THE ROLE OF BOUNDARY ORGANIZATIONS IN COLLABORATIONS BETWEEN INCUMBENT FIRMS AND START-UPS: EXPLORING INNOVATION OPPORTUNITIES IN FASHION-TECH

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INTRODUCTION

Organization and management scholars are increasingly interested in the ways emerging technologies such as artificial intelligence, advanced robotics, and blockchain are reshaping the way firms create new products, services, organize practices, and manage collaborations both within and across organizational boundaries (e.g., Barrett et al., 2012; Murray et al., 2019; von Krogh, 2018; Yoo et al., 2012; Zammuto et al., 2007). This ever more rapid technological evolution is creating the need for incumbent firms to explore new technological domains they know little about in a relatively short time, and to open up their boundaries to new forms of collaboration with start-ups (e.g., Allmendinger & Berger, 2019; De Groote & Backmann, 2019; Jackson & Richter, 2017). A study by 500 Startups (a US-based global venture capital seed fund and venture accelerator) and INSEAD Business School (Bonzom & Netessine, 2016) conducted in 2016, for instance, reported that more than 50% of the Forbes Global 500 companies were "working with startups in one way or another" (Bonzom & Netessine, 2016: 25)[1]. This tendency has led to an emerging breed of corporate-start-ups collaborations aimed at integrating technology solutions developed by start-ups into corporates' products and organizational processes within short timeframes, oftentimes across different industries.

A well-established research tradition has emphasized the potential benefits for both incumbent firms and young ventures yielding from their collaboration (see, e.g., Alvarez & Barney, 2001; Pisano, 1990; Stuart et al., 1999). Incumbent firms can, for instance, tap "into the innovative and entrepreneurial potential of smaller companies" (Doz, 1987: 31), expand their "R&D boundaries" in face of technological change (Pisano, 1990: 174; Rothaermel & Boeker, 2008) acquire new knowledge (Wadhwa & Kotha, 2006), and ultimately "transform them into engines of corporate innovation" (Weiblen & Chesbrough, 2015: 78). Young ventures, by contrast, can access corporations' organizational and financial resources to commercialize their products and services (e.g., Alvarez & Barney, 2001; Katila et al., 2008), potentially access a prominent client, and increase their legitimacy through corporate endorsement (e.g., Stuart et al., 1999).

On the other hand, scholars have also extensively documented the challenges that such collaborations often entail, and empirical accounts of failed collaboration attempts are not rare. Partnerships between traditional, well-established firms and new ventures, indeed, are much more difficult to manage in practice than it sounds in theory (e.g., Alvarez & Barney, 2001; Doz, 1987). Scholars have clearly pointed at the potential pitfalls that these particular forms of inter-organizational relations entail (e.g., Alvarez & Barney, 2001; Doz, 1987; Katila et al., 2008; Minshall et al., 2010). These partnerships have been defined as "asymmetric" (Allmendinger & Berger, 2019; Das & He, 2006; Minshall et al., 2010; Jackson & Richter, 2017), to emphasize the

significant differences in bargaining power and learning ability (Alvarez & Barney, 2001; Das & He, 2006) as well as resource endowments, size, and business experience (Hogenhuis et al., 2016; Minshall et al., 2010) that exist between long-established firms and young ventures. These differences, in turn, put incumbents in the position of engaging in exploitative – rather than collaborative – behaviors, and gain disproportional benefits to the detriment of start-ups (Doz, 1987; Katila et al., 2008).

Relationships between incumbent firms and start-ups, therefore, are puzzling. Despite being notoriously difficult to build and manage, and frequently resulting in a fiasco, they are widely diffused in practice and often promoted as potentially highly fruitful for both parties. Overall, available research provides normative guidance to managers and entrepreneurs on the governance aspects of these collaborations, primarily focusing on how asymmetry issues can be overcome in order for both parties to achieve mutual gains (Das & He, 2006; Minshall et al., 2008, 2010; Jackson & Richter, 2017). Regrettably, this research overlooks the fact that governance challenges are only part of the issue in collaborations between startups and incumbent firms. Indeed, corporate-startups relations are oftentimes exploratory processes whereby incumbent firms search for innovation opportunities in their external environments (Wadhwa & Kotha, 2006), often on the basis of ill-defined and unstable "technology interests" (Katila et al., 2008) that can span multiple (and often distant) sectors. The need for distant organizations such as incumbent firms and start-ups to collaborate across domains, in turn, opens up a novel set of challenges primarily related to collaborations across organizational as well as disciplinary boundaries, which would exist alongside the operational and power-related challenges that past research on corporate-startups collaborations has widely investigated, and which, nonetheless, have received less theoretical attention.

Against this backdrop, a number of new organizations have arisen for helping incumbent firms and start-ups in matching and set up exploration-oriented collaborations. Despite being on the rise, these organizations have received scant theoretical attention. Past research has referred to organizations that stand in-between divergent parties and allow them to collaborate as "boundary organizations" (Guston, 1999; Miller, 2001; O'Mahony & Betchky, 2008). Despite scholars have sometimes mentioned that such intermediary organizations broker "any aspect of the innovation process" (Howells, 2006: 720) by being part of a "triadic role structure" (O'Mahony & Betchky, 2008: 422), research on boundary organizations has nonetheless mostly focused on their role in reconciling diverging interests in domains such as science and politics (see O'Mahony & Betchky, 2008 for an exception), overlooking other different, but equally challenging, collaboration settings. We still have a limited theoretical understanding on the intermediation role of boundary organizations in inter-organizational relations, especially when the collaborating parties are committed to generating innovative outcomes through collaborations across organizational as well as disciplinary boundaries, as in the case of most collaborations between incumbent firms and start-ups. The role that boundary organizations may play in such inter-organizational relations, therefore, remains largely undertheorized. Specifically, we know little about the processes and underlying mechanisms through which organizations working at the boundary between incumbent firms and start-ups enable and assist them in exploring collaborative innovation opportunities and enacting collaboration processes. This study, therefore, sought to explore the following research question: *how do boundary organizations enable and assist collaboration processes between incumbent firms and start-ups, and foster the emergence of new innovation opportunities between them?*

METHOD

Motivated by the aim to provide a "thick, detailed descriptions of actual actions in real-life contexts" (Gephart, 2004: 455), our research strategy was based on a field study. Our research setting is an open innovation programme involving one of such organizations (in our case, a former venture accelerator which has now become a digital hub company), a leading multinational company in the fashion industry, and various start-ups developing digital technologies. The digital hub firm granted us access to both primary and secondary data, allowing us to follow the development of the programme over a period of approximately 12 months. Our study offers an in-depth analysis of the open innovation programme, which the digital hub firm has designed and managed. Such a peculiar setting allowed us to transparently observe (Pettigrew, 1990) how the digital hub firm, serving as boundary organization between the fashion company and the start-ups, enabled and assisted the collaboration process between them, and fostered the emergence of new innovation opportunities across their respective boundaries.

We collected longitudinal data following the inception and development of the programme in real time, observing events as they were unfolding. Data collection lasted approximately one year (from July 2017 to June 2018), during which the first author observed more than 80 hours of collaborative activities between the boundary organization and the companies involved (she attended the most important meetings and events whenever she was allowed to participate as observers). She also did more than 13 hours of meetings with the open innovation programme manager to extensively discuss the issues emerging from the programme in real time and deepen her observations. During the fieldwork, both authors had many opportunities to informally chat with the people involved in the programme, and to participate in other activities done by the digital hub firm (such as, for instance, specific events for managers aimed at disseminating knowledge about emerging technologies or industry-focused symposia aimed at discussing technological trends). Observations and conversations were audiotaped whenever possible, and always documented through extensive notes. We also conducted 20 interviews with all the managers and entrepreneurs involved in both the digital hub firm and the companies involved. All interviews were audiotaped and transcribed verbatim. To supplement the primary data, we collected and analyzed a wide array of secondary data to which we were granted full access by the digital hub firm. These included programme reports and artifacts (such as, for instance, post-it and billboards), as well as publicly available documentation such as podcasts and press news covering all firms involved.

Data analysis involved multiple rounds of coding and was highly iterative. Following Langley (1999), we relied on multiple strategies for the analysis of our longitudinal data. We began our study with a general intention of understanding how intermediary organizations help incumbent firms and start-ups in finding one another and managing collaboration processes. As soon as we started collecting the data, we engaged in an ongoing process of reconstruction of the activities performed by each company involved in each programme phase, to produce a visual map of the programme as it unfolded. We then engaged in multiple rounds of detailed reading of our interviews, notes, and secondary data, and assigned in-vivo labels to paragraphs, remaining as faithful as possible to the worlds of our informants. Coherently with our interpretive approach (Gephart, 2004), we approached the data without theoretical pre-conceptions in mind, to allow relevant themes to arise from the data in an inductive manner and based on the words of our informants. It was at this point that most issues related to boundary spanning and difficulties in collaborating across domains started to arise and directed us towards theories of boundary organizations. After collapsing similar codes onto first order categories (see, e.g., Gioia et al.,

2013), we thus went back to theory to illuminate our emerging interpretations and seek for explanations. For instance, we used theories on boundary organizations to make sense of the "organizational mechanisms and processes that enable collaboration" (O'Mahony & Betchky, 2008: 426) and that were primarily performed by the digital hub firm, as well theories of boundary spanning (e.g., Leifer & Delbecq, 1978; Levina & Vaast, 2005; Pawlowski & Robey, 2004) and collaborations across domains (e.g., Boland & Tenkasi, 1995; Carlile, 2004) to inform our analysis of the participating firms' attempts at working together and understand each other. This process was repeated multiple times, and eventually resulted in the aggregation of first-order categories into second-order and aggregate dimensions. As a final step, we focused on uncovering relations among concepts to build a process model fitting our evidence (Locke, 2001).

FINDINGS

Coherently with previous work, we found that collaborations between incumbent firms and start-ups are challenging. More than challenges related to power and resource endowments asymmetries, however, we observed that the main issue for incumbent firms is that they oftentimes approach these partnerships neither with a clear idea of the kind of partner they are looking for and of the objectives they want to achieve, nor with knowledge on how to reach such partner and what the expected outcomes should be. This, in turn, calls for a fundamental role of boundary organizations to enable and assist these collaboration processes. Boundary organization have to understand in depth the needs and problems of incumbent firms, figure out how to help them overcome such issues, design matchmaking programs accordingly, search openly for partners on their behalf, facilitate the meeting of potential partners and support them understanding their complementarities, and finally ensure that if and when an opportunity for collaboration is identified, the partners are aligned on operational aspects such as timing, budgets, and expectations for the final outcomes. The role of boundary organizations, therefore, does not remain stable throughout the collaboration process: they have to serve as blackboard on which incumbent firms can sketch out their needs, as open search engine through which potential start-up partners are found according to these needs, as matchmaking device through which these potential partners are presented to the incumbent firm and opportunities are identified, and finally as coordinating vehicles that ensure a smooth collaboration process and the delivery of the expected outcome as quick and in line with the incumbent firm's expectations as possible.

In doing this, they also have to constantly balance the interests of both parties, and be able to speak the language of different industries. They, therefore, have to serve as crossover bridges, which speak to both domains and put distant parties into contact in a way that leverages on their differences to ensure that they can achieve mutual gains from collaboration. In order to perform these tasks, boundary organizations need to be uniquely positioned: to be attractive for the corporate clients, they need to have specific expertise not only in searching for potential partners and matchmaking, but also in helping them understand what they might be looking for, and in designing collaboration processes accordingly. Accurate framing of the innovation challenges and expectations is of fundamental importance for the success of these initiatives, as well as the ability to design and propose a programme roadmap that accommodates the interests of the involved parties. On the other hand, to be attractive for start-ups they need to be legitimate enough to be seen as neutral and trustworthy parties by them. Start-ups might otherwise not trust them due to the perceived risks of misbehaviors on the part of the corporate. In concrete terms, this translates into, for instance, reassuring start-ups on the potential benefits they can achieve from participating in these programs, offering them support to effectively pitch their ideas to the corporate, figure out

with them how to best accommodate the corporate requirements, and making sure that start-ups needs are taken seriously by the corporate itself. A delicate balance underlines the role of boundary organizations and needs to be constantly monitored: though serving corporates, they need to always safeguard the interests of start-ups in order not to risk eroding their legitimacy and creating dissatisfaction.

Our findings offer a rich empirical account of the processes through which boundary organizations can achieve these goals. Overall, we show how a collaboration process between an incumbent firm in a traditional, low-tech sector and multiple start-ups developing artificial intelligence technologies unfolded, from the identification of the incumbent firm's innovation needs to the completion of the first pilot projects done by the start-ups. We identify the processes and underlying mechanisms through which the digital hub firm, serving as a boundary organization between them, enabled these collaboration opportunities to emerge, and assisted their development. Boundary organizations have a critical role in this process: through a combination of practices done in isolation as well as others performed together with the collaborating firms at different points in time, they are able to synthesize elements from both worlds and in this way help shaping the knowledge boundaries of all the parties involved. We posit that, if effectively performed, these processes lead the collaborating firms to meet each other, enhance the porosity of their respective boundaries, recombine ideas based on their complementarities, foster their reciprocal engagement, and ultimately mitigate knowledge differences between them. The boundary spanning processes that we theorize and their implications on the collaborating firms, ultimately, facilitate the execution of experimental collaborations and lead to the emergence of new business opportunities between them.

DISCUSSION AND CONCLUSIONS

In this study, we analyze a collaboration mode between incumbent firms and start-ups that has still received little attention in scholarly conversation – that is, collaboration through a boundary organization. In doing so, we offered an alternative - and potentially fruitful - path through which incumbent firms and start-ups can match and work together, crossing organizational as well as domain boundaries, and enact collaborative innovation opportunities. We shed light on the specific processes through which boundary organizations enable both parties to create mutual gains from their collaborations, without having to invest large amounts of time or resources in their management themselves. Our study, we believe, constitutes a first step towards a refined, and more nuanced, theoretical understanding of such particular type of inter-organizational collaborations.

Differently from past research, which has mostly highlighted the role of boundary organizations in accommodating the interests of diverging parties by offering spaces for reciprocal adaptation, we focus attention on an overlooked, yet critical, function that these organizations may play – that is, supporting the creation of innovation to which many inter-organizational relations are aimed at (i.e., Davis, 2016). We show how these organizations can enable distant partners to collaborate by serving as a crossover bridge whose role is primarily that of synthesizing elements from both worlds. Instead of conceiving them as stating, enduring entities (e.g., O'Mahony & Betchky, 2008), we focus on the dynamic and morphing role that such organizations play over time and as the needs of the collaborating parties evolve throughout the process of collaborating, and whose involvement with the participating firms may finish as soon as the collaboration object is accomplished. Our findings offer empirical backing and a theoretical explanation of how boundary organizations enable and assist collaborations at the boundary between distant organizations when "innovation is desired" (Carlile, 2004: 555), as well as the temporal dynamics of such boundary-

spanning work. Other organizations serving as intermediaries in collaborations between distant parties may use the same boundary spanning processes that we theorize in the same sequence that we have depicted, or conceive them as a flexible repertoire of practices from which they can draw depending on the micro and macro task that needs to be accomplished.

Lastly, we believe that our particular research setting involving a former venture accelerator, who has been offering start-ups programs for more than ten years before transforming its business model to that of a digital innovation hub, gave us a fruitful opportunity to delineate some implications for the role of accelerators in open innovation. Recently, entrepreneurship scholars interested in acceleration have begun to ask how corporates can insource innovation from start-ups by establishing their own corporate acceleration programs (e.g., Jackson & Richter, 2017; Richter et al., 2018; Shankar & Shepherd, 2018). While available studies look at acceleration processes that are well incorporated within firms' boundaries, however, there is still a substantial lack of understanding of how accelerators might work as boundary spanners to support established firms in connecting with start-ups and absorbing entrepreneurial ideas, especially as independent, separate entities with their own knowledge and routines that are not embedded into a parent organization. Even though we firmly believe that the insights from this study are transferable to other types of boundary organizations, we nonetheless think that they may provide a fertile ground for future research to devote more attention to the role of accelerators as new intermediary organizational forms in open innovation processes between corporates and start-ups.

This study is not free from limitations, which also constitute interesting avenues for future research. The first and most obvious limitation is that our reasoning is based on a single case, thus our findings and interpretations must be taken with some caution. Even though we relied on a specific setting, we do not believe that the boundary spanning processes and the implications that we theorize are necessarily exclusive preserve of the type of boundary organization that we studied. Nonetheless, comparative replication of our study in different organizational forms serving as boundary organizations would be useful to corroborate or challenge our interpretations and push causality further than we were able to do with a single case. Future research, furthermore, might analyze in depth the effect of some contingency factors that might challenge and/or enrich our interpretations.

To conclude, much remains to be done to better understand the new, emerging organizational forms that enable and support inter-organizational collaborations in the pursuit of innovation. In this landscape, we believe that boundary-spanning organizations will gain more and more traction to support firms in accessing external knowledge and setup agile forms of collaboration between them. Our study represents a first step towards a better understanding of these complex inter-organizational relations, as well as the new breed of organizational forms emerging to support them. We hope that further research will extend, refine, and challenge our work, and shed further light on this fascinating phenomenon.

ENDNOTES

1. This rate goes up to 68% considering the first 100 companies in the list. In the same vein, a survey conducted by KPGM in 2014 reported that 88% of all corporates surveyed in the Netherlands "are of the opinion that they must collaborate with start-ups in order to innovate", while 71% of the surveyed start-ups "agree that collaboration with corporates is necessary for success." (Horn & Keyzer, 2014: 12)

REFERENCES AVAILABLE FROM THE AUTHORS