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The Unfolding of Digital Transformation in Pre-Digital Companies: A Meta-Case Analysis

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The Unfolding of Digital Transformation in Pre-digital Companies: A Meta-case Analysis

Completed Research Paper

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Abstract

Due to the growing dispersion of digital technology, many organizations engage in digital transformation. While digital transformation case studies have increased in the information systems and management domain, different ways in which digital transformation unfolds have been proposed. We perform a qualitative meta-analysis of case studies on digital transformation initiatives. From this analysis, we develop two core narratives (a dialectical and a teleological narrative) that we explain in-depth and derive two research avenues from our analysis. Thus, we are advancing the discussion on the unfolding of digital transformation by 1) summarizing existing case studies into two core narratives and 2) shifting the discussion from an explorative character towards a more explanatory approach to better understand how digital transformation unfolds within pre-digital organizations.

Keywords: digital transformation, digital innovation, organizational change

Introduction

The ubiquity of digital technologies has spurred unprecedented change across different institutions within our society (Hinings et al. 2018; Vial 2019). Particularly companies from the industrial era – we will refer to them as pre-digital companies - that have previously operated with products and services from a non-digital context are under pressure to transform fundamentally (Chanias et al. 2019; Vial 2019). Digital innovation's generativity and boundary-spanning implications (Hund et al. 2021; Yoo et al. 2010, 2012) seem to challenge longstanding beliefs and assumptions about value generation and capturing at the organizational level (Wessel et al., 2021).

Recently, fields such as Information Systems (IS) and Management have experienced a rapid upsurge of research on digital transformation (Appio et al. 2021; Hanelt et al. 2020; Vial 2019), underscoring the recency and relevancy of the phenomenon. Findings show, among other things, that competing views persist about the nature of digital transformation per se (Markus and Rowe 2021, 2023). For example, on the one hand, some focus on specific technologies such as SMACIT (social, mobile, analytics, cloud, Internet

of things) (Sebastian et al. 2017) or ERP systems (Wessel et al., 2021). On the other hand, some focus on the implications of unprecedented amounts of data in bitstring format that decouple form and function (Zittrain 2006), enabling new interpretations of existing technologies and use cases (Hund et al. 2021; Yoo et al. 2010). Research typically focuses on the organizational level to understand how digital transformations unfold. Particularly, incumbent or pre-digital companies are often selected to gain insights into how incumbents can transform their established structures and processes (Chanas et al. 2019; Hess et al. 2016), overcome inertia (Haskamp et al. 2021; Kaganer et al. 2023; Schmid 2019), and manage the resulting tensions (Danneels and Viaene 2022; Svahn et al. 2017).

While the insights into how the phenomenon of digital transformation unfolds within the context of organizations have advanced (Hinings et al., 2018; Markus & Rowe, 2021; Vial, 2019; Wessel et al., 2021), the literature presents different ways of how digital transformation unfolds in practice. For example, Hanelt et al. (2020) highlight how digital transformation can trigger “continuous changes” that may “culminate in a state of constant unfreezing” (p. 20).

We take these findings as a start to perform a qualitative meta-case analysis (Berente et al., 2019; Habersang et al., 2019; Noblit & Dwight Hare, 1988; Schofield, 2000) of digital transformation initiatives, which we analyze by developing a framework based on established insights from literature about digital phenomena (Hund et al., 2021; Sebastian et al., 2017).

Based on our analysis, we show how digital transformation unfolds in pre-digital companies by outlining two narratives – a dialectic-inspired and a teleologic-inspired narrative – which we unpack and explain. We then develop particularly promising research avenues to further explore and extend each narrative.

This work’s contribution is twofold. First, it contributes as it summarizes existing insights from case study research on digital transformation, providing an overview of the unfolding of digital transformation initiatives in pre-digital companies. Second, the meta-analysis and its two narratives offer a foundation for current discussions in the field to move to the next stage, from a currently rather exploratory level to a more explanatory level.

Related Work – Digital Transformation

Despite the recent insights research has produced, digital transformation remains a nascent phenomenon in IS, underscored by the frequent debates surrounding its definition and significance. For example, in an editorial for a special issue on “Envisioning Digital Transformation”, the authors question “whether we understand ‘digital transformation’ as a new label for an existing phenomenon (e.g., IT-enabled organizational change) or a label that refers to a fundamentally new phenomenon” (Markus and Rowe 2023, p. 328). Adding to this conceptual ambiguity are the various definitions that highlight different aspects of what constitutes digital transformation (e.g., Chanas et al. 2019; Hanelt et al. 2020; Li et al. 2018; Nadkarni and Prügl 2021; Nambisan et al. 2019; Schallmo et al. 2017; Vial 2019; Warner and Wäger 2019). While there is some merit in allowing different definitions to co-exist, “not being clear on our individual definitions invites collective incoherence” (Markus and Rowe 2023, p. 329).

Thus, to gain a better understanding of how digital transformation unfolds, we set out to identify the most important building blocks of digital transformation by reviewing extant work on digital transformation and delineating it clearly from what was categorized as IT-enabled transformation in the past (Markus et al., 1997; Venkatraman, 1994; Wessel et al., 2021).

Current literature (Markus & Rowe, 2023; Wessel et al., 2021) discuss the differences between IT-enabled transformation (Markus et al., 1997; Sarker & Lee, 1999; Venkatraman, 1994; vom Brocke et al., 2020) and digital transformation (Chanas et al., 2019; Hanelt et al., 2020; Hess et al., 2016; Hinings et al., 2018; Markus & Rowe, 2023; Vial, 2019; Wessel et al., 2021). In terms of digital transformation, several definitions have been proposed. For example, Vial (2019) defines it as “a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies” (2019, p. 118). Chanas et al. (2019) have defined it as “a holistic form of business transformation enabled by information systems (IS) that is accompanied by fundamental economic and technological changes at both the organizational and industry-level” (2019, p. 17).

Regarding differences, Wessel et al. (2021) argue that digital transformation differs from IT-enabled transformation in two main ways. First, while IT-enabled organizational transformation supports a company's value proposition, digital transformation redefines it. Second, while IT-enabled organizational transformation enhances the existing organizational identity, digital transformation leads to a new one. Further, the literature has argued that digital transformation marks a qualitative difference in the impetus of change, the role of digital technologies, the scope of change, and the outcomes (Kaganer et al., 2023; Schumm & Hanelt, 2021). In this context, extant literature frequently highlights the transformative power of digital innovation's characteristics (i.e., data homogenization, reprogrammability, and self-reference) as they enable high levels of generativity and convergence (Hund et al., 2021; Yoo et al., 2012, 2010).

Building on those insights and combining them with work on organizational change (Besson & Rowe, 2012; Van De Ven & Poole, 1995) and digital transformation (Haskamp et al., 2021; Hund et al., 2021; Schumm & Hanelt, 2021; Sebastian et al., 2017; Vial, 2019), we develop a conceptual framework of digital transformation that guided our meta case analysis. The framework consists of two clusters, digital innovation and transformation, which we present in detail in the following section.

Research Methodology

To investigate the unfolding of digital transformation in pre-digital companies, we opted for a meta-analysis of case studies (Berente et al., 2019; Habersang et al., 2019; Noblit & Dwight Hare, 1988; Schofield, 2000). Over the past years, the work of the IS and management community on the unfolding of digital transformation has led to a steady growth and availability of case studies on digital transformation initiatives. For our research goal to identify how digital transformation unfolds, a meta-case analysis is a valid choice as it allows us to review and analyze existing digital transformation initiatives to compare those based on dimensions a case data set (Berente et al., 2019). Leveraging existing case study data which is interpreted differently through an extensive analysis (Noblit & Dwight Hare, 1988) has received different labels such as meta-ethnography (Noblit & Dwight Hare, 1988) or meta-synthesis (Urquhart et al., 2010). Importantly, it is not to be confused with literature reviews (Berente et al., 2019). Rather than reviewing existing studies to synthesize their findings, a qualitative meta-analysis seeks to define a set of constructs used to make sense of a cross-case data set (Berente et al., 2019).

Building the Case Study Sample

To conduct our qualitative meta-case analysis study on how incumbents unfold digital transformation, we build a set of relevant case studies by reviewing the literature through a multiple-stage review process.

In the first stage, we searched for single and multiple case studies. We set a quality threshold using the journal quality list (JQL) by Harzing (2019), considering only literature with a ranking higher equals C. Based on the definition in the JQL, we identified five fields of research that regularly address digital transformations, including *Information Systems*, *General & Strategy*, *Innovation*, *Organizational Science and Behaviour*, and *Marketing*.

To obtain relevant literature within these fields, we utilized two key sources, the EBSCO Business Source Ultimate, and the AISel Online Library. On July 1st, 2022, we searched for peer-reviewed articles that included "digit* trans*" and "case stud*" within the title, abstract, or keywords. We included articles that transparently focus on case study research and offer a detailed description of the organizational digital transformation case (e.g., projects, initiatives, programs, or activities). We also reviewed the reference lists of relevant articles to identify additional studies. Finally, we conducted a forward and backward search to identify other relevant studies, which resulted in an initial data pool of 66 articles (Webster and Watson 2002).

In the second step, we reviewed the quality of the pool by using rigorous inclusion and exclusion criteria. We only included case studies that were thoroughly described within the research papers and that followed a systematic methodology for case study research. To be selected, cases had to (1) provide detailed information about the case company, (2) refer to ongoing digital transformation activities and the stakeholders' interaction, and (3) contain data over a substantial period of time. We excluded research-in-progress papers and studies that focused on startups or digital-native firms, as we focus specifically on the digital transformation journeys of pre-digital companies. We also excluded cases with a superficial

treatment of digital transformation or digital technology, e.g., by not defining these terms. After applying these criteria, we ended up with a final sample of 20 articles providing detailed insights about 31 digital transformation cases from 12 industries (Finance, Real Estate, Manufacturing, Entertainment, Automotive, Retail, Telecom, Photography, Health, Software, Food, and Insurance) and covering a total of 16 years (2005 until 2020). Each case of a digital transformation initiative can be found in Table 1.

# DT	Industry	Country	Source	Method
1	Finance	Germany	Chanas et al., 2019	Single Case Study
2	Automotive	Germany	Dremel et al., 2017	Single Case Study
3	Real Estate	Netherlands	Danneels & Viaene, 2022	Single Case Study
4	Retail	Not specified	Fuchs & Hess, 2018	Multiple Case Study (2)
5	Insurance	Not specified	Fuchs & Hess, 2018	Multiple Case Study (2)
6	Finance	Germany	Fischer et al., 2020	Multiple Case Study (5)
7	Manufacturing	Denmark	Fischer et al., 2020	Multiple Case Study (5)
8	Telecom	Germany	Fischer et al., 2020	Multiple Case Study (5)
9	Software	Germany	Fischer et al., 2020	Multiple Case Study (5)
10	Food	Germany	Fischer et al., 2020	Multiple Case Study (5)
11	Photography	Germany	Gimpel et al., 2018	Single Case Study
12	Finance	Not specified	Gregory et al., 2018	Single Case Study
13	Retail	Germany	Hansen & Kien, 2015	Single Case Study
14	Entertainment	Germany	Hess et al., 2016	Multiple Case Study (3)
15	Entertainment	Germany	Hess et al., 2016	Multiple Case Study (3)
16	Entertainment	Germany	Hess et al., 2016	Multiple Case Study (3)
17	Finance	United States	Henningsson et al., 2021	Single Case Study
18	Automotive	Sweden	Hylving & Schultze, 2020	Single Case Study
19	Photography	United States	Lucas & Goh, 2009	Single Case Study
20	Finance	Norway	Mikalsen et al., 2021	Single Case Study
21	Automotive	Germany	Nolte et al., 2020	Single Case Study
22	Automotive	Sweden	Shahalei & Kazan, 2020	Single Case Study
23	Retail	Not specified	Soh et al., 2019	Single Case Study
24	Automotive	Sweden	Svahn et al., 2017	Single Case Study
25	Manufacturing	Swedish	van der Meulen et al., 2020	Multiple Case Study (4)
26	Construction	United States	van der Meulen et al., 2020	Multiple Case Study (4)
27	Telecomm	Netherlands	van der Meulen et al., 2020	Multiple Case Study (4)
28	Real Estate	Australia	van der Meulen et al., 2020	Multiple Case Study (4)
29	Health	France	Wessel et al., 2021	Multiple Case Study (2)
30	Manufacturing	Finland	Wessel et al., 2021	Multiple Case Study (2)
31	Insurance	Sweden	Wimelius et al., 2021	Single Case Study
Table 1. List of Selected Case Studies				

Analyzing the Data

We analyzed and synthesized the cases in two steps based on a deductive-inductive approach to gain insights into the unfolding of digital transformation in pre-digital organizations.

First, we deductively created a coding scheme, as recommended by Mayring (2015), based on two main categories (digital innovation and digital transformation). Second, we iteratively read the identified cases in our sample and consulted the existing literature to identify appropriate subcategories. A subcategory was deemed appropriate if it contributed to a better understanding of the respective main category and allowed us to structure and organize the reported dynamics in digital transformation cases. This open coding initiative allowed us to gain new insights “by breaking through standard ways of thinking about or interpreting phenomena reflected in the data”(Corbin and Strauss 1990, p.12).

For our data analysis, we used the Atlas.ti software. We examined the cases within each category to identify recurring patterns and themes. We then synthesized these patterns and themes across the categories to better understand how digital transformation unfolds in the context of pre-digital companies. Table 2 provides an overview of our final set of codes for the first two dimensions and lists exemplary articles as well as the number of hits for each attribute.

Cluster	Categories	Attributes	Hits	Example
Digital Innovation	Digital Innovation Focus (Schumm & Hanelt, 2021)	Process (internal)	20	Dremel et al. (2017)
		Product (external)	14	Chanas et al. (2019)
	Generativity (Hund et al. 2021; Yoo et al. 2010)	Yes	7	Svahn et al. (2017)
		No	21	Danneels & Viaene (2022)
	Blurring Boundaries (Hund et al. 2021)	Products	9	Van der Meulen et al. (2020)
		Role	18	Hylving & Schultze (2020)
		Organizational	16	Wimelius et al. (2021)
	Convergence (Hund et al. 2021)	Industrial	6	Lucas & Goh (2009)
		Device	3	Gimpel et al. (2018)
		Physical – Digital	8	Wessel et al. (2021)
		User Experience	7	Soh et al. (2019)
	Value of Technology (Hund et al. 2021; Schumm & Hanelt, 2021)	Industrial	2	Chanas et al. (2019)
		Inherent (Value within technology)	6	Danneels & Viaene (2022)
		Instrumental (Value through technology)	24	Hess et al. (2016)
	Technology (Sebastian et al. 2017)	Social	7	Wang & Burton-Jones (2020)
		Mobile	11	Hansen et al. (2011)
		Analytics	10	Van der Meulen et al. (2020)
		Cloud	11	Gregory et al. (2018)
		Internet of Things	7	Hylving & Schultze (2020)
		ERP/EMR	5	Wimelius et al. (2021)
		BPMN	5	Fischer et al. (2020)
		Digital Photography	1	Lucas & Goh (2009)
Digital Transformation	Mode of Change (Van De Ven & Poole, 1995)	Constructive	25	Van der Meulen (2020)
		Prescribed	6	Soh et al. (2019)
	Unit of Change (Van De Ven & Poole, 1995)	Multiple (Interorganizational)	8	Lucas & Goh (2009)
		Single (Intraorganizational)	25	Svahn et al. (2017)
	Inertia (Besson & Rowe, 2012)	Cultural Inertia	7	Fuchs and Hess (2018)
		Structural Inertia	12	Danneels & Viaene (2022)
		Socio Technical Inertia	12	Shahlaei & Kazan (2020)
		Resistance to Change	6	Lucas & Goh (2009)
	Transformation Driver (Schumm & Hanelt, 2021)	Organizational Factors	22	Henningsson et al. (2021)
		IS Factors	5	Hess et al. (2016)
		External Factors	9	Van der Meulen (2020)
	Motor (Schumm & Hanelt, 2021)	Internally motivated	22	Dremel et al. (2017)
		Externally forced	8	Wimelius et al. (2021)
	Location (Hund et al., 2021)	Bottom Up	2	Fischer et al. (2020)
		Top Down	23	Lucas & Goh (2009)
		Hybrid	7	Fuchs and Hess (2018)
	Duration (Van De Ven & Poole, 1995)	Continuous / Iterative	25	Shahlaei & Kazan (2020)
		Terminated / Planned	6	Wessel et al. (2021)
		Agile	21	Fischer et al. (2020)
	Digital Capabilities (Hund et al., 2021)	Ambidexterity	9	Hess et al. (2016)
		Dynamic Capabilities	5	Van der Meulen (2020)
	Digital Transformation Success (Barthel, 2021)	Yes	15	Van der Meulen (2020)
		No	4	Lucas and Goh (2009)
		Unknown	8	Wessel et al. (2021)
		Bureaucracy	18	Svahn et al. (2017)
	Organizational Archetypes (Schumm & Hanelt, 2021)	Post Bureaucracy	8	Fuchs and Hess (2018)
		Network	1	Mikalsen et al. (2021)
		Platform Ecosystem	4	Svahn et al. (2017)
		Strategic Alliances	1	Van der Meulen (2020)
		Hybrid Form	9	Chanas et al. (2019)
		Firmly Closed – Inward view	16	Fuchs and Hess (2018)
	Organizational Boundaries (Schumm & Hanelt, 2021)	Mostly Closed – Relationship view	15	Dremel et al. (2017)
		(Nearly) Boundaryless – Open View	4	Mikalsen et al. (2021)
		Project	10	Danneels & Viaene (2022)
	Setting (Barthel et al. 2020; Hess et al. 2016)	Strategy	18	Dremel et al. (2017)
		Process	3	Fuchs and Hess (2018)
		Initiative	4	Svahn et al. (2017)
		Program	1	Danneels & Viaene (2022)
		Structural	1	Van der Meulen (2020)

Table 2. Final Set of Codes

Descriptive Findings on Digital Transformation Cases

Our analysis reveals insights into the two dimensions of (1) digital innovation and around (2) digital transformation.

Findings on Digital Innovation Dimension

Digital innovation focus is slightly more on internal process improvements (20) than external product offerings (14). Surprisingly, there are only five cases that include both perspectives. Thus, it appears that digital transformation often focuses innovation efforts on internal or external aspects, rarely on both. An example of a case that addressed both internal and external factors is reported by Henningsson et al. (2019), where a new CTO is hired to internally transform existing legacy systems with the hope to also develop “innovative digital options” that provide a better standing against external competitors.

Generativity is addressed in seven cases. In the context of digital innovation, particularly the layered modular architecture of digital innovation is highlighted, which “creates a platform, a key enabler of generativity” by separating form and function, enabling flexible combinations (Hylving & Schultze, 2020, p. 3). Furthermore, Svahn et al. (2017) show that in the transformation process, companies need to consider the potential of generativity by maintaining sufficient control over the outcome of digital innovation while not overly constraining the actions of different actors would diminish the potential generativity.

Blurring boundaries are most commonly highlighted between roles and responsibilities (18) and organizational boundaries (16). Role boundaries are often blurring due to the increasingly interdisciplinary demand on different teams and roles (Dremel et al. 2017) and the increasingly important role of IT roles in strategic decision-making (Törner & Henningsson, 2019; Wessel et al., 2021). Similarly, organizational boundaries are blurring because companies increasingly reach out to expertise outside their established boundaries by cooperating with external actors (Lucas & Goh, 2009; Svahn et al., 2017). This trend blurs established industrial boundaries in six cases when different industries work within the same market or platform (Chanas et al., 2019; Shahalei & Kazan, 2020). Lastly, nine cases report blurring product boundaries (Gimpel et al., 2018; Hylving & Schultze, 2020).

Convergence of physical and digital components is described in eight cases (e.g., Hylving & Schultze, 2020; Soh et al., 2019; van der Meulen et al., 2020), which is no surprise since physical-digital convergence is a key driver of digital innovation in general. Moreover, seven cases highlight convergence of user experience (e.g., Soh et al., 2019; van der Meulen et al., 2020; Wessel et al., 2021), which in many cases can result from the convergence of physical and digital components. For example, Henningsson et al. (2019) describe how the customer journey converged: “We’re still in the middle of implementing many of the missing pieces of omnichannel customer experience, but the epidemic forced all parts of the business to embrace the use of digital. We have a much better view of the customer as they move across our physical and digital experiences and have begun to embrace the idea that this is really just one customer journey, not two” (p.149).

Value of the technology in most cases (24) is reported as rather instrumental (i.e., the value is created *through* digital technology). In contrast, only a few (6) report an inherent value of technology (i.e., the value lies *within* the technology itself).

Technology itself is understood in different terms and concept. Concerning SMACIT, social media is mentioned seven times, mobile eleven times, analytics ten times, cloud eleven times, and Internet of Things seven times. Furthermore, ERP systems and BPMN are mentioned five times, and digital photography once.

Findings on Digital Transformation Dimension

To analyze the unfolding of digital transformation, we present our findings along the nine dimensions presented in the method section.

Mode and unit of change in digital transformation (Van De Ven & Poole, 1995) was most depicted as a constructive endeavor (25), whereas only in six cases it was seen as a prescribed phenomenon. Regarding the unit of change, digital transformation was viewed as an inter-organizational phenomenon affecting multiple units (8), whereas in 25 cases, organizations followed an intra-organizational approach. Following Van de Ven and Poole’s (1995) framework, this results in different configurations of organizational change, of which some instances were visible in the cases. For example, there is a growing stream of research (Danneels & Viaene, 2022; Shahalei & Kazan, 2020; Soh et al., 2019; Svahn et al., 2017; Wilmelius et al., 2021) highlighting digital transformation as a dialectic endeavor involving numerous tensions between the enacted status quo and the desired digital future. However, another stream of research also depicts digital

transformation as a step-wise, evolutionary phenomenon with different stages that follow each other (Chanias et al. 2019; Dremel et al. 2017; Svahn et al. 2017).

Inertia is a relevant concept within digital transformation (Haskamp et al. 2022; Schmid 2019; Vial 2019). Based on the different dimensions of inertia (cultural, structural, socio-technical, and resistance to change) (Besson & Rowe, 2012), we found that cultural inertia popped up in 7 cases, structural inertia in twelve cases, socio-technical inertia in twelve cases, and resistance to change in six cases. Thus, inertia seems to be a vital companion of the digital transformation activities of incumbent companies, raising the question of how inertia unfolds differently in that context compared to existing knowledge on IT-enabled transformation.

Transformation drivers are often highlighted as organizational factors (22), e.g., appointing a new CIO/CDO to drive digital transformation. Information technology was a driver in five cases and external factors (such as competitive pressure) were a transformation driver in nine cases. It seems that digital transformation is driven by internal factors, hiring new people, recognizing a shift in the market, or new external competitors.

Motor of digital transformation is often to be found rather internally (22), while we also found externally motivated transformation in eight cases. This closely connects to the **transformation driver** in terms of locating digital transformation in a pre-digital company. In only two cases, digital transformation was organized bottom-up, in 23 cases, it was organized top-down, and in seven instances, digital transformation was pursued in a hybrid approach involving both bottom-up and top-down approaches. Regarding its **duration**, in 25 cases, it was seen as a continuous and iterative endeavor. Only in six cases was digital transformation seen as terminated and planned phenomenon.

Digital capabilities required to perform a digital transformation, are most commonly mentioned in terms of agility (21). In contrast, dynamic capabilities in their broadest sense were mentioned in five cases, and ambidexterity as a specific form of a dynamic capability was mentioned nine times. Regarding the **success** of digital transformation initiatives, 15 cases stated a positive outcome, whereas in four cases, digital transformation was depicted as a failure. In eight cases, the evaluation of the digital transformation was not mentioned.

Organizational archetypes have often been changed by incumbents when digitally transforming. Organizations moved away from a bureaucratic (14) or post-bureaucratic (9) approach towards platform-based models of organizing (8) and hybrid forms (14). This also matches with the changes in the **organizational boundaries**, with 20 cases having an inward view, eight cases having a mostly closed view, and six cases with a nearly boundaryless perspective on how digital transformation takes place.

Setting of how digital transformation was performed differs significantly between the cases. In twelve instances, digital transformation was seen as a project; in 19 cases, it was seen as a strategy, in four as a process; in four as an initiative; and two cases depicted digital transformation as a program.

Narratives on the Unfolding of Digital Transformation

Analyzing the case studies through our framework enabled us to identify two main narratives that underlie the unfolding of digital transformation in pre-digital companies. Those narratives can be understood as an overarching recurring pattern of how digital transformation stories are presented in the literature. The narratives are inspired by Van de Ven and De Poole's (1995) typology.

In the seminal piece, they present four ideal types of how processes of change unfold in an organization: life cycle theories, evolutionary theories, dialectic theories, and teleological theories. Each of them has its own cycles, drivers, and motors. These frameworks are powerful tools for guiding research for two reasons: First, rather than focusing on specific theories (e.g., punctuated equilibrium, metamorphosis), the four types present a meta-summary of different ideas and approaches. Thus, they are a good fit, since we do not want to assess the diversity of theories used in digital transformation studies. Instead, we aim at showcasing the overarching ideas and stories told about the unfolding of digital transformation. Second, although the frameworks have received criticism for not capturing everything, they encompass a robust and standardized set of concepts to unpack and conceptualize organizational change.

Importantly, we focus on constructive types of change (teleological and dialectical) and exclude prescribed (evolutionary and life cycle) approaches. While digital transformation can also unfold in prescribed ways,

the majority of cases in our sample favoured the constructive type, which is why we focus on dialectical and teleological (see Figure 1) modes of change.

Narratives on Digital Transformation	A Dialectical Narrative	A Teleological Narrative
Narrative including core Elements with an Example	<p>Thesis Existing Innovation Capabilities (Svahn et al., 2017)</p> <p>Conflict Rigidities, Competency Traps (Svahn et al., 2017)</p> <p>Antithesis Prerequisite Innovation Capabilities (Svahn et al., 2017)</p> <p>Synthesis Combination of Existing and Prerequisite Capabilities (Svahn et al., 2017)</p>	<p>Dissatisfaction Isolated view on components, systems, networks, and software (Gimpel et al. 2018)</p> <p>Implement Goals Responsibility for digital transformation anchored in role of Digital Transformation Officer (Gimpel et al. 2018)</p> <p>Search & Envision Goals Define six holistic fields of action (Gimpel et al. 2018)</p>
Role of Digital Technology	Digital technology as trigger that continuously affords new opportunities of which provokes tensions	Digital technology as potential enabler to exploit extant capabilities and explore new business models
Trigger of Change	Tensions and conflicts between the opportunities generated by digital technology and the inert status-quo	Dissatisfaction (e.g., customer satisfaction) drives companies to transform into hardware/software firms
Event Progression	Discontinuous sequence of confrontations in which waves of digital technology fuels tensions	Explicit or implicit Goal statement ; sometimes initiated based on dissatisfactions (e.g., through tensions)
Representation in Sample	Studies on tensions/paradoxes (Danneels and Viaene 2022; Soh et al. 2019; Wimelius et al. 2021).	Studies on pre-defined visions or goals for realizing digital transformation (Gimpel et al. 2018, Fischer et al. 2020)
Figure 1. Two Narratives on Digital Transformation		

Each presented narrative does not intend to provide a conclusion on the unfolding of digital transformation. Instead, as Van de Ven and Poole (1995) put it in their seminal piece: "A way of seeing is a way of not seeing," (p. 510). Hence, the presented narratives highlight different particularities and notions of the unfolding of digital transformation that are not always clearly distinguishable. Further, it is important to mention that the dynamics of the unfolding of digital transformation are a multifaceted phenomenon in which all four types and potentially even different ones occur sequentially depending on the organization's phase (Hanelt et al., 2020). Nevertheless, we see a pattern toward constructive types of change, which "generates unprecedented, novel forms that, in retrospect, often are discontinuous and unpredictable departures from the past" (Van De Ven & Poole, 1995, p. 522). The tendency toward constructive types of change might be due to the inherent generativity of digital innovation (Hund et al., 2021; Yoo et al., 2010).

In many cases, the evolving opportunities generated by different forms of digital technology led to waves of innovation that triggered the identified constructive dynamics of change. The first type emphasizes a **dialectical narrative**, in which digital transformation involves multiple tensions and produces conflict,

which is translated into a synthesis. Here digital technology acts as a trigger that continuously affords new opportunities, provoking tensions and paradoxes. Thus, the trigger of change is tensions and conflicts between the opportunities provided by digital technology and the inert status quo. This often unfolds through a discontinuous sequence of confrontations. The second type emphasizes a **teleological narrative** in which digital transformation is coated within a desired end state, translated into a prescribed set of goals. Here digital transformation leads to goal-directed action, in which incumbents initiate so-called digital transformation activities to achieve a desired outcome based on a clear vision or goal. Figure 1 depicts the logic behind the dialectic and teleological narratives. Please note that a teleological standpoint can be the trigger (e.g., through various tensions resulting from previously defined competing goal statements) for the dialectical narrative (and vice versa). In the following, we discuss our findings for each narrative separately before outlining detailed research avenues.

Narrative 1: The Dialectics of Digital Transformation – Tensions and Paradoxes

In Van de Ven and Poole's foundational piece (1995), a dialectic-type of idea type of change is presented, which centers around the idea that a conflict between opposing forces generates change. Thus, the change process unfolds constructively and involves multiple units of change. Traditionally, a thesis representing the status quo stands in contrast to the anti-thesis, of which conflict emerges that needs to be translated into something new (synthesis). This "dialectic" narrative of change is also widely represented as a core narrative in the empirical cases of digital transformation through concepts such as tensions and paradoxes. Thus, the implementation of new digital initiatives often challenges the status quo, from which tensions and paradoxes emerge.

To unpack the dialectic idea, the IS literature draws on different concepts of tensions and paradoxes that are often used interchangeably (Danneels & Viaene, 2022; Lindgren et al., 2021; Soh et al., 2019). A paradox is defined here as a "persistent contradiction between interdependent elements" (Schad et al. 2016). For Smith and Lewis (2011), it consists of "contradictory yet interrelated elements (dualities) that exist simultaneously and persist over time; such elements seem logical when considered in isolation, but irrational, inconsistent and absurd when juxtaposed" (p.382). While an either/or decision needs to be made within a dilemma, a paradox involves a both/and type of tension (Smith and Lewis, 2011). For our purpose, we use the term tension to refer to both and pick up this theme in the avenues for future research requiring further investigation. We mapped identified organizational tensions in the cases based on keywords in the papers following the framework by Smith and Lewis (2011) which we display in Table 3.

Learning. The first group of tensions evolves around learning to change, renew, and innovate. This "involves building upon, as well as destroying, the past to create the future" (Smith and Lewis 2011, p. 383). Within the cases, this became evident through tensions between the existing vs. prerequisite capabilities (Svahn et al. 2017), between employees competences in dealing with either B2B vs. B2C customers (Soh et al., 2019), between clear communication vs. continuous learning (Danneels and Viaene 2022), established and renewed technology usage (Wimelius et al. 2021), and stability vs. embracing innovation (Poláková-Kersten et al. 2023).

Belonging. A second group of tensions emerges between the individual and the collective, and the struggle between homogeneity and distinction. These tensions are visible in "opposing yet co-existing roles, memberships, and values highlight tensions of belonging" (Smith and Lewis 2011, p. 383). That included questions around the identity of being a B2B company or an omnichannel company (Soh et al., 2019), the tension of taking everyone along while at the same time aiming for radical change (Danneels and Viaene 2022), and the tension between deliberate and emergent renewal practices (Wimelius et al. 2021).

Organizing. The third group of tensions refers to tensions between "collaboration and competition, empowerment and direction or routine and change" (Smith and Lewis 2011, p. 383). In the cases that involved tensions between a hierarchical product design logic and the layered modular architecture logic (Hylving & Schultze, 2020), between a product innovation focus and a process innovation focus (Svahn et al. 2017), between innovation governance around control versus flexibility (Svahn et al. 2017), between complexity and simplicity (Poláková-Kersten et al. 2023), and between development and diffusion activities (Lindgren et al., 2021).

Typology (Smith and Lewis, 2011)	Paper	Thesis	Anti-Thesis
Learning (knowledge)	(Svahn et al. 2017) (Soh et al., 2019) (Danneels and Viaene 2022) (Wimelius et al. 2021) (Poláková-Kersten et al. 2023)	Existing capabilities Employees B2B competencies Clear communication Established technology usage Stability	Prerequisite capabilities Employees B2C competencies Continuous learning Renewed technology usage Embracing innovation
Belonging (interpersonal relationships)	(Soh et al., 2019) (Danneels and Viaene 2022) (Wimelius et al. 2021)	B2B company Take everyone along Deliberate renewal practices	Omnichannel company Aim for radical change Emergent renewal practices
Organizing (processes)	(Hylving & Schultze, 2020) (Svahn et al. 2017) (Svahn et al. 2017) (Soh et al., 2019) (Poláková-Kersten et al. 2023) (Lindgren et al., 2021)	Hierarchical Product Design Product Innovation Focus Innovation gov.: control Existing B2B processes Complexity Development activities	Layered Modular Architecture Process Innovation Focus Innovation gov.: flexibility New B2C systems/processes Simplicity Diffusion activities
Performing (goals)	(Svahn et al. 2017) (Soh et al., 2019) (Danneels and Viaene 2022) (Danneels and Viaene 2022) (Lindgren et al., 2021) (Lindgren et al., 2021) (Wimelius et al. 2021) (Poláková-Kersten et al. 2023)	Innovation collab.: internal Not alienating B2B customers Perform in current business Regional entrepreneurialism Local solutions Private interests Inner renewal contexts Reliance on internal resources	Innovation collab.: external Attracting B2C customers Build new capabilities Global strategy Global solutions Public interests Outer renewal contexts External resources
Table 3. Tensions within the Digital Transformation Cases			

Performing. The fourth group of tensions emerges between “differing, and often conflicting, demands of varied internal and external stakeholders” (Smith and Lewis 2011, p. 383). Within the cases that involved tensions around innovation collaboration meaning an either internal vs external focus (Poláková-Kersten et al. 2023; Svahn et al. 2017; Wimelius et al. 2021), not alienating B2B versus attracting B2C customers (Soh et al., 2019), building new capabilities while at the same time perform in the current business (Danneels and Viaene 2022), global strategy and regional entrepreneurialism (Danneels and Viaene 2022), local versus global solutions (Lindgren et al., 2021), and private versus public interests (Lindgren et al., 2021).

In this narrative, many of the analyzed cases unpack and explain the emerging tensions in detail. While in almost all cases various digital initiatives have been launched to address these tensions, only in a few cases (Hylving & Schultze, 2020; Soh et al., 2019; Wimelius et al., 2021) is a form of synthesis presented that describes how the digital initiative copes with each of the tensions.

For example, Danneels and Viane (2022) present a set of design principles that they identify to address the tensions through managerial actions. Similarly, Svahn et al. (2017) present a set of digital initiatives Volvo engaged in to address some of the tensions. However, a few papers (Lindgren et al., 2021; Soh et al., 2019; Wimelius et al., 2021) specifically conceptualize how the synthesis occurs in their case study. We distinguish between different types of synthesis, such as situations in which the thesis remains and in which strong inertia persists. Situations in which a hybrid form emerges, meaning that both parts of the thesis and parts of the anti-thesis were successful and co-existed. Lastly, situations in which the anti-thesis dominates the synthesis mean the tension is coped with by pursuing the new action path.

Interestingly, two papers conceptualize the synthesis with response types (Lindgren et al., 2021; Wimelius et al., 2021); some outline digital initiatives that cope with tensions (Danneels and Viaene 2022; Svahn et al. 2017), while others report how management teams responded to emerging tensions (Soh et al., 2019). An overview of all different types of synthesis is given in Table 4:

Type of Synthesis	Description of Synthesis
Strong inertia (status-quo remains)	<ul style="list-style-type: none"> - Responses such as pretending and avoiding (Wimelius et al. 2021)
Hybrid (splitting or integration of thesis and anti-thesis)	<ul style="list-style-type: none"> - Hybridization of hierarchical and layered configurations of modules (Hylving & Schultze, 2020) - Integrating refers here to acknowledging the simultaneous pursuit of both poles (Lindgren et al., 2021) - Suspension (i.e., bracketing the doubt and uncertainty that characterize tension and letting the tension play out to allow for the emergence of a resolution) (Lindgren et al., 2021)
Coping tensions (acceptance and success of new initiatives (anti-thesis))	<ul style="list-style-type: none"> - Responses like integrating referring here to responds by accommodating the opposite poles of a tension (Wimelius et al. 2021) - Managerial defensive responses like creating a digital department (Soh et al., 2019) - Receptive managerial responses, e.g., developing in-house digital capabilities (Soh et al., 2019) - Splitting refers here to choosing one pole over the other (Lindgren et al., 2021; Wimelius et al., 2021)
Table 4. Synthesis of Tensions within the Digital Transformation Cases	

Narrative 2: A Teleological Narrative of Digital Transformation

Van de Ven and Poole's (1995) teleology perspective argues that organizational change is triggered when an organization perceives its current state as inadequate or unsatisfactory compared to its desired future state. This realization leads to goal-directed action, where the organization initiates activities to achieve its desired outcomes. The approach emphasizes that organizational changes must have a clear vision or goal to be effective beyond technical or economic reasons. It is essential to align changes with higher values and objectives for long-term success, applicable at individual, societal, and organizational levels. It is worth mentioning that these objectives also share some of the dialectic elements, such as tensions or paradoxes around diverse goals. We found that 25 out of 31 cases demonstrated a robust constructive mode of change within a single intra-organizational entity, indicating that a teleological perspective is dominant in our analyzed cases of digital transformation (Table 2). However, the teleological perspective is explicitly mentioned only by Henningsson et al. (2021), who present a model for affordance actualization in rare transformative events.

The teleological theory can operate on a single entity as the unit of change or among multiple members when there is enough consensus to act as a single entity, as defined by Van de Ven and Poole (1995). In digital transformation, the teleological motor drives various entities to achieve a desired end state through, as we differentiate it, internally motivated and/or externally forced goals. Internally motivated goals arise from within the organization, driven by the organization's mission, values, and culture. Externally forced goals are imposed on the organization from external sources, driven by factors outside the organization's control, and require the organization to adapt and respond to environmental changes.

Many companies establish their digital transformation focus units (e.g., Svahn et al. 2017, Chanas et al. 2018, Fuchs and Hess 2018) that play a crucial role in defining digital transformation as a distinct “supreme goal” and motivating envisioned end states (“goals”) throughout the organization. In Table 5, we illustrate the digital transformation goals identified and structure them along the above two dimensions based on patterns frequently emerging within our analyzed sample of digital transformation cases.

Customer focus prioritizes customer satisfaction (e.g., Chanas et al. 2018), operational focus prioritizes the efficiency of internal processes (e.g., Svahn et al. 2018), digital innovation focus emphasizes the use of technology for new business models (e.g., Hess et al., 2016; van der Meulen et al., 2020), compliance focus ensures adherence to rules and regulations (e.g., van der Meulen et al., 2020), while competitive focus aims

to gain a market advantage over rivals through strategies of innovation and cost-cutting (e.g., Danneels and Viaene 2022).

Internally motivated and externally forced Goals or Visions	
Internally motivated	<ul style="list-style-type: none"> - Customer focus: reinforce customer satisfaction; not alienating B2B vs. attracting B2C customers (Chanias et al., 2019; Soh et al., 2019) - Operational focus: increase online (and offline sales) globally or regionally (Chanias et al. 2019; Danneels and Viaene 2022; Hess et al. 2016; Svahn et al. 2017) and improve transparency in terms of data analytics capabilities (Chanias et al. 2019; Dremel et al. 2017); build new capabilities (Danneels and Viaene 2022) - Digital innovation focus: accelerate digital product development (Fuchs & Hess, 2018; Hess et al., 2016; Soh et al., 2019; Svahn et al., 2017; van der Meulen et al., 2020; Wimelius et al., 2021), embrace new digital technologies (Svahn et al. 2017; Wimelius et al. 2021), enable future digital readiness in terms of “surfing the digital wave” (Chanias et al. 2019), and strengthen digital capabilities (Soh et al., 2019)
Externally forced	<ul style="list-style-type: none"> - Compliance focus: (regulatory) compliance (van der Meulen et al., 2020) - Competitive focus: enable current digital readiness due to competitive pressures in terms of “getting ahead of the digital tsunami” (Chanias et al. 2019; Danneels and Viaene 2022)
Table 5. Synthesis of Goals Described within the Digital Transformation Cases	

The teleological perspective is a valuable approach to digital transformation as it focuses on achieving specific goals with measurable outcomes. This can help companies to ensure that their digital transformation efforts are aligned with their overall business strategy and that progress can be tracked and evaluated. By breaking down the digital transformation into specific, measurable goals, companies can more easily determine the success of their efforts. Furthermore, it can help define concrete responsibilities for achieving the digital transformation goals. By assigning specific tasks and roles, companies can ensure that everyone is working towards the same objectives and that there is clear accountability for achieving them. This can be particularly crucial in larger organizations where digital transformation efforts may involve multiple departments and stakeholders. In addition, the teleological perspective can help companies to identify potential roadblocks and challenges in their digital transformation efforts. By defining specific goals and outcomes, companies can more easily identify where they may fall short and develop strategies to address these issues. This can help to reduce the risk of failure and increase the likelihood of success in digital transformation initiatives.

Avenues for Future Research on Digital Transformation

The results of the meta-case analysis reveal promising avenues for future research. Importantly, the identified narratives are no conclusions but mark a starting point for further inquiry, e.g., through more longitudinal cases of the digital transformation journey of pre-digital companies. Further, the difference between digital transformation and IT-enabled transformation is still subject to discussion (Markus and Rowe 2023), leaving some ambiguity in our analysis – despite careful review and validation through multiple authors – of digital transformation case studies. Further, while we put considerable effort into constructing a representative case sample, we are aware that other research fields might offer additional insights. Yet, despite these limitations, the results of the meta-case analysis offer promising avenues for future research. Building upon our findings, we now outline a research agenda for future research, focusing on two particularly promising avenues: (1) A dialectical view of tensions, and (2) the teleological need to define a clear vision of digital transformation.

Avenue 1: A Dialectical View of Tensions in Digital Transformation

The dialectical worldview is rooted in the Hegelian perspective that an “organizational entity exists in a pluralistic world of colliding events, forces, or contradictory values that compete with each other for domination and control” (Van De Ven & Poole, 1995, p. 517). Since contradictions are part of digital transformation, the emergence of tensions is inevitable and also present throughout the digital transformation literature (Hylving & Schultze, 2020; Lindgren et al., 2021; Soh et al., 2019; Svahn et al., 2017; Wimelius et al., 2021). Thus, better understanding such tensions is crucial to developing appropriate management strategies and increasing the chances for successful digital transformations. This also includes a clearer understanding of the differences of tensions and paradoxical elements in the literature. Since paradoxes “remain a nascent field of study” (Ciriello et al. 2019, p. 2), particularly in the context of digital phenomena, we want to highlight two areas for future study (Table 6).

Insights of Meta-analysis	Exemplary Research Questions
Systematic investigation of tensions and when they appear as paradoxes: There are various tensions and discussed in the extant literature on digital transformation, but insights remain fragmented and unsystematic	<ul style="list-style-type: none"> - How, if at all, do tensions and paradoxes in the context of digital transformation differ? If so, how can they be addressed? - How can different types of tensions or paradoxes be classified? - How, if at all, do tensions and paradoxes that arise during digital transformations differ from ‘non-digital’ tensions and paradoxes? - How do tensions unfold? What types of initiative help to overcome specific types of tensions?
There is a dearth of research on the individual level: Individual differences regarding the perception of tensions in digital transformation are not addressed.	<ul style="list-style-type: none"> - How do individuals form their understanding of tensions during digital transformation? - How do individual differences change responses and coping mechanisms? - How does individual comprehension influence the organizational response to tensions?
Coping and synthesis of tensions: The analysis revealed different responses to tensions, but these findings remain initial and require more explanation	<ul style="list-style-type: none"> - How are tensions in the context of digital transformation coped with, and how does the synthesis emerge and occur? - How, if at all, do different responses to tensions lead to different forms of synthesis? - How does digital technology drive and relate to specific tensions and forms of synthesis within the context of a digital transformation?
Table 6. Recommendations and Research Questions for Future Research	

First, extant research on digital transformation has already identified various tensions. Yet, the findings remain fragmented and unsystematic, making evaluating the current state of knowledge difficult. Future research might unpack these tensions to identify patterns, potentially leading to classifications of tensions and their differences to paradoxes.

Second, while research on digital transformation frequently addresses different types of tensions and paradoxes, the focus is almost exclusively on the organizational level. The dearth on the individual level offers an exciting avenue for future research since there are differences in how individuals experience such tensions (Hahn & Knight, 2021). Future research should explore how such tensions might be perceived as socially constructed or inherent in something, such as the technology (Hund et al. 2021).

Third, extant research has noticed different responses to tensions that companies initiate. While research has also started to unpack how tensions are explored through the lenses of liminality (Haskamp et al. 2022; Orlikowski and Scott 2021), it would also be worthwhile to explore further the relationship to the nature of the digital artifact (Hylving & Schultze, 2020).

Avenue 2: The Teleological Need to Define a Clear Vision of Digital Transformation

Teleology is a well-established perspective in organizational research (Van De Ven & Poole, 1995; Van de Ven & Poole, 2005). Particularly in the context of digital transformation, the teleological perspective emphasizes the importance of having a clear vision or goal for organizational change. However, although the analyzed cases are often approached teleologically, some inconsistencies or tensions suggest a rather dialectical perspective. Digital transformation is often described as a continuous and iterative undertaking rather than a terminated and planned phenomenon (Chanias et al., 2019; Fuchs & Hess, 2018). This opens up two promising future research areas, as shown in Table 7.

Insights of Meta-analysis	Exemplary Research Questions
Developing a clear vision: Most digital transformation endeavors are described as an ongoing process without a clear endpoint, making it difficult to agree upon the goal of the transformation efforts.	<ul style="list-style-type: none"> - How can a perpetually ongoing transformation lead to an agreed-upon goal or vision? - How can organizational stakeholders communicate the need for an organizational transformation without clearly outlining the envisioned goal? - How, if at all, can dissatisfaction with the status quo (a key component of a teleological process) be considered during an ongoing transformation?
Defining what success looks like and how to measure it: Teleology stresses the importance of measuring success.	<ul style="list-style-type: none"> - How can the success of perpetually unfinished processes be measured? - How can organizations establish useful metrics to ensure ongoing transformations are going in the right direction? - How can success metrics be regularly updated during an ongoing transformation process?
Table 7. Recommendations and Research Questions for Future Research	

First, a teleological perspective stresses the need to define a clear vision of the desired end-state of a transformation effort (Van De Ven & Poole, 1995). Yet, since most digital transformations are seen as perpetually ongoing, the question arises as to how a consensus can be reached regarding the vision of digital transformation and achieving goals if no concrete end state is defined. Future research can address this issue by examining how organizations frame ongoing transformations and how potential upsides are communicated, even though they are typically not framed as a desired endpoint. Second, measuring success or progress without defining an envisioned outcome is difficult yet necessary to ensure that transformation efforts are productive. Future research might follow up on this issue by looking into different metrics that can be used to measure different parts of the transformation process. Identifying specific metrics and defining how they can provide more transparency during specific parts of the transformation could enable practitioners to steer ongoing transformations.

Conclusion

Our study aimed to investigate how digital transformation unfolds in practice. We reviewed existing case studies of pre-digital companies engaging in digital transformation to answer that question. Based on our analysis and leveraging the typology of change (Van De Ven & Poole, 1995), we present two dominating narratives emerging from the reviewed case studies and outline promising avenues for future research. Based on our review, authors should be more explicit in their understanding of digital transformation and provide substantial empirical data regarding the scope and length of data gathering. By nature, our study shares a few limitations. For example, due to the ambiguous interpretation of the term digital transformation, the case studies identified are only representative and do not provide an exhaustive overview of all cases. Further, the categorization of the case studies with one of the two narratives is, despite the authors having discussed the categorization in multiple rounds, one that relies on the author's interpretation. Thus, our interpretations are not absolute but represent an attempt to structure and organize existing insights to fuel future research on digital transformation.

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