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A Journey, not a Destination—A Synthesized Process of Digital Transformation

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Completed Research Paper

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Abstract

Digital transformation (DT) continues to shake up firms and societies at large. Despite a growing number of studies covering a wide array of aspects of DT's content, evidence of how DT unfolds in firms remains fragmented. Thus far, the literature has provided punctual insights into firms' DT processes through single and multiple case studies. However, we lack a holistic understanding of the DT process. Adopting a qualitative meta-synthesis, we analyze 64 cases to inductively develop a DT process model depicting six phases (i.e., initiating, preparing, mobilizing, implementing, disseminating, and iterating). The process evolves on two levels—one rather sequential and one non-linear. We contribute to literature by introducing a synthesized process model tailored to DT's complex nature. Besides, our model provides practitioners with a frame for assessing the progress of their DT journey and outlining a roadmap for their digital endeavor.

Keywords: Digital transformation, process model, organizational change, qualitative meta-synthesis

Introduction

Research on digital transformation (DT) continues to gain momentum within the information systems (IS) discipline (Vial, 2019). DT can be defined as "the profound and accelerated transformation of business and organizational activities, processes, competencies, and models to fully leverage the opportunities of the digital era" (Carroll et al., 2023, p. 347). Scholars investigated different aspects of the phenomenon, such as digital technologies as sources of disruption (e.g., Karimi & Walter, 2015), DT strategies (e.g., Hess et al., 2016), digital capabilities (e.g., Warner & Wäger, 2019), organizational roles (e.g., Tumbas et al., 2018), and

DT outcomes (e.g., Hanelt et al., 2021b). Recently, discussions about the term DT itself and whether it is a novel phenomenon (Baiyere et al., 2023) or merely a new label for established concepts, such as IT-enabled organizational transformation (ITOT) (Wessel et al., 2021), have emerged in the literature (e.g., Carroll et al., 2023; Markus & Rowe, 2023). Despite the increase and breadth of DT research, previous literature has mainly contributed to a shared understanding of *what* DT is and what a desired *destination* could look like.

However, *how* a DT is conducted is scarcely addressed from a holistic perspective, leaving many questions about the *journey* unanswered. DTs are complex, interrelated, and boundary-spanning endeavors (Hanelt et al., 2021a) that fundamentally shape firms' structures and processes on multiple levels—from concrete digital innovations to abstract governance mechanisms (Wiesböck & Hess, 2020). Therefore, opening the black box of how the DT unfolds and what activities firms undertake is crucial for scholars and practitioners alike. Questions of how organizations undertake change have been central to organizational science (Lewin, 1947; van de Ven & Poole, 2005) and IS (Besson & Rowe, 2012; vom Brocke et al., 2021) for decades. The plethora of process theories and models can be characterized by their underlying motor of change (van de Ven & Poole, 2005), i.e., *life cycle*, *teleological*, *dialectical*, and *evolutionary* theories. These models range from the interplay of opposing forces triggering change (Cooper, 2000) and paradoxes (Smith & Lewis, 2011) to IT initiatives as managerial programs toward a constructed goal (Teo et al., 1997).

In the context of DT, some scholars sought to explore causal relationships between variables to measure how far firms have come on their DT journey, seeking to determine their digital maturity (e.g., Berger et al., 2020; Rossmann, 2018). From a process perspective, distinct aspects of the DT journey—such as how to formulate a DT strategy (e.g., Chanias et al., 2019) and discussions on normalizing DT (Carroll et al., 2021)—have drawn scholarly attention. Besides, authors used single or multiple case studies to explore the process of single firms' DT (e.g., Svahn et al., 2017). Yet, "our empirical understanding of how organizations implement DT initiatives remains fragmented" (Loonam et al., 2018, p. 101) and we lack a synthesized picture of the DT process beyond these insightful, yet stand-alone, attempts. Thus, we pose the following research question: *What is the process of firms' digital transformation?*

Since existing models and theories of change from organizational change and ITOT cannot fully capture DT's complex and interrelated nature and to overcome the issue of fragmented research on the DT process, we employ a qualitative meta-synthesis (Hoon, 2013). This approach allows us to leverage the rich insights from primary qualitative case studies of firms' DTs to inductively conceptualize a model of the DT process. In contrast to a literature review, the goal is to reinterpret the data and derive new concepts not necessarily defined by the original authors (Noblit & Hare, 1988). We identified 48 articles from IS literature and neighboring disciplines describing 64 cases of firms' DTs. Based on an inductive coding of the cases, we derive a synthesized process model of firms' DT depicting six phases (i.e., *initiating*, *preparing*, *mobilizing*, *implementing*, *disseminating*, and *iterating*). The paper's contribution is twofold. First, we introduce a process model on organizational DT that synthesizes the existing research on cases of DT. Thereby, we holistically shed light on the process of firms' DT and move beyond fragmented observations from single or multiple case studies. This model provides a conceptual processual frame for DT analog to organizational change literature, thereby serving as an important stepping stone for future theorizing about DT. Second, our model advances the literature on DT, ITOT, and organizational change by proposing a process model capturing DT's distinct nature as a complex and unique phenomenon. Additionally, we contribute to research on the emerging debate on sustaining and normalizing DT.

The remainder of the paper is structured as follows: We lay the basis for our arguments by introducing the foundations of DT, ITOT, and organizational change literature. Next, we describe how we use a qualitative meta-synthesis to identify and inductively analyze case studies from prior literature. The findings inform our DT process model comprising six phases. Further, we discuss the model in light of the literature and conclude by highlighting our contributions, managerial implications, and limitations.

Theoretical Background

Driven by our objective to holistically grasp the DT process, we first engage with current scholarly discussions on the conceptual core of DT. Then, we review and juxtapose perspectives on change from the literature strands on organizational change, ITOT, and DT. We further consider their applicability to capture the DT process and emphasize why DT as a novel phenomenon warrants its own process model.

Delineating Digital Transformation

DT has been central to the IS discipline for the past decade (Hanelt et al., 2021a; Vial, 2019). Digital technologies' transformative impact on how firms do business continues to push IS scholars to study, engage with, and theorize about DT (Carroll et al., 2023; Markus & Rowe, 2023). Fundamentally, DT is conceived as the holistic and significant changes to organizations induced by digital technologies (Hess et al., 2016; Vial, 2019). Since DT encompasses a wide range of aspects within organizations, researchers have investigated the phenomenon from different angles. For example, some papers focus on digital technologies as the drivers of DT (e.g., Karimi & Walter, 2015); some zoom in on the changes in value creation, such as novel digital products (e.g., Wang et al., 2022) and digital business models (e.g., Ritter et al., 2023); some stress the importance of enablers, such as digital capabilities (e.g., Warner & Wäger, 2019) and new leadership approaches (e.g., Dery et al., 2017); some highlight the accompanying structural changes, such as the creation of new organizational roles (e.g., Tumbas et al., 2018) and digital workplaces (e.g., Zimmer et al., 2023); some study DT strategies (e.g., Chanias et al., 2019); and others deal with outcomes of DT, such as firm performance (e.g., Hanelt et al., 2021b) and emerging ecosystems (e.g., Mann et al., 2022). Besides the thematic plurality, studies on DT differ regarding their level of analysis, ranging from contributions on the organizational level to the societal level (Markus & Rowe, 2023).

Despite the extensive scholarly attention on DT and efforts to synthesize the fragmented field (e.g., Hanelt et al., 2021a; Verhoef et al., 2021; Vial, 2019), recent calls from the IS discipline have pointed to a need for more nuanced theorizing about the core phenomenon (Carroll et al., 2023; Markus & Rowe, 2023). Central to this discussion is the question of whether DT is a new phenomenon *per se* (Baiyere et al., 2023) or merely a novel label for established concepts such as ITOT (Besson & Rowe, 2012) or organizational change (Markus & Rowe, 2023). Some scholars propose a narrower scope of DT, arguing that it both redefines a firm's value proposition and necessarily shapes a new organizational identity to distinguish it from ITOT (Wessel et al., 2021), which has been a central theme of IS research in previous decades (Besson & Rowe, 2012; Lyytinen & Newman, 2008). Others advocate for a broader understanding of DT as a holistic and profound form of business transformation entailing changes in organizational structure, processes, culture, capabilities, and IT landscapes to reap the benefits of digital technologies (e.g., Hess et al., 2016; Vial, 2019). Despite the increasing interest in DT and nuanced insights into its content, we still lack an understanding of the DT process itself (Carroll et al., 2021), stifling progress on a theoretical and conceptual level.

Juxtaposing Perspectives on Change

The organizational and social sciences have studied organizational change from a plurality of perspectives. On an epistemological level, studies of organizational change can be classified into two approaches: variance and process methods (e.g., Markus & Robey, 1988; Mohr, 1982). The *variance perspective* considers change as a variable to investigate causal relationships (van de Ven & Poole, 2005). The *process perspective* sees change as a dynamic sequence of events seeking to explain overall change patterns (Langley, 1999). Initially, the boundaries between variance and process theories were not supposed to be blurred (Mohr, 1982). Yet, there is a rising appreciation of studying change from different stances, viewing the various ontological and epistemological approaches as rather complementary than mutually exclusive (Pettigrew, 2012).

Organizational change. The literature on change has produced a plethora of models in attempts to conceptualize the management of organizational change and provide practitioners with more concrete guidelines on change management, from Lewin's (1947) three-phase model "Unfreeze-Move-Freeze" to the ten integrative change management principles of Stouten et al. (2018). In attempts to theorize change, *variance-based* approaches used historical analyses and laboratory experiments to identify causal relationships between organizational change and variables such as time to market (Schoonhoven et al., 1990). Regarding *process-based* approaches, the literature can be divided into four archetypical types of process theories (van de Ven & Poole, 1995): (i) life cycle, (ii) teleological, (iii) dialectical, and (iv) evolutionary. First, *life cycle theories* refer to change as a unitary sequence of stages that all organizations progress through following a rational and logical order. Each stage is a necessary precondition for later stages. Examples are the ten-stage model of organizational change by Stouten et al. (2018) and the organizational growth model by Mintzberg (1979). Second, *teleological theories* understand change as the development toward an entity's final state. The final state is socially constructed and readapted once it is reached, emphasizing learning, adaption, and purposeful enactment, thus refuting preconfigured universal stages of development. This approach underlies change theories such as sensemaking (Weick, 1979). Third,

dialectical theories view change as the result of the interplay and struggles of opposing forces within an organization seeking to either disrupt or maintain stability. The synthesis of thesis and antithesis marks the end of an episode of conflict before another dialectic cycle is triggered. An example of a dialectic theory is paradox theory (Smith & Lewis, 2011). Fourth, *evolutionary theories*, such as population ecology (Hannan & Freeman, 1977), refer to the biological cycle of variation, selection, and retention, thus understanding change as the Darwinian processes of populations of entities.

ITOT. ITOT has received broad interest in the IS discipline (e.g., Besson & Rowe, 2012; vom Brocke et al., 2021). Starting in the 1980s, researchers examined IT's role in organizational transformation, highlighting the interplay between IT and organizational contexts. Influential early research includes the studies of Henderson and Venkatraman (1990) and Venkatraman (1994), introducing models on the strategic role of IT for business strategy and the alignment of business and IT strategies. We find examples of *variance-based* views in quantitative surveys measuring the impact of IT investments on firm performance (e.g., Barua et al., 2004). However, most ITOT studies subscribe to a *processual* understanding of change, and the four archetypical types of process theories by van den Ven and Poole (2005) can be applied (vom Brocke et al., 2021). While there is little evidence for *life-cycle* theories (e.g., Watson et al., 2002), most of the theories on ITOT can be labeled as *teleological*, conceiving ITOT as a program or a project to achieve an organizational goal (e.g., Teo et al., 1997). Other publications build on the *dialectic* understanding, seeing ITOT as a function of opposing forces, such as Cooper's model on the role of creativity in IT-enabled reengineering (Cooper, 2000). Finally, the *evolutionary* stance is present in ITOT process models, for example, focusing on managerial agency and resilience in ITOT (Wastell et al., 2007).

DT. DT research misses a similar theoretical grounding. *Variance-based* approaches attempt to measure the influence of variables on firms' level of digital maturity (e.g., Berger et al., 2020; Rossmann, 2018). Whereas practitioner models are widespread, theoretically grounded digital maturity models have yet to gain traction. From a *process* perspective, we still lack an understanding of the sequence of DT activities and a holistic comprehension of the entire transformation process (Carroll et al., 2021; Loonam et al., 2018). Despite the increased interest in DT in academia and practice alike and even though one of the most widely cited definitions of DT refers to it "as a process" (Vial, 2019, p. 121), it has been criticized for rather representing an entity instead of a genuine process perspective (Markus & Rowe, 2021). Thus far, research on DT merely presents punctual evidence of the DT process by describing firms' transformation journeys in case studies or focusing on distinct aspects, such as the formulation process of DT strategies (Chanias et al., 2019) or the process of developing digital capabilities (e.g., Warner & Wäger, 2019). More recently, attention has been devoted to the sustainment and normalization of DT (Carroll et al., 2023; Carroll et al., 2021), hinting at discussions about the state following a firm's DT. Table 1 offers a comparison of exemplary process perspectives from organizational change, ITOT, and DT research.

Organizational Change	ITOT	DT
• Life-cycle theory (e.g., Mintzberg, 1979) • Teleological theory (e.g., Weick, 1979) • Dialectical theory (e.g., Smith & Lewis, 2011) • Evolutionary theory (e.g., Hannan & Freeman, 1977)	• Life-cycle theory (e.g., Watson et al., 2002) • Teleological theory (e.g., Teo et al., 1997) • Dialectic theory (e.g., Cooper, 2000) • Evolutionary theory (e.g., Wastell et al., 2007)	• Punctual evidence from case studies (e.g., Svahn et al., 2017) • DT strategy (e.g., Chanias et al., 2019) and normalization (e.g., Carroll et al., 2021)

Table 1. Comparing Process Perspectives from Organizational Change, IT-Enabled Organizational Transformation, and Digital Transformation

Although the neighboring and strongly interwoven literature streams on ITOT and organizational change have studied how introducing digital technologies reshapes organizations for decades, their theories and models cannot be seamlessly transferred to the context of DT for multiple reasons. Driven by their interconnectedness, DT processes are more complex than established continuous and episodic organizational change patterns (Hanelt et al., 2021a). Models from ITOT are also not entirely suitable for capturing DT. First, the role and type of technology triggering the change differ significantly. While ITOT addresses the implementation of traditional enterprise systems, DT is enabled by novel digital technologies that are generative, malleable, and combinatorial (Kallinikos et al., 2013; Yoo et al., 2010). Second, unlike

implementing IT systems in a single company, DT literature increasingly takes an ecosystem perspective that is no longer limited to organizational boundaries (Hanelt et al., 2021a). Third, DT encompasses all aspects of a firm's transformational journey beyond changes in value creation to creating suitable framing conditions by adjusting organizational structures, capabilities, cultures, IT application portfolios, and governance mechanisms (Wiesböck & Hess, 2020). Finally, while ITOT predominantly addresses incremental modification, DT refers to fundamental change, possibly even leading to a transformation of a firm's identity (Wessel et al., 2021). DT's speed, nature, and complexity have generated a novel phenomenon that warrants a new label and, thus, new theorizing. If we assume that DT is a fundamentally different phenomenon that renders existing theories of organizational transformation and change obsolete, we need a deeper understanding of the DT process to theorize about its change dynamics.

Methodology: A Qualitative Meta-Synthesis

In IS research, an increasing number of rich, qualitative case studies generates substantive contributions to various research areas, including DT. Yet, "case studies tend to remain isolated, stand-alone works with their potential cumulative advantage for advancing knowledge in the field being neglected" (Hoon, 2013, p. 523). Indeed, these published studies provide considerable value: Case study data can be revisited and the resulting interpretation can be rigorously compared and synthesized through a comprehensive analysis of other case studies (Noblit & Hare, 1988; Schofield, 2002). Hence, to leverage the rich empirical material of published case studies—and acknowledging that it would have been unrealistic to gather that much data in a stand-alone case study—we rely on a meta-synthesis of qualitative case studies to examine our research question. A meta-synthesis is an exploratory, inductive research approach to synthesizing primary qualitative case studies seeking to make contributions beyond those achieved in the original studies (Hoon, 2013). While quantitative meta-analyses aim to standardize the operationalization of key constructs across studies, a qualitative meta-synthesis draws on the detailed case descriptions to synthesize the cases in ways that the original authors may not have envisioned, thus formulating novel theory (Noblit & Hare, 1988). Instead of integrating the studies' results (as is the case with literature reviews), the intent is to leverage the case descriptions as a data source to derive new inferences from the aggregate data pool of the qualitative studies (Hoon, 2013). Qualitative meta-syntheses have already been applied in the IS discipline, for example, to investigate how pluralistic institutional logics influence responses to enterprise system implementation (Berente et al., 2019) or how firms combine dynamic capabilities in digital business model innovation (Böttcher et al., 2022). In our study, we draw on existing qualitative cases describing firms' DT processes to inductively model an aggregate DT process since existing change models from organizational change and ITOT cannot fully be transferred to the DT phenomenon. Hence, we first gathered a comprehensive sample of relevant case studies. Subsequently, we thoroughly coded the identified case studies to derive aggregate inferences culminating in an overarching DT process model. We followed established guidelines for conducting qualitative meta-syntheses (Hoon, 2013).

Sampling

We adopted a two-step search strategy to compile a comprehensive literature sample. To ensure systematicity and transparency in our literature search, we adhered to the sampling guidelines proposed by Paré et al. (2016). As stated by Webster and Watson (2002), IS literature reviews often focus on IS journals instead of targeting a multidisciplinary field. Yet, a multifaceted phenomenon such as DT cannot be entirely grasped within a single discipline but calls for an integrative approach (Verhoef et al., 2021). Accordingly, in addition to studies from the IS domain, we considered publications from the "General Business Administration", "Strategic Management", and "Technology, Innovation, and Entrepreneurship" disciplines. The chosen body of literature contains a set of 94 journals and three conferences (i.e., International Conference on Information Systems, European Conference on Information Systems, and International Conference on Conceptual Modeling) and covers publications up to and including September 2022. We executed a keyword search in the titles, abstracts, and keywords of peer-reviewed papers ranking B or better in the VHBJourqual3 (i.e., Germany's established journal quality ranking). We searched for literature in the databases AIS eLibrary, EBSCOhost, SAGE, ScienceDirect, Taylor & Francis, Web of Science, and Wiley. To create a broad sample of case studies describing the DT process, the search terms consisted of a combination of "*case*" AND "*digital transformation*"/"*digitali(s|z)ation*"/"*digital innovation*". We considered the term digitalization since some authors use it as a synonym for DT. Besides, we searched for digital innovation since it is a core element of DT (Wiesböck & Hess, 2020). While the

keywords were the same for each search, we adapted the queries to the requirements of the respective databases. The keyword search yielded 1,796 results (1,586 results without duplicates). We screened the results for adherence with the inclusion criteria: (i) empirical case research, i.e., no editorials, extended abstracts, or literature reviews; (ii) compliance with the understanding of DT as holistic change triggered by digital technologies and with fundamental importance for a company (Hess et al., 2016), and (iii) in-depth description of the entire DT process, i.e., papers focusing too narrowly on a specific aspect of DT—thus losing sight of a holistic picture of the DT process—were not considered. Besides, we excluded all studies that examined the public sector since DT tends to proceed fundamentally different in these settings. Moreover, scholars have recently drawn on the concept of DT to grasp the upheaval of societies at large (Markus & Rowe, 2023). This study, however, focuses solely on the DT of firms. After applying the inclusion and exclusion criteria, we obtained a set of 44 papers. Following Webster and Watson (2002), we conducted a forward and backward search, expanding our sample to 48 papers describing 64 individual cases (the sample includes single and multiple case studies). See Table 3 in the Appendix for an overview of all cases.

Coding

For data extraction, we sought to collect two different types of data. First, we gathered the specified general information about the firm on a case level, i.e., descriptive data (Paré et al., 2016), such as company size, turnover, industry, or geographic focus. In addition—in line with our research question—we extracted all data from the papers that gave information about firms' activities in the DT process. We relied on a grounded theory approach (Corbin & Strauss, 2008) to analyze and synthesize our extracted data. In particular, we performed several inductive coding cycles, i.e., open coding, axial coding, and selective coding (Wolfswinkel et al., 2013). In open coding, we extracted data slices that describe firms' strategic events and activities during their DT. Hence, we sought to identify recurring patterns over the cases while trying to decompose the DT process into unique activities. These concepts were constantly refined in cycles of simultaneous data collection and analysis. Ultimately, we identified 35 distinct activities, i.e., first-order concepts. To capture the logical sequence, we further extracted the total number of unique activities in a case and noted their temporal (and potential recurring) occurrence, thus adding a chronological perspective in line with "temporal bracketing" (Langley, 1999, p. 703). To facilitate comparison, we normalized the number of activities in each case by dividing the activities' chronological number by the sum of all activities, resulting in a value between 0 and 100. Consequently, a value of 5 indicates that an activity occurs early, while 95 denotes that it takes place late in the process. Table 2 depicts an excerpt from the coding of the first-order concepts, including the number of occurrences across cases and their chronological sequence.

Activities (# of cases with activity)	**Case**											**Mean**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**…**	**62**	**63**	**64**	
Recognizing internal & external triggers (64)	7	5	7	5	7	13	13		5	29	25	9
Analyzing company environment (12)		11	14						16			21
Acknowledging failed digital efforts (6)										14	13	28
Formulating a DT strategy (47)	14	16		29	43	25	25		37	57	38	23
Defining goals & success metrics (39)	29	21		29	50	38	38					27
…												…
Evaluating DT progress (13)		63	93	14								
Collecting internal & external feedback (16)			57						21	71		72
Identifying conflicts & problems (34)	79			57					26			60
Overcoming emerging obstacles (19)			86	67					74			69

Table 2. Chronological Sequence of First-Order Concepts

Based on this analysis, the first-order concepts were sorted chronologically and then—during axial coding—thematically subsumed, leading to 14 second-order themes. In the process of discussing and rearranging the emerging themes, we noticed that some of the second-order themes seemed to pop up continuously throughout the cases' processes with little chronological order, leading us to separate the second-order themes into two levels: those rather sequential and one iterative and non-linear. Finally, we performed

selective coding to further abstract the second-order themes into six aggregate dimensions that constitute the building blocks of our model. The aggregate dimensions also reflect the two levels of temporality (see Figure 1 for the data structure). Three authors conducted the coding, with results being discussed jointly and differences settled consensually, yielding a "negotiated agreement" (Campbell et al., 2013, p. 305).

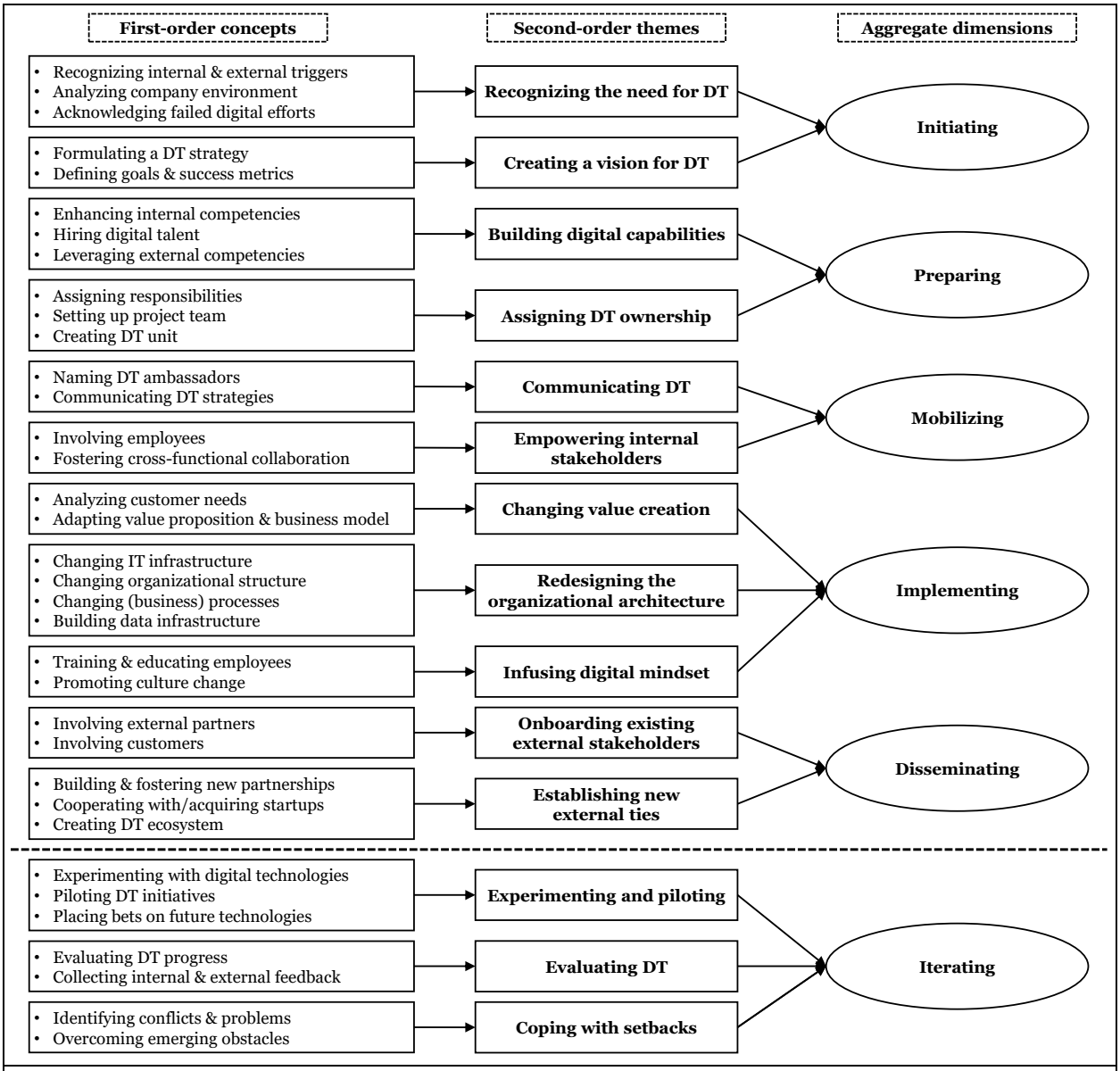

Figure 1. Data Structure (cf. Gioia et al., 2013)

The Digital Transformation Process

The analysis of the 64 cases describing DT processes revealed six phases, each consisting of distinct groups of activities. While not every single DT unfolds in the same order, we identified five phases (i.e., *initiating DT; preparing the company for DT; mobilizing the company for DT; implementing organization-wide transformation; and disseminating the DT)* that, on aggregate, follow a sequential order in firms' DT journeys. Additionally, a sixth phase emerged from the data (i.e., *iterating on DT*) that is non-linear, encompassing activities that occurred repeatedly. The activities in this phase do not stand alone but rather support and affect the activities in the phases after *initiating DT*. Thus, we conceptualized the DT process

as the interplay of two levels—one rather sequential and one non-linear—with a joint initiation (see Figure 2). Below, we describe the six phases and activities firms undertake in their DTs.

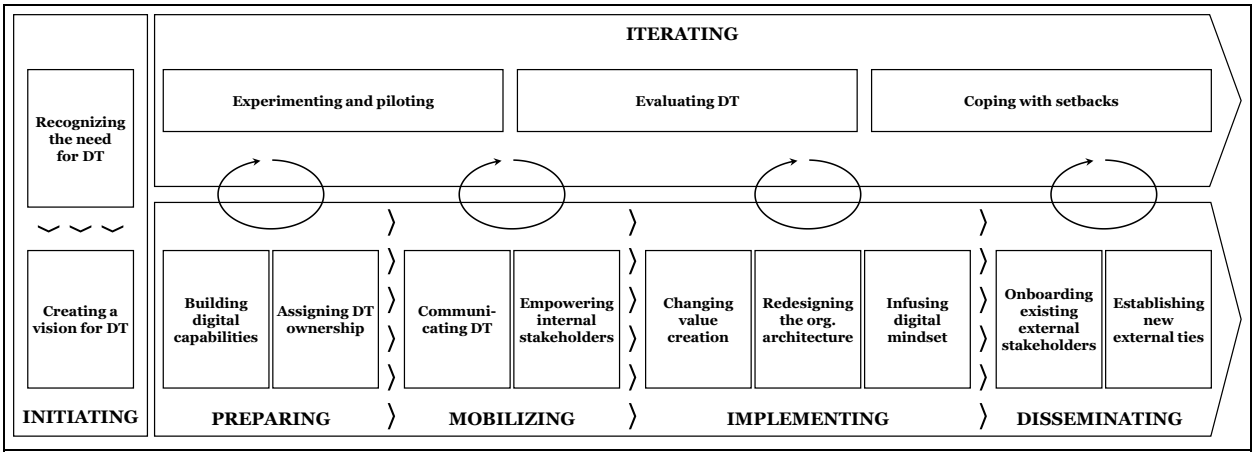

Figure 2. The Digital Transformation Process

Initiating Digital Transformation

Firms start their DT journeys through an *initiating* phase. First, organizations recognize that they need a DT to remain competitive or to leap the competition by leveraging emerging digital technologies. Second, firms create a vision for the DT by formulating a DT strategy and the associated metrics to measure success.

Recognizing the need for DT. In all cases, firms identify triggers prompting them to embark on a DT journey. These triggers are either external—such as technological innovations, altering customer demands, changes in the market or industry, or general competitive pressure—or internal–such as cost pressure and the assessment that the current organizational setup is inadequate for future success. Besides, recognizing the need for DT can also result from comprehensively analyzing the firm's environment or acknowledging that previous, often unstructured, attempts to implement digital initiatives have failed. Usually, there is not one single trigger but many reinforcing triggers, increasing firms' pressure to act.

> *"[…] driven by digital technologies and end-consumers' behavior changes, including an increasing demand for digital services around the daily use of FoodCo's products. Further, born-digital players, especially digital platforms, are increasingly impacting on the industry's sales channels and may take over the future (digital) touchpoints with end-consumers." (Jöhnk et al., 2022)*

Creating a vision for DT. Following the decision to undertake a DT, firms engage in activities to define a vision for their DT. For most firms, a DT strategy is crucial. Driven by the company's top management and embracing existing bottom-up initiatives, the DT strategy lays the foundation for DT by initiating a strategy process that covers the DT's main focus areas. To track the progress of the DT initiatives, most firms also define goals and success metrics for their DT. Only a few include measurable key performance indicators (e.g., for the work of digital units), whereas most articulate some target state.

> *"Aftonbladet decided to advance to a digital-first strategy […] with the goal of obtaining a 50/50 portion of revenues from print and digital." (Åkesson et al., 2018, p. 282)*

Preparing the Company for Digital Transformation

After recognizing the need for a DT and formulating an overarching vision, companies typically devote their attention to *preparing* for DT. In this phase, firms seek to create the foundation for a successful digital endeavor. Activities include building digital competencies and formally assigning DT ownership.

Building digital capabilities. Case evidence indicates that firms need to amass a bundle of collective digital competencies (i.e., digital skills, knowledge, expertise, and experience) to effectively manage and leverage resources for DT. Companies have three approaches at their disposal for building digital competencies. First, they can develop competencies internally by offering specific training programs.

> *"The digital transformation project compelled managers […] to enhance their employees' capabilities. A call-center unit was trained to no longer answer customer calls directly, but to design conversational frameworks for the chatbot to be used in serving customer requests." (Correani et al., 2020, p. 47)*

Second, firms frequently dedicate significant efforts to externally hire new digital talent to complement the internal accumulation of digital competencies. Third, companies leverage external competencies, either by sourcing consultants or collaborating with partners from the network. This allows organizations to build up internally missing competencies for their digital initiatives across company boundaries.

Assigning DT ownership. Most companies define DT responsibility early on in their digital journey. This refers to assigning personal DT responsibilities, which involves entrusting a top management team member with overall accountability. Usually, the Chief Executive Officer has the primary responsibility. Besides, some firms appoint a Chief Digital Officer who is mandated to centrally orchestrate DT. Next to allocating individual duties, firms occasionally set up (cross-functional) project teams to manage DT efforts, usually on top of their day-to-day operations. Other organizations create dedicated DT units—typically detached from the company's core business—to promote DT through digital innovation activities.

> *"To facilitate the digital transformation, the firm established a new digital unit focused exclusively on developing digital services and a digital platform solution. With this new digital unit, the firm sought to create what they label a 'hybrid model of digital transformation' in which the unit is both connected to and disconnected from the core organization." (Smith & Beretta, 2021, p. 172)*

Mobilizing the Company for Digital Transformation

Since DT demands a company-wide effort, *mobilizing* the company for DT is vital. In particular, the entire organization needs to be on the same page regarding the DT endeavor for unrestrained actions. Firms try to mobilize by extensively communicating DT initiatives and empowering internal stakeholders.

Communicating DT. First, holistic communication of DT through specific information campaigns and announcements aims to raise awareness of DT within the company and increase commitment to DT efforts. In addition, many companies install digital ambassadors, i.e., employees up to middle management who are highly engaged in DT activities and motivated to spread knowledge and positive attitudes toward the envisioned change. In this role, they act as boundary spanners, stimulating dialog between different units.

> *"To favour dialogue among the units involved in the innovation activities, a new role has been introduced, the 'innovation antenna'. […] Antennas are employees particularly keen on innovation and able to communicate among the company's departments, functions, and BUs to guarantee a high level of coordination and communication at all levels." (Latilla et al., 2019, p. 18)*

Empowering internal stakeholders. Actively involving employees (e.g., through workshops and idea contests) refers to increasing the buy-in for DT. Digital initiatives frequently assume an emergent character, rendering the involvement of employees essential. Similarly, fostering cross-functional collaboration helps empower internal stakeholders by creating connections between different departments, which is crucial for deeper engagement in DT. Notably, strengthened cross-functional collaboration enables the pooling of complementary skills, which—given DT's cross-cutting nature—is a prerequisite for successful DT.

> *"[…] inter-departmental communication and the engagement of additional staff helped the project team gain access to required data source." (Gust et al., 2017, p. 219)*

Implementing Organization-Wide Transformation

Once a company has rallied around the DT, firms begin *implementing* the organization-wide changes needed to transform the organization. In this phase, firms change how they create value with novel business models or products, rebuild the firm's gestalt—in terms of organizational structures and processes as well as IT landscapes and data channels—and promote a digital mindset that employees should embrace. Thus, implementing means creating digital structures for the present and frames for future development.

Changing value creation. Changes in how firms create value for customers are central to most firms' DT endeavors. To obtain a profound understanding of their clients, firms engage in in-depth analyses of their customers. For example, leveraging digital touchpoints can provide insight into customer needs and

how new products or services might solve current and future problems. Based on this, firms reshape their business models, create new digital products and services, or extend their current market offerings.

> *"Nevertheless, the company has begun to follow its customers, who are moving toward digital offerings. In addition to introducing electronic sales channels for its products, Ravensburger has entered the e-book and online gaming markets. Additionally, the publisher has begun to develop complementary digital products that enrich its existing analog products." (Hess et al., 2016, p. 129)*

Redesigning the organizational architecture. Developing and rolling out digital innovations requires wide-reaching adjustments to existing IT landscapes, organizational structures, processes, and data channels. Firms upgrade their IT systems to allow for the integration of new solutions and make the digital infrastructure more agile. Besides, they often start major reorganization initiatives to materialize the digital aspects of the DT agenda, such as breaking up silos or reducing hierarchies to increase dynamism. For nearly all DT initiatives, data play a vital role. Thus, firms spend significant resources and attention on setting up necessary infrastructures for data collection, analysis, and exploitation.

> *"To support the omnichannel strategy, Hummel's IT system had to be enhanced. Beyond the tighter integration required between Hummel's websites and the back-end ERP system for its B2B and B2C e-commerce, there were also issues related to the IT infrastructure, which needed to support a new set of 'rich' product data." (Hansen & Sia, 2015, p. 58)*

Infusing digital mindset. Besides the material changes that firms roll out in the scope of their DT initiatives, they also focus on the human side of DT. Firms promote cultural change by emphasizing the need to adopt a digital mindset and offer training and education sessions for the entire workforce. While the preparing phase focused on upskilling employees, hiring new digital talent, or externally accumulating digital capabilities to effectively push the DT agenda, the activities in this phase aim to spread digital thinking—such as agility, a digital-first mentality, or risk-taking—throughout the whole company.

> *"During this time, the DTU also worked on several topics related to employees' attitude towards digital transformation and AssetCo's culture. To achieve these goals, the DTU made use of a variety of communication measures, including mailings, arranging fireside chats, leading workshops and preparing a short video. The video compared AssetCo to a 'surfer riding the digital wave', which became the leitmotif for the overall DTS." (Chanias et al., 2019, p. 25)*

Disseminating the Digital Transformation

Later in their DTs, firms *disseminate* initiatives by seeking external actors for input and tapping into external resource pools. First, firms involve existing partners and customers by offering insights into their change initiatives to prepare onboarding and integrate their views into DT agendas. Second, they establish new ties in their network through partnerships, cooperation, or acquisitions.

Onboarding existing external stakeholders. After having implemented the first DT projects, firms involve their key stakeholders to discuss ongoing changes, roll out initiatives beyond company borders, and get input for future directions. In settings where firms are aware of their dependencies on external partners, reaching out to partners also seeks to preemptively lower resistance to change. Similarly, firms share parts of their DT outputs with customers to let them voice their views and receive feedback. While some firms include customers early on, most firms only start once the first results of the DT are materialized.

> *"[…] it was critical to encourage people to use (and participate) in the PCT platform since it allowed the partners to 'see the benefits' of the digital transformation. This was also predicated by the various demonstrations and training events to guide partners through a new digital process and experience of HPEFS." (Carroll et al., 2021, pp. 5-6)*

Establishing new external ties. In addition to merely including externals in the DT process, firms also look for more structured cooperation vehicles with new partners. Building and fostering partnerships is crucial for most firms' DT at later stages to leverage interorganizational collaboration. Especially startups provide access to untapped (digital) resource pools and represent a promising target for partnerships or acquisitions. Besides, some companies set out to establish digital platforms or even embed the organization into a connected ecosystem to accelerate their DT by creating ties with various players in the industry.

> *"The second phase in Alpha Security's digital transformation journey required the firm finding ways to 'open-up' its business ecosystem, meaning to initiate new collaborations related to digital transformation. […] Alpha Security's approach therefore shifted from its inward focus in the initiation phase, towards being outward focused." (Mann et al., 2022, p. 21)*

Iterating on Digital Transformation

In addition to the sequential phases, all cases revealed highly iterative activities that proceeded in parallel with activities in the other phases following the DT's initiation. The activities in the *iterating* phase are not stand-alone but relate to and impact the activities in the four phases of *preparing*, *mobilizing*, *implementing*, and *disseminating*. Due to DT's highly dynamic nature, the individual phases in the DT process cannot be considered conclusive but are constantly in flux and, thus, subject to ongoing adjustments. Therefore, companies engage in experimenting and piloting, evaluating, and adjusting the DT.

Experimenting and piloting. The DT process often involves continuous experimentation, creating minimum viable digital innovations and developing them based on pilot implementation and feedback. Thus, experimenting with digital technologies and piloting digital initiatives refer to approaches that explore the opportunities of digital technologies and identify valuable use cases for their application in the company before rolling out large-scale changes. By focusing on smaller pivots in delineated areas that require constant testing and learning, organizations can lower the barriers to DT, both financially and in terms of capacity, while keeping pace with the changes triggered by emerging digital technologies.

> *"We experiment—try things quickly—so we start to act a bit more like a startup, like an e-commerce company. It is about taking small, calculated risks that have no impact if they fail. This year we are running 1,000 small experiments across the bank, and they will be exactly that, small things we can test in safety that give us a huge amount of insight into action." (Sia et al., 2016, p. 116).*

Many companies also constantly place bets on future digital technologies by investing in emerging business areas to realize newly discovered DT opportunities in various domains. The activity to scan the technology market with a future-oriented mindset is an acknowledgment of organizations that there is no foreseeable end to the DT. Instead, it needs ongoing evolvement in various business areas related to new DT projects.

Evaluating DT. For a targeted DT, companies continuously assess the progress of their digital efforts against the previously defined goals and KPIs. This activity aims to permanently identify the areas where the organization is on track with its DT or needs to catch up. In addition, firms actively solicit internal and external feedback on their DT measures. Internally, this includes recurring meetings and workshops with all stakeholders—even independent of issues that arise—to steer the company in the right direction for its DT. Externally, many organizations regularly exchange with their broader network, such as customers and suppliers, to gather feedback on their DT initiatives.

> *"In the area of product design, JEANSWEST collected comments and feedbacks of customers online and at the same time communicated with offline customers during their fitting, selecting, and purchasing time to better understand their thoughts and feelings." (Xie et al., 2014, p. 10)*

Coping with setbacks. Throughout the entire DT journey, companies must deal with emerging problems and conflicts. Several challenges can arise, such as employee resistance toward the new digital reality, technological glitches, or insecurity about customers' acceptance of digital offers. These issues must be identified, assessed, and targeted by appropriate actions. Based on setbacks in initially envisioned initiatives, many companies dynamically adjust their approaches to address the encountered problems.

> *"'[…] our customers feel like they're dealing with four or five different companies. They need us to act like one company, […] we are not organized to do that. We can say we are one company all we want, but if we don't change the way we meet the customer, it'll never happen.' To improve its platform and further differentiate customer offerings in a competitive market, Tetra Pak steadily shifted its focus from operational efficiency toward customer experience." (van Der Meulen et al., 2020, p. 170)*

Variations in the Digital Transformation Process

As previously alluded to, not all outlined activities occurred in every case. Instead, firms occasionally have specific priorities in their DT based on their digital journey's peculiarities and objectives, reflected by a high

density of activities in certain phases of the DT process. Yet, it is worth emphasizing that not all firms set a dedicated focus for their DT. In many cases, there was a balanced distribution of activities across the phases.

Varying priorities in the DT process. Overall, three recurring patterns emerge regarding priorities in the DT process. First, several firms focus on building capabilities, assigning DT ownership, communicating DT, and empowering internal stakeholders. Thus, these firms emphasize the front phases of the DT process, i.e., *preparing* and *mobilizing*. The objective is to address DT's challenges by building internal capabilities, centralizing them in organizational bodies, involving the workforce, and creating buy-in for DT to foster a shared sense of purpose. Accordingly, these companies rely much less on external collaborations but seek to thrive DT on their own merits. Second, by contrast, several case companies focus on involving stakeholders and building external cooperation. Such organizations often realize that their internal resources are insufficient and opt to create and leverage external relationships to gather digital capabilities for a successful DT journey. Thus, they engage external stakeholders in their DT by improving interorganizational collaboration, conducting stakeholder workshops, forming strategic partnerships, or even creating a digital ecosystem. Third, we note that another recurring focus is redesigning the organizational architecture, where several firms display significant shortfalls regarding readiness for DT, as reflected in many activities in this area. Consequently, these firms focus on adapting IT infrastructures, organizational structures, and business processes, as well as building a data infrastructure.

Contingency-based variations in the DT process. In addition, we examined the impact of company-specific characteristics on the DT process. Specifically, we elicited the contingencies of company size, business relationship (B2B vs. B2C), and industry sector from the case descriptions. While we could not identify precise trajectories in the DT process based on these contingencies, we still observed some noteworthy deviations. Regarding company size, the data suggests that small and medium-sized enterprises often draw on external resources such as consultants since they typically lack the resources necessary to handle the burdensome DT in-house. In terms of business relationships, firms with B2B relationships seem to reach out to their network earlier. In contrast, B2C firms involve their customers only after having developed the first changes to receive feedback. Finally, the firm's industry also impacts the DT process. For instance, manufacturing firms seem to stress shaking up traditional ways of thinking by promoting a digital mindset and breaking up silos to overcome employees' resistance and inertia.

Discussion

This paper aims to unearth the DT process, shed light on the phases and sequences firms progress through during their DT journeys, and identify activities they undertake to advance their digital agendas. By conducting a qualitative meta-synthesis of 64 case studies from 48 papers on firms' DT journeys, we inductively developed a synthesized and holistic DT process outlining six phases, i.e., *initiating, preparing, mobilizing, implementing, disseminating, and iterating*. Our model (see Figure 2) conceptualizes firms' DT process as the interplay of five phases progressing in a rather sequential fashion and a non-linear and highly iterative phase during which firms continuously monitor, adjust, and recalibrate their DT. The data shows that despite the iterative and non-linear aspects of the overall DT process, most firms undertake DT activities somewhat sequentially. Especially when firms launch their DT initiatives and begin implementing first changes, the process unfolds in similar phases across companies. The model illustrates that after the initiation of DT, firms go through the phases of *preparing*, *mobilizing*, *implementing*, and *disseminating* in a sequential order. Yet, the process does not end after one iteration but includes multiple iterations. The *iterating* phase accentuates the continuous feedback loops that are typical and needed for DTs to remain on track toward the aspired end state, which resembles a moving target experiencing ongoing change (Vial, 2019). In response to obstacles and challenges during the implementation, emerging new technologies, and bottom-up initiatives bubbling up in the company, firms pivot and adjust their DT within every phase they have already passed through. Thus, the iterations stress the emergent nature of DT. These findings complement insights on the DT strategy formulation process, which depicts the interplay of deliberate and emerging strategies, resulting in cycles of continuous reformulation and strategizing (Chanias et al., 2019).

Since the DT process we identified from the case data has no clearly defined end, the question arises of how DT approaches its end state. In light of incipient discussions on how DT can be sustained over extended periods and how it can translate into organizational routines (Carroll et al., 2023; Carroll et al., 2021), our model serves as a starting point to further engage in theorizing on normalizing DTs. Normalization process theory refers to the embedding and sustaining of changes into everyday practices in social contexts until

these changes are normalized (May & Finch, 2009). Drawing on suggestions that normalization process theory can offer a suitable perspective on understanding the later stages of DT once the first fundamental changes have been implemented (Carroll et al., 2021), the interplay of our process model's two levels can act as a frame for studying the transition toward being digital transformed. We argue that the more the *iterating* phase becomes an integral part of firms' practices and once the structural, technological, and cultural groundwork has been laid by progressing through the phases, the more future changes are normalized and embedded in everyday company practices. Firms continue to undertake DT activities in a non-linear manner and iterate routinely in reaction to emergent changes. Thereby, the previously distinct phases outlined in our model dissolve into normalized processes. Thus, the DT process does not end but rather reaches a "steady state" (Mann et al., 2022, p. 10) subject to further change and evolution.

Turning to archetypical perspectives of organizational change processes, our model suggests that the DT process embodies aspects of all four motors of change (van de Ven & Poole, 1995). The similarities across cases in the sequence of activities hint at a process with aspects of *life cycle* models. Nonetheless, our DT process model lacks the prescriptive nature of life cycle theories, not least given the contextuality of every firm's DT (Vial, 2019). The numerous intraorganizational interactions of actors during the six phases of the process and the continuous negotiation of its end state point to a *teleological* character of the DT process. Further, the iterating phase represents *dialectic* aspects of the DT process, emphasizing how conflicts between contesting views on DT agendas shape their direction (Svahn et al., 2017). Lastly, our data also point to *evolutionary* aspects of the DT process. Not all DT initiatives and projects that firms begin are implemented; only some prevail. This intraorganizational selection process should not be compared to strict Darwinian evolution but accentuate the competition of DT projects for firm resources (Chanias et al., 2019). The fact that the DT process cannot be described by one motor of change alone—unlike approaches from organizational change and ITOT—but embodies a combination of all four highlights DT's idiosyncrasies, suggesting that DT is indeed a new phenomenon and not an old one with a fancy label.

Contributions, Implications, and Limitations

The study's theoretical contribution is threefold. First, it sheds light on the process of firms' DT by presenting a holistic process model of DT based on systematically synthesizing existing yet fragmented empirical evidence from case studies on DT. We offer a conceptual processual frame for studying DTs and advance scholarly discussions beyond singular observations of firms' DTs toward a synthesized view of the DT process itself. Thereby, we answer calls for a pronounced process perspective on DT and join recent initiatives to contribute to theory-building around the core concept (Carroll et al., 2023; Markus & Rowe, 2023). In contrast to variance-based maturity models for DT (e.g., Berger et al., 2020; Rossmann, 2018), the emphasis of the process model is on firms' transformation journeys, not on the outcome. By conceptualizing DT as six phases and the interplay of sequential phases and an iterative, non-linear phase, we unearth the DT activities firms undertake across industries—intraorganizationally and interorganizationally. Second, since existing change models cannot fully capture DT's complexity, the paper bridges literature on organizational change and DT by offering a process model that embraces the phenomenon's distinct nature. Referring to different existing process perspectives, we show that the DT process has similarities with existing change phenomena but is, nonetheless, a unique and complex phenomenon with plural motors of change (cf. van de Ven & Poole, 2005). In that way, the paper adds to the vigorous scientific debate on theorizing DT (Markus & Rowe, 2023; Wessel et al., 2021). Third, we add to research on the emerging debate on sustaining and normalizing DT by suggesting how the initially rather sequential DT process might transition into a steady state of normalized iterative processes.

Despite its predominant theoretical approach, the study likewise holds practical implications as we intend to open the black box on how firms can become digitally transformed. For each of the six phases, the study offers practical options in terms of respective activities, enabling managers to more purposefully prepare DT initiatives, internally communicate DT plans, and consciously search for partners. Besides, our model highlights those activities that are more sequential, which provides vital impetus for designing the sequence of actions needed to transform the organization. Thereby, managers can use the DT process model as a frame to identify white spots in their firms' DT journey. Finally, managers gain insight into DT's iterative nature and can derive transformational agendas open to emergent strategies and continuous iterations.

Our study is not without limitations. First, given our qualitative meta-synthesis, we relied on the case descriptions in the papers, limiting our understanding to the explicit narratives articulated by the authors.

Therefore, we carefully screened publications to determine whether the case descriptions were sufficiently elaborate to reconstruct the firms' DT process. Connectedly, despite the importance of the factor time in process research, our data rarely outlined the length of activities or sequences. We, thus, call for DT process research focusing on temporal aspects to examine the influence and particularities of time in firms' DT journeys. Second, despite only including papers with a holistic description of the DT process, we acknowledge the method's inherent limitation that the individual papers' thematic foci influence the process variations across cases. Put simply, papers on digital platforms in DT might describe activities related to disseminating more in-depth compared to other contributions. Third, we only provide preliminary insights regarding the variations of firms' DT process. Therefore, we call on future research to systematically investigate different archetypes of the DT process based on firms' contingencies.

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Appendix

Paper | *Outlet*	**Case**	**Paper | *Outlet***	**Case**
Åkesson et al. (2018) | *SJM*	Aftonbladet	Marheine & Petrik (2021) | *ICIS*	HardCorp
Anderson & Ross (2016) | *ICIS*	LEGO		SoftCorp
Carroll et al. (2021) | *ICIS*	HP Fin Services		TelCoCorp
Chanias et al. (2019) | *JSIS*	AssetCo	Mocker & van Heck (2015) | *ICIS*	Royal Philips
Chen et al. (2017) | *MISQE*	Lufthansa AG	Mosch et al. (2020) | *ECIS*	PowerTrain SE
Correani et al. (2020) | *CMR*	ABB	Mueller & Renken (2017) | *ICIS*	Olympus
	CNH Industrial	Nolte et al. (2020) | *ICIS*	Future Work Inc.
	Vodafone	Osmundsen & Bygstadt (2022) | *JIT*	GridCo
Cozzolino et al. (2018) | *JMS*	GEDI	Piepponen et al. (2022) | *JBR*	MediaCo
Dremel et al. (2017) | *MISQE*	Audi AG	Pundziene et al. (2020) | *CMR*	Siemens Healthineers
Du et al. (2016) | *MISQE*	XCMG	Rocha et al. (2021) | *IEEE-TEM*	Omega
Giacosa et al. (2022) | *TF&SC*	StarCars		Sigma
Gust et al. (2017) | *MISQE*	SUC		Theta
Hansen & Kien (2015) | *MISQE*	Hummel	Sandberg et al. (2020) | *MISQ*	ABB
Hess et al. (2016) | *MISQE*	Mittelbayerische	Schreieck et al. (2022) | *EJIS*	CAR
	ProsiebenSat1	Seran et al. (2021) | *CMR*	BPCE
	Ravensburger	Shahlaei & Kazan (2020) | *ICIS*	NEVS
Ivarsson & Svahn (2020) | *ECIS*	Sydved AB	Sia et al. (2016) | *MISQE*	DBS Bank
Jöhnk et al. (2022) | *EM*	AutoCo	Smith & Berretta (2021) | *JPIM*	Untitled
	FoodCo	Smith & Watson (2019) | *MISQE*	Carestream Health
	MedCo	Svahn et al. (2017) | *MISQ*	Volvo Cars
Keller et al. (2022) | *BISE*	FoodLtd	Tkalich et al. (2021) | *ECIS*	MarComp
Knecht & Hund (2022) | *ECIS*	ChemComp	van der Meulen et al. (2020) | *MISQE*	CEMEX
	CarCo1		Domain Group
	CarCo2		KPN
Koch et al. (2021) | *JSIS*	SupplyCo		Tetra Pak
Kohli & Johnson (2011) | *MISQE*	Encana Oil & Gas	Weingarth et al. (2020) | *ECIS*	INSUR
Krejci et al. (2022) | *ECIS*	Untitled	Wessel et al. (2021) | *JAIS*	Beta
Latilla et al. (2022) | *IJIM*	ALPHA	Wolf (2020) | *ECIS*	Servivor
Li & Sun (2019) | *ICIS*	TopSun	Yeow et al. (2018) | *JSIS*	Hummel
Li et al. (2019) | *ICIS*	Energize	Xie et al. (2014) | *ICIS*	Comagic
Mann et al. (2022) | *JSIS*	Alpha Security		Jeanswest

Table 3. Overview of Identified Digital Transformation Cases