The Special Research Forum on
GRAND CHALLENGES IN MANAGEMENT

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INTRODUCTION TO THE SPECIAL RESEARCH FORUM

**UNDERSTANDING AND TACKLING SOCIETAL GRAND CHALLENGES
THROUGH MANAGEMENT RESEARCH**

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ABSTRACT
        Grand Challenges are formulations of global problems that can be plausibly addressed through coordinated and collaborative effort. In this Special Research Forum, we showcase management research that examine societal problems which individuals, organizations, communities, and nations face around the world. We develop a framework to guide future research to provide systematic empirical evidence on the formulation, articulation, and implementation of Grand Challenges. We highlight several factors that likely enhance or suppress the attainment of collective goals, and identify representative research questions for future empirical work. In so doing, we aspire to encourage management scholars to engage in tackling broader societal challenges through their collaborative research and collective insight.

        The world is besieged by challenges. Discourses in public media suggest that this decade is characterized by political instability, economic volatility, and societal upheaval. Whether it is war in Syria, migrant crises in Asia and Europe, climate change-induced natural disasters, poverty, water scarcity, or famine, global challenges remain stubbornly persistent despite technological, economic, and social progress. Whether it is elections to government office or discussions on trade and open borders, socio-political dialogues are increasingly nationalistic, populist, and socially divisive in many countries. Nascent technologies such as the 'internet of things,' machine learning, and artificial intelligence threaten employment and will likely displace significant parts of the workforce. Even if potential solutions exist, these

global problems require coordinated action. In this context, businesses have become active in vocalizing their concerns and working with governments and multilateral agencies to address these crises -- with a goal of providing socially inclusive growth where the poorest and the disenfranchised will have the opportunity to participate in social and economic progress. This is an opportune moment for management scholars to join the debate and turn research into actionable insights to frame and tackle some of the biggest challenges that we face in our global community.

GRAND CHALLENGES: WHAT ARE THEY AND WHY SHOULD WE CARE?

The *Academy of Management Journal*'s 20th editorial team has defined its three year term with a thematic emphasis on "Grand Challenges" (hereafter, GCs) and called for research through editorials on a wide array of topics that explored global problems including climate change (Howard-Grenville, Buckle, Hoskins & George, 2014), aging societies (Kulik, Ryan, Harper & George, 2014), natural resources (George, Schillebeeckx & Liak, 2015), societal resilience (van der Vegt, Essens, Wahlstrom & George, 2015), digital workforce (Colbert, Yee & George, 2016), digital money (Dodgson, Gann, Wladwsky-Berger, Sultan & George, 2015), and gender inequality (Joshi, Neely, Emrich, Griffiths & George, 2015) among others as well as methodological approaches to tackle them (Eisenhardt, Graebner & Sonenshein, 2016; George, Osinga, Lavie & Scott, 2016). This *Special Research Forum* is a culmination of the current editorial team's efforts to encourage research on societal problems with the aspiration that more management scholars would join global efforts at understanding and solving persistent, but tractable, Grand Challenges.

Defining Grand Challenge

The term "Grand Challenge" begins with the efforts of Dr. David Hilbert, a German mathematician later recognized as one of the most influential 20th century mathematicians, who in 1900 at the International Congress of Mathematicians in Paris, listed a set of 23

problems which were collectively termed as Grand Challenges (Hilbert, 1902). These challenges were specific mathematical problems that were articulated and formulated to spur interest and dialogue among mathematicians, which in turn generated breakthroughs in mathematics, physics, and other scientific fields. This idea of articulating challenges to focus efforts on addressing common problems was used successfully by foundations, governments, academies, and multilateral agencies to engender collaborative responses to solving global problems. Though several definitions of GCs exist, they tend to focus on specific domains (e.g., health or engineering). We use a modified definition that was developed by Grand Challenge Canada (2011). We define a grand challenge *as specific critical barrier(s) that, if removed, would help solve an important societal problem with a high likelihood of global impact through widespread implementation*.

GCs, by their very nature, require coordinated and sustained effort from multiple and diverse stakeholders towards a clearly articulated problem or goal. Solutions to GCs typically involve changes in individual and societal behaviors, changes to how actions are organized and implemented, and progress in technologies and tools to solve these problems. Thus, the tackling of GCs could be fundamentally characterized as a managerial (organizational) and scientific problem. Natural and physical scientists and engineers have readily adopted such a lens and GC language in their definition of global problems, with social scientists recently joining this coordinated effort.

Sustainable Development Goals

There are several GCs defined by foundations, for example, The Bill and Melinda Gates Foundation's GCs for Global Health that have seven stated goals (e.g., improve vaccines) and 14 articulated GCs (e.g., develop vaccines that do not require refrigeration). Perhaps the most universal and widely adopted GCs are from the United Nations' (UN) *Sustainable Development Goals* (SDGs). At a historic UN Summit in September 2015, 193

member states of the UN adopted a set of 17 goals to end poverty, protect the planet, and ensure prosperity for all as part of a sustainable development agenda. These 17 SDGs set 169 targets between them to be achieved by 2030. Figure 1 provides a concise representation of the SDGs. In Table 1, we provide further detail and give specific empirical examples of GC targets and problems faced by different countries.

Insert Figure 1 and Table 1 Here

Many SDGs are directly relevant to management scholars, chief among them are "Decent Work and Economic Growth" (SDG 8), "Industry, Innovation and Infrastructure" (SDG 9), and "Responsible Consumption and Production" (SDG 12). Related SDGs where management scholars already conduct significant research include "No Poverty" (SDG 1), "Good Health and Well-Being" (SDG 3), "Gender Equality" (SDG 5), and "Reduced Inequalities" (SDG 10). Other SDGs predominantly tend to be *contexts* for our empirical studies rather than the goal itself. For example, "Affordable and Clean Energy" (SDG 7) could be served through empirical research on sustainable and green practices of businesses where management research might provide insight for businesses and prepare them to act towards these goals. The elegance of these SDGs are in the articulation that human progress stems from achieving these clear targets through collective, collaborative, and coordinated effort.

GRAND CHALLENGES AND MANAGEMENT RESEARCH

The response for this *Special Research Forum* call on Grand Challenges in Management was overwhelming. We have reviewed over 130 submissions and included 14

of the accepted articles in this issue[1]. The studies vary in context and issues being addressed, giving a rich variety of ideas for future research in management. In this section, we highlight how management scholars are studying these social problems. We separate the studies into two broad themes: (1) studies that address how management theories can be applied to address Grand Challenges – i.e., *management insights on how global problems can be tackled*, and (2) studies that identify mechanisms and contexts by which Grand Challenges affect organizations and institutions – i.e., *how global problems affect our business and work environments*.

Management as a tool to address Grand Challenges

Eradicating and treating diseases that afflict the poorest in the world is one of the most compelling Grand Challenges of our time. Vakili and McGahan (this issue) tackle healthcare as a Grand Challenge, focusing on investments to stimulate basic scientific research on diseases that afflict the poor. They analyze how policies developed in affluent countries fail to address this important challenge. Specifically, the authors focus on the World Trade Organization's 1992 Trade-Related Intellectual Property Rights Policy (TRIPS) that encouraged the use of basic science as a prerequisite to develop drugs for neglected diseases. Vakili and McGahan's global-response analysis reveals that this requirement did indeed lead to an increase in research in both neglected and non-neglected diseases in TRIPS compliant countries and that this effect was the strongest for basic research on neglected diseases and applied research on non-neglected diseases. At the local level, basic research on neglected diseases increased in TRIPS compliant low-income countries. The authors conclude that although policies designed to enhance science do play a role in increasing research on neglected diseases, delays in commercialization given an emphasis on basic research may limit the effectiveness of these policies. These findings may be extended to understand the

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[1] At the time of going to print, a handful of manuscripts were undergoing further revisions. These articles will appear in a 2017 *AMJ* issue. A few studies were conditionally accepted when this editorial was written and are integrated into this editorial, but the studies themselves will appear in print at a later date.

effects of institutions on innovation and on institutional emergence and development in relation to tackling Grand Challenges.

Leveraging observational and interview data collected over a decade's engagement with Gram Vikas, an NGO tackling water and sanitation issues in rural India, Mair, Wolf and Seelos (this issue) expose how such interventions can be effective at shifting broader norms underpinning persistent patterns of inequality. They advance 'scaffolding' as a process that can transform the institutional and cultural patterns that allow Grand Challenges like inequality to persist, drawing attention to how diverse groups of people can be drawn into new patterns of interaction that are ultimately stabilized into a new social order. While scaffolding involves the mobilization of specific resources to enable this transformation, it also importantly conceals more controversial goals, by, for example, presenting the proximate goal of sanitation to mask the goal of upsetting traditional social systems that sustain inequality.

Cobb, Wry, and Zhao (this issue) investigate the funding of microfinance organizations, the providers of financial services that have been considered as effective means in alleviating poverty in least developed and developing countries. Their article on funding financial inclusion makes a contribution to the institutional logics perspective by contrasting the financial logic of commercial funders with the developmental logic of public funders. Using data from 891 microfinance organizations and their 1490 funders in 92 countries over the period of 2004-2012, Cobb and his colleagues demonstrate that different funders, owing to their different institutional logics, prefer to invest in different types of microfinance organizations based on the organizations' size and performance. However, the authors find a convergence in these institutional logics, leading to a focus on the size of microfinance organizations and thus to the inability of smaller microfinance organizations to

attract funding. This change in funding, in turn, has adverse effects on the microfinance sector and those in need of inexpensive loans during times of uncertainty.

Zhao and Wry (this issue) focus on the issues of gender equality and poverty reduction in the context of microfinance lending in 115 developing countries. They conceptualize lending to women borrowers by microfinance organizations as a reflection of patriarchy, a broader societal logic. Their analysis of archival data on 2,326 microfinance organizations from 1995 to 2013 and interviews with 27 professionals in 14 countries reveal that patriarchy has different influence across the sectors of the society, such as the family, religion, professional, and state sectors. In addition to making a contribution to research on institutional logics, their empirical evidence on the varying effect of patriarchy on different societal sectors may help microfinance organizations in developing different funding and lending practices in societies characterized by different levels of patriarchy and, thus, improve the effectiveness of financial assistance to the poor in developing countries.

Lawrence (in press) analyzes how North America's first and only government-sanctioned supervised injection site for illegal drug users was established in Vancouver, modelled on such sites in Europe. Drawing on this as a case of the successful translation of a morally, ethically and emotionally divisive practice into a community, Lawrence theorizes a process of 'high-stakes institutional translation.' High-takes institutional translation is energized by intense public emotion around an issue, and proceeds through waves of discursive and material translations by actors with various perspectives, roles, and bases of legitimacy. Through these waves, ideas and practices that were once considered morally repugnant become locally validated and embedded in a community's network of concepts, routines and relationships. In exposing how high-stakes institutional translation transformed supervised injection from a violation of moral standards (apparently condoning illegal drug use) into an important component of healthcare provision (recognizing that drug addiction

was a medical condition and drug addicts worthy of respect and compassion), Lawrence's analysis sheds light on how ideas and practices surrounding morally charged grand challenges might be ultimately transformed.

Using a seven-year panel dataset Berrone, Gelabert, Massa-Saluzzo, and Rousseau (this issue) address income inequality by testing a framework that examines how institutional and competitive dynamics across over two hundred communities in the United States influence the role of non-profit welfare organizations. The article reveals an interesting non-linear trend in how non-profit organization density in a community impacts its income inequality - increasing the number of these welfare organizations reduces inequality but only up to a point and only under certain conditions. Beyond a certain density, the authors surmise that resources may be inefficiently deployed and have diminishing effects on inequality. Surprisingly, weak government policies increased the effectiveness of these organizations in reducing inequality suggesting that welfare organizations compensate for inadequate state support.

In a similar vein, Olsen, Sofka, and Grimpe (this issue) provide an understanding of the complexity of coordination across multiple stakeholders in resolving Grand Challenges. Partnerships between multiple organizations to search for solutions – search consortia – are successful not only because of the technological capabilities of partners but also based on the participation of advocacy groups that do not have any technological capacity and yet occupy a unique vantage point to address the challenge. Based on a dataset of all 35,249 applications submitted to the European Commission's Seventh Framework Programme for Research and Technological Development (FP7) spanning 192 different problem areas such as health, information, transportation and energy, the authors find that Grand Challenge environments do differ in the extent to which they include advocacy groups. However, the involvement of these groups reflects a deeper understanding of stakeholder concerns particularly when

consortia represent dispersed technological knowledge. These groups also provide a legitimizing influence when the consortium lacks prior experience. The authors discuss the implications of these findings for stakeholder theory.

In a study of resilience and sustenance in the context of the 2010 Haiti earthquake, Williams and Shepherd (this issue) used a grounded methodology to unpack the role of emergent organizations in responding to natural disasters. Their analyses revealed two types of approaches in how these organizations respond to suffering and build resilience to disasters – sustaining and transforming. Both approaches were able to address basic needs of survivors but the latter was associated with greater self-reliance, while the former led to greater dependence on the organization. Through their rich observational, interview and archival data gathered over two years the authors develop a new understanding of the competencies organizations need to build resilience in the wake of disasters.

Ballesteros, Useem and Wry (in press) also study disaster relief, but examine the role of local corporates in disaster response. They predict that—while traditional aid providers are important for disaster recovery—relief will arrive faster, and nations will recover more fully when locally active firms account for a larger share of disaster aid. These authors use a proprietary dataset comprising information on every natural disaster and reported aid donation worldwide from 2003 to 2013. The analysis uses a novel, quasi-experimental technique known as the synthetic control method and shows that nations benefit greatly from corporate involvement when disaster strikes.

Grand Challenges and their impact on organizations and institutions

The following set of studies examine how societal problems and Grand Challenges affect organizations and institutions, and in turn, how these actors respond (or fail to respond) to these challenges.

In a study of sustainability practices in conflict minerals, Kim and Davis (this issue) explore the challenge of supply chain accountability in an era of globally distributed production and diverse labor and environmental practices. Exploring what companies disclosed to comply with legislation requiring them to report on whether their products contain 'conflict minerals' sourced from the Democratic Republic of Congo, Kim and Davis found that a mere 1% of companies could certify their products as conflict-mineral free. Based on cross-sectional regression analysis, the authors conclude that nearly eight out of ten companies are unable to determine the provenance of these minerals in their products. Organizational complexity, most notably the sheer size and geographical scope of companies' supply chains, is the primary contributor to this outcome. Only when controlling for supply chain complexity does a company's reputation influence its likelihood of verifying its products conflict-free. The authors present their problem-driven inquiry as an opportunity to build understanding of how greater accountability could be achieved in supply chains through collective, voluntary efforts, including those that might lower the costs of collecting verification information.

An aging workforce has been recognized as a Grand Challenge facing employers and governments alike all over the world. Using a stereotype threat model Kulik, Perera and Cregan (this issue) examined the impact of threat-inducing and threat-inhibiting contextual factors on the engagement of older workers. A key insight offered by the study is that diversity conscious organizational practices helped mitigate the effects of threat-inducing factors, but diversity blind or high-performance practices had a direct effect on engagement

among mature age workers regardless of other threat inducing facets of the context. The authors recommend that organizations rely on the complementarities between these different types of practices to maintain engagement among their mature-age workforce.

Luo, Zhang, and Marquis (this issue) explore the question of how civil society can influence businesses operating in countries with authoritarian regimes. Because the internet is a potentially potent vehicle for activism in societies where traditional media is restricted, the authors theorize that internet users might trigger corporate responses through a mechanism of social comparison. Using regression analysis of corporate contributions to disaster relief following the catastrophic 2008 earthquake in Sichuan Province, China, the authors explore the relationship between internet activism and the speed and scope of corporate responses. Luo, Zhang, and Marquis find that online rankings and articles on corporate donations are tactics that speed corporate responses, as does the firms' higher image vulnerability. The authors' findings shed light on a new form of activism that might be especially important in societies where traditional social movements have limited leverage, suggesting the power of social comparison for addressing corporate power in authoritarian societies, as well as new directions for the literature on social movements and organizations.

Speaking to societal inequality and growing up in poverty, Martin, Cote, and Woodruff (this issue) find that early childhood economic status exerts a long-term influence on many facets of effective leadership. The authors test their hypotheses in the context of active duty US army soldiers, a setting where the current income of respondents is comparable. Using multisource data, the authors combine social learning theory with the trait-behavioral model of leadership to put forth a serially mediated model that shows a link between parental income, narcissism, task, relational and change-oriented leadership behaviors and reduced engagement behaviors among direct reports.

Climate change is a grand challenge that has been characterized as a 'super wicked' problem because of the scale, scope and time horizon over which mitigation efforts must take place, without central authority. As Wright and Nyberg demonstrate (in press), corporate responses to such challenges might be visionary and expansive at first, but become watered down considerably over time due to the sheer contentiousness of the issue. Drawing on longitudinal analysis of five Australian companies operating in different industries, Wright and Nyberg develop a process model that captures a common trajectory of the early framing of climate change as an urgent issue for business eventually being normalized into business as usual. The authors assert that this response to a grand challenge, by the very organizations that are at the heart of contributing to the challenge, is a cautionary tale for the limits of business alone to address grand challenges.

In their article on healthcare service provision and regulatory environments, Heese, Krishnan, and Moers (this issue) offer insights into the organizing of the Global Health Grand Challenge by studying regulatory reactions to mispricing practices in the healthcare industry of the United States. Using patent and hospital data from California from 1996 to 2007, they illustrate the challenges local governmental agencies face in their efforts of providing access to affordable healthcare in the state while reducing the occurrence of fraudulent practices, such as mispricing. The authors contribute to the literature on decoupling by introducing the idea of *selective decoupling,* exhibited by regulators' greater leniency toward the mispricing practices of beneficent hospitals, or hospitals that provide charity care and medical education, relative to other nonprofit hospitals. Beneficent hospitals, in turn, also selectively decouple their activities, according to the findings of Heese and his colleagues. These hospitals provide medical services to their uninsured patients while "upcode" their services for the care of their insured patients.

Drawing on an ethnographic study of medics at the British-led Camp Bastion hospital in Afghanistan, de Rond and Lok (this issue) explore how institutional and organizational contexts shape psychological injury from war. War and its psychological costs are under-examined because rarely have injuries like PTSD (Post-Traumatic Stress Disorder) and have been considered in light of the cultural, professional and organizational contexts that produce them. The authors find that medics' feelings of senselessness, futility, and surreality arose from the dissonance they experienced between their professional and cultural values and the reality they faced on the ground. Unable to enact an ethic of care while conforming to organizational rules, like those that demanded they hand over injured Afghan children to inadequate local hospitals, led medics to use various ultimately ineffective coping mechanisms. The authors explore implications of a contextual understanding of war and its psychological costs for extending institutional theory to consider the existential stakes associated with participating in organizational life. They also expose the dark side of people's calling to meaningful work that is both essential to addressing Grand Challenges but stymied by the very organizational contexts in which those challenges are acted upon. The authors also reflect on implications for studying Grand Challenges, and, similar to Mair, Wolf and Seelos' (this issue) study, assert that such challenges cannot be adequately addressed without considering the social, institutional and cultural contexts in which they reside.

Exploring the research-practice gap through a stakeholder lens, Banks and co-authors (this issue) interviewed management academics and practitioners to build theory on the causes of the gap. Considering this gap itself a Grand Challenge for academics and management practitioners, the authors also surveyed a larger sample of academics and practitioners to learn their perspectives on the management field's Grand Challenges. This revealed 22 topics that could benefit from collaborative research between academics and practitioners, of which more than one third were recognized by each stakeholder group

(academics and practitioners). The article summarizes some challenges that we have good knowledge about, and finds that the pay gap is the most-articulated challenge needing further work. The authors reflect on ways to address the research-practice gap through collaboratively designed projects and attention to issues that matter to both stakeholder groups.

Taken together, these set of studies provide detailed insight into interventions to address Grand Challenges. These studies draw on a range of theoretical lenses to better explain why, and under what conditions, certain practices are (in)effective or (in)appropriate. Similarly, the second set of studies focus on how organizations are affected by and respond to global problems. These studies articulate the challenge of accommodating global issues within a work environment. Whether it is an aging workforce or gender inequality, organizations are being shaped by the global context. The questions examined in this research serve as exemplars of management research with potential for societal impact, and engenders new streams of research on tackling Grand Challenges. These studies collectively highlight that management research can serve a complementary function to corporate, social, and multilateral initiatives by helping better understand the problems, and indeed, by providing an organizational perspective to convert stubborn societal problems into tractable managerial challenges.

A FRAMEWORK TO STUDY GRAND CHALLENGES

We develop a framework to explore the study of GCs from an organizational and management perspective. Our goal is not to provide a comprehensive review of prior work. Indeed, many researchers have articulated the need to study GCs (e.g., Colquitt & George, 2011; Ferraro, Etzion & Gehman, 2015; George, 2014) or have developed models and theoretical lenses useful for examining the organizational drivers of socially inclusive growth

(e.g., George, McGahan & Prabhu, 2012). However, in this article, we propose a higher order framework that integrates work on GCs and provides a structure to embed future research in this area. In Figure 2, we provide an illustration of our framework.

Insert Figure 2 Here

Articulating and Participating

The core of beginning to address a GC lies in its articulation. The call to address the challenge needs to inspire others to contribute effort and resources with a sense of purpose. An organization with purpose likely embraces certain values such as dignity, solidarity, plurality, subsidiarity, reciprocity, and sustainability and targets its efforts at a common good in addition to the pursuit of its own goals (Hollensbe et al., 2014). In our editorial on natural resource scarcity (George et al, 2015), we highlighted minimal engagement with this topic in the management literature and articulated a research agenda around corporate and institutional responses as well societal and individual impacts of scarcity. In doing so, we attempted to frame the Grand Challenge of resource sufficiency within a global context in such a way that it would appeal to scholars within many divisions of the Academy. The participation, vocalization and identification of GC goals is a foundational step to its success, which requires sponsors to develop collective goals that harness individual and societal aspirations by giving them a collective sense of purpose.

The SDGs were built on consensus among the UN's member states and achievement of the UN's Millennium Development Goals. Whether it is the Gates Foundation or the Executive Office of the President of the United States, articulation of GCs toward a common goal (e.g., "improve nutrition" or "land a man on the moon and return him safely to Earth") and the participation of stakeholder groups raise interesting questions for management scholars on how organizations can inspire purpose. In addition, the statement of the GC as a

consensus of multiple stakeholder voices also creates opportunities for research on negotiations, consensus seeking behaviors, re-directing narratives, and identifying achievable, but inspiring goals. For example, Vakili and McGahan's (this issue) explore organizational responses when a goal is articulated to stimulate basic research on therapies that address diseases of the poor. Alternatively, scholars can explore how the articulation of GC goals sometimes leads to organizational efforts that fall short, but nonetheless represent important movement towards addressing the GC. For example, Kim and Davis (this issue) find that the expression of concern over mining of conflict minerals led to organizational efforts to learn more about their supply chains, even when full disclosure of conflict-free supply was rare.

Actor Needs and Aspirations

The GC is a reflection of actor needs and aspirations, even if the actors themselves do not have the voice to articulate needs (e.g., marine life or poverty). Regardless whether the focal actors are able to voice their own needs and aspirations or rely on third parties to give them voice, these actors likely have multiple goals and agendas, and priorities within and amongst them. These goals could also have conflicting elements, for example, provision of employment in the natural resource-rich countries of Africa could also conflict with the exploitation of natural resources and protection of the local environment. The identification of actor needs and the alignment of goals towards a common, shared agenda is a research agenda in itself. Mair et al.'s (this issue) study of how an NGO concealed its actual goal of eliminating persistent social inequality under a proximate goal of providing sanitation is an example of how actors can work to achieve goals that might be threatening to others who may not share their aspirations. At the same time, when multiple actors attempting to coordinate efforts as members of a search consortium have complementary capabilities, Olsen and colleagues show that they can resolve coordination challenges and enhance goal alignment.

Societal Barriers

GCs are targeted towards the elimination of a specific barrier, which could be manifest in several forms. Individual barriers (e.g., physical disability or lack of education), socio-cultural barriers (e.g., caste or stigmatized communities), technological barriers (e.g., internet or medical access), and structural barriers (e.g., poverty) are the root causes of disenfranchisement and disengagement from mainstream socio-economic progress and well-being (e.g., George, McGahan & Prabhu, 2012). How these barriers influence access to opportunities or livelihood, and what roles organizations can play in mitigating or overcoming these barriers are at the foundation of Grand Challenges. For example, Kulik et al. (this issue) consider how organizational policies influence the experiences of mature-age workers. In Zhao and Wry's (this issue) study, patriarchy underpins the widespread practice of lending to women by microfinance organizations, but is shown to have different outcomes under different conditions.

Organizational Constraints

When collective goals are involved and orchestrated resources are needed, the question becomes one of benefit and to whom it accrues. Given the nature of the problems, several organizational constraints arise, including coordination costs among stakeholders, goal and incentive conflicts within the management team, information asymmetry, and transaction costs between partner firms in a collaborative effort. These organizational problems likely frustrate goal-directed action. The related challenge is also to decide who bears the cost and how these costs are shared in a multi-actor, multi-engagement model over time. Here, studies on public-private partnerships and issues of conflicts, constraints and costs between partners who have differing agendas and goals become an important area of research (Tihanyi, Graffin & George, 2014). Organizational constraints are also manifest in how organizational actors approach their work; Cobb et al. (this issue) find that microfinance

funders targeted a certain size of microfinance organization because of the institutional logics that guided them, resulting in the exclusion of some microfinance organizations from funding. In acting on initially bold aspirations to address climate change, businesses in Wright and Nyberg's (in press) study eventually regressed as actions were deemed too risky in light of the issue's contentiousness.

Institutional Contexts

When we discuss the global reach of GCs, it is critical to recognize that institutional contexts differ widely. Societal norms or logics may influence how participants think of the goal, whether they engage, and how they act. Institutional contexts also reflect issues such as stability and intent of governments, societal norms and taboos, regulatory environment and rule of law, social activism in public life, and organizational engagement with public problems. Institutional contexts vary by communities, countries, and regions, and this pluralism will affect coordinated action and behavior of actors in a loosely monitored coalition or collaboration. In our review of studies in the African continent, for example, we find that the ability to shape the institutional context towards the achievement of common goals remains a significant roadblock for shared socio-economic progress (George, Corbishley, Khayesi, Haas, & Tihanyi, 2016). For example, Martin, Cote, and Woodruff (this issue) show how childhood poverty acts as a barrier to people in their workplace relationships and inhibits their leadership. Berrone and colleagues (this issue) also highlight the role of institutional context. They show that compensatory dynamics at play among institutional actors such as local governments and welfare agencies in reducing income inequality.

Multilevel Actions

Actors operate at multiple levels, at the individual level (e.g. person, group), community level (e.g., village or city), at the country or regional level (e.g., Syria or Middle

East), and at the multilateral level (e.g., UN, European Union, Gulf Coordinating Council). These actors' behaviors or actions have multi-level effects, either as trickle-down or bottom-up effects. Regulation and government interventions could drive corporate actions towards sustainable goals or could divert them. These multi-level actions could be aligned synergistically towards goals or could also compete and frustrate the attainment of higher or lower level goals. The relationship between actors at different levels and their mutualism affects how actors behave and has important implications for the attainment of GC outcomes. For example, in their study of corporate responses to the Sichuan earthquake, Luo et al. (this issue) consider how internet activism by Chinese citizens influenced the speed and scope of corporate giving, especially in the absence of other channels for activism in an authoritarian society. de Rond and Lok's (this issue) account demonstrates how individual experience of PTSD is shaped by organizational and professional norms that operate within the even broader institutional contexts of warring nations. And, Kulik et al. (this issue) demonstrate how organizational practices can seep into the individual-level stereotype threat responses of mature age workers to influence their attitudes towards work.

Coordinating Architectures

Given the multi-stakeholder, multi-level functioning of global GCs, coordination and structural architectures to enable dialogue and mutual understanding become critical. Management scholars have studied multi-actor coordination in different contexts, for example, standard setting in technological or social platforms. Structural apparatus to coordinate goals, develop and reinforce norms, standards and compliant behaviors, and mechanisms to funnel resources towards those actors implementing actions or bearing the costs of this effort. The pacing, building, empowering, or dismantling of these coordinating architectures have implications for the nature of the outcome attainment and whether specific goals are met. For example, the study by Olsen et al. (this issue) shows that the involvement

of advocacy groups within consortia searching for solutions to Grand Challenges enables a deeper understanding of stakeholder concerns and brings a legitimizing influence to the consortia's work. Berrone et al. (this issue) illustrate the limits to the effectiveness of non-profit welfare organizations when these increase in density beyond a certain point. Ballesteros and colleagues (in press) find that local private entities were likely more responsive than other organizational structures in responding to disasters, which frames this issue of coordination as a fundamental problem in GCs.

Reinforcing Mechanisms

SDGs are targets to be achieved by 2030, and continued efforts to achieve these targets need to be sustained over time. Reinforcing mechanisms are those structural (e.g., poverty, hunger), natural (e.g., earthquakes, fresh water), or social mechanisms (e.g., immigrant crises) by which actors are motivated and replenish their efforts towards goal-directed solutions in a sustained manner. These mechanisms include continued societal vocalism that sheds attention on specific problems, exogenous or natural events such as climate-change driven arctic ice melt, bleaching of the Great Barrier Reef, famine due to water scarcity, or tsunamis and rising sea levels. These events focus our attention on existential problems and do not permit diversion of attention or dilution of effort towards GC goals. For example, the 2010 Haiti earthquake focused attention on relief and recovery efforts, as Williams and Shepherd (this issue) document, but also drew attention to the socio-economic fragility of the communities for whom the disaster struck. Reinforcing mechanisms may be less event-driven and more experiential, as when empathy drove and sustained the response of people with different experiences to contribute to addressing the problem of drug addiction in Vancouver in Lawrence's study.

Outcomes and Impact

Measures of success vary across GCs, and they are contingent on how these GCs were articulated. Commonly discussed outcomes, however, capture scale in implementation and impact. Societal resilience to disasters and wars, organizational innovation and implementation of practices to address components and milestones towards a GC, as well as behavioral and societal change are all plausible outcomes. It is important to recognize that the 17 SDGs have 169 constituent targets, which can then be further decomposed into geographical, community, or organizational outcomes. Heese et al. (this issue) show that efforts to reduce mispricing practices in hospitals are influenced by the reactions of regulators to hospital's other characteristics, demonstrating that measures of success are often subject to political processes.

Our framework provides an architecture to situate a rather complex, global and multi-level challenge. Our intent is not to provide specific constructs but to facilitate ways to think about the Grand Challenge issues. The framework might help management scholars identify specific societal or organizational barriers, and parse larger problems into smaller, definable research questions that can be tested with empirical rigor. To that end, in Table 2, we provide a summary table with the elements of the framework and some representative empirical questions. These questions could then use a micro, meso, or macro theoretical lens to draw out a theoretical contribution. The ultimate goal, beyond theory development, is impact with the empirical analysis which truly assists the coordinated and collaborative effort towards a societal Grand Challenge.

Insert Table 2 Here

A CALL TO ACTION

Businesses should add value to society, and yet there are divergent views on how to create and deliver social value. Management scholars are conflicted, but in a different way – we recognize and aspire to engage in solving global problems, but feel that these questions, data, and contexts are structurally inaccessible to us. This Special Research Forum highlights that tackling global problems does not imply that we cannot publish our results in leading journals. Indeed, our field is richer and more diverse because of the work being done to understand societal Grand Challenges.

Management for a more inclusive society

There are plenty of Grand Challenges around us and in our own communities. Global hunger and poverty is not just in a different continent but also in our backyards. In 2015, the UN High Commissioner for Refugees and Eurostat report that more than 1.3 million migrants have reached European shores to apply for asylum, and that does not account for the scores lost at sea. The number of forcibly displaced people worldwide at the end of 2014 is about 60 million, the highest level since World War II (UNHCR, 2015). Water scarcity and food waste are topics that appear distant, but some of these statistics are staggering and local. According to a report by UNEP and the World Resources Institute about a third of all food production worldwide (around $1 Trillion) gets lost or wasted in food production, distribution, and consumption (WRI, 2013). In the USA, 30-40% of the food supply is wasted, equaling more than 20 pounds of food per person per month (WRI, 2013). Coordinated actions, such as the Global Agribusiness Alliance launched in September 2016, and the Food Waste Reduction Alliance are exemplars of globally coordinated efforts at a multi-level, geographically dispersed problem – yet, many solutions are local and involve changes to individual behaviors and organizational responses.

It is not just about research. As educators, we have an equal responsibility in social inclusion, retraining of skills, and the focusing of our efforts on not just the cream of the crop,

but at the globally and locally unemployed, displaced and disenfranchised. New technologies such as the Internet of Things and artificial intelligence are increasingly equipping machines to perform tasks that were done by skilled and educated individuals, thus starting what is expected to be a larger structural unemployment problem as industries harness these technologies to improve productivity and financial performance by driving down labor costs. Educational initiatives could then embrace different business models and pedagogical initiatives through lifelong learning and continuing education to retrain for new skills. Similarly, technology enhanced-blended learning and low cost education models could be more global and open, providing opportunities for global citizens to leverage local educational resources and creating opportunities for new skills, entrepreneurship, and better livelihoods.

There are numerous examples of potential avenues for engagement as management scholars and educators, and for each SDG there are equally numerous local and global targets, participants, and aspirations. Collectively, the Academy of Management has taken pride in several of its annual conferences to engage in fundamental debates on society and organizations. Management scholars, thus, are uniquely positioned to address Grand Challenges towards a more socially inclusive society by tackling fundamental individual, behavioral, organizational, and institutional challenges that are omnipresent in the formulation, articulation, coordination, and implementation of these Grand Challenges.

There is no Plan B because there is no Planet B

When proposing the UN's Sustainable Development Goals, the Secretary General, H. E. Ban Ki-Moon reiterated his speech at what was thought to be the largest ever gathering in the United States (People's Climate March in New York City, September 2014) his often quoted remark that "There is no Plan B for action, as there is no Planet B." As scholars and educators, there is a moral imperative that we act to guide business leaders, employees, and

stakeholders with systematic, unbiased, and empirically robust evidence on mechanisms to tackle the persistent, but tractable, global problems confounding us. This *Special Research Forum* is a step in that direction.

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Table 1: Sustainable Development Goals and Exemplars

Goals[1]	Goal Target Examples	Numbers from the World, Regions, and Countries
1. No Poverty—End poverty in all its forms everywhere	By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day	Over 800 million people live in extreme poverty, most of them in Southern Asia and Sub-Saharan Africa[2]
2. Zero Hunger—End hunger, achieve food security and improved nutrition and promote sustainable agriculture	By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round	Percentage of population undernurished[3]: Zambia: 47.8%, Central African Republic: 47.7%, Namibia: 42.3%, Democratic Republic of Korea: 41.6%
3. Good Health and Well-being—Ensure healthy lives and promote well-being for all at all ages	By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births	Children under 5 mortality rates per 1,000 live births[4]: Angola: 156.9, Somalia, 136.8, Haiti: 69.0, Lao, People's Democratic Republic: 66.7
4. Quality Education— Ensure inclusive and equitable quality education and promote lifelong learning for all	By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy	Literacy rate, population 24-65 years, both sexes[5]: Guinea: 23.9%, Mali, 26.79%, Afghanistan: 27.1%
5. Gender Equality—Achieve gender equality and empower all women and girls	Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation	Iceland: 0881, Norway: 0.850, US: 0.740, Pakistan: 0.559, Yemen: 0.484[6]
6. Clean Water and Sanitation—Ensure availability and sustainable management of water and sanitation for all	By 2030, achieve universal and equitable access to safe and affordable drinking water for all	Percentage of population using improved drinking-water sources[7]: Angola: 28.2%, Papua New Guinea: 32.8%, Afghanistan: 47.0%
7. Affordable and Clean Energy—Ensure access to affordable, reliable, sustainable and clean energy for all	By 2030, increase substantially the share of renewable energy in the global energy mix	Percentage of population with access to electricity[8]: Austria: 100%, Singapore: 100%, South Sudan: 5.1%, Malawi: 9.8%
8. Decent Work and Economic Growth—Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries	Two-thirds of young women and men in developing countries are unemployed.[2]
9. Industry, Innovation and Infrastructure—Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all	Researchers in R&D (per million people)[8]: Finland: 7,717, Singapore: 6,307, Guatemala: 25, Mali: 29
10. Reduced Inequalities—Reduce inequality within and among countries	By 2030, progressively achieve and sustain income growth of the bottom 40% of the population at a rate higher than the national average	Gini Index[8]: Honduras: 53.7, Brazil: 52.9, Ukraine: 24.6, US: 41.1

11. Sustainable Cities and Communities—Make cities and human settlements inclusive, safe, resilient and sustainable	By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	Over half of the world population lives in cities.[9] Largest cities around the world (in millions) include: Tokyo: 38, Delhi: 28, Shanghai: 25
12. Responsible Consumption and Production—Ensure sustainable consumption and production patterns	Implement the 10-year framework of programs on sustainable consumption and production, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries	To sustain the current life style levels of an estimated 9.5 billion world population in 2050, natural resources equivalent of almost three planets will be required. [2]
13. Climate Action—Take urgent action to combat climate change and its impacts	Integrate climate change measures into national policies, strategies and planning	Global average sea level has risen nearly 7" (178mm) over the past 100 years. [10]
14. Life Below Water—Conserve and sustainably use the oceans, seas and marine resources for sustainable development	By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	Almost half of the world population depends on marine and coastal biodiversity for its livelihood. [2]
15. Life on Land—Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world	The reduction in food production owing to land degradation over the next 25 years is expected to increase world food prices by 30%.[11]
16. Peace, Justice and Strong Institutions—Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	End abuse, exploitation, trafficking and all forms of violence against and torture of children	Estimated percentage of population in modern slavery[12]: North Korea: 4.373%, Uzbekistan: 3.973%, Cambodia: 1.648%, India: 1.403%, Qatar: 1.356%
17. Partnerships for the Goals—Strengthen the means of implementation and revitalize the global partnership for sustainable development	Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020	Merchandise exports by least developed countries account for 1.1% of world trade.[2]

Notes: [1]United Nations (2015a); [2]United Nations (2015b); [3]Food and Agriculture Organization of the United Nations (2015); [4] World Health Organization (2015); [5] United Nations Educational, Scientific, and Cultural Organization Institute for Statistics (2016); [6]World Economic Forum (2015). Global Gender Gap Index 2015 (1= equality, 0= inequality); [7] Available at http://www.who.int/gho/mdg/environmental_sustainability/en/ Accessed on September 5, 2016; [8]World Bank (2014); [9] Available at http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html Accessed on September 5, 2016; [10] Available at http://climate.nasa.gov/ Accessed on September 5, 2016; [11] Available at http://www.un.org/en/events/desertificationday/background.shtml Accessed on September 5, 2016; [12] Available at http://www.globalslaveryindex.org/ Accessed on September 5, 2016.

Table 2
Constituent Elements of the Grand Challenge Framework

Categories	Exemplar Dimensions	Representative Empirical Questions
Actor Needs and Aspirations	• Individual Needs • Organizational Aspirations • Community Goals • Societal Welfare	- Who articulates or sponsors a GC? How does that affect the participation of others? - Why and when do individuals (as consumers) change behavior towards collective social goals such as water conservation and food waste? How do organizations facilitate behavioral change processes through innovation, product development, and service design? - How do communities react to organizational practices that create or destroy social value? How do community aspirations shape organizational responses toward GCs? - When and why do aspirations and needs remain unsurfaced? What institutional, cultural or organizational forces suppress the articulation of GCs? - How do interactions among organizations at the community or local level shape the expression of GCs?
Societal Barriers	• Individual Barriers • Technological Barriers • Structural Barriers • Social Barriers	- How do life circumstances, like childhood poverty, disability, or age influence organizational participation and opportunity? - How does Internet of Things affect individual employability, skills, organizational value chains and business models? Do new technologies exacerbate poverty and employment? What models of reskilling and training most effective for organizations, individuals and governments? - When and how do social stigma, social structures (such as untouchability or caste, tribes) affect work environments, the types of work roles, and emotional well-being among the poor?
Articulating and Participating in Grand Challenges	• Multivocalism • Identification • Prioritization	- What factors promote voice and engagement in multilateral dialogs among organizations, societies, and their stakeholders? When is it most effective? - When and how do institutional logics shape identification and prioritization of issues worthy of action? How can alternative voices and additional perspectives be integrated? - How can top management teams identify and prioritize social goals and articulate organizational vision that aligns stakeholder and stockholder interests?
Organizational Constraints	• Coordination costs • Transaction costs • Goal conflict • Incentive conflict • Information asymmetry	- Why do goal and incentive conflicts encourage short-termism and discourage long term pursuit of GCs? How does employee and leadership commitment shape narratives on GCs? - Why and when do organizations self-disclose information on supply chain practices that violate social norms or inappropriately exploit natural resources? - Do certain compensation structures and incentives crowd out motivation towards GCs? What processes or practices can mitigate goal conflict?
Institutional Contexts	• Societal logics • Institutional pressures • Institutional pluralism	- Why and when do societal logics shift to galvanize action towards GCs? How do societal shifts shape organizational practices and strategies? - How do professional norms suppress or help surface contradictions between intentions and actions on GCs? - How do organizations navigate institutional pressures and negotiate investment to achieve

|		specific GC outcomes or targets?
Multilevel Actions	• Individual Behaviors • Organizational Practices • Government Regulation	- How do governments effectively regulate corporate responsibility actions? Are regulatory interventions successful in enabling organizational action towards GC goals? - What organizational processes and structures are needed to generate socially responsive practices in employment, production, and supply chains? How do practices help attain GC goals? - Under what conditions do changes in individual behavior accrue to shifts at the community, organizational or societal level? What roles do information technology, 'celebrity' actions, and/or highly visible events have in enabling or inhibiting such shifts?
Coordinating Architectures	• Community Platforms • Shared Norms • Shared Resourcing	- When and how do shared norms develop between organizational stakeholders and their communities in the presence of goal and incentive conflicts? - How do advocacy organizations shape action on GCs? What influence do internet and communication technologies have on advocacy organizations and their effectiveness? - Why do organizations commit to resource investments toward GCs? What are their motives, and how does it shape coordination of stakeholders?
Reinforcing Mechanisms	• Societal vocalism / attention • Exogenous / Natural events • Goal-directed progress	- What triggers consumer, investor or employee attention towards specific GCs? What factors sustain and reinforce their attention towards these goals over time? - How do exogenous shock events (e.g., drought, disaster) and media attention bias organizational goals? - Does short term demonstrated organizational success towards a GC goal strengthen or reduce subsequent investments? Why do organizations persist (or desist) with GC goal-directed action? - What role do extreme advocacy groups play in altering the discourse around GCs and how do they shape opportunities for action by more moderate advocacy groups?
Outcomes and Impact	• Resilience • Innovation • Sustainability • Goal attainment	- How do organizations celebrate or vocalize success in their GC goals? Do narratives of celebration and attainment spur further coordinated action towards GC? - How do organizations contribute to individual and societal resilience? What organizational practices and strategies promote innovation for socially inclusive growth? -Given their complex and nonlinear nature, how does one measure progress on GCs?

Figure 1

United Nations' Sustainable Development Goals

Source: United Nations. 2015. Sustainable Development Goals. http://www.un.org/sustainabledevelopment/ Accessed November 1, 2016

Figure 1: A Framework for Addressing Grand Challenges
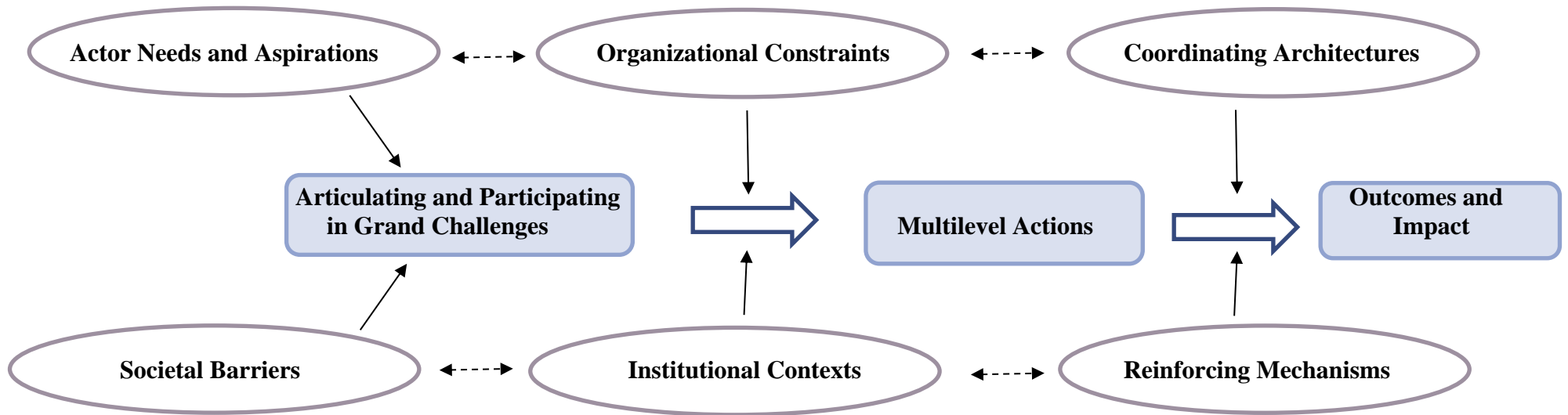
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