

## Grand Challenges: A Way Out of the Ivory Tower for Management Academic Discipline

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The academic discipline of management has a long and successful history of legitimacy building. Concerns about scientific rigor have brought major improvements in research, publication, and teaching practices. However, the established academic status fosters a rigor-relevance gap emerging between researchers and managers. Scholars are confined in metaphorical “ivory towers” of scientific rigor and orientation toward an academic audience, which disconnects the discipline from management practice. Consequently, both the social legitimacy of management academia and its development prospects are threatened. This study argues that management has a predilection to solving grand societal challenges, thus contributing both to social progress and discipline development. Three overarching grand challenges are outlined and linked to management challenges. By taking the lens of scientific legitimacy stemming from methodology, this study identifies how management methodology can be usefully developed.

**Keywords:** methodology, rigor, grand challenge, legitimacy.

## Wielkie wyzwania: droga wyjścia z „wieży z kości słoniowej” zarządzania jako dyscypliny akademickiej

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Akademicka dyscyplina nauk o zarządzaniu ma za sobą długą i udaną historię budowania legitymizacji. Krytyka rygoru naukowego spowodowała znaczącą poprawę jakości praktyk badawczych, publikacyjnych i dydaktycznych. Jednakże ugruntowany status akademicki pogłębił przepaść pomiędzy badaczami a menedżerami, wzdłuż linii rygor – znaczenie. Naukowcy zamknęli się w metaforycznych „wieżach z kości słoniowej” rygoru i orientacji na odbiorców akademickich, które oddzielają ich od praktyki zarządzania. W rezultacie zarówno legitymizacja społeczna nauk o zarządzaniu, jak i perspektywy ich rozwoju są zagrożone. Niniejszy artykuł argumentuje, iż nauki o zarządzaniu są predestynowane do rozwiązania wielkich wyzwań społecznych, przyczyniając się do postępu społecznego i rozwoju dyscypliny. Zarysowano trzy wielkie wyzwania i powiązano je z wyzwaniami nauk o zarządzaniu. Przyjmując perspektywę legitymizacji naukowej związanej z metodologią, artykuł wskazuje jak użytecznie rozwijać metodologię nauk o zarządzaniu.

**Słowa kluczowe:** metodologia, rygor, wielkie wyzwania, legitymizacja.

**JEL:** M00, N01

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## 1. Introduction

Management as an academic discipline has come a long way since its inception in the late nineteenth century when the first business school has been founded by Joseph Wharton at the Pennsylvania University. Academic departments are organized according to the subject matter at universities (Biglan, 1973), reflecting the recognition of research and teaching fields. Hence, academic fields become institutionalized through socially negotiated boundaries that distinguish one community of scholars from another, define their collective identity and the essence of the field (Nag et al., 2007). Other distinctive manifestations of management as an academic field have also flourished (Bird et al., 2002): professional associations such as the Academy of Management (1936) or the European Academy of Management (2002); occupational careers starting with various doctoral degrees in management and opening way to many positions in the academia; systematic theories that address key issues that managers face.

A major cornerstone in developing management as an academic discipline has been set by two critical reports on the status of business education (Roos, 2014): the Gordon-Howell report commissioned by the Ford Foundation and the Carnegie Foundation book *The Education of American Businessmen*. Both documents identify theoretical weakness, little scientific rigor, scant research foundations, excessive engagement with case studies, among many other shortcomings. As a result, management studies have seen a major recasting in view of becoming more rigorous and establishing itself as a legitimate social science (Tranfield, Denyer, 2004). Seven decades of accumulated effort, published in numerous learned journals, have contributed to achieving that end. Legitimacy is important, as it entails a positive evaluation of actions within a socially constructed system of norms, values, beliefs, and definitions, which in turn determine the supply of resources to legitimate organizations, institutions, or sets of activities (Suchman, 1995). However, a growing awareness of the gap emerging between the rigor-related concerns of management scholars, and relevance-related concerns of managers has sparked a debate about the rigor-relevance gap (Starkey, Madan, 2001). To date, this debate has grown in vigor so much as to be labeled a grand challenge for management as an academic discipline (Banks et al., 2016), partly because the focus on quantitative methods makes scholars learn “more and more, about less and less” (Combs, 2010, p. 9).

Management as an academic field seems to face grand challenges, and so does society. By grand challenges, we typically understand global problems that can be plausibly solved through coordinated and collaborative effort (George et al., 2016), which suggests that solutions reside at the hearth of the management domain of interest. Recently, an organizational approach has fruitfully been adopted as a novel perspective from which to analyze

grand challenges (Berrone et al., 2016). Empirical evidence suggests that a collective effort of various organizational and institutional actors can effectively solve grand challenges.

The purpose of this study is to outline currently poignant grand challenges, identify overarching themes, and link them to management field challenges. By systematically examining and synthesizing recent editorial policy statements from leading journals in the field, and the few available studies on grand challenges, this work offers several noteworthy contributions. First, it identifies a growing awareness that both practice and research in management are key actors in tackling grand challenges. Second, it bridges societal grand challenges with the ways in which management scholarship can be developed. Third, it contributes to identifying the gaps that emerge among grand challenges as perceived by managers, those viewed as relevant by researchers, and those that arise in public debate.

The remainder of this paper is organized into two sections. I begin by outlining what grand challenges are, what are their characteristics, and how are they identified in recent management literature. Next, I examine the ways in which management research needs to evolve to address its own challenges, organizational-level challenges, and societal grand challenges.

## **2. Societal Grand Challenges: New Issues**

The concept of grand challenges dates back to 1900, when D. Hilbert, a German mathematician, has defined a set of 23 problems in order to spark the development of the discipline. The original intent was to focus attention on unresolved issues, spur interest, and foster dialog among mathematicians (George et al., 2016). The list has been announced at a Paris mathematical congress to gain visibility and generate momentum, which few more recent lists occasionally published by academic associations and scholars have ever achieved. One reason to develop grand challenges lists was the growing awareness of the boundaries that discipline has reached. The other reason refers to the term “grand,” suggesting an unusually high degree of difficulty coupled with important consequences for the advancement of knowledge.

If management can be seen as one of the most important inventions of mankind (Hamel, 2008), then it has a predilection to solve global problems that societies face. Differently from mere problems, challenges pose higher demands for coordinated and collaborative effort (George et al., 2016), because they affect large populations, and cannot be effectively tackled by a single individual, organization, or community (Ferraro et al., 2015). In this section, I first discuss the distinctive features that constitute a grand challenge. Next, I provide an overview of grand challenges found in recent management literature in view of identifying overarching themes.

## 2.1. Distinctive Features of Grand Challenges

In order to define grand challenges, scholars refer to a number of features that taken together allow their clear delineation within the broad category of problems. Fundamentally, grand challenges are global (George et al., 2016), which implies that their impact goes beyond a single organization or community (Ferraro et al., 2015). Hence, grand challenges are not organization- or context- specific, but common to many actors. Scholars recognize that the category of grand challenges is novel to the management field, resulting in the absence of validated analytical frameworks useful in examining both the grand challenge and organizations' ability to address it (Berrone et al., 2016). However, some analytical dimensions seem relevant: complexity, uncertainty, evaluation (Ferraro et al., 2015), as well as long-term horizon and wickedness (Cagnin et al., 2012).

Complexity refers to numerous actors' involvement, with multiple interactions among them and with their immediate environment. Grand challenges display a dynamic complexity that implies change, feedback loops, path-dependency, non-linearity, self-organization, counter-intuitiveness and the presence of trade-offs (Kwakkel, Pruyt, 2015). As a result, actors confronted with grand challenges rarely have the ability to perceive and understand the entire system underlying their appearance, focusing instead on the few individual phenomena or actors that are proximate (Ferraro et al., 2015). Given the dynamic nature of grand challenges, it is even more difficult to develop simplified but useful models that predict the consequences of interventions.

Uncertainty of grand challenges, often referred to as deep uncertainty, is characterized by situations in which: 1) models that relate key forces and shape the future; 2) probability distributions of key variables and parameters in these models; 3) the value of alternative outcomes, are all not known or cannot be agreed upon (Kwakkel, Pruyt, 2015). Hence, individuals in front of grand challenges face a radical form of uncertainty so that they have difficulties in identifying plausible future states and respective probability distributions, but also their own preferences and behaviors are subject to high and possibly evolving ambiguity.

The evaluative feature of grand challenges stems from the two preceding ones. While the term challenge refers to a significant and adverse impact on human welfare and well-being (Ferraro et al., 2016), the perspectives of diverse involved actors might be diverging, or even opposite. Whether related to self-interests, needs, aspirations, goals (George et al., 2016), policy, or fundamental philosophy (Ferraro et al., 2016) adopted by social actors, businesses, non-profit organizations, professional actors, among others, grand challenges connect multiple evaluations at the same time. These evaluations are consequential because they impact subsequent behaviors and outcomes such as funding or legitimacy (Berrone et al., 2016). Therefore,

grand challenges imply tackling divergence and paradox (Jarzabkowski et al., 2019).

Long-term horizon indicates that grand challenges take several years or decades to emerge and that their impact goes beyond current generation to affect future generations. On the one hand, long-term effects make predictions uncertain, increasing the degree of deep uncertainty, but on the other hand, raises legitimacy and stakeholder issues (Ferraro et al., 2016). Indeed, those absent or currently less involved in a grand challenge typically do not have any voice in looking for solutions. Another consequence refers to planning, wherein short- and long-term goals need to be flexibly aligned (Banks et al., 2016), which calls for incentives so that managers are encouraged to focus on long-term goals (Hamel, 2008).

Wicked problems are understood as those that involve confusing information, many stakeholders, decision-makers with conflicting values, and the fact that several possible solutions aggravate the problem instead of solving it (Kwakkel, Pruyt, 2015). This category of problems is recognized as difficult to formulate and frame in precise ways. Therefore, grand challenges fall in the wicked problem category and are similar to large-scale design problems, common problems, or messes (Ferraro et al., 2016). The distinguishing feature of societal grand challenges is that they are highly significant and potentially solvable (Eisenhardt et al., 2016).

## **2.2. Listing Grand Challenges: A Challenge**

Management literature spares much more space in recent publications on specific grand challenges than on defining the concept itself. Therefore, several grand challenges are recurrent and form overarching themes that need to be addressed in order to alleviate or reverse their negative impact on human well-being.

Interestingly, exhaustive lists developed purposefully in order to guide and spur academic debate in a similar spirit to that of mathematical grand challenges that are difficult to find. Some scholars enumerate several challenges such as globalization, IT revolution, networked computing, the war for talent, supply chain management, partnering, environmental sustainability, full life cycle approach to service delivery, and corporate social responsibility (Tranfield, Denyer, 2004, p. 12). Multiple levels of analysis can be applied to frame and understand grand challenges: from the organization through the supply network and relevant organizational stakeholders to the society at large.

Societal grand challenges encompass an increasing impact of such phenomena as the climate change, ageing societies, natural resources depletion, societal resilience, digital workforce and money, gender inequality (George et al., 2016), global hunger, urban poverty (Eisenhardt et al., 2016), and environmental and human health (Schwenk et al., 2009). These phenomena are identified and perceived to various degrees across the world. Hunger is

an issue in many places, while obesity calls for urgent solutions elsewhere. Aging societies are concentrated in more developed parts of the globe, while younger societies are prevalent elsewhere. Even climate change is seen as a grand challenge in various degrees around the world.

Hence, establishing a consensus on a single grand challenge is very difficult, if at all possible, which by extension, makes efforts to establish consensual lists of grand challenges even more difficult. One key reason is that the various stakeholders have their own legitimate views. Therefore, consensus-seeking efforts offer slim chances of moving toward solving grand challenges. While consensus focuses on interpretations acceptable to all involved actors as a target of interactions, multivocality refers to a discursive and material activity that sustains various interpretations in order to promote coordinated actions without requiring consensus (Ferraro et al., 2016). Keeping multivocality as a fundamental premise, challenges are grand to those who have a stake in a particular challenge, hence they are cognitively bound and context-dependent. Therefore, for the sake of clarity and conciseness instead of exhaustive grand challenge lists, I identify overarching themes that seem recurrent in recent literature: sustainability of economic models, inequality, and digitalization.

The sustainability of current economic and societal models is clearly limited, which inevitably impacts industries and firms in the long term (Plaza-Ubeda et al., 2019). While this awareness appeared in the mid-1970s, continuous economic growth of developed countries, coupled with the emergence of new economic powers, has aggravated the relationship between the productive use of natural resources and nature's capacity to renew. The "earth overshoot day" metric has been recently introduced to make the public aware that humanity is using natural resources faster than the planet can renew them. According to the Global Footprint Network's calculations for 2019 (Footprint Network, 2019), the overshoot day has moved three months over the last 20 years, and now appears on July 29. Both the extent of natural resources depletion and the increasing pace of this process constitute a grand challenge. Public debate has been focused particularly on climate change, as a large-scale inertial outcome of unsustainable business models. Single solutions targeting carbon dioxide emissions, population growth, recycling, or urban mobility have been identified. Yet, to address a grand challenge technical and social elements need to be intertwined (Ferraro et al., 2016), to involve changes in individual and societal behaviors (George et al., 2016), and to reconsider the extent to which management theory ought to isolate businesses from their social and ecological environment (Plaza-Ubeda et al., 2019).

Inequality refers to uneven distribution of wealth, income, professional opportunities, education, and healthcare access across populations. Inequality is typical to human societies, and within organizations pay dispersion

within organizations has even been found to be positively associated with profits for white collar jobs (Heyman, 2005). However, some inequality manifestations both by kind and by degree attract a growing debate in societies and organizations (Blau, Kahn, 2007), because they appear to have detrimental effects on individuals, organizations and communities. Gender and race diversity have become a major topic of concern to managers and remain a topic of heated political debates. Similarly, income inequality attracts growing attention. A recent empirical study of 245 USA communities shows that addressing income inequality requires a collective effort of organizations and institutions to be tackled effectively, and that the complexity of required interactions by far exceeds simplified views (Berrone et al., 2016).

Digitalization is perhaps the most poignant grand challenge given the intrusion pace of digital capabilities into organizations and governments, the burgeoning high-technology entrepreneurship, and largely unknown long-term impact of digitalization on individuals and societies. One facet of digitalization refers to big data availability and analytics, which offer opportunities so far unavailable, pose high ethical and legal demands (George et al. 2014), and encourage a radical reconfiguration of firms as multifunctional organizations (Roth et al. 2019). Similarly in financial technology, where blockchain heavily impacts the mere concept of currency, poses challenges to traditional technologies, and threatens control over financial operations. This impact poses such demands for understanding and collective action that it is equaled with a stream of grand challenges related also to the Internet of Things (Ranjan et al., 2018). Organizations are undergoing digital transformations with the appearance of digital workforce, digital natives etc. (Colbert et al., 2016) which impact identity, interactions and interdependencies.

All in all, the growing awareness of a distinctive class of societal problems is noticeable among professional and academic societies, as well as in the broader public. Grand challenges are common to various actors and cannot be successfully solved through individual action. Coordinated activities and mutually reinforcing feedback loops among multiple stakeholders seem to be the way to follow. A pragmatic view on management research epistemology refers to identifying, criticizing, and inventing models of collective action (Hatchuel, 2005). Prior research on addressing grand problems has been primarily grounded in institutional theory, and through institutions those challenges have been addressed so far (Ferraro et al., 2016). Grand challenges are potentially solvable (Eisenhardt et al., 2016), and prospective solutions remain within the domain of management, both as practice and as academic discipline. Solutions are to be found through bold ideas and the adoption of less conventional approaches (Colquitt, George, 2011), which is a challenge per se to management as academic discipline.

### 3. The Challenges of Management as an Academic Field: New Solutions

Similarly to the original mathematical grand challenges, there is a growing awareness among management scholars that the development of the discipline has reached boundaries typical to a mature field, with established solutions to the original problems (Hamel, 2008). Accumulated progress and new phenomena pose new problems to management that were non-existent at the time of its inception. A list of 25 critical priorities for management practice has been proposed in view of developing a next generation of practice, labeled Management 2.0. The intent is to “make every organization as genuinely human as the people who work there” (Hamel, 2008, p. 98). Importantly, this list of “moonshots” resonates with the ongoing discussion about the theory-practice gap, identified recently as the grand challenge facing management scholars (Banks et al., 2016). In this section, I first provide an overview of this gap, often labeled as rigor-relevance gap, and next synthesize recommendations on how to address it. Some of those recommendations refer to issues that need to be tackled, that is the grand challenges in front of managers, organizations, and societies. Other recommendations are oriented at the way management research is being conducted. Hence, management grand challenges fall in the same category as societal grand challenges in that they involve transformations of individual and collective behaviors (George et al., 2016).

#### 3.1. The Rigor-Relevance Debate

Tension, duality, dichotomy, polarization, or gap (Gulati, 2007) are the terms used in the last three decades to express concern about the divergence between priorities of knowledge-producers and knowledge-users in management. Interestingly, this debate has a long history, starting with the Gordon-Howell (1959) and Pierce’s (1959) reports that criticized the lamentable rigor of business education and the lack of scientific rigor in management research, but since then has swung to the other extreme, where rigorous research is actually disconnected from management practice (Kieser, Leiner, 2009). The academic community strives for sound theory development through the development of logical, abstract, and successfully tested systems of thinking (Thompson, 1956), while managers look for actionable solutions to the issues they are confronted with.

Scholars picture themselves as knowledge producers and attach the greatest importance to methodological soundness of research, that is rigor. For applied fields of research, such as management, rigor starts with: 1) conceptual adequacy, that is, how well a research program is grounded in theoretical frameworks; 2) methodological rigor involving both the choice of adequate methods and the quality of execution; 3) accumulated empirical evidence that in the long term validate research findings (Shrivastava, 1987). From



among these three pillars it is methodological rigor that focuses the efforts of management academics since the Gordon-Howell and Pierce in 1959. Journals display a clear proclivity toward quantitative studies and statistical power (Scandura, Williams, 2000), which is a persistent phenomenon (Combs, 2010). More fine grained analyses focused on sub-fields such as strategic management (Ketchen et al. 2008), family business research (Bird et al. 2002), or cooperation (Gnyawali, Song, 2016) suggest a methodology-oriented developmental path starting with descriptive studies, and ending with sophisticated data treatment techniques applied to large sample studies (Colquitt- Zapata, Phelan, 2007). This may imply that a mature field uses quantitative methods to deliver advanced tests of hypotheses.

The outcome of scholarly research are publications, increasingly self-referential and self-reproductive, which contributes to creating ways and communication used by academics only, detached from practitioners (Kieser, Leiner, 2009). The growing criticism of publication practices underlines that academics address primarily an academic audience, sharing the same reference frameworks, language, writing style, and concerns (Banks et al. 2016). One of the mechanisms that constantly strengthens the inward orientation of management academics is the peer-review process. As a cornerstone of scholarly quality, it is the favorable opinion of other academics that opens ways to publication. This mechanism is widely used in all scientific fields but raises significant criticism in management, because management is ultimately an applied science, aimed at more efficient collective action (Hatchuel, 2005). However, peer-review and orientation toward an academic audience make the bulk of published work difficult to access, understand, and transpose into action by managers.

A recent study of topics that are seen as grand challenges by academics indicates a focus on: HRM best practices/strategic synergies, the science-practice gap in management, effectiveness of entrepreneurial innovation, the value-creation for society, and the measurement and development of leaders and creative employees (Banks et al. 2016). This suggests a sustained interest in the human dimension of organizations (Hamel, 2008), a recognition of creativity and entrepreneurship importance, coupled with a growing awareness of the societal impact of organizations. However, it also reflects a self-reinforcing or self-oriented approach to identifying issues for analysis: those that are of interest for academics because of theory-building efforts, those that are recognized by peers and therefore publishable, and those that reflect the current structure and developmental stage of sub-disciplines. All in all, the selection of management grand challenges by academics is clearly disconnected from other stakeholders, such as managers, students, policymakers, and so on.

Interestingly, the selection of relevant issues by managers follows the exact same inward-oriented logic. Similarly to any other system, organizations refrain from directly communicating with the environment (Kieser,

Leiner, 2009), focusing instead on their own concerns. Issues relevant to managers involve costs reductions, employee well-being, health concerns, healthcare affordability, employee turnover rates, and communication in the workplace (Banks et al. 2016). Even if this list is biased by the selection of respondents' population and response rates, it can helpfully illustrate the differences among academic concerns. Indeed, current issues that managers face have little in common with purely academic foci of interest. While separate streams of concern are clearly visible, there is also a set of shared concerns. Importantly, they correspond with societal grand challenges: pay inequality, discrimination, unethical business practices, continuous education, innovation, morale, carbon footprint, customer service quality (Banks et al. 2016). A natural bridge for the rigor-relevance gap resides in issues that cannot be tackled by the academic or practitioner communities alone, and each of these communities seems aware of the need for coordinated action.

### **3.2. Methodological Implications of Grand Challenges**

Grand challenges identified by management scholars for the wider society only weakly correspond with the grand challenges identified for management as an academic field. Some of the root causes are connected with the developmental path followed by academia in the last decades, such as the strive for scientific legitimacy, focus on methodological rigor, and publication pressure. Therefore, addressing grand challenges passes through addressing the root causes of apparent disconnection of management academia with management practice. In this section, I outline three ways of doing so: research topic choice, timeframe, and methods used.

If there is a relevance gap in management research programs, wherein scholars identify and address problems that are not relevant to managers, then research problem selection has to be improved. One way of increasing the relevance to managers might be involving them in the validation of problem positioning or, more generally, researching their own concerns in view of arriving at a systematic, valid picture of relevant management problems. Engaging with managers is currently not considered as fundamentally important and may expose researchers to a variety of topics that are not necessarily publishable. Hence, this way of increasing relevance calls for an institutional development of editorial practices; a difficult and lengthy process. Another way of increasing the relevance of management research is to confront or contribute to solving grand challenges (Colquitt, George, 2011). Studies may become relevant not only to academic or professional audiences but also to the large public, should they tackle grand challenges such as inequality, sustainability, or digitalization. Societal grand challenges may vary across context and through time, and field-specific challenges may vary from literature to literature. Yet, connecting a research project with those challenges, clearly explaining how research is relevant to grand challenge understanding, and addressing it effectively adds both scientific

and social legitimacy. Gaining and increasing the legitimacy of an academic field earns the recognition of fellow academics but also general society.

If popular methods use archival and survey data (Ketchen et al., 2008), and the publication cycles are typically several months long, then a time gap emerges between topics relevant to managers, and those tackled by academics. Historical data are privileged partly because of the importance attributed to the “test of time” in evaluating research. The other reason is the prevalence of the positivist paradigm (Gulati, 2007), assuming that the world is relatively stable. However, this methodological practice implies that scholars are vastly absent when managers are confronted with contemporary problems. Relevance requires scholars to look for and encourage a more widespread use of contemporary interventions, real-time data, and interactions. Digitalization makes big data largely available, real-time, and fine-grained to support decision-making (George et al. 2014). Therefore, this new underexploited data source may be highly valuable in management research. Recent arguments indicate that progress toward the digital age requires a new way of theorizing that abandons analog habits of false distinctions, such as economy versus society, and embraces a universal social theory (Roth, 2019). As such, digitalization offers the stimulus to reconsider the way management theory is developed, for instance by developing a degrowth orientation of businesses, by including stakeholder engagement, or by incorporating collaborative processes of wealth co-creation beyond the boundaries of the firm in the scope of theorizing (Plaza-Ubeda et al., 2019).

Quantitative studies are clearly privileged by reviewers and editors in leading journals to such an extent that a feeling of illegitimate institutionalization spreads across management academia (Symon et al., 2008). At the same time, qualitative studies have vastly contributed to identifying and understanding breakthrough issues in management research, such as the nature of executive work, the roles of men and women in corporations, and decision-making in fast-changing environments (Eisenhard, 1991). The methodological debate on the relative use of quantitative and qualitative methods focuses on rigor and has brought major improvements in the last decade (Gioia et al. 2013). Hence, the debate among management scholars is not so much about what methods to use, as this stems directly from the problem to be solved, but rather about the institutional preference for quantitative methods. Yet, qualitative methods offer three advantages unavailable to researchers otherwise: 1) deep immersion in focal phenomena seen through many data sources and types; 2) theoretical sampling based on a purposeful choice of those settings that offer high chances of understanding the phenomenon under scrutiny; 3) grounded theory-building with a rigorous coding process that paves the way to relevant constructs and relationships among them (Eisenhardt et al., 2016). These features offer a unique opportunity to engage with managers, bridge the gap between

the academia and “the real world,” and – most importantly – rigorously organize and execute a problem-solving process.

All in all, grand challenges require that researchers develop current methodological practices. Without discarding any method or engaging in a long-standing debate about the relative merits and rigor of methodological approaches, it is important to recognize opportunities at hand. These encompass closer engagement with managers, more contemporaneous problems and data selection, and generative approaches to understanding phenomena that societies are confronted with.

#### **4. Conclusions**

Management as an academic discipline has demonstrated more than a century-long strive for legitimacy. Critics question the relevance of academic knowledge produced by management scholars, the scientific unity of the discipline, and the educational performance of business schools (Hatchuel, 2005). Interestingly, management academia response to those critics has been a consistent, sustained, and rigorous improvement over the last several decades. Educational legitimacy in response to original criticisms expressed by Gordon-Howell and Pierce in 1959 has been pursued by a deep reshaping of programs, career opportunities, and research, even if those changes generate further criticisms (Pfeffer, Fong, 2002). A massive interest expressed by students, candidates, and businesses in management education can be a proxy of legitimacy in this respect (Hatchuel, 2005). In the same vein, legitimacy-building efforts in the eyes of other academic disciplines have generated the creation of departments, schools, faculties, and learned associations dedicated to management research and education. Scientific rigor pursuit has been reflected in the creation of learned journals in the mid-twentieth century, in the peer-review process, and in the editorial policies that emphasize methodological rigor. One drawback of this strive for academic legitimacy is the rigor-relevance gap, widely experienced as a relatively low impact of academic research on management practice (Abrahamson et al., 2016). Relevance refers to the importance attributed ex-ante to problems in front of involved actors, but it is also the outcome of an ex-post evaluative process. Management research can be relevant to knowledge users such as managers or policymakers to a larger extent than it is now. Increasing relevance implies a broader diffusion of research findings, a closer interaction with the business community, and an impact on changing practices.

Social legitimacy cannot be obtained if a discipline is confined to its own boundaries, regardless of the impact it may have on the wider public, its various stakeholders, and the natural environment. Ivory towers of scholarship prevent both its positive evaluation by society and its own progress. Management academia has successfully built ivory towers of accredited

educational programs and scholarly publication outlets. More importantly, the focus on academic audience played a selective role for issues to be tackled, ways to tackle them, and channels for communicating findings. As criticism converges on the academic ivory tower metaphor, 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, 2008).

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