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# THE EXTERNAL KNOWLEDGE SOURCING PROCESS IN MULTINATIONAL CORPORATIONS

FELIPE MONTEIRO[1]* and JULIAN BIRKINSHAW[2]
[1] *INSEAD, Fontainebleau, France*
[2] *London Business School, University of London, London, U.K.*

***Research summary:*** *We study the processes through which multinational corporations (MNCs) identify and make use of external sources of knowledge. Based on a seven-year longitudinal study of one MNC's overseas scouting unit, we show how a simple one-directional "channelling" process gradually gave way to three higher value-added processes, labelled "translating," "matchmaking," and "transforming." Building on these insights, we develop an integrative framework, defining the conditions under which each of the four processes is likely to transpire, and showing how the stock of social capital held by the scouting unit allows it to perform increasingly high value-added activities over time. Implications for the MNC, external knowledge sourcing, and boundary-spanning literatures are discussed.*

***Managerial summary:*** *Over the years, many multinational corporations (MNCs) have created overseas "scouting" units to tap into new ideas and opportunities in leading-edge markets, but with mixed outcomes. In this study, we describe the development of a European telecom firm's scouting unit in Silicon Valley during the 2000s, focusing on the specific approaches used by the scouting managers to build effective connections between Silicon Valley start-ups and the firm's business units back in Europe. We identify four distinct approaches for different types of opportunities, and we observe a clear sequencing of effort over time as the scouting managers built the necessary capabilities and credibility.* 

## INTRODUCTION

To compete effectively in a fast-changing world, an increasingly important capability for firms is external knowledge sourcing—the ability to tap into new ideas and technologies from beyond their boundaries (Katila and Ahuja, 2002; Laursen and Salter, 2006; Rosenkopf and Nerkar, 2001). This is particularly true for multinational corporations (MNCs). To become adept at tapping into the innovative developments in markets around the world (Doz, Santos, and Williamson, 2001; Gupta and Govindarajan, 2000; Patel and Vega, 1999), foreign subsidiaries cannot simply focus on manufacturing or local sales; they must become the "eyes and ears" of the MNC by sensing and acting on ideas picked up in their local market (Almeida, 1996; Meyer, Mudambi, and Narula, 2011).

However, gaining access to external knowledge is far from straightforward because there are significant institutional, technological, and geographical boundaries to be crossed, and the skills required for external search are rarely the same as those for internal transfer (Hansen, 1999). In the MNC context, Mudambi (2011) calls this the "innovation-integration dilemma": foreign subsidiaries need to be locally embedded to have access to leading-edge ideas; they need to be

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*Correspondence to: Felipe Monteiro, INSEAD, Boulevard de Constance, Fontainebleau, 77305, France. E-mail: felipe.monteiro@insead.edu

integrated into the corporate network to transfer those ideas, but it is hard to do both at the same time (see also Andersson, Forsgren, and Holm, 2007).

How can this dilemma be resolved? In international business, there are some examples of subsidiary units having achieved "dual" embeddedness in the local and corporate contexts (Meyer *et al.*, 2011), and the external knowledge-sourcing literature abounds with evidence that firms with greater openness to external knowledge do better in terms of innovation performance (e.g., Katila and Ahuja, 2002; Laursen and Salter, 2006; Rosenkopf and Nerkar, 2001). However, most of these studies employ quantitative methodologies, typically based on archival patent data (e.g., Almeida, 1996; Chung and Alcácer, 2002) or large-sample surveys (e.g., Garriga, von Krogh, and Spaeth, 2013; Laursen and Salter, 2006), so while we can identify firms that have resolved the innovation-integration dilemma, we know little about how they did it; we understand the outcome of the process (i.e., there is evidence that knowledge transfer occurred), but not the activities and efforts that led up to it. This lack of understanding of the process of accessing and using external knowledge is a significant gap in the literature.

The purpose here is to address the gap through a seven-year case study of the external knowledge sourcing process at Global Telco (name disguised), one of the largest MNCs in the telecommunications sector. To isolate this phenomenon, we focus on the activities of its Silicon Valley-based *scouting unit* that acts as a "sensing unit" or "listening post" for the parent company (Doz *et al.*, 2001; Gassmann and von Zedtwitz, 1999), and frame our study within a boundary-spanning perspective, as it is highly relevant to the dual embeddedness challenge described above (Mudambi, 2011). Our research question: *How does the external knowledge sourcing process work in a scouting unit?* was broken down into three subquestions: (1) What forms does the external knowledge sourcing process take in this setting? (2) Under what conditions does each form transpire? (3) How do these processes evolve over time?

Our findings offer insight into the specific ways MNC scouting units access and use external knowledge as well as potentially generalizable observations about the broader process of external knowledge sourcing. We provide the first detailed description of the different ways scouts bring external knowledge inside the firm, and how they build the capabilities to do this. In addition to the standard process of "channelling" general technical knowledge, we observe three higher value-added processes—referred to as "translating," "matchmaking," and "transforming"—and the conditions under which each one was used. We also show how the *relative* emphasis on these external knowledge sourcing processes shifted gradually toward higher value-added processes as the scouts became more skilled at identifying suitable opportunities and developed social capital within the parent company.

In terms of external knowledge sourcing more generally, recent literature has either focused on the internal structures and capabilities of the firm that enable it to access and profit from external knowledge (Arora, Belenzon, and Rios, 2014; Cohen and Levinthal, 1990; Garriga *et al.*, 2013), or has emphasized the diversity and breadth of the external networks to which the firm is exposed (Fleming, Mingo, and Chen, 2007; Katila and Ahuja, 2002; Laursen and Salter, 2006). Our study focuses attention on the critical role of boundary spanners (such as scouts) in making the necessary linkages between internal capabilities and external networks, that is, the *process* of boundary-spanning. This linking process is often critical to the effectiveness of the knowledge sourcing process, and deserves greater attention.

## THEORETICAL BACKGROUND

### External knowledge sourcing and scouting in multinational corporations

How do MNCs gain access to external knowledge in their global operating environment? Early studies focused on "environmental scanning," the process used "to gather and interpret pertinent environmental information" (Aguilar, 1967; Ghoshal, 1985; Lenz and Engledow, 1986: 69; Stubbart, 1982). In the 1980s, with the recognition that MNCs needed more sophisticated ways of using specialized resources in their subsidiary operations to tap into opportunities in overseas markets (Hedlund, 1986; Prahalad and Doz, 1987), the notion of environmental scanning was replaced by a more differentiated model for generating input from particular overseas markets (e.g., Bartlett and Ghoshal, 1986). Scouting units—also called sensing units (Doz *et al.*, 2001: 160) or listening posts (Patel and Vega, 1999)—were first used in



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the early 1980s by the Japanese Ministry of Economy, Trade, and Industry (Gassmann and Gaso, 2004: 5), and became popular among European and North American MNCs (Chatterji, 1996; Weil, 2000). Today, many MNCs have dedicated scouting units world-wide in such industries as consumer goods, pharmaceuticals, chemicals, electronics, and telecommunications. Freed from the constraints of being an operating unit (Doz *et al.*, 2001: 161), scouting units enable the parent company to access pockets of knowledge in places where a sales, manufacturing or R&D operation would not make sense. While scouting units present an enormous potential to bring novel external ideas to large MNCs, the realization of such potential is far from trivial. For instance, Monteiro (2015) showed that the dissonant and/or unproven ideas brought forward by scouting units are often screened out by decision makers. Despite the progress made in explaining the importance of scouting units, an in-depth understanding of how they function is still limited. This is regrettable because scouts play a vital linking role between the internal capabilities of the firm and an external network of existing and potential partners (Laursen and Salter, 2006).

## Boundary-spanning

The boundary-spanning literature emerged from the open-system perspective in organization theory (e.g., March and Simon, 1958; Thompson, 1967), according to which organizations need to access information from their task environment to sustain themselves, yet find it expensive and time-consuming as it distracts from their core activities. One solution to this problem is specialization (Thompson, 1967; Tushman and Katz, 1980: 1072), that is, designating "boundary spanners" to mediate between the external task environment and the organization. However, the literature on boundary-spanning *per se* is fragmented. One strand focuses on boundary-spanning individuals in R&D, showing how they gather and channel external information so that it can be used by an internal unit (Tushman, 1977; Tushman and Katz, 1983; Tushman and Scanlan, 1981). A second examines boundary-spanning in teams and their different interactions with other parts of the organization and the outside world (Ancona and Caldwell, 1988, 1992), and identifies a dual role—one informational (accessing external information so that the boundary spanner can conduct its activities), the other representational (defending their activities to the outside world) for boundary spanners. In a third strand, the term refers to the organization as a whole and its openness to external sources of information (Dollinger, 1984; Leifer and Delbecq, 1978; Rosenkopf and Nerkar, 2001).

Building on the common themes from the above studies, we define a boundary-spanning unit as *a specialized entity that mediates the flow of information between relevant actors in the focal organization and the task environment.* Three elements of our definition are worth noting. First, boundary-spanning is a specialized activity (carried out by a unit for the organization as a whole) rather than a distributed activity. Second, *mediate* refers to gathering, understanding, and interpreting information, which by nature will vary according to the specific situation. Third, the flow of information is potentially bidirectional—usually from the outside in, but potentially to share internal information with external actors. As a departure point for examining the scouting process in MNCs, this definition focuses our study on *how* individual scouts identify and respond to mediation opportunities, in contrast with existing studies that are better at describing what boundary-spanning is and why it is done.

## Research focus

We thus model the MNC scouting unit as a boundary spanner that potentially plays a key role in initiating the external knowledge sourcing mechanism. Two sets of circumstances make this role particularly challenging. First, individual scouts seek to provide information to a vast number of relevant actors in the MNC, often many thousands of miles away. Unlike traditional boundary spanners (Tushman, 1977), they may not know whom they are connecting to in the organization; hence, an internal search effort will be needed in parallel to their external search. Second, as scouting units are not involved in other operational activities, their leaders' only *raison d'être* is the sourcing and sharing of information across the firm's boundaries; unlike most boundary spanners in R&D, they don't have the benefit of conducting their work as part of a formal supervisory role (Katz and Tushman, 1981). Hence, the MNCs scouting unit is an "extreme" example of boundary-spanning since the challenges of mediating between external and internal actors are greater than in other settings. Conversely, scouting units' activities are more easily



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observed since boundary-spanning is the only thing they do, enabling us "to gain certain insights that other organizations would not be able to provide," and "draw inferences about more normal firms" (Siggelkow, 2007: 20; see also Eisenhardt, 1989; Yin, 2003).

Given the paucity of prior research on MNC scouting units, our research questions are fairly broad. First, what forms do the external knowledge sourcing process take? Can we, for example, develop a typology of subprocesses, each with distinctive qualities, as a theory-building exercise (Doty and Glick, 1994)? Second, under what conditions do each of these forms transpire? Third, how do these processes evolve over time?

## METHODS

Given the nature of our research questions, we adopted a grounded theory-building approach, whereby the emergent theory is "grounded" in the data (Glaser and Strauss, 1967; Yin, 2003). The research design is an in-depth single-case study, using an embedded design to collect data at different levels of analysis. Global Telco (pseudonym), our empirical setting, is one of the largest and oldest telecommunications service providers in the world. With headquarters in Europe, annual revenues over U.S. dollars 26 billion and R&D expenditure over U.S. dollars 1 billion, Global Telco (GT) established a scouting unit in 1999 in Silicon Valley. After months of negotiation (and a nondisclosure agreement), GT agreed to provide access to its databases, files, and the relevant managers involved with the scouting unit.

We used public and proprietary databases, and conducted 75 interviews in Europe and the United States from December 2004 to November 2011. We interviewed *all* senior managers working in GT's scouting units; some key informants were interviewed as many as ten times during this seven-year period. (Their positions and a description of the type and number of interviews are listed in Table S1.) The other key data source was GT's internal documentation. We also had access to "Techie," a GT proprietary database with 137 "transfer-memos" regarding the external opportunities assessed in a three-year period. Finally, we used public databases (e.g., Venture Economics, USPTO) to collect additional data on sources of external technologies. Appendix S1 provides a more detailed description of our methods, data collection, and analytical approach.

## FINDINGS: FOUR EXTERNAL KNOWLEDGE SOURCING PROCESSES

### The initial activities of the scouting unit—an emphasis on channelling

In 1999, GT sent two highly experienced senior executives, Pierre and John (pseudonyms), to establish GT's technology scouting function in Palo Alto, California, with the aim of identifying global sources of innovation (product, service, process, social), connecting them to its lines of business, and helping those businesses build innovation-based strategic partnerships. Interviews with GT corporate managers revealed the magnitude of the challenge facing Pierre and John. While both had visited Palo Alto many times, they were not part of the local network, so GT had to invest in prestigious local venture funds to get "a foot in the door in the local venture capital start-up market." They established relationships with faculty and research centers at Stanford, UC Berkeley, and UCLA. They also met with managers from other scouting units in Silicon Valley, both from other telcos and other industries. An overview of the activities of the scouting unit, when it was established, and the initial "channelling" approach taken to boundary-spanning is provided in Table 1 below.

Once they had established some legitimacy (which took about a year), the scouts had to forge agreement with headquarters about which technological areas to focus on. Pierre went back to Europe once every two months for a week, scheduling 15–20 meetings in that week. After several rounds of discussions, two broad areas to be scouted were agreed: broadband and mobility, with specific technologies in each one (e.g., broadband had a subcategory "home monitoring"; mobility had "converged messaging"). Next, the scouts started building connections with start-up companies in Silicon Valley. While investing in venture funds had been necessary to establish their credibility, they now built up a network of partners, and after a couple of years, phased out all new investment in venture funds (though GT did not stop working closely with VCs). Pierre and John typically had portfolio review sessions with 20–25 leading VCs in Silicon Valley at



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Table 1. Channelling and the initial activities of the scouting unit

| Stage | Main activities | Examples | Type of evidence |
|---|---|---|---|
| 1. Getting established | 1.1 Establishment of reputation as the legitimate representative of Global Telco in Silicon Valley<br>1.2 Creating internal awareness and establishing reputation as the legitimate representative of Global Telco in Silicon Valley | • Press release about launching of the scouting function<br>• Creation of venture fund to invest in local start-ups<br>• Numerous meetings with local venture capitalists to review their portfolio of companies and discuss possibilities of co-investment<br>• Meetings with scouts from other companies<br>• Participation in local conferences<br>• Visit to local universities (e.g., Stanford, UC Berkeley, UCLA)<br>• Co-founding of the "Service Providers Investment Forum"<br>• Announcement of the establishment of scouting function in the internal newsletter<br>• Face-to-face meetings with scientists at the research labs<br>• Face-to-face meetings with heads of business units<br>• Hosting visits with key GT's senior managers in Silicon Valley | • Interviews with scouts, interviews with corporate managers, interviews with venture capitalists, interviews with start-ups |
| 2. Defining priorities | 2.1 Understanding Global Telco's business needs and technology requirements | • Creation of list with detailed areas of interest based on the input from lines of business and research labs | • Interviews with scouts, Interviews with corporate managers , interviews with business units managers, company documents |
| 3. Generating and filtering leads | 3.1 Maintaining a generative network so scouts keep being offered mediation opportunities<br>3.2 Assessing and selecting leads that will be transferred to GT's business units | • Portfolio reviews with VCs<br>• Attending and presenting at conferences<br>• Organization of regular meetings of the "Service Providers Investment Forum"<br>• Desk research about received leads<br>• Sit-down visits with a selected number of leads (out of 1,200 companies the scouts had some touch point with every year, they had a first formal meeting with approximately 250 companies of them, i.e., about 20 per month)<br>• Consultations with VCs<br>• Informal consultations with GT's research labs | • Interviews with scouts, interviews with corporate managers, interviews with venture capitalists interviews with start-ups, field observations |
| 4. Codifying leads | 4.1 Writing of reports and completion of forms summarizing the nature of leads and their relevance to GT | • Writing of biweekly newsletter and monthly and quarterly reports<br>• Completion of "transfer-memos" | • Interviews with scouts, field observations, Techie database |




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which VCs showcased their portfolio firms and presented their vision for how specific markets would evolve, while Pierre and John explained the business models and new technologies that GT was interested in seeing start-ups develop. According to GT's internal records, a third of its leads came from such portfolio review sessions.

Our interviews revealed that the number of companies ("leads") the scouts accessed increased from 300 in 2001 to 1,200 in 2005. These were "touch points," such as when scouts were sent a business plan by a start-up, or met at a conference or through a VC. Managers of GT's scouting unit presented at an average of 15 conferences per year, and attended 20 others. Over time, scouts started to get leads from within GT, typically from very senior executives, including the CEO and Chairman, who had been approached directly by a prospective partner company.

Of the 1,200 touch points per year, scouts met formally with about 250 of them, typically at the premises of the start-up, for between one and three hours. It was not unusual to meet the whole top management team or for a VC investor to be present. At this stage, there was no nondisclosure agreement in place. The scouts made it clear that they would decide which leads they would introduce to GT's lines of business in Europe. Of the 250, they selected about 50 leads to share with GT. The final step was to codify what they had seen in Silicon Valley so that units in Europe could act on the leads generated. Initially, this involved newsletters and reports, such as the biweekly five-page "Silicon Valley NewsWatch," which provided broad, codified information in a timely way to interested GT executives in Europe. With time, a simpler form evolved—the "transfer memo"—which codified their knowledge of a specific opportunity, especially when a start-up was of direct interest to a specific line of business. The memo was a standardized form with 26 fields, including company and product name, market, competitors, customers, financing, location, and contact name. It did not take much time to complete since the information provided was easily understood by the business units within GT. Most of the content was included in "product overview" and "product description" fields in which technical specifications were mentioned, and where possible, references to cost and margin data. The transfer memo was e-mailed to a specific business unit within GT, with the author clearly identified (unlike the newsletters that had several recipients but no authorship). Scouts typically followed up by e-mail or phone, then it was up to the business unit to take the relationship forward in whatever way it saw fit.

## Three value-added processes

At the beginning this structured approach to channelling external knowledge back to GT was used in the majority of the mediation opportunities, but scouts soon started to explore more elaborate and higher value-added ways of working. By characterizing these forms of external knowledge sourcing (as translating, matchmaking, transforming), we pinpointed the internal and external contingencies under which each was seen. Figure S1 depicts the emergent data structure, with representative first-order quotes, the analytical themes they were clustered under, and the three higher value-added processes. (Table S2 provides supplemental quotes about these processes).

### *Translating process*

In some cases, information about the external opportunity had to be manipulated or "translated" by scouts before it could be understood by people inside GT (Carlile, 2004; Cohen and Levinthal, 1990; Tushman and Scanlan, 1981). They coined the expression "to GT'ize the external technology" to describe their job when writing the transfer memo. The translating process typically started in the same way as channelling: Scouts met with a start-up management team and spotted an opportunity of potential interest to a GT business unit. But unlike a straightforward case of channelling, here scouts were faced with technologies that did not map immediately onto GT's existing lines of business. Many were in unfamiliar technological domains; hence, sense-making entailed much more effort from scouts than the standard channelling process.

While the channelling process was typically used to transmit information about a familiar technology that GT would otherwise not have immediate access to, the translating process was used to introduce business units to new or unfamiliar ways of solving known problems. For instance, by triangulating the transfer memo data with GT patenting activity data at the USPTO, we could verify that translation was typically used for cases of nonoverlapping knowledge, that is, technological



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domains where GT had no (or limited) patenting activity. Since the focus was on how the technology worked and could be used by GT, memos were substantially longer and required more follow-up with recipient units by phone and e-mail. Scouts estimated spending at least twice as much time on a translating opportunity than customary channelling. Channelling transfer memos were about 120 words, translating memos were typically five times longer.

Our interviews revealed that in the translating process, scouts also performed two other activities—*filtering* and *framing*—which went beyond making the external technology understandable for internal actors (see Figure S1) and actively sought to gain their attention. Filtering—which involved discussing how to sharpen and clarify the external opportunity so business units could understand which specific application of the external technology could be used by GT—was particularly critical given its unfamiliarity with the technology being presented. The scout's job was to find the specific part of that technology that could be applied by GT, as Pierre explained: "We need to remove all the stuff which is irrelevant and distracting from a pitch." Instead of copy/pasting technology descriptions provided by the start-ups, the translating process involved scouts writing their own. Framing involved changing the language and emphasis to catch the eye of the GT line managers: "The spin that we put on [start-up] companies back to GT is when we link some of their propositions to elements that are relevant to GT, we are turning it into language that our folks understand," explained Ulf, one of the scouts.

In sum, when "translating" a transfer memo opportunity, instead of assuming a technical product description would suffice (as described above in the channelling process), scouts made a substantial additional effort to explain the relevance of the technology to GT. In so doing, they showed they understood the nature of problems facing GT business units, and that the latter were probably unfamiliar with the external technology. The translating process thus followed a "decoding" logic (Shannon and Weaver, 1963) in that the scouts used their knowledge of the terminology and coding schemes of Silicon Valley engineers to make sense of what they were seeing. As Tushman and Scanlan (1981) observe, boundary spanners often find themselves at the interface between domains where actors have developed shared semantic space, each working in their own thought-worlds and with their own terminology. GT's scouts took this a step further through filtering and framing activities that went beyond simply "translating technical information into a form understandable" by internal actors (Cohen and Levinthal, 1990: 132).

### *Matchmaking process*

While the above processes were initiated by the scouts and did not involve actual introductions to specific partners, the matchmaking process was typically initiated by a *proactive request from an internal unit* searching for providers of specific technologies. Business units often had a clear idea of what they were looking for, but did not know which firms were working in that space or how to connect with them. These requests from internal units typically triggered an *intensive search process* by scouts, starting with them revisiting their own files on start-up companies identified in the past, then contacting the VCs in their network to build a list of promising companies working in that space. The next step was to meet face-to-face with a handful of companies to identify the most promising ones, given the requirements of the focal business unit as noted in the transfer memo. Compared with the channelling/translating approaches, matchmaking required a stronger relationship between the scouts and the business units. The latter engaged scouts in a conversation about their technological "roadmap" and the specific external technologies required rather than providing a broad "areas of interest" search list. As in the channelling process, transfer memos tended to be short, given the familiarity of the business unit with the external technology. As Gianlucca explained, "This is really about the introduction; here is the business card of this guy who runs this company, let me call him, schedule a meeting among the three of us . . . ."

In the matchmaking process, scouts were particularly concerned about the *quality of the match*. While transfer memos included the contact details of someone in the start-up, additional information typically in the "Comments" field indicated who they had met in the start-up and who would be a good match within GT and why. In addition to explaining the technology, scouts detailed the source (i.e., the potential partner for GT) and what they would do to make the connection. Matchmaking did not necessarily require translation by the scouts as the technology was familiar to GT. The challenge was to find the right partner, not to make



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sense of the technology. As Thomas (another member of the scouting team) explained, "It is important that we show who should meet with whom." Unlike the channelling process, the scout's job was not over after writing the transfer memo; there was a significant follow-up effort required to explain how the connection between the start-up and specific managers within GT could be made, and why it made sense. This was conducted mostly by phone and e-mail, and in some cases, face-to-face meetings with GT business unit managers.

The matchmaking process thus followed a "dating-agency" logic, that is, the scouting unit saw itself as a middleman whose role was to bring together two previously unconnected parties. The initial challenge (an intensive external search in response to a request by an internal unit; see Figure S1) was to find out where useful knowledge might be located; or as Cohen and Levinthal (1990: 133) put it, "knowledge of who knows what, who can help with what problem, or who can exploit new information." But it went beyond developing awareness to make a match between the internal and external actors, a process referred to as a *tertius iungens* orientation (Obstfeld, 2005) in the social network literature. While the translating and matchmaking processes both focused on a specific mediation opportunity, the value added by the scouting unit in translating was principally in decoding context-specific information, while in matchmaking it was about identifying the "right" connections between unconnected parties *and* facilitating the formation of those connections.

### *Transforming process*

In the processes described above, scouts used the areas of interest and problems articulated by the business units to guide their search in the external environment. In the transforming process, they pushed back on the units' initial requests and spent time discussing the true nature of their problems, rather than merely accepting the definition as it was presented to them. It was typically initiated when scouts received a proactive request from a business unit. Given their relationships with people in the business unit, other players working in similar domains, and their knowledge of the technology involved, scouts felt that the request would not yield the most promising solution, and that there was "a need to transform the problem definition." Thus, when approached with a specific request from business units (e.g., the need of a new encoding device), the first step scouts took was to provide their own advice to the business unit, rather than simply follow their request. The next step was to engage in an *interactive search process* to understand exactly why the business unit thought they needed that specific encoding device as well the start of a search for potential partners. Externally, this involved mapping with more precision the alternatives available in the domain of interest to GT. Internally, the conversations with the units required a lot of search effort because the units lacked a precise diagnosis of what they needed.

In one specific case, when John started to spell out the alternatives he had seen in Silicon Valley, he realized that the business unit might not have the budget to codevelop or purchase the type of encoding device they were originally thinking of. As a result of many conversations arising from an iterative process of internal and external search, he re-oriented his search: Instead of looking for external partners to help GT develop the device, he felt should be looking for types of start-ups that were developing alternative technologies and marketing them as a service-based solution. After agreeing with the business unit on the "transformed" need, the next step of the process resembled a hybrid of translating and matchmaking. Given that GT was not familiar with these technologies, scouts had to be particularly careful in performing the same filtering and framing as for the translating process. In addition, they had to come up with a list of companies, meet with them, and eventually connect them with the business unit within GT, as for a matchmaking opportunity.

Similar to the translating process, the transfer memos in the transforming process tended to be much longer than the ones in the channelling and matchmaking processes, including explanations of how a technology would solve a specific problem GT had. Similar to matchmaking, they typically made references to specific people within GT and the contacts the scouts had with the source of the external technology to give a clear idea of how the connection could be made. Unlike the above three processes, transforming entailed a more *sustained follow-up* by the scouts. Scouts acknowledged the risks of connecting a business unit with a partner they had never heard of to solve a problem that was not originally defined by them, as Pierre explained, "It's really important that we continue helping our lines of business moving forward with



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the external idea … especially when you have just convinced them they have a different problem than they thought they had."

However, to develop the ability to identify transforming opportunities and the credibility to be heard by business units, scouts needed experience working in Silicon Valley as well as a strong relationship with the managers in the business units whose needs they were transforming. Therefore, these mediation opportunities were typically pursued by the most senior managers in the scouting unit. Even the most senior managers acknowledged, however, that early in the operations of the scouting unit it was difficult to act as transformers. This transforming process has previously been overlooked in the boundary-spanning or in the external knowledge sourcing literatures. Its nearest counterpart is perhaps the "trusted advisor" logic (Maister, Green, and Galford, 2000) observed in professional service firms, in that the scouting unit managers gradually gained credibility and trust from senior executives in GT's business lines, and the relationship evolved from one in which the scout simply did the executive's bidding, to one in which the scout's own judgment was used to challenge the executive and generate a better outcome than the executive could have achieved alone.

## AN INTEGRATIVE FRAMEWORK

While the four processes are conceptually distinct, there are commonalities among them. Our integrative framework for understanding the different types of external knowledge sourcing processes (see Figure 1) shows on one side the external conditions, as perceived by the scouts, regarding the potential mediation opportunity; on the other, the various attributes of social capital they possess (the logic for focusing on social capital is outlined below). In the middle is the range of potential external knowledge sourcing processes at the scouting unit's disposal. We focus on the three higher value-adding processes, rather than the base-case channelling process, given that we are building arguments for the conditions under which these might be employed. Depending on external conditions, there may be a greater need for one particular process, and depending on the scouts' social capital, their ability to engage in one or other process will also vary. Finally, there is a dynamic component to this framework in that as scouts are successful in their various activities, their stock of social capital will rise.

### Starting assumptions

The framework clarifies the way the MNC scouting unit (as a specific form of boundary spanner) identifies and acts on mediation opportunities between external and internal actors. We see scouts playing an entrepreneurial role—their value to the organization is in being alert and responsive to mediation opportunities (Kirzner, 1973; Shane and Venkataraman, 2000). In some cases, the relevant parties inside and outside the organization boundaries are in a position to talk to one another directly, in which case there is no boundary-spanning role. In others, the parties either do not know one another or are unable to communicate, but it would be potentially valuable to both of them to do so—these are of interest to us here. Our starting assumption is that there *is* a mediation opportunity. The question is what type of process the scout should follow to be of most value to the organization. We also assume (as per our definition) that the scouting unit has the necessary level of expertise and knowledge to identify and respond to opportunities on behalf of the organization (Renko, Shrader, and Simon, 2012; Shane, 2003).

### External conditions

Two contingencies shape the choices made by the scouting unit in terms of which processes to pursue. The first is the extent of common ground between the internal and external actors in a mediation opportunity, which can be defined as "the sum of their mutual, common or joint knowledge, beliefs and suppositions" (Clark, 1996: 93), and implies, as Srikanth and Puranam (2011: 850) put it, "knowledge that is shared, known to be shared, and known to be known to be shared." In cases of shared understanding, the process of transferring knowledge is much easier because the conversation between parties can immediately jump to a higher level rather than working at the level of assumption-surfacing. The term *common ground* is used mostly in the literature on coordination and collaboration, and is particularly important in coordinating geographically distributed teams (e.g., Cramton, 2001). It is pertinent in our setting because it captures the extent to which the scouting unit acts as a translator between prospective partners.



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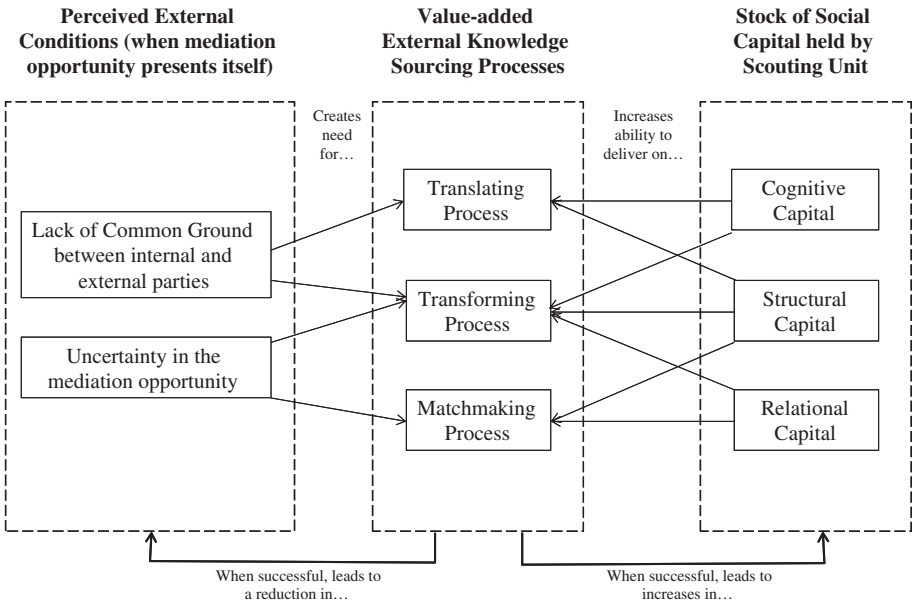


Figure 1. Integrative framework

Using patent data obtained at the USPTO and the Venture Economics Industry Classification (VEIC), we compared the transfer memos of technologies that were related to GT (overlapping knowledge) with those about unrelated external technologies (nonoverlapping knowledge). Our assumption was that unrelated technologies would have less common ground. As an indicator of this, we measured the length of the transfer memos written by scouts to GT business units on the basis that they were likely to write longer memos when there was less common ground. The average lengths of transfer memos were 318 words for channelling, 408 words for matchmaking, 635 words for transforming, and 641 words for the translating process. An ANOVA test indicated that the transform and translating memos were significantly longer than the channelling and matchmaking memos ($F = 24.7$, $p < 0.001$, significant differences in pairs calculated using Scheffe's test).

Our analysis of the GT data suggested that the extent of common ground between the start-up company and the business unit in GT (as perceived by the scouts) was an important factor in shaping the choice of process. When common ground was high, the scout produced shorter transfer memos about a specific opportunity (there was no need to explain to managers in the business units what they already knew), shared it with business units, and got out of the way. Conversely, with limited common ground, the scout had to work hard to make both sides understand the potential of a connection, manifested in the form of a translating process (and also a transforming process as we discuss in Insight 3). This can be summarized in Insight 1 as follows:

> *Insight 1: Lack of common ground between internal and external parties in a mediation opportunity creates a need for the translating process.*

The second external condition is the scope and extent of the search required to identify what scouts believe is the right connection between external and internal parties. In the entrepreneurship literature the process of opportunity identification is often highly iterative, with entrepreneurs moving back and forth between gathering intelligence about market needs and refining their understanding of the means to satisfy them (Dimov, 2007; Kirzner, 1973; Shane and Venkataraman, 2000). This is what we observed among scouts—the effort made on the mediation opportunity varied enormously from case to case, as the head of the unit confirmed:

> *There are some cases where you get confusing and conflicting messages about who are the right people [to connect] at GT.... It is my*



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*task in particular as head of this [scouting] unit to go back to Europe, and I often I have to go back there about once a month for a week which is a significant investment of my time . . . . And when I am there I can schedule more than 10 meetings to discuss a specific opportunity . . . . I meet with heads of division, product managers, research guys and an array of people and strategy guys, which is very intensive.*

A similarly intensive search was often undertaken externally as described by Thomas:

*When you are in a new area, you have to spend a lot of time talking to different start-ups . . . . For instance, I think we saw 14 companies on distributed denial of service [DDoS] attack, 14 new companies on DDoS in one quarter. Now that tells you that there is a significant technology challenge that is being addressed here and a significant threat to the industry in general with DDoS attacks, and now we know who is who in that area and who we should connect with GT.*

As an indicator of search effort, we used Techie to analyze how scouts split their time between activities. For *internal* search effort, the channelling and translating processes involved an internal search effort of 1.5 and 1.9 full-time employee days, respectively, while the matchmaking and transforming processes entailed almost three times as much effort, 3.8 and 4.3 days, respectively. The difference is highly significant (ANOVA $F = 44.4$, $p < 0.0001$). For *external* search effort, scouts averaged 1.9 and 2.1 days, respectively, for channelling and translating, and 3.6 days for both matchmaking and transforming. Again, the differences are significant (ANOVA $F = 28.9$, $p < 0.001$).

In sum, the scope and extent of search was key in shaping the process chosen. Scouts usually had a good grasp of the technological problem (a known unknown), but often no idea who, if anyone, might be able to solve it (an unknown unknown). We conceptualize this as the *uncertainty of the mediation opportunity,* where neither the range of possible outcomes nor the odds within each one are known in advance (Knight, 1921). When faced with such uncertainty (i.e., not knowing whom to talk to), entrepreneurs work through an iterative search process (Hebert and Link, 1989; Kirzner, 1985), which gradually reduces the level of uncertainty until they decide either to act on the opportunity or that it is not worth pursuing. For example, if there are multiple start-up companies working in different technical areas, and several business units in the focal firm with needs in these areas, scouts engage in an extensive search to resolve their "partial ignorance" (Knight, 1921), as we saw in the matchmaking process. Where uncertainty is low, the relevant internal and external parties are recognized immediately, allowing boundary spanners to quickly move to either the channelling or translating process. More formally: Insight 2 suggests that:

*Insight 2: A high level of uncertainty in the mediation opportunity [i.e., whom to talk to] creates a need for the matchmaking process.*

Now, we consider how the two contingencies interact. High uncertainty about the mediation opportunity means the scout does not know whom to talk to and has to find out. Lack of common ground between prospective external and internal parties means that if a match is to be made, the scout will have to help them communicate. The challenge created by the combination of those two contingencies is resolved by adopting the transforming approach. As an indicator of the particular challenges involved in the transforming process, we used the Techie database to compare the number of days of internal "selling" effort put in by the scouts. The mean was 4.9 days, compared to 1.3, 3.0, and 3.5 days, respectively, for channelling, translating, and matchmaking. This figure is significantly higher than the other three (ANOVA $F = 19.9$, $p < 0.001$); hence, our assessment that the transforming process cannot simply be juxtaposed with translating and matchmaking as it involves a more iterative process of problem redefinition, which is not observed in the other external knowledge sourcing processes. Hence:

*Insight 3: Lack of common ground between internal and external parties in a mediation opportunity, combined with uncertainty about the mediation opportunity, creates a need for the transforming process.*



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### Internal attributes: stock of social capital

The other side of our framework summarized in Insights 4, 5 and 6 below, refers to internal attributes that lie within the locus of control of the scouts. We assume as a baseline condition that they have the specialized skills to do their job to an acceptable level; hence, our focus is on those attributes that differentiate between the distinct external knowledge sourcing processes. Based on our findings and reading of the literature, we believe these attributes are best examined through the lens of "social capital" – the resources built up over time as a function of an actor's relationships, or more formally, "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed" (Nahapiet and Ghoshal, 1998: 243).

While the notion of social capital has been examined in different contexts (Coleman, 1988), it is particularly relevant within MNCs, where knowledge transfer through intra-firm networks of relationships has been well documented (Kogut and Zander, 1992; Kostova and Roth, 2003; Tsai and Ghoshal, 1998). Social capital enables scouts to engage in the higher value-added knowledge sourcing processes identified here, and "achieve ends that would be impossible without it or that could be achieved only at extra cost" (Nahapiet and Ghoshal, 1998: 244). Applying Nahapiet and Ghoshal's (1998) three dimensions of social capital—structural, cognitive, and relational—we show their different levels of importance for each of the processes we identified.

The *structural dimension* of social capital refers to where a scouting unit sits within a network, that is, the set of relationships it has with actors inside and outside the firm. Structural social capital facilitates external knowledge sourcing to the extent that it offers *access* to internal and external parties for knowledge exchange. Clearly, the scouting unit needs a good level of structural capital, but it is not a sufficient condition for undertaking the three higher value-added processes identified in this article. By positioning it as the interface between the Silicon Valley network and its internal network, GT, by design, put the scouting unit in a structural position where it would almost naturally develop sufficient structural social capital for the channelling type of mediation. However, for the translating, matchmaking, and transforming processes, we posit that the other two dimensions of social capital—cognitive and relational—are also required.

The *cognitive dimension* refers to the resources accumulated by the scouting unit to be able to provide shared representations, interpretations, and systems of meaning across boundaries, a form of social capital that was particularly important in the translating process. To borrow from Nahapiet and Ghoshal (1998: 253), cognitive social capital allows two parties to exchange knowledge through the "existence of shared language and vocabulary." Indeed, scouts reported that it took years of experience working for GT to make sense of multiple points of view, but also to present opportunities to transfer external technologies using GT's language and vocabulary ("GT'izing" external technologies), as John described:

> *You can only do that [translating] if you have been in the company for a number of years. Because if you are young and fresh and coming from the outside, there are subtle internal differences and you don't really understand them. It takes that kind of experience to be able to explain in the company's language what you think is really useful and important and put stuff into the buckets people are familiar with . . . .*

Pierre offered a complementary perspective:

> *We have spent many years each doing business development, sales, commercial, strategy and research roles with GT. I guess we have now developed the ability to go outside into areas that are new to GT and explain why and how it matters to the company . . . .*

Nahapiet and Ghoshal (1998: 253) also cite the existence of a shared context and the ability to share collective narratives as another aspect of cognitive social capital. Scouts frequently told us how critical it was to show the business units that, despite being miles away in Silicon Valley, they were also part of GT and that they understood—technically and commercially—the company context. Analyzing the "relevance" field in transfer memos, we found that scouts almost always used "we" and "our" when referring to the business units, denoting a sense of shared belonging. In sum, the translating process depended not only on having access to both external sources of technology and internal business units (structural social capital), but also



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on scouts' breadth of understanding of multiple systems of meaning and the ability to frame external opportunities using shared language and vocabulary that were common to GT's internal business units.

*Insight 4: The greater the structural and cognitive social capital of the scouting unit (vis-à-vis internal and external actors), the greater its ability to undertake the translating process.*

The *relational dimension* of social capital refers to assets such as trust and trustworthiness, which are rooted in relationships that develop over time and are not "owned" by either party (Burt, 1992; Tsai and Ghoshal, 1998). We observed that the relational dimension of social capital was particularly important in the matchmaking process, where the scouts were making personal introductions. John described his experience:

*Exposing an executive to an external company is very different from simply telling him about an opportunity … because quite often they come back to us and ask whether we really think he should meet with the company. We've got to have enough credibility to say "Yes, you should see them … and here are six things you can talk about" and convince someone to fly from Europe to meet a company he doesn't have any previous relationship with….*

For interviewees, achieving this credibility (with internal business units) was not done on a transactional basis, but was the result of prior interactions and the development of mutual trust. Trust is the expectation that one partner will not exploit the vulnerabilities of the other when there is an opportunity to do so (Krishnan, Martin, and Noorderhaven, 2006). It is critical to inter-firm partnerships in general (Ring and Van de Ven, 1994) and external knowledge sourcing in particular (Monteiro, Mol, and Birkinshaw, 2015). Scouts understood that by developing close relationships with BU managers, those managers gradually opened up to them. Hans, the head of one of the most important business units, observed:

*It is crucial that John and his team understand not only our technological requirements but more importantly our constraints…. But this isn't easy, it takes times and a lot of mutual investment in our relationship. … I know they can present many opportunities for us to connect with good start-ups out there in Silicon Valley. … But I need to really trust them [the scouts] before I'm ready to tell them what are my concerns, my constraints, what I cannot do…. This reveals where I'm vulnerable and I need to feel comfortable they will not exploit this internally…. But when we reach that level of trust, they start introducing us to the start-ups that can really help us innovate with the limitations we have….*

The scouts also worked at building relational social capital with the start-ups when introducing them to executives in GT, as Thomas explained:

*These introductions [to the heads of GT business units] can be a major deal for the start-ups and they know that…. And they need to know us well and trust that we will not make them spoil the opportunity to make a first good impression…. So we tell them that we are very selective in deciding when to set up meetings with our business units, being their champion, oiling the wheels … sometimes we go back to them and actually say, I don't think you're going to cut a deal here … our guys in Europe have some more important things they got to sort now. Actually they understand that us being very honest and giving them feedback is better than connecting them when they are not ready for prime time.*

In other words, not only was the structural position important, so was the quality of the scouting unit's relationships with actors inside and outside the firm (Nahapiet and Ghoshal, 1998). As Kostova and Roth (2003) observed, more complex boundary-spanning opportunities require structural social capital to be supplemented with a strong relational component. In contrast, when the primary job of the scouting unit is simply to facilitate the flow of information from the external environment (translated or not), high levels of relational social capital are less important.

*Insight 5: The greater the structural and relational social capital held by the scouting*



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*unit (vis-à-vis internal actors), the greater its ability to undertake the matchmaking process.*

Finally, our study suggests that the most difficult task of external knowledge sourcing—transforming—requires high levels of all three forms of social capital to be effective. Scouts needed to develop a "trusted advisor" logic (Maister *et al.*, 2000) in the transforming process so that the relationship evolved from one in which they simply presented external technologies (with or without translation) and made introductions to external partners, to one in which they had the access (structural), common language and vocabulary (cognitive), and trust (relational) to challenge and transform the original problem definition (from the BUs), and ultimately, present potential external partners that could offer solutions to the transformed problem. The importance of cognitive and relational capital *in combination* emerged in the interviews, as Pierre described:

> *You are telling them [business units] that their problem is not really the one they thought they had . . . . Why they would listen to you? First, you need to tell them stories to show that you really understand their products, their customers, their [technological] roadmap. You need to avoid the [Silicon] Valley lingo and use their own language, their jargon . . . . That's the easy, or easier, part . . . . Then you need to have established a very good relationship with them so they see you as a partner they can trust to help them solve their problem . . . . That's why I travel so frequently back to headquarters. We need to meet with them face-to-face many times, we need to go out for drinks together, we need to feel close . . . and finally I need to show them that we will help them find the solution to the new problem . . . not an abstract solution, I mean, really open the doors with the external partners that can solve the [transformed] problem . . . .*

Gianlucca provided further insight on how the influence of relational capital when working with internal BUs:

> *The more people know us, the more they realize we are 6,000 miles away from GT, which means we are out of the politics and can give open and honest feedback on what GT is doing, and not doing. So we are not seen as part of the problem and we are not seen as owning issues . . . . They know we're going to tell it as we see it, whether that is politically correct or not. It's to make sure that people think of you as a friend who knows them and their problems well . . . . Getting their [business unit's] real "pain points" and redefining them takes time and requires a lot of credibility. It is completely manual, personal, individualized process . . . .*

The interplay between strong relational and cognitive capital was also evident in our interviews with senior executives in business units, such as Manuel:

> *Now that I know them [the scouts] well enough, I can quickly realize when they are not agreeing with me . . . . So I go and say, "Ok, let's cut to the chase, just tell me what you think is the real issue here?" But also, I always say half jokingly, "Don't just tell me the real problem, show me the real solution." . . . And it's great to see how much they know about my own [business] unit, how they speak as if they worked here. They make me feel we are in the same boat. But it's tough because often I have to tell my people that we were wrong and we are now looking for a different solution . . . . So I really need to trust they [scouts] will put us in touch with the right [external] partners . . . .*

Given the complexity of the transforming process, our evidence suggested that scouting units needed to be well positioned structurally, cognitively, and relationally to apply it.

> *Insight 6: The greater the structural, the cognitive and the relational social capital held by the scouting unit (vis-à-vis internal and external actors), the greater its ability to undertake the transforming process.*

## Dynamic aspects of the external knowledge sourcing process

The final part of our framework considers how the activities undertaken by scouting units evolved over



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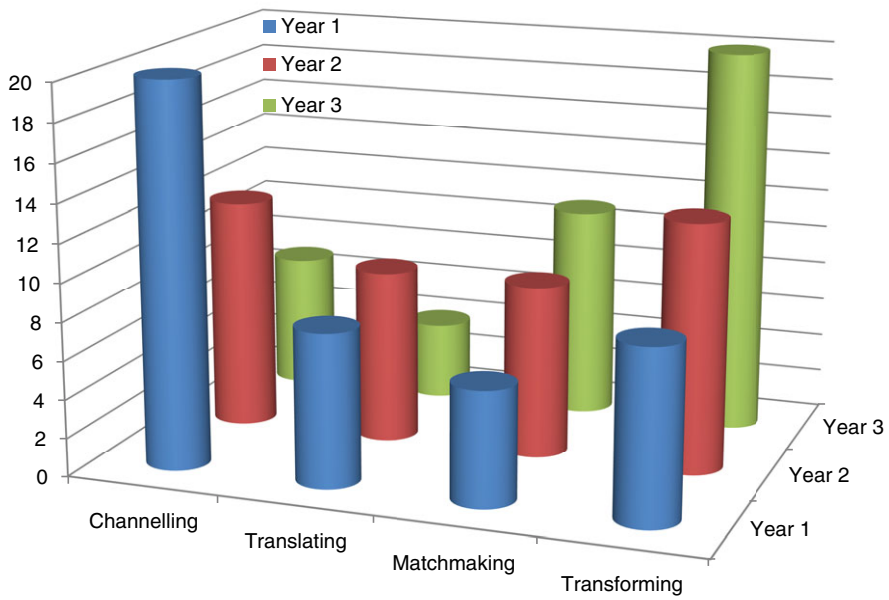


Figure 2. Number of mediation opportunities by type of process and by year

time, notably how scouts shifted their emphasis to more value-added processes over our period of study.

At the outset, the scouts invested in getting access to the local Silicon Valley ecosystem as well as developing internal connections (see Table 1), with a primary focus on *channelling* external information—the activity their structural position made possible at that stage. This did not demand much relational or cognitive social capital. With time, as they effectively channelled external opportunities, they built up trust and stronger connections with the business units (relational social capital) and were better to understand and articulate their needs (cognitive social capital). This enhanced their ability to engage in translating, matchmaking, and transforming, which required all three forms of social capital. The more their subsequent mediation activities succeeded, the higher their relational and cognitive social capital rose, consistent with Nahapiet and Ghoshal's (1998: 250) description of "a complex and dialectal process in which social capital is created and sustained through exchange, and in which, in turn, social capital facilitates exchange." As an indicator of this shift, we plotted the evolution of the distribution of the four types of mediation activity in the three-year window we had access to in Techie. Figure 2 shows a significant reduction in the number of channelling cases and corresponding increase in the number of transforming and matchmaking cases (Pearson Chi-square test, $T = 13.83$, $p < 0.05$).

Overall, the evidence from GT suggests that as an effective scouting unit builds the multiple dimensions of its social capital over time; it moves from the simple channelling process to the higher value-added processes of translating, matchmaking, and transforming, which further enhance its social capital and ability to select mediation opportunities. This view is consistent with previous studies on social capital (e.g., Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998), and in particular, Kostova and Roth's (2003: 305) analysis of how foreign subsidiaries develop social capital via a "virtuous circle" of development. In our setting, this is represented by the arrows at the bottom of Figure 1.

*Insight 7: The more effective the scouting unit is in its activities, the more its stock of social capital (vis-à-vis internal and external actors) rises.*

*Insight 8: The more effective the scouting unit is in its activities, the greater the perceived mediation opportunities (specifically,*

*the common ground between internal and external actors will be perceived to be higher, and uncertainty will be reduced).*

## DISCUSSION AND CONCLUSIONS

Our study provides new insights into the processes through which external knowledge sourcing occurs as the basis for empirical and theoretical contributions to three bodies of literature.

### Scouting in MNCs

If the *raison d'etre* of an MNC is its capacity to access and utilize knowledge on a global basis (Kogut and Zander, 1993), then scouting units play a vital role in tapping into new technologies or insights that emanate from overseas locations. Yet, despite their importance, knowledge of how scouts go about their work is surprisingly limited. This study builds on previous research (Doz *et al.*, 2001; Gassmann and Gaso, 2004), but suggests a more nuanced set of activities than has been recognized in two important respects. Whereas prior studies emphasize the need for scouts to embed themselves in the local business environment as a means to tap into the flow of tacit knowledge (Doz *et al.*, 2001), the scouts in our study spent even more time building relationships with managers at HQ, despite having extensive corporate networks before the move to Silicon Valley. Recognizing the need for "dual embeddedness," their experience suggests that maintaining corporate embeddedness required at least as much effort as building local embeddedness (Andersson *et al.*, 2007; Mudambi, 2011). Also, prior studies emphasize that scouting units exist to access "a tremendous amount of embedded technical knowledge" (Gassmann and Gaso, 2004: 4) for use by the MNC, whereas we saw a shift from channelling general technical knowledge toward a more contextually and socially aware set of activities, focused on making high-quality links between specific actors inside and outside the firm's boundaries, and on selecting the highest value mediation opportunities among the many potential ones on offer.

In sum, MNC scouts engage in a more active and sophisticated set of activities than the current terminology suggests. The terms *scout*, *sensing unit*, and *listening post* denote a somewhat passive, opportunistic role where scouts respond to trends in the local environment, whereas the experience of Global Telco suggests that they more proactively shape opportunities and need to be equally alert to their standing within the MNC and adapt their behaviour accordingly (Bartlett and Ghoshal, 1986; Birkinshaw, 1997). Some aspects of this behavior are acknowledged in the boundary-spanning literature; others (notably the transforming role) are not. The insights here would suggest that further attention should be given to the micro-mechanisms that enable MNCs to access and utilize insights from distant markets (Doz *et al.*, 2001).

### External knowledge sourcing

At a broader level, our findings shed light on an underplayed dimension of external knowledge sourcing. Two perspectives have come to dominate our understanding of why some firms are more successful at this activity than others. The first is the absorptive capacity perspective (e.g., Cohen and Levinthal, 1990; Zahra and George, 2002), which holds that the internal capabilities of the firm, particularly its technological capabilities, are what gives it the ability to recognize and absorb external stimuli. The other is the external network perspective, which emphasizes the importance of a large and diverse network of external ties to innovation performance (e.g., Hargadon and Sutton, 1997; Katila and Ahuja, 2002; Rodan and Galunic, 2004). Our study brings a third perspective, boundary-spanning, into the spotlight, highlighting the specialized skills of those at the interface between the firm's internal capabilities and its external networks. While this has been acknowledged to some degree (Tushman, 1977), the nature of the data available (mostly large-scale surveys and archival patent data) has led to an emphasis on the two above perspectives, at the expense of this one. Yet, we would argue that it is key to the entire knowledge-sourcing process: If the boundary-spanning process breaks down, then the potential value of either deep internal R&D capabilities or plentiful external networks will not be realized (Zahra and George, 2002).

Our findings also illuminate two critical aspects of scouting as it pertains to the broader external knowledge sourcing literature. First, there is no single scouting process—there are four. We have confirmed the validity of the standard channelling process described in previous studies, but observe three variants that transpire under different conditions: (1) When there is a lack of common ground between external and internal actors, we observe a



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translating process. (2) When there is a high level of uncertainty in the mediation opportunity, in terms of who to connect to whom, we observe a matchmaking process. (3) When there is a lack of common ground *and* a high level of uncertainty, we observe a transforming process. While elements of these processes have been noted (e.g., Ancona and Caldwell, 1992; Carlile, 2004; Tushman and Scanlan, 1981), our study is the first to make the distinctions between them explicit. Moreover, by clarifying the conditions under which they transpire, we open up a contingency perspective on the external knowledge sourcing process, with parallels to the field of structural contingency theory (Gresov and Drazin, 1997; Meyer, Tsui, and Hinings, 1993). In our view, the appropriate approach is a function of external contingencies as well as the three dimensions of social capital held by the scouting unit (Nahapiet and Ghoshal, 1998). Future research can usefully develop these arguments further and test the insight gained here.

The second insight with broader relevance to external knowledge sourcing is that, as a highly specialized capability, scouting is likely to vary across firms in terms of how effective they are at managing the boundary-spanning process—indeed, this may be an unobserved source of heterogeneity in many prior studies. We encourage future research to focus on the notion of scouting capability, and ideally, develop a way of measuring it as one way to obtain a more comprehensive view of the overall external knowledge sourcing process.

### Boundary-spanning

Our findings open up new angles for our understanding of boundary-spanning. Whereas Gould and Fernandez (1989), and Zhao and Anand (2013) describe different types of boundary-spanning structures, we focus exclusively on processes, and show how, even within the same structure, different boundary-spanning processes can take place. A fruitful avenue for future research would be to integrate the structural and process aspects of boundary-spanning. Conceptually, we show how the stock of cognitive and relational dimensions of social capital held by the boundary-spanning unit allows it to perform more value-adding processes, namely, through the translating, matchmaking, and transforming processes.

While the existing literature has tended to emphasize the importance of the cognitive capabilities of boundary spanners, we see social capital as an important enabler of boundary-spanning, and show how it plays a role above and beyond the level of absorptive capacity of the boundary spanners. Another conceptual contribution links to the work of Obstfeld (2005: 100), who argues that traditional boundary-spanning research neglects the active role individuals play to link different parties, in the same manner as Granovetter's (1973) work on weak ties, which examines bridges as conduits of information and resources rather than joining people on opposite sides of a boundary. According to Obstfeld (2005), the network structure (existence of a structural hole) creates the opportunity for brokerage, but actors vary in terms of their *tertius iungens* orientation. The individual's orientation or motivation thus explains why he or she chooses to engage in a particular form of brokerage activity. In our study, the structural opportunity is also present (by design the scouting unit is positioned to bridge structural holes) and the *tertius iungens* orientation is part of the scout's job description, but the variation comes from the scout's ability to exercise his or her mandated role, as a function of different dimensions of social capital. In other words, while Obstfeld (2005) emphasizes a broker's motivation to connect unconnected parties, our study sheds light on how relational and cognitive social capital make a broker *capable* of doing so.

In sum, while absorptive capacity may allow boundary spanners to be aware of who has useful knowledge (Cohen and Levinthal, 1990) and a *tertius iungens* orientation may encourage them to make a connection, it is their social capital that underpins the *capability* to mobilize useful knowledge and make connections between internal and external actors. Our focus on the capabilities necessary for higher value-adding boundary-spanning uncovers the microfoundations of how a firm can develop sensing capabilities (Helfat and Peteraf, 2015; Teece, 2007), which play a critical role in corporate development and alliance management (e.g., Capron and Mitchell, 2009; Kale and Singh, 2009).

Finally, we have developed a dynamic view of the boundary-spanning process by elucidating the changes in emphasis over time. Unlike previous studies (Ryall and Sorenson, 2007), we show how scouts come to occupy such a position and justify it to others on both sides of the boundary. By examining the work the scouts perform from the moment the boundary-spanning position is defined, we can distinguish between activities performed in



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a steady state mode and changes in emphasis/types of boundary-spanning over time.

It is worth noting that Insights 7 and 8 suggest primarily successful interactions in which a positive cycle of trust-building transpires. This is what we observed—our interviewees put greater emphasis on their more effective interventions. However, two points are worth clarifying here. First, scouts did not transfer every lead received (of the 1,200 leads per year, they wrote about 50 transfer memos). The limited attention of decision makers at headquarters, and thus, the implementation of a "selection gate" at the level of the scouting unit, were acknowledged both by business unit managers as well as the scouts themselves, and appeared to be a key factor in developing their social capital both internally and externally. Second, the scouts readily acknowledged, when asked, that not all interactions were successful. After a preliminary effort to create a link, if there was a lack of interest from the business unit they would quietly drop that opportunity and move on to another. In other cases, scouts made a promising link between the start-up and business unit, but for various reasons the relationship subsequently broke down and the external technology in question was never adopted by GT. We observed several failures of this type, but they were outweighed by successful boundary-spanning interventions.

Although not developed in this article, we could also envision the same self-reinforcing mechanisms described above, but in the opposite direction. Future research could explore the hypothetical situation where unsuccessful mediation opportunities lead to a deterioration in social capital between the boundary spanners and the internal units, resulting in either a reversion to a lower value-added process (channelling) or even the closure of the unit altogether. It would also be interesting to examine different types of failure in the four processes described here. For example, a poorly managed channelling process could result in business units being inundated with external information, poor translation could cause potential partners to talk past each other, poor matchmaking might lead to unreliable partnerships being formed, and poor attempts at transformation might result in scouts convincing a business unit to redefine its problem but then failing to establish a connection with an external partner. Moreover, given limited resources, it is possible that scouting units focus their efforts on the interests of the few selected internal units with whom they have built up the highest levels of social capital (the "in-crowd" of Monteiro, Arvidsson, and Birkinshaw, 2008), while other business units remain disconnected from these promising boundary-spanning opportunities—another promising avenue for future research.

## Boundary conditions

Performing a detailed analysis of one firm over a seven-year period gives us confidence in the internal validity and reliability of our findings (Gibbert, Ruigrok, and Wicki, 2008), despite obvious limitations in terms of its generalizability to other settings, such as the risk of misjudging the representativeness of a single event, exaggerating the salience of data because of its availability, or even biasing estimates because of unconscious anchoring (Leonard-Barton, 1990: 250). A couple of boundary conditions should also be noted. First, despite the increase in competition and convergence in the telecommunication services industry, GT scouts typically looked for solutions to relatively well-defined problems (some said their job "was not rocket science," or that they were "not looking for the cure for cancer"). In other contexts, the job of boundary-spanning agents is less well defined and arguably more difficult. For example, Lifshitz-Assaf (2015) described an "open innovation" process at NASA, a highly exploratory approach that required knowledge boundaries to be redefined over time; and Lingo and O'Mahony (2010) highlighted the ambiguous nature of brokerage (a form of boundary-spanning) in the Nashville country music industry. While our findings are likely to apply to many industries (e.g., FMCG or consumer electronics), caution should be taken before extrapolating them to more complex and uncertain settings.

Second, we have focused on the formal process of search for external knowledge in the case of a boundary-spanning unit, which is just one of many ways in which it can be accessed. Informal approaches to boundary-spanning and employee mobility may be more important in other settings (e.g., Almeida and Kogut, 1999; Rosenkopf and Almeida, 2003). It is possible that the processes described here are mostly valid in large organizations that allocate more resources to the external scouting function. It is also worth noting that GT's Silicon Valley scouting unit had an unusual level of stability and success—the individuals running it were present throughout the entire period of our



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study. The processes observed, especially the evolution toward higher value-added activities, may not be common. Finally, we acknowledge that, in contrast to our decision to separate the three dimensions of social capital, some features of those dimensions may be interrelated (Nahapiet and Ghoshal, 2008: 245). Accounting for these characteristics can provide new insights in future research.

## CONCLUSIONS

In studying how firms identify and make use of external sources of knowledge in the context of a MNC, where the scouting unit was thousands of miles away from the corporate center, we shed light on a process that has so far has mostly been inferred by its outcome (e.g., patent data). We have identified four different processes, and showed how their use evolved over time as the scouting unit developed different dimensions of social capital. We hope this article stimulates other strategy and organizational scholars to adopt a more process-oriented approach to external knowledge sourcing.

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## SUPPORTING INFORMATION

**Additional supporting information may be found in the online version of this article:**

Appendix S1. Supplemental information on methods, data collection and analytical approach
Figure S1. Data structure
Table S1. List of informants
Table S2. Supplemental quotes about the three value added processes (translating, matchmaking, and transforming)