SHAPING WELLSPRINGS OF INNOVATION: TOWARDS ORGANIZATIONAL DESIGN CONFIGURATIONS FOR DIGITAL INNOVATION MANAGEMENT

Research in Progress

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Abstract

The management of digital innovations represents a major challenge for organizations, because they evolve in non-linear, reflexive, and distributed ways. Since digital innovations' logic is so different, the demands regarding institutionalized anchoring of the innovation management function may be substantially different. However, there has been little attention to organizational design's role aimed at building appropriate structures to accommodate digital innovation management. Drawing on the organizational information-processing theory, we address this gap by proposing a conceptual framework to understand the interplays between organizational design and digital innovations' logic. Our framework proposes that, depending on their combination with others, organizational design strategies may have either positive or negative effects on digital innovation performance, and that they may appear in configurations that exhibit high and low performance. It further suggests that while the general ability to innovate is context-specific, multiple configurations of strategies may be equally effective in the same setting. Our paper contributes to the field, since it enables us to achieve a theoretically framed understanding of a key contemporary phenomenon and helps us to identify ideal-type configurations of digital innovation management.

Keywords: Digital innovation management, organizational strategies, organizational information processing theory, organizational design.

1 Introduction

The vast confluence of rapid technological developments, competitive conditions spurred by new market entrants, and changing customer needs is transforming products, services, and organizations (Lucas et al., 2013; Yoo et al., 2012). Central to this sociotechnical processes, often broadly referred to as *digitalization* or *digital transformation*, is the concept of *digital innovation* (Hess et al., 2016; Lusch and Nambisan, 2015). It denotes the use of digital technologies such as 3-D printing, self-learning algorithms, sensors, and the use of open digital platforms in a broad range of products and services to complement or replace existing rules of the game in individual organizations and entire industries (Hinings et al., 2018; Panetta, 2016). For example, Uber's platform disrupts taxi services' organizing logic by orchestrating thousands of crowd-based micro-entrepreneurs (Sundararajan, 2016). Further, digital innovations often involve the incorporation of digital materiality into previously pure physical artifacts. Embedded sensors, processors, and operating systems fueled by ubiquitous connectivity between devices have enabled a broad range of new products, from smart household appliances, to novel production and logistic systems, such as the 'intelligent container', which monitors and calculates its cargo's shelf life while in transit (Lang et al., 2011; Porter and Heppelmann, 2014). Further, the layered modular architecture of digital platforms such as Apple iOS or Google's Android allow large uncoordinated audiences to leverage application programming interfaces (APIs) to recombine and exchange platform resources in novel and unprompted ways (Yoo, Henfridsson, et al., 2010). Innovation processes also occur via novel IT-enabled intermediaries such as crowdsourced idea competitions (Svahn et al., 2017), highlighting that innovation processes are also increasingly being digitized.

While traditional innovation models assume a linear progression of developments, digital technologies typically evolve in non-linear, reflexive, and distributed ways, based on multiple and distinct yet overlapping and interacting technologies (Boland et al., 2007). These characteristics of digital technologies increase uncertainty and ambiguity in firms about approaches for managing such technologies and generating new innovative products and services (Yoo, Lyytinen, et al., 2010). To identify promising digital technologies and relate them to their business, firms are now required to amalgamate large amounts of information located across various sources that are outside the focal innovator's control (Nambisan et al., 2017; Yoo, Lyytinen, et al., 2010). Nonetheless, many incumbent firms face tremendous challenges, since they frequently do not have appropriate digital capabilities at their own disposal, and thus fail to harness the potentials of digital options (Svahn et al., 2017; Yoo, Henfridsson, et al., 2010). Two-thirds of all companies still manage innovation projects exclusively inside their organization, but often struggle with the timely delivery of more radical innovation projects (KPMG, 2016). Researchers argue that firms are most likely forced to rethink their structures and information-processing routines to allow for the effective organization of digital innovations (Svahn and Henfridsson, 2012). The need to infuse institutional logics into the messy sociotechnical regime of digital innovation processes has given rise to the theme of *digital innovation management (IM)* (Nambisan et al., 2017). Firms traditionally create structural arrangements such as corporate innovation management or research & development (R&D) units designed to evaluate, assimilate, and utilize outside information for innovation activities (Bowonder and Miyake, 1992; Utterback, 1971). However, market research shows that while conventional organizational IM structures are quite efficient in the management of traditional innovation projects, they are less likely to generate disruptive or breakthrough innovations (KPMG, 2016). Svahn et al. (2017) further exemplified how Volvo first struggled to develop a 'connected car' via its established innovation practices, but then managed to gain momentum by disconnecting its innovation processes from traditional automotive cycle plans by establishing a separate innovation hub and leveraging external partners. Thus, owing to the greater unpredictability level and pace owing to the technologies' non-linearity and openness, findings from conventional IM or R&D research may not necessarily apply to the management of digital innovation, and traditional mechanistic hierarchies may prove insufficient (Nambisan et al., 2017; Yoo, 2013). Research highlights that, besides environmental dynamics (i.e. digital trajectories), choices made by firms regarding IM's organizational design (OD) and the fit between the two are crucial for high innovation performance to occur (Chesbrough and Teece, 1996; Volberda et al., 2012). Considering recent calls to investigate effective organizational forms and institutional arrangements of digital IM (Hinings et al., 2018; Nambisan et al., 2017), and since to our best knowledge, there is no research into which ODs for digital IM are effective, our research-in-progress paper addresses the following research question: *How can we understand organizational design's roles in digital innovation management?*

While Nambisan et al. (2017, p. 223) state that "there is a critical need for novel theorizing on digital innovation management", we argue that the well-developed perspective of *organizational information-processing theory* (OIPT, Galbraith, 1973, 1974) may prove a valuable starting point for studying digital IM. OIPT provides explanations of how firms employ certain organizational designs to reconcile external influences and mitigate uncertainties and ambiguities (Dibrell and Miller, 2002). Since the theory accounts for contextual factors, inter-organizational interactions (Bensaou and Venkatraman, 1996), and IT's roles in enhancing information flows (Fairbank et al., 2006), we consider OIPT as well suited to populate new ways of thinking about creating the right organizational conditions for digital innovations to succeed. From a managerial perspective, this study will enable organizations to scrutinize the appropriateness of the structures in which they carry out digital IM.

2 Background

Drawing on a Schumpeterian (1934) notion, we can generally understand any form of innovation as a substantial recombination of existing conceptual and physical resources, which are used "in novel and potentially rent-generating ways" (Galunic and Rodan, 1998, p. 1194). Similarly, IS scholars understand *digital innovation* as an IT-enabled product, process, or business model, perceived as new, that may result from a recombination of physical and digital components and often requires significant changes by adopters (Fichman et al., 2014; Yoo, Henfridsson, et al., 2010). Digital innovations do not follow traditional innovation patterns. Instead, their core logic has three key characteristics: *convergence*, *generativity*, and a *distributed nature*.

First, digital innovations afford *convergence*, which denotes the unification and combination of diverse functions by synergizing previously distinct products and services that in the past served entirely different markets and purposes (Yoo et al., 2012). Spurred by the dissemination of ubiquitous computing and the exponential growth of data processing capacities at significantly reduced costs (Tilson et al., 2010), computers now incorporate features of communication devices, and smartphones are becoming capable to take on the functionalities of computers (Pon et al., 2015). Digital convergence encompasses the integration and embedding of digital technologies into non-digital artifacts, making all sorts of products and services more flexible or 'smart', eventually changing existing products' scopes and meanings (Yoo et al., 2009, 2012). The homogenization of data and digital technologies' reprogrammability allow us to bring together traditionally separate features and thus foster converging innovations (Yoo, Lyytinen, et al., 2010). Second, digital innovations afford *generativity*, which describes "a technology's overall capacity to produce unprompted change driven by large, varied, and uncoordinated audiences" (Zittrain, 2006, p. 1980). Owing to the combinatory and malleable capacities of digital technologies enabled by open-layered modular architectures (Yoo, Henfridsson, et al., 2010), digital artifacts allow third-party developers to constantly recombine and repurpose technologies and services to spontaneously spawn derivative and unexpected innovations in a non-linear fashion not anticipated by the original creators (Henfridsson and Bygstad, 2013; Yoo et al., 2012). For instance, providers such as Google Maps have published APIs, which allow for the seamless and dynamic creation of various mashups (He and Zha, 2014), while Uber's business model gave rise to other innovative apps that allow customers to compare different ridesharing services' rates (Remane et al., 2016). Third, digital innovations unfold as *open-distributed* sociotechnical processes spanning ecosystems, where firms from previously unrelated industries now cooperate, but also fiercely compete with one another (Pon et al., 2015; Tilson et al., 2010). Previously centralized and closed innovation activities are increasingly decentralized through approaches such as open-source projects, potentially incurring higher complexity and the focal innovator's loss of proprietary control (Enkel et al., 2009). Thus, since the locus of innovation is now often located beyond a single firm's boundaries (Tilson et al., 2013; Yoo et al., 2012), organizations must increasingly engage in inter-organizational settings to capitalize on emerging opportunities (Chesbrough, 2006). Today, innovation processes are carried out in cooperative, competitive, and coopetitive arrangements. Involved actors range from internal staff to external suppliers and customers, who mutually recombine resources to develop new capabilities, products, and services (Nambisan and Baron, 2013). This adds even more complexity to the process, since all entities are not necessarily aligned to a coherent and synchronized plan, but follow their own logic and are subject to their own innovation structures (Boland et al., 2007).

Under the topic of *digital IM*, scholars have called for the investigation of "the practices, processes, and principles that underlie the effective orchestration of digital innovation" (Nambisan et al., 2017, p. 224). The related activity set may contain tasks such as analyzing the advancement of digital technologies, sensing unexpectedly changing customer behaviors, identifying dynamic competitive forces, and recombining digital and non-digital resources into novel configurations (Frishammar and Åke Hörte, 2005; Nylén and Holmström, 2015). However, to date, digital IM's building blocks has received little attention. The scant research into digital IM and OD offers very little theoretically informed or empirically tested evidence. This is unfortunate, particularly since mid-range contextualized theories fertilized by substantive theories may serve as comprehensive devices that help us to make sense of digital IM, and provide modest but generalized abstractions that can be empirically tested (Hassan and Lowry, 2015; Morrow and Muchinsky, 1980). Concerning empirical work, Svahn et al. (2017) investigated certain organizational structures' (innovation hubs) roles in the context of digital IM, concluding that we lack sound theoretical framings to explore digital IM. On the conceptual side, some propose theorizing digital IM as “deep search process” (Trantopoulos et al., 2017, p. 289), “a quest to coordinate and integrate knowledge” (Peppard, 2018, p. 82), and “problem-solving activity” that matches problems (e.g. customer needs) with potential solutions (e.g. digitized artifacts) (Nambisan et al., 2017, p. 230). Hinings et al. (2018) propose to study the interplay between organizational forms and digital innovations via an institutional theory perspective. In contrast, Boland et al. (2007, p. 642) argue that digital innovations’ characteristics go beyond the “coercive, mimetic, and normative explanations of innovation found in institutional theory”.

Since IM is an organizational task that depends on substantial information-processing (Tatikonda and Rosenthal, 2000), others suggest viewing IM as an “information processing organism” (Lievens and Moenaert, 2000, p. 47). Considering the information-based and very complex nature of digital technologies (Nylén and Holmström, 2015), we add to these perspectives by conceptualizing effective digital IM as matching the innovation-related information available in the environment with a firm’s capacity to channel this information into the process for organizing digital innovation activities. Theory suggests that technology innovation management’s performance depends on three key constraints: organizational characteristics, contextual factors, and their fit (Child, 1972; Tidd, 2001; Utterback, 1971; Volberda et al., 2012). To this end, we draw on Galbraith’s (1973, 1974, 1977) *organizational information-processing theory*, which focuses on organizational structures’ capacities to enhance the transfer and transformation of external information to generate performance (i.e. *information-processing capabilities*). OIPT posits that resolving environmental *uncertainty* and *equivocality* is the central task in *organizational design* (Goodhue et al., 1992). In terms of the former, uncertainty refers to “the absence of information”, while the latter term denotes ambiguity or a “confusion and lack of understanding” (Daft and Lengel, 1986, p. 556). We see that uncertainty and equivocality are pertinent traits of digital innovations’ logic, and drive the *need for information-processing*, which signifies that organizations are open systems that must process information to coordinate diverse activities and accomplish various tasks, but have limited capacity to do so (Daft and Lengel, 1986). Since uncertainty and equivocality increase along digital technologies’ distributed, non-linear, and combinatorial evolution, the extent of information-processing is expected to increase. From this view, digital IM’s basic function is to provide sufficient information to reduce uncertainty and provide suitably rich information to reduce equivocality pertaining to digital technologies and innovation activities. Acknowledging OIPT’s rich potential to inform research into digital IM’s OD, we will now conceptualize the different building blocks more in some detail.

3 Conceptual Development

3.1 Constructs

The broad literature base on OIPT contains several approaches that organizations can use to ensure the effective collection, processing, and distribution of information and therefore enhance their overall information-processing capability. Galbraith (1973) proposes that fundamental rules, procedures, hierarchies, and goals build an organization’s basic mechanistic structure. Applied to our context, we refer to this as the *design variant* of the unit responsible for digital IM activities (Böhl et al., 2016). The organizational anchoring of digital IM may range along a continuum, from being implemented as subtask of the IT department via dedicated digital innovation departments, to separate legal entities. While one design variant may have a higher baseline information-processing capacity than another, at some point, all basic structures reach their capacity limits if uncertainty and equivocality exceed a certain threshold (Daft and Lengel, 1986). To improve this capacity, various organizational *design strategies* can be attached to the design variant, which then serves as the ‘plenum’ for hosting configurations of these strategies (Burton and Obel, 2004; Egelhoff, 1991). Table 1 provides an overview of suggested strategies, based on seminal OIPT contributions (Daft and Lengel, 1986; Galbraith, 1973; Tushman and Nadler, 1978) and contemporary work from the IM domain. The key design variables symbolize the managerially controllable characteristics used in practice, denoting that the result of a genuine implementation can take several different forms (Chiesa et al., 2009). Notably, we made two adjustments to the original theory. Galbraith (1973) originally employed the concept of *vertical information systems* rather than *information systems* (IS) to refer to any systems that provide information vertically up a hierarchy to managers. However, he emphasized that this strategy's primary goal is the timeous provision of information to those who require it. We draw on more recent research and subsume any IS used in the context of digital IM under this strategy that improves information flows, for instance, one that enhances collaboration or senses digital innovation opportunities (Adams et al., 2006; Roberts et al., 2016). Further, a single firm alone often cannot seize all the value embodied by digital innovation, which means that firms must appreciate externalities by involving customers, identifying suitable cross-industry partnerships, and dynamically balancing heterogeneous knowledge resources (Piccinini et al., 2015; Selander et al., 2010). While Galbraith (1974) only provided a brief outlook that external actors may have roles in information-processing, more recent research has detailed this strategy by framing this concept as *external lateral resources* to highlight options for maintaining relationships with external sources of information (Fairbank et al., 2006; Srinivasan and Swink, 2015).

Dimension	Nature and purpose	Key design variables	IM examples
Basic structure			
Design variant	Basic hierarchy, rules, and procedures charged with collecting and processing information	Standardization, formalization, centralization (DeWitt, 1993)	Task of IT, sub-unit of IT, dedicated unit, dedicated legal entity, innovation committee, distributed innovation group, innovation hub (Böhl et al., 2016; Kiessling et al., 2011)
Design strategies			
Slack resources	Increase buffer inventory to reduce the extent of necessary coordination between sub-units	Excess capital equipment, human resources, and other materials (Miller and Friesen, 1982)	High-density workforce (Chen and Huang, 2010); dedicated resources for experimentation with new technologies (Troilo et al., 2014)
Self-contained tasks	Reduce the division of labor to decrease resource coordination efforts	Autonomy and specialization (Nielsen et al., 2011)	Radical innovation units (Gassmann et al., 2012); semi-independent teams (Steiber and Alänge, 2013)
Internal lateral resources	Establish relationships that cut across lines of authority to timeously distribute information across the organization	Internal integration (Flynn et al., 2010)	Job rotation, personal interaction, and involving operational business at an early innovation stage (Gassmann et al., 2012)
External lateral resources	Establish information-sharing routines with external parties (Srinivasan and Swink, 2015)	Vertical (e.g. suppliers, customers), horizontal (e.g. competitors), and lateral interfaces (Barratt, 2004)	Collaboration with customers, suppliers, universities, and others (Laursen and Salter, 2014)
Information systems	Collect the relevant information at all hierarchical levels to enable the right people at the right time to process it	Systems and tools in support of information flows (Adams et al., 2006)	Systems for project and resource management, knowledge management, and cooperative work (Pavlou and El Sawy, 2006)

Table 1. Overview of organizational design strategies.

3.2 Propositions

Figure 1 illustrates our OIPT-informed understanding of the interplays between the previously discussed concepts in the context of digital IM from a cross-sectional perspective. Our premise is that digital innovations' convergence, generativity, and distributedness increase the uncertainty and ambiguity over the information required to innovate, for several reasons (Rodan and Galunic, 2004; Sirmon et al., 2007). Since digital technologies often lack an accepted meaning, or may have multiple or changing contradictory (i.e. equivocal) meanings (Brusoni and Prencipe, 2013), they necessitate a substantial effort for organizational sensemaking and interpretation (Lyytinen et al., 2016). Uncertainty arises about costs and payoffs of investing in a particular digital technology, and the path dependencies it may impose on a firm's strategic development (Fichman, 2004; Svahn and Henfridsson, 2012). Unexpected combinatorial shifts in digital technologies, distribution channels, and new user behaviors (Nylén and Holmström, 2015) may increase the gap between the information required to perform innovation tasks and the information already possessed by the digital IM (Galbraith, 1973). While this information gap may threaten or disrupt a business, since other firms may seize emerging opportunities more rapidly (Grover and Kohli, 2013), it at least increases the overall task uncertainty of the current digital IM (Tatikonda and Rosenthal, 2000). Thus, we propose:

Proposition 1a. *The more pronounced digital innovations' convergence, generativity, and distributedness are, the higher the information-processing needs for digital IM will be.*

Proposition 1b. *Varying convergence, generativity, and loci of innovation increase digital IM's uncertainty level.*

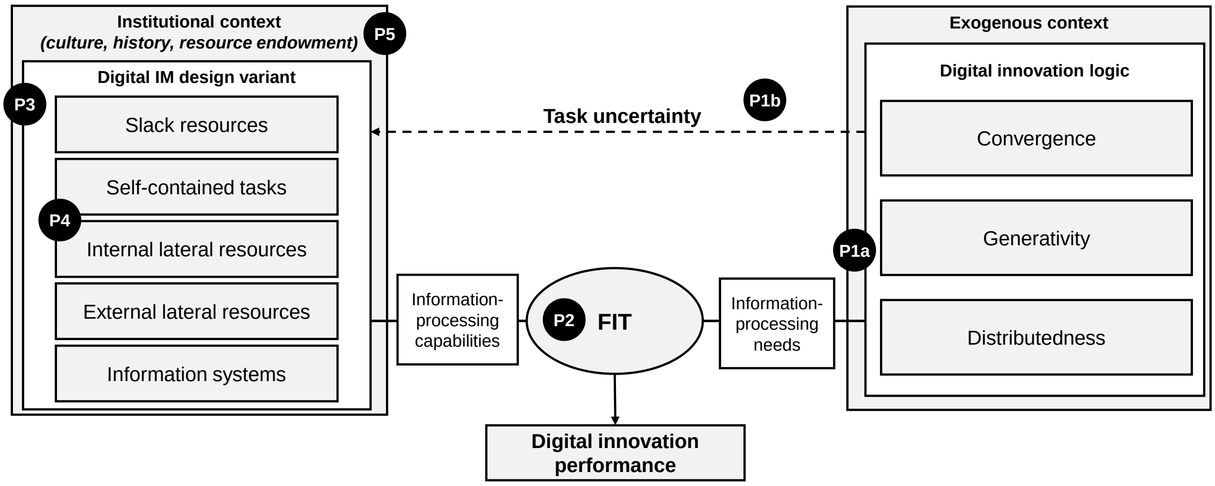

Figure 1. Conceptual framework (OIPT representation adapted from Kim et al., 2005, p. 298).

Galbraith (1977, p. 7) described organizational design's objective as "the continuous monitoring and assessing of the fit between goals, structures, and rewards, the creation and choice of alternative actions when there is no fit". Thus, if the current OD of digital IM proves insufficient for current information-processing requirements, an organization must apply corrective measures to rectify the information gap and to avoid the disruption of its business practices (Mathiassen and Sørensen, 2008). Thus, enabling digital IM to timeously accommodate changing customer needs and technological developments into novel services and products by applying appropriate design strategies is paramount for digital innovation performance (Farjoun, 2010; Svahn and Henfridsson, 2012). The *performance of digital innovation* is not yet as well understood at a conceptual and empirical level, compared to traditional innovation performance (Trantopoulos et al., 2017). Not all new digital innovations emerge from traditional R&D departments, nor are innovations always patented (Acs et al., 2002). Thus, we propose to focus on the frequency at which a firm introduces new digital products and services beyond mere improvements and that represent new IT-enabled ways to satisfy customer needs (Baker et al., 2016; Nylén and Holmström, 2015). As OIPT argues, performance will be higher when there is a fit between given information-processing needs and an organizational structure's capabilities to provide participants with the required information to a reasonable extent and in suitable richness for their tasks – for instance, generating new digital innovations (Daft and Lengel, 1986; Tushman and Nadler, 1978). Thus, the OD must enable the digital IM to trace and seize the combinatorial and non-linear evolution of digital technologies to ensure the timely revitalization of products and services. For instance, firms could establish links to well-versed technology partners, and could grant room for improvisational activities (Nylén and Holmström, 2015). We propose that a unit's digital innovation performance is best examined as the outcome of a fit between the OD applied to digital IM (i.e. its information-processing capability) and the needs imposed by digital innovations' logic (i.e. the information-processing needs) (Premkumar et al., 2005; Yoo, 2013). Thus:

Proposition 2. *To exhibit high digital innovation performance, the digital IM's organizational design must fit digital innovations' logic.*

Research emphasizes that no single structural setting meets all requirements for high innovation performance in all situations (Bergfors and Lager, 2011; Salerno et al., 2015). Similarly, Galbraith (1973, p. 2) states that "there is no one best way to organize" and that chosen design strategies collectively determine an organization as a whole (Galbraith, 1977). Thus, we may assume that multiple common combinations of design strategies may be equally effective in the same organizational context to achieve high digital innovation performance. To this end, our conception draws on a *Gestalt* understanding of OD and fit (Venkatraman, 1989). A Gestalt approach to OD assumes that organizations represent unique structural configurations (or *Gestalts*) of organizational variables (i.e. design strategies) that are believed to determine an outcome of interest (i.e. digital innovation performance) as a whole (Doty and Glick, 1994; Miller, 1981). The Gestalt approach posits that a fit and thus performance can be achieved "through multiple different organizational structures even if the contingencies the organization faces are the same" (Gresov and Drazin, 1997, p. 403-404). For instance, a company that lacks required specialized digital skills may either recruit or train organizational members, or may substitute the deficiency by engaging external consultants or building technology partnerships, with potentially equal impacts on digital innovation performance (Nylén and Holmström, 2015). Thus:

Proposition 3. *There is no single best organizational design of digital IM to achieve high innovation performance; there are disparate, equally effective configurations.*

Theory suggests that design strategies in a configuration ideally support one another synergistically (Galbraith, 1973; Goodhue et al., 1992). However, this does not imply that firms should arbitrarily employ as many design strategies as possible to achieve high innovation performance. Empirical evidence reveals that certain design strategies' effects could vary in their magnitude, or may even have detrimental effects if an 'optimal' application level is exceeded or if there is a misfit between different design strategies (Huang and Chen, 2010; Kim et al., 2005). For instance, excessive resource commitments (i.e. slack resources) conceived to enhance flexibility and cultivate ideation (e.g. by increasing budgets or workforce) may breed inefficiencies or may promote unnecessary risk-taking behavior (Troilo et al., 2014). Further, digital innovations' distributedness requires firms to engage in inter-organizational arrangements such as cross-industry partnerships to gain access to complementary resources. However, innovation partnerships do not necessarily lead to high innovation performance per se, and often result in substantial costs and no immediate returns (Sadovnikova et al., 2016). Nonetheless, research shows that fueling partnerships via appropriate IS usage to mitigate information asymmetries and to combine knowledge (Laursen and Salter, 2014; Yoo et al., 2012), and simultaneously having adequate internal innovation resources in place to effectively absorb external knowledge may well accelerate innovation performance (Rodriguez et al., 2016). Thus, we argue that, depending on their combination with others, specific design strategies may have either positive or negative effects on digital innovation performance (Berg-Schlosser et al., 2009). This implies that causal asymmetry is at work, denoting that different design strategies may appear in configurations of high and low innovation performance. Thus, we propose:

Proposition 4. *Single design strategies may be present or absent in configurations that exhibit high digital innovation performance, depending on how they combine with other design strategies.*

While multiple configurations of design strategies in the same institutional setting may be equally effective, the general ability to innovate is company-specific, path-dependent, and rooted in the surrounding organization's culture and social context (Cohen and Levinthal, 1990; Francalanci and Morabito, 2008). Thus, we argue that the effectiveness of employed design strategies are also a result of a learning function, based on resource investments made in the past and a firm's choices to internalize digital innovation management over time (Karim and Mitchell, 2000; Leiblein and Miller, 2003). For instance, empirical evidence suggests that, owing to their historical and cultural development, large and mature firms are prone to bureaucratic inertia and require much more effort than small firms to provide the context necessary to generate more radical innovations (Chandy and Tellis, 2000; Forés and Camisón, 2016). The rationale is that certain design strategies are more important to some organizations, while other design strategies are more important to organizations with a different background (Fairbank et al., 2006; Rodriguez et al., 2016). For instance, while Kodak made excessive resource commitments to digital imaging and created separate digital sub-units, it failed to timeously capitalize on digital photography, mostly owing to a lack of capabilities for change and a restraining organizational culture (Lucas Jr. and Goh, 2009). In contrast, IBM was fairly successful at generating significant new businesses by applying fairly similar strategies in its IM (De Backer and Cervantes, 2008). Thus, a firm should determine its idiosyncratic digital IM configuration that not only fits the demands imposed by digital innovations' logic, but also by its institutional context (Volberda et al., 2012). Otherwise successful design strategies may be "wasteful, even harmful" if applied to the wrong context (Hansen and Birkinshaw, 2007, p. 2). Thus, we propose:

Proposition 5. *The effectiveness of the digital IM's OD depends on a firm's institutional context.*

4 Conclusion and Outlook

In sum, we have developed a first framework that builds on OIPT that conceptualizes a firm's digital innovation performance as a result of the fit between the configuration of various organizational design strategies and digital innovations' logic. By assuming multiple equally effective OD Gestalts that fit a certain context, and embracing causal asymmetry, we have acknowledged digital innovations' complexity. Although we built on existing theory to derive our framework, we argue that OIPT is highly persuasive to sensitize the community to the topic, since it provides an informed basis for digital IM research, which currently lacks encompassing theoretical perspectives (Nambisan et al., 2017). We challenged some of Galbraith's (1973) original conceptualizations by updating the IS construct and by accentuating the use of external resources, but still see the original theory's main tenets reflected. However, our research is limited, since it only offers a conceptual framework that was deductively derived from the literature and must still be empirically tested.

Thus, as the next step, we will employ a survey research approach to empirically evaluate the interplays between the different strategies at a holistic level. To account for various configurations of digital IM, we employ fuzzy-set qualitative comparative analysis (fsQCA) (Ragin, 2000, 2008) in our research. fsQCA allows for the logical reduction of numerous combinations of complex, causal conditions (i.e. design strategies) into a reduced collection of configurations that generate the outcome of interest (i.e. digital innovation performance) (Fiss, 2011). We regard this approach as highly relevant, since both fsQCA and the fit as Gestalt perspective draw on arguments of complexity, causal asymmetry, and non-linear relationship outcomes (Berg-Schlosser et al., 2009; Venkatraman, 1989). In our data collection, we will use existing and previously validated measurement models where possible. If necessary, we will adapt existing constructs to the digital IM context and will subject them to validation procedures, such as a pre-test and a pilot study (MacKenzie et al., 2011). To test the measurement model, we will apply PLS-SEM to examine latent variables' validity and reliability (Liu et al., 2015), and will then employ fsQCA to unravel configurations of digital IM that exhibit high and low performance. This study will be complemented by qualitative methods to investigate the application of design strategies across identified ideal type configurations in depth (Doty and Glick, 1994).

We see potential contributions to the field. First, we provided a novel account by conceptualizing digital IM from the OIPT perspective. Second, we offered a starting point for future empirical research. Longitudinal studies could examine the *how* processes that lead to a fit, and how organizations move between different configurations. Third, we see opportunities to develop design knowledge for effective and context-specific digital IM once ideal types are identified. Finally, managers may employ techniques such as profile deviation analysis (Kabadayi et al., 2007) to assess their digital IM against the identified configurations of top-performing organizations that operate in a similar context.

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