

The Role of Technological Capacity in Enacting Digital Business Strategy

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Abstract

Much prior research has presumed that organizations can easily set up and effectively execute a digital business strategy when they choose to. The findings from our longitudinal case study, however, demonstrate that successful execution of a digital strategy is far from easy. Importantly, our research highlights that before an organization can effectively execute a digital business strategy it needs to build heightened levels of technological capacity. More importantly, we identify that the development of this technological capacity depends on a set of micro-foundations essential for both the formulation and successful execution of a digital business strategy.

Keywords: Digital business strategy, technological capacity, micro-foundations, digitalization

1. Introduction

As data, technology, and networks continue to increase interconnections among people, processes, and services, organizations are fundamentally transforming their strategy and business models to capture value in new and different ways. Essential to enabling this transformation is the need to rethink the role of IT strategy from a functional-level strategy that enables business strategy (Venkatraman, Henderson & Oldach, 1993) to a fusion between IT strategy and business strategy – commonly known in IS literature as a digital business strategy (Bharadwaj et al., 2013). As a socio-technical phenomenon, fusion is a dynamic, on-going process of re-alignment of the two strategies (Marabelli & Galliers, 2016; Yeow, Soh & Hansen, 2018). Prior literature seems to presume that organizations can easily set up and execute a digital business strategy when they choose to (Gupta, 2018; Kane et al., 2015; Ross et al., 2017). While previous scholarship has mainly focused on success stories, we aim to understand the challenges of enacting digital business strategy.

To do this, we examine technological capacity as an internal organizational capability and conceptualize it as an essential antecedent to effectively enact a digital business strategy. Our development of the technological capacity construct is a primary contribution of this paper. Inspired by absorptive capacity (Cohen & Levinthal, 1990), a popular construct in organizational science literature, we define technological capacity as the firm's *potential to acquire and assimilate digital assets* and the *ability to*

transform and exploit digital assets to enact the business strategy.

Consistent with organizational science, IS researchers have conceptualized two views of absorptive capacity: the asset view (i.e., knowledge base) and the capability view (substantive or dynamic). In the asset view, absorptive capacity is defined as the extent of prior related knowledge possessed by the organization (Fichman & Kemerer, 1997; Liang et al., 2007) including knowledge structures (e.g., an IT platform) that can enable both inter- and intra-organizational knowledge sharing (Chatterjee et al., 2002). In the capability view, absorptive capacity is conceptualized as a set of routines and processes by which innovation teams acquire, assimilate, transform, and exploit external knowledge (Pavlou & El Sawy, 2006), software development teams facilitate integrated expertise and team creativity (Tiwana & McLean, 2005), and inter-organizational supply chains share information and develop knowledge (Malhotra et al., 2005). Although absorptive capacity has been extremely helpful in guiding IS research to date, in this paper we explore two limitations of the theory as it applies to enacting digital business strategy.

First, IS researchers tend to adopt one view or the other to study topics such as IT assimilation, IT business value, and knowledge transfer (Roberts et al., 2012). However, we argue that an integration of views is required to enact digital business strategy. If we adopt a functional-level view of IT and business strategy, it is plausible to assume that the IT strategy would focus on developing knowledge structures (assets) that are deemed important in the business strategy as well as enabling routines and processes that acquire, assimilate, transform, and exploit those knowledge structures. Using the example of an IT platform as a knowledge capacity asset, an organization would formulate a strategy that recognizes the potential to acquire and assimilate an IT platform and enacting that strategy would require a complementary set of capabilities to transform processes and routines to exploit the IT platform in a way that delivers on strategic goals and objectives. However, as the role of IT strategy evolves from a functional-level strategy to a fusion between IT strategy and business strategy, further clarity is needed on what these assets and capabilities are and where they exist. We argue that exploring this further will also help to understand how absorptive capacity might

help inform the on-going process of re-alignment of IT and business strategy.

The second limitation is that to enact a digital business strategy, an organization needs the ability to identify, assimilate, transform and use more than just information and knowledge. Leveraging Melville et al.'s (2004) model of IT business value, we highlight the need to identify, assimilate, transform, and use technological IT resources (e.g., infrastructure, business applications) as well as human IT resources (e.g., programming skills, collaboration with business units). We define the broader category of resources in our study as digital assets and adopt a process view to conduct our preliminary development of technological capacity as a construct. In this paper, we present the results of an in-depth case study spanning a period of four and a half years to highlight the points of critical attention related to technological capacity. Beyond contributions to academic scholarship, we also make a practical contribution by conducting a longitudinal analysis that documents both the strategic process pitfalls and eventual successes of a hardware company's digital business strategy.

2. Theoretical background

Our presentation of the theoretical background is drawn from our empirical analysis as well as the emerging literature on these topics. We present these upfront even though they are informed by our analysis (Berente & Yoo, 2012). We have taken this approach to provide advanced clarity of our concepts rather than the typical interpretive approach where qualitative data is presented before the contributions and concepts are advanced.

In IS literature, absorptive capacity is enabled by the development of dynamic capabilities that increase an organization's capacity to integrate, build, and reconfigure internal competencies needed to continuously adapt to, and build, competitive advantage in a changing environment (Helfat et al., 2009). To reiterate, IS researchers have adopted two views of absorptive capacity: the asset view and the capability view (Roberts et al., 2012). In information systems literature, assets expand beyond information and knowledge to a broader set of information & communication technologies (ICTs), including (but not limited to) broadband network access, devices (e.g., laptops, tablet computers), and software and operating systems (Katz & Koutroumpis, 2013). We refer to this broader categorization as digital assets, which in the last decade, have enabled revolutionary technological progress, infrastructure development, and considerable growth in accessibility and connectivity. A large body of theoretical and empirical literature has investigated the role and impact of digital assets on economies, societies, productivity, and welfare (e.g., Kostoska & Kocarey, 2019; Stanley et al., 2018). Scholars agree that state-of-the-art and

accessible digital infrastructure is necessary for the creation of new business models and improved labor productivity; however, issues such as legacy infrastructure, security, privacy as well as lack of technical skills development and ineffective mindset impede the full potential of investments in digital technologies to be realized (Elleret al., 2020). Studies define existing legacy infrastructure as a key element embedded in a firm's deep structure that can generate rigidity and hinder change (Kaganar et al., 2023).

We argue it is the ability to leverage both digital assets and capabilities that builds technological capacity and in turn, enables the continuous re-alignment of IT and business strategy. We draw this argument from previous empirical research that found absorptive capacity fully mediates the relationship between strategy and performance (Dobrzykowski et al. 2015); we posit low levels of technological capacity may explain why organizations can easily set up a digital business strategy, but struggle to implement it. To conceptualize digital assets and capabilities, we turn to the theoretical concept of micro-foundations (Teece, 2007) as the building blocks for developing and sustaining technological capacity. According to Teece (2007), dynamic capabilities are rooted in the firm's managerial and organizational processes, which are inherently driven by individual and collective capabilities at the micro level such as skills, knowledge, routines, and decision-making processes. Felin and Foss (2005) argue that micro-foundations provide a granular view of how capabilities are developed and sustained, highlighting the significance of human capital, social capital, and organizational learning. For instance, the ability to innovate and respond to market changes depends on the creativity, expertise, and collaborative efforts of employees. Micro-foundations are strategic in that they underscore the interconnectedness of individual actions and organizational outcomes that contribute to the overall strategic flexibility and long-term success of the firm. To date, work in micro-foundations has explored IT strategy as a functional-level strategy that enables business strategy (Eisenhardt & Martin, 2000; Zollo & Winter, 2002). Less is known about the building blocks that enact digital business strategy and, more specifically, technological capacity. This is where we focus our study.

To conceptualize the different types of micro-foundations that are embedded in the technological deep structures of an organization, we explore Industry 4.0 as an umbrella term to understand concepts and technological advancements (Sjödín et al., 2020; Urbinati et al., 2019). Industry 4.0 defines various technologies including Internet of Things (IoT), artificial intelligence (AI), cloud computing, big data technologies, blockchain, augmented reality, automation, advanced robots, additive manufacturing, simulation, and semantic technologies (Klingenberg et al., 2019; Oztemel & Gursev, 2020;). These

technologies possess real-time capabilities, intelligence, interoperability, virtualization, decentralization, connectivity, service orientation, modularity, and/or analytical capabilities (Chirumalla, 2021; Oztemel & Gursev, 2020). We expect that embedded within the potentialities of Industry 4.0 technologies are emerging micro-foundations that are unique and different from those that enabled IT as a functional-level strategy; more specifically, we posit that micro-foundations enabled by Industry 4.0 technologies enable the fusion between IT strategy and business strategy. A study by Veile et al. (2019) identify seven dimensions that describe socio-technical behaviors and routines related to Industry 4.0: corporate culture and communications, personnel, company organization, safety and security, preparation to implement Industry 4.0 solutions, integration of Industry 4.0 solutions, and financial feasibility. We use these dimensions to inform our analysis as a way to identify different types of micro-foundations that are embedded in the technological deep structures.

We adopt a term used outside of IS to explain how micro-foundations provide the building blocks for developing and sustaining dynamic capabilities that enact digital business strategy. The term, *technological capacity*, has been used to define the ability of a firm to research, develop, and adopt new technical solutions in service design, delivery and evaluation (Lember et al., 2018). Conceptually, technological capacity is a specification of absorptive capacity that refers to a company's ability to perceive the value of technology, comprehend it, and economically utilize it (Yunita et al., 2023). Previous research has linked technological capacity to high-added inputs (products and services) that increase organizational performance (Valdez-Juárez & Castillo-Vergara, 2021). Most interesting to our study is research that empirically examined the relationship between technological capacity and dynamic capabilities in environments facing demands for Industry 4.0 demands (Mahmood & Mubani, 2020). This study found technological capacity to exhibit a partial mediating role between an organization's intellectual capital (human, structural and relational) in balancing innovation and exploitation activities in small and medium-sized enterprises from the manufacturing sector. As such, we apply the concept of technological capacity as an essential antecedent to effectively enact a digital business strategy. More specifically, we aim to explore how micro-foundations increase technological capacity as a way to help organizations close the gap between digital strategy formation and implementation.

3. Research Approach

Our ethnographic study (Myers, 1999; Van Maanen, 2011) examined one company's journey

towards developing and implementing a digital strategy. Our anonymized case company, Masspro, is a Nordic engineering company that specializes in providing machine equipment to the mass production industry. Masspro is a multinational company with over 500 employees globally that traces its origins back to the early twentieth century. It is a leading company in its industry with an acknowledged specialty in a niche area of the market. The company was an appropriate case for this study as guided by theoretical and context considerations for three reasons (Eisenhardt, 1989). First, it was important to conduct the study in an organization that was at the early phase of making sense and formulating a digital business strategy. Our study started in 2014, at a time when Industry 4.0 technologies were reshaping the industry and the market around the company. The period under study was characterized by the increasing hype around trends such as 3D printing, Internet-of-Things (IoT), Industrial IoT (IIoT), and smart factories (Reimsbach-Kounatze, 2017). Hence, the early stages of the digital business strategy efforts of Masspro enabled a longitudinal process design (Van Maanen, 2011). Second, Masspro presented us with a unique setting (Eisenhardt, 1989; Van Maanen, 2011) because it is a company that has been recognized for its engineering prowess, yet it has a traditional operational model that traces back to its long history. This combination of Masspro's technically astute background in conjunction with its long tradition and legacy environment, provided an interesting background to study the interplay between their existing structures, routines, long history and legacy environment that enable the business strategy and their novel, technical acumen that can be leveraged to implement an IT strategy more readily (Ross et al., 2017). Finally, the manufacturing industry has been recognized as an industry where digital business strategy is triggering significant renewal of the traditional value chain and companies recognize the need to adjust their strategy and business model for survival (Paulus-Rohmer et al., 2016). For these reasons, the position of the company lent itself readily as a useful platform where contemporary theoretical issues could be effectively observed (Eisenhardt, 1989).

Data, including archival data from the company's intranet, field notes, participant and non-participant observations and multiple interviews, was collected over a period of four and a half years. Our overall goal when coding the data was to capture how changes in technological capacity influenced the enactment of strategy action/inaction over time. We adopted a two-phase inductive approach in making sense of the data (Mantere & Ketokivi, 2013). Phase 1 identified initial concepts around the digital strategy formulation and implementation using first-order codes related to micro-foundations inherent in Industry 4.0 technological enhancements. We extracted these

codes (Corbin & Strauss, 1990) using direct words or a simple descriptive extraction from the data. Secondly, we carried out axial coding, by examining the categories for relationships, which enabled us to combine first-order codes into higher-order concepts. Subsequently, we assembled similar concepts into three themes (aggregate dimensions) that formed the eventual foundation of our emergent theorizing. By further iterating between the coding and data, our theorizing started to form around the idea that inherent types of micro-foundations that when non-existent, impede attempts to enact digital business strategy. Figure 1 provides an overview of how the different conceptual themes emerged from the data. We gathered and analyzed our data iteratively until a point of theoretical saturation was reached (Corbin & Strauss, 1990) and adopted Gioia et al.'s (2013) method where it is customary to collect and analyze data concurrently.

Phase 2 derived second order themes that represented different types of technological capacity to make sense of the relationship between technology capacity and formulation and enactment of digital business strategy. This analysis required a process of iterating between different emerging categorizations of the data and the revision of the first-order themes. Following the principles of interpretive studies, we aimed to describe how the different thoughts held by different persons and data source collectively produce a sense of meaning, particularly in the face of competing definitions of reality (Gephart, 2004). Hence, several iterations were made in order to reconcile the independently deduced themes and to arrive at a consensus on the emerging dimensions where our representations varied.

The data were also analyzed by constructing a general timeline to highlight the key events along Masspro's digital strategy journey (e.g. key strategic decisions, shifts in strategic agenda, organizational action, and managerial communications). Based on this timeline, we adopted a temporal bracketing of our data collection into three identifiable periods of strategic renewal attempts – "Episode 0", "Episode 1" and "Episode 2" – that were characterized by the different efforts towards developing and launching a digital business strategy for the case company (Weick & Quinn, 1999; Gioia et al., 2013).

Episode 0 (1986-2014) covered the period when the organization was operating without a digital business strategy and documents the history leading up to the start of Masspro's digital journey. The culminating event was the company's decision not to adopt the digital strategy that had been suggested by an external consulting company. To analyze this

period, the research team was given access to Masspro's intranet system, which is the sole archive for all organizational documents. The research team specifically focused on documents that provided insights into the strategizing activities of the company (Tripsas, 2009). We also paid attention to documents that provided information on the digital business strategy perception and direction of the company, as well as how the strategy was socially constructed in documented interactions – for example interactions on blog posts on the company intranet.

Episode 1 (2014-2016) included 62 hours of participant observation of strategy meetings and workshops, and organizational meetings where researchers captured data on general events as well as informal discussions with members of the organization over the course of the study. Researchers took field notes in the formal events, memos of non-participant observations (Lofland et al., 2005) of events, processes and practices within the organization (Myers, 1999; Van Maanen, 2011). Our documentation and observations were combined with one-to-two-hour semi-structured interviews with strategy team members (n=9) to validate relevant insights and get clarification on actions that were observed. Interviews also focused on uncovering the practices that underscore the strategizing discussions around digital business strategy and the resulting organizational action based on the reflection of the strategy team members. Finally, we returned to the documents being archived on the intranet, which presented us with an additional valuable primary source of data and offered a way to cross-check the findings of our interview data, documentation and participant/non-participant observations. Having these multiple sources of evidence allowed for triangulation of our emerging themes and abstractions (Leech & Onwuegbuzie, 2007).

Episode 2 (2016-2017) included 41 semi-structured interviews (one-to-two hours each) and 42 hours of observation to capture the reflections and assessment of the implementation of the digital strategy from a cross-section of the organization. The interviews included top management members who led the formulation of the digital business strategy as well as middle managers and operational employees who implemented the strategy and focused more specifically on the evolution of digital technologies within Masspro and the changing perceptions of a larger group of organizational members with respect to their willingness to adopt and implement digital technologies to alter business practices.

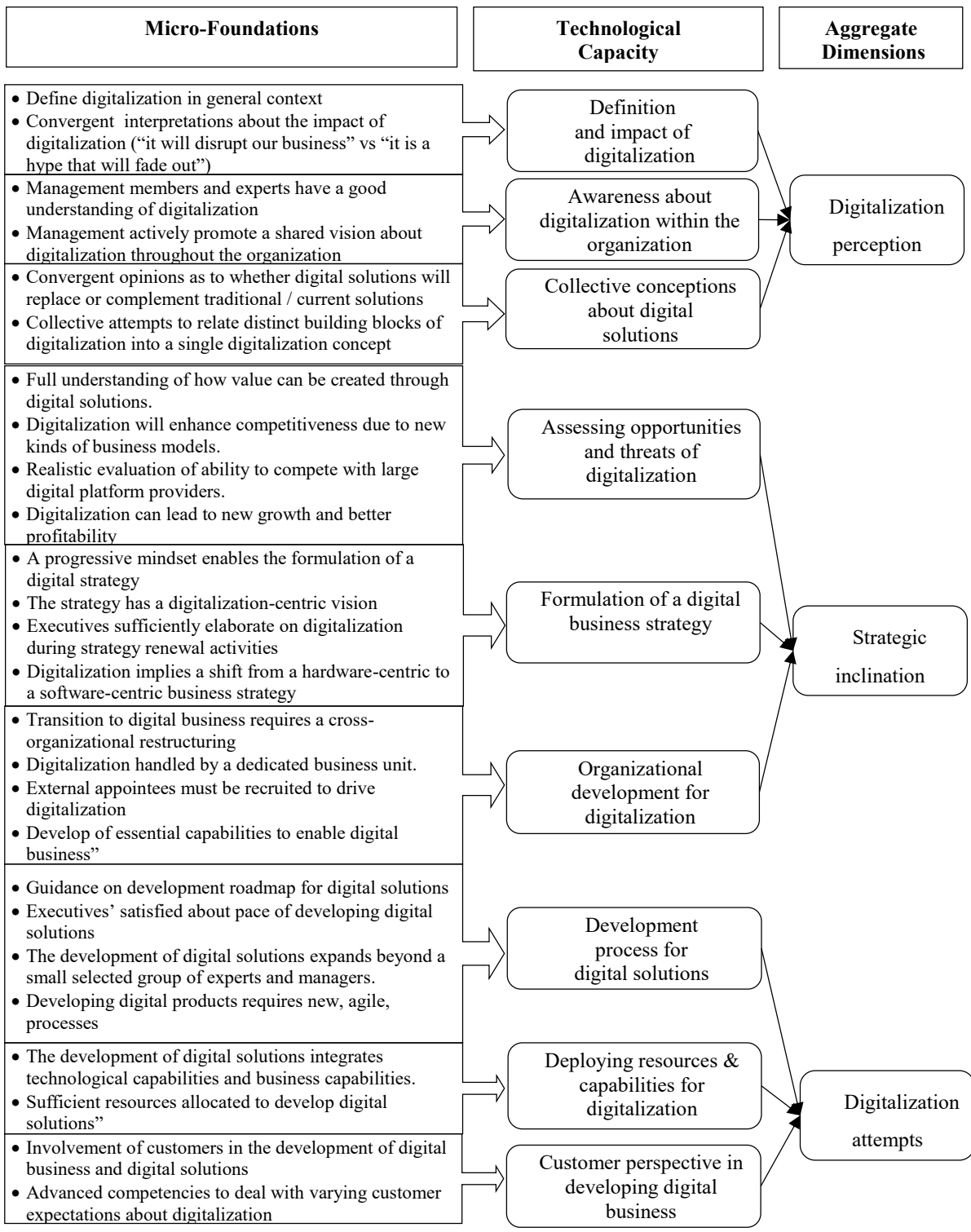


Figure 1. Emerging conceptual themes from the data

4. Findings

Based on the initial format of analysis, three dimensions emerged that captured Masspro's journey towards enacting a digital strategy. As illustrated in Figure 1, we define these as the three aggregate dimensions of a digital business strategy process. To simplify the discussion of our findings, we adopt the term *digitalization* to represent the development of dynamic capabilities that increase an organization's capacity to integrate, build, and reconfigure internal competencies needed to continuously adapt to, and build, competitive advantage in a changing environment (Helfat, et al. 2009). As such, the three categories are: a) digitalization perception; b) strategic inclination to digitalization; and c) digitalization attempts. Figure 1 presents a summary of the first-order concepts, the second-order themes and the aggregate dimensions on which our theorizing rests.

The *digitalization perception* dimension captures the ways technological capacity is developed through views and perspectives about digitalization. Within this dimension, three technological capacity second-order themes emerged that were associated with specific evidence of micro-foundations in first-order concepts. For example, there was evidence of under-developed micro-foundations at Masspro due to divergent (or misaligned) opinions about how digital solutions would replace or complement current solutions as well as individual (as opposed to collective) attempts to relate different interpretations of technological trends into a single concept or opportunity. The second-order theme that emerged was the conception of digital solutions as a unique type of technological capacity. Although there was some evidence of appetite to build awareness of digitalization in Episode 1, a common definition and conception of digital solutions was not evident until Episode 2 when Masspro published a 70-page strategy document that specified the importance of Masspro's technological strengths in enabling growth and addressing the decline in performance. The document highlighted a convergent conception about specific technological capabilities needed to complement existing solutions, "*integrate different software into functional solutions*", "*good IT systems, tools and infrastructure*" and "*the ability to connect to the production system at the customers' premises by means of internet connection.*"

Despite evidence of technological capacity through digitalization perception, the digital strategy document did not articulate the *strategic inclination* of these capabilities. This aggregate dimension captured ways technology capacity was developed by how the organization related digitalization trends to its own business context and its corresponding strategic intentions for the business overall. Specifically, the strategy overlooked developing the technological capacity to enable effective digitalization as one of the

main drivers for the proposed growth logic; the three drivers for growth were more traditional, conventional approaches such as - "*Starting local [sales] offices...establishing local country organizations and starting local production... in new countries [with the highest revenue potential]*", and "*prioritizing customer segments*" that were considered most profitable. Another example of under-developed micro-foundations that reduced the development of technological capacity to enable strategic inclination was a trend analysis completed by the CEO and R&D director in Episode 1 that provided evidence that digitalization was becoming a significant theme for the industry and was likely to have an impact on Masspro's business. In a 54-page summary document of the analysis, it was emphasized that: "*[the] digital future is full of opportunities, if you don't exploit them, they are potential threats.*" Nevertheless, the executives demonstrated limited engagement in the report's findings to inspire the preparation for a digital strategy; however, there was evidence of technological capacity related to organizational development for digitalization as executives recognized the need to invest in software and IT expertise and to remotely connect to customers' production systems. One other example occurred in the fall of 2013 when a middle manager published a blog on the company's intranet about Industry 4.0 in which he elaborated on the potential implications of smart factories on Masspro's industry and its activities. The author warned that Masspro's main product offering would have "*no place in a smart factory*" if the Industry 4.0 theme would materialize throughout the industry, and added an open question whether "*we should do something about this now?*" The blog post triggered nine reactions from seven employees, including the CEO and the vice-president of the product line that was supposedly under threat of smart factories. The CEO commented "*I think we need to take Industry 4.0 seriously and search for the opportunities it offers as well as threats it represents*", while the vice-president wrote that "*after going through the Industry 4.0 final report I think it would make sense to join this train.*" Most of the other reactions were along the same lines, with only one or two individuals, such as one senior manager who wrote "*this Industry 4.0 ... it smells [like] hype*", being more skeptical. Nevertheless, despite evidence of strategic inclination, leadership discussion on Industry 4.0 quickly faded out demonstrating low technological capacity for the third aggregate dimension, *digitalization attempts*.

In the spring of 2015, a roadmap was set up to implement an agreed-upon strategic objective for the organizational development of 'IoT' as a digitalization opportunity. The roadmap included the creation of a dedicated "innovation hub", a three-day open-innovation event, and company participation in a national research program coordinated by a local cluster organization that was intended to study the

potential of IoT in providing digital services. Despite evidence of organizational development for digitalization (i.e., strategic inclination), progress on this initiative was slow due to under-developed micro-foundations related to deploying resources and capabilities as evidenced by one exchange between a frustrated executive who asked: “*why [is] the development of [digital services] not going forward, why [is] there no progress?*” and a taskforce member who replied “*we lack resources, most resources are reserved for [mainstream] projects.*”

In the summer of 2016, the executives met to review the implementation of the new strategy and agreed that “*digitalization efforts had to be sped up.*” One of the attendees pointed to the earlier research program on the value-creation potential of digital solutions that the company participated in. The CEO ended the discussion by demanding “*more focus*”, while reminding the group “*only limited resources will be available for developing new [digital] solutions.*” A product manager questioned once again the role of the leadership in the digitalization activities, and—apparently getting slightly frustrated with the discussion—told the executives: “*you expect a lot, but are not helping to ensure resource availability [for the digitalization activities].*” This is evidence that the micro-foundation for technological capacity is adopting a strategic approach, as opposed to a tactical approach, for developing a roadmap. The tactical approach adopted by Masspro decreased the technological capacity related to the development process for digital solutions.

5. Discussion

Figure 2 provides an empirical model drawn from the data that provides an overview of the three episodes to illustrate how increases in technological capacity evolved the perception of digitalization and how that reshaped strategic inclination and digital business strategy attempts. Within each episode, evidence of under-developed micro-foundations is provided as a viewpoint for enacting digital business strategy through the development of technological capacity. Although prior views of micro-foundations have been explored in a functional-level IT strategy context (Eisenhardt & Martin, 2000; Zollo & Winter, 2002), our study uncovered an opportunity to explore the role of technological capacity as a way to enable the fusion of IT and business strategy.

As derived from the empirical data, micro-foundations enabling *digitalization perception* were enabled by three types of technological capacity. As observed in the case, technology capacity revolved around the exploration of how to make use of digital technologies (e.g., IoT, analytics) to improve the current offerings. *Strategic inclination* leveraged micro-foundations through three types of technological capacity that related to the exploitation of how to leverage the current and potential digital assets of the company (e.g., data from the machines sold to customers and internal software development capability) to drive business value (i.e., profit). As observed in the case, evidence of under-developed micro-foundations in Episode 0 reduced technological capacity to enable digitalization perception.

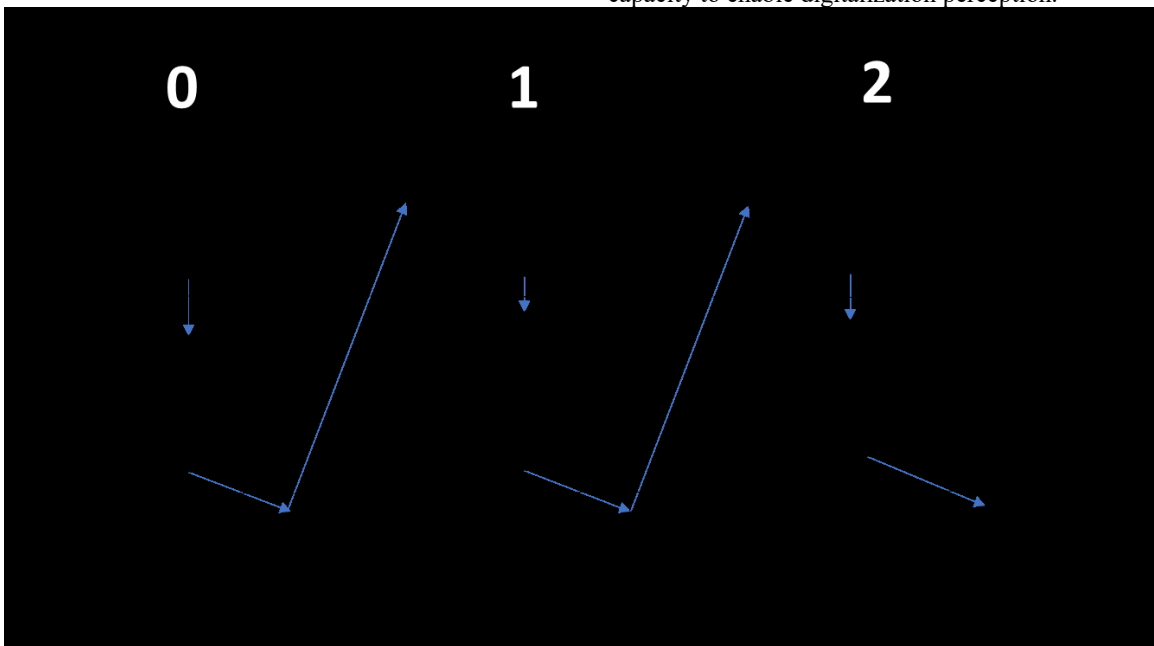


Figure 2. Masspro's digital strategy journey

In contrast, increased recognition of digitalization improved technological capacity in digitalization

perception in Episode 1, but technological capacity for strategic inclination was still lacking as the

organization did not have a micro-foundation for designing specific kinds of digital services and cooperation among lines of business to create them. This finding lends support to earlier work that low levels of technological capacity in strategy implementation resulted in the inability to appropriate and repurpose technology due to a lack of knowledge of the inner workings of the organization (e.g., structure, processes, people, culture) that are important to make sense of the strategy, navigate competing priorities, and restructure actions according to the demands of the strategy (Mantere & Vaara, 2008). Within strategic inclination, there was also evidence that resource availability is a micro-foundation highlighting the need for top management to demonstrate their support not only through rhetoric, but also through the re-allocation of resources to enable the implementation of the stated strategy (Lovallo et al., 2020).

One novel idea that emerged from identifying different types of technological capacity was the potential role of ambidexterity as a dynamic capability to resolve tensions inherent in digital business strategy (O'Reilly & Tushman, 2008). The concept of tensions is consistent with previous empirical research (Dobrzykowski et al., 2015) that found when firms aim to execute a strategy that has competing objectives, their ability to develop absorptive capacity is diminished. This may explain why organizations find it difficult to fully articulate their digital business strategies upfront in the face of environmental dynamism (Yunita, 2023). As such, we encourage future research to further develop technological capacity as an important concept in understanding how organizations can set up a digital business strategy by reinforcing micro-foundations in exploration and exploitation activities (Revilla et al., 2010). Linking this future research opportunity back to our results, the arrows in Figure 2 indicate that inherent in the digital strategy process are different structures that enable digitalization. One way to interpret this result is by bringing to light the concept of structural ambidexterity, an organizational design approach that enables a company to simultaneously pursue both exploration and exploitation activities by creating separate units or structures for each (O'Reilly & Tushman, 2013). In IS literature, this concept addresses the challenge organizations face in balancing the need for technology innovation (exploration) with the need for leveraging and optimizing the use of their existing legacy infrastructure (Müller et al., 2021). In the case of Masspro, we observed that the development of technological capacity in digitalization perception was enabled by activities that were more related to exploration; whereas the development of technological capability in strategic inclination was enabled by activities that were more related to exploitation. Literature in structural ambidexterity

supports the idea that by dedicating resources and knowledge to develop technological capacity in distinct exploration and exploitation phases, it is possible organizations can prevent being bogged down by trying to integrate the phases of exploration and exploitation together (Fourné et al. 2019). From a practical perspective, this finding suggests that by dedicating teams that specialize in either exploration or exploitation, organizations can remove the distraction of trying to balance both. This may lead to higher efficiency and effectiveness in both domains. This interpretation is also consistent with literature that states that lacking technological capacity organizations are encouraged to capture domain knowledge by involving external consultants and/or organization employees with domain expertise (e.g. Chief Information Officer, Chief Digital Officer, IT Manager) (Marabelli & Galliers, 2016; Vaara & Whittington, 2012). To date, this proposition is an interesting idea but under-developed, as such it is an avenue for future research.

Finally, in the empirical model, digitalization attempts relate to the eventual set of decisions and activities that are attempted, initiated, or executed in order to advance digitalization within the organization. Strong evidence of increases in digitalization perception through resource investment and strategic inclination through structural changes (e.g., CDO, taskforce, digital business unit) increased technological capacity to advance digitalization attempts in Episode 2. What is most interesting about our results from this episode is the need for a more integrated and holistic approach to managing exploration and exploitation (i.e., contextual ambidexterity). Grounded in previous research, we posit that contextual ambidexterity becomes more prevalent in digital business strategy when digital innovation is more entangled with underlying organizational IT infrastructures (El Sawy, 2003; Orlikowski & Scott, 2023). For example, an entrepreneurial firm that is pursuing a digital strategy to sell digital products and services to other organizations may be motivated to disentangle innovation from underlying infrastructure to ensure their product or service can operate across multiple platforms. In contrast, an incumbent firm pursuing a digital strategy to become more operationally efficient will be more motivated to exploit existing infrastructure capabilities, especially in cost-constrained environments. In our study, it is the essence of entanglement that makes progress-critical theories such as dynamic capabilities and absorptive capacity more pertinent to unpacking digital strategy.

6. Conclusion

In summary, the aim of our study was to better understand the challenges of enacting digital business strategy and we did so by identifying a preliminary

model of micro-foundations as enablers of different types of technological capacity. Future research is needed to advance technological capacity as an internal organizational capability and conceptualize it as an essential antecedent to effectively enact a digital business strategy.

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