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Exploring inter-organizational paradoxes: Methodological lessons from a study of a grand challenge

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Abstract
In this paper we outline a methodological framework for studying the inter-organizational aspects of paradoxes and specify this in relation to grand challenges. Grand challenges are large-scale, complex, enduring problems that affect large populations, have a strong social component, and appear intractable. Our methodological insights draw from our study of the insurance protection gap, a grand challenge that arises when economic losses from large-scale disaster significantly exceed the insured loss, leading to economic and social hardship for the affected communities. We provide insights into collecting data to uncover the paradoxical elements inherent in grand challenges and then propose three analytical techniques for studying inter-organizational paradoxes: *zooming in and out, tracking problematization, and tracking boundaries and boundary organizations*. These techniques can be used to identify and follow how contradictions and interdependences emerge and dynamically persist within inter-organizational interactions and how these shape and are shaped by the unfolding dynamics of the grand challenge. Our techniques and associated research design help advance paradox theorizing by moving it to the inter-organizational and systemic level. This paper also illustrates paradox as a powerful lens through which to further our understanding of grand challenges.

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Introduction

A wealth of organizational and strategy research has alerted us to the prevalence and importance of paradox in organizational life (Cunha and Putnam, 2017; Schad, Lewis, Raisch and Smith, 2016; Smith and Lewis, 2011; Schad, Lewis and Smith, 2018). A gap nonetheless remains in our understanding of how paradoxes are constructed across organizational boundaries (Lê and Bednarek, 2017). Complex, inherently paradoxical problems such as climate change, healthcare, and, technological innovation are larger than any one organizational response: they are inter-organizational. Indeed, the systemic nature of paradoxes is a central tenet of much paradox theorizing (Schad & Bansal, 2018; Smith & Lewis, 2011). Studying paradox across organizational boundaries is, however, methodologically challenging.

This paper provides one possible roadmap for exploring paradoxes across organizational boundaries. We focus on grand challenges: large-scale, complex, enduring problems with a strong social component, such as endemic poverty and climate change (Ferraro, Etzion and Gehman, 2015; George, Howard-Grenville, Joshi and Tihanyi, 2016; Grodal and O'Mahony, 2017). These are system-wide problems that extend beyond the boundaries of a single organization or community, and in which numerous diverse actors have multiple competing interests and objectives. For the purposes of this paper, when we refer to the system within which paradoxes shift, we mean this complex social system of inter-organizational relationships (Schad & Bansal, 2018). Isolating paradoxes for study within such systems and following them inter-organizationally is not a simple matter. We offer some insights into designing research to uncover the key paradoxical elements of contradictions, interdependencies and persistence in the context of grand challenges. We then present three analytical techniques aiming at identifying paradoxes in the data and the associated inter-organizational processes: zooming in and out, tracking problematization, and tracking boundaries and boundary organizations.

Studying grand challenges via a paradox lens: The insurance protection gap

The foundation for this paper is our experience of studying a specific grand challenge, the insurance protection gap. This is the growing gap between the insured and actual economic losses caused by catastrophic events, such as floods, earthquakes, and terrorist attacks, which amounts to some $1.3 trillion (for natural catastrophes alone) over the past 10 years (Swiss Re, 2015). In the absence of adequate insurance, the burden of paying for such losses falls on resource-constrained governments or aid organizations, and generates economic and social hardship in both developing and developed economies (Patankar and Patwardhan, 2016).

The insurance protection gap is an example of a grand challenge, because it affects large populations, has large negative effects on welfare, and is "seemingly intractable, resisting easy fixes" (Ferraro et al., 2015: 365). Because it is so complex, involving many different disciplines, interests, and organizational actors, the protection gap, as with most grand challenges, provides fertile ground for paradoxes to emerge. The increasing threat of uninsured losses from disasters such as earthquakes, floods and hurricanes has generated initiatives that bring together private sector, government and inter-governmental organizations in efforts to address the challenge. These initiatives aim to marry *market* mechanisms of providing capital at a profit to *social* objectives of providing affordable protection to citizens. However, marrying market and social objectives is beset with paradoxical tensions, even within a single organization (e.g. Jay, 2013; Smith and Besharov, 2018; Smith, Gonin and Besharov, 2014), let alone when they are brought together across organizational actors with different interests, technical knowledge and world views. In addition, these paradoxes are grounded in tensions between *local* protection gaps and potential *global* solutions (Marquis and Battilana, 2009; Putnam, Fairhurst and Banghart, 2016; Tracey and Creed, 2017). For example, global capital streams meet particular local problems rooted within vastly different, sometimes contradictory, cultural understandings of what constitutes 'fairness' and the role of private and public entities in the pursuit of social objectives (Van Marrewijk, Clegg, Pitsis and Veenswijk, 2008). Hence, the grand challenge, as it plays out globally, comprises a complex set of nested paradoxes that are multifaceted and inter-organizational.

Designing research into grand challenges: Collecting data to uncover paradoxes

A paradox is defined as "persistent contradictions between interdependent elements" (Schad et al., 2016: 10). This definition informed our research design, which we now explain as a basis for uncovering the paradoxical elements of grand challenges. We collected a global dataset of multi-stakeholder interviews, with supporting observations and secondary data[2] with the following features.

Exploring contradictions: Collecting data from multiple stakeholders and multiple sites

Researchers can access contradictions by collecting data on the stakeholders' different roles in, and different understandings of, the grand challenge. While differences are not necessarily contradictory, collecting data on differences can provide insights into when and why contradictions arise. We therefore aimed for a data set that would illuminate differences in roles and understandings linked to specific local settings, specific stakeholders, and between local and global contexts. First, we collected data in multiple different local sites; zooming into 13 different regional manifestations of the protection gap (covering 23 countries globally) from earthquake in the U.S.A., to terrorism in the U.K., to drought in Africa. This allowed local immersion into specific manifestations of the problem while also looking at global variation. Second, we adopted a multi-stakeholder approach to explore potentially contradictory interests and objectives. In each local setting, we included the different stakeholders involved in addressing the problem. This ranged from private firms (insurers, reinsurers, brokers, modelers), to public organizations (government departments, scientific organizations), to third-sector inter-governmental organizations (developmental banks, OECD, aid organizations).

Exploring interdependencies: Collecting data from central organizations and field-configuring events

Consistent with its definition, studying paradox requires investigation of the interdependencies between seemingly contradictory elements. We designed this into our

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[2] This is an ongoing programme of research. However, as of July 2018 this consisted of 307 interviews with 363 participants; 64 ethnographic observations within a sample organization focused on dealing with a specific protection gap, 24 participant-observations at key conferences, organizational workshops and meetings; and more than 9,900 pages of documentary data such as annual reports, press releases and media articles.

research in three ways. First, while many different organizations take part in addressing the grand challenge, some organizations have a central role in bringing these parties together. In each local setting we therefore looked for organizations that had an explicit role at the intersection of private, public, and third-sector stakeholders. One example was state-sponsored pools that have a remit to work on specific, local insurance protection gaps (Jarzabkowski, Chalkias, Cacciatori and Bednarek, 2018a). Second, we were interested in interdependencies between the local protection gaps to understand the grand challenge as a global phenomenon (Jarzabkowski, Bednarek and Cabantous, 2015a). We therefore gathered data in multinational organizations that operated across those local contexts; such as, global (re)insurers, brokerage, and modelling firms as well as inter-governmental organizations like development banks, and international aid and donor organizations. Third, we observed and participated in field-configuring events (Hardy and Maguire, 2010; Raghu, 2008). These were conferences and workshops where numerous and diverse stakeholders gathered to discuss and manage the protection gap as a complex global problem, learn from each other, and examine points of interconnection.

Exploring persistence: Collecting data longitudinally

Finally, the definition of paradox above, clarifies the persistent nature of these interdependent contradictions. Exploring persistence necessitated a longitudinal element to data collection, drawing on secondary data and retrospective interviews. For instance, in interviews we discussed the genesis and evolution of attempts to address specific protection gaps; such as delving into how organizational efforts to address Caribbean hurricane risk were established and changed over time. In addition, our real time data collection of interviews and observations over the 18 months we were in the field, enabled us to explore the dynamic and shifting nature of the grand challenge. For instance, in the Caribbean we engaged in follow-up interviews with key individuals in the aftermath of the hurricanes of 2017 to track change. At a global level, we followed the discussions of issues related to the evolving nature of the focal protection gaps by participating in 23 industry events in different parts of the world over this same 18-month period.

These features of our research design allowed us to identify and follow contradictions and interdependencies as persistent features of the inter-organizational system. Our approach differs from dominant research designs in the paradox literature that focus on within-organization dynamics (e.g. Jarzabowski and Lê, 2017; Luscher and Lewis, 2008; Smith and Lewis, 2011), and cross-case comparisons (e.g. Andriopoulos and Lewis, 2009; Bednarek, Paroutis and Sillince, 2017), rather than interconnections (Schad & Bansal, 2018). It provided the foundation for the analytical techniques explained below.

Analytical techniques for identifying paradoxes

Zooming in and Zooming out: Following paradox dynamically across a system

Our data set enables us to zoom into different elements of paradox locally and also zoom out to place them in the broader interdependencies that shape local action. Zooming in and out are metaphorical terms for an analytical technique that enables researchers to shift between the detail of specific practices and the way those practices shape, and are shaped by, their broader social context (Nicolini, 2013). This process is pertinent to studying grand challenges as it enables us to follow the *persistence* of paradox within a system across time and space: examining how paradoxes shift and become salient with different actors, at different places and points in time as part of a wider nexus of complex inter-organizational interdependencies (Schad & Bansal, 2018). In particular, it enables us to examine "how translocal phenomena come into being and persist in time" through the mutual relationships between practices in different local contexts (Nicolini, 2013: 1392). We now provide an example of one aspect of the grand challenge we studied, the protection gap for terrorism risk, as the basis for explaining the analytical utility of zooming in and out in order to study paradoxes within inter-organizational systems.

> ### *The protection gap for terrorism risk: An example of zooming in and zooming out*
> After the 1993 bombing of the Baltic Exchange in London, the U.K. faced the sudden emergence of a protection gap for terrorism risk for commercial properties. The gap was born of a paradox in the insurance industry: while insurers exist to trade risk and the scale of the attack indicated a vast potential market, the unprecedented nature of that same scale

made it impossible to accurately model and price terrorism risk to ensure the necessary capital backing. Unable to surmount the problem, insurers stopped offering commercial terrorism cover in London. This raised further paradoxes for other stakeholders. Without terrorism insurance, commercial businesses in London could not get loans or investment and so would be unable to continue trading. There was thus critical demand for terrorism insurance. Yet insurers simply could not supply terrorism insurance without adequate capital backing. The two sets of stakeholders could not reconcile their different objectives. Alarmed at the threat to U.K. businesses and economy, a further stakeholder, the U.K. government stepped in, despite constructing State intervention in the market as paradoxical: "*The then [Government Minister], kept saying 'tell them [insurance market] to find their own solution, make this market work properly.' But it becomes a problem of the State that free market economics doesn't work*" (Interview). A new interdependency was established as the government worked with (re)insurers. The insurance industry would establish a terrorism pool, with the capital guarantee provided by the U.K. government.

This immediate localized solution surmounted the complex, nested contradictions between insurance companies' inability to supply capital, the wider U.K. business sectors' demand for terrorism products, and the U.K. government need to ensure political, economic and social stability through continued trading of the U.K. business sector. Yet this 'solution', while addressing the immediate contradictions, was not static. As terrorist events occurred in different local contexts, most notably the 2001 attacks on the World Trade Centre, variations in this pattern emerged in other countries, with a range of different localized public-private initiatives for insuring terrorism risk. These events and changes in other contexts globally also, in turn, necessitated adaptations in the original 1993 "solution" in the U.K.

Using zooming in and out. Scholars can *zoom in* on specific local manifestations of paradox at a particular moment in time. For instance, we zoomed in on the conditions through which the U.K. terrorism pool emerged; narrowing our lens to understand what types of contradictions individual stakeholders experienced, such as those of the U.K. Treasury in intervening in a market. This enables scholars to understand the specific actions of

stakeholders in that local solution to their grand challenge. Researchers can also zoom in on other local contexts at similar periods as the basis for case comparison (e.g. Andriopoulos and Lewis, 2009; Bednarek et al., 2017). For example, investigating whether the paradoxes within which a protection gap emerges are similar or different. Furthermore, to understand the dynamic and persistent nature of paradoxes, researchers can zoom in on multiple critical time periods. For example, we can zoom in on the emergence of the U.K. terrorism pool during a period of largely conventional, fire and bomb-based terrorism, as represented by the 1993 attacks. Or we can zoom in on contradictions and interdependencies at a later period, as actors in the U.K. addressed global fears over the possibility of larger scale nuclear, or biological terrorist attack and how to insure for them. Zooming in on different time periods enables scholars to construct a dynamic understanding of how grand challenges evolve, providing us with understanding of the persistence and evolution of paradoxes (Abdallah, Denis and Langley, 2011; Lê and Bednarek, 2017).

At the same time scholars need to iterate between zooming in and *zooming out* to examine the relationships between these different local contexts and temporal moments (Jarzabkowski, Bednarek and Spee, 2015b; Nicolini, 2013; Schad & Bansal, 2018). For example, we zoomed out to the wider U.K. context to understand how the contradictions experienced by various local actors were renegotiated within a new interdependency and then further zoomed out to understand the effects of the 2001 World Trade Centre attacks on terrorism insurance provision across countries. The relationship between zooming in and out is thus dynamic and iterative rather than separate steps. Joining instances of zooming in on specific contexts at specific points in time, with zooming out to understand the relationships between these instances in which paradox is manifested, including over time, we are able to go beyond within- and between-case comparisons of paradox. Rather, we move to understanding the relational interplay between local contexts and the wider, systemic nature of the grand challenge (Jarzabkowski et al., 2015b; Schad & Bansal, 2018).

Tracking problematization: Identifying shifting contradictions

In complex inter-organizational systems paradoxes may be 'latent', meaning dormant, unperceived, or ignored within parts of the system (Smith and Lewis, 2011), and so, not experienced by all actors at all times. This poses a challenge for researchers wishing to follow the shifting nature of paradoxes across actors, sites, and times (Jarzabkowski, Bednarek and Lê, 2018b). We therefore focused on tracking incidents of 'problematization' in the data as an analytical device for identifying and following paradox. Problematization is evident when one or more actors experience some aspect of the protection gap as contradictory; it becomes salient for that actor in that situation. By tracking when actors themselves problematize their experiences as paradoxical, researchers may elicit moments of salience within a system, without imposing it on the field (Andriopoulos and Gotsi, 2017; Jarzabkowski et al., 2018a). Paradox studies suggest that moments of tension, conflict, or discord are indicators that actors are constructing particular phenomena as paradoxical (e.g. Jarzabkowski, Lê and Van de Ven, 2013; Jay, 2013; Lê and Bednarek, 2017; Luscher and Lewis, 2008). Tracking problematization means going beyond simply uncovering problems to examining whether they arise because the actions of different actors generate contradictions, particularly when they are required to act interdependently around some aspect of the grand challenge. We therefore coded instances in which actors expressed contradictions that were explicitly associated with their particular role or actions within the grand challenge. As paradoxes will not be stable and affixed to one actor or incident, coding problematization and tracking it across the data set is a useful analytical technique for following the dynamic and shifting nature of paradox across an inter-organizational system.

Tracking Problematization: Contradictions and interdependencies in U.K. flood risk insurance

Some properties in the U.K are built in areas with high risk of repeated floods, meaning that insurance companies, consistent with their market objectives, need to charge them higher premiums. This leads to a protection gap, as these citizens may then not buy insurance due to its unaffordability. This generates a paradoxical problem for insurance companies. They want to have many insured properties, but only at a price that reflects the

risk of those properties. Yet the means by which an insurance company might afford to lower its premiums are not within its control but necessitate interdependencies with other actors.

Specifically, risk mitigation, such as flood defense and structural features of housing, is a solution. However, other stakeholders are responsible for the elements of such solutions; from urban planners, to building contractors, to government legislators, to local authorities. These actors may not experience a problem, even as the insurance company does. For example, ensuring affordable insurance premiums, or even resilience to natural catastrophe, is not a primary concern for contractors who operate in a context where other factors are much more important in driving price and sales. Similarly, a local planning authority might ignore flood defenses in the context of a shrinking budget, because their problem is how to meet housing demands with too few resources. The various and partial solutions that the different stakeholders will generate may address some of their separate problems, but may also exacerbate the problems of others, such as the insurers who provide U.K. flood insurance. In the U.K. such problems escalated as the protection gap increased. Eventually, as the social objectives of providing citizens with affordable insurance became more marked and in contradiction with the market objectives of insurers, the government stepped in to instigate interdependent interactions. Over several rounds of negotiation between key stakeholders, from the Environment Agency, to the Treasury, to the insurance industry, a partial solution was reached that took account of some of the various problems by enabling more affordable flood insurance. Yet the solution itself carries forward the paradox of how to connect market pricing of insurance with risk mitigation of property, which actions still reside within separate actors (Jarzabkowski et al., 2018a). Thus, the problems that gives rise to contradictions between actors may be temporarily resolved through moments of interdependency, but these problems will recur at other points in time.

Using tracking of problematization. Tracking problematization is an analytical technique to capture contradictions: those points at which the particular grand challenge raises a paradox for specific actors. As paradox is often latent (Jarzabkowski et al., 2018b), it is difficult to follow until actors experience a particular contradiction. Methodologically, this involves

zooming in on explicit moments of contradiction and then zooming out to track the interconnections between them. This technique is valuable for following how paradox moves within and between inter-organizational actors in the following ways.

First, identifying when actors experience problems enables us to trace the movement from *latent* to *salient* paradox. In our flood insurance example, the paradox for insurance companies may be latent until they face reputational problems or government scrutiny because they cannot provide affordable insurance. The paradox then becomes highly salient (Knight and Paroutis, 2017), generating instances in which actors problematize the contradiction inherent in their situation. For example, we coded data extracts in which insurance companies expressed contradictions between risk reflexive and affordable pricing, such as: "*I do get the social thing. Affordability is always a concern for the industry but at the same time, we're publicly listed companies, we are not charities. We have shareholders, so we have to charge an appropriate premium.*" As government demands increase the salience of these contradictions, the problem may shift to other actors, such as pressure on local authorities to address repeated losses to householders. Zooming in on problematization by individual stakeholders enables tracking of where paradoxes originate, in which organizations, and when they shift to either a different organization, or, by zooming out, when they become inter-organizational.

Second, we can track how the *meaning* of paradox shifts as it moves between actors. Paradoxes are not accorded the same meaning for each actor. By tracking problematization, we can uncover how an insurance company's problem of risk reflexive pricing (private market concern) versus affordability (public good concern), shifts meaning as it becomes a local authority's problem of sustainable housing versus affordable housing, due to the expense of rebuilding for more resilient housing. This provides a more nuanced multi-stakeholder view of paradox as *persistent* because it is grounded in pluralistic stakeholder objectives, interests and values that shift over time (Comeau-Vallée, Denis, Normandin and Therrien, 2017). Tracking problematization thus provides a means to more fully explore paradoxes as a complex nexus of multiple shifting meanings across organizations, enabling

scholars to move towards the study of multiple, related paradoxes (Bednarek et al., 2017), rather than the current tendency to examine polarized dualities.

Tracking boundaries and boundary organizations: Identifying interdependence

The final analytical technique involves understanding interdependence at the boundaries between organizations and between paradoxical elements. The paradoxes of the grand challenge are central to the core activities of some organizations, while for others they only arise at points of interdependence. Exploring these distinctions is critical to understanding the interactions that shape paradox within inter-organizational systems. Grand challenges often feature one or more organizations that are central to the field in terms of their connections with a diverse set of actors. These often perform as *boundary organizations*[3] that have a core role in boundary work between different stakeholders with contradictory objectives (Guston, 1999; Lemos, Kirchhoff, Kalafatis, Scavia and Rood, 2014). Boundary organizations that facilitate interdependence between stakeholders (O'Mahony and Bechky, 2008), are sites in which contradictions are often most salient (e.g. Chataway et al., 2007). However, it is equally important to identify *the boundaries* other organizational actors construct to define their engagement with the grand challenge. By identifying these boundaries, scholars can better understand the different roles, interdependencies between, and contributions of inter-organizational actors. Tracking which actors are at the nexus of multiple boundaries, which contribute only at specific boundaries, and how they are collectively engaged in redrawing boundaries, is critical to understanding the inter-organizational dynamics of when and how paradoxes become salient for some actors, and how they shift across organizations at points of interdependence.

Boundaries in addressing the protection gap in developing economies

In developing economies with low insurance penetration, there is typically little data to model risk to a suitable standard to make a commercially tradable product. There is also little revenue to be yielded from investment in risk modelling and pricing. Hence,

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[3] This analytic technique is informed by the theory of boundary organizations: organizations designed to sit between communities to enable collaboration and to inform policy-making.

insurance market players construct boundaries between protection gaps in developing economies and their core activities. As one reinsurer explained: *"A collection of private players, would not seek to start that marketplace on their own. That's the place where it makes a lot of sense for a government to be a first mover."* By contrast, for inter-governmental organizations, such as the World Bank, bringing about the necessary interdependencies to establish some insurance cover against disaster in developing economies is central to their organizational mission. As one such organization explained: *"The work we have been doing is supporting the risk financing [...] We develop diagnostics and financial strategies. It's just trying to help each of these countries get a handle on what their risk is. And then we're bringing a country to the market."* These organizations are thus working at the boundaries drawn by other actors, such as nation states and private (re)insurance organizations, to effect interdependence between them. Without their actions, no one will address the protection gap. Yet they cannot address it on their own but must act at the nexus of the various other actors; each of whom contributes something, even as each experiences contradictions between their core activities and engaging with the grand challenge.

Using tracking of boundaries and boundary organizations. This analytical technique supports our understanding of paradox *interdependence*. Defining paradox as comprising contradictory elements that are also interdependent (Lewis, 2000; Schad et al., 2016; Smith and Lewis, 2011) has become something of a catch-all for identifying paradox empirically. Yet how and why contradictory elements become interdependent is challenging to study across organizational boundaries. Most studies examine organizations that have a basis for interdependence, such as competitors that are also in a collaborative relationship (Das and Teng, 2000; Jarzabkowski and Bednarek, 2018). By contrast, in a grand challenge, part of the problem is that these organizations, such as environmental agencies and insurers, or aid organizations and capital markets, are not normally interdependent. Hence, their objectives are not normally contradictory because they are not connected.

By examining the boundaries drawn by actors in relation to the grand challenge, we can understand the points at which interdependence occurs and why this occasions contradictions.

For instance, private market players experience a paradox in investing capital to bridge the protection gap in a developing country, because there is no reasonable cost:benefit ratio (Jarzabkowski et al., 2018a). They typically draw boundaries to engaging with the protection gap in such contexts. Thus, the interdependencies brought about by boundary organizations who bring these other stakeholders together over aspects of the grand challenge will also prompt the construction of new boundaries. Yet in doing so, insurance market players will not become development organizations or vice versa. Rather, each will be able to bring their skills; the former in trading risk for a profit, and the latter in supporting developing countries to make fiscal decisions about managing risk, precisely because they remain separate. Hence, we can better understand how boundaries shift but also how the separateness of the paradoxical poles is maintained over time (Smith and Lewis, 2011) rather than compromised, traded-off or blurred.

Concluding remarks: Implications for paradox approaches and grand challenges

We have developed a methodological framework (see Figure 1) that enables the study of paradox as inter-organizational phenomena. The paradox literature has, thus-far, largely examined paradox at organizational (Andriopoulos and Lewis, 2009; Bednarek et al., 2017; Jarzabkowski et al., 2013; Smith, 2014) and individual (Dameron and Torset, 2014; Miron-Spektor, Ingram, Keller, Smith and Lewis, 2017) levels. Our approach, illustrated in Figure 1, provides the opportunity to extend current understandings of paradox by (1) focusing on the dynamically persistent and multi-faceted nature of paradoxes as they surface across time and space (*zooming in and out*); (2) foregrounding how contradictions shift and (re)surface not only within but also between organizational actors (*tracking problematization*); and (3) examining the changing salience of paradoxes among actors as they construct the terms of their interdependence (*tracking boundaries and boundary organizations*).

Drawing on our methodological framework, scholars will be able to develop a more textured understanding not only of individual organizational experiences of paradoxical tensions but also how such experiences may be grounded in wider systemic tensions. Further research of this nature will allow us to take organizational experiences of paradox seriously,

whilst not over-privileging that experience at the expense of addressing the grand challenges from which such tensions stem (Schad & Bansal, 2018). In doing so, we can address calls for paradox research to go beyond its focus on the dualities that comprise organizational paradoxes, to embracing, and potentially addressing, the complex, nested, and pluralistic origins of these paradoxes (Comeau-Vallee et al, 2017; Schad & Bansal, 2018; Smith & Tracey, 2016). Indeed, in drawing on this framework to analyze our own data, we hope both our and others' future research will illustrate the power of a paradox perspective to provide insight into some of the critical challenges facing society.

Insert Figure 1 here

While we focused on the protection gap, our framework is also valuable for studying other grand challenges such as climate change (Schüssler, Rüling and Wittneben, 2014) or alleviating poverty (Mair, Martí and Ventresca, 2012). For instance, in the context of climate change our framework could enable tracking of when non-commercial interests (such as climate change research) provide a boundary to the contradictions raised by commercial interests (such as greenhouse gas emissions); when markets might be engaged (for example, through carbon trading or green investing); and how governments or inter-governmental organizations might leverage these interdependencies to further the climate change agenda. In addition, events such as the 2016 Paris Agreement on climate action, may be understood as partial solutions that motivate new and ongoing ways of working with inherent contradictions. A paradox-informed understanding thus shifts attention from 'managing' grand challenges to creating a system whereby problems are actively worked through, productive interdependencies are (re)constructed, and specific contradictions are navigated in relation to the larger system; providing a powerful tool to support robust action in grand challenges (Ferraro et al., 2015)

A paradox approach will also be useful for the practitioners addressing grand challenges, shifting their expectations from resolving contradictions to understanding that contradictions will continue to resurface in the dynamic process of engaging with a grand challenge. Understanding grand challenges as paradoxical can enable practitioners to understand that contradictions may not be negative and do not need to be closed down. Rather, practitioners

may focus on generating productive interactions, moving beyond the more peaceful notion of collaboration (George et al., 2016) to one of working through shifting contradictions. This might help alleviate feelings of disappointment and defeat associated with navigating such complex, important and intractable societal problems. In summary, a paradox lens helps actors develop a productive and realistic relationship to both the contradictions and interdependencies that are fundamental to engaging with a grand challenge.

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Figure 1. A methodological framework for studying paradoxes within inter-organizational systems
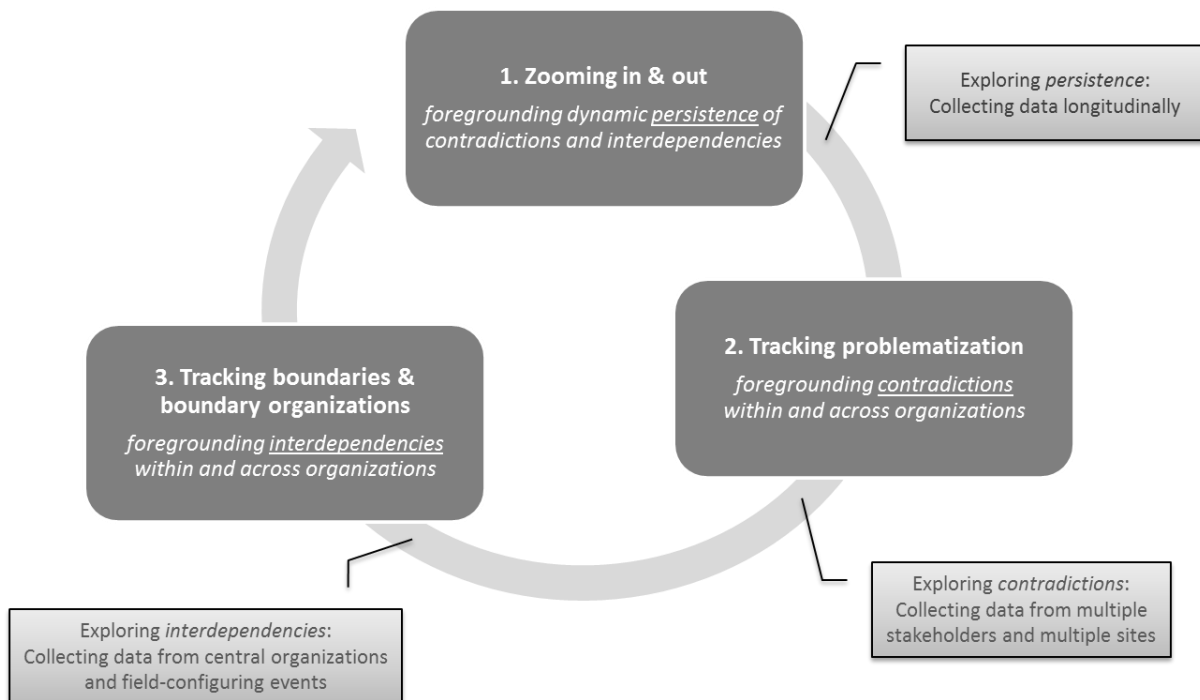
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Paula Jarzabkowski is Professor of Strategic Management at Cass Business School, City University London. Her research takes a practice theory approach to strategizing in complex contexts, such as regulated firms, third sector organizations and financial services, particularly insurance and reinsurance. She is experienced in qualitative methods, having used a range of research designs, including cross-sectional and longitudinal case studies, and drawing on multiple qualitative data sources including audio and video ethnography interviews, observation, and archival sources. Her research has appeared in a numerous leading journals including Academy of Management Journal, Journal of Management Studies, Human Relations, Organization Science, Organization Studies and Strategic Management Journal.

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Konstantinos Chalkias is a Research Fellow at Cass Business School, City, University of London. His research interest resolves around the practices and strategic dynamics of organizations and markets. Drawing from social-practice theory, he studies how strategy is done inside organizations and how financial markets are constructed. He is also interested in organization theories of risk and risk management, with a recent focus on investigating the market mechanisms that transfer uninsurable risk into global financial markets to bridge the global insurance gap.

Eugenia Cacciatori is Senior Lecturer in Management at Cass Business School, City, University of London. Eugenia is an innovation scholar and her research looks at the organizational processes involved in the creation and operation of complex, knowledge-intensive products. At micro-level, she investigates the role of objects, such as physical and virtual models, on the knowledge creation and exchange processes. At macro level, she is interested in the evolving pattern of division of labour and co-specialization in industries. Eugenia holds a PhD in Science and Technology Policy and an MSc in Technology and Innovation Management, both from SPRU (University of Sussex). Her research has been published in journals such as Journal of Management Studies, Organization Studies and Research Policy.