Collective Action II: Exploring New Connections between Collaboration, Technology, and Organization Design

Academy of Management, Sunday, August 7, 3.30-6.30pm, Anaheim Marriott, Platinum Ballroom 1

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Society faces complex problems of consensus-oriented collective action, ranging from poverty relief, drug resistance, climate change, and disaster response, to the development of long-lived infrastructure to cope with population growth, energy crises, scarcity of potable water, rising sea water levels, and migration to cities. Meeting these societal challenges requires assembling vast networks of autonomous, resource-rich actors who need to collaborate across boundaries including governmental agencies, businesses, nonprofit or nongovernmental organizations, and user communities. From an organizational perspective these actors need to create pluralistic or collective action arenas and find ways to sustain them. In these arenas, power to make decisions is diffused, work processes are knowledge-based, and organizational actors have conflicting goals as they belong to different communities of practice. Hence to achieve a unifying goal and articulate the collective's purpose requires that the participants overcome epistemic gaps and find ways to reconcile differences in beliefs, interests, priorities, and even ideologies.

A common feature of these pluralistic settings is the absence of a unitary authority legitimized by government regulation or property rights, or the emergence of a dominant coalition, who can use authoritarianism to dictate the terms of collaboration and impose their preferences on others. The absence of legitimate command and control structures necessitates that the participants self-design structures to govern and coordinate their efforts and reconcile conflicting goals.

This problem raises questions germane to the central theme of the 2016 Academy of Management conference – if the aim of the collaboration means different things for different participants (e.g., it can mean profit, greater good, recognition by peers, return a favor, opportunism, etc.) can a high-level meaning be forged that is capable of unifying all the participants? If pluralistic organizations are 'organized anarchies' where the garbage can analogy applies to the decision-making process (Cohen et al. 1972), shall we accept that individual goals and corresponding meanings are incompatible? Shall we accept that the purpose of leaders is to address the issues without attempting to reconcile goals and underlying meanings? Does meaningfulness as a whole matter at all? Or shall we assume that pluralistic organizations are capable against all odds to produce notions of universal meaningfulness?

More fundamentally, how do these pluralistic arenas emerge in a world where technology on the one hand appears to make actors more interconnected, but on the other hand appears to encourage more individualism and self-interest? How can leaders gradually assemble the networks necessary to achieve collective goals considering the diversity of interests underlying each actor's potential to collaborate? To what extent do the meanings that different participants associate with their eventual participation in the collective influence the extent the collective can be sustainable and effective?

Extant management and organizational studies of collective action illuminate the mechanisms that frequently lead to the failure of collective action. We know, for example, that collective action fails when actors get caught in escalating indecision where nothing gets done, and strategic decisions are constantly made and remade (Denis et al. 2011). Other times collective action fails because of paralysis by analysis, i.e. when people who do not quite trust one another are motivated to use rational means to convince others but evidence is contestable and thus contributes to indecision (Langley 1995). We also know that strategic ambiguity and rhetoric devices are useful to sustain collective action arenas (Denis et al. 2011), but that these mechanisms cause confusion on the recipients of the discourse and thus are a potential barrier for collective action. And we know consensus-oriented collective action is a barrier for rapid innovation (Eisenhardt and Bourgeois 1988).

This leaves us with an important gap in terms of knowing which mechanisms and structures can actually enable collective action, and particularly, can help collective action be more efficient. Can collective action or pluralistic arenas agree on structures to mitigate risks and thus produce innovation for example? Can collective action be accelerated? Can collective action develop collective meanings? Are there particularly structures more amenable to resolve differences between self-interested actors in a pluralistic setting? And how can we assess the performance of these arenas? What do they mean for society as a whole?

This 3-hour interdisciplinary and interactive PDW aims to bring together theoreticians and empiricists from a variety of academic traditions to explore the creation of these voluntary, consensus-oriented collective action or pluralistic arenas as they occur in a variety of distinct settings. We expect that the PDW will attract a large number of scholars and practitioners

who are interested in exploring novel approaches to meet some of today's most difficult societal problems.

Theoretical Motivation for the PDW

Management scholars have noted the increasing role that voluntary, consensus-oriented collective action settings play in a host of empirical settings including: open source communities (O'Mahony & Ferraro, 2007; von Hippel & von Krogh, 2003), new business ecosystems that draw value from unconventional sources such as social networks (Baldwin & von Hippel, 2011), co-developments of long-lived infrastructure in democratic societies (Gil and Baldwin 2013, Lundrigan, Gil, & Puranam 2014, Gil 2015), global communities of scientists (Tuertscher, Garud, & Kumaraswamy, 2014), the provision of humanitarian aid and global policy advocacy on issues of poverty, human rights, and environment (Ebrahim, Brown, & Batliwala, 2014), emergent response to disasters (Beck & Plowman, 2014), collaborative networks formed to supply public services (Ansell and Gash 2008), and strategic choice in pluralistic settings such as hospitals and universities (Denis et al. 2011).

Voluntary-based collective action arenas unify autonomous and heterogeneous actors under a superordinate goal. These collaborations reflect the increasing porosity in organizational boundaries (Santos and Eisenhardt, 2005), allowing discrete organizations to tap into the resources available in their environment and thus to tackle problems which individually are beyond their reach (Adner and Kapoor, 2010).

Yet, voluntary, consensus-oriented collective action arenas face a fundamental problem of governance (Phillips, Lawrence, and Hardy 2000). The involved actors often belong to heterogeneous communities of practice (Brown and Duguid, 1991) and thus their motivations and actions can be expected to be driven by different institutional logics (Scott 2001). Actors may perceive problems differently and thus the solutions they prescribe may also differ. Thus, while on the one hand there is a high-level goal that incites collaboration. On the other hand, actors can and usually do hold multiple interests, which are conflicting or incommensurate with each other and that are conflicting with the overarching goal (Ebrahim, Brown, & Batliwala, 2014).

Controversies and conflict emerge when different epistemic communities, which are likely to frame issues differently, must find a shared solution to a shared problem (Gray, 1989; Gray and Clyman, 2003; Puranam, Raveendran, and Knudsen, 2012; Weber, 2003). Resolving these controversies is paramount for defining a collective interest. This in turn is a function of the degree of alignment of actors' individual or private interests and the mechanisms used to define the collective interest in the absence of individual alignment (Mahoney, McGahan, and Pistelis, 2009; Mahoney and McGahan, 2007).

Collective interests run along a spectrum from poorly to well defined and tend towards the latter only when individual interests can be aligned or aggregated cogently (Mahoney, McGahan, and Pistelis, 2009). Controversies are exacerbated when collective interests favour specific actors' private interests over others (Libecap, 1989). This is especially the case when

collective interests are ill-defined and when there is an unequal representation of members in a community (Mahoney, McGahan, and Pistelis, 2009).

To resolve conflict, collective arenas cannot rely on an authoritative hierarchy (March and Simon, 1993) or 'system integrators' (Brusoni, Prencipe, & Pavitt, 2001) since unilateral decisions could marginalize valuable actors (Pratt & Foreman, 2000), and create risks of defection and collapse of the collaboration (Tuertscher et al., 2014).

Instead, collective action calls for self-organizating configurations that encourage autonomous actors to collaborate and diagnose, transfer and create knowledge and learning (Argote, 1999; Rodrik, 2004) across organizational boundaries. Implicit in the effectiveness of this effort is the existence of a common knowledge that actors use to share and assess each other's domain-specific knowledge (Carlile, 2004). Organizational designs may foster a sense of trust, collective identity and commitment to shared goals (Beck and Plowman, 2014, Ebrahim et al., 2014).

The challenge imbued in collective action arenas is the so-called paradox of pluralism (Garud, Gray, and Tuertscher, 2014). On the one hand, collective action that harnesses the benefits of institutional pluralism brings many benefits (Kratz and Block 2008): it entices contributions of resources needed to resolve complex problems (Garud and Karnøe 2003); it gives legitimacy to the solutions (Suchman, 1995); and it generates robust outcomes (Hargadon and Douglas 2001). On the other hand, creating effective collective action settings is a real challenge as actors frame situations differently and thus propose different and eventually conflicting, but equally legitimate, solutions to problems (Gray 1989; Weber 1998).

Different research strands have contributed to our understanding of collective action (Hargrave and Van de Ven, 2006; Ostrom, 1990) or pluralistic enterprises (Shipilov et al. 2014). The purpose of this PDW is to create a forum to discuss the similarities and differences between these strands, which we organize along three theoretical lenses:

1. Research on the role of trust and identity in collective action

This research stream has long posited that: i) relationships of mutual trust between stakeholders; and ii) a higher-order collective identity under which different social identities are nested, are antecedents to enabling actions that allow autonomous organizing actors to collaborate across boundaries (Gray 1989; Thomson and Perry 2006). To this purpose, creating collective action arenas, or 'trading sites' (Beunze and Stark 2002), where people meet face to face and discuss the issues is critical (Hardy and Phillips 1998, Hardy, Lawrence, and Grant 2005). Yet in many of the most challenging empirical settings, such as rapid organizing in response to an unexpected disaster or controversial developments of infrastructure, actors may have no prior history of collaboration and/or little desire to establish a long-term working relationship.

Recent work has investigated the self-organizing actions and mechanisms that can encourage the development of mutual trust and a collective identity in settings that bring together actors

who have only temporary relationships (Ansari, Wijen, & Gray, 2013; Garud & Karnøe, 2003). Beck and Plowman (2014), for example, shed light on self-organizing actions through which independent actors, with little experience of co-operation, can create an institutional environment that encourages the development of mutual trust and a collective identity under which individual social identities can be nested.

2. Research on the role of knowledge and technology in collective action

A second research strand relevant to our understanding of collective action has been a growing body of literature which examines the role that technology, knowledge, and boundary organizations and infrastructures play in enabling autonomous actors to co-produce new products (Baldwin and von Hippel, 2011; Dougherty and Dunne 2011, Bowker and Star 2000; Tuertscher et al., 2014). The production of modular design structures can create transaction-free zones, and thus opportunities for voluntary, consensus-oriented collaboration between legally independent actors (Baldwin, 2008).

For example, the modularity of the design structures that undergird open source communities (Baldwin & Clark, 2006), social networks, and other emergent business ecosystems (Baldwin and von Hippel, 2011) is critical to reducing interdependency between the design choices, and thus to attenuating rivalry between producers' and end-users' design preferences. Knowing that the final design can cater to heterogeneous needs in use encourages autonomous actors including lead producers, complementors, and end-users to voluntarily contribute time, knowledge, effort, and other resources to the enterprise. It also facilitates the orchestration of dynamic architectural capabilities with other dynamic capabilities as finance and product development, and thus the removal of 'bottlenecks' (Baldwin 2014) that impede the development of innovative systems that add value to users.

Viewing open source production through the lens of collective action reveals a process whereby innovations are made freely available to all as public goods. Thus contributors relinquish control of knowledge they have developed for a project and make it a public good by unconditionally supplying it to the "common pool". The resulting innovations created through collaboration between users and producers occupy a middle ground between producer-centred and user-centred innovation but have a public goods output (Baldwin and von Hippel, 2011).

Thus by participating in the innovation process, and especially if the user-producer cooperation is intense and sustainable, users can attain private benefits that exceed both the costs of participation and the benefits that free-riding might not convey to them. User-producer collaboration therefore represents a form of "selective incentives" which need not be managed by collective action project personnel (von Hippel and von Krogh, 2003). Ultimately, participants voluntarily participate because they cease to regard participation as costly. Rather it becomes a benefit in itself, over and above the public good it is intended to produce (von Krogh, 1998; 2002).

In this so-called "post-Chanderlian firm" innovations develop in a less hierarchical fashion (Langois, 2003). Several governance structures can enable user-producer collaborations.

Contests, for example, can generate user contributions and leverage end-user knowledge. Typically, contests pose open questions that prompt users to offer recommendations regarding new business models, new sources of revenue, or new strategic priorities (Majchrzak & Malhotra, 2013). They are designed such that the public contribute ideas and collaborate with each other online to co-create innovative answers to the question prompt (Armisen and Majchrzak, 2015). Other forms of web-based interfaces and social media are also becoming increasingly important for coordinating knowledge collaboration, creative work and political participation. This is demonstrated across "open" production systems such as Linux, Github and Wikipedia (Keegan, Lev and Arazy, 2015). In parallel, it is often through web-based interfaces that citizens collaborate with professional scientists and contribute to so-called citizen science projects (Silvertown, 2009; Irwin, 2001).

Overall, the communities within which knowledge-based enterprises emerge play critical roles in shaping their identity, problem-solving, and socio-economic value creation (O'Mahony and Lakhani, 2011). As is the case in user entrepreneurship, individuals may develop informational advantages in particular knowledge contexts, which then serve the basis for the creation of new firms (Agarwal and Shah, 2014, Shah and Tripsas, 2007). Alternatively, if autonomous actors have dissimilar backgrounds but do not depart from antagonistic beliefs and preferences, and have the wherewithal and can afford the time, they can search for mutually consensual solutions through engagement in cycles of knowledge exchange and transformation supported by boundary organizations (O'Mahony & Bechky, 2008) and boundary infrastructures such as models, prototypes, and working groups (Tuertscher et al., 2014).

The aforementioned process of reaching consensual solutions may entail modifying boundaries at the occupational, organizational and institutional level in order to coordinate diverse innovation partners, ultimately challenging the notion that contextual factors are static and given (Rottner, 2015; Rottner and Beckman, 2013).

3. Research on new forms of organizing and governing

A third strand of literature relevant to further our understanding of voluntary, collective action relates to contemporaneous debates around organizational designs which are effective despite the absence of traditional sources of authority vested in ownership stakes and employer-employee relations (Gulati, Puranam, and Tushman, 2012). These so-called 'meta-organizations' develop governance structures, which rely on alternative sources of authority and legitimacy grounded in supplier contracts, resource dependencies, technical expertise, and reputation (Blau, 1964; Gulati and Sytch, 2007; Raymond, 2001).

In the world of global non-governmental organizations, for example, Ebrahim et al. (2014) explore alternative governance structures which can be harnessed to enable autonomous local actors to tackle geographically dispersed social problems whilst ensuring that their local actions and approaches form a globally cohesive and legitimate whole. These are conditions of weak ownership, involving organizations that have no owners and whose purpose is to serve public rather than private interests. In these contexts, headquarter-subsidiary relations cannot rely on mechanisms of monitoring and financial control, but rely instead on voluntary

forms of cooperation and legitimate allocation of decision rights. Rather than constraining the decision rights of subsidiaries, these multinational actors increase the rights of subsidiaries in global decision-making to building collective commitments to common goals.

Along these lines, Gil and Baldwin (2013) explore the use of commons theory to interrogate consensus-oriented collaborative developments that bring together heterogeneous actors and unfold under highly-constrained conditions. Building upon Elinor Ostrom's (1990) work on governing shared natural resources, this line of research seeks to understand how a collective of autonomous actors unified by a superordinate goal can create a set of self-enforcing governing rules to manage strategic design choices under highly constrained conditions.

Ostrom's work (1990) is grounded in the world of natural resources and deals with common-pool resources, that is, resources that are available to many claimants but are subtractable such that one's use of the resource deprives others from similar benefits. Ostrom posits that for large pools of shared resources polycentric governance can be effective to encourage autonomous actors to develop social norms of co-operation equity, trust, and reciprocity. This approach consists of a structure of multiple nested centers of power and decision-making, which allows for bottom-up creation of rules to structure the claimants' interactions and reward or sanction their behaviour. Gil and Baldwin (2013) argue that distributed systems of design co-production, with scarce resources and design structures with limited decomposability hold qualities which reflect Ostrom's notion of a common-pool resource.

In summary, the unifying theme of the PDW is the contribution of these three research streams—on trust and identify, knowledge and technology, and news forms of organizing and governing—to advance our understanding of collective action arenas, a mainstay of modern society.

Why should this PDW be of interest to the Academy's theme on Making Organizations Meaningful?

This PDW looks to bring together academics from across the globe and from different research traditions to discuss the creation and design of collective action. It draws upon distinct but related bodies of management literature. We are interested in the role of "governance" by which we mean ''the structures, processes, and institutions within'' but also ''around organizations that allocate power and resource control among participants'' (Davis 2005: 143). Governance is crucial to the sustainability of collective action, and thus it arguably has an important (but underexplored) influence on the extent to which collective action can produce meaningfulness at individual and eventually collective levels. Such governance may take the form of innovations in the distribution of decision rights, formal and informal organizing structures, and practices that give participants legitimate authority in the absence of ownership stakes. We are also responding to Tihanyi, Graffin, and George's (2014) recent call for management studies to look into different units of analysis of governance beyond the corporation. We consider projects or time-bound organizations created to accomplish specific goals, as well as multi-unit organizations in the absence of

ownership structures. Furthermore, we are interested in exploring the interplay of governance structures with technology and social norms of collaboration in collective action arenas.

We believe our interdisciplinary approach will illuminate complementary approaches to a relevant conceptual problem central to the grand challenges faced by society, and thus empirically instantiated across a variety of settings, whilst highlighting the conceptual differences inherent in each body of literature. Creating such conversation between literatures often siloed in their own scholarly communities will aid ongoing theoretical debates in management and organization theory, and in particular to the domains of collective action, innovation business ecosystems, the management of operations in collective action arenas, the management of collaborative networks in public administration, and the management of public and non-profit enterprises.

Clearly, the PDW is relevant for management and organization theorists as well as for those with an interest in challenging empirical settings where multiple interpretations of meaningfulness co-exist, action stems from actors holding conflicting objectives and meanings, and there is no common ownership of a societal problem. Challenges notwithstanding, unless there is munificence of resources, solutions for shared problems will require developing a sense of collective purpose and the design of structures and processes effective for collective action.

The PDW will allow us to raise pertinent questions relating to this year's conference theme on "making organizations meaningful" such as: What are the mechanisms – political, institutional, or technical – which co-situate or co-produce organizational meaningfulness (or a lack thereof) in a pluralistic context? How do collective action arenas ensure that the capabilities and knowledge bases of individual members are harnessed to address a common problem? How can such collaborations be designed with respect to organizational roles, incentives, and accountability mechanisms? Can governance mechanisms that foster trust and collective identity be designed to produce organizational meaningfulness among disparate actors?

In entering this discussion, our panellists will illuminate the processes, actions, and mechanisms through which organizations have effectively overcome barriers to collaboration, and succeeded in creating superordinate goals that unify voluntarily individual actors despite differences in capabilities, beliefs, interests, and preferences. This in turn will allow us to consider different mechanisms through which collective action arenas seek to eventually build a sense of meaningfulness, collective identity and mutual trust, and the mechanisms employed to effectively resolve the controversies that are endemic to pluralistic contexts.

Another core question that the PDW seeks to address is how organizations can create an inclusive and equitable form of governance that ensures that individual actors are not marginalized in the debate. Here the role of polycentric commons governance may shed some light on how organizations can create rules and nested layers of power and decision-making to ensure that participative modes of governance do not descend into anarchy and chaos.

Finally, the PDW offers an opportunity to examine novel organizational structures, which have emerged in response to opportunities created by the emergence of new information and communication technologies, or in response to problems endemic to geographically dispersed organizations. A unifying feature of these novel structures is the absence of traditional sources of centralised authority and control to get things done. The PDW also offers an opportunity to reflect on the mechanisms that encourage voluntary contributions of resources in new business ecosystems such as social networks, crowd sourcing, and open sourcing that benefit from non-decomposable design structures, and thus higher-levels of independence in choices.

In summary, our aim in the PDW is to foster synergies across distinct streams of management theory which, when viewed as a whole, can provide valuable insight into the common problem of making interorganizational collaborations work. Our focus is not collaborations supported by formal or informal contracts where a buyer actor 'buys' collaboration from a supplier. Rather, our focus is on collective action arenas where centralized hierarchical control by government or the private firm is non-existent, and thus the collaboration relies on voluntary contributions of resources and is perforce consensus-oriented. With this focus, we hope that this professional development workshop will help us advance our understanding of a problem which has far reaching relevance for scholars interested both in distributed methods of production, and the challenge of governing multi-faceted social problems.

The Structure of the PDW

To host this PDW we have assembled a group of eminent theorists and empiricists who each have attempted to tackle the common problem of making collective action work. Each of our panelists has grounded their research in different empirical settings and draw from distinct, yet often complementary, bodies of knowledge. By sharing their insight into contemporaneous developments in theory we hope to uncover theoretical overlaps, which will help to improve the predictability of our theories. The structure of the PDW is as follows:

Introduction (10 min) Rehema MSULWA, University of Manchester

Seven Presentations (~85 min). Presentations are loosely grouped together (before and after the break) based on potential commonalities. They may, however, be reordered if, upon reading the papers, the discussants see it fit to do so. Our panelists (biographies included in the end) are:

Luca GIUSTINIANO, LUISS Business School (12 minutes). Engaging citizens in science projects. Citizen science projects involve the general public in research activities in collaboration with professional scientists. In these projects, citizens contribute to the scientific project by collecting or analyzing data, often through a web-based interface. The participation of citizens in research projects is expected to produce at least two benefits: completing scientific research in a shorter time and at a lower cost, and the enhancement of the participants' scientific literacy. While advancements in information technology facilitate

the participation of the general public in research projects through online contributions, many communities still fail to develop the expected outcomes. This presentation will report the results of an empirical study on the effects of monetary rewards and social media recognition on citizens' participation. The study was conducted on three groups of 30 people each involved in the Brooklyn Atlantis project, a citizen science project focused on the environmental monitoring of the Gowanus Canal in Brooklyn, New York. The presentation challenges the role of monetary incentives in volunteer activities and its possible crowding-out side effects. The study concludes that both the monetary rewards and social media recognition could increase the citizens' participation in science projects, if properly implemented.

Brian KEEGAN, Harvard Business School (12 minutes). Finding Structure in Behavioral Sequences within Collective Intelligence Systems. Sociotechnical systems like Wikipedia and GitHub encode a variety of relationships within the digital traces of their user contributions. While traditional social network analysis approaches capture explicitly declared relationships, they often ignore the implicit relations within sequential interactions such as commits or revisions. We propose a method using temporal adjacencies within event log data to produce structural representations of sequence data to identify the trajectories of both users and artifacts as they progress through the system over time. These sociotechnical trajectories reduce large quantities of digital trace data into more parsimonious network graphs. These trajectories reveal the structure of sequences such as regularities in action or anomalies in the behavior of users and artifacts that can motivate follow-on qualitative investigations of social roles, communities of practice, and institutional routines.

Sonali SHAH, University of Illinois at Urbana-Champaign, Uisung David PARK, University of Washington (12 minutes). Hacking Health: Physician Entrepreneurs, Preentry Knowledge & Technological Progress in the Medical Imaging Industry. Studies of preentry knowledge tend to focus on three knowledge sources: knowledge from operating in other industries, from employment in the focal industry, and from employment in related industries. We expand our conceptualization of preentry knowledge to encompass two additional sources: scientific research and use. We build theory to explain how each knowledge source will shape a startup's ability to develop innovations that form the basis for subsequent innovations. We find that user-founded firms and diversifying entrants create the most generative innovations. We supplement our econometric analyses with qualitative work. Our analyses are based on hand-collected, firm-level data covering three medical imaging industries–magnetic resonance imaging, computed tomography, positron emission tomography–over three decades, from the advent of the industry to the present day.

Jochem HUMMEL, Hans BERENDS, Philipp TUERTSCHER, VU University Amsterdam (12 minutes). A Collaborative Community of Big Science and Big Business. We are reporting on emergent insights from our ongoing longitudinal study of Helix Nebula, a collaborative initiative for developing a cloud-computing infrastructure for science in Europe. Helix Nebula is a unique case as it is a collaborative community involving participants from Big Science and Big Business – we examine how actors from Big Science,

who typically have a highly collaborative background and self-organize in a collaborative community, are able to engage with industrial firms that typically rely on hierarchy and control. This setting is systematically different from collaboration in the multi-firm networks (Powell, Koput, & Smith-Doerr, 1996) in which industrial firms often participate, as such networks are essentially hierarchical and organized around a lead firm that works more or less dynamically with network partners to produce and deliver its products or services (Zenger & Hesterly, 1997). Whereas such networks are consistent with governance in hierarchical firms, the mechanisms used by collaborative communities are not. Collaborative communities consist of pluralistic sets of actors, who self-organize on potentially unlimited sets of projects. Collaborative communities have been studied in empirical settings mostly outside the realm of business firms, e.g. in open source communities (O'Mahony & Ferraro, 2007; von Hippel & von Krogh, 2003; von Krogh, Spaeth, & Lakhani, 2003), or user communities (Baldwin, Hienerth, & von Hippel, 2006; Franke & Shah, 2003). This research has shown that collaborative communities are capable of balancing this tension between centrifugal forces associated with self-organization and the need for integration to sustain the collaborative community. Our aim is to extend this research by examining how collaborative communities can accommodate industrial firms as key participants. Are they still able to use the same organizational mechanisms to unify partners that belong to different communities of practice, and thus to overcome acute epistemic gaps and resolve differences in beliefs, interests, priorities, and even ideologies? What mechanisms can be used to reconcile the conflicting approaches to organizing and collaboration? We will present our emergent findings on these questions.

Discussion (20 min)

Break (15min)

Nuno GIL, Manchester Business School, Ilze KIVLENIECE, Imperial Business School (12 minutes). Creating a Polycentric Commons to Govern Strategic Choice in Pluralistic Projects This study explores the governance of strategic choices in pluralistic projects. In these settings, the promoter faces the challenge of agreeing strategic choices with multiple stakeholders with conflicting goals to avoid scope creep, cost/time overruns, and defections in implementation. This study was sparked by a pluralistic setting where project outcomes were reportedly well aligned with strategic plans albeit scarce resources and long planning horizons. The setting is a capital program to develop a group of school buildings where national and local governments together with the schools' faculties shared authority over strategic design choices. The study first extends Ostrom's theory of polycentric commons governance to strategic design choice. Using this cognitive lens, case research yields a model that illuminates how a polycentric commons structure is advantageous to encourage multiple actors to collaborate and co-produce strategic choice. We also discuss variance in the extent this structure gets things done to target and yields innovation.

Rehema MSULWA, Nuno GIL Manchester Business School (12 minutes). Overcoming Local Variability Under Polycentric Project Governance: Insights from Planning a National Railway System. This study investigates the variance in the performance of local working groups formed to plan a new complex system. This study is empirically grounded on data from the front-end planning of High-Speed 2, a cross-country railway connecting London to the Northen Regions. Our units of analysis are working groups formed to plan the future railway stations along the route. Our findings uncover a polycentric structure governing the front-end planning stage. The project promoter (national government) self-formulates the system-level problem and sets global performance targets. But, crucially, authority over local sub-problem solving is shared with different groups of resource-rich local claimants. Our findings trace variance in the performance of each local group back to: i) pre-existing local structures governing decision-making, and ii) degree of rilvarous design preferences amongst local claimants, and between local claimants as a whole and the project promoter. The analysis also reveals how the promoter's managerial approach varies in response to sub-problem hetereogeneity and time pressure. We discuss how the promoter's performance at front-end planning is constrained by local variability and global targets, which gives rise to a kick-the-can-down-the-road strategy: problems for which finding a consensual solution is not complicated get resolved whereas more complicated local disputes remain unresolved in front-end planning.

Professor Renee ROTTNER, UCSB (12 minutes). Renee will speak about her research on a large-scale scientific collaboration at NASA's infrared Spitzer Space Telescope. Spitzer was launched in 2003 after nearly 3 decades in development and involved more than 1,000 engineers and scientists at 24 different organizations (government, university, and for-profit), and numerous other stakeholders from the US Congress to international space agencies. Renee will present her research on how boundaries at the occupational, organizational and institutional levels can be modified to coordinate diverse innovation partners. Increasingly, from developing drugs to particle accelerators, innovation takes place beyond the boundaries of a single organization. In such situations, how can innovators organize resources they do not directly control? How can innovators forge alliances when incentives conflict or stakeholders are diverse? In much management research and practice, boundaries are taken as given and are treated as something that must be spanned, rather than a target of action. The Spitzer case challenges this view by revealing that boundaries are malleable and multiplex, and enriches our understanding of how actors cause institutional change.

Discussion (20 min)

Our two discussants -- Professor Ann MAJCHRZAK (Marshall School of Business) and Professor Andrea PRENCIPE (LUISS Guido Carli University) -- have been asked to kick off the period of discussion and to. They will have been given an opportunity to read the papers and the arguments presented in the first part of the session. Their task, admittedly challenging, is to help us make sense of potential commonalities across the different focal problems and arguments that were presented. They have also been asked to reflect about

complementarities and tricky overlaps between different research strands, and ways to address them with a view to produce convincing arguments and refutable theory.

During an **open panel**, the discussants and presenters will share their experiences and insights on the core themes of the PDW:

1. Role of new forms of organizing and governing for meaningfulness in interorganizational collaboration
2. Role of trust and identity in interorganizational collaborations

Role of knowledge and technology in interorganizational collaborationsThe aim of this panel is to create a collective action arena where we will try to walk the talk, and thus collectively do our best to harness the benefits of pluralism, a notoriously difficult job. The membership of the panel will include various scholars coming from very different research traditions that by and large have remained disparate. The aim of the open panel is to make the sum of the parts bigger than the whole.

Thus, the aim of the panel is not to cohere the different arguments and research optics, but rather explore how they interplay and complement each other, and how they collectively can further our understanding of collection action problems. This assumes that different research strands work as interdependent resources without which we could not achieve our goal. Specifically, the superordinate goal that unifies the panel, and thus motivates the members of the panel to contribute voluntarily their time, effort, and knowledge to the PDW, as well as to seek consensus around the issues, is to advance society's understanding as to how collective action arenas work.

If theoretical predictions apply, we can expect that this superordinate goal will contribute to develop a higher-order shared identity under which the different research strands, and corresponding individual contributions, can nest without losing their distinctiveness. For sure, this is the goal that motivated us to put together this proposal. And if the theory applies, with a shared identity and an inclusive structure, we can expect the panel to develop the social norms of trust, equity, and co-operation central to effective collaboration in collective action.

After initial interventions by the two discussants, we will open the debate to the audience in the plenary. The audience will be invited to participate and share common themes, insights, and emerging questions. The discussants will facilitate audience participation and, along with presenters, will field questions during the Q&A session.

Short bios of the Participants (in alphabetical order)

Hans BERENDS, VU University Amsterdam. Hans Berends is Professor of Innovation and Organization at the Knowledge, Information and Innovation Research Group, Faculty of Economics and Business Administration, VU University Amsterdam. He is an organization scientist with a background in philosophy and industrial engineering, and received a PhD from Eindhoven University of Technology for a dissertation on knowledge sharing in industrial research. His research interests concern processes and practices of innovation,

digital innovation, organizational learning, and interorganizational collaboration. His work has been published in leading journals including Organization Science, Organization Studies, Journal of Management Studies, Human Relations, and Journal of Product Innovation Management.

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