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Wilden, R., Gudergan, S., Akaka, M.A., Averdung, A., and Teichert, T. (2019)
The role of cocreation and dynamic capabilities in service provision and performance: a configurational study. **Industrial Marketing Management, 78 pp. 43-57.**

Access to this file is available from:

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Please refer to the original source for the final version of this work:

<https://doi.org/10.1016/j.indmarman.2018.06.008>

**THE ROLE OF COCREATION AND DYNAMIC CAPABILITIES IN SERVICE
PROVISION AND PERFORMANCE: A CONFIGURATIONAL STUDY**

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Highlights

- This paper investigates higher-order and lower-order capabilities for professional service firms.
- This study establishes the importance of dynamic capabilities and cocreation capabilities for service provision.
- This study provides novel evidence from a survey of 279 marketing advisory firms.
- The analyses reveal five configurations of capability portfolios with differences in customer-based or financial performance.

Paper published in *Industrial Marketing Management*. Please cite as:

Wilden, R.M., Gudergan, S., Akaka, M., Averdung, A. & Teichert, T. 2019. 'The role of cocreation and dynamic capabilities in service provision and performance: a configurational study', *Industrial Marketing Management*, vol. 78, pp. 43-57.

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ABSTRACT

The success of a professional service firm (PSF) relies on its capabilities for leveraging relationships with clients – i.e., cocreation capabilities (CCs) – and adapting to changing environments – i.e., dynamic capabilities (DCs). Previous research shows that the interaction of these two organizational capabilities and the multidimensional configuration of DCs. However, little is known about how CCs and DCs are *jointly* configured within PSFs and how trade-offs between these distinct capabilities relate to service provision and performance across different firms. This study explores the path dependent nature of higher- and lower- order capabilities and uses data from 279 marketing advisory firms to investigate how different configurations of higher-order CCs and DCs are associated with lower-order service provision capabilities (SPCs) and similar or different performance. We find that CCs can substitute for DCs, and that DCs and CCs can compensate for SPCs in achieving higher levels of customer-based performance. However, the same does not apply for financial performance in which CCs do not appear to overcome deficiencies in DCs and SPCs. Also, firms can have similar SPCs and experience similar financial performance while emphasizing the use of either DCs or CCs; suggesting DCs and CCs may substitute for each other.

Keywords: Professional service firm; Co-creation; Dynamic capability; Configuration; Operant resource; Service-dominant logic

1. Introduction

Professional service firms (PSFs) leverage the resources and knowledge of clients (Aarikka-Stenroos & Jaakkola, 2012; Heirati et al., 2016) through the development and deployment of cocreation capabilities (CCs) – i.e., processes that enable close interaction with clients (Karpen et al., 2015). Thus, “clients play a critical role in helping [PSFs] to cocreate or ‘co-produce’ the knowledge-based service solution” (Bettencourt et al., 2002, p. 100). Although CCs enable a PSF to form and maintain relationships with clients, the joint development of a client’s value proposition ultimately occurs through the PSF’s service provision capabilities (SPCs) – i.e., processes that enable direct provision of service. However, the extent to which CCs are a basis for firms to better provide service is conditional upon their dynamic capabilities (DCs) – i.e., processes that facilitate the identification of and response to market opportunities (Danneels, 2010; Fischer et al., 2010; Kindström et al.; Storbacka, 2011; Wilden & Gudergan, 2017). Although prior research provides evidence that CCs and DCs interact and that firms, in general, differ in how their multifaceted DCs are configured (Gelhard et al., 2016), we do not yet understand how a PSF’s DCs and CCs are *jointly* configured. Furthermore, research is needed to investigate whether different configurations of DCs and CCs are associated with differences in SPCs and/or differ in firm performance.

Following a configurational logic, we argue that PSFs are “best understood in terms of overall patterns [that capture jointly their multifaceted DCs and CCs] rather than in terms of analyses of narrowly drawn sets of organizational properties” (Meyer et al., 1993, p. 1181). A PSF’s ability to develop value propositions with and for clients requires interaction and transfer of knowledge as well as an ability to adapt to change (Wagner et al., 2014). Thus, a PSF’s use of CCs *together with* its DCs is especially critical as professional service-based industries shift and change

(Aarikka-Stenroos & Jaakkola, 2012; Døving & Gooderham, 2008; Fischer et al., 2010; Karpen et al., 2015; Storbacka, 2011). A more holistic understanding of how DCs and CCs characterize PSFs, therefore, cannot rest on capturing only the universal and individual roles of these capabilities. Rather, researchers and managers must consider the interconnected nature of the individual capabilities that make up DCs and CCs to understand how different PSFs are composed of unique patterns of these capabilities and come with certain SPCs and performance attainments.

In this study, we explore (i) differences among PSFs based on their configurations of DCs and CCs, to reveal the interconnected nature of these two sets of capabilities and their trade-offs; and (ii) how PSFs characterized by these configurations can be further described according to their SPCs and similarities and differences in performance. We draw on recent research that has clarified the interconnected nature of DCs and CCs as two higher-order capabilities (Karpen et al., 2015; Wilden & Gudergan, 2017) and recognized the path dependence of lower-order capabilities, such as SPCs (Vergne & Durand, 2011). The configurations that we examine combine the multiple capabilities that make up DCs and CCs and are defined by the magnitude of as well as the interconnections among these capabilities. In this sense, these configurations represent gestalts that Venkatraman (1989, p. 432) defines as the “degree of internal coherence among a set of theoretical attributes.” Rather than assuming linear associations between attributes, such as those of DCs and CCs, attributes in a gestalt form a holistic pattern that reflects a higher-order configuration of capabilities (Miller & Friesen, 1977). Thus, to develop a holistic view of the role of CCs and DCs in service provision and firm performance, we explore higher-order capability configurations of DCs and CCs and describe their association with lower-order SPCs and performance.

We investigate configurations of these higher-order capabilities by drawing on data from a sample of 279 marketing advisory firms because the marketing advisory industry is made up of PSFs that work closely with their clients and is faced with significant changes (Heirati et al., 2016). The study of capability configurations requires an approach that differs from marketing strategy and service research that uses variance-based arguments and analyses (Karpen et al., 2015; Wilden & Gudergan, 2015). Configurational studies underscore the importance of investigating configurations of capabilities rather than their individual causal effects (Gruber et al., 2010). Although variance-based studies are well-suited for explaining levels of outcomes of predictor variables, a configurational approach is more appropriate for establishing differences among PSFs in terms of their configurations of DCs and CCs and for describing PSFs based on their SPCs and performance (Doty et al., 1993; Fiss, 2007; Meyer et al., 2005; Meyer et al., 1993). Moreover, this approach allows exploring whether PSFs, operating in the same dynamic service ecosystem, can attain similar or different performance outcomes by making trade-offs between CCs and DCs (Fiss, 2011).

We contribute to the understanding of capabilities relevant to PSFs in several ways. First, we advance a stronger integration of resource and capability thinking into service-ecosystems literature (Wilden et al., 2017) by empirically studying how PSFs can be distinguished based on differences in their configurations of DCs and CCs, and how these higher-order capability configurations are accompanied by SPCs, which support PSF performance. Second, we contribute to value cocreation literature by explaining that accounting for the hierarchy of operant resources clarifies how cocreation of value occurs in different ways. Third, we add to the capability literature by discovering how different higher-order capability configurations can yield different but also similar performance outcomes; supporting the notion of path-dependent

developments of capabilities along firm-specific trajectories within the DC view that come with their unique performance attainments. This will allow researchers, as well as managers of PSFs, to understand the trade-offs amongst the higher-order DCs and CCs, in consideration of related SPCs, and gain a deeper understanding of how different types of capabilities are associated with value creation and firm performance (Madhavaram & Hunt, 2008).

2. Background

Strategy research has acknowledged the differentiation of capabilities into higher-order and lower-order capabilities (Collis, 1994; Danneels, 2008; Winter, 2003). *Higher-order capabilities* are defined as capabilities “that allow firms to overcome the path dependence that led to the inimitability of the lower-order capabilities” (Collis, 1994, p. 149). *Lower-order capabilities* represent the firm’s ability to perform a coordinated set of everyday tasks on an ongoing basis “using more or less the same techniques on the same scale to support existing products and services for the same customer population” (Helfat & Winter, 2007, p. 1244). Thus, they support the firm to run their core operations (as in the case of PSFs is service provision) (Amit & Schoemaker, 1993; Helfat & Peteraf, 2003) and enable the firm to make a living in the present (Winter, 2003). Following this logic, higher-order capabilities (DCs and CCs) shape the path dependency of PSFs by conditioning lower-order capabilities (in our case SPCs) and firm performance.

Ngo and O’Cass (2009, p. 45) recognize the importance of understanding how value is created through organizational capabilities and argue that “surprisingly little theory exists and few studies have been done to examine the role of firm capabilities and their differential contribution to customer value as perceived by management in strategic marketing.” To begin to address this gap, the authors propose the concept “operant resource-based capabilities” by

integrating a resource-based view (Barney 1991) and a service-dominant logic (Vargo & Lusch 2004) perspective. Elaborating the role of resources, Ngo and O’Cass (2009, p. 47) argue that “capabilities possess operant characteristics as they act on both operand and operand resources to produce effects, but they are not operand resources.” In this view, different operant resources enable organizations to have different types of capabilities. PSFs, as any other type of industrial firm, typically face resource constraints that require them to make trade-offs in resource investments and thus capability development, which ultimately leads to PSFs’ capabilities developing along firm-specific (path dependent) trajectories. Resulting capability configurations may represent either a sustained source of uniqueness that is valuable in the long term (Vergne & Durand, 2011) or, a source of organizational rigidity (Amit & Schoemaker, 1993).

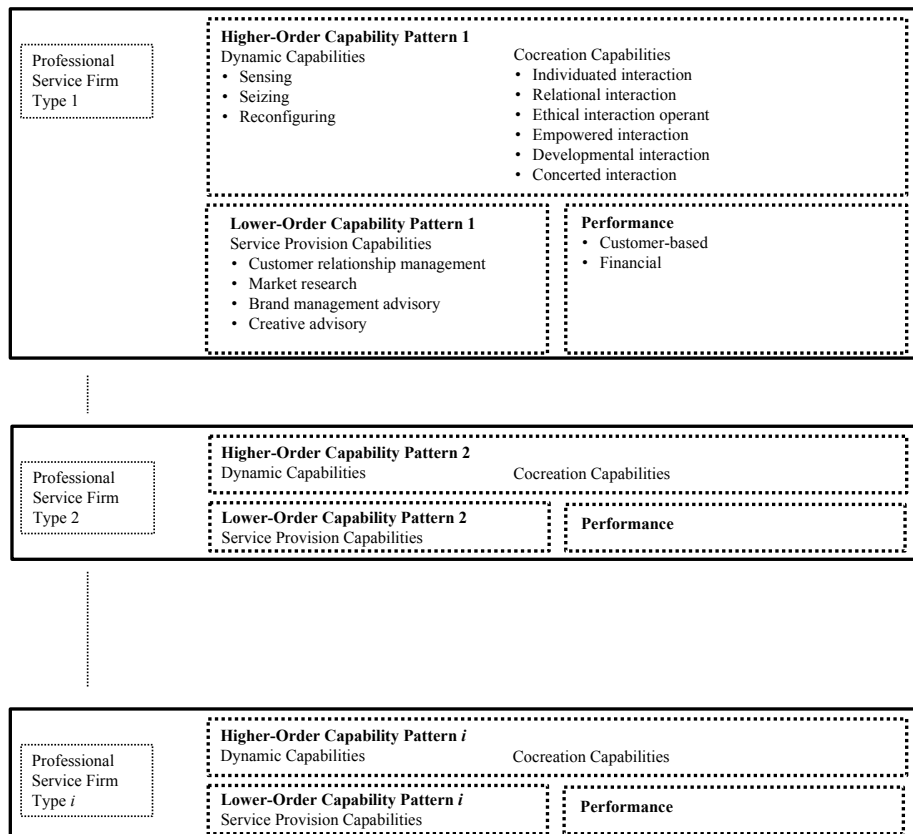
Within service-dominant literature (e.g., Vargo & Lusch 2011) different tiers of higher and lower-order capabilities (Collis, 1994) are supported by a hierarchy of a firm’s operant resources – those that act upon other resources to create value (Madhavaram & Hunt, 2008). The hierarchy of basic, composite and interconnected operant resources (Madhavaram & Hunt, 2008) indicates that the ability for firms to deliver service requires a portfolio of higher- and lower-order capabilities. Basic operant resources, include the individual skills and knowledge of each employee; composite operant resources comprise two or more basic operant resources and allow a firm to produce service offerings both efficiently and effectively (this represents what we call ‘SPCs’); interconnected operant resources, exhibit high interactivity between its underlying basic operant resources. Building on this classification, Madhavaram and Hunt (2008) stress the importance interconnected operant resources, such as market relating (which are relevant to what we label CCs) and organizational learning, knowledge creation and entrepreneurial capabilities (which facilitate carrying out processes relevant to DCs).

This hierarchy of operant resources framework is helpful for understanding the path-dependent role of DCs and CCs because these higher-order capabilities can be classified as interconnected operant resources. For example, Karpen et al. (2015, p. 98) see DCs and CCs on the same higher-order level by stating that “This collaboration with and potential integration of external actors add a degree of dynamism, and like dynamic capabilities, [...] [CCs challenge] the firm to discern necessary changes and adapt its processes or procedures to seize outside-in opportunities.” In this way, both CCs and DCs are interconnected operant resources that enable the development of relationships and response to changing environments. In other words, unlike composite operant resources, which include combinations of task-specific knowledge and practices needed to provide a specific service (e.g., writing an advertising slogan), the knowledge and practices that enable a firm to sustain in changing environments and develop and leverage relationships cannot be easily separated.

Notwithstanding the importance of DCs and CCs as higher-order capabilities, the consideration of additional lower-order capabilities is needed to understand the relationship among capabilities and firm performance. SPCs are lower-order capabilities (composed of composite operant resources), which can be applied relatively independently in the development of value propositions. However, we lack a detailed understanding of how DCs and CCs interconnect and provide a basis on which SPCs and firm performance rest. Higher order CCs and DCs in a PSF may create path dependent sustainable competitive advantage by fostering its SPCs in unique ways (Collis, 1994; Vergne & Durand, 2011); however, path dependencies may also weaken competitive advantage when firms experience lock-in and are resistant to change. In other words, if lower-order SPCs become stale the higher-order capabilities that enable a firm to develop and sustain relationships, as well as adapt and change become crucial.

The consideration of higher- and lower-order capabilities in PSFs indicates DCs are higher-order capabilities (Fischer et al., 2010; Kindström et al.; Storbacka, 2011) through which a PSF aligns lower-order capabilities (in our study SPCs) with changes in the environment. This is done by breaking the rigidities resulting from path dependencies at lower levels, and thus represent higher-order capabilities that may lead to internal reconfiguration within the PSF (Collis, 1994; Vergne & Durand, 2011). CCs are higher-order capabilities that shape the way in which a PSF interacts with its clients (Karpen et al., 2015) when deploying its SPCs. This, in turn, will enable a PSF to utilize SPCs in a more or less client-focused fashion. Resource-based theories suggest that a given set of a PSF’s lower-order capabilities (i.e., SPCs) at a given time is the result of a PSF’s position and path dependencies (Barney, 1991; Teece et al., 1997). Figure 1 provides a summary of our conceptual thinking.

Figure 1: Theoretical framework



In the following, we describe the relevance of CCs, DCs and SPCs for firms in general, and PSFs in particular.

2.1 Cocreation capabilities

Cocreation is recognized as an important strategic process for creating value with customers (Prahalad & Ramaswamy, 2004b; Stokburger-Sauer et al., 2016). This process of engagement has been studied across a variety of service settings, including healthcare (McColl-Kennedy et al., 2012), as well as other knowledge-intensive business industries (Aarikka-Stenroos & Jaakkola, 2012). Conceptualizations of cocreation vary from specific dyadic encounters (Grönroos, 2011) to broad social and cultural processes (Akaka et al., 2013; Vargo & Lusch, 2011) and include (direct or indirect) interaction between two or more individuals or organizations that potentially lead to a positive outcome for one or more parties. Value cocreation is the driving force of service ecosystems (Vargo and Lusch 2011), which emerge and evolve through interactions among a multitude of actors and their social and economic exchange.

Karpen et al. (2012; 2015) propose a set of six capabilities (relational, ethical, individuated, empowered, developmental, and concerted inter-action) that are based on interconnected operant resources (Madhavaram and Hunt 2008) and, in combination, represent a firm's capacity to cocreate value with others. These higher-order capabilities enable firms to engage in different forms of interaction independent of any specific service episode, thereby enabling ongoing and potentially long-lasting relationships (Karpen et al., 2012). Importantly, CCs are critical for PSFs' performance because "such capabilities provide the foundation for competing on service" and thereby guide the development of related lower-order industry specific SPCs. Consequently, building on the conceptual understanding introduced by Karpen et

al. (2012; 2015), we view the higher-order CCs as a portfolio of six capabilities that facilitate and enhance interactions with clients. See Table 1 for the definitions of the respective capabilities.

Table 1: Definition of CCs and underlying reasoning (Karpen et al. 2015)

| Label of (sub-) construct | Definition of (sub-)construct and reasoning |
|--|---|
| Individuated interaction capability | <p><i>A firm's ability to understand the resource integration processes, contexts, and desired outcomes of individual actors within the service system.</i></p> <p>This capability enables firms to better anticipate and sense the unique partners' circumstances and desired experiences. Value co-creation is thus facilitated and/or enhanced as solutions can subsequently be offered that better fit each partner's idiosyncratic conditions.</p> |
| Relational interaction capability | <p><i>A firm's ability to enhance the connection of social and emotional links with individual actors within the service system.</i></p> <p>The skill of connecting with and relating to partners supports an environment conducive to relationship building. Value co-creation is thus facilitated and enhanced, as feelings such as bonding and belonging are fostered and social interaction processes are eased.</p> |
| Ethical interaction operant capability | <p><i>A firm's ability to act in a fair and non-opportunistic way toward individual actors within the service system.</i></p> <p>Ethical interaction manifests the firm's ability to instill confidence in its partners that it will act in their best interest rather than at their expense. Value co-creation is thus facilitated and/or enhanced, as organizations interact with partners in less intimidating, exploitative, and deceiving ways, resulting in mutual benefit.</p> |
| Empowered interaction capability | <p><i>A firm's ability to enable individual actors within the service system to shape the nature and content of exchange.</i></p> <p>Empowered interaction addresses the involvement of partners in organizational processes so that they can shape resources and experiences in their favor. Value co-creation is thus facilitated and/or enhanced, as partners have a greater and more direct say in the actualized outcomes.</p> |
| Developmental interaction capability | <p><i>A firm's ability to assist individual actors' own knowledge and competence development within the service system.</i></p> <p>Developmental interaction represents the organization's ability to educate partners and help them to become more skilled. Value co-creation is thus facilitated and/or enhanced, as more knowledgeable partners can make more informed decisions and make better use of resources.</p> |
| Concerted interaction capability | <p><i>A firm's ability to facilitate coordinated and integrated service processes with individual actors within the service system.</i></p> <p>The ability to synchronize service processes between partners is manifested in concerted interaction. Value co-creation is thus supported, as service system partners work together seamlessly to avoid value drains (e.g., time, effort, anxiety) that negatively affect their own experience or experiences of their partners.</p> |

A PSF's ability to ensure a deep connection with customers relies on three interconnected CCs: individuated, relational, and ethical. These higher-order capabilities enable firms to engage directly with their clients by understanding their needs and establishing a relationship that is built on trust. PSFs that develop ongoing dialogue, provide access to information, are transparent about business practices, and are likely to help increase value for customers (Prahalad & Ramaswamy, 2004a). This is why relational and ethical interaction capabilities play such an important role in the overall CCs of a firm and its lower-order capabilities, such as SPCs. Furthermore, a PSF's ability to assist clients in creating value for themselves involves several enabling capabilities as well: developmental, empowered, and concerted. These capabilities, in turn, allow PSFs to use SPCs that enable critical thinking and contribute to the development of solutions as part of the knowledge creation and transfer process, which is common across professional service industries. Together, these CCs represent a PSF's potential for client engagement and interaction, which can support more effective use of SPCs. From a strategic perspective, the goal is to understand the PSF's role in a customer's value creation process (Grönroos, 2011) so that SPCs that can contribute to the development of value propositions.

2.2 Dynamic capabilities

Dynamic capabilities are higher-order capabilities that enable a firm to sense opportunities, design different lower-order capability specifications, and modify these capabilities in order to match market requirements and deviate from an existing path and thus reduce path dependencies (Danneels, 2008; Teece et al., 1997). Effective lower-order capabilities (i.e., SPCs) rely on DCs when service ecosystems change (Vargo & Lusch, 2011). Thus, like CCs, DCs differ from SPCs, which support the firm in the present (Winter, 2003). DCs comprise the firm's sensing capability, seizing capability, and reconfiguring capability (Teece, 2007).

Sensing capability comprises the scanning, search, and exploration processes deployed to generate knowledge about the PSF's internal operations, clients, markets, the competitive landscape and the general environment (Augier & Teece, 2009). It enables the PSF to recognize gaps in their SPCs—these gaps grow with increasing changes in environments, in which the provision of certain professional services becomes essential to compete, and to understand ensuing opportunities. Thus, PSFs that engage in sensing and proactively scanning the environment gain greater understanding of changes and their ensuing implications, such that ultimately they understand which capabilities are necessary for effective adaptation in dynamic markets (Castanias & Helfat, 2001). For example, in marketing advisory PSFs clients may demand more than marketing strategy advice and require complementary creative advice. Understanding the necessary capabilities to provide this advice can enable the effective provision of services that complement clients' internal capabilities. In turn, a PSF's better understanding of client needs concerning new service opportunities allows it to offer better advice to customers. Gaining understanding of suitable capabilities, which are foundations for offering professional services (i.e., developing compelling value propositions) to clients, thus is essential to leveraging new opportunities (Casson & Wadson, 2007). Because sensing allows PSFs to recognize and understand (1) service provision opportunities; (2) gaps in their existing capabilities; and (3) possible SPCs that might fill such gaps, the quality of PSFs' SPCs should be better.

Seizing capability facilitates decision-making for specifying a possible business model and allocating investment (Teece, 2007). The related commercial evaluations of available information lead to conclusions and specifications about how a PSF's SPCs should look like to take advantage of selected opportunities. For example, a PSF, in conjunction with identifying certain client advice opportunities, evaluates and determines which SPCs are most appropriate so

that it is able to offer suitable advice. This process involves strategic decisions about whether to invest in SPCs; however, it does not extend to the implementation of any changes to the firm's SPCs. Thus, in consideration of the sensing outputs, seizing assists in specifying a business model with SPCs that fill the firm's capability gap aptly; thus, SPCs should be of better quality.

Reconfiguring capability puts the service strategy that emerges from the seizing capability deployment into practice (Helfat et al., 2007). This capability entails establishing the needed bundle of SPCs that are required to offer certain service products, such as initiating the hiring of appropriately skilled employees with needed competencies and creating applicable knowledge bases. Additionally, this involves specifying and implementing service blueprints (i.e., organizational routines that are part of lower-order capabilities) that support the delivery of certain advisory services through which client advice is delivered. Reconfiguring thus supports the implementation of suitable SPCs. Ultimately, these concerted efforts should correspond with a better fit of the ensuing SPCs into the capability gap; they should be of better quality.

2.3 Service provision capabilities

Prior studies have shown that collaboration is critical for PSFs, but the effectiveness of collaboration rests on a firm's ability to respond to market turbulence and to develop long-term relationships, rather than striving for short-term outcomes (Heirati et al., 2016). Hence, the consideration of CCs and DCs is important for PSFs that are striving to establish effective SPCs that rest on lasting relationships with customers and continually cocreate value in rapidly changing industries. These higher-order capabilities are associated with a PSFs ability to provide service and work closely with clients in developing value propositions. Although cocreation is recognized as a driver of collaboration (Karpen et al., 2015), they are not necessarily the same. In their study of PSFs, Heirati et al. (2016, p. 51) define interfirm collaboration as "the degree to

which a PSF engages with two or more independent partners (e.g., suppliers, customers) to jointly develop and provide professional services.” This collaborative effort is a narrower type of cocreation, one that requires direct engagement and joint development of a value proposition.

Because the main role of a PSF is to establish itself as a knowledge repository for firms (Wagner et al., 2014), a critical aspect of the service these firms provide is the transfer and integration of knowledge from a PSF to a client. PSFs extend the boundaries of a client by allowing clients to leverage the knowledge and skills of a PSF in the development of their own value propositions (Wagner et al., 2014). Because PSFs provide high levels of knowledge in specialized areas, such as legal, marketing, accounting, and human resources, clients rely on the PSF’s SPCs for developing their own products and managing their internal processes and external communications as well. In other words, PSFs connect and enable clients to create value on a general level through interaction and CCs, but also require a specialized set of lower-order capabilities related to the joint development of clients’ specific value propositions.

Akaka and Chandler (2011, p. 255 emphasis in original) distinguish between value cocreation and the joint development of a value proposition (also referred to as coproduction). This distinction suggests that the higher-order conceptualization of value cocreation involves the *“integration and application of resources...that contribute to the creation and determination of phenomenological value,”* which aligns with the study of CCs and capabilities associated with interaction and resource integration via relationships. In this view, the lower-order, more direct collaboration between a service provider and its clients contributes more specifically to the *“development of potential exchangeable resources”* or a value proposition. In this way, the direct development of a value proposition involves particular lower-order capabilities that draw on different operant resources (from those that underlie CCs), such as SPCs (Akaka & Chandler,

2011). In the case of marketing advisory firms, SPCs contribute to the joint development of a client's value proposition by helping to manage a client's customer relationships, communications and brand image.

2.4 Performance

As a PSF's configuration of DCs and CCs characterizes its path-dependent SPCs and performance, its higher-order capabilities should not be considered in isolation. CCs help align PSFs with client requirements in a way that engaging and connecting with clients comes with an effective set of SPCs that provide professional services that are connecting and enabling. While DCs allow PSFs to have in place SPCs that are relevant in changing environments, SPCs themselves are associated with the accomplishment of certain operational objectives (e.g., providing valuable services) and the PSF's financial performance (Helfat et al., 2007). Although a PSF's configuration of CCs and DCs provide a means for long-term growth, its path-dependent SPCs permit the firm to execute various business activities, and coproduce and deliver the professional services that we have outlined above. These SPCs should come, in turn, with achievement of certain performance goals, such as attainment of financial performance by offering advisory services through which it can generate income (cf Di Benedetto et al., 2008). SPCs thus enable a PSF to implement a professional services strategy and meet its operational performance goals (Penrose, 1959). Therefore, as in industrial firms performance is a reflection of industrial service capabilities (Böhm et al., 2016; Eggert et al., 2011; Raddats et al., 2015), PSF performance should reflect the firm's SPCs. Performance of SPCs, similar to performance in any operational domain, then should be associated with the PSF's overall performance (Helfat et al., 2007; Penrose, 1959). Thus, and in line with works of authors such as Eggert et al. (2014) and Oliva et al. (2012), a PSF's performance should mirror its SPCs.

3. Research setting and data

It is important to note that PSFs integrate a variety of capabilities for a given episode of service exchange (Vargo & Lusch 2004; 2008; 2011). Thus, a configurational approach is used here to uncover the designs and combinations of system elements (e.g., in the context of this study: DCs and CCs) and how they, as configurations, are associated with path-dependent lower-order SPCs as well as firm performance. Three assumptions underlie the configurational logic and align with a service ecosystems perspective. First, single factors rarely fully explain outcomes of interest. Second, multiple factors rarely function in isolation and the configurations of these factors act as gestalts. Third, the strength and direction of effects of individual factors may differ depending on the context (Greckhamer et al., 2007) such that different configurations exist. Importantly, different configurations can associate with similar outcomes; that is, different configurations can relate to the same outcomes (Fiss, 2011). Organizational configurations can be both empirically or conceptually driven (Cardinal et al., 2010), with previous research differentiating between typologies (conceptual frameworks that are hard to test) and taxonomies (empirically driven but lacking underlying theory). In this study, we use an inductive approach to derive configurations (i.e., taxonomy); that is, we first theoretically specify the interconnected role of higher-order CCs and DCs, based on the hierarchy of operant resources and extant classifications of capabilities, and then use clustering techniques on these to derive configurations of these. Although the configurations are empirically driven, previous research has stressed the importance of such an approach for “the development of valid and precise frameworks for describing organizations and explaining their performance differences” (Ketchen et al., 1993, p. 1306). Following Cardinal et al. (2010) we apply a configuration approach with the understanding that is both theory-driven and empirically testable.

The empirical study draws on data from PSFs operating a single industry to study higher-order capability configurations, their corresponding lower-order capabilities, and their association with performance; without having to account for differences in industry characteristics. Using a survey of strategic business units of PSFs, data reported by key informants serve to measure the higher- and lower-order operant capabilities discussed above.

3.1 Research context

In this study, we investigate marketing advisory firms as the focal type of PSF. According to Von Nordenflycht (2010), these PSFs provide marketing strategy and give creative advice to their clients. The value propositions developed by these PSFs require intimate relationships with clients to fully understand brand identity and strategic visions. Furthermore, marketing advisory firms must respond to major changes in information communication technologies, and, thus, operate within a dynamic service ecosystem. This industry underscores the importance of DCs and CCs in a PSF's ability to develop compelling and effective value propositions, but also highlights specific SPCs required for enhancing firm performance. We focus on advisory services that relate to three strategic marketing capabilities that have been identified as being crucial for firms: market sensing (or market research), brand management and customer relationship management capabilities (Day, 1994; Srivastava et al., 1998). We conceptualize that PSFs use SPCs to complement clients' marketing capabilities. For example, we are not interested in how the PSF manages its own brands, but rather how it provides advice that assists client's activities in that area.

Market research advisory capability. This capability concerns the PSF's capacity to support clients in better understanding *the client's own* customers, competitors, distribution partners and broader market environment in which clients operate (Day, 1994). For example, PSFs draw on

their market sensing advisory capability to support their clients in discovering customer needs. Further, the gathered market intelligence will provide the client firm's managers with insights concerning opportunities within existing customer segments (Morgan et al., 2005).

Brand management advisory capability. This capability comprises the processes and practices that allow the PSF to support their clients in developing and maintaining strong brands (Aaker, 2012; Hulland et al., 2007). Further, through this capability PSFs support their clients in best leveraging their brand resources in line with the market environment. Assisting clients with strengthening their brand equity corresponds with high brand awareness and brand associations in their market, typically leading to positive customer responses (e.g., Keller, 1993), ultimately improving client performance (Slotegraaf & Pauwels, 2008).

Customer relationship management advisory capability. This capability represents a PSF's capacity to assist its clients in creating, managing and leveraging close and strong customer relationships (Reinartz et al., 2004; Rust & Chung, 2006). This strategic marketing advisory capability is important for two reasons. First, PSFs, and especially marketing advisory firms, use this capability to support their clients to create long-term relationships with their customers as this type of relationship is more likely to generate profitable outcomes for both the client and its customers (Dwyer et al., 1987; Verhoef, 2003). Second, this capability supports clients in identifying which prospective and existing customers are more or less attractive (Mulhern, 1999; Niraj et al., 2001). Complementing a client's customer relationship management capability, in turn, should improve the client's cash-flow (Srivastava et al., 1998).

Further, these PSFs rely on their *creative advisory capability* to deliver their services and thus provide inputs into creative solutions that are both novel and relevant to their clients.

Following Sternberg & Lubart (1999, p. 3) and in substantiating the importance of creative

marketing advisory capabilities, we define creative capabilities as the organizational capability “to produce work that is both novel (i.e., original, unexpected) and appropriate (i.e., useful, adaptive concerning task constraints).” Consequently, we stress two aspects of creative capabilities: divergence and relevance (Koslow et al., 2003). This is in line with research on creativity in general (Guilford, 1956). Divergence represents the novel and unexpected dimension of creativity (Smith & Young 2004). Divergence is a necessary, but not sufficient condition for creativity: the solutions also need to be valuable and in line with the clients’ strategic requirements (Sternberg & Lubart, 1992).

3.2 Data collection

To investigate the nature and role of relevant higher-order capability configurations, we collected data using an online survey of marketing advisory firms located in Germany. The data collection was supported by the Association of Communication Agencies (Gesamtverband Kommunikationsagenturen e.V.), which represents agencies’ interests towards government, industry and the general public. The association provided us with contact details of their members; we also added non-members to our sample. The unit of analysis is strategic business units. These comprise owner-run agencies as well as network agencies, which often form part of an international holding and may be active through separate business units (e.g., Zuberbier, 1994). The agency industry is characterized by close customer interactions and high flexibility, which requires different business units often located at different locations to typically be run as independent units with differing service portfolios and autonomous decision-making in regards to their offerings (Botzenhardt & Pätzmann, 2012). Accordingly, in this study we consider individual business units as having their own decision-making, having idiosyncratic capabilities and competing with other network and owner-run agencies. The strategic business units of

agencies varied in size, and no type of agency dominated the sample to ensure sufficient variation in possible higher-order capability configurations. Senior managers, who possess knowledge about tacit organizational processes difficult to observe (Chen et al., 1993), served as key informants for their respective business unit.

Prior to running the survey, we pretested the instrument intensively by conducting 10 in-depth interviews with experienced agency managers and three experienced researchers to verify the content, clarity, and wording of the statements (DeVellis 2003). Given that we adapt existing measurement models and scales to our context, we also ran a pilot study with 57 respondents to investigate relevant measurement properties. We considered a key informant approach to be appropriate for our study as existing archival data does not describe business unit-level constructs such as capabilities (Kumar et al. 1993). The industry association contacted their members to raise awareness of our study. Subsequently, we emailed the surveys, and then sent two reminders to possible respondents. We promised all respondents a research report and invited them to attend an industry workshop at the conclusion of the survey to gain knowledge of our findings (Cycyota and Harrison 2006). After deleting incomplete surveys, we obtained 285 usable survey responses, for a response rate of 20.3%.¹ Considering the length of the survey and the seniority of the respondents, this response rate was satisfying and comparable to similar studies (Chmielewski & Paladino, 2007; Wilden & Gudergan, 2015).

We compared early with late respondents by running Mann-Whitney U-tests on all included statements and no significant differences are evident at the 5% level. On average, the PSFs employed between 31-60 staff, their largest client accounted for approximately 27% of the

¹ Given that the Ward's algorithm, and cluster analysis in general (Ketchen and Shook 1996), may be sensitive to outliers, we identified and removed 6 outliers; thus, 279 usable responses remained for the subsequent analyses.

revenue, and 13% of their revenue was performance-based. To verify the appropriateness of these key informants, we measured their experience; on average, they had industry-specific work experience exceeding 15 years (62.7%).

To reduce the likelihood of informant bias, we selected respondents with comparable roles in their respective firm and guaranteed respondents confidentiality of their responses (Heneman, 1974; Kumar et al., 1993). To address common method bias concerns, we applied an effective questionnaire design, guaranteed respondent confidentiality, and reduced statement ambiguity (i.e., pilot tests; Podsakoff et al., 2003). We further used Harman's single-factor test by entering the study variables into a principal components factor analysis. The results indicated no common method concerns (Lane et al., 2001). Furthermore, we adopted a common method variable approach to assess this possibility further (Podsakoff et al., 2003). In line with Sattler et al. (2010), we used a latent common method factor to estimate the loadings on every item in the partial least squares structural equation path model, in addition to each item's loading on its theoretical construct.

3.3 Measures

To investigate the discussed capabilities and identify relevant higher-order capability configurations, we adapted existing measurement models to fit our research context.

Respondents were asked to indicate the level of agreement for each of the measurement model statements on a 7-point Likert scale.

Dynamic capabilities. We adapted an existing measurement model developed by Wilden et al. (2015; 2013) and validated by Fainshmidt and Frazier (2016). Sensing, seizing and reconfiguring capabilities were reflected in five statements each, which capture the frequency of use of relevant systematic DC processes within the PSF.

Cocreation capabilities. We draw on an existing conceptual framework underlying CCs (Karpen et al., 2012; Karpen et al., 2015). To measure the six subdimensions we created a pool of statements adapted from related research. The number of statements underlying the constructs was reduced following discussions with multiple academic experts, discussions with five senior executives of marketing advisory firms, and was pretested in the above-mentioned pilot study.

The statements for the respective measurement models were adapted from: individualized interaction capability (Narver et al., 2004); ethical interaction capability (Hunt & Chonko, 1987; Min & Mentzer, 2004); relational interaction capability (Gruber et al., 2010; Min & Mentzer, 2004; Ramaswami et al., 2009); empowered interaction capability (Linderbaum & Levy, 2010; Ramani & Kumar, 2008); concerted interaction capability (Malhotra et al., 2005; Pavlou & El Sawy, 2006); and developmental interaction capability (Vorhies & Morgan, 2005).

Service provision capabilities. We gauged SPCs by adapting existing measurement models. Respondents were asked to rate their performance in relation to their competitors. Customer relationship management, market research and brand management advisory capabilities were assessed using an adapted version of Morgan et al.'s (2009) measurement models. To assess creative advisory capability, we combined and adapted several existing measurement models (Azadegan et al., 2008; Im & Workman Jr, 2004).

Performance. We used two performance measures. First, we assessed customer-based performance, which is defined as the clients' satisfaction of the service provision and the resulting loyalty towards the PSF (Lam et al., 2004). In a PSF context, client satisfaction is a positive affective state resulting from the client valuing the interactions and relationship with the firm (Geyskens et al., 1999). Customer-based performance is an indicator of long-term

performance (Dwyer et al., 1987). We measured customer-based performance drawing on Lam et al. (2004). Second, we measured financial performance drawing on Hooley et al. (2005).

3.4 Construct and measurement model validation

Our empirical analyses of higher-order capability configurations rely on measures for each of the capabilities. To create these measures and to assess the appropriateness of our measurement models we used partial least squares structural equation modeling (PLS-SEM) employing the SmartPLS software (Ringle et al., 2014) to obtain standardized latent variable scores. To assess the convergent validity of our reflective measurement models, we used Cronbach's α , average variance extracted (AVE), factor loadings, and composite reliability. The constructs used in this study exhibit values above the recommended thresholds levels for exploratory research (Cronbach's $\alpha > 0.70$, factor loadings > 0.50 , composite reliability > 0.70 , AVE > 0.50 ; see Table 2) (Fornell & Larcker, 1981; Hair et al., 2011; Nunnally, 1978). Only the AVEs for seizing capability and empowered interaction capability are slightly below the cut-off at 0.49 and 0.48, respectively, but both constructs exhibit discriminant validity as described below. Finally, we inspected constructs' discriminant validity using Fornell and Larcker's (1981) criterion to investigate whether constructs differed sufficiently. Each construct's AVE is larger than the square of its largest correlation with any construct. Also, each indicator loading with the associated construct exceeds any loading with any other construct, suggesting adequate discriminant validity; as does fulfilment of the HTMT_{0.85} criterion and HTMT_{inference} (Henseler et al., 2015). Finally, the correlations between the constructs did not raise any concern (see Table 3). Together, these tests provided confidence in the use of our reflective measurement models.

4. Analyses and results

The analytical procedure employed in this study is based on two components. The first

component identifies and describes the higher-order capability configurations based on the individual capabilities that make up DCs and CCs. The second component then further profiles each of the identified higher-order capability configurations, by also describing their corresponding pattern of lower-order SPCs and PSF performance. In order to identify configurations of DCs and CCs, we ran cluster analysis (Gruber et al., 2010). Clustering offers an established technique for detecting groups with similar higher-order capability patterns along the specified cluster variables. Given that the interconnect nature amongst the two sets of higher-order capabilities is underexplored, we follow the ‘classification approach’ of configurational research. That is, our approach is exploratory and demands little prior knowledge on the subject (Ketchen & Shook, 1996).

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Table 2: Quality criteria

| Construct | Indicators | Range | Mean | SD | Loading | AVE | CR | A | AVE>Corr2 | |
|--|--|--|------|------|---------|------|------|------|-----------|-----------|
| ^aDynamic capabilities | | | | | | | | | | |
| Sensing capability | <i>In my organization....</i> | | | | | 0.53 | 0.85 | 0.78 | 0.53>0.42 | |
| | people participate in external institutions (trainings, conferences, etc.) to develop our market knowledge. | 1-7 | 4.78 | 1.51 | 0.67 | | | | | |
| | we follow market and social trends. | 2-7 | 5.54 | 1.15 | 0.78 | | | | | |
| | we observe best practices in our sector. | 1-7 | 4.92 | 1.33 | 0.76 | | | | | |
| | we compare our processes and procedures with those of competitors. | 1-7 | 4.21 | 1.42 | 0.75 | | | | | |
| Seizing capability | <i>In my organization....</i> | | | | | 0.49 | 0.83 | 0.74 | 0.49>0.42 | |
| | We invest funds in the development and commercialization of services. | 1-7 | 4.65 | 1.55 | 0.73 | | | | | |
| | We invest in our competences to identify new solutions for client problems. | 1-7 | 5.28 | 1.33 | 0.83 | | | | | |
| | We adopt the best practices in our sector. | 1-7 | 4.71 | 1.27 | 0.64 | | | | | |
| | We respond to defects pointed out by employees. | 2-7 | 5.35 | 1.14 | 0.65 | | | | | |
| Reconfiguring capability | <i>How often have you carried out the following activities between 2004 and 2008?</i> | | | | | 0.65 | 0.90 | 0.87 | 0.65>0.17 | |
| | Implementation of new kinds of management methods | 1-7 | 3.58 | 1.70 | 0.82 | | | | | |
| | Implementation of new or substantially changed organizational structures | 1-7 | 4.40 | 1.66 | 0.84 | | | | | |
| | Implementation of new or substantially changed business models | 1-7 | 3.87 | 1.70 | 0.75 | | | | | |
| | Implementation of new or substantially changed business processes | 1-7 | 4.01 | 1.62 | 0.79 | | | | | |
| ^bCocreation capabilities | <i>Please respond to the following</i> | | | | | 0.61 | 0.86 | 0.78 | 0.61>0.18 | |
| | Relational interaction capability | | | | | | | | | |
| | We evaluate novel communication measures early together with our clients, even when the concepts are not yet fully developed. | 1-7 | 4.43 | 1.47 | 0.81 | | | | | |
| | We involve our clients in the development process of our communication measures more intensively than is common in the industry. | 1-7 | 4.80 | 1.39 | 0.82 | | | | | |
| | We let clients evaluate novel communication measures especially in early development stages. | 1-7 | 4.20 | 1.59 | 0.81 | | | | | |
| | We continually develop ongoing communication measures in a very collaborative way with clients. | 2-7 | 5.42 | 1.33 | 0.66 | | | | | |
| | Empowered interaction capability | <i>Please respond to the following</i> | | | | | 0.48 | 0.78 | 0.63 | 0.48>0.19 |
| | We encourage our clients to critically evaluate our performance in all areas. | 1-7 | 5.34 | 1.37 | 0.80 | | | | | |
| | We actively search for client feedback on all levels to improve our services. | 2-7 | 5.28 | 1.33 | 0.83 | | | | | |
| | For us the decisive measure of improving our performance is a continuous critical dialogue with our clients. | 2-7 | 5.54 | 1.26 | 0.87 | | | | | |
| Ethical interaction capability | <i>Please respond to the following</i> | | | | | 0.51 | 0.80 | 0.67 | 0.51>0.20 | |
| | We cannot achieve our customer-based objectives without regular and critical client feedback. | 1-7 | 5.32 | 1.46 | 0.79 | | | | | |
| | Our clients' objectives always come first, even if they have negative implications for us. | 1-7 | 4.81 | 1.40 | 0.67 | | | | | |
| | We do not mind to vehemently and persistently disagree with our clients in order to help them make better business decisions. | 1-7 | 5.35 | 1.31 | 0.55 | | | | | |

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| | | | | | | | | | |
|--|---|-----|------|------|------|------|------|------|-----------|
| | We encourage our clients to have a critical exchange of ideas with other clients. | 1-7 | 3.98 | 1.78 | 0.71 | | | | |
| | Even if there are negative consequences for us, our clients can rely on our unrestricted support with important problems. | 1-7 | 5.23 | 1.39 | 0.81 | | | | |
| Individualuated interaction capability | <i>Please respond to the following</i> | | | | | 0.71 | 0.91 | 0.86 | 0.71>0.36 |
| | We try to continuously identify new business opportunities for our clients, which they are not yet aware of. | 1-7 | 4.61 | 1.51 | 0.66 | | | | |
| | We continuously and intensively analyze how clients use our service to achieve their marketing objectives. | 1-7 | 4.25 | 1.51 | 0.76 | | | | |
| | We continuously enhance our services even if our existing service offering becomes redundant. | 1-7 | 5.04 | 1.45 | 0.64 | | | | |
| | We continuously identify important trends in our clients' markets to gain insight into future challenges in their markets. | 1-7 | 5.49 | 1.26 | 0.79 | | | | |
| Concerted interaction capability | <i>Please respond to the following</i> | | | | | 0.52 | 0.81 | 0.69 | 0.52>0.17 |
| | We coordinate our business processes in a way that they are optimally aligned with client processes. | 1-7 | 5.53 | 1.15 | 0.87 | | | | |
| | Our internal structures and processes are entirely aligned with client requirements. | 1-7 | 5.14 | 1.34 | 0.85 | | | | |
| | We always ensure that our business tasks are aligned with our <i>clients'</i> business tasks. | 1-7 | 5.48 | 1.13 | 0.88 | | | | |
| | The (interim) results of our work are always synchronized with our clients' work. | 2-7 | 5.34 | 1.16 | 0.76 | | | | |
| Developmental interaction capability | <i>When working with our clients, we help the clients with...</i> | | | | | 0.68 | 0.89 | 0.84 | 0.68>0.36 |
| | ...gaining a deeper understanding of <i>their</i> market segments and their requirements. | 2-7 | 5.73 | 1.22 | 0.64 | | | | |
| | ...developing ideas for improved products or new services. | 1-7 | 4.85 | 1.48 | 0.74 | | | | |
| | ...continually improving <i>their</i> marketing management and processes. | 1-7 | 4.77 | 1.46 | 0.73 | | | | |
| | ...systematically measuring and monitoring <i>their</i> marketing performance (effectiveness and efficiency). | 1-7 | 4.78 | 1.52 | 0.76 | | | | |
| Service provision capabilities | | | | | | | | | |
| Brand management advisory capability | <i>Please indicate your firm's capabilities relative to your strongest competitors for each of the following.</i> | | | | | 0.66 | 0.89 | 0.83 | 0.66>0.19 |
| | Establishing desired brand associations in our clients' customers' minds. | 2-7 | 5.08 | 1.25 | 0.77 | | | | |
| | Maintaining a positive brand image relative to our clients' competitors. | 1-7 | 5.47 | 1.12 | 0.85 | | | | |
| | Achieving high levels of brand awareness for our clients. | 1-7 | 5.35 | 1.20 | 0.85 | | | | |
| | Tracking brand image and awareness of our clients. | 1-7 | 5.25 | 1.29 | 0.77 | | | | |
| Creative advisory capability (originality) | <i>Please indicate your firm's capabilities relative to your strongest competitors for each of the following.</i> | | | | | 0.80 | 0.94 | 0.92 | 0.80>0.27 |
| | The ideas of our creative department are always original and unique. | 1-7 | 4.85 | 1.28 | 0.89 | | | | |
| | Our solutions exhibit extraordinary creativity industry-wide. | 1-7 | 4.75 | 1.45 | 0.92 | | | | |
| | Our creative department develops concepts that change how people view what is possible. | 1-7 | 4.91 | 1.33 | 0.87 | | | | |
| | Our creative department develops concepts that set new standards in the industry. | 1-7 | 4.53 | 1.47 | 0.89 | | | | |
| Creative advisory capability (relevance) | <i>Please indicate your firm's capabilities relative to your strongest competitors for each of the following.</i> | | | | | 0.70 | 0.90 | 0.86 | 0.70>0.30 |
| | Compared to competitors, our creative solutions are especially efficient and impactful in achieving the desired customer outcomes of our clients. | 2-7 | 5.39 | 1.05 | 0.86 | | | | |

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| | | | | | | | | | |
|---|--|-----|------|------|------|------|------|------|-----------|
| | We develop purposeful creative concepts that always provide effective solutions to client problems. | 1-7 | 5.46 | 1.06 | 0.89 | | | | |
| | We develop creative solutions that contribute to our clients' success in an extraordinary fashion. | 2-7 | 4.45 | 1.20 | 0.84 | | | | |
| | Our creative solutions are easily understandable for customers but strategically complex in their long-term effects. | 2-7 | 5.03 | 1.15 | 0.77 | | | | |
| Customer relationship advisory capability | <i>Please indicate your firm's capabilities relative to your strongest competitors for each of the following.</i> | | | | | 0.68 | 0.89 | 0.84 | 0.68>0.29 |
| | Focusing on meeting our clients' target customers' long-term needs to ensure repeat business. | 2-7 | 5.14 | 1.18 | 0.82 | | | | |
| | Creating loyalty among attractive customers of our clients. | 2-7 | 5.28 | 1.10 | 0.86 | | | | |
| | Enhancing the quality of relationships between our clients and their attractive customers. | 2-7 | 5.28 | 1.11 | 0.86 | | | | |
| | Creating positive relationships between our clients and their previously unattractive customers. | 2-7 | 4.70 | 1.26 | 0.75 | | | | |
| Market research advisory capability | <i>Please indicate your firm's capabilities relative to your strongest competitors for each of the following.</i> | | | | | 0.65 | 0.88 | 0.82 | 0.65>0.30 |
| | Discovering our clients' competitors' strategies and tactics. | 1-7 | 4.64 | 1.38 | 0.81 | | | | |
| | Gaining insights about our clients' channels. | 1-7 | 4.93 | 1.35 | 0.71 | | | | |
| | Identifying and understanding our clients' markets' trends. | 2-7 | 5.13 | 1.24 | 0.84 | | | | |
| | Learning about the broad market environment of our clients' markets. | 1-7 | 5.21 | 1.20 | 0.86 | | | | |
| Performance | | | | | | | | | |
| ^b Customer-based performance | <i>Please answer the following questions in regards to your two most important customers.</i> | | | | | 0.55 | 0.88 | 0.83 | 0.55>0.29 |
| | Our performance always meets our clients' expectations. | 2-7 | 5.52 | 0.96 | 0.75 | | | | |
| | Our clients continuously talk positively about our services to other clients. | 1-7 | 5.46 | 1.04 | 0.84 | | | | |
| | Compared to our strongest competitors we have a significantly better reputation with our clients. | 2-7 | 5.35 | 1.16 | 0.76 | | | | |
| | Our clients continuously confirm that they completely satisfied with our offerings. | 2-7 | 5.29 | 1.06 | 0.82 | | | | |
| | Client referrals have generated new clients. | 1-7 | 4.86 | 1.52 | 0.57 | | | | |
| | Our clients commission us with bigger and more comprehensive assignments. | 2-7 | 5.47 | 1.24 | 0.70 | | | | |
| ^c Financial performance | <i>Please indicate your organization's performance relative to that of your strongest competitors over the last three years for each of the following.</i> | | | | | 0.70 | 0.93 | 0.92 | 0.70>0.18 |
| | Profitability | 1-7 | 4.51 | 1.43 | 0.85 | | | | |
| | Sales growth | 1-7 | 4.37 | 1.35 | 0.86 | | | | |
| | Growth in market share | 1-7 | 4.27 | 1.19 | 0.86 | | | | |
| | Profit margin | 1-7 | 4.42 | 1.39 | 0.86 | | | | |
| | Return on capital | 1-7 | 4.30 | 1.35 | 0.84 | | | | |
| | Market position | 1-7 | 4.76 | 1.23 | 0.77 | | | | |

All loadings significant at .001 (two-tailed)

^a Anchored at 1 = rarely and 7 = very often.

^b Anchored at 1 = strongly disagree and 7 = strongly agree.

^c Anchored at 1 = much weaker and 7 = much stronger

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Table 3: Correlations and AVE

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
|--|-------|-------|------|------|------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| (1) Brand management advisory capability | 0.81 | | | | | | | | | | | | | | | | | | |
| (2) Creative advisory capability (originality) | 0.43 | 0.90 | | | | | | | | | | | | | | | | | |
| (3) Creative advisory capability (relevance) | 0.44 | 0.52 | 0.84 | | | | | | | | | | | | | | | | |
| (4) Customer relationship advisory capability | 0.42 | 0.27 | 0.51 | 0.82 | | | | | | | | | | | | | | | |
| (5) Market research advisory capability | 0.44 | 0.33 | 0.55 | 0.54 | 0.81 | | | | | | | | | | | | | | |
| (6) Reconfiguring capability | 0.17 | 0.14 | 0.16 | 0.16 | 0.19 | 0.81 | | | | | | | | | | | | | |
| (7) Seizing capability | 0.24 | 0.31 | 0.37 | 0.30 | 0.44 | 0.41 | 0.70 | | | | | | | | | | | | |
| (8) Sensing capability | 0.24 | 0.28 | 0.28 | 0.35 | 0.52 | 0.36 | 0.65 | 0.73 | | | | | | | | | | | |
| (9) Employee number | 0.05 | 0.10 | 0.05 | 0.08 | 0.12 | 0.31 | 0.23 | 0.29 | 1.00 | | | | | | | | | | |
| (10) Percentage revenue performance-based | 0.05 | 0.18 | 0.08 | 0.16 | 0.15 | 0.09 | 0.09 | 0.07 | 0.07 | 1.00 | | | | | | | | | |
| (11) Percentage revenue largest client | -0.06 | -0.05 | 0.01 | 0.03 | 0.00 | -0.04 | -0.11 | -0.03 | -0.09 | -0.06 | 1.00 | | | | | | | | |
| (12) Customer-based performance | 0.25 | 0.29 | 0.45 | 0.37 | 0.40 | 0.10 | 0.36 | 0.32 | -0.06 | 0.10 | -0.07 | 0.74 | | | | | | | |
| (13) Financial performance | 0.25 | 0.42 | 0.33 | 0.18 | 0.20 | 0.20 | 0.35 | 0.28 | 0.24 | 0.16 | -0.03 | 0.27 | 0.84 | | | | | | |
| (14) Relational interaction capability | 0.32 | 0.20 | 0.24 | 0.34 | 0.25 | 0.21 | 0.30 | 0.25 | 0.14 | 0.10 | -0.13 | 0.26 | 0.15 | 0.78 | | | | | |
| (15) Empowered interaction capability | 0.24 | 0.17 | 0.27 | 0.31 | 0.33 | 0.23 | 0.29 | 0.32 | 0.16 | 0.06 | -0.05 | 0.25 | 0.08 | 0.44 | 0.82 | | | | |
| (16) Ethical interaction capability | 0.18 | 0.15 | 0.21 | 0.32 | 0.29 | 0.16 | 0.32 | 0.25 | 0.02 | 0.11 | -0.13 | 0.33 | 0.19 | 0.24 | 0.41 | 0.69 | | | |
| (17) Individuated interaction capability | 0.31 | 0.16 | 0.33 | 0.46 | 0.47 | 0.28 | 0.45 | 0.45 | 0.14 | 0.11 | -0.07 | 0.33 | 0.18 | 0.39 | 0.44 | 0.45 | 0.71 | | |
| (18) Concerted interaction capability | 0.29 | 0.21 | 0.41 | 0.38 | 0.32 | 0.07 | 0.27 | 0.24 | 0.05 | 0.08 | 0.04 | 0.40 | 0.23 | 0.28 | 0.27 | 0.22 | 0.33 | 0.84 | |
| (19) Developmental interaction capability | 0.25 | 0.18 | 0.29 | 0.42 | 0.43 | 0.25 | 0.34 | 0.37 | 0.20 | 0.09 | 0.04 | 0.22 | 0.20 | 0.27 | 0.41 | 0.44 | 0.60 | 0.28 | 0.72 |

Please note: The diagonal shows the square root of the respective AVE.

4.1 Clustering procedure: identifying higher-order capability configurations of DCs and CCs

To identify configurations of DCs and CCs, we follow the three-step procedure outlined by Homburg et al. (2008) and used in subsequent research (e.g., Gruber et al., 2010). First, using the higher-order capabilities (three DCs and six CCs constructs) we applied Ward's hierarchical clustering algorithm (Hair et al., 2008) to determine the appropriate number of clusters.² The agglomeration schedule (based on squared Euclidean distances) showed a strong increase between the five-cluster and six-cluster solutions. Thus, this analysis provided strong support for a five-cluster solution. Second, we assigned our sample cases to the appropriate cluster using the k-means clustering method. Third, we assessed the stability of this cluster assignment using McIntyre and Blashfield's (1980) cross-validation procedure indicating a high level of stability.

4.2 Profiling and validating higher-order capability configurations of DCs and CCs

To profile each of the identified higher-order capabilities clusters, we described for each of them the corresponding pattern of lower-order SPCs as well as the PSFs' performance. Then, in order to assess a possible categorization of these higher-order capability configurations, we validated whether the identified clusters allow for meaningful explanations (Rich, 1992). Given that our data does not follow a normal distribution we used the Kruskal-Wallis (1952) test. Table 4 provides an overview of the cluster medians for DCs and CCs that were used to identify the clusters; in addition, we examined this for the corresponding SPCs, and associated customer-based and financial performance that serve to further profile the identified clusters. A Kruskal-Wallis test was conducted to determine if there were differences in the respective scores between

² Furthermore, we used standardized latent variable scores estimated in SmartPLS as input into our cluster analysis to pre-empt scaling issues that may be problematic in running Ward's (1963) algorithm.

five clusters of PSFs (note: our data follows a non-normal distribution). Distributions of all latent variable scores were similar for all clusters, as assessed by visual inspection of the respective boxplots. Median variable scores were statistically significantly different between the groups. Next, pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons; using adjusted p-values. Based on these results, we assigned the clusters to brackets for each variable, expressed by the superscript labels in Table 4. Cluster medians for a given variable carrying the same superscript do not differ at the five percent level.³

It is worth reiterating that, because of the role that the two sets of higher-order capabilities (i.e., three DCs and six CCs) play, the clusters were formed on the basis of these sets. Table 4 and 5 show the cluster variables and further variables that describe the clusters, including SPCs and performance. These additional descriptive variables were not used as active cluster variables. To highlight the empirically distinct characteristics of the identified higher-order capability configurations, in consideration of the corresponding patterns of SPCs and associated performance outcomes, we assigned labels to each configuration (Table 5). Even though these labels provide a simplified description of the actual configurations, the derived taxonomy enables us to more easily discuss the configurations and our findings.

³ Examples for interpreting Tables 4 and 5: For dynamic capability *seizing*, the five clusters fall into four brackets, thus the superscripts range from a to d, with cluster 1 being in the highest bracket and clusters 3 being in the lowest. Accordingly, in Table 5, which translates the superscripts into verbal bracket names, the labels are high, moderately high, moderately low, and low.

Table 4: Statistical cluster description

| Cluster | 1 | 2 | 3 | 4 | 5 |
|--|-------------------|---------------------|--------------------|--------------------|---------------------|
| | Median | Median | Median | Median | Median |
| Higher-order capabilities | | | | | |
| <i>Dynamic capabilities</i> | | | | | |
| Reconfiguring capability | 0.88 ^a | -0.59 ^c | -0.91 ^c | 0.14 ^b | 0.60 ^{ab} |
| Seizing capability | 0.85 ^a | -0.33 ^c | -1.02 ^d | 0.23 ^b | 0.34 ^b |
| Sensing capability | 0.77 ^a | 0.01 ^b | -0.99 ^c | 0.29 ^b | 0.33 ^b |
| <i>Cocreation capabilities</i> | | | | | |
| Relational interaction capability | 0.70 ^a | 0.24 ^{ab} | -0.68 ^c | 0.24 ^{ab} | -0.16 ^{bc} |
| Empowered interaction capability | 0.85 ^a | 0.33 ^b | -1.01 ^c | -0.30 ^c | -0.14 ^c |
| Ethical interaction capability | 0.88 ^a | 0.47 ^{ab} | -0.83 ^c | -0.84 ^c | 0.15 ^b |
| Individuated interaction capability | 1.09 ^a | 0.07 ^b | -1.02 ^c | -0.25 ^b | -0.09 ^b |
| Concerted interaction capability | 0.61 ^a | 0.37 ^a | -0.63 ^b | 0.61 ^b | -0.66 ^b |
| Developmental interaction capability | 0.90 ^a | 0.18 ^b | -0.91 ^c | -0.68 ^c | -0.03 ^b |
| Lower-order capabilities and performance | | | | | |
| <i>Service provision capabilities</i> | | | | | |
| Brand management advisory capability | 0.72 ^a | 0.17 ^{bc} | -0.52 ^c | 0.21 ^{ab} | -0.08 ^{bc} |
| Creative advisory capability (Originality) | 0.60 ^a | -0.18 ^{bc} | -0.41 ^c | 0.30 ^{ab} | -0.40 ^{bc} |
| Creative advisory capability (Relevance) | 0.75 ^a | -0.07 ^b | -0.60 ^c | 0.18 ^{ab} | -0.62 ^{bc} |
| Customer relationship management advisory capability | 0.67 ^a | 0.13 ^b | -0.82 ^c | 0.07 ^b | -0.13 ^{bc} |
| Market research advisory capability | 0.68 ^a | -0.13 ^b | -0.79 ^c | 0.16 ^b | -0.28 ^b |
| <i>Performance</i> | | | | | |
| Customer-based performance | 0.42 ^a | 0.09 ^{ab} | -0.60 ^c | 0.11 ^{ab} | -0.21 ^{bc} |
| Financial performance | 0.44 ^a | -0.23 ^{bc} | -0.40 ^c | 0.26 ^{ab} | 0.18 ^{bc} |
| N | 78 | 57 | 55 | 48 | 41 |

Reported values are median values. In each row, cluster medians with the same superscript are not significantly different ($p < 0.05$) on the basis of the Kruskal-Wallis test. The highest bracket is labeled with superscript 'a,' the next highest bracket with superscript 'b,' etc.

Table 5: Verbal cluster description

| Cluster | 1 <i>High performers</i> | 2 <i>Rare use of DCs, strong CCs</i> | 3 <i>Low performers</i> | 4 <i>Infrequent use of DCs and weak CCs</i> | 5 <i>Frequent use of DCs, weak CCs</i> |
|--|------------------------------------|--|-----------------------------------|---|--|
| Higher-order capabilities | | | | | |
| <i>Dynamic capabilities</i> | | | | | |
| Reconfiguring capability | High | Low | Low | Medium | High, Medium |
| Seizing capability | High | Moderately-Low | Low | Moderately-high | Moderately-high |
| Sensing capability | High | Medium | Low | Medium | Medium |
| <i>Cocreation capabilities</i> | | | | | |
| Relational interaction capability | High | High, Medium | Low | High, Medium | Medium, Low |
| Empowered interaction capability | High | Medium | Low | Low | Low |
| Ethical interaction capability | High | High, Medium | Low | Low | Medium |
| Individuated interaction capability | High | Medium | Low | Medium | Medium |
| Concerted interaction capability | High | High | Low | High | Low |
| Developmental interaction capability | High | Medium | Low | Low | Medium |
| Lower-order capabilities and performance | | | | | |
| <i>Service provision capabilities</i> | | | | | |
| Brand management advisory capability | High | Medium, Low | Low | High, Medium | Medium, Low |
| Creative advisory capability (Originality) | High | Medium, Low | Low | High, Medium | Medium, Low |
| Creative advisory capability (Relevance) | High | Medium | Low | High, Medium | Medium, Low |
| Customer relationship management advisory capability | High | Medium | Low | Medium | Medium, Low |
| Market research advisory capability | High | Medium | Low | Medium | Medium |
| <i>Performance</i> | | | | | |
| Customer-based performance | High | High, Medium | Low | High, Medium | Medium, Low |
| Financial performance | High | Medium, Low | Low | High, Medium | Medium, Low |
| N | 78 | 57 | 55 | 48 | 41 |

With two brackets High, Low.

With three brackets: High, Medium, Low.

With four brackets: High, Moderately-high, Moderately-low, Low.

Configuration 1: 'High performers.' Firms that employ this configuration hold a strong position across the whole range of their CCs and deploy DCs frequently. None of the other configurations beats these high-performing firms significantly on any of the higher-order capabilities.

Configuration 2: 'Rare use of DCs, strong CCs.' Firms following this higher-order configuration rarely deploy their DCs but have the second strongest CCs of all configurations (especially in terms of the concerted, relational, and ethical interaction capabilities), even matching the 'High performers' in three out of the five respective capabilities.

Configuration 3: 'Low performers.' This configuration ranks in the lowest brackets for all elements of the DCs and CCs. Firms in this configuration clearly underperform relative to the firms with the other four configurations.

Configuration 4: 'Infrequent use of DCs and weak CCs.' These firms deploy their DCs not too frequently, focusing on seizing opportunities. However, they are inconsistent within their CCs: while having strong relational interaction and concerted interaction capabilities, thus focusing on establishing emotional and social links with the clients and optimizing interaction processes, they perform among the worst in empowered interaction, ethical interaction, and developmental interaction capabilities.

Configuration 5: 'Frequent use of DCs, weak CCs.' Firms using this configuration infrequently engage in sensing, but frequently deploy seizing and reconfiguring capabilities. Furthermore, these firms exhibit average to low CCs. Their overall performance is the second lowest of firms across all five configurations.

4.3 Interpretation of the higher-order capability configurations in relation to lower-order capabilities and performance

Our data reveal different configurations of higher-order DCs and CCs may lead to different path-dependent patterns of SPCs and performance. Specifically, our results demonstrate that PSFs with a consistently weak pattern of CCs and infrequent deployment of DCs exhibit weak SPCs and weak customer-based and financial performance (see Configuration 3). Similarly, PSFs with a uniformly strong pattern of CCs and frequent DC deployment exhibit strong SPCs and strong performance (see Configuration 1). As can be seen in Configuration 2, strong CCs appear to help the PSF counterbalance some of the deficiencies of their developed weaker SPCs. Given their clear focus on clients and cocreation, these firms exhibit strong customer-based performance; however, their financial performance is average at best. An interesting finding is also evident in Configuration 4. PSFs using this configuration exhibit strong performance, which appears to be driven by an optimal deployment of DCs following a U-shape, when contrasting clusters, thus having developed strong SPCs. Deployment of DCs is required for the PSF to operate in changing environments (Wilden & Gudergan, 2015), but too frequent deployment may render lower-order capabilities – in our case SPCs – less efficient (see also Helfat & Peteraf, 2009). This optimum deployment has helped these PSFs develop a strong set of SPCs, which can help overcome some of the weaknesses apparent in the existing CCs. Related, and following the logic of a U-shaped effect of frequent DC deployment, in Configuration 5 the rather weak SPCs may be the path-dependent result of making adjustments to SPCs through the deployment of DCs too frequently. This attempt to reconfigure frequently may lead to a loss in efficiency of SPCs, ultimately exacerbating the negative impact on financial performance (Wilden & Gudergan, 2015). Frequent deployment of DCs also binds resources, leaving less resources available to develop appropriate CCs, which could help offset deficiencies in SPCs (as in Configuration 2).

Unlike PSFs in Configuration 1, the negative effects of too frequent DC deployment cannot be compensated by strong CCs.

Interestingly, PSFs with strong SPCs outperform those with either strong CCs or frequent DC deployment alone. This suggests that strong SPCs can heighten a PSF's performance and therefore compensate for weaker higher-order CCs or infrequent DC deployment. However, these PSFs still underperform those with strong higher-order CCs and DCs as well as strong lower-order SPCs, and without the ability to develop long-term relationships or adapt to changing environments it is uncertain how long this level of performance will last. That is, it is the path-dependent-related character of a PSF's configuration of DCs and CCs that matters rather than their individual extent. Furthermore, firms with more frequent seizing and reconfiguring (Configuration 5) but weaker CCs experience lower customer-based performance. This implies that PSFs can have in place SPCs that are rather similar and experience the same financial performance while emphasizing the development and use of either DCs or CCs but not necessarily both; suggesting that DCs and CCs can substitute for each other. In terms of the customer-based performance that these two types of PSFs accomplish, the same is not the case: low levels of CCs cannot be substituted through greater use of DCs. This finding too supports the role of the path-dependent-related character of a PSF's configuration of DCs and CCs beyond accounting for the separate roles of individual capabilities.

5. Discussion

Using data from 279 strategic business units of marketing advisory firms, this study provides important insights into our understanding of how configurations of capabilities relate to service provision and performance. In particular, our findings reveal how a PSF's configuration of higher-order capabilities (DCs and CCs) are associated with its path-dependent lower-order

capabilities (SPCs) as well as customer-based and financial performance. The study makes several theoretical contributions and offers managerial implications for those striving to balance tradeoffs in resource development and allocation within PSFs.

5.1 Theoretical Contributions

First, previous research calls for a stronger integration of resource-based literature into service-ecosystems thinking (Arnould, 2008; Wilden et al., 2017). Thus, in this study we contribute to the intersection of service and resource-based research (Ahmadi et al., 2014; Heirati et al., 2016; Wilden & Gudergan, 2017) by integrating DC thinking, with its explicit distinction between higher- and lower-order capabilities with a CC framework (Karpen et al., 2015), grounded in a service-dominant logic and service-ecosystems perspective (Vargo & Lusch 2004; 2011). The service-dominant and service ecosystem distinction between value cocreation at a broad interactional and relational level versus the direct development of value propositions (Akaka & Chandler, 2011) enables us to discuss the path-dependent association of higher-order capability configuration of CCs and DCs with lower-order capabilities in the form of SPCs. More precisely, we focus on the higher-order capabilities that are necessary for developing and leveraging interactions with clients (CCs) and responding to changing environments (DCs). These higher-order capabilities are an essential basis on which SPCs rest. Because PSFs provide high levels of knowledge in specialized areas, such as legal, marketing, accounting, and human resources, clients rely on the PSF's service provision enacted through SPCs to develop their own value propositions. For example, marketing advisory firms use their SPCs to support their clients in managing their internal strategic marketing processes and creative communication solutions (Von Nordenflycht, 2010). In this study, we reveal the complex nature of higher-order configurations of CCs and DCs. Drawing on these configurations, and in consideration of the

path-dependent patterns of lower-order SPCs and firm performance, we extend the understanding of the nature of operant-resources based capabilities (Ngo & O'Cass, 2009) and how these capabilities serve as critical resources for value creation within service ecosystems.

Second, we also contribute to research regarding the role of operant resources in value cocreation by providing evidence of the hierarchy of operant resources within PSFs and how, collectively, basic, composite and interconnected operant resources (Madhavaram & Hunt 2008) constitute higher- and lower-order capabilities and support firm performance. Following the tradition of a few existing empirical contributions that stress the importance of capabilities needing to be organized together to create value for the firm and clients (e.g., Gruber et al., 2010; Homburg et al., 2008; Raddats et al., 2015), this study introduces configurational thinking to explore how value is cocreated in service ecosystems (Vargo & Lusch 2004; 2011). This approach enables the study of how particular capabilities relate to each other and how higher- and lower-order capabilities together are associated different types of operant resources as well as with PSF performance. Building on the intersection of strategy and service marketing (Collis, 1994; Madhavaram & Hunt, 2008) we identify and discuss the importance of the higher-order capability configurations of DCs and CCs for PSFs, and the association of these configurations, with SPCs and PSF performance.

Our results provide evidence of the hierarchy of operant resources and reveal that PSFs benefit from configurations of the two higher-order capabilities that encompass DCs and CCs. Interconnected operant resources that constitute CCs include firms' abilities to develop and maintain lasting relationships with other firms, empower employees and foster new knowledge and skills among employees. On the other hand, interconnected operant resources that underlie DCs include firms' abilities to sense and respond to opportunities and adapt to change.

Configurations of these higher-order capabilities contribute to value creation for a PSF and its clients over the long term. Composite operant resources that constitute SPCs are collections of basic operant resources that enable the completion of day-to-day tasks and the development of a client's value proposition. In the case for marketing advisory firms, these operant resources include the ability to help clients understand and manage their own customer relationships, develop creative communications and manage their (client) brands. These composite operant resources underlie a PSF's SPCs and are seen in our data as important factors of financial performance. This association with performance accounts for the PSFs' lower-order SPCs, which are essential when directly developing value propositions with clients but may only be effective in the short term.

It is clear that CCs are influential in enhancing customer-based performance, even in cases where DCs are less frequently deployed. However, the lack of financial performance in Configuration 2 indicates that although a PSF may be strong in CCs, the inability to respond to environmental change, that is, to deploy DCs, can limit the financial performance of the focal PSF. This suggests that it is not sufficient for PSFs to be competent collaborators. If a PSF seeks to enhance both customer-based and financial performance, it cannot rely on CCs alone. In line with a service ecosystems perspective (Vargo et al., 2008), a PSF must be aware of the dynamics of a particular industry so it can have in place specific SPCs that meet the changing needs and wants of clients. This intersection between DCs and CCs points toward a systems approach for value creation as a competitive advantage. This is because CCs alone may not be sufficient to increase a PSFs overall performance. These findings extend prior work on collaboration in PSFs by highlighting the importance of sensing, seizing and reconfiguring capabilities in developing and, especially maintaining, competitive advantage. If PSFs seek to increase financial

performance, they must carefully consider their DCs and CCs, and how they associate with lower-order SPCs. Clearly, these SPCs are critical for the success of PSFs. It seems the ability to respond to changes in the environment might correspond most closely with SPCs that are appropriate.

Finally, our study adds to the DC literature by providing exploratory evidence on the association between higher-order capability configurations and firm performance. Despite the call to not investigate DCs in isolation but rather look at their configuration with other capabilities (Wilden et al., 2016), only little research has investigated the effects of different DC configurations on performance. For example, Gelhard et al. (2016) find that sensing and reconfiguring do not necessarily cooccur, but rather that different configurations of these processes relate to performance conditional on the degree of environmental turbulence. We add to this line of investigation by investigating the relationship between DCs and further higher-order capabilities aimed at cocreation; namely CCs. The importance of linking DCs with cocreation research has also been highlighted by Randhawa et al. (2016). More specifically, our findings concerning the five higher-order capability configurations that are germane to the present study context indicate that one configuration relates to low performance outcomes (Configurations 3); which is in line with previous research using a capability lens, given that the resource-based view proposes that firms with weaker capabilities will experience weaker performance (Gruber et al., 2010). In contrast, and also in line with resource-based thinking, we find that PSFs with generally stronger capabilities realize high performance outcomes (Configuration 1). Importantly though, PSFs can attain similar performance levels with different configurations of higher-order capability configurations and associated lower-order capabilities.

5.2 Managerial Implications

In addition to the theoretical contributions discussed above, our findings have important managerial implications. We provide insights into the tradeoffs of investing in CCs and DCs and the importance of capability orchestration. Our findings shed light on which strategies *ex ante* are more likely to be associated with superior performance (Gruber et al., 2010). In particular, our study reveals that whereas higher levels of CCs are related to positive customer-based performance, financial performance appears more strongly influenced by optimal deployment frequency of DCs. In this study, when SPCs cooccur with a firm's ability to respond to changes in the environment, the financial performance of a firm is stronger. In other words, managers in PSFs should strive to have higher levels of both SPCs and DCs to increase potential for higher levels of financial performance. However, firms wanting to enhance customer value (Ngo & O'Cass, 2009) should invest in cultivating operant resources that enable the development of long-term and engaging relationships. In any case, knowledge-intensive firms, such as PSFs, need to be aware of ongoing changes in the environment and enable employees to develop new knowledge to adapt to evolving competitive landscapes. Also, managers that focus on developing strong SPCs can offset weaknesses in either CCs or DCs; however, this may only be a short-term possibility and firms should strive to develop both sets of higher-order capabilities to ensure both financial and customer-based performance in the long-term.

Given a PSF's path dependencies and its position within an industry, certain attainable performance levels are appropriate and likewise certain levels of DCs and CCs can be put in place. Thus, while a PSF's unique path dependencies and position may suggest that it should pursue high performance levels and put in place high levels of DCs and CCs, the same might not be the case for other PSFs. Their path dependencies and positions may point towards moderate performance levels, which may not necessarily enable high levels of both DCs and CCs. Thus,

because attainment of certain performance levels is conditional on both a PSF's path dependencies and position within an industry, and because its configuration of DCs and CCs is path dependent, understanding that different configurations of DCs and CCs can yield different but also similar performance levels allows managers to invest in either DCs or CCs, or both in the most effective way. PSFs can to some extent trade-off their DCs with their CCs to attain average performance levels in consideration of average SPCs. However, because lower-order SPCs are path dependent, while investing in DCs and CCs can be beneficial, they serve different purposes and do not necessarily have identical costs. Thus, managers striving to maintain high levels of customer-based and financial performance should carefully consider the benefits of CCs and DCs. Importantly, as managers make decisions about how to develop their higher-order capabilities, they should keep in mind the divergent performance-implications of strong CCs and DCs, especially when resources are constrained, and certain performance priorities are set.

6. Limitations and future research directions

As with all research, the findings of this study should be interpreted considering the study's limitations, which also provide interesting avenues for future research. Our study focused on PSFs, and in particular on marketing advisory firms. Thus, future empirical research should investigate additional service industries. Related, future studies may want to investigate how our findings apply to pure manufacturing firms or those that engage in servitization. For example, SPCs may be less important for manufacturing-focused firms. Although we spent considerable effort in construct validation and data collection to achieve high quality of the self-reported survey data, the potential for unidentified biases remains. Furthermore, given that all variables were collected from single informants by using the same survey method, we may face further bias (cf. Spector 2006). Although the conclusions drawn from this study are validated, further

research should replicate our study with a complementary, possibly larger sample. Finally, the use of cross-sectional data from PFS in one industry is appropriate to derive and understand higher-order capability configurations across firms within one industry. However, we encourage future studies to investigate our conceptualization using a longitudinal dataset, to be able to measure such configurations at different points of time, and to develop theoretical arguments for possible transitions from one configuration to another configuration within the same firm, for example, due to environmental turbulence.

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