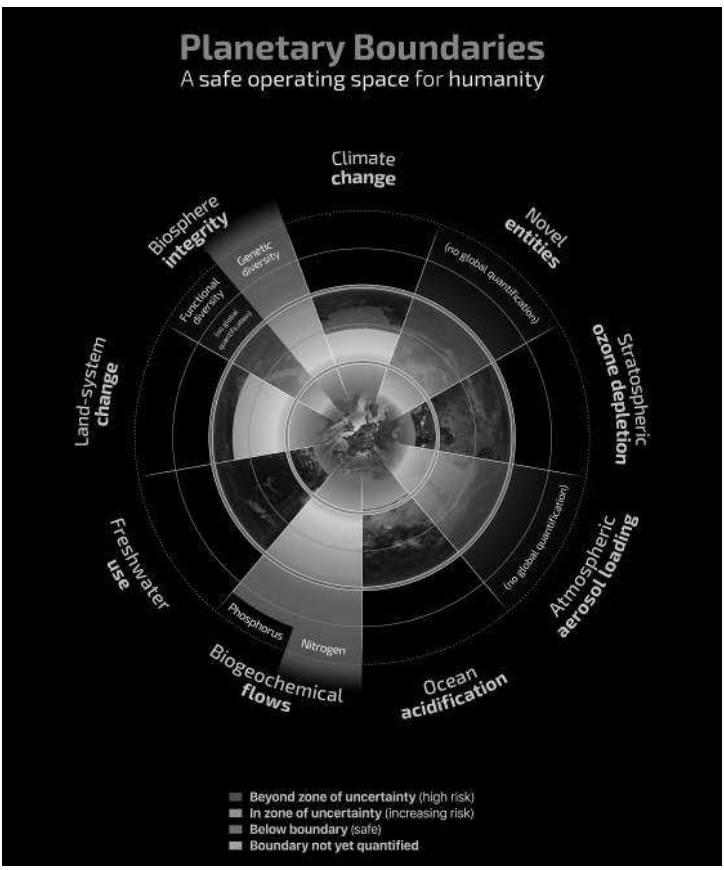

Figure 1 Planetary boundaries of the Anthropocene. (F. Pharand-Deschênes/ Globaïa for Steffen et al. [2015]. Planetary boundaries: Guiding human development on a changing planet, *Science,* 347[6223]: doi.org/10.1126 /science.1259855. Used with permission).

ozone depletion, (4) aerosol loading, (5) ocean acidification, (6) biogeochemical flows (nitrogen and phosphorus), (7) high freshwater use, (8) extensive land-system change, and (9) biosphere disintegration (Gillings & Hagan-Lawson, 2014; Rockström et al., 2009; Steffen et al., 2015; Stockholm Resilience Center, 2016). Each proxy has specific measures for the extent of change (i.e., degree of temperature rises for climate change), and the underlying science indicates nonlinear (often exponential) increases of scale leading to tipping points beyond which return is uncertain. One of the more compelling depictions of this approach, one that has become an artifact for Anthropocene thinking, is displayed in Figure 1. As noted in the figure, scientists believe that

we have overshot three key thresholds: climate change, biodiversity loss, and the nitrogen cycle.

The third approach echoes both of the prior approaches but focuses more on consequences or "Ecosystems Breakdowns." These breakdowns come in several forms: the extinction of species (Kolbert, 2014); increased frequency and scale of regional weather events, such as droughts, hurricanes, wildfires, and floods (de Villiers, 2001); and the failures of food chains and water systems that affect human societies (Diamond, 2005). Given the complex relationship among the planet's ecosystems, the breakdowns tend to cascade across different domains, creating ever more vicious cycles and ever greater uncertainty (Rhodes, 2014). Philosophically speaking, these breakdowns are an indication of the limits of human ingenuity and resilience (Perrow, 2007). More concretely, they call into question the economic systems of society that appear to be generating Anthropocene problems (Wright & Nyberg, 2015).

When rescoping the focus of this Element toward the grand challenge of the Anthropocene, we think it useful to subscribe to a combination of all three approaches, as each contributes to the composite whole (Ferraro et al., 2015). In many ways, they represent sequential temporal scales, with the Great Acceleration focusing on the past to the present, PBs concentrating on the present to the near future, and the Ecosystems Breakdowns considering the more distant future should PBs be ignored. All three are based on recognition of linked ecosystem changes, nonlinear shifts in thresholds, peak events, and some subsystem collapses (Ehrenfeld, 2009). Finally, each approach entails specific social problems, which, combined with the environmental problems associated with boundary overshoot, create a composite of the grand socio-environmental challenge that the Anthropocene represents (Biermann et al., 2012; Clark, 2014). So, our reference in this Element to the "Anthropocene" will be the inclusive conceptualization.

1.1.2 Anthropocene Society

As researchers have begun to examine spillovers from the biophysical to the social spheres (and vice versa), they have developed an attendant concept, "Anthropocene Society," to be paired with the Anthropocene Era. Anthropocene Society refers to the human systems (social, economic, political, religious, etc.) that are a past cause, present consequence, and future adaptation of our ecosystem changes (Hoffman & Jennings, 2015; Seidl et al., 2013). Indeed, human systems are the key drivers of climate change, biodiversity loss, waste increases, and declines in human health and happiness for exposed (typically disadvantaged) groups.

There are arguments about how best to characterize Anthropocene Society. A systems approach, which is a natural extension of ecosystem analyses, suggests that Anthropocene Society is best viewed as a complex, multilevel, multinodal set of human systems (Galaz et al., 2012; Polhill et al., 2016; Seidl et al., 2013). This brings to mind a modern Byzantium of overlapping social, economic, and political subsystems that are unwittingly driving and being driven by Anthropocene changes. Within these subsystems, there is a wide array of diverse organizational actors (Hoffman, 2011; Palsson et al., 2013; Schussler, Ruling, & Wittneben, 2014), which include scientific agencies, such as the Intergovernmental Panel on Climate Change (IPCC), the US National Academy of Sciences, and the International Geological Congress; government agencies, such as the United Nations, the International Energy Agency (IEA), the European Union, and the US Environmental Protection Agency; environmental nongovernmental organizations (ENGOs), such as the Stockholm Institute, World Wildlife Fund (WWF), Greenpeace, and the Sierra Club; and multinational corporations (MNCs), such as those in the incumbent fossil fuel industry and automobile sectors as well as those in the emergent renewable energy and advanced mobility sectors. This constellation also includes organizations and mobilized groups, such as climate change skeptics (i.e., the Heartland Institute), the Occupy Movement, the Tea Party, and 350.org. Indeed, the founders and leaders of such organizations often have the same preeminence (and need for accountability) as leaders of scientific agencies, ENGOs, corporations, and governments.

Through these subsystems and constellations of actors, Anthropocene Society and its operation presently lead to accelerating rates of production, consumption, and waste in what has become the globally dominant capitalism-based system. This system has promoted continued growth in population and economic activity as measures of progress without regard for the destructive power that they hold for the global environment that supports human and other life. As a result, various dystopian outcomes are viewed as likely should we continue on our current path. But, concurrently, some hold out hope for a shift in society that will offset some or most of the negative impacts of the Anthropocene. Our goal in this Element is to examine such possible futures. To do that, we turn to organization theory.

1.2 Selecting an Applicable Organization Theory

Because the multifaceted challenges of the Anthropocene take place within systems, logics, beliefs, norms, and the communities that possess them (both large- and small-scale actors), organization theory is well suited for understanding

and resolving the Anthropocene challenge. In this Element, we argue and demonstrate that institutional theory is a particularly potent approach based on our broad reading of and experience with organization theory. In particular, we have relied on two converging corpora of knowledge to inform our opinion. The first corpus is research (theoretical and applied) in the literature on organizations and the natural environment, which is found in issue-specific journals such as *Organization & Environment, Business & the Natural Environment*, and *Business & Society* as well as in Handbook summaries such as those published by SAGE (Lyon, Diermeier, & Dowell, 2014), Routledge (Georg & Hoffman, 2013), and Oxford University Press (Bansal & Hoffman, 2012). Relevant research literature can also be found in mainstream journals such as the *Academy of Management Journal, Academy of Management Review, Organization Science*, and *Administrative Science Quarterly*. The second corpus on which we base our choice is found in classics of organizational theory construction, such as Burrell and Morgan (1979), Scott (1995), Clegg (2010), Powell and DiMaggio (2012), Scott and Davis (2015), and Greenwood et al. (2017).

While other organization theory approaches remain useful for examining the question that motivates this Element (i.e., strategic choice, stakeholder theory, and systems theory), we find institutional theory to be particularly applicable, as it pushes in the direction of open systems thinking, which fits with the notion of organizations within ecologies and ecosystems; it incorporates tensions and paradoxes that can allow more fluid interface with natural environment topics; it considers multilayered components of organizations and their environments (such as strategy, structure, technology, and culture); and it readily matches levels of analysis (phenomena) with mechanisms and outcomes.

In addition, recent research within the domain of institutional theory has already begun to examine some key Anthropocene issues, most notably climate change (i.e., Ansari, Wijen, & Gray, 2013; Giddens, 2009; Perrow, 2007; Schussler, Ruling, & Wittneben, 2014) and toxin release (Maguire & Hardy, 2008, 2009), with a focus on topics such as cultural beliefs and values that lie at the heart of a shift to Anthropocene Society. Looking more broadly at the sociology of knowledge, readers will immediately observe that institutional theory is normally listed as one of the key approaches in the literature and underlying knowledge base of organization theory (Scott & Davis, 2015). The institutional perspective, as assessments of article submission topic ("heat") maps have shown, has a significant set of contributors, reflecting a sizeable audience. This should help carry forward institutional approaches to the natural environment in general and the Anthropocene in particular.

Nevertheless, we also recognize limitations within the theory and its ability to fully address certain aspects of the Anthropocene. Critics of institutional theory charge that it is an unchanging and hegemonic paradigm, one that fails to adequately attend to issues of power and dominance (Clegg, 2010; Khan, Munir, & Willmott, 2007; Munir, 2015). As such, we use the unprecedented phenomenon of the Anthropocene to examine and amend institutional theory. In fact, we find that the theory is open to such adjustment and change. Historically, institutional theory has benefited by incorporating elements from alternative perspectives: adding change mechanisms (Dacin et al., 2002), focusing on practice variation and translation (Czarniawska & Sevón, 1996), and theorizing micro mechanisms as part of institutional processes (Lawrence et al., 2002; Maguire & Hardy, 2008).

As a result, our approach in this Element has two components. First, we build on the solid foundations of institutional theory and institutional complexity to construct a model on which to understand Anthropocene Society. Second, we draw on existing critiques of institutional theory as a way to amend and strengthen its approach more generally, and toward the Anthropocene more specifically. Overall, we take seriously the long-term need to combine *Naturewissenshaften* with *Kulturewissenshaften*, a central concern in Weber's work (Weber, 1949), and to use theory and research to inform reflexive practice and policy. Indeed, two of the great challenges for handling the environmental and societal problems created by the Anthropocene are linking the natural and social sciences and using engaged scholarship to bring these literatures most closely in line with shifting biophysical and social realities. We hope to contribute to both challenges by developing a more dynamic version of institutional theory and thus re-engage with these issues.

1.2.1 Foundations of the Mainstream Institutional Model

Institutional theory has only recently been applied to specific topics of the Anthropocene Era, but its application to the general topic of Anthropocene Society is relatively new (see Hoffman & Jennings, 2015; Jennings & Hoffman, 2017). Therefore, we begin this Element by assessing the most current variants of institutional theory and research relevant to the Anthropocene and then consider which parts (or specific variants) either remain applicable or need modification for successful application.

To begin, current institutional theory reflects an underlying skepticism toward atomistic accounts of social processes, relying instead on a conviction that institutional arrangements and social processes matter in the formulation of organizational action (Powell & DiMaggio, 1991). At its core, the literature

looks to the source of action as existing exogenously to the actor. But more than merely suggesting that action is a reaction to the pressures of the external environment, institutional theory asks questions about how social choices are shaped by the institutional environment.

Organizational action then becomes a reflection of the perspectives defined by the group of members who comprise the *organizational field*, a "community of organizations that partakes of a common meaning system and whose participants interact more frequently and fatefully with one another than with actors outside the field" (Scott, 1995: 55), generally forming around issues of specific interest and importance to field members (Hoffman, 1999). By interaction, mindset, or widely accepted categorization, members of the field share common ways to understand and act within the world around them. How organizations interact as a field varies. Some variants of institutional theory rely on natural systems views of organizational and field-level operations (collectivist and informal community oriented), whereas others subscribe to more open-system and less-agentic views.

The form of field-level influence is manifested in *institutions*: regulative, normative, and cultural-cognitive systems that provide meaning and descriptions of reality for organizations (Scott, 1995). Of particular interest here, institutions include specific *logics*, which are "the belief systems that furnish guide-lines for practical action" (Rao, Monin, & Durand, 2003: 795); they are sets of beliefs and practices that are deeply held and taken for granted as legitimate explanations of what is and what is not, what can be acted on and what cannot (Friedland & Alford, 1991). One of the most widely accepted expositions of institutionalism, found in Thornton, Ocasio, and Lounsbury (2012), examines how generic logics – such as the market, state, or community – constitute fields and shape actions within them through social orders or systems. Each social order has similar underpinnings in its cultural metaphors, identities, norms, favored strategic moves, and sources of legitimacy and authority.

The social orders themselves are maintained or changed through cross-level, macro–micro interactions. Macro logics, and their associated practices and identity, affect micro-level attention through availability and access heuristics (biases), leading to the use of identity, goals, and schema in communication and negotiation as part of social action. At the same time, these forms of social action percolate upward into macro-level practices and wider identities through decision processes, sense-making, and social mobilization. The strength of this depiction of institutional theory lies within its presentation of the field as well as both its coherent representation of logics (and thus culture) in and across different social orders and its sensitivity to macro- and micro-interactions that shape and shift each logic.

Institutional theory, in short, asks questions about how organizational behaviour is mediated and channeled by institutional pressures. As an organization becomes more profoundly aware of its dependence on this external environment, its very conception of itself changes, with consequences on many levels. As this happens, Selznick states, "institutionalization has set in" (1957: 7). Hence, institutionalization represents both a process and an outcome (DiMaggio, 1988), a duality that helps us examine Anthropocene Society.

1.2.2 The Institutional Complexity Model

Current institutional theory has also embraced the complexity model of institutions (Greenwood et al., 2011; Kraatz & Block, 2008; Pache & Santos, 2010). This model deepens the examination of how multiple logics work with (or against) one another within a field and specific organization. As depicted in Figure 2, from Greenwood et al. (2015), the model relies on notions of complex fields, which are composed of multiple logics that interact in complementary or competitive ways (Durand & Paolella, 2013; Pache & Santos, 2010) among a complex array of actors and their interactions. Organizations respond to this

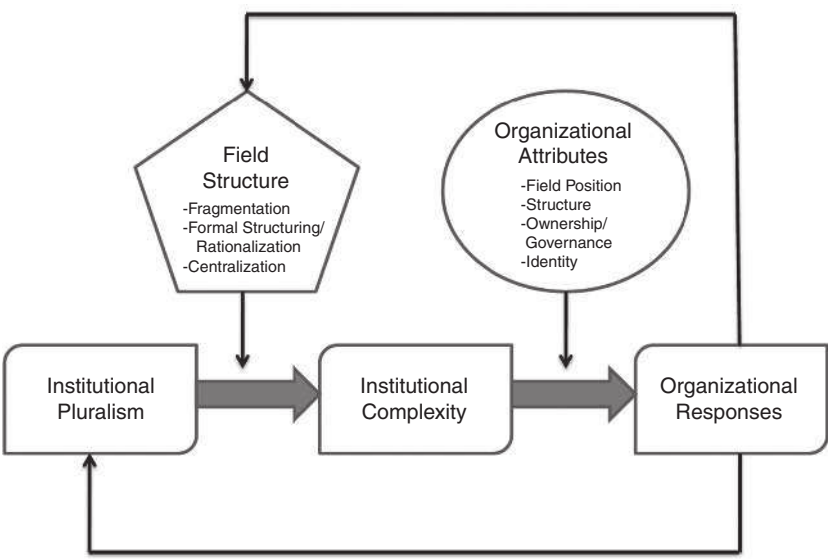

Figure 2 The institutional complexity model. (From Greenwood, R., Jennings, P. D., & Hinings, R. [2015]. Sustainability and organizational change: An institutional perspective. In R. Henderson, R. Gulati, and M. Tushman, eds., *Leading Sustainable Change: An Organizational Perspective*. Oxford: Oxford University Press, p. 327, Figure 13.1. By permission of Oxford University Press.)