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Max Uhlig

University of Applied Sciences Wedel, bwl105144@stud.fh-wedel.de

Gerrit Remané

University of Applied Sciences Wedel, gerrit.remane@fh-wedel.de

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A Systematic Literature Review on Digital Business Strategy

Max Uhlig¹ and Gerrit Remané¹

¹ University of Applied Sciences Wedel, Department of Information Systems, Wedel, Germany
{bwl105144,gerrit.remane}@fh-wedel.de

Abstract. For decades, business–IT alignment has been considered the prevailing framework for aligning IT strategy with business strategy. With the ubiquity of digital technologies, the new concept of digital business strategy (DBS) emerged. This concept calls for the fusion of IT and business strategy, making IT an integral part of business. The DBS concept is relevant for nearly every organization and important advances in research on individual dimensions of the DBS have been made in the recent years. To make this knowledge available to business practice and future research we develop an integrative framework which covers the antecedents of DBS, components of DBS, steps to develop DBS, and outcomes of DBS. Our research provides a solid foundation to systematically enhance research around the DBS concept. Furthermore, our framework serves managerial practice as a starting point to better understand and implement this crucial concept.

Keywords: Digital Business Strategy, Components of Digital Business Strategy, Systematic Literature Review, Research Agenda

1 Introduction

Firms are faced with new challenges due to an increasingly digital environment in which digital technologies are ubiquitous [1]. The effective use of information technology (IT) thus becomes an integral part of business strategy in order to gain competitive advantage [2]. The business strategy thereby addresses the question of how to position a firm in a certain competitive market [3-4]. Therefore, firms aim to align their IT strategy with their business perspective [5-6]. Traditionally, IT strategy has been seen as a functional-level strategy that is derived from the business strategy and supports the business to achieve the business goals [7-8]. Since the early 1990s, business–IT alignment has been a research topic in the information systems (IS) field [5], [9]. This concept follows the idea of leveraging IT to enable advantages in the business context [9].

However, since the beginning of the 2010s, questions have arisen as to whether the IT strategy is subordinate to the business strategy [10-11]. This led to the emergence of the notion of digital business strategy (DBS), which calls for the fusion of IT strategy and business strategy [10], [12]. In an organizational context, DBS is defined as an “organizational strategy formulated and executed by leveraging digital resources to

create differential value.” [10 pg. 472]. Thus, IT needs to be seen as a core element in a firm’s business model and processes [13]. Successful firms adapt opportunities to meet their strategic aims and create value through the use of digital technologies [14-15]. However, incumbents must formulate a digitally-oriented strategy differently than originally-digital firms, such as Spotify, Airbnb, and Uber [16]. However, the German conglomerate Bosch is a recent example of an incumbent that has successfully pursued a DBS and achieved a digital transformation [17].

DBS is relevant for managerial practice due to its topicality. It is still a rather new field of research but offers huge potential for practice. For instance, leading strategy consultancies are also recognizing the potential that DBS offers businesses [18-20]. Thus, managers should reflect on the ideas of DBS and consider adapting such a strategy within their business in order to stay competitive in the digital economy. This literature review provides managers with a broad framework of what dimensions need to be considered when striving to develop a DBS.

Existing reviews either do not cover most recent advances in DBS research or only focus on certain aspects of DBS rather than providing a holistic review. Kahre et al. [21] conducted an extensive literature review of DBS using a framework that structured their findings in terms of both internal organizational and external conditions and changes, as well as the content of DBS and organizational outcomes. However, their literature review was published in 2017 and does not include important new research findings such as Park and Mithas [22], Chi et al. [23], or Sia et al. [24]. In addition, the literature review from Weinrich [25] examined only the organizational design components for DBS. Nadeem et al. [26] mainly focus on possible relationships between DBS, digital transformation, and organizational capabilities. Finally, Ruel et al. [27] put the leadership role and organizational learning in the foreground of their DBS review. For this reason, this literature review aims to contribute to the research on DBS by providing a foundational and holistic framework of the underlying dimensions of DBS reviewing the most relevant and recent literature.

Therefore, we examine the DBS concept systematically, by asking the following research questions: What is the state of the art of academic literature on DBS, and what are the relevant dimensions determining DBS?

We proceed as follows. First, we describe the methodological approach for the rigorous literature review. Second, we present the findings including the dimensions identified. Finally, we discuss our findings, relate them to other research streams, and develop a future research agenda before we conclude.

2 Method

We conducted a systematic literature review consisting of a structured literature search process, a selection process as well as a qualitative analysis. These approaches were chosen in order to ensure a holistic and rigorous literature review of high quality. The three approaches are detailed in the following.

Literature search: We applied the procedure proposed by Webster and Watson [28] following their approach for systematically searching literature. We started the

keyword search by using the search terms “digital business strategy” and “digital business strategies”. We deliberately chose not to include similar search terms such as “digital strategy” or “digital transformation strategy”, as we intended to find sources that only referenced the concept of DBS. We searched the databases EBSCO Business Source Complete, ScienceDirect, AISeL, IEEE Xplore and Google Scholar as well as the top IS journals.

Literature selection: We filtered the initial literature stepwise in order to select suitable papers. Since we have done redundant search in the databases, we had to delete the duplicates. After that, we further filtered the literature by relevance in three steps. First, we read the paper’s title and checked the keywords. Second, we read every paper’s abstract. Third, we examined the body of the selected papers. In doing so, we reviewed the literature based on our selection criteria: 1) considering the fit to the scope and purpose of the literature review and to our research questions, 2) choosing primary research over secondary research, 3) considering the reputation of the papers, as well as 4) considering the recency and relevance of the papers. After filtering the literature, we conducted two additional search approaches: the backward and forward search suggested by Webster and Watson [28]. For the backward search, we reviewed the papers cited by the authors of the literature we identified before. For the forward search, we used the databases to search for papers citing the key literature that we found in the steps before. We then examined these papers based on our selection criteria to decide whether or not to include them in the literature review. In the end, 29 papers remained to be used for the literature review. The cut-off date for the analysis was May 5, 2021.

Qualitative analysis: We chose the grounded theory literature analysis method proposed by Wolfswinkel et al. [29] in order to systematically analyze the literature. This guideline enabled the discovering of the underlying categories connected to our research questions and the dimensions of DBS. The procedure was iterative and the analysis was based on three steps. First, we conducted open coding by breaking the literature into discrete parts and extracting abstract codes. Second, axial coding has allowed to draw connections between the codes and relate them in order to group the codes into categories. Third, the selective coding process enabled us to integrate and refine the categories and helped us mapping the categories to the high-level dimensions.

3 Results

The concept of DBS is a modern theme, since the first publication referencing DBS as the fusion of IT strategy and business strategy was published in 2010. In addition, the publication of the work of Bharadwaj et al. [10], as well as the papers in the special issue of MIS Quarterly in 2013, represent a milestone and show that the topic of DBS has gained momentum since. In the final analysis, a total of 29 papers was considered. We created a concept matrix to provide a visualized overview of the findings (Table 1). In the following sections we discuss each of the four dimensions with its individual sub-categories in more detail.

Table 1. Concept matrix

<i>References</i>	<i>Antecedents of DBS</i>	<i>Components of DBS</i>	<i>Steps to develop DBS</i>	<i>Outcomes of DBS</i>
Bennis [52]		•		
Bharadwaj et al. [10]	•	•		•
Bygstad et al. [41]	•	•	•	
Chi et al. [23]		•		•
De Baat Doelmann et al. [53]			•	
Drnevich and Croson [44]		•		•
Granados and Gupta [30]	•	•		
Grover and Kohli [40]	•	•		
Holotiuk and Beimborn [12]		•		•
Kahre et al. [21]	•	•		•
Keen and Williams [42]	•	•		•
Kurtz et al. [36]	•			•
Markus and Loebbecke [43]	•	•		
Mithas and Lucas [11]	•	•		•
Mithas et al. [31]	•	•		
Mithas et al. [38]	•	•		
Mubako [35]	•	•	•	
Nadeem et al. [26]		•		
Pagani [32]	•	•		
Park and Mithas [22]	•	•		•
Ruel et al. [27]		•		
Setia et al. [33]	•	•		•
Sia et al. [24]	•	•	•	•
Wang et al. [50]		•		•
Weinrich [25]		•		
Woodard et al. [39]	•	•		•
Wunderlich [37]		•		
Wunderlich and Beck [13]	•	•		•
Yucel [34]	•	•		

3.1 Antecedents of digital business strategy

Antecedents of DBS contains reasons and stimuli why the development of a DBS can be necessary. This dimension is divided into three subcategories. These are emerging technology trends, organizational shifts and the firm's business environment.

Technology trends: Several authors have pointed out the disruptive power of new digital technologies that threaten entire strategies, business models, and even industries (e.g. [10], [24], [30-32]). For example, the physical and digital assets of many products are almost inseparable [10]. Furthermore, the ubiquity of digital technologies empowers customers leading to higher expectations of products and services [33-34]. Although

the threats of disruptive technology trends are highlighted in many papers (e.g. [11], [24]), such trends also offer potential opportunities for businesses when adapted successfully (e.g. [34-35]). Hence, such threats and opportunities increase the urgency of developing a DBS that adapts the advantages of these technologies in a holistic business context to remain competitive in the digital environment [22], [32-33].

Organizational shifts: Organizational shifts may lead to the need to develop a DBS [10]. One of these internal factors is that traditional business models are reaching their limits in a digital world, and the design of the underlying business strategies is being questioned [10], [36]. Furthermore, the role and value of IT increases because firms see IT more as a strategic asset [11]. Technological progress is driving firms to consider IT more as a strategic business concept because, among other things, it enables reducing high transaction costs and questions other traditional strategic concepts [31]. This change of priority is accompanied by a change in the understanding of roles and cooperation within the top management team (e.g. [11], [37]), as discussed in more detail in the leadership section. Firms need to change their established, traditional structures and legacy IT system landscape in order to remain competitive in a digital world [13], [24]. For example, due to higher customer expectations, firms intend to position themselves in a more customer-centric way [33]. All these factors imply that organizational shifts drive the development of a DBS.

Business environment: Some studies have used the term “ecodynamics” when describing the business environment. This term was characterized by El Sawy et al. [1], and their work has been cited by some researchers [12], [21-22], [30], [35], [37-39]. In the digital context, the entrance of new technologies has caused a rise of dynamics and turbulence in industries and markets (e.g. [10], [38], [40]). Additionally, increasing digitalization has led to lower market entrance barriers, which result in the emergence of new competitors with innovative business models [13], [34]. The situation might be even more challenging for incumbents because they are competing against traditional competitors in a physical setting, on the one hand, and new competitors in a digital setting, on the other [41]. Digitized markets are primary buyers’ markets [42]. Another aspect of environmental change which needs to be taken into account refers to the change from a traditional product-market view to entire cross-industry business ecosystems which consists of many different network partners [32], [43]. In this new competitive arena, firms need to find their role in existing ecosystems [39], [43].

3.2 Components of a digital business strategy

The following section contains the key components that must be defined when developing and executing a DBS. The components comprise the digitalization of products and processes, business model execution, IT governance and principles, IT investment and prioritization, digital resources, ecosystem compatibility, capabilities, leadership and culture.

Digitalization of products and processes: Many firms develop a DBS focusing on the development of a portfolio of new digital products and services leveraging digital resources, big data, and, often, complementary platforms [10], [21], [24], [41]. For example, digital technologies are used for building customer service capabilities [33].

Furthermore, DBS aims for cross-functional integration and cross-functional business processes [10], [24-26]. Digitized processes should be data-driven in order to allow for a higher degree of automation [12]. Furthermore, DBS requires coordination across products, services, and processes in complex ecosystems [24], [32].

Business model execution: In view of DBS, new kinds of digital business models are becoming more important (e.g. [10], [21], [31], [44]). The digital economy thereby offers new and different sources of value creation and capture [10], [23], regarding information abundance, multisided business models, network-dependent business models, and control of an entire digital industry architecture [10]. Value creation is therefore a dynamic component which can make business models unstable [42]. New business models should be multisided, providing differentiated ways to create and capture value [10]. Multisided, shared digital platforms are a common business model type; one example is Amazon's cloud providing service [43]. A multisided digital platform creates value by reducing distribution, transaction, and search costs, and it creates network effects [32]. Firms also often follow a customer-centric approach [24], [35], [42], for example by creating seamless integrated omni-channel services for customers [12], [25]. Physical products become extended by digital services to increase customer experience and create and capture new sources of value [12].

IT governance and principles: An important decision with regard to IT governance (e.g. [45-46]) is defining the strategic role of IT. In view of DBS, the fusion of business and IT in a firm is key [10-11], [24], [35]. In a digital environment, IT cannot be isolated from overall business strategy and needs to be seen as a strategic asset: Synergy between business and IT will allow a firm to gain competitive advantage [38-39], [44]. Moreover, firms increasingly depend on innovations that are based on IT [13]. A new understanding of the role and value of IT is crucial [21-22], [31]. IT does not solely support, but primarily creates, business value [12]. Furthermore, the *raison d'être* of an isolated functional-level IT strategy is being questioned when business strategy and IT strategy will be fused [37]. In this context, IT governance is also needed to align digital initiatives [12].

IT investment and prioritization: Another strategic topic is IT investment and prioritization, which is also discussed in IT governance research [45-46]. Especially, the investments in IT infrastructure play a crucial role to pursue the goals of DBS [11], [25], [31]. IT investment should switch from being solely perceived as part of operational-level activity to being seen as a strategic business value [44]. On average, firms are tending to move closer to their industry peers in terms of IT investment [38]. Regarding the IT infrastructure strategy, a standardized IT infrastructure including data exchanges through the use of digital platforms is important to enable DBS [10]. Thus, other functional domains should be linked with the IT infrastructure, such as the marketing function [24]. Regarding the IT landscape, a shift is underway from elaborate in-house developed systems to "micro-applications" that make use of digital platforms [40]. Thereby, firms must decide from a governance perspective which components of the applications should be visible to competitors and which should not [40].

Digital resources: Digital resources are referred within the resource-based view (RBV) of strategy discussed by Barney [47], Peteraf [48], and Wernerfelt [49], among others. Capabilities and resources based on IT are fundamental digital resources which

can gain and defend competitive advantage [44]. Moreover, digital resources enable new strategic digital opportunities by laying the foundation for the effective use of digital technologies in the business context [10], [22]. DBS leverages digital resources and turns them into business value [10], [23], [34]. For example, big data is an important digital resource that needs to be used for (real-time) analytics and sense-making in order to gain insights from the data [12]. Digital resources enable the strategic usage of digital technologies [10], whereby digital technologies become an integral part of new products and services [10], [21], and firms need to adapt the benefits of such technologies to their DBS [26], [33], [43], [50] to create new digital assets [10], [38]. In that context it is important to be aware that firms are path-dependent when designing and positioning digital assets which are non-rival per se; whereby such assets include, for example, software components or data structures [39]. Furthermore, it is core to be able to orchestrate a set of dynamic, data-rich digital resources in an ecosystem [10]. Thereby, the co-development of digital and non-digital resources is proposed [41].

Ecosystem compatibility: In a digitally intensive environment, firms are engaged with and integrated in dynamic business ecosystems which represent a common network of partners, complementors, customers, and competitors [10], [25-26], [32], [34], [39]. Partners in the ecosystem collaborate [23], [32] and deliver complementary services to create a joint value proposition [26], [32]. Hence, DBS cannot be designed independently of the ecosystem because decisions are often driven by the collective within that system [10], [39]. There are three proposed types of value network structures: the closed vertically integrated model, loosely coupled coalitions, and multisided platforms [32]. The question for incumbents is how they intend to position themselves within an ecosystem or if they would do better to stay outside [41]. Every business ecosystem has a powerful orchestrator, who usually delivers the digital platform and manages the value creation and capture in the network through purposeful moves [10], [32], [43]. The orchestrator must be able to handle the dynamics in the ecosystem [32]. A firm that has low technical debt and high option value is best suited to lead an ecosystem [39]. In addition, business communities represent a more extensive concept which is characterized by overlapping ecosystems managed by competing orchestrators in different business segments [43]. The DBS of orchestrators in an ecosystem thus affects not only their own ecosystem but, presumably, that of partners and other orchestrators in overlapping ecosystems [43].

Capabilities: For the successful execution of a DBS, the concept of dynamic capabilities is fundamental. Dynamic capabilities are “the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments” [51 pg. 516]. It is essential for firms to continuously reconfigure their resource base in a targeted way [21-22], [32], [26], [39]. Additionally, firms are required to have a readiness for change in order to create a DBS [27]. Furthermore, agility is mentioned as one of the core dynamic capabilities which enable an organization to respond quickly to changing conditions and ensure effective adaptation (e.g. [10], [12], [24-25], [31], [40-41]), and agility is mainly enabled by IT [31]. Apart from that, another important capability is to think and act proactively rather than reflexively to better handle uncertainty [30-31], [50]. Thus, IT needs to be used effectively to be able to predict the future [21], [30]. It is necessary to develop the skills

to rapidly scale the business model as well as the IT infrastructure and other digital assets [10], [12], [32], [39], for example by using cloud computing [10]. IT capabilities need to be developed to harness big data and information abundance to enable data-driven decisions [10], [44]. Furthermore, information analytics capability is essential in certain industries, for example manufacturing and services [22]. Organizations also need ambidextrous capabilities, which means they need to balance responsiveness and internal constraints [12] to ensure a stable value appropriation [39]. Finally, the capability to design and manage value networks is important [10], [32].

Leadership: Leadership comprises both team and individual level. As regards leaders – be it C-level officers, top management team, or senior executives – it is important that the business-side managers cooperate and collaborate with the IT-side managers [11], [13], [24-25], [37]. Thus, some firms hire a Chief Digital or Chief Data Officer (CDO) to combine both roles in one person which represents the vision of the DBS [25]. With regards to the Chief Executive Officers (CEOs), they have to be adaptive, transparent, and supportive in order to successfully develop and execute the DBS [12], [52]. Thereby, a clear and future-proof vision is fundamental [12]. Moreover, the top management team's IT knowledge has a significant influence on the DBS [37], and the workforce should develop trust in the abilities of the C-level officers and managers [27]. Senior executives need to have a certain skillset to lead through the DBS, including giving active support to its implementation [12], [41]. They also need to be equipped with digital and IT competencies [11], [13], [24], [27]. It is also crucial for leaders to have a digital, open, and innovative mindset [12], [25], [52] and to foster collaboration and cross-functional work [12] and be willing to learn from failure [52].

Culture: Developing a DBS also requires an innovative culture. One crucial aspect of DBS is the IT knowledge of managers, as well as employees, as this enables a hard-to-imitate organizational innovativeness [13]. For this purpose, a shared knowledge base is essential anyway [13], [21]. Organizational learning is another crucial aspect of an innovative culture [21]. The ability to conduct experiments in order to learn about customer needs, as well as the ability to test innovative prototypes and quickly adapt to change, is required [12], [24-25], [27], [31]. Failures need to be accepted with a “test-and-learn” approach [12], [25]. Furthermore, employees need to have the opportunity to receive and give feedback to and from customers, partners, and other employees [12], [25]. Therefore, communication and collaboration between the different stakeholders is essential [12], [32]. Firms must even be open to collaboration with competitors, if needed, for example in business ecosystems [10], [24].

3.3 Steps to develop a digital business strategy

The steps to develop a DBS focus more on a process theoretical perspective. Few papers comment on the strategic development process of DBS and outline concrete steps that need to be taken. However, we summarized the major activities to consider when developing a DBS in a framework of four steps.

First, management needs to develop a vision and goals for the DBS [35], [53]. They need to communicate the goals as well [53]. In addition to that, the development of a strategy roadmap for digital initiatives is required [35]. Thereby, the entire firm needs

to develop a holistic understanding of DBS, especially the senior leadership team [24], [41]. Second, resources and responsibilities need to be aligned [53]. Furthermore, the firm needs to build an agile and scalable technology landscape in order to create and capture the value of DBS [24], [41]. Third, digital business models must be designed [35]. Thereby, understanding and focusing on the digitally savvy customer and their needs is essential in order to design digital products and services that cater to them [24], [41]. Finally, the firm needs to continuously adapt to the new dynamics by positioning themselves in the digital landscape; thus, they need to experiment with new digital innovations to be prepared for future strategic questions in the digital context [24]. Thereby, the internal results and external factors must be monitored and human resources must be linked to the stakeholders of strategy implementation to ensure the needed competences [53].

3.4 Outcomes of a digital business strategy

This section deals with the outcomes of DBS. They are subdivided into non-financial and financial outcomes.

Non-financial: DBS enables firms to harness new digital opportunities and markets and gain competitive advantages [10], [44]. When making use of high-value stock of designs owned by the firm, the result can be a superior position in the competitive environment, a faster time-to-market for products and services, and an improved responsiveness and a more effective ecosystem [39]. Firms can increase their flexibility and adaptiveness to changed conditions in the market [44]. They can also improve service [33] and customer performance [22]. DBS also enhances organizational innovativeness [13]. Furthermore, cost efficiency and increased productivity can be an outcome of a successful DBS [12]. However, it must be borne in mind that certain configurations of organizational capabilities, such as IT-enabled information analytics, lead to different performance outcomes – higher or lower – depending on the choice of capabilities and the industry [22]. DBS can first improve operational performance, whereby, in turn, overall firm performance might also increase [23]. Similarly, the mediation of DBS through IT capabilities, such as analytics, has a significant effect on the improvement of a firm's efficiency and performance [50].

Financial: DBS is expected to improve financial performance in the form of increased profitability [11], [44] and value propositions [42]. To give a particular example, a bank could increase growth and improve earnings, net profit, and share price after successfully implementing a DBS [24]. In addition, DBS enhances e-collaboration, which improves financial performance measured in return on assets and ratio of operating income to assets [23]. Through the configuration of certain capabilities, DBS can improve financial performance measured in return on investment, profitability, liquidity, market share, and business growth [22]. It depends on the DBS type whether the outcome on financial performance is positive or negative [36]. For example, orchestration of digital business ecosystems positively influences financial performance while the developing digital products has a negative effect on it [36].

4 Discussion

DBS is an interdisciplinary research field, primarily combining strategic management research and IS research. The topic is on the rise since 2013, due to the publication of Bharadwaj et al. [10], which opened up the research field. Regarding the evolution of the research on DBS, we observed that most research until 2015 is non-empirical and conceptual (e.g. [42], [44]), however drawing on elements developed by Bharadwaj et al. [10]. In recent years, there was a shift to qualitative and quantitative studies that led to more empirical evidence (e.g. [24], [37]) on different aspects of DBS, especially in view of organizational and environmental factors, which we summarized in our paper. DBS still constitutes a research area of current focus and potential. The few exhaustive reviews on DBS mainly cover studies from 2015 and before, therefore missing important advances in more recent research. Hence, the main contribution to theory of this paper is that it brings together all such dimensions that make up the DBS concept, thereby providing a holistic, up-to-date picture of this fundamental concept.

There is a common understanding of DBS as the fusion of IT and business in the literature. Only a few of the reviewed articles (e.g. [27], [31], [34]) did not explicitly mention the term DBS as defined by Bharadwaj et al. [10]. Furthermore, the original conceptualization of DBS, using the four themes scope, scale, speed and sources of value creation and capture, still remains useful. These four themes were developed to highlight strategic changes when developing a DBS [10]. We deliberately chose not to categorize our findings according to the four themes to develop an unbiased, up-to-date categorization with the help of the grounded theory method. However, we subsequently cross-checked our categories with the four themes and can draw several parallels, highlighting the farsightedness of the original conceptualization. Hereafter, we will show an exemplary selection of associations between our categories and the four themes of DBS. First, the category IT governance and principles is in line with the strategic theme scope because defining the strategic role of IT is a key aspect of DBS. The second theme scale is covered by the category capabilities, for example regarding harnessing information abundance. Third, topics from ecosystem capability, such as handling the dynamics in business networks, are associated with the theme speed. Finally, the theme source of value creation and capture is strongly related to multisided business models, as outlined in our category business model execution.

Our findings on DBS can be understood as complementary to – particularly more recent – perspectives from strategic management research. The value of DBS and our paper is that it integrates several findings from strategic management research into one research object. For instance, we see strong links between the RBV [47-49] and digital resources. From the findings, it emerges that compared to the classic business strategy approach, digital resources are to be emphasized in DBS, especially through the strategic use of digital technologies. In addition, the theory of dynamic capabilities [51] extends the static RBV by indicating that, for example, readiness for change and agility are crucial for DBS. Besides the firm-centric views, we see connections between DBS and the relational view of strategy [54-56], since participation in ecosystems is key to develop and execute a DBS. In sum, the aspects reflected in our categories are not

entirely new in strategic management research, but in combination and by highlighting individual points and digital aspects, they help to understand the DBS construct better.

Furthermore, our study is in line with the stream of digital transformation research, highlighting two important roles of DBS for digital transformation. On the one hand, DBS is a necessary precondition of digital transformation [16], [57-59]; on the other hand, DBS aims for a future understanding of business strategy that remains relevant also after transformation has occurred. Thus, no concrete transformative process steps are specified by DBS [59]. Instead, these transformation steps are defined in a digital transformation strategy, which in turn specifies a firm's digital transformation program [57], [59]. In addition, this review has important practical implications. First, the components of DBS and the steps of a DBS can serve as guideline for organizations to systematically develop and enhance their DBS. Second, our paper emphasizes the importance of DBS by outlining the antecedents and outcomes of DBS. This will hopefully inspire more managers to engage with the DBS concept as researchers agree that it can be a key enabler for incumbent organizations to master digital transformation. Finally, this paper and particularly the framework with its four dimensions antecedents of DBS, components of DBS, steps to develop DBS, and outcomes of DBS provide a useful structure to systematically inspire future DBS research (Table 2).

Table 2. Future research agenda

<i>Category</i>	<i>Selected research questions</i>
<i>Antecedents of DBS</i>	How do the individual factors that trigger DBS interact and what are the causal relationships?
	How to measure the necessity of DBS for a specific organization?
	Do various antecedents lead to different types of DBS?
<i>Components of DBS</i>	What are the most frequent configurations of the different DBS components, i.e., archetypes?
	How to measure the maturity of DBS along its different components?
	Do the components of DBS differ between incumbents and challengers and what are the respective focal points?
	What implications do new digital technologies have for the design of DBS components and their combination?
<i>Steps to develop a DBS</i>	Are there different approaches to develop a DBS and what are success factors and best practices?
	How can the development of DBS be supported with tools and methods?
	What is the future role of C-level officers when developing a DBS?
<i>Outcomes of DBS</i>	What is the effect of DBS on a firm's financial and non-financial performance regarding different industries, and how to measure it?
	Which factors determine the impact of a DBS on a firm's performance?
	How do different types of DBS (with different configurations of its components) impact a firm's performance?

So far, several antecedents have been described making DBS a necessity (e.g. [10-11], [24], [38], [41]). We encourage future research to study the causal relationships

between the different factors, analyze how the necessity of DBS can differ by organization, and study whether different antecedents lead to different types of DBS. In view of the components of DBS, the individual components have already been sufficiently well researched in their research streams (e.g. [21], [25], [32]). Considering the components alone, or in combination, we want to inspire future scholars to study the most frequent configurations of DBS components, examine a method to measure the maturity of DBS, study how DBS components differ between incumbents and new challengers in the market, and analyze implications of technological progress [25] in the context of Industry 4.0 [27] on DBS. Moreover, a few studies shed light on how to develop DBS (e.g. [24], [53]). We want to inspire future scholars to study the process to develop DBS [21] with its underlying success factors and best practices, explore how tools and methods can support this development, and study what role the different C-level executives thereby play [37]. Finally, we already know some performance outcomes of DBS (e.g. [36], [50]). Future researchers could study the effects of DBS on a firm's performance in different industries [23], analyze factors that determine the impact on performance [50], and examine the impact of different DBS types [25], [36].

There are limitations inherent to our literature review. First, we did not perform an in-depth analysis of the subcategories of DBS, in favor of providing a broad overview. Second, we only chose to review papers which are published in academic journals or peer-reviewed conference papers; hence, we did not review any books, book chapters, or theses, among other sources of potential material, as we needed to focus on an appropriate amount of high-quality scientific literature. Third, our selected search strings excluded publications that deal with similar-sounding terms, such as "digital strategy". Including "digital strategy", for instance, as a search term would have provided a wider range of possible publications.

5 Conclusion

The goal of this paper was to provide an overview of the state-of-the-art research knowledge regarding DBS. Therefore, we developed a framework with the underlying high-level dimensions of DBS: antecedents, components, development steps, and outcomes. Three antecedents can trigger firms to develop a DBS, namely technology trends, organizational shifts, and business environment. When formulating a DBS, organizations need to focus on the digitalization of products and processes, business model execution, IT governance and principles, IT investment and prioritization, digital resources, ecosystem compatibility, capabilities, leadership, and culture. In doing so, four steps can be taken in order to develop a DBS. Finally, DBS can lead to positive financial and non-financial outcomes.

With this literature review, we contribute one piece to the larger picture of the research object DBS, which adds value for both IS research and strategic management research. We contribute this value by providing a foundational framework of relevant dimensions and categories of DBS. On the one hand, this framework can help future researchers; on the other, it can serve as a guide for business managers approaching the topic of DBS and, potentially, developing their own.

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