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OPEN-SYSTEM ORCHESTRATION AS A RELATIONAL SOURCE OF SENSING CAPABILITIES: EVIDENCE FROM A VENTURE ASSOCIATION

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Research on innovation networks has highlighted the pivotal role that actors with more prominence and power, such as hub firms, may play in orchestrating the activities of other network members along a collective innovation effort. Our study examined the under-theorized, but no less important, type of orchestration that characterizes other organizations, such as business incubators and venture associations, who seek to support the dispersed entrepreneurial efforts of network members. We refer to this type as "open-system" orchestration, as opposed to the commonly studied "closed-system" type performed by hub firms. Our findings reveal how the processes of open-system orchestration differ markedly from those of closed-system orchestration, and detail how these processes influence the micro-foundations of network members' sensing capabilities. By doing so, we also offer empirical substantiation and theoretical elaboration to the idea that dynamic capabilities might not reside exclusively inside firms, but could be co-created relationally with other parties in the business ecosystem.

Entrepreneurship and innovation often occur within large networks of independent or semi-independent firms (Freeman, 1991; Howells, 2006; Powell, Koput, & Smith-Doerr, 1996). Previous studies have drawn attention to the fact that, in some of these networks, a central actor takes a leading role in "orchestrating" collaboration among member firms (Dhanaraj & Parkhe, 2006; Paquin & Howard-Grenville, 2013). This line of inquiry has focused on so-called "hub firms"—typically large corporations attempting to harness the resources and capabilities of several smaller partners to pursue a collective innovation goal (Nambisan & Sawhney, 2011)—and has begun to unpack the processes through which these orchestrators govern their networks (see Dagnino, Levanti, & Mocciaro Li Destri, 2016, for a review).

Recent studies, however, indicate that in other types of innovation networks, rather than attempting to extract value from members' coordinated efforts as hub firms do (Dhanaraj & Parkhe, 2006), central actors primarily support members' dispersed and largely independent search and pursuit of new business opportunities. This is the case, for instance, of business incubators and accelerators, national and regional agencies, or associations of small and medium-sized enterprises. Scholars have referred to organizations that perform this supporting role as "bridging organizations" (Berkes, 2009; Sapsed, Grantham, & DeFillippi, 2007) or "open-system

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intermediaries" (Dutt, Hawn, Vidal, Chatterji, McGahan, & Mitchell, 2016).

These organizations are widely diffused, and past research has acknowledged their importance for growth and innovation at the organizational or regional level (Pittaway, Robertson, Munir, Denyer, & Neely, 2004). In the U.S. alone, for instance, there are over 4,000 venture associations with different nature and scope (Spillman, 2012) whereas the International Business Innovation Association claims to serve more than 2,200 members in over 62 nations, with over 25% of its members from non-US countries (www.inbia.org). Similarly, the U.S. Small Business Administration (U.S. SBA) is an independent agency of the federal government whose mission is to "aid, counsel, assist and protect the interests of small business[es]" to strengthen the national economy (www.sba.gov/about-sba/what-we-do/mission).

Past research has examined these organizations separately, focusing on their role as providers of resources and training to individual firms—e.g., workspace, personal coaching, referrals, finance, etc. (Amezcua, Grimes, Bradley, & Wiklund, 2013; Hanssen-Bauer & Snow, 1996). While some studies have acknowledged that these organizations frequently broker inter-organizational relationships (Amezcua et al., 2013; Howells, 2006), the fundamental orchestrating role that such organizations play—which, paraphrasing Dutt and colleagues, (Dutt et al., 2016),[1] we refer to as "open-system orchestration," as opposed to the "closed-system" type performed by hub firms—remains undertheorized. While we have a solid theoretical understanding of how hub firms coordinate the collective contribution of network members to a common innovation effort, we know far less with regard to the processes through which open-system orchestrators encourage collaboration within the network to support members' search and pursuit of their own business opportunities.

In order to illuminate this important issue, we conducted a field study of a large networking initiative organized annually for over 2,000 participant firms by one of these organizations. Our study combined multiple data sources (interviews, observation, archival documents) and rounds of data collection. Our analysis was informed by a dynamic capability perspective (Teece, 2007; Teece, Pisano, & Shuen, 1997). We found this perspective particularly useful because its conceptualization of entrepreneurial innovation as the search for novel recombination of complementary knowledge, resources, and skills dispersed among different actors (Teece, 2012) portrays well the type of innovation encouraged and supported by open-system orchestration.

According to this perspective, effective pursuit of entrepreneurial innovation depends, in particular, on a firm's sensing capabilities, that is, on its capacity to systematically undertake activities involving "exploring technological opportunities, probing markets, and listening to customers, along with scanning the other elements of the business ecosystem" (Teece, 2011). Examples of these activities found in the literature include research and development (Helfat, 1997), partner selection (Dyer & Singh, 1998), and market intelligence (Danneels, 2002).

Our analysis revealed four processes through which open-system orchestration supports network members' sensing capabilities. It suggests that, together, these processes support search activities by diffusing assumptions of mutual trustworthiness among members (which is key to encouraging interaction and knowledge sharing; see Dyer & Singh, 1998), by enhancing their self-awareness (thereby supporting and directing their search for new opportunities; see Helfat & Peteraf, 2015), and by promoting the positive affect required to energize and enhance their search (Baron, 2008).

Our findings significantly advance our theoretical understanding of both network orchestration and dynamic capabilities. We contribute to research on network orchestration by theorizing the less studied but no less important type of orchestration that characterizes organizations supporting entrepreneurial networks (business incubators and accelerators, national and regional agencies, venture associations, etc.). While scholars examined these

[1] In place of "orchestration" Dutt et al. (2016) use the term "intermediation" to identify the role performed by actors "that link two or more parties to bring about specific activities." This terminology emphasizes that organizations that assemble and manage innovation networks often play important roles as structural (Burt, 1992) and relational brokers (Obstfeld, 2005) when influencing how other actors interact with each other in the network. However, consistent with Dhanaraj and Parkhe (2006) and Paquin and Howard-Grenville (2013), we prefer the term "orchestration" because it highlights that these organizations also engage in a broader set of actions pertaining to the entire network and its activities, rather than just brokering dyads. In line with Dutt et al. (2016: 822), we acknowledge that "'openness' may be a matter of degree," but also that a categorical distinction arises regarding whether the role that they play is open at all.

organizations separately, we argue that they may serve the same open-system orchestration function to support the dispersed search for business opportunities in the entrepreneurial networks. We begin to unpack this function and we articulate how its underlying processes differ markedly from those described by previous research associated with closed-system orchestration.

We also contribute to research on dynamic capabilities (for reviews, see Giudici & Reinmoeller, 2012; Peteraf, Di Stefano, & Verona, 2013) by unpacking the cognitive and emotional micro-foundations that enable open-system orchestration to support the co-construction of sensing capabilities as a joint accomplishment of orchestrators and network members. While the possibility that dynamic capabilities may sometimes reside outside a firm has been recently suggested (Teece, 2012), our study takes this notion seriously and offers empirical evidence to substantiate and elaborate it. By doing so—and in line with a relational ontology of social phenomena (Crossley, 2011; Emirbayer, 1997)—our findings encourage a rethinking of dynamic capabilities as being built relationally by the ongoing interaction of multiple actors conditioned yet not determined by the overarching social structure.

THEORETICAL BACKGROUND

Network orchestration is the proactive exercise of leadership in an innovation network by a central organization "without the benefits of hierarchical authority" (Dhanaraj & Parkhe, 2006: 659). A review of research on innovation networks points to the existence of two fundamentally different types of orchestration, which we term closed-system and open-system orchestration. In this section, we first discuss how these two types of network orchestration differ theoretically (see Table 1). We then introduce the dynamic capability perspective that we use as an analytical lens to examine how open-system orchestration supports dispersed entrepreneurial efforts.

Closed-System Orchestration

Closed-system orchestration is the set of deliberate and purposeful actions that some central organizational actors undertake to coordinate and harness "the dispersed resources and capabilities" (Dhanaraj & Parkhe, 2006: 659) of members of an innovation network with regard to a collective innovation effort. Organizations primarily engaging in closed-system orchestration have a self-interested orientation: they tend to use their leading role to negotiate the distribution of value deriving from the collective innovation output in a way that maximizes their own benefit (Dhanaraj & Parkhe, 2006; Nambisan & Sawhney, 2011). They centrally control the admission of members to the network based on the evaluation of their potential contribution. Once admitted, they regulate and enforce via contractual agreements the participation and commitment of members to the collective innovation process.

TABLE 1
Closed-system Orchestration vs. Open-system Orchestration of Innovation Networks

	Closed-system orchestration	Open-system orchestration
Core reference	Dhanaraj and Parkhe (2006)	Dutt et al. (2016)
Orchestration orientation	Directive, self-interested	Pro-social, other-oriented
Value creation and appropriation	Centralized coordination of innovation efforts, and negotiated distribution of the benefits of the collective output	Facilitation of decentralized and independent entrepreneurial efforts, with local appropriation of their benefits from members
Center vs. periphery interaction	Harness (exploit) distributed resources and capabilities of network members along a centrally coordinated innovation effort	Provide shared resources and nurture capabilities of network members to support dispersed entrepreneurial efforts
Members' admission	(Relatively more) restricted: selection based on network needs and member-specific evaluation	(Relatively more) open: selection based on potential members meeting network-specific criteria
Members' engagement	Expected commitment to collective innovation efforts, typically enforced contractually	Voluntary *ad hoc* participation in network activities
Examples	Hub firms (Lorenzoni & Baden-Fuller, 1995; Nambisan & Sawhney, 2011) R&D consortia (Sydow et al., 2012) Government-sponsored industrial programs (Levén, et al., 2014; Paquin & Howard-Grenville, 2013)	Incubators (Amezcua et al., 2013; Dutt et al., 2016) National and regional agencies (McEvily & Zaheer, 1999; Sapsed et al., 2007) SME associations (Arikan & Schilling, 2011; Lee et al., 2001)

The kind of closed-system network orchestrator that has received most attention in the literature is arguably the "hub firm," also known as strategic center (Lorenzoni & Baden-Fuller, 1995) or anchor firm (Wang, Madhok, & Li, 2014). Hub firms are those that, for a variety of individual attributes such as size, technological leadership, or unique resources and capabilities, acquire prominence and power within an innovation network (Dhanaraj & Parkhe, 2006) and "takes a pro-active attitude in the care of it" (Jarillo, 1988: 32). According to Nambisan and Sawhney (2011), hub firms can develop the basic architecture of a core innovation and then work with trusted partners to develop it into a final product-market offering ("innovation integrators"), or they can focus on the full-scale development of the core innovation and then expand its reach and range with complementary innovations developed by partners ("platform leaders"). More recently, scholars have started to study other kinds of organizations engaging in closed-system orchestration—such as those running government-sponsored programs (Levén, Holmström, & Mathiassen, 2014; Paquin & Howard-Grenville, 2013) and research and development (R&D) consortia (Sydow, Windeler, Schubert, & Möllering, 2012)—that seek to help a restricted number of network members achieve one or more collective innovation goals.

Open-System Orchestration

Whereas closed-system orchestration has received a large amount of attention, research on open-system orchestration is more fragmented. Thus far, scholars have examined organizations that support entrepreneurial networks of innovation separately. Nevertheless, despite terminological differences, heterogeneous foci, and the absence of a common framework, previous studies point to similarities in the function that these organizations serve.

Rather than harnessing and coordinating dispersed contributions to a common innovation effort as hub firms do, other orchestrators, such as business incubators (Amezcua et al., 2013; Dutt et al., 2016), national and regional agencies (Barreto, 2007; Sapsed et al., 2007), and small and medium-sized enterprise (SME) associations (Arikan & Schilling, 2011; Lee, Lee, & Pennings, 2001) support members' decentralized and mostly independent entrepreneurial efforts. In innovation networks run by these orchestrators, member admission tends to be more open and typically revolves around network-specific criteria that members have to meet to access events and use facilities. Participation in network activities is not contractually required: members can join them on a voluntary and *ad hoc* basis according to their own needs.

Prior work has mostly treated these kinds of organizations as rather passive providers of "off-the-shelf" services such as co-working facilities, advisory support, and gatekeeping to valuable connections (Hanssen-Bauer & Snow, 1996). Amezcua et al., however, found that incubators tend to be more effective when "focusing on connecting new organizations with collaborative opportunities with incumbent firms and external resource providers" (Amezcua et al., 2013: 1644). Sapsed and colleagues found that the effectiveness of a U.K. regional enterprise agency depended on how it designed the network and on its brokerage activities (Sapsed et al., 2007). These findings are important because while they suggest that network orchestration is central to how these organizations support dispersed entrepreneurial efforts, they also highlight our limited theoretical understanding of the processes that underlie effective open-system orchestration.

Dynamic Capabilities and Entrepreneurial Innovation

Teece et al. (1997) initially introduced the notion of dynamic capabilities to highlight the importance of a firm's capacity to undertake entrepreneurial innovation systematically as the cornerstone of its long-term competitive advantage. This well-established theoretical perspective classifies the activities that underpin this firm-level capacity to drive innovation as pertaining to: the "(1) identification and assessment of an opportunity (*sensing*); [the] (2) mobilization of resources to address an opportunity and to capture value from doing so (*seizing*); and (3) continued renewal (*transforming*)" (Teece, 2012: 1396, emphasis in original).

Scholars have largely conceptualized dynamic capabilities as residing exclusively inside the firm and resting on entrepreneurs and managers' "active orchestration of both intangible and tangible assets" (Augier & Teece, 2009: 412) internal and external to the firm. Research on closed-system orchestrators has extended the idea of asset orchestration to theorize the role of hub firms as the orchestration of assets—resources and operational capabilities—distributed among network members around a common innovation effort (Dhanaraj & Parkhe, 2006; Nambisan & Sawhney, 2011). In this paper, we build on recent work on orchestration that calls for a dynamic capability perspective to illuminate the socio-cognitive processes that enable dispersed innovation in entrepreneurial networks (Nambisan & Baron, 2012). Research on venture associations (Lee et al., 2001) and regional institutions (Hanssen-Bauer

& Snow, 1996; McEvily & Zaheer, 1999) hints at the fact that these organizations may contribute to firms' sensing capabilities in important ways, but is less clear regarding the processes that enable them to do so.

Our study focused on the processes through which open-system orchestrators support this class of dynamic capabilities by intentionally influencing their cognitive and emotional micro-foundations (Helfat & Peteraf, 2015; Hodgkinson & Healey, 2011). Prior research has conceived sensing capabilities as based on "the evaluative and inferential skills possessed by an organization and its management" (Teece, 2007: 1325). More recent work has subsequently pointed out that the effective exercise of sensing capabilities is also shaped by the emotional processes of key decision makers (Hodgkinson & Healey, 2011; Salvato & Rerup, 2011).

METHOD

Prior studies have used field-based research to illuminate key mechanisms and sources of dynamic capabilities (e.g., Teece, 2012; Verona & Ravasi, 2003). Consistent with the idea that dynamic capabilities are socially constructed phenomena (Peteraf et al., 2013), we adopted an interpretative approach (Gephart, 2004). Our setting was a major year-round business matchmaking initiative organized by the SME association Working Together (WT from now on). Business matchmaking initiatives assemble large groups of firms and then attempt to shape how they interact. The composition of participants may vary, but it generally includes a larger group of micro, small, and medium-sized enterprises and a smaller number of buyers from government agencies and large corporations. They are popular among agencies and associations supporting entrepreneurship and small business, including the U.S. SBA, but have been essentially overlooked by researchers (see Holzmann, Sailer, Galbraith, & Katzy, 2014, for an exception).

We found this setting attractive because orchestration processes are central to how these organizations add value for their members, and are therefore more "transparently observable" (Eisenhardt, 1989: 537). Also, similarly to most industry events (Stam, 2010), business matchmaking initiatives naturally produce "accessible, rich, and varied data... they leave an explicit and documented record of their proceedings [and they] typically assemble key insiders in a public location" (Lampel & Meyer, 2008: 1030). We had therefore an exceptional level of access to both primary and secondary data (see Table 2), which allowed us to triangulate different sources effectively.

Research Setting

WT was a cross-sector, nonprofit venture association headquartered in Italy, with approximately 34,000 corporate members, mostly SMEs. It adopted a typical structure for this type of organization, with a corporate center coordinating a network of 38 local branches (LBs) throughout Italy and 18 abroad (e.g., Brazil, France, Israel, Kenya, etc.). All local branches were run by managing directors in close collaboration with steering committees composed of representatives of member firms, responsible for planning activities and interacting with institutions at both the local and national levels.

WT's main initiative—B2BMatch—was a networking initiative designed around a three-day business matchmaking event, held each November, and a set of supporting activities scheduled during the year (see Figure 1). Since its first national edition in 2005, B2BMatch had been growing steadily. Although participants were predominantly SMEs, it also included large international and Fortune 500 companies. The reach of the core event had also expanded over the years through a series of partnerships with regional institutions and other venture associations, and smaller replica events were held at the local and regional level, typically involving between 150 and 300 participants.

When we entered the field in 2011, B2BMatch was in its seventh annual edition and was one of the world's largest and more successful initiatives of this type, with approximately 2,400 corporate participants for a total of over 50,000 appointments in three days.[2] As a point of reference, typical business matchmaking initiatives hosted by the U.S. SBA assemble between 300–500 small firms and 200 large buyers and generate approximately 2,000 appointments per day (Barreto, 2007).

Data Collection

Our study combined primary (interviews and observation) and secondary (archival material) sources of data. Data collection initially covered a period of 22 months beginning in January 2011, from the post-event phase of the 2010 edition of B2BMatch to the pre-event phase of the 2012 event. To corroborate and refine emerging findings, we returned to the field to attend the main event and collect additional evidence in 2013 and 2014.

[2] In 2011, participants included approximately 2,100 Italian firms, institutions, and government agencies (approximately 95% SMEs) plus 300 foreign firms (Source: WT internal meeting, January 2012).

TABLE 2
Main Data Sources and Use

Data sources	Type of data (WT = Working Together; LB = Local branch)	Use in the analysis (e.g., gathering, triangulating)
Semi-structured interviews[a] (917 pages, *verbatim*)	**First round (January–April 2011)**	
	6 interviews with WT informants, including WT's president, its national managing director, the director of the B2BMatch initiative, the senior manager responsible for relations with large firms, a senior staff advisor from the WT national agri-food unit, and the managing director of LB1.	Gathering data regarding the origins and evolution of B2BMatch and its role in WT's portfolio of initiatives. Exploring alternative sub-focuses of analysis (i.e., large firms, a specific national unit, and local branches).
	4 interviews with firms that participated in the 2010 B2BMatch-event: one micro and two small firms in LB2 and one large Italian firm in LB3.	Gaining an initial understanding of the B2BMatch process: e.g., how firms searched for opportunities and their results during B2BMatch 2010, how they prepared for it and what types of support they obtained from WT. Further investigation of alternative sub-focuses.
	Second round[b] (May–July 2011)	
	6 interviews with firms that participated in (at least) the 2010 B2BMatch-event: two small firms in LB2, two interviews with one small firm in LB1, plus two small firms that we met during a mini-replica of B2BMatch in LB4.	Expanding the sample to verify the presence of cross-sectorial differences. Proactive searching for new informants to overcome the limitations of relying solely on referrals from WT.
	4 interviews with WT informants in LB2, including the managing director and the three staff advisors responsible for the local firms participating in B2BMatch.	Triangulating facts and observations provided by firm informants. Gaining a better understanding of the dynamics of WT's support at the local level.
	Third round (August 2011–October 2012)	
	44 interviews with 41 firms from 20 local branches (LBs 1–20).[c]	Composing a diverse sample reflecting the cross-sectorial richness of B2BMatch participants; refining our emerging insights until saturation.
	17 interviews with WT informants, including the president and vice-president of WT's national agri-food unit, one national staff advisor working specifically on B2BMatch, six managing directors of local branches (LBs 4/5/7/10/12/14), and staff advisors from the other eight local branches (LBs 6/8/9/12/15/17/18/19).	Triangulating facts and observations provided by firm informants. Further exploring alternative sub-focuses. Gaining a deeper understanding of local dynamics and clarifying cross-branch coordination activities.
Archival data	**Internal WT documentation**	
	Printed: 14 presentations for 2009 and 2011–2014 (265 slides); Post-initiative final reports to third parties for 2008 and 2010–2013 (103 pages); Transcripts of one internal meeting focusing on evaluating the 2011 B2BMatch-event (30 pages); Notes from two other internal meetings focusing on the online portal; Miscellanea from 2010–2013 (104 pages).	Triangulating facts and observations to overcome the limitations of WT's corporate rhetoric. Obtaining more granular verification of the background work of local WT staff advisors. Keeping track of structural changes between B2BMatch-events.
	Public WT documentation	
	Printed: WT's monthly magazine for 2010 (1,398 pages overall); proceedings of WT's 2007–2013 Annual General Meetings (222 pages); B2BMatch-related brochures and catalogs (497 pages); B2BMatch programs for 2011 and 2012–2014 (38 pages); Miscellanea (147 pages); WT and B2BMatch websites (regular monitoring).	Supporting, integrating, and crosschecking interview-based accounts; enhancing validity of insights; clarifying event timelines; defining the boundaries of WT's corporate rhetoric.
	Recorded: transcripts of a press conference presenting the 2011 B2BMatch-event in LB2 and of a workshop with guest speakers in conclusion of a local event in LB4 (25 pages).	Enhancing validity of insights; better understanding firms' behavior and WT's support during their preparation for and participation in B2BMatch-events.

TABLE 2
(Continued)

Data sources	Type of data (WT = Working Together; LB = Local branch)	Use in the analysis (e.g., gathering, triangulating)
	Press coverage	
	Three articles each for 2007–2009 (nine pages); 54 articles for 2010 (61 pages); 35 articles for 2011 (41 pages); 375 articles for 2012 (578 pages); 198 articles for 2013 (265 pages). Total 665 articles (954 pages).	Triangulating facts and observations to overcome the limitation of WT's corporate rhetoric; enriching the database of evidence with third-party data.
	Videos, downloaded from the internet	
	30 CNBC videos of interviews with WT management and B2BMatch participants (40 pages); nine similar videos from other regional media and WT (12 pages); three institutional videos of interviews with participants (16 min., un-transcribed).	Triangulating facts and observations to overcome the limitation of WT's corporate rhetoric; enriching the database of evidence with third-party data.

[a] In total, we conducted 81 interviews, 50 with informants from firms in 22 local branches, four with buyers from multinational enterprises invited to the event and 27 with WT informants.

[b] In this second round, we first interviewed WT informants and then the firms. From this round until completion, we first interviewed the firms and then WT informants whenever possible.

[c] Detailed information about the profiles of our firm informants is available from the authors upon request.

WT granted us access to the full network of participants in the 2011 edition of B2BMatch after a formal endorsement by the national president and managing director. We attempted to compose a diverse sample in terms of organizational size and geographical distribution that would mirror WT's membership base.[3] Initially, we selected interviewees through referrals by national and local WT advisors and direct contacts made by the first author during the 2011 event. We typically approached the owner-manager or key senior manager of participant firms and, to enable triangulation, we interviewed local advisors to our informants. In the first round of interviews, we encouraged interviewees to provide us with a broad account of their experience at B2BMatch. In a second round, we asked more specific questions, informed by our prior analysis, to refine our emerging empirical knowledge and examine insights in more depth. This iterative process of constant comparison between data and theory (Strauss & Corbin, 1990) produced a preliminary account of how WT influenced search activities in practice. A third round of interviews helped us corroborate this emerging account. In total, we collected data from 81 interviews: 50 with participant firms from 22 local branches, four with buyers from multinational enterprises invited to the event, and 27 with WT informants. Interviews lasted on average one hour. All of them were tape-recorded (excluding two due to technical problems and one due to lack of authorization), producing a total of 917 single-spaced pages of transcripts.

We triangulated interviews with direct observation of networking events, preparatory meetings, and other interactions outside the main event. We took extensive notes during three full-day meetings led by national WT managers and attended by local presidents, managing directors, and staff advisors, which assessed either the preparation or the results of B2BMatch. We also participated (as passive observers) in two half-day training sessions and one three-hour internal coordination meeting, both of which were attended by local advisors. We had regular contact with WT throughout the entire study period, and we monitored (as guest participants) its private online community, on which firms shared experiences, projects, and needs. In addition, we spent the three days of the 2011 B2BMatch-event observing, taking pictures and field notes, and we attended a one-day local replica event in the same year, which attracted over 200 participant firms.

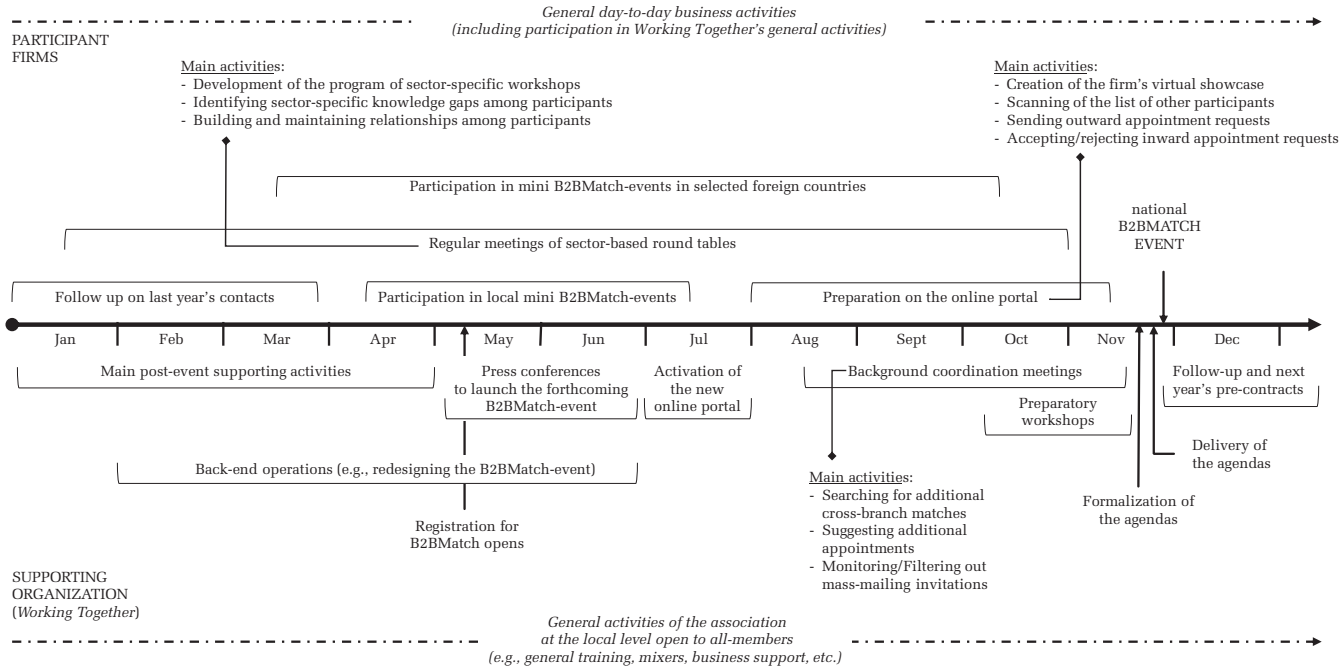
We used secondary sources partly to familiarize ourselves with the setting and partly to integrate and corroborate evidence from primary data. The collection of secondary data was facilitated by the fact that WT made its large archive of internal documentation available to us and by the extensive media coverage of B2BMatch-events (see Table 2).

Data Analysis

We analyzed our data through an "abductive" process (Locke, Golden-Biddle, & Feldman, 2008) in which

[3] Due to space constraints, more detailed information about the profiles of informants is available from the authors upon request.

FIGURE 1
Outline of the Annual B2BMatch Timeline



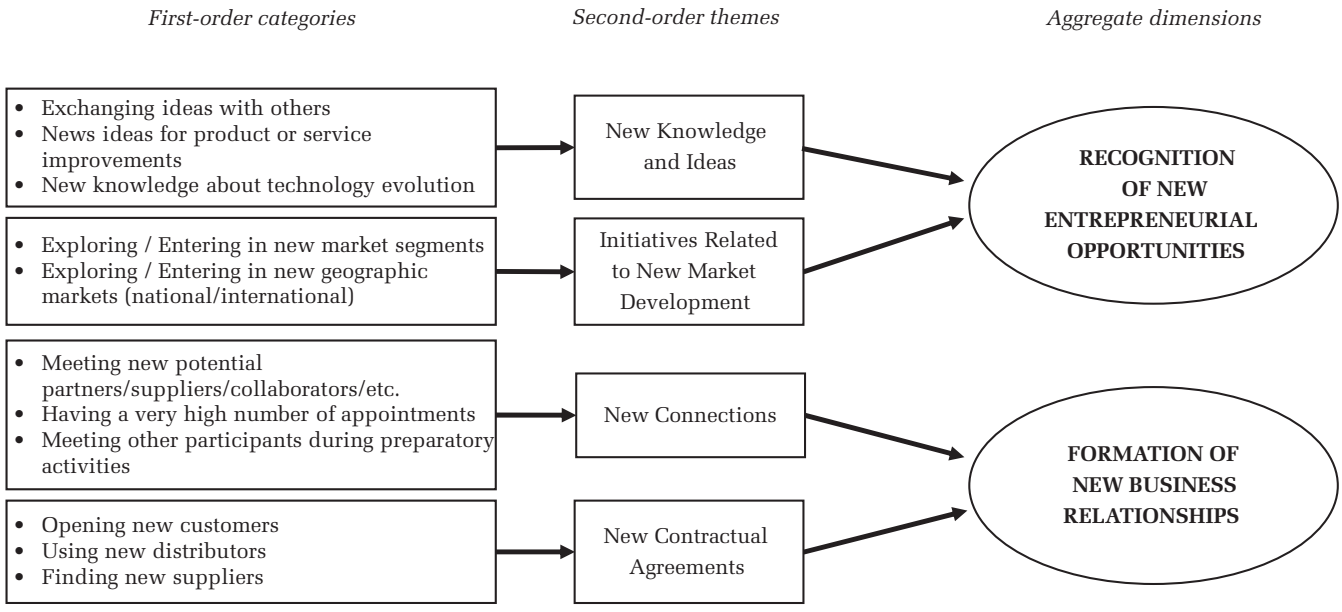
empirical observations are "connected to extant theoretical ideas to generate novel conceptual insight and distinctions" (Langley, Smallman, Tsoukas, & Van de Ven, 2013: 11). This analytical process requires researchers to construct theoretical models while remaining disciplined and examining competing explanations in light of empirical evidence. Accordingly, the analysis proceeded through multiple, intertwined steps that we repeated a number of times and that, for the sake of simplicity, we present sequentially.

Step 1: Event analysis and open coding. We began by systematically reconstructing the history and timeline of B2BMatch activities (see Figure 1). After each interview round (see Table 2), we engaged in an intensive, fine-grained reading of the data (Strauss & Corbin, 1990), generating a large dataset of in-vivo codes. We iteratively consolidated redundancies, and gradually collapsed our codes into first-order categories (Gioia, Corley, & Hamilton, 2013) reflecting our informants' "concepts-in-use" (Gephart, 2004). Throughout the entire process, we extensively discussed any discrepancy in the interpretation, shifting back to data coding whenever necessary.

Step 2: Axial coding. In this second analytical step, we gradually progressed toward a more theory-driven explanation (Strauss & Corbin, 1990). We constantly compared our first-order categories with insights from prior research, and structured them into second-order themes and higher-level aggregate dimensions (Gioia et al., 2013). We performed this step several times, making extensive use of notes and personal observations to interpret the data. Figure 2 presents the final data structure resulting from this phase.

Step 3: Building a grounded model. Finally, we focused on disentangling the linkages between our aggregate dimensions to build a coherent model explaining how WT—as an open-system network orchestrator—acted as a relational source of firms' sensing capabilities through B2BMatch. To establish the trustworthiness of the findings (Lincoln & Guba, 1985), we subjected our emerging interpretations to public scrutiny at a panel discussion organized during the 2013 B2BMatch, attended by approximately 100 participants. We also received unsolicited feedback following the publication of two short pieces in the June and July–August 2013 issues of WT's magazine, in which we described the implications of our research for B2BMatch. This feedback did not fundamentally challenge our understanding of the phenomenon under study, but it helped us refine our grounded model.

FIGURE 2
Final Data Structure



FINDINGS

WT organized B2BMatch for the first time in 2005 as a stand-alone event. By 2011, the event had grown into one of the largest business matchmaking initiatives in the world. Key to this growth was the year-round program of supporting activities dedicated to help firms make the most out of the central event held every November.

The dispersed innovation output of such activities depended in part, as we discuss later, on how well participants prepared for and engaged with the initiative. Overall, however, informants generally described the benefits of their participation in the initiative in ways that reflect what Teece (2007) conceptualizes as the outcomes of sensing capabilities, that is, the recognition of new business opportunities and the establishment of new business relationships (see Table 3 for selected quotes).[4] Firms recognized new opportunities by exchanging and developing ideas regarding new products, services, or technologies with other participants, and by exploring possible expansions into new market segments or geographic markets. Many informants also mentioned the unusually high number of appointments with potential new partners, suppliers, or customers—compared to traditional trade shows—which resulted in new business relationships.[5]

Our analysis suggests that WT enabled participants to achieve these outcomes by supporting their search through four orchestration processes, which we can organize conceptually around three phases (e.g., Langley et al., 2013; Pentland, 1999). In this section, we present a narrative of these three phases, and then we illustrate the effect of orchestration processes on members' sensing capabilities. The temporal ordering of these phases partly overlaps, but it is useful to distinguish them according to a discrete sequence that starts from the design of the initiative and progresses to its preparation and participation dynamics.

Event Design (February to October): Building Collaborative Engagement

During the Event Design phase, WT conducted a number of actions aimed at encouraging network members to engage collaboratively—rather than commercially—with other participants in the event. "Over the years, we have developed a very positive feature ... that there is

[4] Due to space constraints, we present one quote for each first-order code.

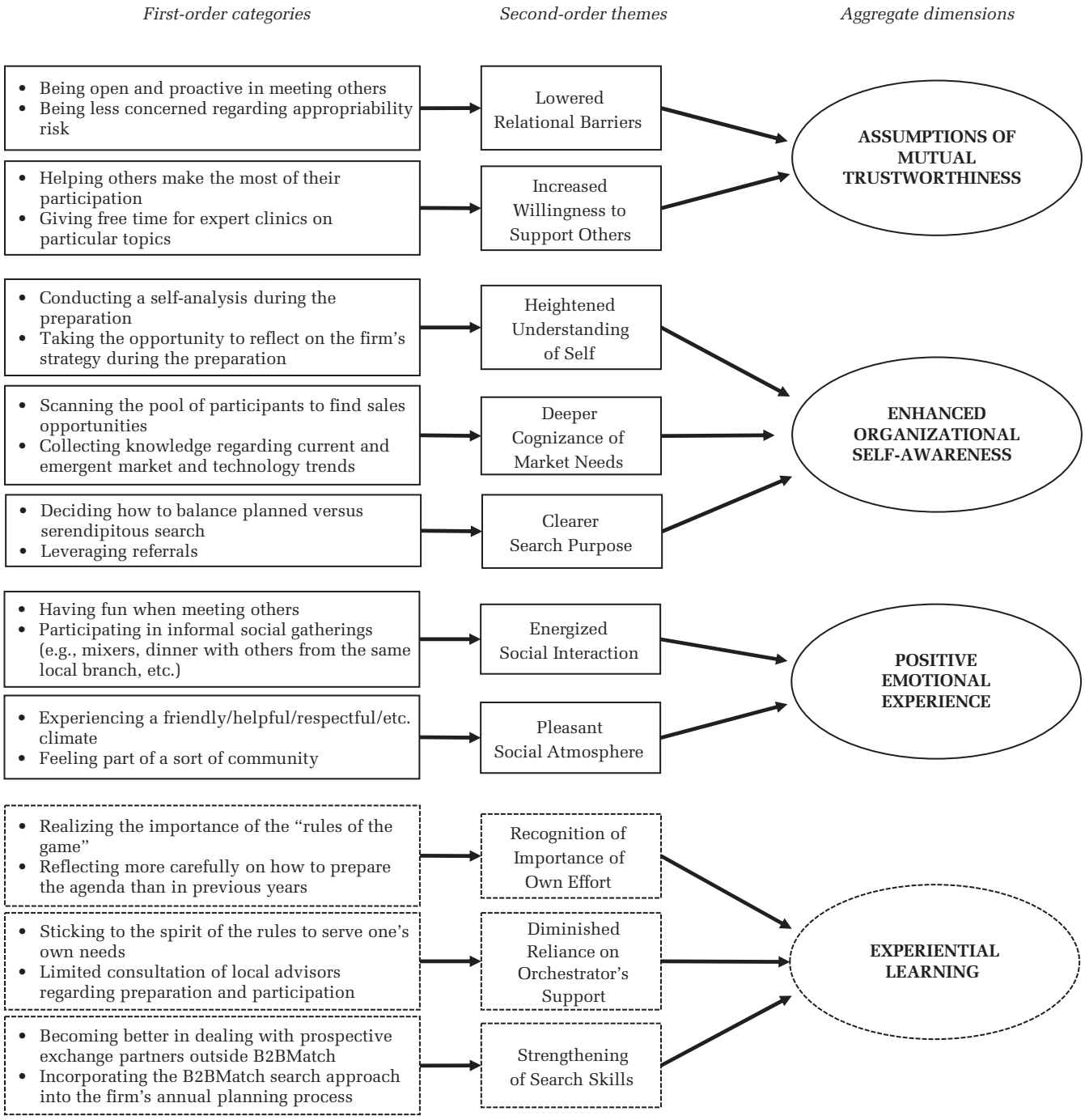
[5] In 2011, respondents to a survey collected by WT reported an average of 45.9 new ideas plus 41.4 appointments over the three days of the main B2BMatch-event, of which 10.8 were considered "useful" and 3.8 resulted immediately in new contracts (based on a sample of 237 respondents, with an average of 1.8 prior participations in the main event).

FIGURE 2
Continued

a sort of openness among participants. . . towards meeting others. . .'' recounted one national WT manager. ''This positive and open climate has always been a characteristic of B2BMatch. . . and it certainly helps the initial contact between two firms when they first meet.''

Conceptually, these actions included the framing of network activities as collaborative (rather than commercial), the controlled openness of access to networking events, and the nurturing of participants' embeddedness in the network (see Table 4 for selected quotes).

FIGURE 2
Continued



Note: We used a dotted line to indicate relationships and constructs for which we collected only exploratory evidence (e.g., Ravasi & Schultz, 2006).

Framing network activities as collaborative. Firms typically attend trade shows with a commercial, sales-oriented approach (e.g., Munuera & Ruiz, 1999). Instead, evidence from multiple sources in our study indicated that managers at WT were entirely conscious of the need to establish an alternative and convincing framing based on collaborative values. This framing was

TABLE 3
Members' Innovation Output: Selected Evidence

Aggregate Dimension: **RECOGNITION OF NEW ENTREPRENEURIAL OPPORTUNITIES**	
Second-Order Codes	**Selected Evidence on First-Order Codes (WT = Working Together; LB = Local branch)**
New Knowledge and Ideas	*Exchanging ideas with others* "[At B2BMatch] I met some people I knew already and, discussing a particular idea of mine with them. . . they put me in touch with others with whom I could have explored it further. . . we currently have an important commercial relationship in place" (entrepreneur, micro automation firm from LB11). *New ideas for product or service improvements* "We redefined one of our products and its business model in function of the participation. We then validated this approach during the B2BMatch-event" (entrepreneur, small IT and document management firm from LB 20). *New knowledge regarding technology evolution* "We usually struggle to keep an eye on technological evolution . . . So last year we were interested in knowing more about data warehouse technologies, and B2BMatch gave us the opportunity to meet and discuss with [another firm] working precisely in that field" (partner, medium business services consultancy from LB14).
Initiatives Related to New Market Development	*Exploring / entering new market segments* "The healthcare sector is an emerging opportunity. . . that I pursued at B2BMatch. . . We are like Tom Thumb: when we find a new road, we follow it as far as we can. . . [B2BMatch has also] allowed us to make contacts with people in other sectors we do not currently cover" (entrepreneur, micro communication and training consultancy from LB7). *Exploring / entering new geographic markets* "B2BMatch allowed us to understand better what foreign countries need what we do. . . We met, for example, firms from South Africa, Kazakhstan, Russia. . . and Brazil. It has been very useful to consolidate our internationalization efforts" (group marketing director, medium construction, infrastructure, and renewable energy firm from HQ).
Aggregate Dimension: **FORMATION OF NEW BUSINESS RELATIONSHIPS**	
Second-Order Codes	**Selected Evidence on First-order Codes (WT = Working Together; LB = Local branch)**
New Connections	*Meeting new potential partners/suppliers/customers/etc.* "This evening over 20 foreign buyers will meet 20 wine producers who will present their products. . . We also have several firms who are approaching new distributors" (entrepreneur and national WT agri-food president, small agri-food R&D consultancy, from a *CNBC interview*). *Having a very high number of appointments* "We conduct a huge number of appointments during the B2BMatch-event, on average between 50–70 per day. We send three people, one stays at the stand and the other two go and meet people, around 15–20 appointments each per day" (partner, small architecture firm from LB9). *Meeting other participants during preparatory activities* "We learnt a lot about how to participate in B2BMatch from the experience of others. . . who shared their experience during [preparatory activities]" (entrepreneur, micro business services consultancy from LB7).
New Contractual Agreements	*Initiating new customer relationships* "[At B2BMatch] I signed a number of contracts, both as a supplier and as a customer, with firms I would never have thought I could meet" (entrepreneur, small dried fruit firm from LB2). *Using new distributors* "I met a distributor for the Russian market and we signed a new contract" (entrepreneur, medium weighting systems firm from LB9). *Finding new suppliers* "We found good new suppliers. For example, thanks to B2BMatch we discovered [a software enterprise] . . . [You] can get so many new ideas about prospective suppliers. . . [because] you often see novel things which might help you work better" (entrepreneur, small applied research firm from LB4).

communicated explicitly, for example, by giving B2BMatch annual themes such as "From supplying to partnering" in 2007, "Collaborating for growth" in 2008, "The value of a meeting" between 2011 and 2013, and "Share & grow" in 2014. In addition, WT regularly invited long-term B2BMatch participants to explain to newcomers the initiative's ethos and the importance of

TABLE 4
Building Collaborative Engagement: Selected Evidence

Second-Order Codes	Selected Evidence on First-Order Codes (WT = Working Together; LB = Local branch)
Framing Network Activities as Collaborative	*Communicating the purpose of B2BMatch* "We have become increasingly better in explaining what B2BMatch is with concrete examples, with witnesses, with the preparatory path. . . The purpose of B2BMatch is to help find others with whom to work together. . . We have become better in helping firms understand to come here for this reason, not just to sell" (national B2BMatch managing director). *Emphasizing WT's values among participants* "B2BMatch emerged bottom-up as an attempt to [express] what WT wants to embody. . . B2BMatch is a very rich tool that represents WT's 'fast-beating heart' because of the positive climate that we propose" (LB6 advisor). *Explaining the importance of a relational approach* "[B2BMatch] is not a trade show dominated by the search for commercial deals, but an initiative that aims to create the conditions for future collaborative relationships" (from a local newspaper, 27 November 2013).
Controlling Openness of Access to Network Activities	*Co-developing the initiative with members (via local steering committees)* "[My local branch appointed] a member of the steering committee to be responsible for B2BMatch. . . [B2BMatch] is not something created top-down [by WT]" (entrepreneur, micro health and safety training consultancy from LB4). *Pre-filtering participants* "We filter participants based on our knowledge of them. . . [In our branch] we start from manufacturing firms because, in my opinion, they are those who can give the most to B2BMatch and take the most from it" (LB19 advisor). *Stimulating the participation of key decision-makers* "We always try to have the entrepreneur coming to Matching, even from large firms. . . The entrepreneur is the one who can sense new [opportunities] and challenges, not an employee. . . [Alternatively, we want] an experienced managing director who is really into the firm's strategic process" (LB21 advisor).
Nurturing Embeddedness and a Sense of Community	*Organizing regular associative activities (open to all members) during the year* "B2BMatch is something that goes on all year round. . . WT tries to integrate all other associative activities such as our executive education, social dinners, etc. [with B2BMatch]" (entrepreneur, micro logistics firm from LB15). *Organizing sector-based round tables during the year* "Our sector-based round tables are opportunities for firms to discuss large collaboration projects or how the sector is doing. . . We organize them before and during B2BMatch. . . We try to make sure that this work goes on all year round" (LB4 manager). *Giving sector-based round tables the responsibility of organizing sector-specific workshops during B2BMatch-events* "[At the B2BMatch-event], we will propose a number of workshops to show how. . . e.g., to become 'leaner' and [develop] a more effective value chain" (from a 43-slide internal presentation produced by a local WT branch titled: "*The Work of Round Tables at B2BMatch: Appointments, Workshops, and Working Approach for B2BMatch*").

prioritizing a relational rather than a sales-oriented approach.

The LB12 manager noted that over time B2BMatch had become:

> a key way to express what WT is and its nature. . . [It takes the] conversation with our members on a higher level [allowing us to explain] how we interpret what we propose to them, which is that the other is an opportunity for new business, but also for knowledge, for personal enrichment and so on.

This framing was echoed by an entrepreneur, who highlighted how WT's approach was "based on friendship, but also on the concrete openness of new relations through which we can grow together" (entrepreneur and LB2 president, large agri-food firm at a press conference).

Controlling openness of access to networking activities. Previous research indicates that to keep innovation networks fresh, orchestrators need to maintain a sufficient degree of openness (Nambisan & Sawhney, 2011) to ensure flexibility and the ongoing incorporation of new knowledge and resources to the network. WT attempted to achieve this openness by collaborating with local steering committees in the co-development of the initiative and in

its promotion to potential new members. One interviewee told us, for instance, that the local steering committee had "a very high level of engagement with B2BMatch... we get involved quite a lot in its preparation... We activated a significant set of relationships... we organized appointments and workshops..." (entrepreneur, small digital services firm, LB19).

To de-emphasize the commercial side of the initiative, however, while local advisors were keen to recruit entrepreneurs and senior managers, they discouraged the participation of salespeople or marketers.[6] WT also strove to keep openness under control by giving local advisors the responsibility of assessing firms' suitability for the initiative, for example, based on their business scope and reasons for participation. As a national WT manager explained:

> We start from the premise that we should welcome every firm... but B2BMatch is not for everybody... only for those firms that have a valid reason to want to meet others! In other words, our local branches do a quite granular selection... [we] know why they are coming, who they are, what they do, what they are looking for, etc.

Nurturing embeddedness and a sense of community. Embeddedness refers to the overall connectedness between participant firms and the extent to which they share a common vocabulary, representation and interpretation schemes, and domains of knowledge (Nambisan & Sawhney, 2011). WT nurtured embeddedness among its members by organizing associative activities during the year aimed at strengthening relationships among members even outside matchmaking events, and building a sense of community that supported a collaborative attitude. These activities included business-training workshops, business-support clinics, cultural conferences, and a large variety of informal mixers in each local branch as well as annual and special meetings at the national level.

Starting in 2010, WT also began to organize regular sector-based round tables led by experienced entrepreneurs tasked with the finalization of the program of the annual event with regard to sector-specific workshops. As one staff advisor from the national WT office explained to us, these sector-based round tables allowed "entrepreneurs in similar sectors to come together... to understand how they are changing, what are the gaps." The entrepreneur coordinating the information technology (IT) round table commented that the goal was "to create stronger relationships among firms from the same sector. We try to meet regularly... and ask: 'Why are we IT firms going to B2BMatch? Let's try to do something that may be useful for everybody!'" (entrepreneur, medium IT and multimedia firm, LB12).

While not all participants shared the same sense of belonging with regard to B2BMatch, those that engaged with the initiative more intensely and passionately explained how they perceived the network primarily as a community, characterized by a clear set of values and norms, rather than simply as a way to find commercial opportunities. They felt responsible for upholding these norms and were upset at their violation by less embedded participants.

Event Preparation (mid-March to mid-November): Facilitating Members' Introspection

A second orchestration process unfolded during the Event Preparation phase. Every year, from mid-March to approximately mid-November, WT organized activities dedicated to helping firms prepare appropriately for B2BMatch, by stimulating introspective reflection on their goals, skills, resources, and current markets. Conceptually, WT achieved this through the creation of spaces for reflection throughout the year and the offering of support for mediated sensemaking closer to the event (see Table 5 for selected quotes).

Creating spaces for reflection. The rich program of supporting activities for B2BMatch included smaller replicas of the national event as well as press conferences and guest speaker sessions. In an interview in WT's magazine, the manager of a local branch noted that these activities were organized "with the same spirit and motivation... to start building again a joint sense of responsibility" and to help members develop "the awareness that the most important change is how they [conceive and] conduct their firms."

Together, these supporting activities offered firms not just matchmaking opportunities but also the possibility to enter "spaces" where they could transcend the constraints of day-to-day activities and critically review the fundamentals of their business. One advisor from LB2 explained that "[these events

[6] WT's evaluation data suggest that entrepreneurs, owner-managers, and senior managers composed at least 50% of the total number of individual participants.

TABLE 5
Facilitating Members' Introspection and Encouraging Their Exploration of Complementarities: Selected Evidence

Second-Order Codes	Selected Evidence on First-Order Codes (WT = Working Together; LB = Local branch)
Creating Spaces for Reflection	*Organizing mini-replicas of the national B2BMatch-event locally and internationally during the year* "We participated in the mini B2BMatch in Russia. . . I did not sell anything, but it was satisfactory because I had a number of meetings that made me start the process of learning about the country" (entrepreneur and LB2 president, large fresh-cut, vegetables, and chilled fresh ready meals firm). *Organizing training sessions in preparation for B2BMatch-events* "The last three years we organized a training workshop for B2BMatch at the beginning of September to help firms learn about the online portal and incentivize them to prepare the online showroom. . . We want to give firms the opportunity to meet and get to know each other" (LB15 advisor).
Offering Mediated Sensemaking	*Using frequent one-on-one clinics to help participants understand their strengths and weaknesses* "We often need to help participants focus on a reality which is rapidly changing. . . Not all of them are so reactive in understanding how to change the way they look at their firms and at the world around them" (LB2 manager at a press conference). *Motivating participants to think about their resources and strategies (e.g., with strategy tools)* "We have defined a working method that gives our local branches better tools to understand each participant's needs and to identify the areas in which they need to change. . . to help them go down the path of self-analysis and search" (national WT manager).
Providing Referrals	*Using knowledge regarding participants to search for complementary connections* "I could get in touch with [one firm] who may have an issue that is not directly related to B2BMatch. . . if I know that in B2BMatch there is another firm [with a solution], I am going to tell my firm about it and then it's the entrepreneur who tells me whether he/she is interested or not" (LB15 advisor). *Proposing additional meetings to local participants* "The online portal has several sections. . . there is an administration section that we call 'play the role of your firm' [where] our local advisors can act as one of their firms and use the 'suggest an appointment' function to pre-book appointments that then the firm can decide to confirm or cancel" (national WT staff advisor). *Scouting for cross-branch matches in national coordination meetings* "Every 15 days we have a meeting with other local branches and we run a sort of 'firm stock exchange'. . . this is how I call it! All branches crosscheck their participant firms to identify opportunities to suggest to their own local members. This happens because each branch knows its own firms reasonably well" (LB4 manager).
Crafting Virtual and Spatial Propinquity	*Using the online portal and community to facilitate interaction among participants* "I have used the online community since the beginning, a couple of years ago. . . it has allowed me to get in touch with tens, hundreds of members. . . I have met people from Latin America and Italy very rapidly" (partner, micro sales development consultancy from WT's magazine). *Clustering firms from the same sector together* "We have created some areas called 'districts'. . . where we cluster firms from different sectors. . . and where we also organized all the workshops for each specific sector" (national WT staff advisor).

are] occasions where you are away from the office, your secretary is not there, the phone is not ringing, no emails are coming in. . . These moments of association are the best preparation for B2BMatch!" In the same vein, two participants emphasized that these supporting activities were "really an opportunity to meet as human beings outside standard office hours. . . you have time to talk and even a bit of calm" (entrepreneur, small industrial machinery firm, LB17) and that "when you are at work, your day-to-day activities completely fill up your time and attention. . . Going to B2BMatch helps us a lot to reflect" (commercial director, small food processing firm, LB2).

Offering mediated sensemaking. WT organized complementary events throughout the entire Event Preparation phase. In addition, between July and mid-November, it required participant firms to prepare using the online portal, with the support of local advisors. Through frequent one-to-one clinics and phone conversations, local advisors attempted to stimulate firms' thinking regarding their resources and strategies before conducting their search activities. One of these local advisors from LB12 explained:

> We help them reflect in front of a blank sheet and we try to make them understand their strengths and weaknesses, and which ideas or projects they want to develop in a context like B2BMatch. Trust me: it is a very difficult task [because] entrepreneurs are often self-centered and presumptuous. They think they know everything already. . .

Offering mediated sensemaking also provided local advisors with systematic information about

participants' search needs that they could use to tailor their support. However, not all firms agreed to submit to this process: "Entrepreneurs need to accept the demanding commitment involved in B2BMatch to work together with others to discuss [the firm's strategy]. It is evident that not everybody is willing to accept this commitment and not every year," lamented one national manager in an interview in WT's magazine.

Event Preparation (August to mid-November): Encouraging Members' Exploration of Complementarities

During the Event Preparation phase, to complement its efforts to facilitate firms' introspection, WT engaged in a third orchestration process aimed at encouraging network members to explore complementarities with other participants and to sharpen their understanding of the possibilities inherent in their own skills and resources. WT did so by providing referrals and crafting virtual and spatial propinquity.

Providing referrals. Multiple sources pointed to WT's efforts to provide quality referrals. Several local advisors told us of their effort to leverage the information obtained during the preparation to search for complementary connections. For instance, the LB14 manager recounted how she pressed one firm to detail its partnering needs so that she could "search for other firms... as complementary partners." One entrepreneur also recounted how the WT advisor asked him several questions to "highlight to me, via email, all the potential appointments that I could organize with foreign participants" (entrepreneur, medium road construction firm, LB1).

In the coordination meetings organized by WT in September and October, local advisors from several branches scouted for supplementary cross-branch matches. One advisor from LB12 explained how "the success of B2BMatch is driven by the exchange of knowledge and matches among local advisors. In the pre-event period, we 'share' our firms... and we try to help them achieve their goals with high-quality matches." These matches were then signaled to firms via a dedicated pop-up function on the online portal. As a participant explained:

> The search engine was somehow managed by somebody from WT... I regularly received emails with useful suggestions tailored around our search needs or our offers. In addition, every time I logged in, I received notifications about what potentially interesting firms had just registered (Commercial director, small organic baking product firm, LB1).

Crafting virtual and spatial propinquity. Past work indicates that propinquity in time and space allows for regular interaction and thus increases the likelihood that firms "discover mutual or compatible interests" (Reagans, 2011: 837). Both interview and observation data provided evidence that WT organized B2BMatch in a way that facilitated the exploration of complementarities by co-locating—physically or virtually—potential partners, based on information collected in the preliminary phase.

WT facilitated spatial propinquity through the overarching setting of B2BMatch-events: thousands of participants were in the same exhibition space of 35,000 sq.m. at the same time and engaged in a variety of complementary social activities including mixers, dinners, happy hours, and the like. The layout of the exhibition center was also designed to cluster firms from the same macro-sector together to encourage joint endeavors to engage with suppliers and retail channels or enter foreign markets. Colocation, according to a national WT manager, importantly also helped members "compare themselves with competitors... and pay more attention to what is going on upstream and downstream in their sector to optimize the value chain and become more competitive."

Virtual propinquity—defined as participation in the same virtual space such as online communities, forums, and chat rooms (see Porter, Donthu, MacElroy, & Wydra, 2011)—was instead promoted throughout the year through the online portal and a dedicated online community launched in 2011, where participant firms could nurture and expand new relationships. The community was relatively limited in the first year, but we noticed a substantial increase in activities in 2012, particularly with regard to those aimed at developing international connections.

Event Participation (End of November): Fostering Dispersed Collaboration

The fourth orchestration process aimed at fostering dispersed collaborative activities among firms during their participation in the annual event by attending to the emotional experiences that encouraged or discouraged participants from engaging in social interaction during the event. To this end, WT proactively attempted to alleviate the reluctance to interact of some participants, typically very small firms, while at the same time carefully monitoring how others interacted to ensure that participants did not breach the collaborative atmosphere that, in their view, was essential to preserving positive emotional

energy during the event (see Table 6 for selected quotes).

Alleviating reluctance to interact. WT paid particular attention to those participants who seemed most reluctant to socialize with others. For example, during the three days, it was common to find local WT advisors checking on and prompting participants to action. As one national WT manager underlined, "We often have to deal with firms that are not proactive... you cannot disregard the human factor... our local advisors [often] take the entrepreneur by the hand." "Our being on the side [of participants] is real added value... In some cases, we nearly accompany some firms appointment by appointment," stressed the LB5 manager.

In addition, all booths were of the same size to downplay status differences that might hinder the engagement of some of the smallest participants. As a participant emphasized:

> In trade shows, those who have a larger booth stand out... At B2BMatch, they do not! What counts is not your size... all stands are exactly the same ... it visually communicates the parity of level of everybody. (Commercial director and daughter of the entrepreneur, medium salami and oil firm from LB13)

> "The purpose of B2BMatch is to meet, to talk, to know each other..." one local WT director explained. "Participants should not visit others only when attracted by something they see... [like the booth, but] on the basis of the preparatory work that they did... [This is why] the appearance of the booths is very meager!" (LB2 manager)

Monitoring quality of interactions. Finally, WT could not fully direct firms' activities during B2BMatch, nor did it want to. Despite emphasis on the collaborative spirit of the initiative, firms could obviously decide to pursue their own self-interest

TABLE 6
Fostering Dispersed Collaboration: Selected Evidence

Second-Order Codes	Selected Evidence on First-Order Codes (WT = Working Together; LB = Local branch)
Alleviating Reluctance to Interact	*Making all booths similar to downplay status differences* "B2BMatch is designed to help even very small firms shine... it's not about who is stronger: all booths are the same... firms with budget for larger booths cannot obfuscate small firms as in typical trade shows. The entrepreneur is the protagonist" (entrepreneur and national WT agri-food vice-president, small R&D food laboratory). *Local WT advisors checking on and prompting participants to action* "Some participate in B2BMatch passively or do not prepare it well... One of my participants, for instance, did not move from his booth, waiting for others to stop by... They were disappointed... In cases like these, we try to go and prompt them but... obviously, we can do little if they keep this [passive approach]" (LB4 manager).
Monitoring Quality of Interactions	*Remembering the common "rules of the game"* "A key pillar for an effective participation in B2BMatch is that the entrepreneur needs to follow its method... it is not a condition *sine qua non* but 'short reckoning makes long friends'...! [I explain this method] to provoke my entrepreneurs... If they know it in advance [and decide not to follow it], then neither of us is surprised if it does not work as planned!" (LB6 advisor). *Requiring the first five appointment requests to be sent to suppliers/partners before approaching prospective customers* "Our agenda is based on a logic of buying or partnering... Firms who receive the appointment request do not see the sender... because this would push a logic of selling... We say: 'Book at least 5 appointments with prospective suppliers or partners to be allowed to send appointment requests to max 30 customers'" (national WT staff advisor). *Attempting to minimize "fake" appointment requests in each participant's agenda* "We try to control the number of 'fake' requests... Before formally releasing the agendas to participants, [the national B2BMatch managing director] gets on everybody's nerves to make us remove all these 'fake' appointments from participants' agendas..." (LB7 advisor). *Attempting to minimize non-paying guests* "This year I am personally accompanying six firms [that participate] as visitors. My presence limits what they can or cannot do... they stay close to me for around one hour to avoid that their visit becomes a catwalk where they distribute business cards or conduct other activities" (LB10 manager).

irrespective of the common "rules of the game." Expected to a degree, deviations from the rules of the initiative were nevertheless problematic, and sales-oriented participants were often shunned by other members. An entrepreneur who had participated in multiple events noted:

> This year, we noticed a serious disturbance created by several people who were bluntly taking the opportunity to leave their cards [like spam] to promote their firms... If they do not share the B2BMatch approach... they neutralize the basic premise of participating in the initiative (Partner 1, architecture consortium from LB3).

Both B2BMatch staff and members concurred with regard to the importance that members approached networking events as an opportunity to find partners, rather than clients. As the "host" of the initiative, WT made an effort to intervene whenever necessary. For example, it was rather vigilant in double-checking (and filtering when needed) invitations on the portal that could turn out to be "fake." As the LB12 manager explained:

> We read all the agendas in parallel with participants... The mechanism is guided... if they "drive" in the wrong direction, for example by asking only for appointments as prospective sellers and not as prospective buyers or partners... well, we can intervene!

To avoid these disturbances, B2BMatch staff also sought to minimize the number of non-paying guests and closely monitored them on site.

The Influence of Orchestration Processes on Search Activities: Cognitive and Emotional Foundations

Recent theoretical work has begun to draw attention to the cognitive (Helfat & Peteraf, 2015; Lanzolla & Giudici, 2017) and emotional (Hodgkinson & Healey, 2011) micro-foundations of dynamic capabilities. Converging evidence from our interviews and field-observations suggests that the four orchestration processes presented earlier enhanced and energized members' search for business opportunities by diffusing assumptions of mutual trustworthiness among participants to the event, by enhancing their organizational self-awareness, and by promoting conditions for a positive emotional experience (see Table 7 for illustrative quotes). Repeated, deliberate engagement with the initiative orchestrated by WT helped members consolidate and refine their search capabilities over time through a process of experiential learning, regarding which we collected exploratory data.

Assumptions of mutual trustworthiness. When we attended B2BMatch in 2011, 2013, and 2014, we were consistently struck by how participants were unusually ready to act in "good faith" when meeting others and sorely disappointed on the rare occasions when this attitude was not reciprocated. "We all leave our weapons outside the entrance of B2BMatch ... All the usual commercial techniques," one participant argued poignantly. "Inside, one is somehow 'naked'... [The event] requires a particular mind-set and way of being, so that one is less scared and does not raise barriers" (partner, micro business services consultancy, LB17). Another long-term participant emphasized:

> The B2BMatch climate produces a sort of culture of trust and solidarity... I usually understand immediately whether [another] person appreciates the approach of B2BMatch ... Somebody asked me: "Isn't there the risk that somebody screws you over?" Sure! But I do not start, as often happens, with that worry in mind! (Entrepreneur, wine producing consortium, LB5)

Many participants also made an effort to help others make the most of their participation. "I remember well one appointment I had in my second B2BMatch," one long-term participant shared with us. "I went to the booth of a construction firm and, before I introduced myself, the owner of the company asked me 'How could I be useful for your firm?'" (partner 2, architecture consortium, LB3). Moreover, several professionals offered free clinics on a variety of themes including legal issues, marketing, and exporting strategies, as recounted by a national WT manager:

> [These free clinics] are very important... We have some members from larger, more structured firms, or ex senior managers who are available to collaborate with us for free because they share WT's mission. They meet our firms for free during the event.

Enhanced organizational self-awareness. Through the intense pre-event regimen composed of training workshops, one-to-one consultations, and regular interaction, WT helped firms gain a clearer understanding of their own resources, capabilities, and competitive position. One entrepreneur, for instance, remarked:

> My business partner and I think that we are good. All our customers tell us that we are good. Yet, by participating in B2BMatch ... we realized that it is not enough to be good... [we developed] the capacity to wait and judge where to go, to "think about [our] firm" (Entrepreneur, small IT and logistics firm, LB2).

TABLE 7
Implications of Open-system Orchestration Processes: Selected Evidence

Aggregate Dimension: **DIFFUSED ASSUMPTIONS OF MUTUAL TRUSTWORTHINESS**	
Second-Order Codes	**Selected Evidence on First-Order Codes (WT = Working Together; LB = Local branch)**
Lowered Relational Barriers	*Being open and proactive in meeting others* "One beautiful thing to highlight, in my opinion, is this generalized openness . . . one entrepreneur put [it] as 'I am here to listen to everybody!' Another one. . . two years ago, looked around. . . and exclaimed 'This is not a fair! It is a social gathering where people meet to discuss their opportunities!'" (LB10 manager). *Being less concerned with appropriability risk* "B2BMatch is jovial. . . you generally do not meet grumpy people waiting to cheat you or people who pretend to buy one container already knowing that they are not going to pay for it" (president, large oil and beer firm from LB14).
Increased Willingness to Support Others	*Helping others make the most of their participation* "Every year we organize a workshop to explain how to 'do B2BMatch'. . . This year, three firms who knew B2BMatch already. . . came to this workshop to help us! [They then] buddied some of the new participants [during the event]!" (LB8 advisor). *Giving free time for expert clinics on particular topics* "[At the B2BMatch-event] firms will have the opportunity to discuss useful business themes with some professional experts who have a long-standing collaboration with WT [including] privacy regulation, corporate social responsibility and others" (from the webpage of a national newspaper, 16 November 2010).
Aggregate Dimension: **ENHANCED ORGANIZATIONAL SELF-AWARENESS**	
Second-Order Codes	**Selected Evidence on First-Order Codes (WT = Working Together; LB = Local branch)**
Heightened Understanding of Self	*Conducting a self-analysis during the preparation* "The support we received from our local branch is the first 'test-bed'. . . there is a person who helps you think and stimulates you when you are falling behind in formulating your proposal. . . Without its local branches, B2BMatch would not work with just the web device" (entrepreneur, large firm, IT and multimedia from LB12). *Taking the opportunity to reflect on the firm's strategy during the preparation* "[Preparing for B2BMatch] I realized my firm's dimensional limits. . . For years, we have been told that 'small is good', yet in the last ten years the market has changed and too many of us did not realize it" (entrepreneur, micro automation firm from LB2).
Deeper Cognizance of Market Needs	*Scanning the pool of participants to find sales opportunities* "I had the task of selecting [our appointments]. . . I started to scan the profiles of participants online. . . Honestly, WT gave us lots of support [in this process]" (group marketing director, medium construction, infrastructure services and renewable energy firm from HQ). *Collecting knowledge regarding current and emergent market and technology trends* "Our main interest [in preparing for B2BMatch] is to verify the state of the art of sectors that we consider strategic. We want to assess whether we have an intolerable gap or are market trendsetters. . . While we assess our gaps, we try to find other firms that could help us deliver our strategies" (entrepreneur, large chemical, IT and medical engineering consortium from LB15).
Clearer Search Purpose	*Deciding how to balance planned vs. serendipitous search* "Last year I considered the agenda as the most important thing. . . and I overlooked the possibility to find contacts [by walking around] the exhibition center. . . This year, we did not overlook the agenda. . . but we paid much more attention to [pre-filtering] participants. . . so to stop by their booths for quick meetings on the spot" (entrepreneur, micro business services consultancy firm from LB7). *Leveraging referrals* "There is a whole matching process that goes [on behind the scenes]. . . WT often creates matches that. . . [we would not find] by ourselves on the online portal" (entrepreneur, medium IT and multimedia firm from LB12).

TABLE 7
(Continued)

Aggregate Dimension: **POSITIVE EMOTIONAL EXPERIENCE**	
Second-Order Codes	**Selected Evidence on First-Order Codes (WT = Working Together; LB = Local branch)**
Energized Social Interaction	*Having fun when meeting others* "We really have good fun at B2BMatch. . . every evening we organize a happy-hour in our booth. . . it's a way to create new matches, to spend time with others. . . I think that it is clever for an initiative like B2BMatch to allow us to do this kind of thing!" (president, large sustainable accumulators and vehicles firm from LB9). *Participating in informal social gatherings (*e.g., *mixers, dinner with others from the same local branch, etc.)* "This year every evening we went to the restaurant together (with participants from the same local branch). During the day, it had been frenetic, but in the evening [we] exchanged ideas openly. . . it's easier to talk and understand one another when eating!" (entrepreneur, medium environmental services firm from LB8).
Pleasant Social Atmosphere	*Experiencing a friendly, helpful, respectful, etc., climate* "[One thing] you can feel in the air during B2BMatch is an extremely cordial climate of friendship and ethics, which is nowadays something rare to find. . ." (quality director, large agri-food firm, from a *CNBC interview*). *Feeling part of a sort of community* "B2BMatch is more relaxing. . . and in your free time you can talk to others. . . who over time get to know each other. . . it becomes a community where there is little need to argue with others" (president, large oil and beer firm from LB14).
Aggregate Dimension: **EXPERIENTIAL LEARNING**	
Second-Order Codes	**Selected Exploratory Evidence on First-Order Codes (WT = Working Together; LB = Local branch)**
Recognition of Importance of Own Effort	*Realizing the importance of the "rules of the game"* "Next year, the preparatory work will still be demanding but easier since I now know the 'rules of the game' and I will be more focused" (partner, micro business services consultancy from LB7). *Reflecting more carefully on how to prepare the agenda than in previous years* "[Last year] we did not work carefully on our requests [and thus] we received many more from others. This year we ought to prepare better!" (entrepreneur, large design wooden windows firm from HQ).
Diminished Reliance on Orchestrator's Support	*Sticking to the spirit of the rules to serve one's own needs* "The manager of one of our firms. . . when he understood the mechanism, he started leveraging it more and more over time. . . even with [external stakeholders]. . . in a virtuous way" (LB12 manager). *Limited consultation of local advisors regarding preparation and participation* "WT's support is [very important]. . . local advisors help you think, stimulate you. . . however, by now we know everything about B2BMatch, we know how it works, we already had this [support] which is not needed anymore" (entrepreneur, large firm, IT and multimedia from LB12).
Strengthening of Search Skills	*Becoming better in dealing with prospective exchange partners outside B2BMatch* "B2BMatch is a way to work, to act, to think out of the box. . . This is what I learnt. . . I now leverage this approach in many other unrelated situations . . . I've internalized it as a systematic approach when I meet other entrepreneurs. . . I exploit it every day" (partner, small architecture firm, LB9). *Incorporating the B2BMatch search approach into the firm's annual planning process* "We consider B2BMatch as part of our strategic planning process. . . at the end of the year, it is useful to understand and assess our next year's strategy. . ." (commercial director and son of the founder, large oil and beer firm from LB14).

Another interviewee recounted how the process helped the firm better understand its market needs better: "We were sure to have the best [suppliers]. . . We have now realized that there is something better on the market and understood how we could improve our positioning" (commercial director, small food processing firm, LB2).

During the preparation, firms could also decide how to balance the use of pre-booked appointments in the agenda versus the possibility of "walking around" the exhibition center looking for more serendipitous opportunities. "We plan [the agenda] carefully... and we go to B2BMatch very focused on optimizing our time and resources," stated one participant (commercial director and son of the founder, large oil and beer firm from LB14), whereas another expressed the opposite intention: "I cannot spend the period before B2BMatch thinking about where to go or whom to meet. This is something that I prefer to clarify over the three days there" (entrepreneur, medium environmental services firm from LB8).

Positive emotional experience. Finally, the three times we participated in the main B2BMatch-event, the excitement of participants was palpable. "[It is] like being in a beehive, with all the bees working feverishly... for an entrepreneur, it is an exciting setting!" one entrepreneur emphasized (president, large multiservice cooperative, LB6). The many informal social gatherings organized by WT local branches reinforced this excitement. As a national WT manager explained:

> To create an effective network, this evening we are organizing a dinner... [so that participants] can see that other entrepreneurs are happier when they work together, that they do better business and grow in a healthier way! (Entrepreneur and national WT agri-food president, *CNBC interview*)

Several participants mentioned the importance of the friendly and helpful climate that they experienced during the event. "[One thing] you can feel in the air during B2BMatch-events is an extremely cordial climate of friendship and ethics, which is nowadays something rare to find...," noted one participant (quality director, large agri-food firm, *CNBC interview*). This point was reinforced by another interviewee: "B2BMatch has been a very beautiful experience... all participants are available to talk to you and this is difficult to find in other trade shows" (entrepreneur, micro digital print and graphic services firm, LB7). "B2BMatch... relies on a sense of community generated by all the other initiatives during the year and that would be very difficult to replicate," observed the marketing manager of a large multinational participant (marketing manager, multinational information and communications technology [ICT] and business services company from headquarters [HQ]).

Experiential learning. While our study focused on the annual events that were central to the orchestration efforts of WT, exploratory evidence points to how repeated engagement with these events helped members consolidate and refine their search capabilities over time through a process of *experiential learning* (Zollo & Winter, 2002).

Several informants mentioned how their capacity to benefit from the annual event had improved over time, as they learned to approach the networking opportunities that this event offered. They noted how they had rapidly understood the importance of expending sufficient effort and time in the preparation and increasing presence during the event, and, over the years, they had become gradually less reliant on the support of WT in their search efforts. As a participant underlined: "We used our first participation to understand the mechanisms and the spirit of B2BMatch and how we should participate in following years" (partner, medium IP consultancy, WT's Magazine). Another informant similarly reported:

> The first time, we [had] the wrong approach! This year we will pay much more attention to the preparation and search for partners... My suggestion to first-timers is to do it again: It takes around three-four years of "trial stage" to properly appreciate how B2BMatch works. (Entrepreneur, medium weighting systems firm from LB9)

Others emphasized the need to participate with a larger team of people. For example, the manager of a large multinational company observed that "[next year] I am going to organize a meeting with my colleagues to discuss our participation in B2BMatch... once you have learnt the process, you optimize it every year" (marketing manager, multinational home appliance manufacturer from HQ). Another entrepreneur pointed out that "we were only two... it is important to have a larger team so that we can all focus on our areas of expertise" (entrepreneur, medium flour mill firm from LB6).

More importantly, other informants described how, after repeated participation in B2BMatch, they had not only improved their capacity to benefit from the matchmaking initiative, but they had also extended the systematic approach to opportunity search that they had learned to their business activities on a daily basis. In some cases, these changes affected the planning process that underlay the search of new opportunities (see Table 7). For instance, the managing director of a small

engineering firm explained how he had incorporated the participation in B2BMatch in the annual planning process:

> B2BMatch is now the first test-bed of our annual planning. In September, we define the program of work for the following year. The goal is to have it ready before the B2BMatch-event because there we can validate most of our ideas and objectives through business appointments... We then re-adjust our program based on what we have learnt during those three very intensive days and, at that point, we are ready for the next twelve months.

Another informant recounted how B2BMatch sensitized her to the importance of involving employees in the search process, and led to the adoption of what she described as a "more managerial approach" to new business development. "The first thing I did back to the office"—she exemplified—" was meeting all of them to discuss future projects, new ideas, how to launch new products" (commercial director, medium salami and oil firm from LB13).

Other participants reported how repeated participation in B2BMatch had helped them improve their commercial practices. An entrepreneur, for instance, mentioned that the experience of dealing with other producers at B2BMatch taught his firm how "to present itself commercially in a better way... how to pay attention to the presentation and branding of my products, and how to negotiate better" (entrepreneur, wine producing consortium, LB5).

In other cases, the learning experience that B2BMatch offered affected the mindset that directed the search and pursuit of new opportunities (see Table 7). The president of a large manufacturer in the field of energy accumulation, for instance, explained how his company had learnt from B2BMatch the importance of relying on trusted third parties in order to build stronger business relationships:

> I asked one of my collaborators: "Why do you think B2BMatch is interesting?" He said: "It's a different mode to establish a relation. I used to find it difficult to go and talk to [a large multinational customer]. Since I attended B2BMatch, I have tried to leverage more referrals from people who are respected by us and the customer alike."

> "B2BMatch contributes to forming a new approach,"—he emphasized—"My people have started 'doing B2BMatch' even outside it!... We did not secure [that large customer] via B2BMatch, but my people have applied the experience they gained there."

Other participants mentioned that B2BMatch had taught them to abandon their "natural" sales orientation, when approaching a potential partner, in favor of a more collaborative attitude. An informant, for instance, reported how the local WT advisor explicitly instructed him to do so: "[He] told us: 'You do not go to B2BMatch to sell but to search... for new collaborations!' I must say that it was a serious mental effort—being used to tradeshows—not to simply stay on your stand and wait for visitors you could 'capture'" (entrepreneur, small industrial pavement firm from LB10).

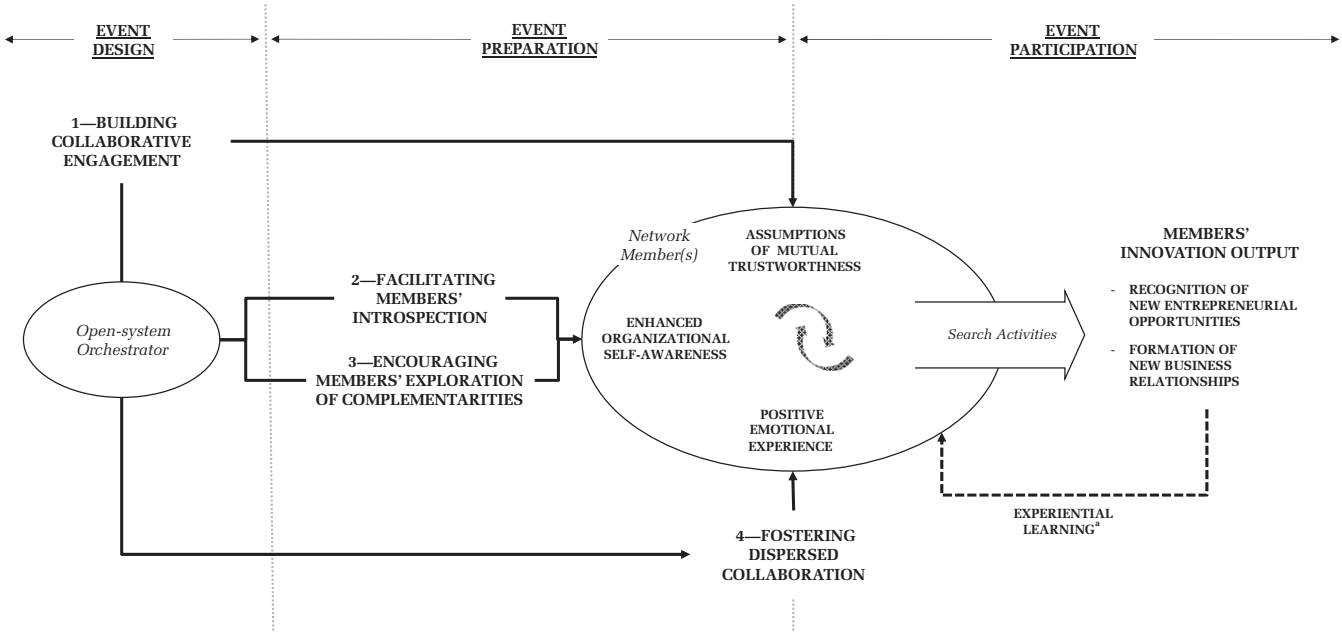
These observations suggest that the orchestration processes that we reported not only helped network members identify occasional opportunities during a specific event, but created the conditions for them to acquire, consolidate, or upgrade external search routines (Lewin, Massini, & Peeters, 2011) to pursue wide-ranging market opportunities systematically as part of their day-to-day business activities. We found these observations particularly important because they reassured us regarding the capacity of these orchestration processes to support the accumulation of experience and learning efforts that underpin the development of dynamic capabilities (Zollo & Winter, 2002).

DISCUSSION

In this paper, we have proposed that organizations such as business incubators, national and regional agencies, or associations of small businesses, whose purpose is to help a network of independent firms pursue business opportunities, can do so by orchestrating network activities in a way that differs from the most commonly studied type that characterizes hub firms, government-sponsored programs, and R&D consortia. We have referred to it as open-system orchestration. We have used a field-study of a venture association running a successful business matchmaking initiative to deepen our understanding of this type of orchestration, and to begin to unpack the processes that open-systems orchestrators use to enhance members' capacity to sense new business opportunities.

In this section, we first articulate the theoretical underpinnings of the observations we presented in the previous section and discuss the transferability of these insights (Lincoln & Guba, 1985). To highlight the novelty of our findings, we show how our observations differ from current assumptions regarding network orchestration based on the study of the closed-system type. To substantiate their transferability to

FIGURE 3
A Grounded Model of Open-system Orchestration as a Relational Source of Firms' Sensing Capabilities



[a] We used a dotted line to indicate that we collected only exploratory evidence (e.g., Ravasi & Schultz, 2006).

other forms of open-system orchestrators, we draw attention to similarities with extant research on incubators, business associations, and national and regional agencies. Figure 3 displays the grounded model of open-system orchestration emerging from our study.

Next, we discuss the implications of our findings for our theoretical understanding of network orchestration and dynamic capability.

A Grounded Model of Open System Orchestration in Innovation Networks

Entrepreneurship theories conceptualize the search for business opportunities as shaped by the uneven distribution of knowledge and information among actors (Dew, Velamuri, & Venkataraman, 2004; Hayek, 1945). Because of the specific knowledge or information they possess—these theories argue—some individuals are better able to recognize unmet needs or opportunities to serve the market in novel ways caused by changes in technologies, markets, and society. Because the pursuit of these opportunities often requires the combination of complementary resources (Teece, 2012), only some of which are under the control of the entrepreneur (Jarillo, 1988), networking is crucial for successful entrepreneurship. Previous studies, however, suggest that networking is not only important to find and secure complementary resources (Stuart & Sorenson, 2007), but also to acquire knowledge and information regarding the availability of these resources and opportunities for novel recombination in the first place (Burt, 1992; Dubini & Aldrich, 1991). Enhancing network members' systematic capacity to access and make use of valuable complementary knowledge, resources, and skills possessed by other members—our findings suggest—is how open-system orchestration supports these firms' own search for business opportunities.

In the previous section, we illustrated four orchestration processes that helped WT perform this function, and highlighted how these processes influenced the search activities of network members by diffusing assumptions of mutual trustworthiness among them, by enhancing their self-awareness, and by promoting positive emotional experiences required to energize their search efforts. We now articulate a theoretical explanation for how these processes influence these shared cognitive and emotional micro-foundations of members' sensing capabilities.

Building collaborative engagement and diffusing assumptions of mutual trustworthiness. Research on closed-system orchestration has highlighted the importance of central planning in

designing the structure of the network and of carefully selecting members that might fill specific positions necessary to achieve a given collective innovation output (Dhanaraj & Parkhe, 2006). In contrast, open-system orchestration seeks to facilitate innovation in networks where there are limited possibilities to identify potential complementarities in advance and members interact in a dispersed and autonomous way. To accomplish that, orchestrators need to preserve a degree of openness, indeterminacy, and heterogeneity among members to ensure the flow of innovative ideas, while at the same time encouraging the willingness to support and share information confidently with other members to explore opportunities for collaboration. To this end, our study suggests, it is important that these orchestrators promote a collaborative attitude toward networking activities, as opposed to a transactional one (see Ferriani, Fonti, & Corrado, 2013). Building collaborative engagement is important because it helps diffuse assumptions of mutual trustworthiness among participants. It does so to the extent that a majority of members complies with social norms and views the network as a community of potential collaborators, rather than, as in trade fairs, a mere opportunity to meet potential clients. Assumptions of mutual trustworthiness, in turn, motivate network members to lower relational barriers (see Das & Teng, 1998) and to share knowledge and information with others more freely (see Kane, 2010), which is essential for the discovery of valuable complementarities (Dew, 2009) within an open and diverse network.

In the previous section, we showed how WT attempted to do so—in preparation for the national event—by discussing the terms of participation with prospective members, by framing the expected interaction between them as co-operative rather than commercial, and by creating several associative activities during the year to build a sense of community among members. These findings resonate with research on other forms of open-system orchestrators that highlight the importance of promoting trust to encourage collaboration among network members. For instance, Berkes (2009) argues that regional agencies managing industrial clusters need to conduct activities that build trust as a prelude to cooperative relationships (see also Hanssen-Bauer & Snow, 1996). Arikan and Schilling also note that business associations "play a highly important role in strengthening/enforcing [. . .] trust and institutional norms of cooperation that create a logic of mutualism in exchange relationships" (Arikan & Schilling, 2011: 788).

Facilitating members' introspection and encouraging the exploration of complementarities to enhance their self-awareness. Research on closed-system orchestration shows that hub firms shoulder the responsibility to define and coordinate roles, expectations, and the contribution of each network member to the collective innovation process (Dhanaraj & Parkhe, 2006; Nambisan & Baron, 2012). In contrast, open-system orchestrators need to manage the network with a lighter touch, in order to preserve the spontaneity required to recognize valuable opportunities through the flexible recombination of dispersed knowledge (Dew et al., 2004).

While the first orchestration process that we discussed encourages knowledge sharing without forcing or channeling interaction, the other two processes help members take advantage of opportunities for interaction (e.g., networking events) by heightening their understanding of their own search goals and of the resources and skills that they can offer to prospective partners. In turn, as Figure 3 shows, this enhanced self-awareness supports search activities by augmenting members' capacity to notice opportunities for collaboration with other network members based on complementary resources or skills.

The first of these two processes—facilitating members' introspection—provides network members with occasions to reflect critically on "who they are, what they know, and whom they know" (Sarasvathy, 2001: 250). Entrepreneurship scholars argue that heightened awareness of one's aspirations and available resources broadens the range of opportunities to put these resources to use that entrepreneurs will consider before selecting a course of action (Sarasvathy, 2001). Similarly, research on dynamic capabilities suggests that a heightened understanding of one's purpose, resources, and market needs is important for effective search (Helfat et al., 2007) and that a process of self-conscious inquiry (Danneels, 2011) is important to capture opportunities arising from a constantly changing environment (see also Schreyögg & Kliesch-Eberl, 2007).

Other studies have described similar occasions for entrepreneurs to engage in critical reflection and have noted the importance of these "strategic spaces" to periodically challenge and revise assumptions regarding one's resources and motivation to re-direct opportunity search (Jones, Macpherson, & Thorpe, 2010). In these circumstances, external

trusted advisors, such as those provided by WT to their members, can support self-reflection by structuring the process and questioning one's beliefs (Strike & Rerup, 2016).

At B2BMatch, supporting members' self-reflection also allowed WT to gain more fine-grained information regarding each participant. The orchestrator then used this information to encourage and facilitate interactions between members so that they could benefit from mutual exposure and knowledge exchanges. WT did so by organizing the exhibition areas during the events in a way that exposed members to others possessing matching resources and skills (to encourage comparison and further self-reflection) or complementary ones (to encourage joint endeavors). It used referrals, instead, to highlight potential opportunities for inter-sectoral collaborations (e.g., technology transfers), thereby enhancing members' search scope by encouraging them to consider complementary resources outside their usual search space (Vissa, 2012), while simultaneously sharpening their understanding of how they could put their assets to new uses.

Other types of open-system orchestrators have been shown to offer similar supporting activities. Berkes (2009: 1700), for instance, argues that regional agencies can improve the effectiveness of co-management in industrial clusters by helping actors reflect through workshops that create "an ideal space about questioning assumptions." Bergek and Norrman (2008) describe how a typical business incubation model also includes a mix of coaching, counseling, and training activities to sharpen incubatees' business ideas and plans. Co-location in an incubator center, Rice (2002) also observes, facilitates exchanges between incubatees and the matching of complementary skills and resources.

Fostering dispersed collaboration to promote positive emotional experiences. Closed-system orchestrators set collective innovation goals that tend to diverge partly from other members' business priorities outside the network (Nambisan & Baron, 2012). Thus, they need to find ways—typically an appropriate portion of innovation value—to incentivize network members to participate actively in the collective goal (Dhanaraj & Parkhe, 2006; Nambisan & Sawhney, 2011). In contrast, open-system orchestrators achieve their goals as they support member firms in their own entrepreneurial efforts. Designing an incentive system to direct behavior, therefore, is less important for this type of orchestrator, because network members usually operate in a trust-rich context and are self-motivated to pursue their own entrepreneurial opportunities. Instead—our findings suggest—it is important that open-system orchestration ensures that network members partake in a pleasant social atmosphere and feel energized while interacting, so that they can experience positive emotions that boost (or do not dampen) their entrepreneurial drive.

The importance of positive emotions to support the search for new opportunities is well known in entrepreneurship and dynamic capability research (Nambisan & Baron, 2012). Baron (2008), for instance, argues that positive affect impacts opportunity recognition because it enhances creativity, alertness to external stimuli, and the eagerness and energy to explore new opportunities. Hodgkinson and Healey (2011: 1506) similarly argue that "building positive affect around opportunities and threats" is important to sensing capabilities because it "boosts responsiveness to events by broadening the scope of attention, cognition, and action repertoires" (see also Helfat & Peteraf, 2015).

Fostering positive affect to encourage search and collaboration was indeed important to WT. Partly, they did this by carefully monitoring free-riding behavior among participants in B2BMatch, which informants spontaneously mentioned as a source of frustration, disappointment, and occasionally disengagement. In this respect, our findings suggest that both closed-system and open-system orchestrators need to monitor free-riding. However, the former do so by contractually ensuring the distribution of the value created by the collective participation to the innovation flow (Dhanaraj & Parkhe, 2006); the latter do so by informally monitoring the respect for pre-agreed, collaborative social norms to protect a sense of mutual trustworthiness and preserve the positive energy of network interactions.

WT also actively attempted to mitigate the negative feelings of anxiety and apprehension that inhibited the willingness of some participants to network with others. In part, as presented earlier, they did so by staging events in ways that downplayed size and status differences among participants—therefore lowering barriers to interaction that might arise from perceived social dissimilarities (Vissa, 2011). In part, during these events, they gently prompted more reluctant members to engage with other participants or introduced them personally until they gained sufficient confidence to do so independently.

Research suggests that preserving positive affect to facilitate collaboration is not unique to our case but has also been observed in other open-system

orchestrators. For instance, Wincent, Thorgren, and Anokhin (2013) show how, in government-support networks, mitigating free riding through effective board monitoring is important to promote feelings of trust, collective identification, and cooperation. Maennig and Ölschläger (2011: 442) also find that business associations and chambers of commerce can strengthen innovation in regional clusters by strengthening social capital to provide "emotional support."

Linking orchestration processes to dynamic capabilities: Enhanced search and experiential learning. In the previous paragraphs, we articulated four processes through which open-system orchestrators help network members identify entrepreneurial opportunities through the combination of complementary resources and skills. From a cognitive standpoint, these processes sharpen members' capacity to collect and process knowledge and information (regarding their own or others' resources and skills) based on which they can explore complementarities with potential partners. From an emotional standpoint, these processes reduce negative feelings and energize interaction among members thus boosting their drive to search for additional information and their willingness to work collaboratively with others.

Our observations, however, indicate that the benefits of these orchestration processes are not limited to supporting search activities at social events, but extend to an experiential form of learning that is central to the development of dynamic capabilities (Zollo & Winter, 2002). By creating a favorable context based on mutual trust and positive affect and by promoting members' self-awareness, these processes stimulate more intense networking efforts thus expanding possibilities for positive matches. At B2BMatch, these benefits were reflected in an average number of meetings per event that informants considered extraordinary—if compared to other similar experiences—and in the high number of these meetings that they deemed useful and leading to possible collaborations (see footnote 6). Over time, repeated engagement in these activities, intensified by a growing realization regarding their benefits—our observations suggest—may have long-lasting effects on network members' sensing capabilities by offering multiple opportunities to acquire the "experiential" type of knowledge upon which capabilities rest (Zollo & Winter, 2002).

In our study, we collected exploratory evidence of two main ways in which experiential learning manifested. Firstly, it resulted in a strengthened capacity, reported by informants, to contribute to and take advantage of the support of the orchestrator described above, with the results of becoming less reliant on it in subsequent years. Allocating more time to the preparation of the event enabled them to engage more effectively in introspective reflection. Participating with a larger team of people enabled them to draw on an ampler range of skills and knowledge when assessing potential complementarities. Embracing a more collaborative attitude helped them benefit from interactions and avoid being shunned by other members. This observation is theoretically important because it points to the deliberate investment (of time, attention, resources, etc.; see Zollo & Winter, 2002) that is required from individual network members in order for the orchestration processes to display their positive effects at the collective level. We return to this observation later, when discussing the co-constructed nature of the resulting sensing capabilities.

Secondly, repeated exposure to the four orchestration processes articulated earlier—and committed engagement in terms of the behavior that they encouraged—resulted in improvements in the capacity of network members to search for opportunities even outside the favorable context offered by the orchestrator, when liaising with other potential partners outside the network. In our exploratory data, this learning was reflected, for instance, in the fact that some participants developed a more collaborative attitude toward networking even outside B2BMatch (resulting from the realization of the potential benefits of such an approach) whereas others started using a more systematic approach to collect knowledge and information regarding potential partners. This observation is theoretically important because it shows that open-system orchestration processes can enable more experienced and engaged network members to extend the relational co-construction and exercise of sensing capabilities outside the boundaries of the network.

WT attempted to facilitate experiential learning because it conceived B2BMatch as an opportunity to offer long-lasting effects through training and education, rather than a simple matchmaking event with mainly short-term objectives. Research shows that other open-system orchestrators share a similar intent to support members' learning (Powell et al., 1996). Hanssen-Bauer and Snow's (1996: 418) study of a regional network organization, for instance, notes that its primary contribution was to "act as a facilitator of learning and change within member

companies." Similarly, Berkes (2009) shows how important it is, for regional agencies, to support collaborative learning among members of the local industrial clusters.

Implications for Research on Network Orchestration

Our findings suggest that current theories of orchestration, based on the analysis of closed-system orchestrators (e.g., Dhanaraj & Parkhe, 2006; Nambisan & Sawhney, 2011), are ill-suited to explaining how innovation can be facilitated in more dispersed entrepreneurial networks. Whereas closed-system orchestration relies on efficiency-oriented network design and management processes (Dhanaraj & Parkhe, 2006), our analysis indicates that open-system orchestration is more akin to building loosely coupled communities of actors, rather than designing and enforcing a set of contractual relationships. Its core processes are aimed at creating contextual conditions that facilitate spontaneous knowledge sharing and the discovery of complementarities, rather than centrally coordinating flows of knowledge and resources among members. Interpreting open-system orchestration only in terms of brokering a network of distributed knowledge and skills, therefore—our observations suggest—would underestimate the important function that these orchestrators perform by carefully managing the social context within which dispersed, spontaneous interaction among members occurs.

This different function—our findings reveal—creates paradoxical tensions (Smith & Lewis, 2011) between the need for the orchestrator to preserve freedom of interaction among members (to enable the recombination of dispersed information and resources of which the orchestrator has only partial and imperfect knowledge) and the concurrent need to use available knowledge to encourage and even softly direct the exploration of potential complementarities. The four processes that we described help open-system orchestrators attend to these paradoxical tensions by shaping the cognitive and emotional foundations of interaction among members. As a result of these processes, the innovation network that we examined was simultaneously business-oriented, because of the commercial nature of the opportunities that were explored, yet community-oriented, because of the collaborative spirit that characterized interaction. It was diverse in the wide variety of knowledge and skills possessed by participants, yet homogenous in the common ethos and shared rules. It was open to applicants of all sizes and from all industries, yet closed to the extent that participants were vetted to strengthen a shared collaborative intent, and violation of collaborative social norms was frowned upon. It was designed to promote serendipitous encounters, while the orchestrator simultaneously prodded and gently directed search activities through coaching, referrals, and on-site advice. It left ample freedom for firms to engage in unrestricted search activities, while ensuring a relatively close monitoring of interactions to minimize free-riding and preserve a positive atmosphere.

Our findings also draw attention to the important role that open-system orchestrators may play in helping members sharpen their "entrepreneurial identity" (Navis & Glynn, 2011)—that is, their understanding of what makes them and their ventures unique and distinctive—to support the exploration of opportunities for collaboration. Closed-system orchestration requires the central actor to assess the fit between the distinctive capabilities and skills of prospective members and the requirements of different positions within a coordinated innovation system (Levén et al., 2014; Paquin & Howard-Grenville, 2013). Members' own goals, in this respect, should be subordinated to collective ones, to avoid the risk of derailing the collective innovation effort if they diverge (Nambisan & Baron, 2012).

In contrast, due to the essentially dispersed and emergent nature of innovation in their networks—our findings suggest—open-system orchestrators need to play a subtler role, by helping members clarify their understanding of own goals and distinctive resources, to improve their capacity to discern matching opportunities or complementary resources with other members. Open-system orchestration, then, essentially decentralizes the assessment of fit with the rest of the network to individual members themselves (who are not bound to interact with other members by contractual enforcement, but are free to do so to the extent that they find it beneficial), while concurrently assisting them as they do so. The relatively open and fluid nature of the network is reflected in the emergent nature of this self-managed assessment, as introspection and interaction induce members to gradually revisit and refine their entrepreneurial identity, and redirect their search accordingly.

Finally, our findings extend past research because they suggest that orchestrators act not only as facilitators of interaction spaces (Paquin & Howard-Grenville, 2013) but also as "temporal brokers"

(Reinecke & Ansari, 2015) with responsibility for managing the timing of their initiatives in synchrony with the pace of firms' search activities. In their recent work, Reinecke and Ansari (2015: 641) highlighted the importance of organizations engaging in temporal brokerage to address paradoxical tensions between "competing for the present (exploitation) and preparing for the future (exploration)." Temporal brokerage, these authors argue, allows organizations to juggle current day-to-day activities with the need to adapt to changing environmental demands by enabling organizational reflexivity and an appreciation of mutual interdependencies with other parties. Building on a distinction introduced by Bucher and Langley (2016), we can interpret WT's organization of the spatial structures of B2BMatch as including both reflective spaces, to stimulate sensemaking and introspection (Strike & Rerup, 2016), and experimental spaces, to energize interaction and consideration for mutual complementarities among diverse members. As a temporal broker, WT also carefully managed timing norms (Ancona, Goodman, Lawrence, & Tushman, 2001; Reinmoeller & Chong, 2002) by governing members' participation in the initiative in a way that synchronized its support with firms' sensing activities. This occurred through the year-round program, punctuated with several dispersed opportunities for interfirm interaction within an underlying order provided by the planning schedule for the annual event.

Implications for Research on Dynamic Capabilities

By beginning to unpack network orchestration as a relational source of firms' capacity to sense new opportunities, we contribute theoretically to a broader relational lens on dynamic capabilities (Dyer & Singh, 1998). Past research has conceptualized the locus of dynamic capabilities as residing primarily inside the firm, underpinned by idiosyncratic, non-transferable processes based on learning and experience (Eisenhardt & Martin, 2000; Helfat et al., 2007). This inward-looking lens has implicitly assumed that firms are "atomistic" and would develop and exercise these capabilities for their own benefit and independently of others (McEvily & Zaheer, 1999). Accordingly, scholars have located the source of capabilities in internal structures such as specialized teams (Martin, 2011), corporate venturing (Keil, 2004), and executive-led functions dedicated to systematically exploring new opportunities (Harreld, O'Reilly, & Tushman, 2007), managing alliance partners (Dyer & Singh, 1998), or selecting and integrating acquisition targets (Zollo & Singh, 2004).

Teece (2012), however, has observed recently that maintaining full-scale dynamic capabilities inside the organization can be very expensive, and speculated that many firms may be compelled to rely, at least in part, on external sources of these capabilities. Absence of research about this important issue—he concluded—made it "an obvious candidate for future research" (Teece, 2012: 1397). Our findings offer empirical backing and theoretical elaboration for this speculation by showing how dynamic capabilities can be co-created through ongoing interaction between orchestrators and members of an innovation network.

Our observations shift attention from structural properties of an innovation network as a system of ties, to the examination of the dynamic unfolding of relations. They indicate that network orchestrators do not act merely as passive knowledge funnels (Podolny, 2001), but may play an indispensable role in supporting the ongoing recombination of members' knowledge to explore new opportunities. Our work thus changes our understanding of open-system orchestrators from mere providers of training for specialized functional capabilities (Amezcua et al., 2013; Dutt et al., 2016) to potential external sources of dynamic capabilities. Organizations such as accelerators, business incubators, national and regional agencies, and venture associations can use open-system orchestration to support members' capacity to conduct semi-routinized yet purposeful search activities without any "long-term commitment to specialized resources" (Winter, 2003: 993). As such, open-system orchestration offers a relational solution for systematic opportunity sensing that lies between the internal mechanisms (e.g., Harreld et al., 2007; Keil, 2004) and the ad-hoc approaches (Bernstein & Barrett, 2011; Winter, 2003) predominantly reported in the literature.

By arguing that dynamic capabilities can be co-created we refer to the fact that, for the orchestration processes to display their effects on members' sensing capabilities, the commitment and engagement of all parties is required. Neither the orchestrator, nor network members, alone, could produce these effects. Whereas the efforts of the orchestrators certainly set a favorable stage for dispersed innovation to occur, many participants in B2BMatch reported that they enjoyed the full benefits of the event only when they prepared adequately and deliberately committed resources and attention to it. Despite the support of the orchestrator, ultimately the success of

B2BMatch depended also on the collective engagement of hundreds of members in building and preserving the enthusiastic, trustful, collaborative climate that energized and amplified their individual capacity to identify new opportunities. The resulting capabilities, therefore, had relational properties that were "irreducible to the actors involved" (Crossley, 2011: 1–2) and whose microfoundations were "shared" between the actors themselves rather than restricted by the boundaries of each firm.

In this respect, our investigation encourages a rethinking of dynamic capabilities from a structural property that organizations "have" to an emerging outcome that is "co-created" relationally, partly inside and partly outside the organization. This observation resonates with the central idea of a relational approach to sociology (Crossley, 2011; Emirbayer, 1997) that, to understand social phenomena, scholars need to shift their attention away from entities and their individual properties, and investigate relationships and how they unfold dynamically (Mutch, Delbridge, & Ventresca, 2006). In this respect, our findings highlight the influence of ongoing, unfolding relationships—between the orchestrator and individual network members, and among members themselves—on members' reflexive awareness of own goals and resources, and of the relational context within which they are embedded, which scholars consider essential to detect new opportunities (Suddaby, Bruton, & Si, 2015). They show how this reflexive ability can be enhanced through managed associative networks, resulting in a stronger capacity to generate new ideas and recognize opportunities (Donati, 2010). By doing so, our findings bring managerial intentionality back to center stage in dynamic capability theory. However, they recast this intentionality in a relational perspective that departs from the methodological individualism that characterized previous work, and recognizes instead that "people produc[e] particular effects in the world and on each other through their relational connections and joint actions" (Burkitt, 2016: 323).

Scholars have long noted that successfully exercising dynamic capabilities requires firms to "have some implicit aim, even if not fully planned" (Helfat et al., 2007: 5). A certain degree of intentionality has always been central in differentiating dynamic capabilities from operational activities, accident, or luck (Winter, 2003). However, recent studies have side-lined managerial intentionality as conceptually redundant and empirically unverifiable (Barreto, 2010), leading Vergne and Durand (2011) to call for further theoretical elaboration and empirical validation. Our work answers this call by highlighting how the managerial intentionality that underpins dynamic capabilities does not pre-exist their exercise (as assumed by traditional work informed by an economic perspective). In line with a relational perspective on agency (Emirbayer, 1997), instead, our findings suggest that intentionality partly emerges in the interaction between the orchestrator and network members (and among members themselves), as members' understanding of self and goals is transformed by the relation (see Abbott, 1996). Open-system orchestration, in this respect, enhances members' sensing activities as ongoing interactions help them streamline, focus, and occasionally re-orient their search purpose, and orchestration processes encourage them to engage proactively in search activities, while at the same time remaining open to serendipitous opportunities.

CONCLUSIONS

Our study examined a type of orchestration common to a broad range of organizations, such as business incubators, regional agencies, and venture associations, that facilitate dispersed entrepreneurial efforts among firms in an innovation network. Our observations extend our theoretical understanding of these organizations and, in particular, of the orchestrating role that they play. We suggest that the benefits of the business support initiatives that they run depend on the extent to which orchestrators and network members invest in the co-creation of an interactional context that enhances members' search activities. Whereas open-system organizations shoulder the responsibility to orchestrate the network through the processes that we articulated—our findings indicate—firms need to engage with supporting initiatives thoughtfully and systematically, as the resulting capabilities are relationally constructed.

We conducted our research in a highly successful, larger-than-average matchmaking initiative. The selection of such an exceptional and unconventional setting granted us unique insights into the effective performance of open-system orchestration (Bamberger & Pratt, 2010). At the same time, it requires us to acknowledge two important boundary conditions. First, most participants to B2BMatch were small and medium enterprises, where responsibility for strategic decisions about business development, purchasing, sales, etc., was typically

concentrated in a small team, and owner-managers would frequently be involved in the process directly. The open-system orchestration of large organizations may pose additional challenges related to the higher dispersion of responsibility for these activities in the organization, and to the negative impact of the turnover of individuals in key positions on relationship building and experiential learning. Second, WT engaged predominantly in open-system orchestration. It is possible that, when trying to combine both types of orchestration (see Dyer & Nobeoka, 2000), the processes that we have described may blend or interfere with those associated with closed-system orchestration. By selecting and examining orchestrators engaged in both types, future research may explore in more depth the extent to which the related processes are compatible or can be made so.

Future research may also extend our efforts to examine the implications of open-system orchestration on the design of new business models (e.g., Baden-Fuller & Haefliger, 2013) and the development of effective leadership (e.g., Nonaka & Takeuchi, 2011), which Teece (2010) and Martin (2011) explicitly identified as key micro-foundations of, respectively, seizing and reconfiguring dynamic capabilities. It could be argued, for instance, that firms that invest considerably in searching for a broad range of new opportunities may lack the focus and coordination required to successfully reconfigure their activities. Further investigation regarding how these types of organizations help firms address tensions between different classes of dynamic capabilities is needed to advance our understanding of their relational foundations.

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