Service-Dominant Orientation, Dynamic Capabilities and Firm Performance

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ABSTRACT

Purpose – This study investigates the effects of a firm's service-dominant orientation on marketing and technological capabilities, and its performance. It outlines how a service-dominant orientation offers guidance for the development and deployment of ordinary capabilities, and indirectly affects performance. Additionally, it delineates how dynamic capabilities affect the impact of a service-dominant orientation on ordinary capabilities.

Design/methodology/approach – Partial least squares structural equation modeling drawing on data from 228 firms serves to assess hypotheses relating service-dominant orientation and dynamic capabilities with firm performance.

Findings – The results indicate that marketing and technological capabilities fully mediate the relationship between a firm's service-dominant orientation and firm performance. Furthermore, the positive marginal effect of a firm's service-dominant orientation on its marketing capabilities increases with the firm displaying a stronger service-dominant orientation. In addition, the positive effect of service-dominant orientation on marketing capabilities reduces the more the firm deploys dynamic capabilities.

Research limitations/implications – Because of the cross-sectional sample, future studies could adopt longitudinal research designs to explore the impact of a service-dominant orientation on ordinary capabilities and performance, or investigate the applicability of the findings in other contexts.

Practical implications – The findings imply that implementing a service-dominant orientation can be beneficial for firms. However, because the impact of such an orientation weakens the greater a firm's dynamic capabilities, managers need to be mindful of this trade-off.

Originality/value – The study is the first to establish a link between the dynamic capability view, originating from strategy research, and service-dominant logic, stemming from marketing thinking.

Keywords – Service-dominant logic, Dynamic capabilities, Performance, Strategy, Partial least squares

Paper type – Research paper

Introduction

The transition from a goods-centric approach of value creation to a service-dominant logic of value co-creation has gained traction in the last decade (Vargo and Lusch 2016). Indeed, companies such as IBM consider service-dominant logic as a lens through which to view approaches to compete (Lusch *et al.* 2008, Maglio and Spohrer 2008, Maglio *et al.* 2009). These companies experiment with practices such 'continuous service delivery' within which they seek to integrate more effectively customers in new service development and delivery processes. How they shape strategically their marketing and technological capabilities to do so successfully remains challenging, however. In response, research that concerns operational matters that relate to a service-dominant logic and to co-creation, in particular, has flourished. For instance, previous studies have investigated co-creation in innovation (e.g., Vargo *et al.* 2015), micro-financing (Sun and Im 2015), healthcare (McColl-Kennedy *et al.* 2012), experience sharing (Chen *et al.* 2012), culture (Akaka *et al.* 2013) and brand community (Skålén *et al.* 2015) contexts.

However, research that investigates co-creation from a firm strategy perspective remains sparse. One of the notable exemptions is the research by Karpen and co-authors (Karpen *et al.* 2012, Karpen *et al.* 2015) who suggest that a strategic orientation based on service dominant logic directly affects both customer- and firm-related performance metrics (Karpen et al. 2015). A service-dominant (strategic) orientation supports organizations to engage in value co-creation with network partners (Karpen et al. 2012). Despite this valuable contribution, we know little about the specificities concerning the linkage between a firm's orientation, its capabilities and performance (Wilden *et al.* forthcoming). This is important as previous strategy research agrees that a firm's strategic orientation transcends individual capabilities, determines the operational

and dynamic capabilities to be used, and unifies the capabilities into a cohesive whole (Day, 1994). Consequently, the effect of a firm's strategic orientation on performance is mediated by its capabilities. This raises the question of whether and how a service-dominant orientation relates to a firm's ordinary capabilities (i.e., routines that enable leveraging resources for producing certain outputs; e.g., marketing capabilities and technological capabilities) and dynamic capabilities (processes concerning the sensing and seizing of opportunities and the strategic shaping of ordinary capabilities). And, if a firm's service-dominant orientation relates to its ordinary capabilities, do such ordinary capabilities mediate the performance effect of a firm's service dominant orientation?

This study seeks to answer the above two questions. In doing so, the conceptualization complements but also departs from existing works (Karpen et al. 2015). First, we focus on understanding the role of marketing and technological capabilities as both these ordinary capabilities have positive relationships with firm performance and their significance for firms has been established in previous research (e.g., Song *et al.* 2005, Srivastava *et al.* 1998, Vorhies and Morgan 2005, Zhou and Wu 2009). Our conjecture is that a firm's service-dominant orientation affects directly its marketing and technological capabilities, and indirectly its performance. Second, because we understand that a firm's dynamic capabilities influence its ordinary capabilities and, hence, firm performance (e.g., Wilden and Gudergan 2015), we also examine whether the impact of the firm's service-dominant orientation on its marketing and technological capabilities is moderated by its dynamic capabilities.

In doing so, and by drawing on data from 228 firms and employing a partial least squares structural equation modeling (PLS-SEM) approach, this study offers four contributions. First, in following the view that integrating resource-based theory with service-dominant logic thinking

will enable researchers to develop a more robust marketing ecology (Arnould 2008), we build on previous work that combined strategic orientation and resource-based theory with value co-creation thinking (Karpen et al. 2015) and integrate dynamic capability theory—which represents the evolutionary extension of resource-based theory—into service-dominant logic conceptualization. Accordingly, service-dominant orientation provides the direction towards building high quality marketing and technological capabilities. Second, we show that firms with a stronger service-dominant orientation see improvements in their marketing and technological capabilities. Accordingly, this study advances understanding about the advantageous consequences of path dependencies that come with enacting service-dominant logic thinking within organizations. In turn, the overall efficacy and efficiency within service systems strengthens through developing greater marketing and technological capabilities. Third, by examining the role that dynamic capabilities play in the service-dominant orientation – firm performance relationship, we contribute to the dynamic capability literature. We find that a firm's deployment of dynamic capabilities and its service-dominant orientation interact negatively when affecting marketing capabilities but not technological capabilities. The important implications of these findings are that a firm's service-dominant orientation is not the sole determinant of the efficacy and efficiency that characterize firms operating in service systems; dynamic capabilities matter too. The deployment of dynamic capabilities weakens the path dependence produced through a firm's service-dominant orientation, which corresponds with un-learning some of the routines that make up marketing capabilities, more so than those that constitute technological capabilities. Fourth, our study also contributes to the literature that concerns service-dominant logic thinking by distinguishing first order operant resources (i.e., ordinary capabilities) that allow the firm to earn a living Winter (2003) from second order

operant resources that are akin to dynamic capabilities that enable the shaping and reconfiguring of the firm's ordinary capabilities. Finally, through this research we respond to the call of service-dominant logic researchers that researchers should further "expand and comprehensively understand the nomological network of the [service-dominant] orientation construct" (Karpen et al. 2015, p.103).

The remainder of this paper is structured as follows: In the following we examine a firm's service-dominant orientation and derive hypotheses linking it with a firm's ordinary capabilities and performance. Following this, several hypotheses regarding the relationship between service-dominant orientation and ordinary capabilities as well as performance are discussed, including the impact that dynamic capabilities have. The subsequent sections outline the research methodology and present findings produced from survey data of large organizations.

Prior literature, hypothesis development, and the conceptual model

We combine research on service-dominant logic with resource-based and dynamic capability thinking to improve our understanding of the performance implications of a firm's service-dominant orientation, and the role of ordinary marketing and technological capabilities as well as dynamic capabilities in this relationship. Figure 1 provides an overview of our conceptualization.

Insert Figure 1 about here

Service-dominant orientation, ordinary capabilities and performance

Lusch, Vargo and O'Brien (2007, p.5) state that "effective competing through service has to do with the entire organization viewing and approaching both itself and the market with a service-dominant (S-D) logic." Thus, organizations need to develop a business logic that leads to the conceptualization of its business mindset that shapes business decisions. This determines "how an organization uses strategy to adapt and/or change aspects of its environment for a more favorable alignment" (Manu and Sriram 1996, p.79). Accordingly, and in leaning on Slater and co-authors (Slater *et al.* 2006), a service-dominant (strategic) orientation influences actions within the firm and is concerned with strategic decision-making aimed at achieving superior performance. This influences a firm's strategies, which are formed in recognition of its strategic orientation such that a firm with a service-dominant strategic orientation would articulate strategies that assist in implementing the chosen strategic orientation.

In this sense, and in leaning on Gatignon and Xuereb (1997), service-dominant orientation is defined as the firm's philosophy of how to conduct business through a deeply rooted set of values and beliefs that guides the firm's attempt to achieve superior performance through emphasizing co-creation in line with service-dominant logic. These values and beliefs determine how resources are used, they transcend individual capabilities, and they combine these resources and capabilities into a cohesive whole (Day 1994). Thus, as a firm's strategic orientation affects its activities (Noble, Sinha, & Kumar, 2002) and processes (Zhou, 2009) generally, a service-dominant strategic orientation encapsulates the guiding principles that influence a firm's co-creation-related activities and processes.

The 'service-dominant logic' concept—on which the service-dominant orientation concept builds—has been conceived in different ways in a competitive strategy context. In their

original conceptualizations, Vargo and Lusch (Vargo and Lusch 2016, Vargo and Lusch 2008, Vargo and Lusch 2004) refer to service-dominant logic essentially as a view that describes how ecosystems function and how firm's ought to conceptualize their business in form of a shared mindset that determines the firm's activities. Building on this logic, Karpen and co-authors (2015) and Lamberti and Paladino (2013) suggest that this logic is captured in a firm's strategic orientation, whereas Dibrell and Moeller (2011) refer to a firm's service-dominant focus strategy. These authors, however, not only employ different terminology but also vary in their operationalization. Whereas Lamberti and Paladino (2013) argue that a firm's service-dominant logic requires the deployment of key facets of the firm's strategic market, resource, learning, service, and entrepreneurship orientations, Karpen and co-authors (2015) argue that a firm's service-dominant logic is reflected in its service-dominant strategic orientation that is made up of a set of service-dominant capabilities. Then, Dibrell and Moeller (2011) focus on the firm's service-dominant focus strategy, which they operationalize as the firm's customer orientation that, as they argue, serves as a proxy for service-dominant focus.

Despite some differences, what is common to all these conceptualizations is that they stress the importance of resources and capabilities. This is a result of the service-dominant logic perspective superordinating service (the process of providing solutions of benefit) to products (units of output that may be used in the process) (Vargo and Lusch 2004). This requires a shift from solely focusing on operand resources (usually tangible, inert resources based on embedded value) to operant resources (resources that act upon other resources to co-create value) (Vargo and Lusch 2008). Resource-based theory sees the firm's resources and capabilities as the starting point of strategic decision-making, and the main driver of organizational performance. Resources are inputs, or assets, that are used for the creation of services. Ordinary capabilities "*are complex*

bundles of skills and accumulated knowledge, exercised through organizational processes, that enable firms to coordinate activities and make use of their assets (Day 1994, p.38)" and enable the organization to perform a coordinated set of tasks aimed at achieving a particular outcome (Amit and Schoemaker 1993, Combe and Greenley 2004, Helfat and Peteraf 2003). Both the resource-based and the service-dominant logic views stress the importance of firms' knowledge and competences (Barney 1991, Wernerfelt 1984). Resource-based theory further suggests that ordinary capabilities are heterogeneously distributed across firms and can be the source of superior performance (Barney 1991).

Previous strategy research on strategic orientations has questioned the direct relationship between strategic orientation and firm performance. To drive firm performance, strategic orientations need complementary ordinary capabilities that enable the implementation of necessary activities within the firm (Morgan *et al.* 2009, Olson *et al.* 2005). Yet, a firm's strategic orientation and ordinary capabilities are different elements within the firm. For example, empirical research has found mediators between the market orientation and performance relationship, such as creative capability and marketing capability (Im and Workman Jr 2004), and knowledge-related resources (Olavarrieta and Friedmann 2008). Furthermore, marketing capabilities have been found to mediate the relationship between innovation and competitor orientations and performance (Theodosiou *et al.* 2012).

To further clarify the conceptual foundations on which to examine the role of ordinary capabilities, we borrow from strategic management understanding. Miles and Snow (1986) argue that a firm's strategic orientation assists in aligning a firm with its environment, and that internal processes in turn must be congruent with the strategic orientation if this alignment is to be effective. The resource-based view represents the theoretical basis that supports this notion, as it

focuses on the link between strategic orientation and a firm's accessible resources. It explains how a firm's strategic orientation, in consideration of its accessible resources, affects firm performance, in general; and how this is supported by resource deployment processes (e.g., Barney and Mackey 2005, Sirmon *et al.* 2007). The routines that enable the latter reflect a firm's ordinary capabilities (e.g., Kale and Singh 2007, Slater et al. 2006) that affect performance (e.g., DeSarbo *et al.* 2007). It is through them that a firm implements its strategic orientation and ensuing strategies (Slater et al., 2006) and, in turn, improves performance (Penrose 1959). This conceptualization is consistent with the arguments by Vorhies, Morgan and Autry (2009) who lean on DeSarbo et al. (2007) and Snow and Hrebiniak (1980) in that a firm's strategic orientation shapes its ordinary capabilities, which, in turn, affect performance.

This reasoning is also consistent with the one that is commonly used to characterize ordinary, organizational capabilities that permit a firm to execute various business activities (Helfat and Winter 2011). According to Winter (2003), an organizational capability is a collection of routines that, when used, enables leveraging resources for producing significant outputs of a particular type; in our context this would imply for co-producing outputs that, in turn, yield value-in-use. These ordinary capabilities involve patterned activity targeted towards relatively specific objectives (Katkalo *et al.* 2010); in the present study towards fulfilling the demands originating from a service-dominant orientation. Helfat and Winter (2011) define such capabilities in terms of intended and specific performances of activities in a reliable and satisfactory manner. Winter (2003) describes such ordinary capabilities as allowing the firm to earn a living at the present; thus, in this study, ordinary capabilities allow the firm to execute its business activities in ways that would be congruent with the firm's service-dominant orientation. Katkalo, Pitelis and Teece (2010), further, stress that ordinary capabilities enable a firm to

perform efficiently, the activities that it sets out to perform; these ordinary capabilities are like best practices that allow the firm to effectively run its operations.

Then, firms leverage resources to achieve certain outcomes, which Penrose (1959) describes as deploying the service(s) of these resources. Deploying service(s) reflects ordinary capabilities as discussed above and represent operant resources in the sense that Vargo and Lusch (2016) use the term, and resources that are discussed by Penrose represent operand resources in the works of Vargo and Lusch (2016). Furthermore, in Penrose's (1959) theory of firm growth (on which the resource-based view draws), managers in pursuit of certain outcomes aim to leverage these resources to produce, or in consideration of Vargo and Lusch's thinking, co-produce value. Thus, to realize outcomes, a firm must utilize deployment processes (Grant 1991, Sirmon and Hitt 2003), processes that take the form of ordinary organizational capabilities. Thus, the literature on strategy and organizational capabilities supports the notion that a firm's ordinary capabilities mediate the performance effects of the firm's strategic orientation. Therefore, in this study we are interested in whether ordinary capabilities mediate the service-dominant orientation – firm performance relationship.

Following the above logic and the common finding in strategy research that a strategic orientation affects the firm's development and deployment of ordinary capabilities (e.g., Sirmon et al. 2007, Slater et al. 2006), we propose that a service-dominant orientation does not directly affect firm performance but rather indirectly through the firm's ordinary capabilities such as its marketing and technological capabilities. However, it is surprising to find that the limited existing research on the performance effects of a firm's service-dominant orientation has only investigated the direct relationship between service-dominant orientation and firm performance, thus neglecting the role that ordinary capabilities play in this context. For example, based on the

argument that service-dominant orientation fulfills the VRIO (valuable, rare, inimitable and organization) criteria of the resource-based view, Karpen et al. (2015) suggest that service-dominant orientation plays a significant role in directly driving relevant customer and firm outcomes.

We focus on marketing and technological capabilities as both capabilities facilitate service development and delivery processes, both have positive relationships with firm performance, and their significance for firms has been established in previous research (e.g., Song et al. 2005, Srivastava et al. 1998, Vorhies and Morgan 2005, Zhou and Wu 2009). Karpen et al. (2012, 2015) define service-dominant orientation as a value co-creation capacity that leads to improved firm performance and represents the "organization's ability to facilitate and enhance mutually beneficial interaction and resource integration processes with individual actors within the service system" (Karpen et al. 2015, p.91). As such, this service-dominant strategic orientation influences actions within the firm and is concerned with strategic decision-making that transcends a pure customer focus and instead concerns the entire service system, which comprises the focal firm, customers, and other service delivery actors such as suppliers (Edvardsson *et al.* 2014, Vargo and Lusch 2016). This strategic orientation influences the development of routines that make up a firm's set of ordinary capabilities but does not comprise them. Accordingly, a firm's service-dominant orientation is different from a firm's *marketing capability*, which is commonly defined as the organizational capacity to form advantageous relationships with relevant customers (Danneels 2008, Day 1994, Song et al. 2005), maintain established customer bases, and develop a suitable distribution system (Spanos and Lioukas 2001). The marketing capability thus has a narrower focus and is more transactional in nature. Thus, we expect that the direction provided by firm's service-dominant orientation and the

associated invoked organizational behaviors aimed at enabling co-creation of value with value network partners including customers (Karpen et al. 2012) facilitate and guide the development of necessary marketing capabilities.

Technological capability is the firm's capacity to use technological resources to transform inputs into outputs (Afuah 2002) and is part of the system through which value is co-produced. Technology enables the expansion of a firm's ecosystems consistent with the principles of service-dominant logic (Lusch *et al.* 2010). For instance, technology facilitates self-service, the ability to serve others, the ability to interact directly with customers and suppliers, and to lower costs such that coordination between firms as well as between firms and customers becomes more efficient and responsive (Lusch 2011). Various other authors support this positive association between service-dominant thinking and technological capabilities (Jitpaiboon *et al.* 2013, Barrett *et al.* 2015, Queiroz and Coltman 2014). For instance, Rust and Esponiza (2006) highlighted the importance of technology as a critical enabler for better service provision. Further, much research on service science deals with the importance of IT and respective systems (Maglio *et al.* 2010). Furthermore, the growing importance of service platform business models based on technology, such as Smartphone App games, Amazon's expanding services, and online banking (Smedlund 2012), require the firm to align its technological capability with its underlying service-dominant orientation and ensuing strategies.

Thus, because a firm's service-dominant orientation shapes business decisions such as resource and capability allocations, and because marketing and technological capabilities are crucial means through which a firm competes and implements such decisions, the development and deployment of these ordinary capabilities is influenced by a firm's service-dominant orientation accordingly. These ordinary capabilities are distinctive from the firm's service-

dominant orientation in that they go beyond 'direction-giving' and represent actual routines that facilitate marketing and technological processes that the firm engages in to operate on a day-to-day basis. The following hypothesis encapsulates our arguments:

H1: The relationship between a firm's service-dominant orientation and its performance is mediated through its a) marketing and b) technological capabilities.

In this way, a firm's service-dominant orientation creates path dependencies that are reinforced through learning, which shapes the routines that make up marketing and technological capabilities. The firm's service-dominant orientation influences and focuses behaviors such that these ordinary capabilities are performed in a more consistent and more frequent fashion. This consistency and frequency in capability use, in turn, improves their efficacy. Greater efficacy then improves the efficiency in their use reducing deployment costs (Argote, 1999). Because of improvements in both the efficacy and efficiency of deploying the specific routines that make up these marketing and technological capabilities, rather than exploring alternative routines, the same routines will be used on a more frequent basis.

Research in organizational learning has reinforced the conjecture that firms improve learning through repeated behavior. Therefore, we expect the specific impact of a firm's service-dominant orientation on marketing and technological capabilities to be not constant but conditioned by the extent to which such service-dominant orientation prevails within the firm. This is for two reasons. First, firms are assumed to have a strategic orientation that reflects to a larger or lesser extent a service-dominant orientation. Second, the extent to which a service-dominant orientation reflects a firm's dominant strategic orientation can change over time because a dominant orientation represents a learned, problem-solving behavior (Prahalad and Bettis 1986). Thus, the proficiency that characterizes the decisions and behaviors that result from

a service-dominant orientation improves the greater a firm's service-dominant orientation prevails in the firm. In other words, when there is a low degree of service-dominant orientation, the firm may not yet fully understand the benefits and workings of such orientation and its implications for marketing and technological capabilities. Consequently, low levels of service-dominant orientation may lead to confusion in how to shape and deploy marketing and technological capabilities. However, as the level of service-dominant orientation increases, the firm improves its alignment with marketing and technological capabilities. This logic is based on learning theory, as when firms exhibit more of the same behavior, they should get better at it, leading to a steeper learning curve and higher efficiency (Schilling *et al.* 2003) as firms learn "by encoding inferences from history into routines that guide behavior (Levitt and March 1988, p.320)." Thus, the path dependencies that develop through the firm's service-dominant orientation accelerate learning such that the marginal effect of this service-dominant orientation improves when firms are stronger in this orientation.

> H2: The marginal performance impact of a firm's service-dominant orientation through its a) marketing and b) technological capabilities increases the stronger this orientation is.

Linking service-dominant orientation and dynamic capabilities

Although such path dependencies produce learning effects that strengthen the impact that higher levels of a service-dominant orientation have, other organizational activities may counter this positive performance impact. To a greater or lesser extent, firms deploy dynamic capabilities to overcome path dependencies as dynamic capabilities can reduce rigidities in the routines, for example, that make up marketing and technological capabilities such that they yield un-learning and weaken such path dependencies; crucial in new service development processes. Therefore,

although a firm's service-dominant orientation shapes its business decisions and accordingly influences the development of its marketing and technological capabilities, we know that a firm's capacity to change its ordinary capabilities is affected by its deployment of dynamic capabilities. Indeed, Wilden and Gudergan (2015) demonstrate that a firm's deployment of dynamic capabilities is associated with its marketing and technological capabilities. Hence, the positive association between a firm's service-dominant orientation and its ordinary capabilities likely is conditioned by its deployment of dynamic capabilities.

While a firm's service-dominant orientation refers to the firm's mindset that encapsulates certain principles and shapes decisions and behaviors, dynamic capabilities comprise processes concerning sensing, shaping and seizing opportunities, and reconfiguring the resource base (Zahra *et al.* 2006, Teece 2007, Jantunen *et al.* 2005, Eisenhardt and Martin 2000, Penrose 1959). Dynamic capabilities differ from ordinary capabilities as they are concerned with changing other resources and capabilities (Winter 2003), and thus are (higher order) operant resources as per the service-dominant logic. This sensing produces new understanding about the existence and proficiency of alternative routines that could complement or substitute those that form a firm's present marketing or technological capabilities. That is, a firm learns about alternative routines. *Seizing* opportunities implies, for example, investments in R&D and commercialization of new ideas and reacting to deficiencies pointed out by relevant stakeholders. Specifically, through seizing a firm evaluates whether to stick to existing routines or whether to adopt new ones. As an outcome, a firm specifies how its marketing and technological capabilities should look like and dedicates, if required, needed investment. *Reconfiguring* the firm's capabilities includes the acquisition, redeployment and release of resources and capabilities. This process of changing the firm's marketing and technological capabilities requires learning about

and incorporating new routines but importantly also un-learning previously employed routines. This un-learning counters the increased learning that eventuates through the path dependencies that a service-dominant orientation produces. Thus, whereas a firm's dominant business orientation shapes decisions and, in our conceptualization, the competitive quality of marketing and technological capabilities in ways such that they reflect a firm's service-dominant orientation in a path dependent fashion, the deployment of dynamic capabilities represents effortful processes that affect actual changes in these ordinary capabilities that can counter those produced through its service-dominant orientation.

Furthermore, this diverging impact of a service-dominant orientation and dynamic capabilities could also be due to a firm's resource constraints and capability goal conflicts may create inter-capability tradeoffs and inefficiency. For instance, decisions on how to prioritize the development of certain ordinary capabilities must consider possible conflicting goals (Grewal and Slotegraaf 2007). In our context, the contrasting objectives may lie in the predominant outside-in focus of service-dominant orientation and the argued inside-out focus of dynamic capability deployment. Day (2011) sees dynamic capabilities to be susceptible to an implicit inside-out focus. This is because the original logic of the resource-based view focuses on how firms can improve and exploit existing resources and capabilities, that are valuable, rare and inimitable (Barney 1991, Makadok 2001). This suggested implicit inside-out focus of dynamic capabilities and their objective to improve and exploit existing capabilities may lead to stressing internal efficiency and short-term cost reductions. On the other hand, a service-dominant orientation has an inherent outward focus to better understand customers and other value co-creation partners. Thus, in consideration of the path-breaking and un-learning effects that dynamic capabilities produce and also of the inconsistent foci (outside-in vs. inside-out), we

examine the following hypothesis regarding how the deployment of dynamic capabilities may condition the impact of a firm's service-dominant orientation on its ordinary capabilities.

> H3: The positive impacts of a firm's service-dominant orientation on its a) marketing and b) technological capabilities weaken with the deployment of dynamic capabilities.

Methodology

Data collection, response pattern, and respondents

Data on a firm's strategic orientation and capabilities is not readily available in publically available datasets (Gruber et al. 2010). Consequently, the data for this study were gathered through a web-based survey of large Australian organizations (annual sales volumes larger than US$20 million and 150 employees (Miller 1987, Henri 2006)) drawn from Dun & Bradstreet's database (n = 2,747) in 2009, which was representative of Australian businesses (ABS 2004). To ensure necessary variation in our sample, the sampling frame comprised single or dominant business organizations of different sizes with no single industry dominating the sample. Senior executives acted as key informants, as they are likely to have insights into tacit, difficult to observe, principles, processes and organizational capabilities that characterize their firm and for which no archival data exists (Kumar *et al.* 1993, Chen *et al.* 1993). As an incentive, respondents were offered a donation to charity on their behalf and a summary of our study findings (Cycyota and Harrison 2006).

Following an initial phone call to inquire email addresses, we invited potential respondents via email to respond to our survey (we followed up with three reminders). This led to 228 usable survey responses (response rate of 8.3%), which was comparable to similar studies

given the survey length and the seniority of the respondents (Hanvanich *et al.* 2006, Chmielewski and Paladino 2007). To investigate the data for possible biases, we first checked for – and did not find - any differences between responding and non-responding organizations (data were drawn from Dun & Bradstreet's sampling frame), focusing on three key variables: number of employees, market performance (i.e., sales), and firm age.[1] To decrease the likelihood of possible informant bias, we sampled respondents with similar roles in their focal organizations and guaranteed confidentiality of their survey replies (Kumar et al. 1993, Heneman 1974). Almost 75% of respondents were general managers (e.g., managing director, CEO), about 5% had a commercial role (e.g., vice president of marketing and sales), and less than 2% performed technical functions (e.g., director of R&D or operations). The remaining respondents worked in roles such as chairperson or corporate strategist. Respondents had an average overall work experience of more than 20 years out of which they had spent five to ten years with the current firm. The average responding organizations had 1,155 employees and was 28 years old, sales volumes ranged from US$20 million to more than US$1 billion.

To reduce the likelihood of common method bias, we followed guidelines on effective questionnaire design and reduced item ambiguity (i.e., pilot tests; Podsakoff *et al.* 2003). Furthermore, the results from a Harman's single-factor test did not indicate common method concerns (Lane *et al.* 2001). Finally, as we investigated interaction and quadratic effects – which are difficult for respondents to predict and/or manipulate – common method bias was improbable to be major (Dayan and Di Benedetto 2010).

[1] We also checked for differences between early and late respondents for all included items and, where available, objective variables, with only 5 of 40 items indicated a significant difference, so we are not concerned about a non-response bias.

Measurements of constructs

This study used measures adopted or developed from prior studies. The relevant items are reported in the Appendix. Before conducting the survey, the instrument was intensively pretested by means of 16 in-depth interviews with senior executives and three experienced researchers to validate the content, precision, and phrasing of the survey items (DeVellis 2003), followed by a pilot study. Self-reported measures of organizational capabilities relative to competitors' are well established (e.g., Danneels 2008; DeSarbo et al. 2005).

In line with Wilden et al. (2013), we measured *dynamic capabilities* as a Type II multi-dimensional second-order index (reflective-formative type)[2] (Diamantopoulos and Winklhofer 2001, Ringle *et al.* 2012, Jarvis *et al.* 2003). This index measures three process classes of dynamic capabilities: sensing, seizing and reconfiguring (each drawing on a four-item reflective measurement model). Because applicable existing measurement models for our *service-dominant orientation* construct were not available, for the purpose of this study this construct was measured using a newly developed ten-item reflective measurement model.[3] The adequacy of our measurement model as well as the choice of the specific items and operationalization that characterize our measurement model rest on several premises. First, as discussed earlier, our

[2] For a full description of the index creation please see Wilden et al. (2013).

[3] Please note, that Karpen et al.'s (2015) measurement was not available at the time of our data collection. However, the measurement model would nevertheless not have been suitable for our study. Karpen et al. (2015) focus their operationalization of service-dominant orientation as a set of capabilities that enable value co-creation in service exchanges (Karpen et al. 2012), while we see service-dominant orientation as a firm's philosophy of how to conduct business. Further, Karpen et al. (2015) developed their measurement model focusing on customers as key informants whereas we collected data from senior managers. Thus, as for example Karpen et al.'s (2015) measurement model seeks to measure customers' perceptions of a firm's service-dominant orientation but our study seeks to understand the views of strategic decision makers within the firm, we developed a new measurement model accordingly. Although both approaches have certain advantages and disadvantages, on balance a measurement model drawing on customer perceptions would be inappropriate for the purpose of our study whereas one drawing on senior managers' perceptions is appropriate. Also, Karpen et al.'s (2015) measurement model with 24 items is rather arduous for senior managers to respond to.

theoretical conceptualization of service-dominant orientation assumes that it is a firm's philosophy of how to conduct business through a deeply rooted set of values and beliefs that guides the firm's attempt to achieve superior performance through emphasizing co-creation. Thus, the conceptualization employed in this study implies that service-dominant orientation ought to be operationalized as representing a strategic orientation that produces manifestations in firm activities and not a strategic orientation that is made up of certain capabilities.

Second, we collected data from senior managers. Thus, we aimed to develop a comprehensive scale which would not be arduous for senior managers to respond to, which we realized with a measurement model of the reflective mode with an appropriate set of items. Fourth, the suitability of any measurement model must be based on the theoretical context within which the construct that is measured is embedded. Blindly relying on previously used measures without examining their suitability can be problematic and can produce measurement errors. Thus, while existing related measurement models (e.g., Karpen et al 2015)[4] offered some guidance, simply adopting their measurement model would have been inappropriate for the present study.

Instead, we developed our measurement model accounting for the fact that senior managers have limited time to answer surveys. Our focus, thus, was on developing a measurement model that uses the least amount of items but that still captures the content of the service-dominant orientation construct. Accordingly, unlike Karpen et al.'s (2015) operationalization, we chose a first-order set-up with fewer items. We consciously chose a reflective measurement model as constructing a formative index for the service-dominant

[4] Please note: At the time of data collection only a conference paper version of Karpen et al,'s (2015) paper was accessible.

orientation would imply that deleting one indicator may lead to the deletion of an unique part of the formative measurement models and, thus, change the meaning of the measurement concerning our construct of interest (Diamantopoulos and Winklhofer 2001, Gudergan *et al.* 2008). Consequently, a formative measurement model requires a census of all indicators that determine the construct (Jarvis et al., 2003). Conceptually, a firm's service-dominant orientation can be reflected in numerous facets that characterize the firm. This makes it practically infeasible to measure exhaustively all relevant activities, which a formative index specification would require. Thus, in an initial step we created a pool of relevant items that best reflect the characterization of service-dominant orientation as encapsulating guiding principles that, in turn, are reflected in a firm's co-creation-related activities and processes. The selected items all share a common theme, and are to some degree interchangeable. This interchangeability allows measurement of the construct by sampling a few relevant indicators underlying the domain of the construct and, hence, requires reflective measurement specification (Churchill, 1979; Nunnally and Bernstein, 1994). Subsequently, we conducted multiple interviews with target raters and academics to identify those items that were most appropriate for our measurement model. Following this, we tested the derived items using a small-scale survey with 30 respondents. Ultimately, we concluded with a set of questions that allowed us to empirically measure service-dominant orientation with a measurement model that is operationalized in reflective mode.

The items for measuring a firm's *technological and marketing capabilities* were used in previous research (Spanos and Lioukas 2001, Wilden and Gudergan 2015). Respondents rated the relative strength of their firm's technological and marketing capabilities compared to their competitors', and rated the level of improvement over the previous three years. *Organizational performance* was assessed in terms of profitability (three items) and market performance (four

items), using an established reflective measurement model (Spanos and Lioukas 2001). Respondents rated organizational performance relative to their competitors' for the past three years. Prior studies have found high correlations between subjective and objective performance measures (Dess and Robinson Jr 1984). We further controlled for *firm size, firm age, and industry membership*. Greater firm size and age may render organizations to be less flexible and thus less capable of adjusting firm capabilities, ultimately affecting organizational performance (Baum and Wally 2003, Garg *et al.* 2003). We measured firm size based on staff number and sales volume (Danneels 2008, Garg et al. 2003, Jantunen et al. 2005). We transformed the firm size measures using natural logarithms to account for nonlinear effects. Finally, industry membership was measured through two effect-coded variables (service-only, manufacturing-only, mixed firms as the reference category).

In order to assess the validity and reliability of the reflective measures used in this study, initially we carried out exploratory factor analysis, which confirmed the unidimensionality of the constructs (Steenkamp 1991). To assess convergent validity, we evaluated Cronbach's α, average variance extracted (AVE), factor loadings, and composite reliability, using the thresholds for exploratory research of 0.7, 0.7 and 0.5 (Cronbach's α, composite reliability and factor loadings, respectively) (Fornell and Larcker 1981, Hair *et al.* 2011b, Nunnally 1978). All constructs show good quality indicators, with the exception of a slightly lower Cronbach's α for the dynamic capability sensing and a slightly below-threshold AVE for the service-dominant orientation measurement model.

We ensured discriminant validity as in line with the Fornell and Larcker (1981) criterion every construct's AVE is larger than the square of its largest correlation with any other construct. Also, each item loading with the associated construct exceeds any loading with any other

construct, suggesting adequate discriminant validity, as does fulfillment of the $HTMT_{0.85}$ criterion and $HTMT_{inference}$ (Henseler *et al.* 2015). Summing up, these results lend satisfactory support that the reflective measurement models fit our data well (see Table 1).

Insert Table 1 here

Dynamic capabilities were measured through a Type II reflective-formative composite model second-order index (Wetzels *et al.* 2009), the hierarchical components model through repeated use of the manifest variables (i.e., indicators) of the underlying first-order reflective constructs (Tenenhaus *et al.* 2005, Wold 1985). Unlike reflective constructs, formative second-order indices require the inspection of different quality (Bollen and Lennox 1991). First, the dynamic capability index exhibits expert validity, resulting from discussion with senior managers during pretesting. Therefore, we used the variance-inflation factors (VIF) to test for multicollinearity (Diamantopoulos and Winklhofer 2001). All three values are considerably below 5 (see Table 2) (Hair *et al.* 2011a). Furthermore, the weights are significant (Cenfetelli and Bassellier 2009).

Insert Table 2 here

Analytical procedure

The data were analyzed using the established structural equation technique partial least squares (PLS-SEM), using the SmartPLS 3 software (Ringle *et al.* 2015). PLS-SEM is a soft-modeling method (Wold 1980), which is suitable for investigating predictive research models at early stages of theory development (Fornell and Bookstein 1982). To date, only limited theory has emerged regarding the strategic roles of service-dominant orientation, and the relationships between service-dominant orientation and marketing and technological capabilities, on the one hand, and performance on the other. Furthermore, PLS-SEM is advantageous when not all data is normally distributed which is the case in our study.

Results

To test the model's explanatory power regarding the impact of service-dominant orientation on marketing and technological capabilities and ultimately performance, we examined the coefficient of determination (R^2) (see Table 3). For the complete model (Model 3), the R^2 values were acceptable (Chin 1998): marketing capabilities .35, technological capabilities .33, and firm performance .33. Furthermore, since the Stone-Geisser Q^2 values for the two ordinary capability constructs and performance are greater than zero, the model shows adequate prediction validity (Henseler *et al.* 2009). Finally, according to the SRMR value of 0.097 (drawing on composite modeling approach) the model has good fit (Hair *et al.* 2014). Furthermore, Power analysis using D*Power 3.1 (Faul et al. 2009) exhibited high statistical power above the cut-off of 0.8 (Cohen 1988), which increased our confidence in the findings.

Next, the path coefficients and their significance values were examined to test the hypotheses, and we used a bootstrapping procedure (5,000 samples) to evaluate the significance

of paths (Nevitt and Hancock 2001). To test H1a and b (mediating effect of marketing and technological capabilities) we used a causal steps approach used in regression analysis. The PLS-produced path coefficients offer an indication of relationships similar to traditional regression coefficients (Gefen *et al.* 2000). Following Bontis et al. (2007), we adopted a four-step approach to test for mediation. First, service-dominant orientation had a significant direct effect on firm performance ($\beta = .17$, $p < .05$; Model 1). Second, when including the mediators marketing and technological capabilities in the model, the results indicated that service-dominant orientation had no significant direct relationship with performance ($\beta = .00$, $p > .10$; Model 2) but significant positive relationships with marketing and technological capabilities. Third, marketing and technological capabilities revealed significant positive effects on firm performance ($\beta = .19$, $p < .05$; $\beta = .36$, $p < .01$, respectively). Fourth, Model 3 represents the final model without direct effects. Marketing and technological capabilities have significant positive relationships with firm performance ($\beta = .24$, $p < .01$; $\beta = .39$, $p < .01$, respectively) and service-dominant orientation has a significant and positive relationship with marketing and technological capabilities ($\beta = .26$, $p < .01$; $\beta = .15$, $p < .10$, respectively). Thus, we find support for H1a and b as marketing and technological capabilities fully mediate the service-dominant orientation –performance relationship.

H2a and b predicted an increasing marginal impact of service-dominant orientation on marketing and technological capabilities (i.e., quadratic effect). As a quadratic effect is a special case of a moderation model, we followed the procedure as outlined in Hair *et al.* (2018), in which the independent variable (in our case service-dominant orientation) self-moderates its relationship with the dependent variable (in our case marketing and technological capabilities). For positive quadratic effects, the strength of the independent variable's effect on the dependent

variable increases for higher values of the independent variable, and for negative quadratic effects, higher values in the independent variable represent a lower effect of the independent variable on the dependent variable. We created the quadratic terms using the two-stage approach. That is, we estimated our model without the interaction term and obtained the latent variable scores; and subsequently we used theses scores as indicators of the latent variables in the nonlinear model. To avoid issues of interpretation of the quadratic effect, we standardized the product term generation, which is appropriate given that PLS-SEM uses standardized data. The results imply that the quadratic effect of service-dominant orientation on marketing capability is positive and significant. Hence, as we have utilized standardized data and parameter estimates, the path coefficients indicate that the linear effect on marketing capability changes by the quadratic term such that the marginal impact of service-dominant orientation increases as a greater level of service-dominant orientation prevails. That is, we find support for H2a; but not for H2b.

Finally, we inspected the results for H3a and b. Similar to the quadratic effect described above, we created the interactions terms using the two-stage approach. To avoid issues of interpretation of the interaction effect, we also standardized the product term generation. The results indicate a negative interaction effect between service-dominant orientation and dynamic capabilities when affecting marketing capability. Furthermore, although not significant, the relationship between service-dominant orientation and technological capability is also negative when interacting with dynamic capabilities. Thus, we find support for H3a; but not for H3b.

Insert Table 3 here

Discussion

This paper presented three hypotheses suggesting that the effect of a firm's service-dominant orientation on performance is mediated by its ordinary capabilities and that dynamic capabilities affect this relationship. More specifically, building on dynamic capabilities theory as well as service-dominant logic, learning and resource-based literatures, we proposed that service-dominant orientation has a non-linear, increasingly positive relationship with marketing and technological capabilities, which in turn positively affect firm performance, and the impact of service-dominant orientation is conditioned by the firm's deployment of dynamic capabilities. We further argued that service-dominant orientation does not have a direct effect on firm performance, but is rather mediated through marketing and technological capabilities. We tested our hypotheses empirically and found support for H1a and b, H2a and H3a.

This study makes four main contributions to the literature. First, to research on service-dominant logic, it presents one of the first studies that investigates service-dominant logic from a firm strategy perspective. Service-dominant logic research in the past has already benefited form integrating management and strategy thinking into its investigation, given that the idea of value co-creation – a corner stone of service-dominant logic research – has strongly been influenced by the complementary view of co-creation (Prahalad and Ramaswamy 2004b, Prahalad and Ramaswamy 2004a) and collaborative value creation (Normann and Ramirez 1993, Prahalad and Ramaswamy 2000) in management research. We consequently argue that service-dominant logic investigation will benefit from a stronger integration of key strategy theories in addition to co-creation ideas, especially in the form of resource-based theory. We follow the view that

integrating resource-based theory with service-dominant logic thinking will enable researchers to develop a more robust marketing ecology (Arnould 2008).

To do so, we build on previous work that combined strategic orientation and resource-based theory with value co-creation thinking (Karpen et al. 2015) and integrate dynamic capability theory – which represents the evolutionary extension of resource-based theory – into service-dominant logic conceptualization. We extend prior research that examines the performance impact of a service-dominant orientation (Karpen et al. 2015) by explicitly and separately assessing the mediating role of a firm's ordinary capabilities and treating service-dominant orientation as an antecedent of such ordinary capabilities. Investigating the indirect effects of a firm's service-dominant orientation is in line with strategy thinking that stresses the effects of strategic orientations on the firm's capability creation and allocation decisions (Gatignon and Xuereb 1997). This notion of service-dominant orientation substantiates thinking concerning a firm's strategic orientation as guiding management's approach to doing business and making resource allocations (Hamel and Prahalad 1994), which is aimed at co-creating value with customers. Service-dominant orientation provides the direction towards building high quality marketing and technological capabilities.

Second, in addition to offering empirical support that the performance impact of a firm's service-dominant orientation is fully mediated through marketing and technological capabilities, our findings demonstrate that there are important learning effects that shape the impact of this dominant orientation. Specifically, we show that firms with a stronger service-dominant orientation see increasing improvements in their marketing capabilities. That is, the marginal impact remains positive but increases when a service-dominant orientation is more prevailing in a firm. Thus, strengthening a firm's service-dominant orientation produces increasing returns.

These increasing returns are based on self-reinforced learning that eventuates because of the path dependence that a firm's service-dominant orientation produces. Accordingly, this study advances understanding about the advantageous consequences of path dependencies that come with enacting service-dominant logic thinking within organizations. In turn, the overall efficacy and efficiency within service systems strengthens through developing greater marketing capabilities. Our observation of the increasing marginal impact of a firm's service-dominant orientation on marketing capabilities but unchanged marginal impact on technological capabilities may rest on better co-learning with customers as implied in service-dominant logic thinking compared to technology-focused learning. Accordingly, co-learning may substantiate the path dependent and self-reinforcing impact on marketing capabilities but may not apply equally to technological capabilities.

Third, by examining the role that dynamic capabilities play in the service-dominant orientation – firm performance relationship, we contribute to the dynamic capability literature that has called for investigating dynamic capabilities in relation to a firm's strategic characteristics (Wilden *et al.* 2016). In line with our theoretical arguments, a firm's deployment of dynamic capabilities and its service-dominant orientation interact negatively when affecting marketing capabilities but not technological capabilities. The important implications of these findings are that a firm's service-dominant orientation is not the sole determinant of the efficacy and efficiency that characterize firms operating in service systems: dynamic capabilities matter too. The deployment of dynamic capabilities weakens the path dependence produced through a firm's service-dominant orientation, which corresponds with un-learning some of the routines that make up marketing capabilities, more so than those that constitute technological capabilities. Similarly to our reasoning pertaining to the increasing marginal impact of service-dominant

orientation on marketing capabilities based on co-learning with customers that, however, is not evident in technological capabilities, a possible explanation for the non-significant moderation impact of the deployment of dynamic capabilities on the service-dominant orientation – technological capabilities relationship may be due to technology-focused learning rather than co-learning with customers as implied in service-dominant logic thinking. Thus, while dynamic capabilities can possibly weaken co-learning in such ways that path dependence and the self-reinforcing impact on marketing capabilities deteriorates, the same may not relate to the impact on technological capabilities. This weakening of the impact on marketing capabilities through dynamic capabilities likely rests on the inconsistent foci (outside-in vs. inside-out), which is less pronounced in regards to technological capabilities.

Fourth, our study contributes to the literature that concerns service-dominant logic thinking by further unpacking the concept of operant resources. The reasoning developed in this study suggests that dynamic and ordinary capabilities can be conceptualized as different types of operant resources. In considering the notion that capabilities are hierarchical in nature such that Danneels (2008) distinguishes first order capabilities that represent a firm's ordinary capabilities—capabilities that allow the firm to earn a living (Winter 2003)—from second order capabilities that refer to dynamic capabilities that enable the shaping and reconfiguring of the firm's ordinary capabilities, operant resources that are theorized in service-dominant logic thinking ought to be conceptualized as first order or second order operant resources.

Practical implications for organizations

Our study has several managerial implications. First, this empirical study suggests that embracing and investing in strengthening a service-dominant orientation within a firm are

strategically justified considerations. Strategic orientations in general provide organizational members with clear decision and behavior guidelines, and a service-dominant orientation in particular provides the organization with an understanding of how to facilitate interactions with a large variety of actors within the service system (Karpen et al. 2015). We find support that implementing a service-dominant orientation enables the firm to improve its ordinary marketing and technological capabilities, which in turn positively affect performance. This is especially relevant in today's environments in which customers have become more sophisticated in their demands, which requires firms to implement value co-creation activities with support from their marketing capability. Furthermore, organizations need to develop superior technology-related capacities given the increasing importance of technology in service design and delivery, and business models. In simple terms, investing in a service-dominant orientation matters because firms that have a lesser degree of service-dominant orientation also have competitively weaker marketing and technological capabilities that, however, have a discernable impact on firm performance. Thus, senior management should embrace, fund and support such strategic orientation as it produces performance advantages.

Second, the impact of a service-dominant orientation does not eventuate overnight, and its marginal effects on the firm's marketing and technological capabilities need to be understood. Accordingly, managers need to understand the learning mechanisms underlying the service-dominant orientation – ordinary capabilities – performance relationship, as these will create path dependencies as "firms are to some degree stuck with what they have and may have to live with what they lack" (Teece et al., 1997, p. 514). A well-articulated, clearly understood and learned strategic orientation will strengthen the firms' marketing and technological capabilities. The underlying learning particularly leads to increasingly positive effects on the marketing capability

and ultimately firm performance. Thus, while it is beneficial to establish a service-dominant orientation, to fully reap the benefits of such strategic orientation it is important to form this strategic orientation comprehensively; doing so half-heartedly yields disproportionately lesser performance outcomes.

At the same time, managers also have to deal with environmental turbulence caused by competition, changes in customer preferences and changes in technology. Responses to these changes may be difficult given existing path dependencies. Therefore, managers need to develop and exploit dynamic capabilities, which are aimed at aligning the firm's ordinary capabilities with environmental conditions to generate evolutionary fitness. However, the goals underlying a service-dominant orientation and dynamic capabilities may be inconsistent. Thus, management needs to take the direction and goals of their change-related activities, that is, dynamic capabilities, into account when implementing a service-dominant orientation. Even though some of the processes that underlie a service-dominant orientation and dynamic capabilities may develop unintentionally, successful deployment of relevant capabilities requires management's considered investments and foresight in deciding which and how to build necessary capabilities as well as how to deploy them. Thus, because any firm displays to a greater or lesser extent dynamic capabilities, managers must be cognizant that any investment in and development of a service-dominant orientation may be weakened by these dynamic capabilities; an issue that managers may need to consider more carefully when developing their firm's marketing capabilities than when refining their technological capabilities.

Limitations and implications for further research

As with any empirical study, the findings of this research have to be interpreted in light of its limitations, which should be considered as opportunities for future research. The data underlying this study are cross-sectional in nature, focusing on large firms, and readers should therefore apply caution when drawing cause-effect inferences. The study's outcomes should not be interpreted as evidence of underlying causal relationships, but rather as supporting a prior causal framework. An interesting extension of this research would be to design a longitudinal research study to empirically confirm causality and assess firm performance outcomes over time. This would especially be suitable in order to investigate the intricacies of how a firm's service-dominant orientation and its deployment of dynamic capabilities interact and to also identify the exact trade-offs managers need to make when trying to adjust their firm's ordinary capabilities to stay aligned with external conditions and to implement a service-dominant orientation to increase customer co-creation throughout their firm.

Additional research may further unpack the negative interaction between service-dominant orientation and dynamic capabilities. In our conceptualization we did not account for the costs of implementing and maintaining a service-dominant orientation as well as the costs for developing and deploying dynamic capabilities. Including these costs in a longitudinal study may help further explain the trade-off managers need to make at various stages when developing their firm's marketing and technological capabilities to achieve alignment with the wider environment and reaping the benefits from a service-dominant orientation and accordingly aligned ordinary capabilities.

Furthermore, this study operationalized service-dominant orientation from a managerial perspective in consideration of the theoretical conceptualization of the customer-focused service-dominant strategic orientation construct put forward by Karpen et al. (2012). Although we

extensively pretested the applied measurement model, future research could further scrutinize and, where advantageous, improve the measurement model that we have put forward as an initial attempt to measure a firm's service-dominant orientation as a philosophy of how to conduct business through a deeply rooted set of values and beliefs that guides the firm's attempt to achieve superior performance through emphasizing co-creation.

Finally, future research should investigate service-dominant orientation alongside other foci that may characterize a firm's dominant logic, and its impact on other types of ordinary capabilities that firms commonly rely on to compete. Previous research has suggested that combining alternative dominant logics may enable organizations to outperform competitors (Hamel and Prahalad 1994, Slater and Narver 1995). Including additional facets of strategic orientation such as resource orientation or market-driving orientation (Wilden et al. 2016) may also allow us to further explain under what conditions the negative interaction between service-dominant orientation and dynamic capabilities affects certain ordinary capabilities.

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Figure I:

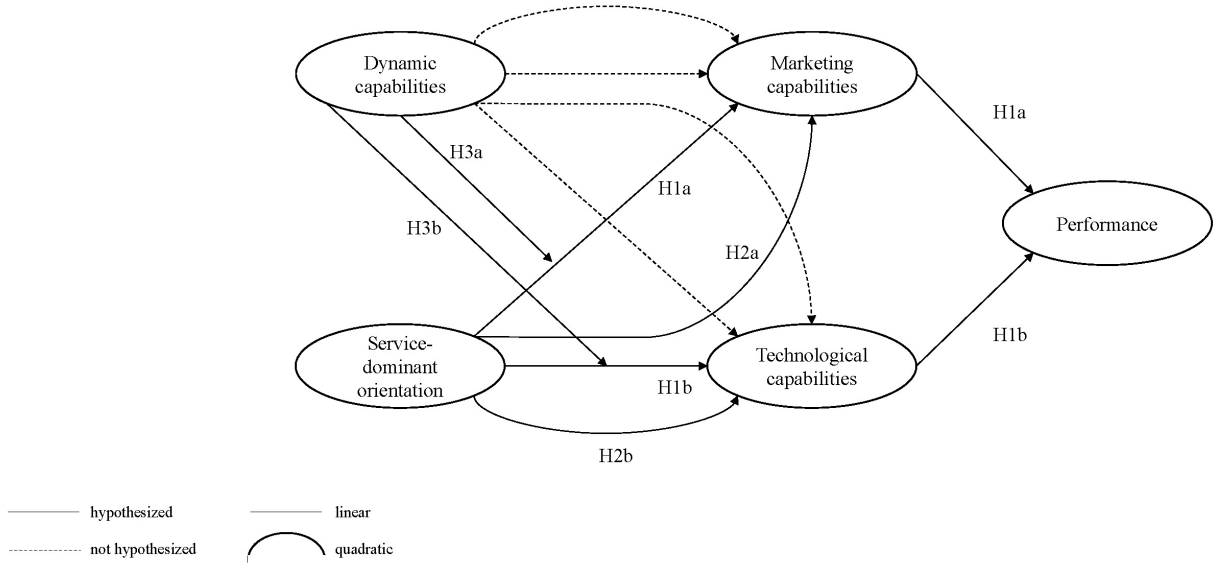
Dynamic capabilities
Marketing capabilities
Performance
Service-dominant orientation
Technological capabilities
H1a
H3a
H1a
H3b
H2a
H1b
H1b
H2b
hypothesized
not hypothesized
linear
quadratic

Table I. Quality criteria reflective constructs

Construct	Indicators	Mean	SD	1st order loading	AVE	CR	α	AVE> Corr²
[a] Dynamic capabilities *(2nd order construct, repeated items see below)*								
[a] Sensing	In my organization….				0.52	0.81	0.69	0.52>0.42
	people participate in professional association activities.	4.97	1.46	0.68				
	we use established processes to identify target market segments, changing customer needs and customer innovation.	4.91	1.44	0.62				
	we observe best practices in our sector.	4.82	1.44	0.78				
	we gather economic information on our operations and operational environment.	5.52	1.18	0.79				
[a] Seizing	In my organization….				0.67	0.89	0.83	0.67>0.42
	we invest in finding solutions for our customers.	5.36	1.25	0.83				
	we adopt the best practices in our sector.	5.42	1.14	0.79				
	we respond to defects pointed out by employees.	5.42	1.11	0.83				
	we change our practices when customer feedback gives us a reason to change.	5.59	1.07	0.82				
[a] Reconfiguring	How often have you carried out the following activities between 2004 and 2008?				0.71	0.91	0.86	0.71>0.18
	Implementation of new kinds of management methods	4.49	1.36	0.84				
	New or substantially changed marketing method or strategy	4.52	1.45	0.86				
	Substantial renewal of business processes	4.53	1.44	0.78				
	New or substantially changed ways of achieving our targets and objectives	4.66	1.31	0.83				
[b] Marketing Capability	Please indicate your firm's capabilities relative to competition for each of the following. Please indicate if your capabilities have become weaker or stronger within the last three years.				0.64	0.88	0.81	0.64>0.35
	Market knowledge	15.27	4.86	0.78				
	Control and access to distribution channels	12.46	4.91	0.75				
	Advantageous relationships with customers	15.24	5.24	0.82				
	Established customer base	15.59	4.72	0.84				
[b] Technological Capability	Please indicate your firm's capabilities relative to competition for each of the following. Please indicate if your capabilities have become weaker or stronger within the last three years.				0.64	0.84	0.72	0.64>0.35
	Efficient and effective production department	12.95	4.90	0.82				
	Economies of scales and technical expertise	14.05	5.36	0.84				
	Technological capabilities and equipment	13.76	5.15	0.73				

[c] Firm Performance	Please indicate your organization's performance relative to that of the competition over the last three years for each of the following.				0.67	0.94	0.92	0.67>0.28
	Sales volume	3.63	0.90	0.85				
	Growth in sales volume	3.63	0.92	0.85				
	Market share	3.70	0.92	0.78				
	Growth in market share	3.67	0.94	0.84				
	Profit margin	3.49	1.04	0.82				
	Return on own capital	3.47	1.06	0.80				
	Net profits	3.53	1.07	0.80				
[c] Service-dominant orientation	Please rate the extent to which you agree with the following statements about your organisation. Note that the definition of products include both goods and services.				0.48	0.90	0.88	0.48>0.29
	We share knowledge and skills with customers in order to create customer value.	5.10	1.55	0.73				
	Our customers can have a say in the research and development of new products.	4.50	1.68	0.67				
	Our customers can participate in the production of products.	3.82	1.96	0.60				
	Our customers can participate in the delivery of products.	4.47	1.76	0.67				
	Our customers see our products as experiences.	4.51	1.77	0.51				
	We invest in co-ordination activities with our customers.	4.69	1.48	0.71				
	We see ourselves as a part of a value-creating network.	5.19	1.48	0.76				
	One of our main goals is to establish long-term relationships with our customers.	6.13	1.31	0.71				
	We aim to create value for both the firm and our customers.	5.80	1.18	0.73				
	We see our customers as partners.	5.31	1.43	0.79				

* significant at 0.001 (2-tailed)

[a] anchored at 1=rarely and 7=very often

[c] Anchored at 1 = strongly disagree and 7 =strongly agre[e.]

AVE = average variance extracted

$Corr^2$ = highest squared correlation between the model constructs

Table II. Quality criteria formative construct

Construct/item	No. of items	VIF	Weights
Dynamic capabilities			
Scanning	4	1.83	0.33***
Seizing	4	1.76	0.49***
Reconfiguring	4	1.26	0.42***

*** significant at 0.01 (2-tailed)

Table III. Path coefficients

	Model 1	Model 2	Model 3
Service-dominant orientation → Performance	0.17** (2.05)	0.00 (0.01)	
Dynamic capability* Service-dominant logic → Performance	-0.09 (1.57)		
Dynamic capability → Performance	0.30*** (3.98)	0.11 (1.24)	
Service-dominant orientation ^{2} → Performance	0.03 (0.60)	-0.05 (1.26)	
Service-dominant orientation → Marketing capability		0.26*** (3.43)	0.26*** (3.39)
Service-dominant orientation → Technological capability		0.15* (1.77)	0.15* (1.81)
Marketing capability → Performance		0.19** (2.43)	0.24*** (3.36)
Technological capability → Performance		0.36*** (4.77)	0.39*** (5.57)
Dynamic capability → Marketing capability		0.46*** (6.22)	0.46*** (6.17)
Dynamic capability → Technological capability		0.52*** (6.92)	0.52*** (6.98)
Dynamic capability* Service-dominant orientation → Marketing capability		-0.12* (1.68)	-0.12* (1.69)
Dynamic capability* Service-dominant orientation → Technological capability		-0.11 (1.37)	-0.11 (1.43)
Service-dominant orientation ^{2} → Marketing capability		0.07* (1.92)	0.07* (1.88)
Service-dominant orientation ^{2} → Technological capability		0.03 (0.64)	0.03 (0.65)
Dynamic capability^2 → Marketing capability		0.11** (2.19)	0.11** (2.21)
Dynamic capability^2 → Technological capability		0.16 *** (3.54)	0.16*** (3.58)
Age → Performance	-0.02 (0.40)	-0.03 (0.49)	-0.03 (0.48)
Sales → Performance	0.13* (1.79)	0.12* (1.68)	0.13* (1.90)
Employee → Performance	-0.07 (0.86)	-0.08 (1.11)	-0.07 (0.97)
Industry Service → Performance	0.02 (0.24)	-0.06 (0.95)	-0.05 (0.92)
Industry Manu → Performance	0.01 (0.19)	0.03 (0.49)	0.02 (0.39)
R^2 (Marketing Capability)		0.35	0.35
R^2 (Technological Capability)		0.33	0.33
R^2 (Performance)	0.21	0.35	0.33

*** $p < .01$. ** $p < .05$. *$p < .10$.
t-values in parentheses