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Open Service Innovation: The Role of Intermediary Capabilities

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Abstract

This study examines how intermediaries, in general, and those with digital service platforms specifically, engage with clients to help them innovate their services within their service ecosystem. Based on an embedded, longitudinal case study, the results reveal the cumulative development and deployment of technological, marketing, and co-creation capabilities by intermediaries, and how these capabilities allow intermediaries to engage with clients, so as to enable clients' open service innovation despite their internal challenges. In turn, this article extends theory on service innovation by clarifying the role and function of intermediaries in service ecosystems in enabling clients leverage open service innovation. Second, this study contributes to resource-based scholarship by clarifying how these three sets of capabilities and their micro-foundations relate to each other. Despite the obvious importance of technological capabilities, online intermediaries are more than just 'virtual' service platform providers. The intermediary's technological and marketing capabilities assist clients deal with project-related and organizational challenges to open service innovation. Acting as a higher-order capability, co-creation capabilities—through shaping marketing and technological capabilities over time and also through conditioning their deployment—improve the proficiency of these capabilities. The findings advance insights on the agential role of the intermediary's co-creation capabilities, purposefully developed and deployed to foster client-engagement, and thus support service organizations in leveraging open service innovation.

Practitioner Points

- Along with technological and marketing capabilities, professional service firms ought to hone co-creation capabilities in assisting clients deal with internal innovation barriers.
- In order to allow service firms better leverage open service innovation, intermediaries ought to provide professional services that go beyond offering one-off technology-focused inputs to those that actively support, involve and engage clients.
- Managers of service firms can benefit from sourcing professional services to bolster their service innovation efforts; specifically, when facing internal project-related or organizational barriers.
- Managers of service firms can better succeed in their open service innovation efforts from knowing that, while engaging an intermediary with an appropriate 'virtual' technology platform is essential, selecting one that has the capabilities to provide the needed professional services to effectively interact is equally crucial.

Introduction

Considerable research has discussed the importance of leveraging external service ecosystems to drive service innovation (e.g., Marcos-Cuevas et al., 2016; Lusch and Nambisan, 2015). Firms benefit from accessing external resources such as knowledge (e.g., Rusanen et al., 2014), and interfirm collaboration has positive innovation implications (e.g., Schleimer and Faems, 2016). At the same time, firms engaging in these so-called open innovation (OI) practices by transcending firm boundaries face internal constraints, such as the ‘not-invented-here’ syndrome and lack of management support (Antons and Piller, 2015). Collaboration between multiple stakeholders in innovation increases complexity (Freeman, 1984; Greer et al., 2016). This complexity is magnified by greater sophistication of customer requirements, faster development cycles, and advanced technologies; growing the prevalence of intermediaries in service innovation to involve stakeholders within an ecosystem (Lusch and Nambisan, 2015). One particular category, OI intermediaries, provide their clients with online platforms that allow service firms to co-create innovations with online communities (Mele and Russo-Spena, 2015; Sawhney et al., 2003; Verona et al., 2006). OI intermediaries form part of the service ecosystem of their clients and function as ‘virtual knowledge brokers’ (VeronaPrandelli and Sawhney, 2006) to help clients succeed in OI, and thus overcome the ‘local search bias’ (Jeppesen and Lakhani, 2010; VeronaPrandelli and Sawhney, 2006) to tap into new and previously disconnected sources of knowledge (e.g., Chesbrough, 2003; Howells, 2006).

Consider HYVE, an OI intermediary that enables its clients from industries as diverse as automobile, FMCG, retail, and healthcare to co-create innovations with a community of their consumers and partners. HYVE ran the BMW Co-creation Lab, an online platform allowing BMW to crowdsource innovative ideas from automobile users and enthusiasts, to feed into

various internal innovation processes, ranging from designing improved car interiors to launching new service-based business models. Similarly, pharmaceutical company Abbvie uses HYVE to host its Co-create Healthcare Forum for co-developing many patient-centric hospital service innovations with patients, caregivers, and healthcare professionals. Thus, HYVE helps clients integrate market-based knowledge through online communities into their OI processes. HYVE provides its clients with infrastructure, that is, a digital platform, tools, and services to help them become skilled in running community projects to integrate user-based knowledge into their OI process (Diener and Piller, 2013; VeronaPrandelli and Sawhney, 2006). The demand for such OI intermediary services has been growing and will continue to do so (Diener and Piller, 2013).

Despite valuable insights into the importance of co-creation in service innovation and the existence of online OI intermediaries, an important gap in our knowledge remains: while previous studies have focused on *what* these online intermediaries do (Howells, 2006; Lopez-Vega, 2009), only limited research has explicitly investigated *how* they enable clients to leverage their own OI practices (Lauritzen, 2017; Sieg et al., 2010) to innovate *services* (rather than products), and thus facilitate ‘open service innovation’ (Chesbrough, 2011a). Although OI can aid service innovation (Randhawa et al., 2016), how intermediaries engage with clients to help them leverage OI in innovating services remains underexplored. This is important, however, because most clients need more than just access to a digital platform for effective transfer of knowledge from their customer communities (Randhawa et al., 2017). Besides providing the technology, intermediaries need to engage with and assist clients overcome internal barriers to enable this transfer and enhance the clients’ capacity to leverage open service innovation.

Consequently, the following research question underlies this study: Which capabilities do OI intermediaries deploy, and how, to enable their clients to benefit from open service innovation with their customers? In answering this question, this article contributes to literature in three ways. First, it extends theory on service innovation viewed through a service-dominant (S-D) and co-creation lens (Ordanini and Parasuraman, 2010; Vargo and Lusch, 2004; Vargo and Lusch, 2016) by clarifying the function of innovation intermediaries in service ecosystems (Lusch and Nambisan, 2015; Randhawa et al., 2016). While research has stressed the relationships between beneficiaries (firm, customers, and suppliers) (Kindström et al., 2013; Lusch et al., 2010), this study clarifies the central, but important, function of OI intermediaries by identifying them as open service innovation enablers; a function that has been neglected in prior research (Ostrom et al., 2015; Lusch and Nambisan, 2015).

Second, this study contributes to the literature on OI by improving our understanding about the agential role of online intermediaries in facilitating clients leverage open service innovation in their service ecosystem (Mele and Russo-Spena, 2015). It advances insights into the role of the intermediary's co-creation capabilities (CCs), purposefully developed and deployed to support service firms in leveraging open service innovation. In doing so, it moves away from treating intermediaries simply as technological platform providers that focus on creating technological capabilities, and in drawing on S-D and co-creation thinking, it identifies and explains the crucial role these OI intermediaries play as professional service providers that develop capabilities to foster client-engagement in order to enable clients succeed in open service innovation. By doing so, this article also responds to calls in OI research to integrate service marketing to advance insights on the hitherto under-studied notion of open service innovation (Randhawa et al., 2016).

Third, this study extends knowledge about organizational capabilities required to realize co-creation (Wilden and Gudergan, 2017). Previous research has identified specific CCs (Karpen et al., 2012; Marcos-Cuevas et al., 2016). However, knowledge is limited about how these capabilities foster client-engagement through other organizational capabilities, such as marketing and technological capabilities (Morgan, 2012; Zhou and Wu, 2009), to co-create a professional service that, in the here emphasized context, supports a client's open service innovation. Given that it is "it is hard to tease out the [nature and] "origins" of [...] capabilities without reference to the historical and contextual factors" (Felin et al., 2012), this study also looks at the micro-foundations of co-creation, marketing, and technological capabilities, an area of growing interest in OI, strategy, and marketing research (e.g., Felin et al., 2015; Jonas et al., 2018). Following Felin et al. (2012), this research identifies specific micro-foundations of CCs in terms of processes and use of technology, a gap in current research (FelinFoss and Ployhart, 2015). Besides OI intermediaries, the findings are relevant to other professional service firms that need to interact closely with its clients to co-create value for and with clients. Limited previous research has specifically clarified the workings and nature of capabilities of professional service firms that foster effective engagement of clients. Specifically, the findings demonstrate that a client's open service innovation rests on the OI intermediary's CCs that, as architectural capabilities, condition its marketing and technological capabilities and, in turn, foster effective engagement with clients.

The article is structured as follows. After reviewing relevant literature on service innovation, OI, and OI intermediaries, co-creation and service-dominant thinking are integrated with OI and resource-based perspectives to derive a preliminary understanding of intermediary capabilities that enable clients carry out open service innovation. This prior research is then

confronted with the empirical context of an OI intermediary and 18 service-providing clients. Based on an embedded, longitudinal case study (Eisenhardt, 1989; Yin, 2003) that draws on rich longitudinal data, this study uncovers how the intermediary progressively developed and deployed capabilities to engage and support public service organizations (clients) in involving an online community of citizens (customers) to co-create innovative services.

Theoretical Background

Service Innovation and Open Innovation

Distributed innovation, referring to sourcing of innovation from outside the organization has been discussed in research on user innovation (Baldwin and Von Hippel, 2011; Von Hippel, 1986); OI (e.g., Chesbrough, 2003; West and Gallagher, 2006); community-based innovation (Dahlander and Frederiksen, 2012); and interfirm collaboration (Schleimer and Faems, 2016). OI and interfirm collaboration research is ultimately interested in how firms can commercially benefit from innovating with external stakeholders. User innovation and community-based innovation research, on the other hand, focuses on the user as the main stakeholder, investigating the conditions under which users share their innovations with each other and producers.

Research on service innovation using co-creation and service-dominant thinking (Lusch and Nambisan, 2015; Watson et al., 2018), highlights the importance of co-creation in service innovation (Perks et al., 2012), stressing the importance of service ecosystems (i.e., networks between relevant stakeholders such as a producer firm and its customers); service platforms (i.e., the venue for co-creation of innovation); and intermediaries (i.e., actors making nonobvious connections between ecosystem stakeholders) in driving the service innovation process (Lusch and Nambisan, 2015). Service platforms allow stakeholders in the ecosystem to become co-innovators (PerksGruber and Edvardsson, 2012). However, managing the many interactions to

drive service innovation is not an easy task, and many firms struggle to organize the collaborative processes within their service ecosystem and platforms (Ramaswamy and Gouillart, 2010). In the last decade, dedicated type of professional service firms termed intermediaries has emerged that specialize in helping organizations address this challenge by providing technological platforms and complementary services to facilitate this process (Howells, 2006; Lusch and Nambisan, 2015).

Value co-creation in general and service innovation are collaborative processes involving the focal firm and the active participation of one or more relevant stakeholders (Vargo et al., 2015). This makes service innovation complex, calling for a “rebundling of diverse resources that create novel resources that are beneficial [. . .] to some actors in a given context” (Lusch and Nambisan, 2015). Therefore, service innovation may require modifications in capabilities applied by service providers, customers and/or intermediaries (Ordanini and Parasuraman, 2011).

Despite collaboration with relevant stakeholders in the service ecosystem being critical for the co-creation of value and for service innovation (LuschVargo and Tanniru, 2010), research on service innovation in general, and service ecosystems in particular, has not integrated literature on OI, despite looking at the same phenomenon. Therefore, only limited research has explicitly investigated service innovation using an OI framework (Wilden et al., 2017), referred to as open service innovation (Chesbrough, 2011b). OI logic suggests that organizations benefit from developing innovations with external stakeholders such as suppliers and customers (e.g., Chesbrough, 2003; West and Gallagher, 2006) through capabilities in search and acquisition of external knowledge (e.g., Cassiman and Veugelers, 2006; Hughes and Wareham, 2010). A variety of mechanisms enable organizations to access and leverage external knowledge ranging from well-known inter-firm R&D alliances and technology partnerships (e.g., Seldon, 2011;

Vanhaverbeke et al., 2008) to more recent approaches that allow organizations to source from a large crowd of individuals in their innovation process (Afuah and Tucci, 2012; Howe, 2008).

Much of the existing research on OI, however, has focused on manufacturing and product-based organizations (Mina et al., 2014). This is surprising because given the high interactivity and collaborative processes involved in services, service firms have a lot to gain from OI, in particular by using online intermediaries to crowdsource from customer communities (Lauritzen, 2017; Verona et al., 2006). Chesbrough (2011a, 2011b) brought OI to the services realm by referring to the aforementioned as open service innovation, positing that organizations should apply service co-creation logic to innovation by collaborating with customers throughout the innovation process, and by partnering with other stakeholders to develop new solutions that focus on customer benefits rather than service features. However, studies explicitly advancing our understanding of OI in services are sparse (Randhawa et al., 2016).

Intermediaries as Professional Service (Platform) Providers in Open Service Innovation

As outlined, knowledge is limited about how organizations leverage OI to innovate services (Chesbrough, 2011a; Witell et al., 2015), and despite the importance of intermediaries in service-dominant thinking, we know even less about how intermediaries can support open service innovation in a service ecosystem (VeronaPrandelli and Sawhney, 2006). This is surprising given the high customer interactivity and collaborative processes involved in service innovation (Alam, 2002; KindströmKowalkowski and Sandberg, 2013), and how OI intermediaries can facilitate service innovation for their clients (e.g., Berry et al., 2006; den Hertog et al., 2010). OI intermediaries provide a variety of services to help clients design permeable organizational boundaries, connecting them to different knowledge sources via information scanning, gathering, and exchange (Diener and Piller, 2013; Howells, 2006; Lopez-Vega, 2009). From a conceptual

point of view, OI intermediaries belong to the general group of innovation intermediaries who have played a crucial part in the history of innovation management. Previous research has highlighted the role of intermediaries in facilitating external collaboration and knowledge exchange between entities, acting as an “agent or broker in [some] aspect of the innovation process between two or more parties” (Howells, 2006, p. 720). Innovation intermediaries have been referred to as third parties (Mantel and Rosegger, 1987), superstructure organizations (Lynn et al., 1996), brokers (Hargadon and Sutton, 1997), knowledge brokers (Hargadon, 1998), bridge builders (Lagnevik et al., 2010), boundary organizations (Guston, 2001), and innovation brokers (Klerkx et al., 2009).

Most literature has examined innovation intermediaries as enablers of innovation diffusion and technology transfer, and as ‘bridging institutions’ (Stankiewicz, 1995) to connect and influence relations, often at the level of innovation systems and networks (Howells, 2006). Little research has, however, investigated how these intermediaries support their clients’ (open) innovation process (Lauritzen, 2017). Related, non-OI studies have examined intermediaries as ‘knowledge brokers’ (Hargadon and Sutton, 1997), including product design companies and management consultants, that transfer knowledge from external entities to solve client problems. These knowledge brokers typically interact personally with clients through face-to-face meetings (Sutton and Kelley, 1997). Improvements in digital systems have provided new modes for intermediaries to facilitate (open) innovation for organizations (Chesbrough and Bogers, 2014; West et al., 2014). Thus, through the use of their online platforms, intermediaries implement OI to enable organizations engage an external voluntary ‘crowd’ of individuals, seeking ideas and solutions to feed into their innovation initiatives (Afuah and Tucci, 2012; Boudreau and Lakhani, 2009; Howe, 2006; Howe, 2008). ‘Crowdsourcing intermediaries’ (Zogaj et al., 2014), also

termed ‘virtual knowledge brokers’ (VeronaPrandelli and Sawhney, 2006) or ‘innomediaries’ (Prandelli et al., 2008; SawhneyPrandelli and Verona, 2003), extend the reach of clients to a large number of individuals, thus facilitating the integration of external knowledge into clients’ innovation process.

Altogether, the literature has shed light on the advantages of using innovation intermediaries for clients such as leveraging technical problem-solving expertise (Jeppesen and Lakhani, 2010), accessing external technology (Hargadon and Sutton, 1997), and reducing uncertainty in the innovation process (ZogajBretschneider and Leimeister, 2014). Some studies, in examining intermediaries in the context of service innovation, have stressed their importance as Knowledge Intensive Business Services (KIBS) in having long-lasting relationships with clients (Bessant and Rush, 1995; Howells, 2006), including in virtual settings (Verona et al., 2006). Yet, only few studies outline how intermediaries engage clients to support their innovation efforts in general, and their open service innovation efforts in particular (e.g., Howells, 2006; SiegWallin and Von Krogh, 2010). More specifically, despite their growing prevalence, how precisely intermediaries with digital platforms enable clients to crowdsource from online customer communities (Lauritzen, 2017; Zogaj et al., 2014) to innovate their services remains under-researched.

To summarize, there is limited understanding of OI in a service context (i.e., of open service innovation) and of OI capabilities: while firms start to professionalize internal processes to manage OI more effectively and efficiently, and focus on building their OI capabilities (Hughes and Wareham, 2010), such capabilities are in an embryonic stage (Gassmann et al., 2010) with little knowledge about challenges that firms face when seeking to leverage OI (SiegWallin and Von Krogh, 2010); furthermore, there is a lack of understanding concerning the

function of OI intermediaries in service ecosystems; and finally, there is a scarcity of research on the actual relationship between OI intermediaries and clients in facilitating clients' OI efforts, thus leading to a limited understanding of the capabilities these intermediaries develop and deploy to provide their services to clients so that they can effectively carry out open service innovation. Hence, while extant literature can explain *what* OI intermediaries do, it fails to explain *how* intermediaries enable clients in leveraging open service innovation with their relevant customer communities.

Research Framework: Intermediary Capabilities

The aim of this article is to address the above-mentioned research gaps by investigating how an online OI intermediary as a professional service provider enables its clients to carry out their own open service innovation. It takes a resource-based perspective and draw on the S-D logic of service innovation and co-creation (Ordanini and Parasuraman, 2010; Vargo and Lusch, 2004; Vargo and Lusch, 2016), and in particular the notion of the CCs (Karpen et al., 2012; Prahalad and Ramaswamy, 2004), as well as OI. The study focuses on investigating the micro-foundations of relevant capabilities that intermediaries require to assist their clients co-create service innovations with their customers, and to support clients in implementing open service innovation.

In S-D logic, service itself is the “process of application of specialized competences (knowledge and skills) through deeds, processes, and performances for the benefit of another entity or the entity itself” (Vargo and Lusch 2004, p. 2). Accordingly, OI intermediaries develop and deploy relevant capabilities (i.e., competences and knowledge) to provide professional services aimed at enabling open service innovation for their clients. This competence application is in turn co-created with clients in the service ecosystem (Lusch and Vargo, 2006). Previous

research has provided valuable, although limited, insights into organizational capabilities for enabling co-creation with clients (Wilden et al., 2017), and underlying micro-foundations (e.g., FelinFoss and Ployhart, 2015; Jonas, Boha, Sörhammar and Moeslein, 2018). Further, the framework identifies marketing and technological capabilities, which represent the capacity to perform a set of ongoing, routine marketing and technology tasks “using more or less the same techniques on the same scale to support existing products and services for the same customer population” (Helfat and Winter, 2011, p.1244). Thus, these two capabilities support the firm to run their core operations (in our case the provision of a technological platform to enable clients’ open service innovation) (Amit and Schoemaker, 1993; Helfat and Peteraf, 2003) and allow the firm to make a living in the present (Winter, 2003).

CCs are akin to architectural capabilities as they represent the open service innovation intermediary’s routines for integrating organizational routines (e.g., Galunic and Rodan, 1998; Henderson and Clark, 1990); in the present study they condition the intermediary’s marketing capabilities that foster the effective working with clients and technological capabilities that provide the online platform. Distinctively, CCs “facilitate and enhance mutually beneficial interaction and resource integration processes with individual actors within the service system” (Karpen et al., 2015, p. 91). CCs thus allow the intermediary to collaborate closely with its clients and align operational (also called lower-order or functional) capabilities with changing customer requirements and technological advances (Karpen et al., 2015). In line with previous studies (e.g., Karpen, Bove, Lukas and Zyphur, 2015; Wilden and Gudergan, 2017), this study draws on this conceptualization and investigates not only whether these capabilities apply to OI intermediaries, but as a contribution to wider strategy knowledge also uncover the mechanisms

through which professional service providers deploy capabilities to enable clients co-create service innovation.

Research Design and Methodology

To investigate the underlying research question, an embedded, longitudinal case study of an OI intermediary called Nexus and 18 of its public service-providing clients was used. This approach allows to: (1) build theory through a deeper understanding of a contemporary and underexplored phenomena (Eisenhardt and Graebner, 2007; Siggelkow, 2007); and (2) study the phenomenon in its natural setting (Yin, 1994).

Case setting

The case was selected for theoretical reasons (Eisenhardt and Graebner, 2007; Silverman, 2006): Nexus is an OI intermediary that specializes in providing crowdsourcing services to its clients to help them engage online communities of citizens (customers) to support open service innovation. To do so, Nexus offers an integrated service offering of a digital engagement platform with a range of functionalities, online tools and analytical reporting, as well as client services including technical support, training and mentoring. Established in 2007, Nexus was the first to provide crowdsourcing services to Australian public service organizations, is the largest provider in the country. With a presence also in North America, UK, New Zealand, and India, Nexus has worked with over 500 clients globally. The usefulness of such an ‘ideal type’ case has been shown in previous research on innovation intermediaries (Hargadon and Sutton, 1997), and the organizational implementation of OI via online communities (Langner and Seidel, 2015). Our case is appropriate for examining how intermediaries enable open service innovation in light of the recent influx of OI in the public sector, which has led to the rise of so-called public service ecosystems (Fishenden and Thompson, 2013). Crowdsourcing represents a transformation in the

way public sector organizations leverage service innovation through actors in their service ecosystem. These organizations have to overcome internal barriers in shifting from traditional bureaucratic innovation practices to open collaborative community co-creation (Dixon, 2010; Lee et al., 2012). This accentuates the role of Nexus’ capabilities in enabling clients to overcome these barriers and leverage open service innovation, making this setting pertinent to address our research question (Eisenhardt, 1989; Yin, 2003).

Data collection and Analysis

Data was gathered over a two-year period from a variety of sources: (1) 50 semi-structured interviews (32 with intermediary representatives and 18 with clients); (2) observation of past and ongoing online service innovation projects; (3) archival data including corporate documents and press releases; and (4) follow-up e-mails and informal conversations (Table 1).

Insert Table 1 here

Nexus managers that directly dealt with the clients on a day-to-day basis (e.g., client engagement manager, sales manager) were interviewed, as well as those who engaged with clients on a more strategic level including two co-founders who are still at the helm (Chief Technology Officer and Chief Practice Manager). Three interviewed managers were previously clients of Nexus—this allowed for rich perspectives on the Nexus’ interventions and related client responses. Furthermore, following an embedded case study design, we interviewed current community engagement managers of clients. Theoretical sampling was used to select the clients. Out of a total database of 213 public sector clients, 94 belonging to local government services were identified, to ensure all clients in our sample offered the same type of services. From those, 18 clients were selected, maximizing variation along when they commenced projects, online community size, total

projects implemented, and online engagement behavior (High, Medium or Low—as specified by Nexus and further validated by our own observations of client projects).

Interviewing informants from both the intermediary and clients, along with the use of secondary data, helped include different perspectives and complementary information on the same events (Glaser and Strauss, 1967), enhancing the validity of our findings (Yin, 2003). Based on this, relationships between challenges faced by clients and Nexus’s capabilities in overcoming those challenges to facilitate open service innovation were uncovered. All 50 interviews were conducted as guided conversations (Yin, 2003). Information on open service innovation-related processes were gathered by: (1) requesting, in an open-ended, nondirective manner, that interviewees describe the online community activities in general; and (2) asking about the critical success factors in the open service innovation journeys of clients, their internal challenges in implementing projects, and how Nexus helped clients deal with these challenges (see also Online Appendix A). Interviews lasted an average of 1 hour, and were recorded and transcribed.

The data was collected and analyzed over three periods (Online Appendix B). We started with interviews with 8 Nexus executives, and began initial analysis once these interviews were conducted, looking for initial patterns in the client engagement strategies and practices of the intermediary. To begin condensing the data, and move toward an in-depth within-case analysis, a narrative history of the development of intermediary capabilities was created based on Nexus interview transcripts and archival data (e.g., website, blog, press releases, media reports), which was continued in the next period. In this period, online service innovation projects of clients were also observed and client case studies on Nexus’ website were examined. In the second period, we conducted and analyzed 11 follow-up interviews with Nexus executives and 18 interviews with clients. Emergent patterns from these were compared with patterns from the initial data analysis.

A key step in the analysis was to create an event listing and a critical incident chart (Miles and Huberman 1994) deriving the sequence in which capabilities were developed. This helped decipher phases in Nexus' capability deployment, which are described in the Results section. The analysis of client data followed the embedded, longitudinal case analysis logic (Eisenhardt, 1989), with each case confirming or disconfirming the inferences drawn from the others, as described in the next paragraph. The findings were triangulated with online observations of projects of the interviewed clients, internal documents publicly available data, thereby modifying patterns as they developed. For example, each client interviewee discussed the senior leadership buy-in and their approach to conducting open service innovation projects. These accounts were supplemented with the clients' community engagement policy documents, which provide the stated senior leadership mission and strategic intent underpinning open service innovation. Similarly, Nexus interviewees discussed their platform tools and functionalities; while online observation of client project sites revealed the actual use of tools and functionalities. Along with this, we also iterated between data and theory to discern how the emergent themes could be grounded in extant theory (Eisenhardt, 1989). During this phase, the concept that Nexus worked very closely with their clients emerged from the data, and led to the adoption of the notion of CCs and the S-D logic of service innovation as a theoretical perspective. This conceptual framework was applied to aid data interpretation and deciphering constructs and patterns of intermediary capabilities. Serving as a theoretical reference framework, it allowed making sense of our results and ruling out alternative conceptualizations.

Each client data was analyzed and synthesized into an individual case history, by tracking client challenges that occurred when implementing open service innovation projects, and how the intermediary helped in overcoming these. After developing an understanding of each client's interactions with Nexus, cases were compared against one another to identify similar themes

(Eisenhardt, 1989). Clients' barriers to open service innovation and Nexus's capabilities were considered to be relevant when two or more clients independently described the same barriers and activities underpinning intermediary capabilities. The fact that multiple informants indicated that the same capabilities had been deployed by the intermediary to overcome internal client barriers, suggests a collective relevance, independent of a specific individual client interaction. In doing so, patterns of regularity in the data were identified (Miles and Huberman, 1984). Following these steps, first-level themes were aggregated into meaningful theoretical constructs. By the end of the second phase, we substantiated a set of constructs and developed a tentative model of how Nexus cumulatively developed and deployed capabilities to assist clients overcome internal barriers in the leverage of open service innovation. The analysis involved many cycles of confrontation between literature and data analysis, and between data analysis and data collection (Burawoy, 1991), leading to additional data collection.

In the third period, more than a year after the initial data collection, 13 follow-up interviews were conducted with Nexus executives, plus online projects of clients and additional archival data were further reviewed. This allowed to track the progress of how Nexus developed and deployed capabilities, and the mechanisms by which they assisted overcome client barriers. Online sites and internal service innovation project journey documents of clients were also tracked to draw evidence on their response to Nexus' interventions, looking for manifestations of how (and to what extent) internal barriers have been overcome. From these emerging patterns, we validated our theoretical constructs and model, and also identified additional events and practices salient to the process of Nexus' capability development and deployment, that were not substantiated through the previous interviews. Overall, we sought to consolidate recurrent patterns in the data and thus

increase construct validity (Yin, 2003). By further ‘enfolding’ our findings with existing literature (Eisenhardt, 1989), we developed our theoretical framework.

Throughout the manual analysis, text mining was conducted at the start of each analysis to let ‘the data speak freely’, without manual interference. Leximancer was used as a tool, which allows for systematic analysis (Mathies and Burford, 2011; Rooney, 2005), as it automatically learns patterns based on the idea that words form a sentence, and predicts emerging concepts, tags the data, and derives relevant concepts and themes based on a Bayesian learning algorithm without the need of a manually created dictionary (Smith and Humphreys, 2006). This allows us to do both conceptual (thematic) and relational (semantic) analysis of our data (Rooney 2005), identifying concepts (common text elements) and themes (groupings of revealed concepts). evident in the data (for the data relevant to the client barriers; aggregate intermediary capabilities; and the data on intermediary capabilities structured by phase - as outlined later in the manuscript). Leximancer has been found to produce high reliability and reproducibility of concept extractions and thematic clustering (Smith and Humphreys, 2006; Wilden, Akaka, Karpen and Hohberger, 2017). Although the software uses an unsupervised learning algorithm, the research team maintained control over the process and provided the necessary inputs during specific analysis tasks. The respective results served as a starting point for our manual analysis, but also as a confirmation or disconfirmation of our manual findings. Not only did this process assist in improving reliability of initial coding, but importantly it provided a basis for the researchers to then delve deeper into data to uncover deeper meaning and relationships through the researchers' own interpretation to derive the theoretical constructs. For a detailed description of Leximancer and its use in (service) research see (Wilden, Akaka, Karpen and Hohberger, 2017; Wilden et al., 2018). The interim results were also presented to Nexus interviewees, and solicited feedback after every data analysis period, and Nexus’

managers concurred with our final findings. This process helped revise and clarify findings (Lincoln and Guba, 1985), to correct for alternative explanations and to perform a final validation, thus adding to the internal validity of our study (Yin, 1984). Table 2-4 provide data examples, and the first-level themes that formed the basis of the derived client barriers and intermediary capabilities.

Insert Tables 2-4 here

Results and Discussion

Based on the data (see also Online Appendix C for relational text mining results), and drawing on co-creation, OI, S-D logic, and resource-based reasoning, this study investigates how open service intermediaries deploy capabilities to support and build clients' capacity in open service innovation (Figure 1). While the identified barriers have been discussed in previous research, this study focuses on unpacking the micro-foundations of three intermediary capabilities—*technological*, *marketing*, and *CCs*—and the micro-foundations through which these are deployed in assisting clients overcome internal challenges to leveraging open service innovation. Results show that technological and marketing capabilities are important to assist clients tackle such barriers: Technological capabilities facilitate clients in dealing with their own project-related barriers, and marketing capabilities support clients overcome organizational barriers. More importantly, CCs support and shape both technological and marketing capabilities and are hence even more critical to enabling effective leverage of open service innovation in clients.

Insert Figure 1 here

Clients' internal barriers to implementing open service innovation

Despite having access to the same platform features and knowledge, not all clients perform equally well. Early interviews with clients indicated that, besides gaining access to communities, a major driver in engaging external assistance is to overcome internal barriers, which hinder their implementation of open service innovation. The findings indicate that such internal barriers are *organizational* and *project-related* (see also Table 2 and Online Appendix C).

A major organizational challenge in clients is the *lack of buy-in from senior executives for open service innovation*. There is resistance to change and a mentality that ignores the possibility that outsiders may come up with better service innovation than insiders, leading to limited organization-wide understanding of the value of online community engagement to drive service innovation. This cultural barrier is attributed to low levels of organizational tolerance for risk and unwillingness to give up control in decision-making among senior executives, resulting in significant 'not-invented-here' thinking in organizations (Antons and Piller, 2015). These barriers are also evident in the text mining results through the frequent use of, and the close relationships between, concepts such as 'buy-in', 'risk', 'senior', 'understanding', and 'value' by interviewees. Overall, clients widely acknowledge the role of the senior executives' buy-in in building a culture of open service innovation and community engagement.

Another organizational barrier is revealed through the frequent use of concepts such as 'strategic framework', 'policy', and 'consultation', namely the *lack of strategic framework for open service innovation*. As a result, clients often adopt a compliance-driven approach, using open service innovation in a transactional, reactive manner. Client Q suffers from this approach as "the focus tends to be on involving the community and not as much on empowering the community" [emphasis added] (Media & Communication Officer). Often the focus is merely on

meeting government and council requirements for consultation, leading to a lack of emphasis on holistic service innovation projects. On the contrary, Client H has adopted a strategic framework to open service innovation that goes beyond policy requirements to be built on core values of the International Association of Public Participation – a global industry body guiding the development, implementation, and evaluation of community consultation. This strategic approach translated into successful online service innovation projects. The other examples in Table 2 further imply that to enable a strategic framework for open service innovation, it needs to be embraced as an organizational initiative.

Within projects, the *competency gap in online community engagement driving open service innovation* poses a major challenge (see frequently used concepts ‘lack’, ‘knowledge’, ‘skills’, ‘staff’, and their close link to ‘platform’ and ‘tools’). This relates to a lack of technical skills in the use of platform tools and functionalities. More importantly, there is also a lack of appreciation of broader community engagement—both online and face-to-face—and how they can be integrated. Thus, staff has inadequate knowledge on planning and implementing open service innovation projects through a variety of platform tools, and how they impact the results of community participation. Linked to the lack of organizational buy-in for online community engagement, innovation project team members often tend to resist deploying all platform functionalities due to an “attitudinal reluctance and resistance to the use of online engagement” (Program Leader, Client K). Confirming this, the platform use statistics of Client K’s reveal that service innovation projects revolve mostly around operational aspects, rather than strategic issues. There is a tendency to only use surveys rather than discussion forums and other interactive, sophisticated platform tools. The online service innovation projects of Clients O, P, Q and R, which exhibit low online engagement behavior, also reflect a similar pattern.

Another project-related challenge is due to the *lack of staff capacity to implement online community engagement for open service innovation* (see frequently used concepts ‘staff’, ‘capacity’, ‘money’, ‘resource’, and ‘budget’). This stems from inadequate budget, resource, and workforce allocation by senior executives, which in turn links back to the lack of buy-in and strategic direction for online engagement. The community engagement role is often combined with other teams such as marketing and communication, leading to little attention to community engagement. Client L faces this problem where staff often do not utilize all tools and functionalities, or engage across diverse project areas despite their potential to generate more effective outcomes. It appears that this workforce constraint is something that even clients with high levels of online engagement face, accentuating the lack of staff motivation to practice good online engagement for service innovation. This is evident from what one high-performing client shared, “Most people are not interested in getting trained on it as they don’t have the time and don’t see it as a priority.” (Stakeholder Engagement Co-ordinator, Client D).

Development and Deployment of Intermediary Capabilities for Client Engagement

To support clients in overcoming the identified barriers to leveraging open service innovation, Nexus cumulatively developed and deployed three kinds of capabilities—*technological*, *marketing*, and *CCs*—in three phases over the 10-year period since its inception. Table 3 summarizes the text mining findings on the evolution of intermediary’s capability portfolio, and Table 4 presents illustrative evidence.

Phase One - 2007-2009: Developing the technology and market – Platform provider

In this phase, the focus of Nexus was on developing its core technology—the digital platform—which is fundamental to implementing online community-based open service innovation (see in the text mining results that the concepts ‘platform’ and ‘product’ appear central in the discussions).

Nexus decided to become a software-as-a-service (or SaaS) firm, which forms a strategic aspect of its client-centric business model. SaaS is a way of delivering digital platform applications to clients over the Internet where, instead of installing and maintaining software, clients can simply access it online, freeing them from complex and cumbersome software and hardware management. Accordingly, Nexus dedicated significant resources to developing the technological skills necessary to design the tools, features and functionalities of the platform. These processes were aimed at developing what resource-based scholars label *technological capabilities*; that is; the organizational capacity to employ technologies to create value (e.g., Afuah, 2002) and develop a competitive advantage (e.g., Song et al., 2005).

Thus, delivering a sophisticated digital platform, and progressively making it more user-friendly underpins the intermediaries' technological capabilities (see also the concepts 'platform', 'product', 'tools', 'use', 'site', 'technical', 'look' and 'feel' in Online Appendix C which presents results of textual analysis in regard to the aggregated intermediary capabilities). They represent a lower-order, that is, operational capability, which enables the firm to perform routine tasks and support the core service. With intermediaries providing SaaS, the ease of access and customizability of the platform, along with the convenience of not having to maintain traditional business hardware and software, offers a superior value proposition for clients from a technology perspective. This makes the development, maintenance and customization of online community-based open service innovation projects particularly efficient and effective for clients. The 'use of platform and tools' by clients is a prominent theme discussed by interviewees. Nexus' CTO revealed: "The idea is if we make [the platform] easy and inviting for clients, they will start to use it more". Many clients acknowledge this effort, for example Client G remarked, "Everyone loves it...very simple to use, intuitive, fun and engaging software—this is a critical success factor for

Nexus” (Community Engagement Co-ordinator). Such technological capabilities support clients in better utilizing the platform in two ways: first, project team members find it easier and are more motivated to get skilled on the platform; and, second, the increased efficiency of the platform enhances staff capacity, thus easing the burden on workforce resources. This enables clients to *overcome project-related barriers* to leverage open service innovation such as the lack of skills and workforce capacity for digital engagement.

Concurrent to developing technological capabilities, Nexus needed to develop a market for its technological offering. As a pioneer in its field, Nexus was the first in the country to realize that online community engagement could support open service innovation in public service organizations. These organizations, however, had little awareness of this potential in general, let alone of the available digital technologies. Consequently, Nexus had to raise awareness within the government and public sector about this new service category and available technologies, as well as about Nexus itself as an intermediary (note the concepts ‘creating awareness’, ‘public’, ‘marketing’, and ‘blog’ are central). Two of the three co-founders focused on selling and positioning Nexus as “an advocacy business, trying to build a movement for online community engagement” (Sales Manager), while the third co-founder built the technological platform. As previous practitioners in the public sector, and passionate advocates of online engagement themselves, these two co-founders marketed its potential through their personal blog, conference speeches, training events, and their own professional networks. The co-founders were able to build contacts, and have Nexus recognized as trusted provider of digital platform services. Nexus started landing a handful of clients, who received attention directly from these two co-founders: “We were doing enormous amount of support – we weren't just abandoning the clients to the technology” (Chief Practice Officer). Consequently, Nexus dedicated efforts to develop the organizational

capacity to serve particular customer groups (Day, 1994), allowing organizations to create relationships and use market knowledge in a beneficial way (Spanos and Lioukas, 2001) to develop a strategic advantage in the market (Wilden and Gudergan, 2015); a capacity defined by Morgan (2012) as lower-level specialized *marketing capabilities*.

Clients confirmed Nexus' efforts to engage in conversations with senior executives in client organizations to develop a market for community-based open service innovation: "[Nexus founders do] not just talk [about the product] but about community engagement in general... this gives exposure to managers and senior staff to the benefits and value of engagement" (Senior Community Engagement Officer, Client H) (see also the concepts 'engagement', 'people', 'conversation', 'community', 'government', 'value', and 'market' in Online Appendix C). These efforts formed the key for Nexus to establish itself as a "major voice for the philosophy, methodology and best practice in online community engagement" (Sales Manager). Marketing capabilities are thus critical to assist clients *overcome organizational barriers* driven by the lack of buy-in from senior executives, and the absence of a strategic framework for online community-based open service innovation.

Phase Two - 2010-2013: Initiating and scaling up co-creation – Integrated service provider

To provide dedicated services to clients, and yet maintain its growth trajectory Nexus could not continue relying solely on its existing technological and marketing capabilities. Consequently, new services needed to be developed to support clients in their individual needs when engaging with their online communities, whilst still developing a market by educating potential clients of its value. These processes were deployed through *CCs*. These were aimed at co-creating value in service exchange (Lusch et al., 2007; PerksGruber and Edvardsson, 2012). Their use accentuates

commitment for collaboration between all parties in the service ecosystem, so as to co-create value through relational processes (Lusch and Nambisan, 2015; Payne et al., 2008).

To enable this, the founding team recruited a Sales Manager, whose role it was to not only bring in new clients, but also to provide support and advice to the existing client project teams (note concepts such as ‘support’ and ‘service’ have gained prominence in this phase). Selling to new clients, however, was not easy, as it was necessary to overcome the lack of organizational buy-in and skepticism to online engagement to innovate services, and often convince potential clients having doubts of the benefits. To aid this, the Sales Manager ensured that conversations with senior leaders focused on advocacy for broader online engagement practice and how that can yield innovative services that benefit their communities, rather than Nexus’s technological offering, with an aim to promoting the overarching role of open service innovation. This approach was shaped by Nexus’ intrinsic focus as a company on *creating sustainable value* for both the client and, in turn, the communities they serve. In implementing such advocacy-based selling, often existing clients were used to source new clients, through what the company termed YMBI - ‘you might be interested in’ emails - sharing best practice client case studies (the concepts ‘best practice’, ‘email’ are linked with ‘community’, ‘project site’). This practice was very beneficial in co-creating value with potential clients:

“The interesting element is it started to build advocates for us because we were not trying to sell anything whatsoever. We were just increasing awareness of [potential clients] of how our engagement was being used by somebody, specific to their field. It’s really about providing them with the opportunity to create value [to their communities].”

Within projects, the focus was on *personalizing client services* by “building relationships with clients to understand individual client needs and individual client capacities” (Sales

Manager), so as to overcome project-related barriers in terms of staff capacity in using the platform. The Chief Practice Officer recalled that this approach augmented both client competence and motivation because “[The Sales Manager] became the primary support person, the primary sales person - and also the primary enablement factor. So, he was actually there talking to each customer and helping them do it properly, and really passionate”. As their client base increased, a dedicated client experience team was created, providing personalized online support for technical and project planning aspects to help site admins improve the quality of open service innovation projects. The team began generating individualized client scores, to evaluate every project site, and sent customized emails to site admins with feedback and advice on how to improve their online engagement and service innovation project outcomes (see concept ‘started support team’ is linked with ‘technical’, ‘support’, experience’, ‘feedback’).

Nexus also established the process of *building client relationships* with the focus on “developing personal relationships with clients first and then moving that into a professional relationship around online engagement” (Sales Manager). This went beyond simple customer relationship management (a cross-functional marketing capability as defined by Morgan (2012)), which formed an important part of their marketing capabilities already. As their client base grew, Nexus started to organize quarterly client roundtables across the country—this process was instrumental in further enhancing client relationships by developing peer networks among clients (concept ‘build relationship’ connects with ‘people’ and ‘process’). Clients frequently acknowledged that these served as a great avenue to share and learn from others, create new business relationships, and also build face-to-face associations with Nexus. Additionally, Nexus developed an online engagement portal for client project teams to ask questions, learn from one another, and build connections as well.

Thus, service co-creation was enabled during this stage, through a closer integration of a larger number of clients. The Chief Practice Officer related that this approach “ensured that [clients] had an understanding of engagement practice... [and] we also had a better understanding as a company of why our clients were engaging”. For example, the client roundtables were used as a forum to not only keep client project teams abreast on platform features and showcase best practices, but also to capture feedback on the product. Such client feedback led to the development of a more sophisticated platform, which went beyond online discussion forums, which was the core tool initially, to offer a diverse range from ideation and storytelling tools to surveys and quick polls. This is evident as terms ‘support team’ relate to technology-related concepts such as ‘platform’, ‘use’, ‘tools’, ‘look’, ‘feel’, ‘technical’, ‘product’, and ‘experience’. This made the platform more attractive and engaging for community participants to use, and more customizable for clients to sequentially engage their community in their projects:

For example, you might start with an ideation tool around waste management.... and also use the storytelling tools and have people tell how they minimize waste and experiences, for instance. Then take that and start to put it into a survey to catch some hard data in and around the way in which people feel or act or relate to recycling. (Sales Manager)

Yet, along with these technological advancements, the need to educate and upskill client project teams on the newly added technical features increased. This triggered a progressive expansion in the online client support team. While being efficient in dealing with technical queries and solving client problems, the team struggled to deliver the level of proactive support that the company and its clients were used to.

Phase Three - 2014-2017: Strengthening client co-creation - Value co-creator

At the end of the second phase, Nexus faced an adoption problem, often driven by clients' internal resistance to engage with the platform fully. As the CTO tells, "we kind of lost a little bit of that co-creation probably, not all our clients got that dedicated service - it was just the clients who were passionate enough to reach out to us." Also, following significant technology upgrades and a rapid expansion in client base, the online client experience team helped scale up efficiencies in providing technical assistance, but personalized client services and relationships which were necessary to enable client teams to overcome their barriers became increasingly difficult to sustain, and so the uptake of the platform began to suffer. The Chief Practice Officer observed that "... [there was] not enough evidence of good practice on client sites that we could use as case studies". Nexus thus realized that they "had a good product, but the product was not necessarily being used at its best [by all clients]" (Sales Manager). Clients were not deriving sufficient value out of the platform, resulting in a gradual fall in their renewals of licenses.

Nexus recognized that they needed to more proactively support clients in overcoming their competence gaps and workforce capacity issues, such that they could use the platform more effectively and realize more positive outcomes from the technological offering (see the concept 'training' being used in the interviews increasingly, to 'better use the platform'). To facilitate this, Nexus developed a new suite of client-centric processes besides leveraging the existing ones, thus strengthening its CCs. A key strategic initiative was to recruit three client engagement managers, to take the onus of deploying *personalizing client services* and *building client relationships* by "working directly with clients on best practice, providing advice, providing support... they have an ongoing role, they now conduct the client roundtables, for instance" (Sales Manager). To deliver this role, Nexus deliberately brought in people who were their own

clients in the past, and also had extensive experience working in the public sector (note the concept ‘engagement manager’ and is linked with ‘support’ and ‘service’). As a result, they were best positioned to provide proactive support to help clients overcome barriers:

We touch base with clients over quarterly mentoring sessions where we lift conversations to be more strategic around what are some of the barriers or challenges and what resources or tools or helpful suggestions can we provide? So, the shift is that we're not just the help desk. (Engagement Manager I)

The engagement managers were also responsible for onboarding and training new clients, and to provide regular masterclasses for clients. Here, the rationale was to *develop client skills and expertise* in using the platform to maximize online engagement, and also on the strategic aspects of planning and leveraging open service innovation, ultimately enhancing the overall staff capacity in delivering service innovation projects. Note that the term ‘training’ relates to ‘strategic’ and ‘project’ through the ‘engagement manager’. Another investment in this space was to recruit a dedicated Learning and Practice Manager who developed learning resources to support engagement managers in their client training efforts, and is “not only responsible for showing clients how to use [the platform], but also to help them plan community engagement strategies and methodologies” (Operations Manager). Online training material, newsletters, webinars, and the company blog were also used to share exemplary client case studies and supplement face-to-face training. In doing so, Nexus builds “competences by encouraging best practice... and sharing information on what other clients are doing” (Learning and Practice Manager). As a result, clients are motivated to use the platform in a more effective way.

Another strategic initiative was to invest in a Product Development Manager with a strong User Experience (UX) background to help “take the product to the next level of usability for

client administrators and for participants in the community, and finding ways to improve engagement” (CTO). The emphasis here was on client feedback to *co-develop the product with clients* by “having conversations with clients to understand what aspects of the product can be developed further, and also involving clients in user testing for some new products” (Chief Practice Officer). In this way, Nexus gathered ideas from clients for product development, and then co-tests and validates these with clients whilst they are being built. Previously, client feedback largely fed into developing the front-end of the platform, but in this phase, manifested in better back-end user experience, data analytics and reporting, and the development of online client forum and 24-hour web chat through the platform. The goal was to “assist the client administrator... [and to] empower them to better use the platform to enable better community engagement” (Product Development Manager). This is evident from the emergence of the concept ‘product manager’ and eventually linking with ‘feedback’ and ‘better use platform’.

The emphasis on *creating sustainable value* over the long term was reinforced in this phase, with the overarching aim within the organization being “not to sell but to find that value alignment first - to make sure that they are the clients we want to be working with and they want to be working with us - that’s where the magic happens” (Sales Manager). To achieve this, the sales process was geared towards talking to potential clients about the opportunities of Nexus’s platform in adding value to not just their operational efficiency, but to the ways in which they could build relationships and trust with their communities as an essential role of open service innovation (the concept ‘community’ is more prominent to the discussion in this phase). Nexus began to facilitate events for industry professionals, with a focus on improving online engagement practice at the industry level. Nexus’s commitment to facilitate impactful value creation through supporting their clients better leverage open service innovation was also evident

on their website, which predominantly featured information on generic practice of community engagement through articles, opinions and primers, as opposed to selling their products. Besides, the company also became a certified B-Corp—a new type of corporation that uses business as a means of solving social problems—which was reflective of its positioning as an advocate for community engagement for service innovation. In this regard, Nexus was driven by a mission to “...improve the level of community involvement [...] by voluntarily meeting higher standards of transparency, accountability and performance, [and assessing] how our practices impact our employees, our community, the environment, and our customers” (Nexus website).

There was a clear focus on *developing integrated service processes* for co-creation with clients, delivered through better internal coordination between the client engagement, marketing and product development functions (note the concepts ‘processes’, ‘engagement’, ‘marketing’, and ‘product managers’ are linked). In delivering holistic client relationship management, service, and training, Nexus’ engagement managers “ask clients what their issues and frustrations are, so they can develop solutions around it...the process is thus very client-centered” (Chief Practice Officer). This process became increasingly formalized into one where engagement managers kept track of how clients use the platform, capture and feed potential case studies internally to develop testimonials for Nexus, as well as best practice material, which are then shared with both potential and existing clients. Furthermore, client feedback is regularly relayed to the product manager, in turn feeding into the strategic technology roadmap, and translating into a better platform that enhances the user experience for both clients and community participants. Likewise, the product development team regularly updated the engagement managers on the resulting, newly developed platform features, so clients could be informed and upskilled as needed. The aim was to ensure that clients use the platform well, in order to co-

create innovative services with their communities—that would allow them to get more value out of it, and thus Nexus too would get better commercial outcomes.

Mechanisms of CCs Affecting Marketing and Technological Capabilities to Enable Clients Overcome Internal Barriers

In this section, we focus on *how* the intermediary' CCs leverage *technological and marketing capabilities* to further support clients to overcome *organizational and project-related barriers*, with examples in Table 4 (see also Figure 1 and Online Appendix C). Essentially, this section presents the micro-foundations of the identified CCs (Jonas et al., 2018).

CCs affecting technological capabilities

The four identified client-centric processes — *personalizing client services, building client relationships, fostering client skills and expertise* and *co-developing product with clients*—together help improve the technological offering and enhance the utilization of the offering by the client. These serve as micro-foundations underlying a set of CCs that affect Nexus' technological capabilities: *individuated, relational, developmental, and empowered service capabilities*. Together, these form a way to aid clients in using the platform better and also for Nexus “to figure out what this platform needed to look like” (CTO). Note also in Online Appendix C that CCs are closely linked with technological capabilities.

Personalizing client services, which focuses on understanding and acting upon individual client needs and capacities, underpins *individuated capability* (LuschVargo and O'Brien, 2007; PayneStorbacka and Frow, 2008). As value is subjectively perceived and individually determined (Holbrook, 2006), moving toward an ‘experience of one’ (Prahalad, 2004) helps address context-specific barriers and provide customized solutions, thereby enhancing value co-

creation with clients. Acknowledging this, clients particularly stress that Nexus is "...very proactive in handling issues and barriers to using the platform" (Program Leader, Client K). Noting that Client I had limited uptake of the platform, Nexus' client engagement manager provided advice via a strategic face-to-face meeting and a site peer review. Following a review of this client's open service innovation projects, it was noted that "[Client I] has taken their engagement to the next level, especially in the areas of preparing engaging content to explain project concepts and information" (Learning & Practice Manager, email). Note in Online Appendix C that the concept of 'engagement manager' and the 'service' they provide is central to CCs.

Relational capabilities is an organization's ability to deliver enhanced service through psycho-social relationships with customers (Schneider and Bowen, 2010) and the subsequent co-creation of value for all ecosystem actors (Kowalkowski, 2011). This is shown in the intermediary's client-centric micro-foundation of *building client relationships*, which facilitates an environment conducive to peer networking and meaningful dialogue (Lusch et al., 2006). For example, Client G indicated: "Nexus comes to the fore by building humanized relationships with clients...they are not just a technical service" (Community Engagement Coordinator). The role of the 'engagement manager' in building relationships is also evident through closely related concepts in Online Appendix C. The resulting social and emotional connections help clients bond and identify with peers and the intermediary (KarpenBove and Lukas, 2012; Varey, 2008).

Fostering client skills and expertise underlies the intermediary's *developmental capability*; that is, the ability to assist its customers' competence development (PayneStorbacka and Frow, 2008) through the sharing of knowledge and experience (Frow and Payne, 2011). Nexus' Chief Practice Officer noted that "...the goal [of engagement managers] is not to do the

work for the clients...[but] to empower clients to do their own work well.” Client H acknowledged such skill development: “the role of Nexus in creating awareness in not only online engagement methodology and practice, but in community engagement in general is very useful”. The role of the ‘engagement manager’ in ‘training’ clients on the ‘use’ of the ‘technical platform’ as well as ‘strategic’ aspects of online community engagement is also seen in Online Appendix C, with these concepts being closely related. Through these processes, intermediaries support value co-creation by “mak[ing] not only their offerings more intelligent but their customers more intelligent, as well” (Normann and Ramirez, 1993).

Finally, by *co-developing technology with clients*, the intermediary is able to leverage client inputs to co-produce offerings that offer reciprocal benefits and mutual betterment (Lusch Vargo and O’Brien, 2007; Normann and Ramirez, 1993). Many clients acknowledged their involvement in product development; for example, Client K remarked that “Nexus has been constantly improving their product, and are very well aware of the public-sector client needs” (Program Leader). This underpins the intermediary’s *empowered capability*, which is the ability to enable customers to shape the nature and content of the offering (Ordanini and Parasuraman, 2010; Svensson and Grönroos, 2008) and seize control over value co-creation (Vargo et al., 2008). Online Appendix C also shows how ‘feedback’ from the market (i.e. clients) flows via the ‘engagement manager’ into the ‘product’ to enhance its ‘look’ and ‘feel’ of ‘project sites’. At the start, the feedback from clients fed into developing the front-end of the platform, but more recently, technological advancements have also manifested in better back-end user experience, data analytics and reporting, online client forum, and 24-hour web chat through the platform.

Altogether, these capabilities allow the intermediary to better leverage its technological capabilities, and in turn support clients through two mechanisms. First, they help address project

team competency gaps by upskilling clients, to enable a better uptake of the platform, and build their capacity in utilizing the platform more effectively and efficiently (PayneStorbacka and Frow, 2008). These in turn amplify the effect of technological capabilities in *lowering project-related barriers*; thus, conditioning the deployment of technological capabilities. Second, they also facilitate the sourcing of client feedback that lead to the development of a more sophisticated platform that is more user-friendly, functional and efficient for clients, thus enhancing the very nature—that is the development—of the intermediary’s technological capabilities, which in turn helps counter clients’ workforce constraints to *further tackle project-related barriers*.

CCs affecting marketing capabilities

Creating sustainable value and *developing integrated service* are micro-foundations aimed at developing the market for online community engagement by reaching out to clients’ senior-level executives and having ‘conversations’ around ‘value’ of ‘online engagement’ (Online Appendix C). This emphasis on *creating sustainable value* translated into an advocacy-based selling approach. With its focus on building awareness on the holistic value-creating and innovation potential of online community engagement, offered as a service not only to existing clients but across the whole industry, underlies the intermediary’s *ethical capability* (Abela and Murphy, 2008; KarpenBove and Lukas, 2012). When intermediaries incorporate social and sustainable dimensions of its offering into its marketing conversations, it helps build long-term, trust-based partnerships with clients (Gounaris, 2005; Laczniak, 2006). Finally, *concerted capability* is critical to facilitating coordinated marketing and service activities to help service ecosystem actors achieve a well-aligned co-creation process (Beverland et al., 2007). This is evident in activities aimed at *developing integrated service processes*, through which the intermediary

orchestrates systemic value co-creation between clients and their online communities forming an ‘experience network’ (Prahalad and Ramaswamy, 2004). In Online Appendix B, this can be seen as the concept ‘process’ being closely linked to the concepts ‘feedback’ and ‘product thinking’, referring to how the client engagement process leads to feedback flowing into product thinking.

The intermediary deploys these two CCs—*ethical and concerted capabilities*—to implement its marketing capabilities; for example, through advocacy to senior executives. Describing the effectiveness of the YMBI e-mails in delivering advocacy, the Sales Manager mentioned, “So there's no selling spiel with that at all. That's been, hands down, the best marketing that we've done. We've never pushed out marketing like—you get all of this for X amount of price or here are pictures of the platform. We do have that collateral to support once people start having conversations with us, but it's not something we push out”. The role of sales and marketing shifted from persuasion-based to relationship-based selling with a focus on achieving value alignment between all parties involved (Sheth and Sharma, 2008). The best practice client case studies, although developed in the first place for knowledge-sharing, when presented via YMBI emails or at industry conferences, helped “market [Nexus] to potential clients...sharing good practice is obviously good marketing as well” (Chief Practice Officer).

Such an approach is aimed at convincing senior executives that “community engagement allows organizations to obtain feedback, ideas and solutions that were not considered before, and enables them to make more informed decisions about the future public services” (Sales Manager). Thus, these capabilities assist clients *overcome organizational barriers* that derive from minimal organizational buy-in and a lack of strategic uptake for community engagement in two ways. First, by educating the market about the value-creating potential of open service innovation, they amplify the effect of Nexus’s marketing capabilities. Second, by foregrounding

client-centricity and long-term value creation, these processes also transform the very nature of marketing capabilities to becoming more relational, client-engagement focused rather than being transactional, sales-focused, further helping *address organizational barriers*. By viewing clients as co-creators of value (Madhavaram and Hunt, 2008), and promoting to the client how service innovation can be co-produced through online community engagement, these CCs help advance market-oriented thinking (Kohli and Jaworski, 1990). Related marketing efforts result in reinforcing the intermediary's branding and market positioning as a value co-creator—and not just a technological enabler—by being an advocate of open service innovation.

So far, the findings have shown that the development of the product and market for online community engagement are supported by CCs. Through the deliberate focus on client-centric service provision, CCs are crucial in leveraging both technological and marketing capabilities, to help clients overcome project-related and organizational barriers, through a variety of mechanisms. Further analysis reveals an additional effect of CCs. Through its influence on technological capabilities (assisting in overcoming project-related barriers), the CCs deployed in the project context (i.e. individuated, relational, development and empowered CCs) can also facilitate the effectiveness of the intermediary's marketing capabilities. They thus play an *additional role in overcoming organizational barriers* to leverage open service innovation.

The CTO shared: “What we want is for our clients to use our product well, and for others to see that. We want our clients to do the marketing for us—through a good case study, and influencing senior-level executives through the project staff.” Nexus took advantage of its multiple client service touchpoints as avenues to serve this end. For example, the company website and blog provide access to a whole range of research, articles, opinions, and primers to not only increase the awareness and expertise of project staff on the platform, but also to inspire

and motivate them through best practice case studies, and ‘staff picks’ of exemplary client projects. A long-standing Client H recalled: “[Nexus] used us as a case study so we got some recognition that we were doing a good job... and also [when] we could go back and say ‘we are being used as a case study, we are at the top of our game’ people are noticing us...[and] coming to us for advice and support” (Senior Community Engagement Officer). Client roundtables and masterclasses were also used as forums to advocate the need for open service innovation to be viewed as a strategic function. In many cases, project staff members grow passionate about open service innovation, and more often than not, sell it within their organization. Client F confirmed that they “share the best practice shared by Nexus to other areas in the council—to spread awareness and the value of online engagement” (Corporate Strategic Planner).

Theoretical Implications

Using an embedded, longitudinal case study of the open service innovation intermediary Nexus, this study examined the cumulative development and deployment of intermediary capabilities, and the mechanisms by which these intermediary capabilities assist in building their clients’ capacity for open service innovation despite internal challenges. In doing so, this article makes several key contributions. First, it contributes to research on service innovation by clarifying the *function* of innovation intermediaries in service ecosystems (Lusch and Nambisan, 2015). As professional service firms in the form of ‘virtual knowledge brokers’ (VeronaPrandelli and Sawhney, 2006), these intermediaries leverage digital platforms to enable absorption of market-based knowledge from customer communities that form part of the service ecosystem to facilitate clients’ open service innovation (Mele and Russo-Spena, 2015). We thus provide insights into inter-stakeholder interactions within a service ecosystem (Grönroos and Ravald, 2011; Ostrom et al., 2010; Ostrom et al., 2015) and improve our understanding of co-creation in

the context of service innovation (RandhawaWilden and Hohberger, 2016; Wilden and Gudergan, 2017). By involving clients in the technology development process, making the technological platform easy to use, fostering skills for optimal utilization of the platform, and developing social relations among and with clients, intermediaries motivate clients to genuinely embrace online community engagement in their service innovation process. Furthermore, when intermediaries are able to facilitate clients' own value creation processes (Normann and Ramirez, 1993), add to their pool of resources and competences, and allow them to utilize resources and competences more efficiently and effectively (PayneStorbacka and Frow, 2008), the positive impact this has on project staff can trigger a 'bottom-up' influence on senior people in clients. In this way, intermediaries can leverage the CCs deployed within projects, as well as the positive impact that this has on technological capabilities (and overcoming project-related barriers), to overcome organizational barriers to online engagement of clients supporting the client's leverage of open service innovation projects.

While these insights confirm existing knowledge about the role of ecosystems in service innovation, this study advances service innovation and co-creation literature by integrating the research on OI and S-D logic of marketing to investigate how OI intermediaries, functioning as 'customer community operators' (Sawhney et al., 2003), can enable clients to leverage open service innovation. By assisting clients deal with internal barriers to online community engagement, both project-related and organizational ones, these capabilities play a key role in overcoming clients' core rigidities (Leonard-Barton, 1992) that stifle service innovation. In helping build client capacity in online community collaboration, they enhance ways for service organizations to capture difficult-to-grasp customer knowledge as inputs into their service innovation processes. These findings support the proposition that processes supporting capacity

building for open service innovation often lie at the inter-organizational level (Verona et al., 2006).

Second, we advance OI knowledge by clarifying the *role* that OI intermediaries have in enabling clients leverage open service innovation. This study focuses on the intermediary–client relationship, and specifically intermediary capabilities to enable such a relationship. Our findings show that CCs are core to the evolution of intermediaries from technology platform providers into KIBS (Diener and Piller, 2013). Importantly, our findings reveal that the focus of intermediary services goes beyond offering mere technology-focused inputs to providing customized support, building strong relationships, and sharing knowledge and expertise with clients across the service ecosystem. The case study revealed that the intermediary changed over the three phases studied. Initially, the intermediary operated as a Digital Platform Provider, then as an Integrated Service Provider, to ultimately operate as a Value Co-Creator. Each intermediary role comes with different capabilities that the intermediary has developed and deployed. Hence, considering that all OI intermediaries perform the same role would not allow accounting for the nuanced insights that are needed to understand how these intermediaries can effectively work with clients so that the latter can effectively leverage open service innovation projects involving their own customer communities. A key implication is that, despite the importance of technological capabilities, online intermediaries are more than just ‘virtual’ service platform providers (Verona et al., 2006). Their CCs in ‘face-to-face’ client service provision are just as, if not more so, crucial in enabling open service innovation. This emphasis on the role of co-creation and service-oriented capabilities is in line with Howell’s (2006) view that innovation intermediaries not only provide immediate one-off services to clients but can also build long-term ‘relational’ innovation capabilities. Thus, intermediaries can play a more

involved, proactive role beyond knowledge transfer, as conceived in the literature (e.g., Hargadon and Sutton, 1997). This insight stresses the role of ‘social integration mechanisms’ as the key to how they facilitate clients’ absorptive capacity (VeronaPrandelli and Sawhney, 2006; Zahra and George, 2002).

Third, while previous research has provided valuable insights into the benefits for service firms in collaborating with stakeholders within the service ecosystem such as customers (e.g., Alam, 2002; Lusch and Nambisan, 2015; Moeller, 2008), study article sheds light on *how* service innovation intermediaries enable this collaboration. More precisely, it contributes by improving our understanding of the workings and micro-foundations of CCs. In line with the emerging understanding about the role of engagement (e.g., Hollebeek et al., 2018; Jonas, Boha, Sörhammar and Moeslein, 2018; Watson et al., 2018), the findings show that for OI intermediaries to leverage their capabilities to the advantage of a service client that endeavors to foster open service innovation, the intermediary needs to purposefully engage the focal organization. This purposeful engagement demands intermediary capabilities and related micro-foundations that have not been specified in prior studies but are crucial so that service firms can effectively leverage their own open service innovation. Although previous research has identified specific CCs (Karpen et al., 2012; Marcos-Cuevas et al., 2016), we lack knowledge about how these capabilities foster client-engagement through other organizational capabilities, such as marketing and technological capabilities (Morgan, 2012; Zhou and Wu, 2009), to co-create professional services. The results suggest that intermediaries need to develop and deploy CCs to involve clients in strategically co-developing both the technology and market for open service innovation.

This study provides precision to the categorization of CCs as being of higher-order (KarpenBove and Lukas, 2012; Karpen, Bove, Lukas and Zyphur, 2015). The intermediary transitioned from transactional service provision through marketing and technological capabilities with a focus on providing the technological platform towards an integrated solutions provider, and finally a value co-creator. Current research justifies their categorization as higher-order (Karpen et al., 2012), due to incorporating a portfolio of the six discussed CCs. However, this does not align with existing definitions. Albeit the characterizations of higher-order capabilities differ between strategy (Collis, 1994), service marketing (e.g., Madhavaram and Hunt, 2008), and marketing strategy research (Morgan, 2012) they share the common understanding that they comprise and bundle lower-order capabilities to generate value (e.g., Madhavaram and Hunt, 2008). This is not in line with our findings as CCs do not share micro-foundations with existing lower-order capabilities. Interestingly, we find that CCs are complex in their effect on lower-order capabilities. Through various client-centric micro-foundations, CCs shape, over time, the nature of the lower-order marketing and technological capabilities. This is in line with seeing higher-order capabilities as allowing firms to overcome path dependence that led to the inimitability of the lower-order capabilities” (Collis, 1994, p.149). That is, they involve change and are “not specific to a certain domain of knowledge and skill” (Danneels, 2002). That is, CCs incorporate characteristics of dynamic capabilities, which are aimed at changing the existing resource base (Teece, 2007), as they help the firm to add new customer and technological competences (Danneels, 2012).

Accordingly, this study contributes to clarifying the intricacies of the relationship between higher- and lower-order capabilities (Madhavaram and Hunt 2008). It reveals that the lower-order marketing and technological capabilities are important for intermediaries to assist

clients overcome project-related and organizational barriers. Technological capabilities play a key role in the development of the main offering, a digital platform to host respective communities, and marketing capabilities are required to create and expand upon the market for online community-based open service innovation. Our study demonstrates that marketing and technological capabilities that are transaction-focused are ineffectual in effectively engaging clients such that an effective client engagement that enables clients succeed in open service innovation necessitates synergistic, engagement-focused marketing and technological capabilities that rest on CCs. However, the higher-order CCs play an even more critical role in that they enable open service innovation by reinforcing the intermediary's technological and marketing capabilities in two ways. First, through the deployment of client-centric services, CCs leverage the intermediaries' technological and marketing capabilities, thereby amplifying their effectiveness in assisting clients overcome the identified project-related and organizational barriers. Further, CCs in intermediaries also enable progressive modifications to technological and marketing capabilities, shifting their very nature to be more relation-focused, leading to better client engagement enabling better leverage of the latter's open service innovation. CCs are central to implementing client-centric services through which intermediaries can more effectively co-create both the technology and market to support their clients' open service innovation projects. Essentially, CCs encapsulate integrative mechanisms that underpin co-creation of value, which represents effective open service innovation for the client. In this way, CCs serve as architectural capabilities and condition marketing and technological capabilities in a way such that open service innovation intermediaries can better engage with their clients to enable the latter to succeed in open service innovation.

Managerial implications

The insights produced in this article are of relevance to two groups: managers who run an intermediary business and managers who work within a service firm that seeks to strengthen its open service innovation endeavors. The insights are useful to the former to determine how to develop and deploy effective capabilities that, in turn, build client capacity in involving online customer communities across the service ecosystem, so as to better leverage open service innovation (MinaBascavusoglu-Moreau and Hughes, 2014; Ostrom, Parasuraman, Bowen, Patricio and Voss, 2015; VargoWieland and Akaka, 2015). This study describes the capabilities that intermediaries can develop and deploy in supporting clients overcome internal barriers, both project-related and organizational ones, and successfully leverage input from the service ecosystem to co-create innovation. A key insight is that, despite the obvious importance of digital technologies, managers of online intermediaries benefit from viewing their businesses as more than just ‘virtual’ service platform providers (Verona et al., 2006). This means that the intermediary’s capabilities ought to be developed and deployed in such ways that they enable the provision of professional services that go beyond offering one-off technology-focused inputs to such that enable involving clients in the technology development process, building long-term relationships with and among clients, providing customized support, and sharing knowledge and expertise with clients. In today’s networked and service-led environment (Randhawa and Scerri, 2015), honing such capabilities in ‘face-to-face’ customer co-creation is just as, if not more so, pertinent as ‘virtual’ technology platform development for intermediaries to proactively support clients in leveraging open service innovation. These insights are also relevant for those managers of service firms seeking to improve their open service innovation efforts. These managers can benefit from sourcing professional services to bolster their service innovation efforts and do so specifically, when facing internal project-related or organizational barriers. Furthermore, these

managers also benefit in their open service innovation efforts from knowing that, while engaging an intermediary with an appropriate ‘virtual’ technology platform is essential, selecting one that has the capabilities to provide the needed professional services to effectively interact is equally crucial. Applications of these insights by both groups of managers could lead to a more holistic value co-creation across the service ecosystem, and ultimately more effective open service innovation outcomes.

The findings are relevant to other professional service firms that provide digital services. Along with their technological and marketing capabilities, managers of these firms ought to hone their CCs in assisting clients deal with internal challenges, and achieve knowledge integration across the service ecosystem more efficiently and effectively (Colombo et al., 2015; VeronaPrandelli and Sawhney, 2006). To achieve this, managers can direct attention in their firms to implement client engagement processes centered on personalizing client services, building client peer networks, fostering client skills and expertise, and co-developing technology with clients, along with a clear emphasis on developing integrated service processes and creating long-term sustainable value. Doing so allows managers to develop their firms’ capabilities in ways such that the firms get to know, serve, and engage clients better, and thus enable holistic value co-creation. More importantly, through such client-centric services, firms can effectively co-create both the technology and the market to support their clients’ projects.

Limitation and Future Research

This study has responded to calls to integrate service marketing theories to examine OI for services (e.g., RandhawaWilden and Hohberger, 2016), and align with early attempts to investigate service innovation from an S-D perspective (e.g., Ordanini and Parasuraman, 2010; Verma et al., 2012). Our study is not without limitations, which also provide opportunities for

future research. Although this embedded case study is appropriate to conclude how the here-identified intermediary capabilities and micro-foundations enable clients leverage open service innovation, relying on a single intermediary is a limitation. Future qualitative research can apply a multiple case study design, and quantitative studies can test our framework. The study focused on how online intermediaries supported public service organizations; future research could extend to organizations belonging to other industries to test generalizability of our framework. We focused on intermediaries enabling clients leverage community-based open service innovation; future research is needed to check applicability to other modes of crowdsourcing such as tournaments (Afuah and Tucci, 2012; Boudreau and Lakhani, 2009). This study focused on which capabilities OI intermediaries as professional service providers develop and deploy to provide their service, and how they do this. Future studies can investigate the ‘open service innovation capabilities’, focusing on the capabilities by clients as opposed to the intermediary. Finally, as discussed earlier, this study finds that CCs share commonalities with dynamic capabilities in that they shape lower-order marketing and technological capabilities. Albeit this is not the dominant characteristic of CCs, which lies in amplifying marketing and technological capabilities to improve the service provision of professional service firms, this is in contrast to some existing research that sees these two higher-order capabilities as distinct from each other (Wilden and Gudergan, 2017). Thus, future research is needed to more closely investigate the intricacies of the nature and relationships between CCs and dynamic capabilities. In turn, additional research can further unpack the ostensive and performative elements of these capabilities (Biesenthal et al., 2018) and account for the intertwined involvement of top and middle managers in using these capabilities (Peters et al., 2018) to better explain how intermediaries can assist service firms in the open service innovation efforts. Finally, as

professional service firms differ in their capability portfolio (Wilden et al., 2018), further clarifying capability configurations and their impacts (Gelhard et al., 2016; Wilden et al., 2016) can assist in substantiating how different types of intermediaries affect their client's service innovation endeavours.

Figure 1: Conceptual framework - Intermediary capability-portfolio for client engagement for open service innovation

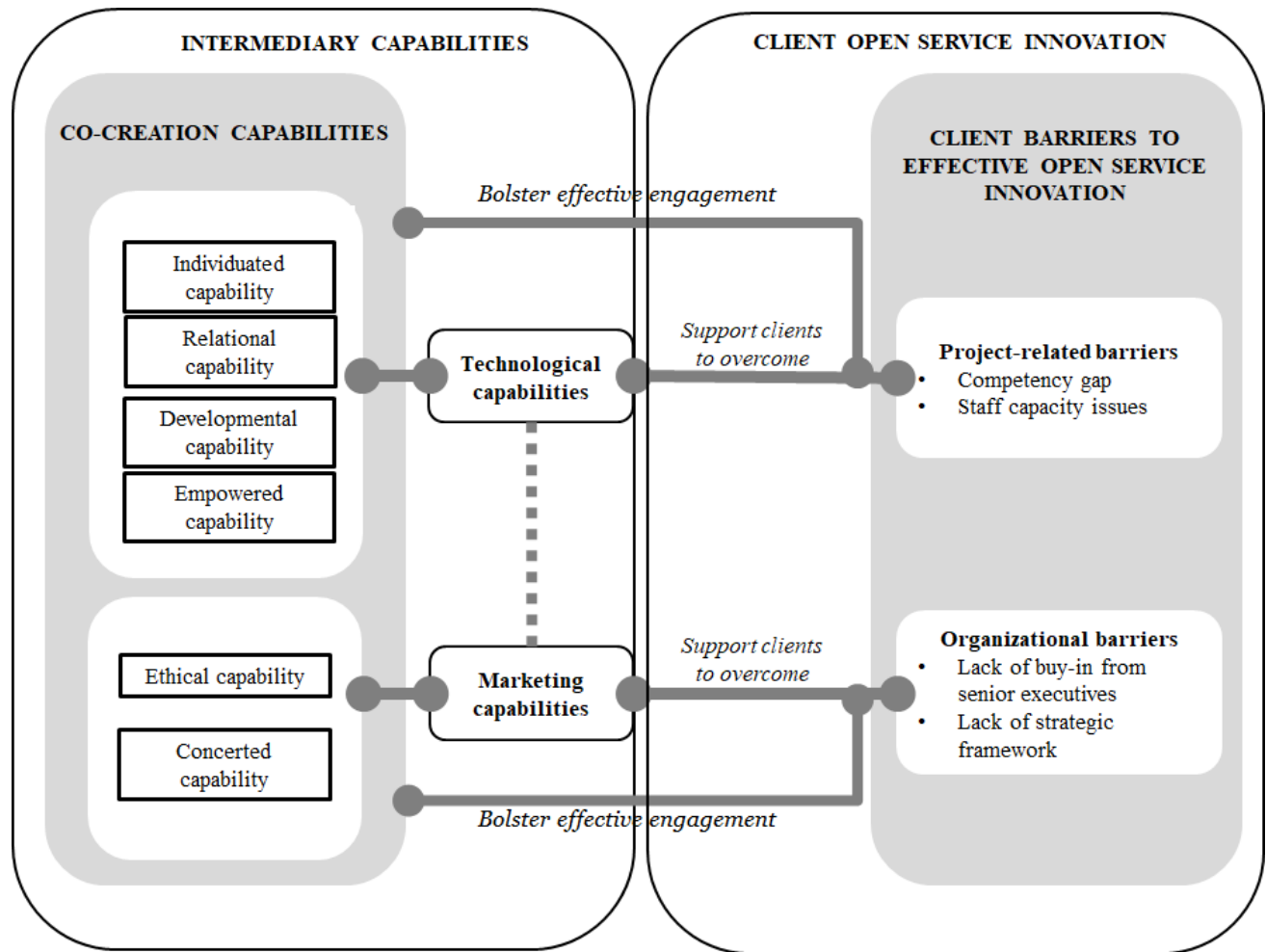


Table 1: Data inventory table

Nexus staff	Number of interviews	Client	List of individuals interviewed	First online service innovation project	Level of engagement behavior †	Online community size	Total projects implemented
Chief Practice Officer/Founder	7	A	Community Engagement Coordinator	Sep-10	High	19,204	122
Chief Technology Officer/ Founder	5	B	Stakeholder Engagement Coordinator	Mar-13	High	3,304	49
Sales Manager	3	C	Communications & Marketing Coordinator	Feb-10	High	2,766	263
Operations Manager	2	D	Stakeholder Engagement Coordinator	Jul-15	High	619	42
Client Engagement Manager 1	2	E	Community and Corporate Planner	Mar-16	High	1,257	51
Client Engagement Manager 2	1	F	Corporate Strategic Planner	Jul-10	High	4,183	217
Business Devpt Manager	3	G	Community Engagement Coordinator	Feb-16	High	589	60
Client Experience Manager	3	H	Senior Community Engagement Officer	Jul-11	High	4,872	541
Learning & Practice Manager	4	I	Media & Communication Coordinator	Apr-15	Medium	883	77
Head - Product Development	1	J	Community Engagement Officer	Mar-14	Medium	2,455	24
Product Devpt Manager	1	K	Leader Corporate Comm. & Marketing	Apr-10	Medium	4,519	188
		L	Community Engagement Officer	Apr-11	Medium	4,929	223
		M	Manager Community Services & Development	Jun-12	Medium	503	58
		N	Economic & Tourism Development Leader	Jun-14	Medium	449	37
		O	Strategic Planning Coordinator	Jul-13	Low	380	38
		P	Community Engagement Coordinator	Dec-14	Low	1,604	88
		Q	Media & Communication Officer	Sep-11	Low	841	57
		R	Media & Communication Coordinator	Jul-12	Low	350	47
Observational data	Past and ongoing online service innovation projects						
Example archival data	Nexus: Best practice client case studies, Client scoring sheets, Nexus website, blog and press releases Clients: Client interview videos; Community engagement policy documents; Client websites						
Other data	Follow-up emails; Informal conversations						

† As defined by intermediary

Table 2: Clients' internal barriers to open service innovation

Barrier	Key Concepts	Freq.	Rel.	Example quotes
Organizational barriers				
<i>Source: Client interviews, intermediary interviews, intermediary email</i>				
1 Lack of buy-in from senior executives for open service innovation	challenges	20	8%	"Our senior executives are open to using it, they are not fearful of engaging with the community, but some council leaders are very sceptical of online community engagement" (Corporate Strategic Planner, Client F). "Technical people in the council see themselves as experts and don't see the need to invite ideas from outsiders" (Senior Community Engagement Officer, Client H) "Our CEO is very supportive of community engagement as a philosophy. [We] see community engagement as a core activity while other councils view it as a discretionary activity" (Community Engagement Coordinator, Client G).
	buy-in	12	5%	
	senior	16	6%	
	organizational	30	11%	
	risk	9	3%	
	understanding	25	10%	
2 Lack of strategic framework for open service innovation	value	23	9%	"There is often a culture that community engagement is not core to everybody's role, [so] people tend to view community engagement as a secondary job" (Manager Community Services & Development, Client M) "Councils need to engage in a strategic planning exercise on what the council needs to engage with their community for, and link this to their annual budget and delivery exercise." (Sales Manager, Nexus) "There is no agreed strategic framework to do community engagement [...] leading to inconsistency in project approach - some do what the minimum requirement is, while others go above and beyond" (Economic & Tourism Development Leader, Client N).
	strategic	24	9%	
	framework	20	8%	
	online	45	17%	
	consultation	22	8%	
	policy	18	7%	
3 Competency gap in online community engagement	council	66	25%	<i>Source: Client interviews, intermediary interviews, intermediary email</i> "People sometimes do not have the skills to use or access the platform; not all of them are as computer literate" (Corporate Strategic Planner, Client F) "There is lack of skills among project team staff to use [the platform], although it is a simple system to use, due to which the load falls on the core engagement team" (Stakeholder Engagement Co-ordinator, Client D) "There is a gap in [the staff's] higher-level understanding of online community engagement methodology and practices" (Sales Manager, Nexus). "Some staff do not learn to use all tools... they do not understand the value of online engagement, and there is also a perception that it is too much work. [There is] attitudinal reluctance and resistance to the use of online engagement" (Program Leader, Client K) "Most people are not interested in getting trained on it as they don't have the time and don't see it as a priority." (Stakeholder Engagement Co-ordinator, Client D)
	government	22	8%	
	team	29	11%	
	staff	23	9%	
	lack	22	8%	
	knowledge	10	4%	
	skills	8	3%	
	use	57	22%	
	variety	6	2%	
	platform	33	13%	
	tools	30	11%	
	survey	15	6%	
discussion	9	3%		
training	9	3%		
methodology	11	4%		
4 Staff capacity issues for online community engagement	staff	23	9%	"Staff tends to use the platform in a minimalist way due to lack of resources to dedicate to online engagement." (Program Leader Corporate Communications & Marketing, Client K). "[Some clients] particularly seem to be always under-resourced, always on a stretch and always in a situation where they don't seem to plan beyond tomorrow. These guys buy the software but don't use it or when they use it, they use it poorly because it's all done on a very tight deadline and they don't have the capacity to actually say, 'We're going to release something in 3 weeks, so we're going to start work on it now'. It's usually Friday night and they want to have it done on Monday" (CTO)
	capacity	13	5%	
	issues	11	4%	
	resource	17	6%	
	money	11	4%	
	budget	24	9%	
internal	14	5%		
change	14	5%		
team	29	11%		

Table 3: Intermediary capability and processes in client engagement

Phase 1			Phase 2			Phase 3		
<i>Concept</i>	<i>Count</i>	<i>Relevance</i>	<i>Concept</i>	<i>Count</i>	<i>Relevance</i>	<i>Concept</i>	<i>Count</i>	<i>Relevance</i>
Technological capability			Technological capability			Technological capability		
platform	13	37%	platform	64	46%	software	48	19%
product	10	29%	product	44	32%	platform	95	38%
use	10	29%	use	122	88%	use	122	49%
early	14	40%	software	51	37%	Marketing capability		
Marketing capability			tools	49	36%	online	52	21%
engagement	35	100%	project	52	38%	business	50	20%
community	29	83%	site	40	29%	marketing	84	34%
online	23	66%	look	85	62%	Co-creation capability		
business	9	26%	Marketing capability			<i>Personalising client services</i>		
space	17	49%	engagement	138	100%	engagement	247	100%
marketing	10	29%	community	51	37%	managers	113	46%
team	8	23%	online	27	20%	support	86	35%
people	29	83%	business	30	22%	service	56	23%
government	13	37%	better	30	22%	<i>Building client relationships</i>		
started	18	51%	Co-creation capability			people	126	51%
create	11	31%	<i>Personalising client services</i>			work	125	51%
awareness	10	29%	started	47	34%	team	76	31%
public	16	46%	support	68	49%	<i>Fostering client skills & expertise</i>		
speaking	7	20%	team	66	48%	training	60	24%
blog	7	20%	service	40	29%	strategic	39	16%
social	9	26%	experience	30	22%	project	61	25%
work	10	29%	technical	30	22%	<i>Co-developing product with clients</i>		
			process	24	17%	product	111	45%
			<i>Building client relationships</i>			managers	113	46%
			build	48	35%	better	70	28%
			relationship	36	26%	feedback	56	23%
			people	81	59%	<i>Creating sustainable value</i>		
			work	85	62%	role	60	24%
			feedback	23	17%	community	106	43%
			<i>Creating sustainable value</i>			level	50	20%
			email	36	26%	company	54	22%
			best	33	24%	<i>Developing integrated service processes</i>		
			practice	57	41%	process	75	30%
			role	22	16%	focus	58	23%
			company	31	22%	best	40	16%
						practice	79	32%
						trying	70	28%
						guess	48	19%

Relevance indicates the importance of the respective concept relative to the most central concept.

Table 4: Intermediary’s capabilities and microfoundations in helping clients overcome barriers to community-based open service innovation

Intermediary capability	Illustrative evidence / Example quotes
1 Technological capability	
<i>Helps clients overcome project-level barriers by: Addressing skill & competency gap; Addressing workforce constraints/Improving staff capacity; Enhancing motivation to learn and utilize tools & functionalities</i>	
> Developing the digital platform	<p><i>Sources: Intermediary interview, website, email</i> <i>Example:</i> “We are a B2B SaaS company in the purest sense of the term... it's actually a very strong business model, we keep our renewal rates at more than 80% – the focus of our business model has also made [client] processes much more well-aligned – that’s the way we have designed things for the client” (CTO, email)</p>
> Increasing front-end platform tool suite	<p><i>Sources: Intermediary interview, client interview, intermediary website, online project observation</i> <i>Examples:</i> “[We focused] on making the features and functionalities of the front end of the platform more sophisticated...so going from two tools to seven or eight, and so on. So yes what that essentially does is it makes the platform more user-friendly for the actual participant from the community...differentiating the front end of the tool, we have a fairly sophisticated platform” (Sales Manager) “We provide more functionality in our platform than most competitors do” (Operations Manager)</p>
> Improving back-end platform functionality	<p><i>Sources: Intermediary interview, client interview</i> <i>Examples:</i> “Now the real crux of the work [on the platform] is all about internal reporting... it needs to be the tool that helps engagement professionals, because the participant tool set was sellable...so it really is turning into a productivity tool [for clients]...making engagement productive for engagement professionals.” (Learning & Practice Manager) “Staff has a lot of demands on their time and resources, and other teething priorities often distract from community engagement...[but] they like the platform once they use it as its quick and easy” (Manager Community Services & Development, Client M).</p>
> Enhancing front-end & back-end user experience	<p><i>Sources: Intermediary interview, client interview, intermediary website, online project observation</i> <i>Example:</i> The tools were designed so that the platform can be tailored to the users’ needs – clients can choose what tools they need and create their projects accordingly (Nexus website) “We have time restrictions.[and] some people are reluctant to learn all functionalities of the platform...Nexus' platform is easy to use...and has good data analytics capabilities. Nexus are leaders in the market; so [we] chose them after some market research of online engagement providers” (Community & Corporate Planner, Client E)</p>
2 Marketing capability	
<i>Helps clients overcome organizational barriers by: Winning the buy-in of senior executives in client organizations; Lowering resistance to change & openness among senior leaders; Promoting a strategic outlook to online community engagement</i>	
> Positioning Nexus as an advocate for online community engagement	<p><i>Sources: Intermediary interview, client interview, intermediary website</i> <i>Examples:</i> “Community engagement forms the core value and ideals for the company, and [Nexus’s] brand and positioning as an advocate for online community engagement places them in a unique spot for clients who are interested in this space” (Operations Manager). “We love the fact that Nexus actually understands community engagement and have experience in the area – we have listened a lot to what [the founders] and others at Nexus have to say” (Community Engagement Coordinator, Client G)</p>

- > Creating awareness about online community engagement among (potential) clients
Sources: Intermediary interview, client interview, intermediary website
Examples: “There was lots of early advocacy and education to people, informal and formal....We had zero marketing budget, it was just these two [founders] traveling, public speaking, writing the blog, promoting their LinkedIn and other social media...to first say one could do community engagement online rather than traditional face to face consultation” (CTO)
 “We sensed there was a need for online community engagement in the public sector, but are also having to create a market for it by educating clients as we go along” (Operations Manager).
- > Promoting the value and benefits of online community engagement
Sources: Intermediary interview, client interview
Examples: “We have had to convince clients of the need for online community engagement” (Operations Manager, Nexus)
 “[Nexus founders] not just talk [about the product] but about community engagement in general... this gives exposure to managers and senior staff to the benefits and value of engagement” (Senior Community Engagement Officer, Client H)

3 CCs

Reinforce intermediary's technological capabilities (and helps clients overcome project-level barriers) by: Bridging skill & competency gap/Building holistic knowledge around online community innovation; Addressing workforce constraints/Improving staff capacity; Enhancing motivation to learn and utilize tools & functionalities

- > Individuated capability (Personalizing client services)
Sources: Intermediary interview, intermediary email, client interview, online site observation
Examples: “There is lack of skills among project team staff to use [the platform], although it is a simple system to use, due to which the load falls on the core engagement team”(Stakeholder Engagement Co-ordinator, Client D)
 “We worked with key staff at [Client D] to become a central support team and put in place systems and processes for creating and training an internal team of staff who understand and deliver engagement activities...to build capacity of all staff to engage” (Engagement Manager I, email)
 Client D has shown an overall improvement in the areas of project type and scoping, tool selection, and using community feedback for decision making, leading to better engagement project outcomes. (Online site observation – Client D)
- >Relational capability (Building client relationships)
Sources: Intermediary interview, intermediary email, client interview, online site observation
Examples: "Nexus comes to the fore by building humanised relationships with clients...they are not just a technical service. Client roundtables are great to build face-to-face relationship with the team...for feedback and peer review. It is great to rate and compare how you are faring in relation to peers. We got really good feedback from the Nexus team, and got recognised for our online practice as well" (Community Engagement Coordinator, Client G)
 “[We have] most been able to influence [Client G] in all areas of online engagement, including project scoping, using tools, reporting and evaluating practice...has helped with embedding engagement in the organization (Learning & Practice Manager). “[Client G] is particularly proficient in using [our platform].” (Client Engagement Manager III, email)
- > Developmental capability (Fostering client skills and expertise)
Sources: Intermediary interview, intermediary email, client interview, online site observation
Examples: “[Client B] has a lack of staff resources and dedicated [budget] for engagement projects...we provide access to engagement training, training a small internal team of champions...[and] ongoing support and advice...[they are] now starting to select engagement tools based on the project and audience, a good shift away from just surveys, updated their online engagement site, [and are] looking at recruiting some internal champions” (Client Engagement Manager I, email).
 “Nexus provides a lot of support and training...[they are] very responsive... Help on the site is very intuitive...they also do webinars and walk-throughs on the website. Masterclasses are good too ” (Stakeholder Engagement Coordinator, Client B)

> Empowered capability
(Co-developing product
with clients)

Sources: Intermediary interview, client interview

Examples: "Clients have been immersed in the design process" (Operations Manager)

"I loved being involved in the design of product upgrades via feedback etc." (Community & Corporate Planner, Client E)

"In an increasingly competitive marketplace, we want to use our development resources in the right strategic direction. This is achieved by using inputs from clients on a regular basis: feedback from the market - our potential clients - through the sales & marketing team; from clients through regular meet-ups and roundtables. These insights complement competitive analysis in the local and international market to create a strategic product roadmap." (CTO)

Also enables intermediary's marketing capabilities (and indirectly helps clients overcome organizational barriers) by: Enhancing project staff motivation to learn, share and engage; Accessing and influencing senior executives by inspiring project staff; Leveraging client relationships to create "bottom-up" marketing

Sources: Intermediary interview, client interview

Examples: "We adopt a bottom-up approach to reach out to senior executives by educating and convincing the managers and administrators of the value of good online engagement....so they can take it up with their seniors" (Operations Manager).

"We share the best practice shared by Nexus to other areas in the council – to spread awareness and the value of online engagement" (Corporate Strategic Planner, Client F)

"The real advocates of community engagement are usually more junior people in clients, and Nexus works closely with them" (Operations Manager)

Reinforces intermediary's marketing capabilities (and helps clients overcome organizational barriers) by: Winning the buy-in of senior executives in client organizations; Lowering resistance to change & openness among senior leaders; Promoting a strategic outlook to online community engagement

> Ethical capability
(Creating sustainable
value)

Sources: Intermediary interview, intermediary email, client interview, online site observation

Examples: "It was always clear to me that Nexus is the brand, [the platform] is our product. It is more about Nexus, being practice leaders in the field. The marketing isn't specifically promotional or anything. Even our product demos...its has always started with the value of engagement to the community... why are we doing this...and then it would jump into the functions and features and the functionality of the platform. People who jump straight to a technical solution are missing the greater value of it all." (Sales Manager)

"We don't just sell for the sake of selling. All we say is, 'We've got something that might be able to add value to you and you might be interested in. This is a thing that will give you a community outcome. They're generally trying to- clients to deliver good engagement to give people a voice. We've always been a civic-minded business...it's all for the public good. That's the work that we do. That's the space that we work in.'" (Chief Practice Officer)

The website focuses more on learning resources, best practice case studies, and fortnightly staff picks of exemplary client projects, than showcasing their product (online observation).

> Concerted capability
(Developing integrated
service processes)

Sources: Intermediary interview, client interview

Examples: "A lot of the time that we spent has been around understanding how to engage communities better online. It's understanding the client needs, but it's also understanding how to get a better outcome for both the community and for a client, how that might work better. So, it's really, about understanding the needs of the end user, in this case, which is the actual community participant. So, all the work that we've done in the engagement practice side, all those tools that we created is to develop more implementable processes to be able to consistently provide this across our expanding base of clients."

"We advocate the need for community engagement to be viewed as a strategic function... A client would often judge our value based on how successful they are with our tool... if they are no good at using our product, the community won't get involved...so we kind of have to continue this [conversation] around [best] practice (Learning & Practice Manager)

References

- Abela, A.V., and P.E. Murphy. 2008. Marketing with integrity: ethics and the service-dominant logic for marketing. *Journal of the Academy of Marketing Science* 36 (1): 39-53.
- Afuah, A. 2002. Mapping technological capabilities into product markets and competitive advantage: The case of cholesterol drugs. *Strategic Management Journal* 23 (2): 171-179.
- Afuah, A., and C.L. Tucci. 2012. Crowdsourcing as a solution to distant search. *Academy of Management Review* 37 (3): 355-375.
- Alam, I. 2002. An exploratory investigation of user involvement in new service development. *Journal of the Academy of Marketing Science* 30 (3): 250-261.
- Amit, R., and P.J.H. Schoemaker. 1993. Strategic assets and organizational rent. *Strategic Management Journal* 14 (1): 33-46.
- Antons, D., and F.T. Piller. 2015. Opening the black box of “Not Invented Here”: Attitudes, decision biases, and behavioral consequences. *The Academy of Management Perspectives* 29 (2): 193-217.
- Baldwin, C., and E. Von Hippel. 2011. Modeling a paradigm shift: From producer innovation to user and open collaborative innovation. *Organization Science* 22 (6): 1399-1417.
- Berry, L.L., V. Shankar, J.T. Parish, S. Cadwallader, and T. Dotzel. 2006. Creating new markets through service innovation. *MIT Sloan Management Review* 47 (2): 56.
- Bessant, J., and H. Rush. 1995. Building bridges for innovation: the role of consultants in technology transfer. *Research Policy* 24 (1): 97-114.
- Beverland, M., A. Lindgreen, J. Napoli, D. Ballantyne, and R. Aitken. 2007. Branding in B2B markets: insights from the service-dominant logic of marketing. *Journal of Business & Industrial Marketing* 22 (6): 363-371.
- Biesenthal, C., S. Gudergan, and V. Ambrosini. 2018. Modifying operational capabilities: Matching the nature of dynamic and operational capabilities. *Long Range Planning* forthcoming
- Boudreau, K., and K. Lakhani. 2009. How to manage outside innovation. *MIT Sloan Management Review* 50 (4): 69-76
- Burawoy, M. 1991. *Ethnography unbound: Power and resistance in the modern metropolis*. Berkeley, CA: Univ of California Press.
- Cassiman, B., and R. Veugelers. 2006. In search of complementarity in innovation strategy: internal R&D and external knowledge acquisition. *Management Science* 52 (1): 68-82.
- Chesbrough, H. 2003. *Open innovation: The new imperative for creating and profiting from technology*. Boston, MA: Harvard Business School Press.
- Chesbrough, H. 2011a. Bringing open innovation to services. *MIT Sloan Management Review* 52 (2): 85-90.
- Chesbrough, H. 2011b. *Open services innovation: Rethinking your business to grow and compete in a new era*. San Francisco: Jossey-Bass.
- Chesbrough, H., and M. Bogers. 2014. Explicating open innovation: Clarifying an emerging paradigm for understanding innovation. In: Chesbrough, H., Vanhaverbeke, W. and West, J. *New Frontiers in Open Innovation*. Oxford: Oxford University Press, 3-28.
- Collis, D.J. 1994. Research note: how valuable are organizational capabilities? *Strategic Management Journal* 15 (S1): 143-152.

- Colombo, G., C. Dell'Era, and F. Frattini. 2015. Exploring the contribution of innovation intermediaries to the new product development (NPD) process: a typology and an empirical study. *R&D Management* 45 (2): 126-146.
- Dahlander, L., and L. Frederiksen. 2012. The core and cosmopolitans: A relational view of innovation in user communities. *Organization Science* 23 (4): 988-1007.
- Danneels, E. 2002. The dynamics of product innovation and firm competences. *Strategic Management Journal* 23 (12): 1095-1121.
- Danneels, E. 2012. Second-order competences and Schumpeterian rents. *Strategic Entrepreneurship Journal* 6 (1): 42-58.
- Day, G.S. 1994. The capabilities of market-driven organizations. *Journal of Marketing* 58 (4): 37-52.
- den Hertog, P., W. van der Aa, and M.W. de Jong. 2010. Capabilities for managing service innovation: towards a conceptual framework. *Journal of Service Management* 21 (4): 490-514.
- Diener, K., and F. Piller (2013). *The Market for Open Innovation: A market study of intermediaries, brokers, platforms and facilitators helping organizations to profit from open innovation and customer co-creation*. Raleigh, NC: Lulu Publishing.
- Dixon, B.E. 2010. Towards e-government 2.0: An assessment of where e-government 2.0 is and where it is headed. *Public Administration and Management* 15 (2): 418.
- Eisenhardt, K.M. 1989. Building theories from case study research. *Academy of Management Review* 14 (4): 532-550.
- Eisenhardt, K.M., and M.E. Graebner. 2007. Theory building from cases: Opportunities and challenges. *Academy of Management Journal* 50 (1): 25-32.
- Felin, T., N.J. Foss, K.H. Heimeriks, and T.L. Madsen. 2012. Microfoundations of routines and capabilities: Individuals, processes, and structure. *Journal of Management Studies* 49 (8): 1351-1374.
- Felin, T., N.J. Foss, and R.E. Ployhart. 2015. The microfoundations movement in strategy and organization theory. *The Academy of Management Annals* 9 (1): 575-632.
- Fishenden, J., and M. Thompson. 2013. Digital government, open architecture, and innovation: why public sector IT will never be the same again. *Journal of Public Administration Research and Theory* 23 (4): 977-1004.
- Frow, P., and A. Payne. 2011. A stakeholder perspective of the value proposition concept. *European Journal of Marketing* 45 (1/2): 223-240.
- Galunic, D.C., and S. Rodan. 1998. Resource recombinations in the firm: Knowledge structures and the potential for Schumpeterian innovation. *Strategic Management Journal*: 1193-1201.
- Gassmann, O., E. Enkel, and H. Chesbrough. 2010. The future of open innovation. *R&D Management* 40 (3): 213-221.
- Gelhard, C., S. von Delft, and S. Gudergan. 2016. Heterogeneity in dynamic capability configurations: Equifinality and strategic performance. *Journal of Business Research* 69 (11): 5272-5279.
- Gounaris, S.P. 2005. Trust and commitment influences on customer retention: insights from business-to-business services. *Journal of Business Research* 58 (2): 126-140.
- Grönroos, C., and A. Ravald. 2011. Service as business logic: implications for value creation and marketing. *Journal of Service Management* 22 (1): 5-22.
- Guston, D.H. (2001). *Boundary organizations in environmental policy and science: an introduction*. Thousand Oaks, CA: Sage Publications

- Hargadon, A., and R.I. Sutton. 1997. Technology brokering and innovation in a product development firm. *Administrative Science Quarterly*: 716-749.
- Hargadon, A.B. 1998. Firms as knowledge brokers: Lessons in pursuing continuous innovation. *California Management Review* 40 (3): 209-227.
- Helfat, C., and M. Peteraf. 2003. The Dynamic Resource-Based View: Capability Lifecycles. *Strategic Management Journal* 24 (10): 997-1010.
- Helfat, C.E., and S.G. Winter. 2011. Untangling dynamic and operational capabilities: Strategy for the (N) ever-changing world. *Strategic management journal* 32 (11): 1243-1250.
- Henderson, R.M., and K.B. Clark. 1990. Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. *Administrative Science Quarterly*: 9-30.
- Hollebeek, L.D., T. W. Andreassen, D.L. Smith, D. Grönquist, A. Karahasanovic, and Á. Márquez. 2018. Epilogue—service innovation actor engagement: an integrative model. *Journal of Services Marketing* 32 (1): 95-100.
- Howe, J. 2006. The rise of crowdsourcing. *Wired Magazine* 14 (6): 1-4.
- Howe, J. 2008. *Crowdsourcing: How the power of the crowd is driving the future of business*: New York: Crown Publishing Group
- Howells, J. 2006. Intermediation and the role of intermediaries in innovation. *Research Policy* 35 (5): 715-728.
- Hughes, B., and J. Wareham. 2010. Knowledge arbitrage in global pharma: A synthetic view of absorptive capacity and open innovation. *R & D Management* 40 (3): 324-343.
- Jeppesen, L.B., and K.R. Lakhani. 2010. Marginality and problem-solving effectiveness in broadcast search. *Organization Science* 21 (5): 1016-1033.
- Jonas, J.M., J. Boha, D. Sörhammar, and K.M. Moeslein. 2018. Stakeholder engagement in intra- and inter-organizational innovation: Exploring antecedents of engagement in service ecosystems. *Journal of Service Management*. Forthcoming
- Karpen, I.O., L.L. Bove, and B.A. Lukas. 2012. Linking service-dominant logic and strategic business practice: A conceptual model of a service-dominant orientation. *Journal of Service Research* 15 (1): 21-38.
- Karpen, I.O., L.L. Bove, B.A. Lukas, and M.J. Zyphur. 2015. Service-dominant orientation: measurement and impact on performance outcomes. *Journal of Retailing* 91 (1): 89-108.
- Kindström, D., C. Kowalkowski, and E. Sandberg. 2013. Enabling service innovation: A dynamic capabilities approach. *Journal of Business Research* 66 (8): 1063-1073.
- Klerkx, L., A. Hall, and C. Leeuwis. 2009. Strengthening agricultural innovation capacity: are innovation brokers the answer? *International Journal of Agricultural Resources, Governance and Ecology* 8 (5-6): 409-438.
- Kohli, A.K., and B.J. Jaworski. 1990. Market orientation: the construct, research propositions, and managerial implications. *Journal of Marketing* 54 (2): 1-18.
- Kowalkowski, C. 2011. Dynamics of value propositions: insights from service-dominant logic. *European Journal of Marketing* 45 (1/2): 277-294.
- Laczniak, G.R. 2006. Some societal and ethical dimensions of the service-dominant logic. In: R.F. Lusch and S.L. Vargo *The service-dominant logic of marketing: Dialog, debate, and directions*, New York: M.E. Sharpe: 279-285.
- Lagnevik, M., H. Sarv, and U. Khalid Khan (2010). Innovation community governance The case of Skåne Food Innovation Network. In: *9th Wageningen International Conference on Chain and Network Management 26–28 May 2010, Wageningen, Netherlands*.

- Langner, B., and V.P. Seidel. 2015. Sustaining the flow of external ideas: The role of dual social identity across communities and organizations. *Journal of Product Innovation Management* 32 (4): 522-538.
- Lauritzen, G.D. 2017. The Role of Innovation Intermediaries in Firm-Innovation Community Collaboration: Navigating the Membership Paradox. *Journal of Product Innovation Management* 34 (3): 289-314.
- Lee, S.M., T. Hwang, and D. Choi. 2012. Open innovation in the public sector of leading countries. *Management Decision* 50 (1): 147-162.
- Leonard-Barton, D. 1992. Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal* 13 (S1): 111-125.
- Lincoln, Y.S., and E.G. Guba. 1985. *Naturalistic inquiry* Beverly Hills, CA: Sage.
- Lopez-Vega, H. (2009). How demand-driven technological systems of innovation work? The role of intermediary organizations. In: *Proceedings of the DRUID-DIME Academy Winter 2009 Conference*.
- Lusch, R.F., and S. Nambisan. 2015. Service Innovation: A Service-Dominant Logic Perspective. *MIS Quarterly* 39 (1): 155-175.
- Lusch, R.F., and S.L. Vargo. 2006. Service-dominant logic: reactions, reflections and refinements. *Marketing Theory* 6 (3): 281-288.
- Lusch, R.F., S.L. Vargo, and A.J. Malter. 2006. Marketing as service-exchange: Taking a leadership role in global marketing management. *Organizational Dynamics* 35 (3): 264-278.
- Lusch, R.F., S.L. Vargo, and M. O'Brien. 2007. Competing through service: Insights from service-dominant logic. *Journal of Retailing* 83 (1): 5-18.
- Lusch, R.F., S.L. Vargo, and M. Tanniru. 2010. Service, value networks and learning. *Journal of the Academy of Marketing Science* 38 (1): 19-31.
- Lynn, L.H., N.M. Reddy, and J.D. Aram. 1996. Linking technology and institutions: the innovation community framework. *Research Policy* 25 (1): 91-106.
- Madhavaram, S., and S.D. Hunt. 2008. The service-dominant logic and a hierarchy of operant resources: Developing masterful operant resources and implications for marketing strategy. *Journal of the Academy of Marketing Science* 36 (1): 67-82.
- Mantel, S., and G. Rosegger. 1987. The role of third-parties in the diffusion of innovations: a survey. *Innovation: Adaptation and growth* In: Rothwell, R. and Bessant, J. Amsterdam: Elsevier: 123-134.
- Mathies, C., and M. Burford. 2011. Customer service understanding: gender differences of frontline employees. *Managing Service Quality* 21 (6): 636-648.
- Mele, C., and T. Russo-Spena. 2015. Innomediary agency and practices in shaping market innovation. *Industrial Marketing Management* 44: 42-53.
- Mina, A., E. Bascavusoglu-Moreau, and A. Hughes. 2014. Open service innovation and the firm's search for external knowledge. *Research Policy* 43 (5): 853-866.
- Moeller, S. 2008. Customer integration—a key to an implementation perspective of service provision. *Journal of Service Research* 11 (2): 197-210.
- Morgan, N.A. 2012. Marketing and business performance. *Journal of Academy of Marketing Science* 40: 102-119.
- Normann, R., and R. Ramirez. 1993. From value chain to value constellation. *Harvard Business Review* 71 (4): 65-77.

- Ordanini, A., and A. Parasuraman. 2010. Service innovation viewed through a service-dominant logic lens: a conceptual framework and empirical analysis. *Journal of Service Research* 14 (1): 3-23.
- Ostrom, A.L., M.J. Bitner, S.W. Brown, K.A. Burkhard, M. Goul, V. Smith-Daniels, H. Demirkan, and E. Rabinovich. 2010. Moving forward and making a difference: research priorities for the science of service. *Journal of Service Research* 13 (1): 4-36.
- Ostrom, A.L., A. Parasuraman, D.E. Bowen, L. Patricio, and C.A. Voss. 2015. Service research priorities in a rapidly changing context. *Journal of Service Research* 18 (2): 127-159.
- Payne, A.F., K. Storbacka, and P. Frow. 2008. Managing the co-creation of value. *Journal of the Academy of Marketing Science* 36 (1): 83-96.
- Perks, H., T. Gruber, and B. Edvardsson. 2012. Co-creation in radical service innovation: a systematic analysis of microlevel processes. *Journal of Product Innovation Management* 29 (6): 935-951.
- Peters, M., S. Gudergan, and P. Booth. 2018. Interactive Profit-Planning and Market Turbulence: A Dynamic Capabilities Perspective. *Long Range Planning* forthcoming.
- Prahalad, C.K. 2004. The blinders of dominant logic. *Long Range Planning* 37 (2): 171-179.
- Prahalad, C.K., and V. Ramaswamy. 2004. Co-creation experiences: The next practice in value creation. *Journal of Interactive Marketing* 18 (3): 5-14.
- Prandelli, E., M. Swahney, and G. Verona. 2008. *Collaborating with customers to innovate: conceiving and marketing products in the networking age*: Northhampton, MA: Edward Elgar Publishing.
- Ramaswamy, V., and F. Guillard. 2010. Building the co-creative enterprise. *Harvard Business Review* 88 (10): 100-109.
- Randhawa, K., E. Jossierand, J. Schweitzer, and D. Logue. 2017. Knowledge collaboration between organizations and online communities: the role of open innovation intermediaries. *Journal of Knowledge Management* 21 (6): 1293-1318.
- Randhawa, K., and M. Scerri. 2015. Service Innovation: A review of the literature. In *The Handbook of Service Innovation*, In: R. Agarwal, W. Selen, G. Roos, and R. Green London: Springer: pp. 27-51.
- Randhawa, K., R. Wilden, and J. Hohberger. 2016. A Bibliometric Review of Open Innovation: Setting a Research Agenda. *Journal of Product Innovation Management* 33 (6): 750-772.
- Rooney, D. 2005. Knowledge, economy, technology and society: the politics of discourse. *Telematics and Informatics* 22 (4): 405-422.
- Rusanen, H., A. Halinen, and E. Jaakkola. 2014. Accessing resources for service innovation—the critical role of network relationships. *Journal of Service Management* 25 (1): 2-29.
- Sawhney, M., E. Prandelli, and G. Verona. 2003. The power of innomediation. *MIT Sloan Management Review* 44 (2): 77.
- Schleimer, S.C., and D. Faems. 2016. Connecting interfirm and intrafirm collaboration in NPD projects: Does innovation context matter? *Journal of Product Innovation Management* 33 (2): 154-165.
- Schneider, B., and D.E. Bowen. 2010. Winning the service game. In *Handbook of service science*, In P.P Maglio, C.A Kieliszewski and J.C Spohrer: Boston, MA: Springer: 31-59
- Seldon, T. 2011. Beyond patents: Effective intellectual property strategy in biotechnology. *Innovation: Management, Policy and Practice* 13 (1): 55-61.

- Sheth, J.N., and A. Sharma. 2008. The impact of the product to service shift in industrial markets and the evolution of the sales organization. *Industrial Marketing Management* 37 (3): 260-269.
- Sieg, J.H., M.W. Wallin, and G. Von Krogh. 2010. Managerial challenges in open innovation: a study of innovation intermediation in the chemical industry. *R&D Management* 40 (3): 281-291.
- Siggelkow, N. 2007. Persuasion with case studies. *Academy of management journal* 50 (1): 20.
- Smith, A.E., and M.S. Humphreys. 2006. Evaluation of unsupervised semantic mapping of natural language with Leximancer concept mapping. *Behavior Research Methods* 38 (2): 262-279.
- Song, M., C. Droge, S. Hanvanich, and R. Calantone. 2005. Marketing and technology resource complementarity: An analysis of their interaction effect in two environmental contexts. *Strategic Management Journal* 26 (3): 259-276.
- Spanos, Y., E., and S. Lioukas. 2001. An examination into the causal logic of rent generation: Contrasting Porter's competitive strategy framework and the resource-based perspective. *Strategic Management Journal* 22 (10): 907-934.
- Stankiewicz, R. 1995. The role of the science and technology infrastructure in the development and diffusion of industrial automation in Sweden. *Technological systems and economic performance: The case of factory automation*: Dordrecht: Springer: 165-210.
- Sutton, R.I., and T.A. Kelley. 1997. Creativity doesn't require isolation: Why product designers bring visitors "backstage". *California Management Review* 40 (1): 75-91.
- Svensson, G., and C. Grönroos. 2008. Service logic revisited: who creates value? And who co-creates? *European Business Review* 20 (4): 298-314.
- Teece, D.J. 2007. Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal* 28 (13): 1319-1350.
- Vanhaverbeke, W., V. Van de Vrande, and H. Chesbrough. 2008. Understanding the advantages of open innovation practices in corporate venturing in terms of real options. *Creativity and Innovation Management* 17 (4): 251-258.
- Varey, R.J. 2008. Marketing as an interaction system. *Australasian Marketing Journal (AMJ)* 16 (1): 79-94.
- Vargo, S.L., and R.F. Lusch. 2004. Evolving to a new dominant logic for marketing. *Journal of Marketing* 68 (1): 1-17.
- Vargo, S.L., and R.F. Lusch. 2016. Institutions and axioms: an extension and update of service-dominant logic. *Journal of the Academy of Marketing Science* 44 (1): 5-23.
- Vargo, S.L., P.P. Maglio, and M.A. Akaka. 2008. On value and value co-creation: A service systems and service logic perspective. *European Management Journal* 26 (3): 145-152.
- Vargo, S.L., H. Wieland, and M.A. Akaka. 2015. Innovation through institutionalization: A service ecosystems perspective. *Industrial Marketing Management* 44: 63-72.
- Verma, R., A. Gustafsson, P. Kristensson, and L. Witell. 2012. Customer co-creation in service innovation: a matter of communication? *Journal of Service Management* 23 (3): 311-327.
- Verona, G., E. Prandelli, and M. Sawhney. 2006. Innovation and virtual environments: Towards virtual knowledge brokers. *Organization Studies* 27 (6): 765-788.
- Von Hippel, E. 1986. Lead users: a source of novel product concepts. *Management Science* 32 (7): 791-805.

- Watson, R., H.N. Wilson, P. Smart, and E.K. Macdonald. 2018. Harnessing Difference: A Capability-Based Framework for Stakeholder Engagement in Environmental Innovation. *Journal of Product Innovation Management* 35 (2): 254-279.
- West, J., and S. Gallagher. 2006. Challenges of open innovation: The paradox of firm investment in open-source software. *R & D Management* 36 (3): 319-331.
- West, J., A. Salter, W. Vanhaverbeke, and H. Chesbrough. 2014. Open innovation: The next decade. *Research Policy* 43 (5): 805-811.
- Wilden, R., M.A. Akaka, I.O. Karpen, and J. Hohberger. 2017. The Evolution and Prospects of Service-Dominant Logic: An Investigation of Past, Present, and Future Research. *Journal of Service Research* 20 (4): 345-361.
- Wilden, R., and S. Gudergan. 2015. The impact of dynamic capabilities on operational, marketing and technological capabilities: investigating the role of environmental turbulence. *Journal of the Academy of Marketing Science* 43: 181-199.
- Wilden, R., and S. Gudergan. 2017. Service-dominant orientation, dynamic capabilities and firm performance. *Journal of Service Theory and Practice* 27 (4).
- Wilden, R., S. Gudergan, M. Akaka, A. Averdung, and T. Teichert. 2018. The Role of Cocreation and Dynamic Capabilities in Service Provision and Performance: A Configurational Study. *Industrial Marketing Management* forthcoming.
- Wilden, R., J. Hohberger, T.M. Devinney, and D. Lavie. 2018. Revisiting James March (1991): Whither exploration and exploitation? *Strategic Organization* forthcoming.
- Winter, S.G. 2003. Understanding dynamic capabilities. *Strategic Management Journal* 24 (10): 991-995.
- Witell, L., L. Anderson, R.J. Brodie, M. Colurcio, B. Edvardsson, P. Kristensson, L. Lervik-Olsen, R. Sebastiani, and T. Wallin Andreassen. 2015. Exploring dualities of service innovation: implications for service research. *Journal of Services Marketing* 29 (6/7): 436-441.
- Yin, R. (1994). *Case study research: Design and methods*. Beverly Hills: CA: Sage Publishing.
- Yin, R.K. 2003. *Case study research*, Thousand Oaks: California
- Zahra, S.A., and G. George. 2002. Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review* 27 (2): 185-203.
- Zhou, K.Z., and F. Wu. 2009. Technological capability, strategic flexibility, and product innovation. *Strategic Management Journal* 31 (5): 547-561.
- Zogaj, S., U. Bretschneider, and J.M. Leimeister. 2014. Managing crowdsourced software testing: a case study based insight on the challenges of a crowdsourcing intermediary. *Journal of Business Economics* 84 (3): 375-405.