

# Conceptualizing and Theorizing Organizations' Digital Transformation From a Continuous Change Perspective

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*It is not about achieving the goal,  
but who you become pursuing it.*

*(unknown)*

## Abstract

Digital technologies enable novel ways to conduct business. For example, Uber does not need to own cars and employ drivers to offer transportation services. They leverage digital technologies' social, mobile, analytical, and cloud capabilities to address customer needs more closely and challenge the business models of pre-digital organizations. As a response, the pre-digital organizations, so-called incumbents, must transform themselves to stay competitive in today's digital business environment. This transformation is referred to as digital transformation. The literature provides plentiful insights into what digital transformation includes. Nevertheless, many organizations still struggle with digital transformation. One reason might be that practitioners and researchers still do not understand the essence of the associated organizational change. In contrast to traditional transformation, organizations need to prepare themselves for continuous change. While some articles describe digital transformation as a continuous change and that organizations must strive for a moving target, insights on digital transformation from an organizational change perspective are still scarce. Thus, this thesis aims to structure organizations' change aspirations (Research Goal 1), offer insights on how to enable and sustain continuous change (Research Goal 2), and provide a theory about digital transformation that satisfies its complexity and continuity (Research Goal 3).

Regarding Research Goal 1, the thesis offers two perspectives. First, it delivers a digital transformation maturity model based on design science research (Essay 1). The maturity model describes 26 relevant dimensions structured along with six focus areas and three to six capabilities per dimension. While the capabilities offer a transformation path from existing capabilities to capabilities that organizations must acquire, a central insight is that the new capabilities are not, per se, better. Instead, organizations must leverage the capabilities according to their evolving environment. Second, the thesis draws attention to organizations' current transformation status based on an interview study (Essay 2). We<sup>1</sup> show that organizations do not strive for a one-off transformation, but for a continuous change that requires not only a digital, but also an agile and cultural transformation. We refer to the synthesis of these collective transformation efforts as transformation triad.

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<sup>1</sup> Since all my essays are joint efforts with at least one co-author, I will usually use the term “we” when referring to our research.

Regarding Research Goal 2, the thesis delves into different parts of the transformation triad to deliver contributions that help organizations enable and sustain continuous change. Our contributions build upon empirical evidence from the same interview study as Essay 2 (Essays 3-4) and additionally collected data via a single (Essay 5) and a multiple case study (Essay 6). Essay 3 elaborates on the interplay of the transformation triad. It proposes that underlying changes, e.g., in technology or culture, presuppose each other. The thesis highlights that cultural transformation is an enabler of digital and agile transformation. Essay 4 theorizes about the balance between change and stability. While organizations strive for continuous change, organizations and people also need stability. Our work illustrates that strategies, structures, and processes, which provided stability in the past, are now prone to continuous change. Thus, organizations need other artifacts that provide stability. We conclude that organizations need artifacts that provide stability and facilitate change simultaneously. Values and purpose might take such a role as they provide direction and guardrails for change and, at the same time, provide stability for more extended periods. Essay 5 takes a deep dive into agile transformation. It analyzes tensions between an organizational unit striving to act by agile principles and its non-agile environment. The insights about the tensions build the foundation for designing and managing agile transformation. Essay 6 focuses on the role of ordinary employees and how intrapreneurship programs contribute to digital transformation. The insights from our multiple case study approach show that intrapreneurship programs often do not reach their original target, e.g., to develop a new business model. However, the programs have multiple unintended, positive effects on digital transformation, e.g., employee capabilities.

Regarding Research Goal 3, we draw on autopoiesis theory – a theory with origins in biology – to theorize digital transformation as a system that reproduces itself based on human action, data, and technology (Essay 7). We offer a novel lens to theorize digital transformation beyond traditional perspectives that do not suffice to explain this complex and continuous transformation. The thesis contributes a conceptualization and theories of digital transformation. Due to the novelty of the phenomenon, the thesis mainly relies on qualitative, inductive research, complemented by design science research (Essay 1) and conceptual thoughts (Essay 7). This thesis provides an alternative to prevailing theories and concepts, e.g., episodic change, IT-enabled organizational transformation, continuous change, agility, and inertia.

Keywords: Digital Transformation, Continuous Change, Transformation Triad, Agile Transformation, Cultural Transformation, Autopoiesis

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Just five years ago, even the thought of a doctorate was imaginary for me. I often joke that, with my background, the word "doctor" has always meant a medical professional to me. During my Bachelor degree, I was one of the two guys from our cohort who managed to fail a seminar – the other guy was my best friend. So much has changed since then. I have encountered individuals who have inspired me. I have discovered my strengths and the courage to pursue them. I have found topics that intrigue me, that I wish to understand, and through which I aspire to contribute to a better world. I want to take this opportunity to thank all those who have accompanied me on this journey, believed in me, and opened doors for me. I wish to extend special thanks to the following individuals:

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# **Introduction to Conceptualizing and Theorizing Organizations' Digital Transformation From a Continuous Change Perspective**

## **Abstract**

Research on digital transformation has focused on implementing novel business models, products, services, and processes, often implicating that digital transformation is a one-time change. However, digital transformation is an effort to enable continuous change, which requires a purposeful design such that organizations can sustain transformation over time. This thesis strives to conceptualize and theorize digital transformation from a continuous change perspective. Within this introduction, I motivate the need for such a novel perspective (Section 1) and outline a definition and current knowledge of digital transformation and associated concepts (Section 2). Section 3 outlines my research goals and the research questions of the essays that build my dissertation. Then, I will lay out how I addressed these research questions (Section 4) and summarize the results of my work (Section 5). Finally, I discuss the overall implication of my thesis (Section 6).

Keywords: Digital Transformation, Continuous Change, Transformation Triad, Agile Transformation, Cultural Transformation, Autopoiesis

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## 1 Motivation<sup>2</sup>

Digital technologies such as the Internet of Things, artificial intelligence, or cloud computing enable organizations to create novel business models, products, services, and processes<sup>3</sup> (Vial, 2019) and contribute to a turbulent environment that affects organizations across industries (Gimpel et al., 2018). While technological change has always been part of human life, today, it occurs at unprecedented speed and scale due to the re-programmability and self-referential nature of digital technologies and the homogenization of data (Yoo, 2010). Due to ever-shorter innovation rhythms, organizations must prepare for continuous change (Hanelt et al., 2021). As a response, organizations strive to transform themselves to leverage the opportunities of digital technologies and stay competitive in today's business environment (Warner and Wäger, 2019). This transformation is called digital transformation (e.g., Vial, 2019). The digital transformation of organizations is multi-dimensional; it inherits, among others, enhancing customer experiences, automating and streamlining processes, changing organizational structures, work approaches, and culture, and adapting to the dynamics of the digital economy, such as participating in digital ecosystems (Hanelt et al., 2021). Digital transformation fundamentally changes how organizations operate, interact with stakeholders, and create value (Wessel et al., 2021). Due to its significance, digital transformation has been a priority for researchers and practitioners alike (Vial, 2019; Hanelt et al., 2021).

While the term was introduced in the early 2000s, research on the phenomenon gained momentum in 2014 (Hanelt et al., 2021). From this point, some research indicated that digital transformation is less about technology but strategic choices in leveraging these technologies and the intentional design of novel business models (Kane et al., 2015). In the following, several researchers have contributed to our understanding of digital transformation strategy (Hess et al., 2016; Matt et al., 2015; Chanias et al., 2019) and relevant action fields (Gimpel et al., 2018). While the early works describe appropriate directions and options, we learned that digital transformation strategy is always in the making and needs to be continuously adjusted (Chanias et al., 2019). Thus, digital transformation means striving for a moving target. Nevertheless, these works still assume that

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<sup>2</sup> The introduction to this thesis comprises content from the thesis' essays. To improve the readability of the text, I omit the standard labelling of these citations.

<sup>3</sup> To improve readability, in the following, I subsume products, services, and processes under the term "business model" except I address one of these in particular. While I acknowledge the differences between the terms, for this thesis, they are mostly neglectable.

digital transformation is a one-time change. Besides research on digital transformation strategy, the literature provides insights into specific areas of digital transformation, e.g., barriers, challenges, misconceptions, and success factors (e.g., Vogelsang et al., 2019; Svahn et al., 2017; Tabrizi et al., 2019)

Despite all these valuable contributions, most digital transformation projects do not achieve their desired target state (Tabrizi et al., 2019; Sebastian et al., 2017), and to the best of my knowledge, no organization has claimed they have mastered digital transformation. One reason might be that researchers and organizations still struggle to understand the complexity and continuity of digital transformation (Hanelt et al., 2021) and lack a clear vision of what it means to master digital transformation (Haskamp et al., 2023).

As the name suggests, digital transformation has been traditionally viewed as a one-time transformation. This perspective aligns with the episodic change paradigm (Besson and Rowe, 2012). The episodic change paradigm assumes that organizations strive for a stable state. However, occasionally, when this state is misaligned with the environment, it is necessary to overcome it and conduct far-reaching changes to realign with the environment. Due to the enormous efforts and the risk of failure, organizations avoid such transformations. Whenever necessary, they refreeze this state, transform it, and refreeze it as fast as possible (Lewin, 1951). This paradigm has been used to prescribe IT-enabled organizational transformation, the dominant view on transformation in IS literature, for several decades (Besson and Rowe, 2012). Such a transformation is usually purposefully designed with a clear target picture in mind. While this perspective fits digital transformation at the beginning, i.e., organizations need to transform themselves and overcome diverse forms of inertia (Haskamp et al., 2021), it does not suffice to explain digital transformation in the long run (Hanelt et al., 2021).

In contrast to IT-enabled organizational transformation, with digital transformation, organizations do not strive for a new stable state but a state of constant unfreeze (Hanelt et al., 2021), i.e., a condition that allows them to change and adapt continuously. The second change paradigm in IS research, i.e., the continuous change paradigm, assumes that change happens continuously (Hinsen et al., 2019). However, it refers to unintended, incremental changes in daily activities, e.g., as a response to lessons learned (Feldman, 2000). Thus, changes described by the continuous change paradigm happen within deep structures unaffected by these incremental changes. Since we assume that digital transformation is an intentional transformation effort that needs to overcome deep structures and develop structures that allow organizations to perform intentional, sometimes far-reaching changes continuously without necessitating traditional transformation

programs and change management approaches, the prevailing continuous change paradigm does not suffice to explain and prescribe digital transformation.

While some models already conceptualize digital transformation as a self-referential process (Vial, 2019) or highlight digital transformation's continuity (Hanelt et al., 2021), IS research and related disciplines lack theories and insights on this novel kind of change (Markus and Rowe, 2021). We risk taking false or short-sided conclusions if we approach digital transformation with an incorrect change paradigm. For example, using an episodic change perspective, one might strive to introduce a novel digital business model as quickly as possible. While this might work in the short term, it neglects an organization's capacity for continuous change in the future, risking its long-term competitiveness in today's turbulent business environment.

This thesis seeks to dive deep into digital transformation to understand underlying mechanisms. Therefore, the central research aim is to conceptualize and theorize digital transformation from a continuous change perspective. Since I assume that digital transformation means designing an organization that can change continuously, the thesis takes a broad understanding of digital transformation, focusing on the overall organizational transformation that facilitates continuous change. While some changes within this organizational transformation might happen in an intuitive response to an organization's environment, this thesis assumes an organization that actively strives to leverage novel opportunities.

The thesis is cumulative and consists of seven essays that address the central research aim by applying different conceptual and theoretical lenses, different forms of empirical evidence, and varying levels of granularity. The essays contribute to the three underlying research goals I introduce in Section 3.

The thesis provides novel perspectives on digital transformation. It contributes to resolving the prevailing misconception in understanding and theorizing digital transformation and offers a novel perspective for managing an organization's digital transformation. By exploring the fundamental aspects of digital transformation, developing a new theory, and providing practical recommendations for organizations, this work will improve the prospects for success in today's digital era.

## **2 Theoretical Background**

Digital transformation has quickly become a phenomenon of interest in IS research and beyond (Hanelt et al., 2021; Vial, 2019). While the first articles using the term were published in the early

2000s, research gained momentum after 2014 (Hanelt et al., 2021). Despite various approaches to providing a general definition, the term has become somewhat of a buzzword since its frequent use has led to a diluted understanding and misinterpretation of its meaning (Markus and Rowe, 2023). In the IS community, authors often implicitly apply the term to the organizational context. However, since the impact of information systems today extends far beyond the organizational context, definitions of digital transformation are increasingly being formulated for an abstract entity that includes organizations, business networks, industries, and society (e.g., Gong and Ribiere, 2021; Vial, 2019). Further, digital transformation is often treated as a trendy phrase or a catch-all term to describe any technology-driven initiative or modernization effort. This oversimplification and overuse have contributed to the buzzword status, often lacking a clear understanding of the profound changes that digital transformation entails (Markus and Rowe, 2023). Moreover, the buzzword status has led to inflated expectations, where organizations believe that simply adopting new technologies, introducing a new service, or following a particular new method will automatically lead to success, disregarding critical aspects that are essential for digital transformation, e.g., changes in culture, which do not happen from one day to the other.

My work aligns with Hanelt et al.'s (2020, p. 2) perspective, who describe digital transformation as “organizational change that is triggered and shaped by the widespread diffusion of digital technologies.” This organizational change is “moving firms to malleable organizational designs that enable continuous adaptation, and this move is embedded in and driven by digital business ecosystems” (Hanelt et al., 2020, p. 1), “lead[ing] to a shift towards continuous change, which can be triggered and occasionally punctuated by episodic bursts” (Hanelt et al., 2020, p. 20). In the following, I summarize current knowledge on digital transformation and specify the perspective of digital transformation that I apply throughout the seven essays. Therefore, I follow the structuring elements proposed by Markus and Rowe (2023), i.e., the object of the transformation, the meaning of transformation, the meaning of digital, and the role of digital in the transformation.

### **The Object of Transformation**

Research on digital transformation mainly addresses two perspectives regarding the object (Markus and Rowe, 2023): either it focuses on the transformation of technology or transformation(s) that happen due to changes in (digital) technologies, e.g., changes in processes, organizing, or human behavior. This dissertation focuses on the latter, i.e., the transformation of organizations to stay competitive in a turbulent environment that continuously changes due to the fast-development cycles and characteristics of digital technologies (Hanelt et al., 2021). This

perspective is interrelated with IT-enabled organizational transformation. Wessel et al. (2021) argue that digital transformation, in contrast to IT-enabled organizational transformation, does not support and reinforce but changes an organization's value proposition, thereby also changing an organization's identity. Our work supports the claim that digital transformation entails changes in value proposition and identity. Still, we do not explicitly exclude the part of the transformation "process that [solely] trigger[s] significant changes to [an organization's processes] through combinations of information, computing, communication, and connectivity technologies" (Vial, 2019, p. 118), and thereby improves an organization's value proposition. This claim aligns with the work of Verhoef et al. (2021), who argue that digital transformation inherits three stages. It usually starts with digitization initiatives, which means the "encoding of analog information into a digital format" (Verhoef et al., 2021, p. 891). While digitization focuses on efficiency, digitalization means redesigning processes to improve customer experience. According to Verhoef et al. (2021), the real (digital) transformation happens in the third stage, which affects the whole organization and includes a transformation of the business model and the underlying business logic. Hanelt et al. (2021) highlight that this transformation inherits two significant organizational changes: a move toward a malleable organizational design and a move toward digital business ecosystems. The move toward a malleable organizational design means that organizations strive to implement structures, processes, and systems that they can easily adapt when necessary. The move toward digital business ecosystems implies that organizations must prepare for business imperatives that are different from those in traditional business ecosystems. In traditional business ecosystems, organizations compete in a particular industry, the roles of participants within the ecosystem are clear, and high entry barriers hinder new competitors. In contrast, in digital ecosystems, industry boundaries are blurred, and the ecosystem can be characterized as turbulent since digital technologies' nature enables ever-new affordances, leading to changing customer expectations and, thus, opportunities to differentiate one's value proposition for incumbents but also new competitors (Hanelt et al., 2021).

Overall, I summarize their findings as follows: in a digital ecosystem, change is imminent. Thus, organizations must continuously adapt their business model, value proposition, and integration with other organizations. Therefore, they need malleable structures and processes. Accordingly, digital transformation is not (only) a (one-time) transformation of the business model but a transformation of the organization itself. While most literature focuses on developing novel (digital) business models, this dissertation focuses on developing an organization with a malleable design that can compete in a digital business ecosystem.



## **The Meaning of Transformation**

The second perspective that needs clarity is the understanding of the term transformation. Research on organizations has been dealing with the change of diverse entities since the 1980s (Besson and Rowe, 2012). So far, there are two major paradigms of how organizational and IS research explain substantial change: either via the punctuated equilibrium of episodic change or the cumulation of adjustments in daily activities of continuous change. Episodic change is usually referred to as a revolutionary, infrequent, discontinuous, one-time change that is deliberately planned by managerial agents and affects the deep structures of organizations (Gersick, 1991; Tushman and Romanelli, 1985). It refers to the logic of unfreeze, transform, and refreeze (Lewin, 1951) and inherits a qualitative or step-functional difference (Markus and Rowe, 2023). According to the episodic change paradigm, organizations always strive for a stable state, which they only “unfreeze” when change (or transformation) is mandatory. In contrast, the continuous change paradigm assumes change as an integral part of organizational life (Orlikowski, 1996). Accordingly, the change process has neither a beginning nor an endpoint (Orlikowski, 1996). The changes are often unintended, and the outcomes are unpredictable and require further adjustments.

Both change paradigms have been used to describe IS-enabled (organizational) transformations and complement each other (Besson and Rowe, 2012). In contrast to IS research, in other disciplines, transformation is also associated with an ongoing adaptation cycle characterized by the interplay of radical and incremental adjustments caused by various triggers. An entity strives toward an aspired outcome or adaptedness that is not stable but somewhat transient due to a continuously and perhaps abruptly changing environment (Brown and Eisenhardt, 1997).

While authors often use the term transformation in an unreflected manner, do not justify its use, or use it interchangeably with the term change (Verhoef et al., 2021; Markus and Rowe, 2023), it is still valid for the description of the phenomenon described in this thesis since organizations fundamentally change within digital transformation. However, in contrast to earlier transformations, digital transformation includes transformative aspects and incremental changes (Hanelt et al., 2021). For example, according to Chantias et al. (2019), digital transformation is not a one-time transformation but requires continuous adaptation. In this sense, Sebastian et al. (2017) outline that organizations must develop a (digital) operational backbone, e.g., an enterprise resource planning or customer relationship management system, as the foundation for a digital service platform that enables rapid and continuous innovation. Further, research highlights that digital transformation has no destination but is a journey, which means that when one major goal has been accomplished, the next major transformation effort is just ahead (Andersen and Ross,

2016; El Sawy et al., 2016). In this line, Hanelt et al. (2021) conclude that organizations enter a state of constant unfreeze. Following their argument, digital transformation “leads to a shift towards continuous change [that] can be triggered and occasionally punctuated by episodic burst when the malleability of the organizational design does not allow to react” (Hanelt et al., 2021, p. 20) appropriately to changes in the digital business ecosystem.

This dissertation follows the perspective of Hanelt et al. (2021), which means while digital transformation inherits a phase of unfreezing current structures, processes, and systems, the transformation phase includes a transformation of the transformation logic itself, i.e., the stable state which organizations strive for is a malleable one that enables them to conduct incremental but also fundamental changes without an unfreezing phase.

### **The Meaning and Role of Digital**

Finally, Markus and Rowe (2023) ask for the meaning of digital and the meaning of digital within the transformation. Regarding the notion of digital, there is an ongoing debate in IS research about what is new in digital (Baiyere et al., 2023). On the one hand, computers have been around since the 1940s, and technology has evolved ever since. On the other hand, the characteristics of today’s (digital) technologies, i.e., their re-programmability, the homogenization of data, and their self-referential nature, have challenged erstwhile assumptions about how organizations can derive value from technology (Yoo, 2010), resulting in an unprecedented multitude of (digital) innovation worldwide (Nambisan et al., 2017). Markus and Rowe (2023) outline two research streams: one conceptualizes digital as a technology or system that is qualitatively different from everything we have seen before, and the other focuses on the role of (big) data and increased processing power. The stream concerning digital as a technology addresses novel technologies, often associated with the label of SMACIT for smart, mobile, analytics, cloud, and the internet of things, platforms, and the new organizing logic of these technologies. The second stream, concerning digital as the (different) role of data, revolves, among others, around algorithmic decision-making, the variety, volume, and velocity of data, and artificial intelligence. I support Markus and Rowe’s (2023) argument that researchers should be aware of the different streams and that we should not unreflectively throw all discourses in one bucket. Accordingly, we consider the various discourses in Essay 1, where we structure digital transformation along with six dimensions, among others, data and infrastructure (i.e., technology), and Essay 7, where we theorize digital transformation as a system, which reproduces itself based on the human action, (digital) technology, and data. I argue that the differentiation is neglectable for the other essays

since they examine how to enable continuous change, focusing on the interplay of digital, agile, and cultural transformation.

Thus, this thesis subsumes both (continuous) qualitative advancements in technology and data's increasing and changing role under the term digital. For the rest of this thesis, I focus on the organization, particularly employees, structures, and methods, and conceptualize technology and data as a black box that builds the trigger and enabler for digital transformation.

### **3 Derivation of Research Goals and Research Questions**

To achieve my overarching research aim, I derive three underlying research goals: “Structuring Digital Transformation” (Section 3.1), “Enabling and Sustaining Continuous Change” (Section 3.2), and “Theorizing Digital Transformation from a Change Perspective” (Section 3.3). I specify the research goals and derive the associated seven research questions in the following.

#### **3.1 Structuring Digital Transformation**

Against a turbulent and rapidly evolving business environment, digital transformation has emerged as a paramount phenomenon, reshaping organizations' fabric. Thus, digital transformation has sparked substantial interest. Initial investigations delved into the formulation of digital transformation strategies (e.g., Zimmer, 2019; Matt et al., 2015) or identified action fields (Gimpel et al., 2018), success factors (Holotiuk and Beimborn, 2017), and challenges (Heavin and Power, 2018). Yet, amidst this wealth of insights, a comprehensive panorama of digital transformation and its underlying essence remains elusive. This gap necessitates the realization of my first research objective:

##### **Research Goal 1: Structuring Digital Transformation**

Considering the multifaceted nature of digital transformation research, Research Goal 1 aspires to bridge the divide between prevailing fragments of insights and establish a framework that encapsulates this phenomenon's dynamics and provides a holistic and structured perspective. By structuring digital transformation, I aim to offer scholars and practitioners a foundation to comprehend and steer digital transformation. In the pursuit of this objective, I undertake a dual-pronged approach.

When I started my thesis, there were multiple research streams on digital transformation, e.g., digital transformation strategies, action fields, success factors, or challenges (see above). Further, several maturity models outlined development paths toward a desired target state (e.g., Berghaus

and Back, 2016; Zimmermann et al., 2015). While all these studies and frameworks contributed to our understanding of digital transformation, they also had limitations due to their different foci. While some were too high-level to take concrete actions, others focused only on initiating a digital transformation or particular action fields. Overall, we missed an approach that helped researchers and practitioners consider all relevant action fields and understand where organizations come from and where they want to go so that we might support their digital transformation in a structured manner. We focused on established organizations from the manufacturing industry since their digital transformation seemed to be the most complex (Urbach and Röglinger, 2019; Govindarajan and Immelt, 2019). The complexity stems from the need to develop from traditional manufacturers of physical products to providers of individual service solutions (Govindarajan and Immelt, 2019; Lerch and Gotsch, 2014). Furthermore, manufacturing organizations must evolve from product-centered to customer-oriented organizations (Buschmeyer et al., 2016), integrate short-term implications of digital technologies and long-term investments for their manufacturing infrastructure (Piccinini et al., 2015), and master a cultural change to reconcile a zero-error attitude for physical products with an agile trial-and-error mindset to develop digital innovations (Vogelsang et al., 2019). Thus, we asked:

*How can digital transformation in manufacturing organizations be approached in a structured manner? (Essay 1)*

Essay 1 embarks on an extensive review of the existing literature. It delves into the rich repository of literature to unite insights and derive trends that outline how organizations strive to do things differently. During this research, we recognized that there is no final target state that organizations need to achieve but that they need to stay flexible and orchestrate combinations of capabilities that fit their purposes, which might change over time. In line with insights that digital transformation strategies are continuously in the making (Chanias et al., 2019) and digital transformation leads to a state of constant unfreeze (Hanelt et al., 2021), we recognized that digital transformation seems to be a continuous endeavor. Since there has been no research on organizations that strive for a state of constant unfreeze, i.e., a state that does not strive for stability but a malleable organizational design (Hanelt et al., 2021), we wondered how organizations approach digital transformation to achieve constant unfreeze and what challenges they face. Collaborating with researchers who have previously harnessed insights into the continuous change paradigm (Hinsen et al., 2019), we aspire to illuminate organizations' manifold strategies to navigate digital transformation. Thus, we asked:

*What are incumbents' approaches to digital transformation, and how do these efforts contribute to continuous change? (Essay 2)*

The second research question builds upon the insights of the initial research question but adopts a more empirical trajectory. By engaging with key decision-makers across diverse organizations and industries, this investigation strives to uncover the current approaches deployed by organizations from various industries.

### **3.2 Enabling and Sustaining Continuous Change**

Our insights on Research Goal 1 highlighted that organizations strive for continuous change (Bitzer et al., 2021). In contrast to IT-enabled organizational transformations, digital transformation does not refer to an individual project with a pre-defined goal but a continuous change that strives for a moving target. Since research on such a transformation is scarce (as outlined in Section 2), I define my second research goal as follows:

#### **Research Goal 2: Enabling and Sustaining Continuous Change**

This research goal inherits the idea of contributing to developing organizations that can innovate continuously. Since the thesis cannot address all relevant questions, it focuses on questions that arise as relevant during our research. One central insight regarding Research Goal 1 was that continuous change requires the interplay between digital, agile, and cultural transformation. Thus, Research Goal 2 strives to deliver meaningful insights into the transformations and their interplay.

So far, the literature offers only preliminary insights into the interplays between the transformations (Hanelt et al., 2021; Bitzer et al., 2021; Mikalsen et al., 2018). Therefore, organizations lack valid explanations and prescriptive guidance to cope with continuous change and sustain digital transformation activities beyond initial one-time changes to their business models, processes, or infrastructure (Carroll et al., 2021a). The need to understand organizations' transformation efforts, and especially their interplay, leads us to ask:

*How can we conceptualize the interplays between digital transformation and other organizational transformation efforts? (Essay 3)*

Essay 2 and Essay 3 strive to understand how organizations enable intentional, far-reaching changes without the necessity to overcome organizational inertia. Traditionally, continuous change assumes that organizations only conduct small, incremental, and often unintentional changes that do not affect organizations' deep structures. Thus, conceptualizing digital

transformation as continuous change does not align with the literature's prevailing understanding of continuous change. Instead, the insights of Essay 2 and Essay 3 imply that organizations strive for a state described as constant unfreeze (Hanelt et al., 2021). Consequently, it refers to a mixture of continuous and episodic change paradigms. It requires the unfreezing efforts of a traditional episodic change and strives to refrain from refreezing, enabling continuous transformation. So far, there are no insights into the implications of such a state. While Essays 2 and 3 outlined what it necessitates to reach such a state, they do not provide answers on how to preserve such a state and the role of stability. However, stability has always been important for organizations and a relevant element of theories of change. For example, while continuous change traditionally happens within stable structures (Weick and Quinn, 1999), models of episodic change propose refreezing organizations' structures as soon as the transformation goal has been reached (Weick and Quinn, 1999). Since factors that have previously provided stability, e.g., processes, products, or structures, can no longer fulfill this function without constraining organizations' digital transformation (Hanelt et al., 2021), we wonder what provides stability in a state of constant unfreeze. The answer is relevant when we consider that a vision of change needs to be a vision of continuity (Venus et al., 2019). Organizations might lose themselves on their digital transformation journey if we do not enhance our understanding on how to balance continuous change and stability. Thus, we ask:

*What do organizations strive for to navigate digital transformation in a state of constant unfreeze? (Essay 4)*

As Essays 2 and 3 outline, agile transformation plays a major role in enabling continuous change. Due to the high success rate of agile practices at the team level, practitioners seek to introduce agile practices at scale (Carroll et al., 2023). However, preserving agile principles while scaling agile practice remains challenging (Dikert et al., 2016). Thus, several frameworks have been developed to guide organizations in this process. Introducing and applying these frameworks involves challenges, such as aligning various teams and units (Conboy and Carroll, 2019) or managing the complexity of large-scale agile transformations (Dikert et al., 2016). So far, research has mainly focused on challenges and success factors in the early phase of scaling agile practices (Brühl, 2022; Kalenda et al., 2018; Dikert et al., 2016). Although existing frameworks strive to inherit potential solutions, it remains unclear which tensions practitioners face when navigating the interplay between traditional management approaches and scaled agile frameworks. Therefore, our study aims to identify and analyze these tensions by addressing the following research question:

*Which tensions arise by applying a scaled agile framework in a non-agile environment?*

*(Essay 5)*

As we learned within our interview study, employees' intrinsic motivation and capability to withstand and foster continuous change are fundamental to developing an organization that can change continuously. Employees are expected to be proactive, discover new technological advances (Blanka et al., 2022), develop novel business models (Neessen et al., 2019), and adapt to the ever-changing business environment (Teece, 2018). Simultaneously, we observe that organizations introduce intrapreneurship programs to foster innovation (Mikalef and Gupta, 2021). Intrapreneurship programs have proven to be an effective way to drive innovation (Vassilakopoulou and Grisot, 2020). However, nearly 90% of corporate venturing programs do not reach their intended goals (Onetti, 2021), typically assessed based on the expected revenue (Neessen et al., 2019). Most organizations perceive the high failure rate as a negative outcome and question their investments in these programs (Onetti, 2021). However, research suggests failure inherits significant learning effects (Darabi et al., 2018). For example, participants of intrapreneurship programs acquire intrapreneurial competencies that might be valuable for digital transformation (Ambos and Tatarinov, 2022). While Blanka et al. (2022) made significant strides in establishing intrapreneurial competencies as critical drivers of digital transformation, there remains a puzzle concerning the connection between intrapreneurship programs and digital transformation. A thorough examination of the effects could help prepare organizations for digital, agile, and cultural transformation challenges. This endeavor is relevant as transformation (Besson and Rowe, 2012) and especially digital transformation often face employee resistance to change and organizational inertia (Haskamp et al., 2021). Thus, we ask:

*How do intrapreneurship programs contribute to digital transformation? (Essay 6)*

### **3.3 Theorizing Digital Transformation**

As the third goal, the thesis aims to develop a theory that captures the changing nature of digital transformation. As outlined above, neither the traditional continuous change nor the episodic change paradigm can explain how change unfolds in digital transformation. Therefore, it is crucial to establish a theoretical lens that considers the specific characteristics and dynamics of digital transformation. Thus, my last research goal is as follows:

**Research Goal 3: Theorizing Digital Transformation From a Change Perspective**

Due to their characteristics, e.g., self-referentiality, digital technologies imply continuous, i.e., never-ending changes to individuals, organizations, and society (Yoo et al, 2010). So far, research on digital transformation often focuses on stable outcomes, e.g., a new digital business model or a new organizational identity (e.g., Wessel et al., 2021), and lacks a lens that acknowledges the implications of digital transformation as a continuous process and emerging phenomenon. This situation leaves pressing questions unanswered. For example: What are organizations striving toward when achieving a new business model? Will digital transformation come to an end? And if not, how will digital transformation evolve in the future? Are we claiming a novel phenomenon in a couple of years, or do we describe novel developments as instantiations of the same evolving phenomenon? Currently, we, as a discipline, either do not claim these questions or do not have sufficient answers. Thus, we aim to offer a conceptual lens that reflects the evolution of the phenomenon and its complex nature. Therefore, we draw on the theory of autopoiesis (Luhmann, 1986), which provides promising principles for theorizing digital transformation. For this research goal, we do not propose a research question but a research aim:

*Introduce a conceptual lens on digital transformation that captures the nature of the phenomenon (Essay 7)*

## **4 Dissertation Structure and Research Design**

This dissertation comprises seven essays addressing the research goals derived in Section 3. Essays 1 and 2 address Research Goal 1, Essays 3 to 6 address Research Goal 2, and Essay 7 addresses Research Goal 3. Table 1 provides an overview of the essays, their publication outlets, and their publication status.<sup>4</sup>

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<sup>4</sup> Appendix 2 offers an overview of other articles I published during my PhD



Table 1. Overview of Essays on the Three Research Goals of this Dissertation

Title	Outlet	VHB JQ3 Ranking <sup>5</sup>	Publication Status
Research Goal 1: Structuring Digital Transformation			
Essay 1: Approaching Digital Transformation – Development of a Multi-dimensional Maturity Model	Proceedings of the 28 <sup>th</sup> European Conference on Information Systems	B	Published as Berger et al. (2020) with nomination for Best Paper Award
Essay 2: Everything Is IT, but IT Is Not Everything – What Incumbents Do to Manage Their Digital Transformation Towards Continuous Change	Proceedings of the 42 <sup>nd</sup> International Conference on Information Systems	A	Published as Bitzer et al. (2021)
Research Goal 2: Enabling and Sustaining Continuous Change			
Essay 3: Sustaining Digital Transformation - Exploring the Interplays Between Organizations' Collective Transformation Efforts Toward Continuous Change	European Journal of Information Systems	(A)	In preparation for submission (3 <sup>rd</sup> round of major revision after rejection for special issue due to timeline)
Essay 4: Navigating Organizations in Times of Constant Unfreeze – On the Importance of Stability in Organizations' Digital Transformation	n/a	(A)	In preparation for submission (after rejection from Information Systems Journal)
Essay 5: Scaled Agile Framework Meets Traditional Management – A Case of a Financial Service Provider	Proceedings of the 44 <sup>th</sup> International Conference on Information Systems	A	Published as Bitzer et al. (2023)

<sup>5</sup> For papers that are not yet published, I put the ranking of the outlet in brackets

Title	Outlet	VHB JQ3 Ranking <sup>5</sup>	Publication Status
Essay 6: The Multi-level Effects of Intrapreneurship Programs on Digital Transformation – Insights From a Multiple Case Study	Information & Management	(B) <sup>6</sup>	In preparation for submission (1 <sup>st</sup> round of major revision)
Research Goal 3: Theorizing Digital Transformation			
Essay 7: Reconceptualizing Digital Transformation – A Theory of Digital Transformation as an Autopoietic System and Its Implications	Information Systems Journal	(A)	In preparation for submission (after four rounds of major revision and final rejection for special issue due to timeline)

In the following, I will briefly outline the research design of the essays that constitute this thesis. Table 2 provides a brief overview of the applied research methods and approaches. In Essay 1, we followed the design science research paradigm (Hevner et al., 2004) to develop a novel and relevant artifact that guides how to approach digital transformation in manufacturing organizations in a structured manner. For developing our digital transformation maturity model (DTMM), we follow the structured eight-step approach for developing maturity models by Becker et al. (2009). For the iterative maturity model development, we considered van Steenberg et al.'s (2010) work for additional guidance on developing dimension-specific development paths. We evaluated our model based on the evaluation activities proposed by Sonnenberg and Vom Brocke (2012). In the following, I introduce the most relevant information on the development strategy and the iterative maturity model development. Instead of general maturity levels, we strived for dimension-specific development paths that outline capabilities dedicated to specific dimensions' characteristics (Sonnenberg and Vom Brocke, 2012). We used a multi-methodological approach and switched between a conceptual-to-empirical and empirical-to-conceptual approach (Nickerson et al., 2013). The deductive conceptual-to-empirical approach draws on literature and the researchers' knowledge. The inductive empirical-to-conceptual approach considers the practical perspective.

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<sup>6</sup> The journal *Information & Management* is part of the IS Senior Scholars' List of Premier Journals

Table 2. Overview of Applied Research Methods and Approaches in this Dissertation

Title	Applied Research Methods and Approaches
<b>Research Goal 1: Structuring Digital Transformation</b>	
<p>Essay 1: Approaching Digital Transformation – Development of a Multi-dimensional Maturity Model</p>	<p>Maturity Model Development as Design Artifact</p> <ul style="list-style-type: none"> <li>• Design Science Research (Hevner et al., 2004)</li> <li>• Maturity Model Development Procedure (Becker et al., 2009)</li> <li>• Dimension-specific Maturity Model Development (van Steenberg et al., 2010)</li> <li>• Conceptual-to-Empirical and Empirical-to-Conceptual Development (Nickerson et al., 2013)</li> <li>• Evaluation of Design Artifacts (Sonnenberg and Vom Brocke, 2012)</li> </ul>
<p>Essay 2: Everything Is IT, but IT Is Not Everything – What Incumbents Do to Manage Their Digital Transformation Towards Continuous Change</p>	<p>Interview Study</p> <ul style="list-style-type: none"> <li>• Interview Study Design &amp; Semi-structured Interview Guidelines (Myers and Newman, 2007; Schultze and Avital, 2011)</li> <li>• Data Analysis &amp; Theory Development (Gioia et al., 2013; Saldaña, 2013)</li> </ul>
<b>Research Goal 2: Enabling and Sustaining Continuous Change</b>	
<p>Essay 3: Sustaining Digital Transformation - Exploring the Interplays Between Organizations' Collective Transformation Efforts Toward Continuous Change</p>	<p>Interview Study</p> <ul style="list-style-type: none"> <li>• Interview Study Design &amp; Semi-structured Interview Guidelines (Myers and Newman, 2007; Schultze and Avital, 2011)</li> <li>• Data Analysis &amp; Theory Development (Gioia et al., 2013)</li> <li>• Conceptual Frame for Data Analysis (Leavitt, 1964)</li> </ul>

Title	Applied Research Methods and Approaches
Essay 4: Navigating Organizations in Times of Constant Unfreeze – On the Importance of Stability in Organizations’ Digital Transformation	Interview Study <ul style="list-style-type: none"> <li>• Interview Study Design &amp; Semi-structured Interview Guidelines (Myers and Newman, 2007; Schultze and Avital, 2011)</li> <li>• Data Analysis &amp; Theory Development (Gioia et al., 2013)</li> </ul>
Essay 5: Scaled Agile Framework Meets Traditional Management – A Case of a Financial Service Provider	Single Case Study <ul style="list-style-type: none"> <li>• Case Study Design (Yin, 2018)</li> <li>• Data Analysis &amp; Theory Development (Gioia et al., 2013)</li> </ul>
Essay 6: The Multi-level Effects of Intrapreneurship Programs on Digital Transformation – Insights From a Multiple Case Study	Multiple Case Study <ul style="list-style-type: none"> <li>• Case Study Design (Yin, 2018)</li> <li>• Data Analysis &amp; Theory Development (Gioia et al., 2013)</li> </ul>
<b>Research Goal 3: Theorizing Digital Transformation</b>	
Essay 7: Reconceptualizing Digital Transformation – A Theory of Digital Transformation as an Autopoietic System and Its Implications	Conceptual Paper <ul style="list-style-type: none"> <li>• Problematization (Alvesson and Sandberg, 2020)</li> <li>• Conceptual Theory Development (Leidner, 2018)</li> <li>• Foundations for Autopoiesis Theory (Seidl, 2006; Luhmann, 1986; Varela et al., 1974)</li> <li>• Principles for System Theory Development in IS Research (Demetis and Lee, 2016)</li> </ul>

We conducted a structured literature review in our first iteration to derive relevant dimensions (van Steenbergen et al., 2010). We followed the three-step coding process of Wolfswinkel et al. (2013) to achieve dimensions of uniform granularity. Within our second iteration, we deductively derived capabilities for each identified dimension. Therefore, we reviewed existing maturity

models, the results of our structured literature review, and additional knowledge acquired via forward and backward search. The derivation of capabilities also contributed to refining and specifying our dimensions. We refined our artifact based on a discussion with a focus group of researchers. In our third and fourth iteration, we evaluated and refined our artifact via interviews with potential users and industry experts (Rowley, 2012) to ensure a concise, robust, comprehensive, and useful artifact (Sonnenberg and Vom Brocke, 2012).

Essays 2-4 rely on data from an exploratory in-depth interview study (Myers and Newman, 2007; Schultze and Avital, 2011). Inspired by the existing literature on digital transformation (e.g., Vial, 2019; Hanelt et al., 2021) and our research in the field (Berger et al., 2020; Hinsen et al., 2019), we sought to explore organizations' digital transformation approaches and the influence on organizational change behavior. To cover a wide range of possible perspectives and expressions from practice, our interview partners (IPs) had to fulfill two requirements: They needed expertise in digitalization, IT, strategy, or innovation and be responsible for an overarching digital transformation program or contribute to digital transformation in specific initiatives. We conducted 46 interviews with 48 interviewees from 42 organizations between November 2020 and February 2021. The interviews lasted, on average, 85 minutes (excl. the introduction of all participants). Due to the explorative nature of the interview study, not all interviews contributed to all research questions. Thus, the number of considered interviews within the essays differs. Further, not all parts of the interviews were relevant to all essays.

We recorded all interviews with our interview partners' consent for subsequent analysis and jointly coded transcripts to find a common understanding of the data. We accompanied the whole coding process with weekly discussions within the research team. For all three essays, our data analysis aligns with the approach by Gioia et al. (2013). This systematic approach ensures qualitative rigor in inductive research on novel organizational phenomena and explicitly aims for new theories (Gioia et al., 2013). In line with our research motivation, the approach enables us to go beyond solely refining existing change models that do not fit digital transformation. In line with Gioia et al. (2013), we embarked on an iterative three-step coding process to derive first-order concepts, second-order themes, and aggregate dimensions. Based on the statements from our interview partners (first-order concepts), the coding process helped us identify relevant concepts (second-order themes), which guided our theory building (i.e., aggregate dimensions).

The first analysis step aims to identify initial categories, i.e., first-order concepts. This phase aligns with the open coding concept proposed by Strauss and Corbin (2003). The goal of the first analysis step is to identify as many categories as possible to capture the richness of the data (Gioia et al.,

2013). At this point, researchers should stay close to the data to identify first-order concepts representing informant-centric terms. In the second coding step, researchers derive second-order themes, i.e., interpretations from similarities and differences between the first-order concepts. As this process is iterative, we moved back and forth between first-order concepts and second-order themes until we reached a stable set of second-order themes (Saunders et al., 2018). The process involved multiple brainstorming sessions and coding workshops to align interpretations within the author team and shed light on novel insights. In the third coding step, researchers should strive to transform second-order themes into aggregate dimensions that form a higher-level perspective for informed theorizing. In this analysis step, the approach alters from an inductive to abductive (Gioia et al., 2013). We sifted through related research to cross-check our findings (Alvesson and Kärreman, 2007). In the following, I will dive into details about the research methodology of Essays 2 to 4.

In Essay 2, we started with an open coding style. The open coding resulted in 2,973 codified statements. In the next step, we used memos to clarify and consolidate recurring topics, resulting in 81 memos. For example, one memo consolidated all statements regarding the changing role of leadership. We clustered the statements into three groups, i.e., the relevance of the topic, different expressions of the topic, and links to other topics. Within a back-and-forth approach, we derived ten themes that we could cluster into three dimensions, i.e., digital, agile, and cultural transformation (e.g., technology and data for digital transformation, incentive structures for agile transformation, and psychological safety for cultural transformation). Our data analysis revealed that the three transformations are interrelated, and all transformations aim to enable continuous change as the underlying objective.

In Essay 3, we built upon the insights of Essay 2, i.e., that organizations simultaneously conduct a digital, agile, and cultural transformation. We used the same data set to conceptualize the interplays between the three transformations. Based on these interplays, we strived to learn how organizations might sustain digital transformation toward continuous change. We adopted the lens of Leavitt (1964) with its four dimensions, i.e., task, technology, structure, and people, to approach our data. The four dimensions gave us a comprehensive yet straightforward overview of organizations' change activities. Our analysis aimed to identify changes regarding task, technology, structure, and people and understand the interplay between the transformations based on the changes. We identified 3,300 relevant statements. After a back-and-forth-clustering procedure, we end with 11 aggregate dimensions, 36 second-order themes, and 207 first-order concepts. We used our understanding of the second-order themes to match them with digital, agile,

and cultural transformation. We found that there are three relationships between the second-order themes and the transformation types: (1) no relationship, (2) a transformation develops the second-order theme, or (3) a transformation demands the second-order theme. We defined the relationships for all second-order themes and transformations. Finally, we aggregated the relationships between the second-order themes and the transformations to the level of the aggregated dimensions.

In Essay 4, we strived to answer how organizations navigate digital transformation in a state of constant unfreeze. Our interview data enabled us to obtain a comprehensive overview of which capabilities our interviewees consider relevant in times of ubiquitous change and what remains their most significant hurdles to acquiring these capabilities. Further, we have asked our interviewees what they see as anchors in times of ubiquitous change and what their organization should actively preserve as it will continue contributing to their future competitiveness. We built upon our interviewees' answers to derive what might provide stability and orientation in turbulent business environments. After moving back and forth between first-order concepts, second-order themes, and aggregate dimensions several times, we derived 100 first-order concepts clustered into 17 second-order themes and five aggregate dimensions. The aggregate dimensions are *environment, structure and strategy, culture, people, and purpose*.

Essays 5 and 6 build upon case study research. Case studies are suitable for investigating complex problems in-depth and generating managerial knowledge (Yin, 2018). The literature distinguishes between single and multiple case studies. Both approaches have advantages and disadvantages. For example, multiple case studies are more robust, but at the same time, they might require insurmountable resources to achieve the necessary depth for each case (Yin, 2018). Yin (2018) outlines five potential scenarios in which it is suitable to choose a single case study over a multiple case study, among others, the common and the revelatory case. The common case refers to the objective to learn from a situation and circumstances that happen across contexts. The revelatory case is when a researcher can inquire about a usually inaccessible context. In Essay 5 (RQ: Which tensions arise by applying a scaled agile framework in a non-agile environment?), we chose a single case study approach because I could get unlimited access to interviews and documents and take field notes at the case organization. We also classified the case as a common case since we observed similar tensions on an abstract level during our interview study (Essay 2-4). In Essay 6 (RQ: How do intrapreneurship programs contribute to digital transformation?), we apply a multiple case study since we strived to observe if we recognize similar patterns across cases. We followed the well-known iterative approach by Yin (2018) for planning and designing our case

study. Similar to the interview study (Essays 2-4), we were guided by Gioia et al. (2013) during data collection, analysis, and illustration.

In Essay 5, we conduct a single case study within a publicly traded financial services provider. We strived to understand the interaction of an agile cluster (an organizational unit of about 150 employees) with its (non-agile) environment and identify relevant tensions. We derived our exploratory research question based on the observed phenomenon within the case organization and prior research on agile transformations and scaled agile frameworks. We interviewed 18 employees between February and April 2023. Some interviewees had multiple roles within and outside the agile cluster, which made it necessary to disentangle the different roles within their statements. However, these employees were particularly interesting for our study because they experienced the tensions in day-to-day life. We used semi-structured interview guidelines with predetermined topics (Myers and Newman, 2007) and adjusted the questions based on the interviewees' position and knowledge about agile practices and principles. We combined expert interviews, observations, and internal documents to ensure data triangulation. Finally, we identified 34 first-order concepts representing agile or non-agile practices and 13 second-order themes highlighting the tensions between an agile cluster and its traditional environment (Miles and Huberman, 1994). The tensions fit within goal-setting, planning, and reporting (aggregate dimensions), representing meta-tasks where tensions exist.

Essay 6 employs a multiple case study to analyze the interrelation between intrapreneurship programs and digital transformation. We selected five case organizations from Germany and Switzerland with different industry backgrounds, i.e., automotive, insurance, retail and consumer goods, media and telecommunication, and banking. Our cases represent established organizations with 5,000 to 100,000 employees that strive for partly shared but also different strategic objectives with their intrapreneurship programs, e.g., teaching entrepreneurial methods, new business development, or cultural transformation. The intrapreneurship programs differ in type (e.g., part-time vs. full-time), organizational setup, and time of existence (from two to nine years). As the primary data source, we selected semi-structured interviews with intrapreneurship experts and employees involved in the organization's digital transformation. The topics covered in the interview guidelines included how the organization understood and enabled intrapreneurship, what effects they recognized from their intrapreneurship activities, and how they approached digital transformation. We conducted the case interviews between January 2022 and April 2022. We analyzed additional documents related to the organization's intrapreneurship programs and digital transformation strategy for data triangulation. The dataset comprised 64 documents,



including 26 interview transcripts and 38 other documents. Initially, we generated 2,297 open codes. Due to the number of codes, we clustered the codes into five overarching themes. These themes were close to the overarching topics covered in the semi-structured interview guideline, i.e., intrapreneurship approaches, intrapreneurship goals, intrapreneurship effects, digital transformation strategy and activities, and organizational challenges related to digital transformation. Based on the first analysis, we decided to continue with the codes addressing intrapreneurship effects, as these seemed to be the most insightful. Our primary aim was identifying similarities and differences in effects and occurrence patterns (Yin, 2018). Thus, we switched from a case-by-case data analysis to a cross-case synthesis (Yin, 2018). We extracted the 277 open codes regarding intrapreneurship effects and derived first-order concepts. Finally, we converged with 158 first-order concepts, 48 second-order themes, and 14 aggregate dimensions. The aggregate dimensions refer to intrapreneurship programs' individual and organizational effects on digital transformation. For example, we discovered that employees develop various competencies when participating in such an intrapreneurship program, enabling an organization to change and develop organizational capabilities that foster digital transformation.

In Essay 7, we write a conceptual paper on digital transformation. The paper was initiated as a response to the call for papers by Markus and Rowe (2021) for the special issue on “*Envisioning Digital Transformation: Advancing Theoretical Diversity*” of the *Journal of the Association for Information Systems (JAIS)*. At this point, we have conducted our initial paper on the interrelation of digital transformation and continuous change (Bitzer et al., 2021). We were intrigued by the call that we lack theories that help distinguish and explain digital transformation. From our perspective, neither the traditional episodic change nor the continuous change lens was sufficient to apply to digital transformation. Therefore, we consulted other disciplines and their theories on change and transformation. Finally, we identified the theory of autopoiesis (Luhmann, 1986; Varela et al., 1974) as a valuable and valid lens to theorize digital transformation. We problematized the existing literature (Alvesson and Sandberg, 2020) regarding the prevailing oversimplification of the process and the relatively static outcome and introduced autopoiesis theory as a solution. We apply the theory to digital transformation based on six principles from Demetis and Lee (2018). Our theorizing builds upon logic, common knowledge, and insights from well-established publications within the IS domains on digital transformation, digital technologies, data, and the role of human beings (Leidner, 2018).

## 5 Summary of Results

In this section, I summarize the results of my dissertation. The results provide insights into structuring digital transformation, enabling and sustaining continuous change, and theorizing digital transformation.

### 5.1 Essay 1: Approaching Digital Transformation – Development of a Multi-dimensional Maturity Model

In Essay 1, we propose a multi-dimensional maturity model for digital transformation. The maturity model aims to help organizations identify necessary structural changes and changes in value creation (Matt et al., 2015). The maturity model consists of 26 dimensions, which we structure along six focus areas: *customer*, *business model*, *processes*, *people and culture*, *data*, and *infrastructure*. For each dimension, we outline three to six capabilities. For example, for the focus area *business model*, we describe the dimension *offering* with its capabilities *product*, *standard services*, *novel*, *additional services*, *product-as-a-service*, and *result-as-a-service*. Organizations in the manufacturing industry traditionally offer products for a one-time price, and they usually provide additional services complementing the product along its lifecycle. To gain digital transformation maturity, they should learn to leverage customer data to provide novel services that fit their customers' needs. The next level would be to enable as-a-service offerings that better match customer needs because customers only pay for what they consume or the performance they get. Even though none of the capabilities is per se 'better' than another, acquiring an additional capability contributes to digital transformation maturity since organizations can choose the most appropriate among their capabilities for a specific context. Besides the *offering*, the focus area *business model* includes the dimensions of *pricing strategy*, *target market*, *sales channel*, and *distribution channel*.<sup>7</sup>

Overall, the sequence of the capabilities within the dimensions refers to the organizations' target to become more data-driven, agile, and customer-oriented. Besides topics that leverage digital technologies, the model emphasizes the importance of culture and organizational aspects in digital transformation. The maturity model offers companies a guiding framework and a structured approach to identifying relevant focus areas and dimensions for their digital transformation. Even

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<sup>7</sup>For details regarding the dimensions and the capabilities, please refer to Essay 1 or our publication (Bergeret al., 2020)

though organizations can select a specific focus area as a starting point (Berghaus and Back, 2017), they need to address all focus areas with an integrated view because they are interrelated. During the digital transformation, organizations can use the model to track their progress over time and compare themselves with other companies.

## **5.2 Essay 2: Everything Is IT, but IT Is Not Everything – What Incumbents Do to Manage Their Digital Transformation Towards Continuous Change**

In Essay 2, we investigated how managers from diverse backgrounds define and manage digital transformation, their challenges, and how digital transformation affects their organizational change behavior. Our results show that managers strive for an organization that can continuously change. Our analysis indicates a transformation triad, including digital, agile, and cultural transformation. Even though the three transformations are not always an explicit (transformation) program and are sometimes subsumed under a single term, e.g., digital transformation, we observe the same patterns that constitute the three transformations across organizations and industries. While the three transformations are not disjunct, we disentangle them to structure the transformation toward continuous change. Under digital transformation, we subsumed the development of client-centric business models and the role of technology and data to leverage internal and external potentials. Thus, digital transformation refers to a technological perspective transforming the organization's business model, business processes, and IT infrastructure. Under the agile transformation, we subsume changes in the decision-making processes, the incentive structures, and the work environment. The agile transformation inherits the emergence of cross-functional and interdisciplinary teams with end-to-end product responsibility and decentralization of power from individual managers to a more nuanced distribution across teams and subject matter experts. Accordingly, incentive structures need to be adapted with an increasing focus on learning and results. Due to changing and more diversified tasks and the need for innovation, organizations increasingly consider the effects of different work settings to support and hinder certain behaviors. The agile transformation summarizes structural and methodological changes organizations pursue to foster cross-functional collaboration, customer-centricity, and innovation. Under the cultural transformation, we subsume changes in leadership and cultural values. As digital transformation needs creativity and continuous exploration as a foundation for innovative customer-centric business models, we observe the need for changes in leadership behavior. Trust and psychological safety play a significant role in this cultural transformation. Organizations increasingly need

thought leaders who provide strategic direction and people leaders who empower and care about their employees, creating an environment that fosters experiments and learning. Accordingly, cultural transformation addresses the shifts in the mindset and behavior of leaders and employees to make digital and agile transformation happen.

Our results shed light on digital transformation from a change perspective. We specify the often-claimed statement that digital transformation affects the whole organization and provides insights into different transformation efforts and their interplay. While digital transformation research mainly focuses on individual change efforts, e.g., implementing a novel business model, we consider an organization's continuous digital transformation efforts. Our results imply that we should not focus only on technology but also consider individual employees as a driver and barrier to digital transformation and continuous change. Our results question long-held assumptions about key performance indicators focusing on short-term results. Our results emphasize that organizations must find novel concepts that foster change and provide orientation and stability.

### **5.3 Essay 3: Sustaining Digital Transformation: Exploring the Interplays Between Organizations' Collective Transformation Efforts Toward Continuous Change**

Essay 3 builds upon Essay 2 and takes a deep dive into the interplay between digital, agile, and cultural transformation, aiming to understand the interplay among the transformation. We identify eleven action fields that organizations strive to change regarding their employees (actors), tasks, technologies, and structures. Our analysis reveals that progress within these 11 action fields is interrelated and relies on progress within digital, agile, and cultural transformation. We distinguish four relationship types between the action fields and the transformations: no relationship, a demanding relationship, a developing relationship, and a demanding and developing relationship. Demanding means there will be no progress for the transformation without progress within the action field. Developing means that the transformation efforts directly contribute to progress within the action field. Our results show that without cultural transformation, the progression in digital and agile transformation would end as soon as they demand changes in an action field that only the cultural transformation develops. Thus, cultural transformation enables digital and agile transformation and organizations' capability to change continuously. Our results imply that organizations should integrate the three transformations because eight of eleven action fields correlate with all three transformations. While digital, agile, and cultural transformation may

pursue diverging strategies driven by different organizational agents, being aware of their shared aspirations may help resolve tensions, set priorities, and integrate various perspectives.

Our work supports research on digital transformation beyond a technology-centric perspective. Our results strengthen the role of cultural transformation and an actor-centric perspective and provide a more comprehensive and integrated perspective on digital transformation. Our research enables researchers and practitioners to adopt three different perspectives to observe the same phenomenon and builds the foundation for an integrated view. The recurring patterns across organizations and industries deepen our understanding of organizations' collective transformation efforts and build the foundation for further analysis and investigation.

#### **5.4 Essay 4: Navigating Organizations in Times of Constant Unfreeze – On the Importance of Stability in Organizations' Digital Transformation**

In Essay 4, we theorize what might provide stability to organizations in times of continuous change. We reveal five relevant layers to balance change and stability in a continuously changing environment, i.e., *environment, strategy and structure, culture, people, and purpose*. These layers differ in their capacity to enable change while providing stability. For example, the environment is the main driver for change and inhibits stability. However, a purpose correctly defined enables change and stability. Further, changes (or stability) in one layer influence the capacity to change (or maintain stability) in other layers. Layers in the outer shelf of an organization (starting from the environment) can be drivers of change but, simultaneously, sources of inertia when being kept stable. Layers in the inner core (starting from the purpose) may be sources of long-term stability that enable continuous change in the other dimensions. Organizations must react to environmental changes purposefully to overcome inertia (based on a fixed inner core and obsessively kept stable outer shelf) and chaos (changing the inner core and outer shelf simultaneously). We recommend changing the inner core once such that it can be kept stable for a more extended period and, thus, enable continuous change in strategies and structures.

Our work contributes to our understanding of organizations' overall transformation efforts in the context of digital transformation. While digital transformation research mainly focuses on initiating change and overcoming deep structures and inertia, our study provides insights into what organizations need to maintain continuous change. While digital transformation research has focused on changes in the interaction with the environment and changes to strategy and structures, our study emphasizes the role of culture, people, and purpose as dimensions that are key to

balancing change and stability. Further, we contribute to research on stability in the context of digital transformation. While organizations sought stability in processes and structures, our research shows that organizations can adapt their processes and structures if they find stability in other dimensions, e.g., purpose and culture.

## **5.5 Essay 5: Scaled Agile Framework Meets Traditional Management – A Case of a Financial Service Provider**

As outlined in Essay 2 and Essay 3, agile transformation is an inherent part of organizations' collective transformation efforts and an enabler for digital transformation. The movement toward the usage of agile practices and agile methods is not new. However, organizations strive to scale agile methods and structures beyond single teams due to the constant need to adapt and innovate. While scaling itself inherits its challenges, other tensions arise when agile clusters reach a size where their practices become more relevant and intermingled with an organization's overall planning and steering approach that usually works with traditional principles. We identify 13 tensions managers must consider when they strive to foster agile transformation by applying large-scale agile frameworks. These tensions arise in goal-setting, planning, and reporting. For example, employees usually have roles within and outside the agile cluster. While they should follow a common goal within the cluster, they typically have divergent goals in their functional positions. Due to a missing alignment of goals, tensions exist over which goals should be prioritized. Further, while agile methods foster employees to commit to short-term value delivery, external stakeholders request long-term roadmaps and commitments.<sup>8</sup> Some of these tensions arise due to divergences from the framework and might not occur when applying the framework as proposed. However, these divergences happen due to the interplay between the agile unit and the non-agile environment. Thus, they represent tensions that arise across organizations on their path toward large-scale agility. Future research might disentangle tensions arising from false applications and those arising due to different mindsets and procedures.

Our insights contribute to the descriptive knowledge about large-scale agile transformations. While most research has focused on the challenges and success factors of initiating a large-scale agile transformation, our article sheds light on the tensions that arise as the agile units gain more significance. While it might be obvious that procedures for goal-setting, planning, and reporting diverge from traditional approaches, our research provides in-depth insights into where agile and

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<sup>8</sup> For a description of all tensions, please refer to the corresponding publication (Bitzer et al., 2023)

traditional ways collide. Our paper offers first insights into where managers need to act, i.e., address potential misunderstandings, change affected processes to resolve the tensions, or identify workarounds such that the traditional and agile approaches can coexist in favor of organizations' value delivery to their customers.

## **5.6 Essay 6: The Multi-level Effects of Intrapreneurship Programs on Digital Transformation – Insights From a Multiple Case Study**

As we learned in the other essays, organizations' collective transformation efforts strive to develop an organization that can continuously change and innovate. Employees play a significant role in this endeavor. While we learned that intrapreneurship and an entrepreneurial mindset are relevant and organizations increasingly develop programs to foster (digital) intrapreneurship, we lack knowledge on the effects of these programs on an organization's digital transformation. Our results show that there are five levels of effects. First, and this is usually the original goal of intrapreneurship programs, we observe effects on the organization's cash flow through successful (digital) innovations, e.g., a new business model or implementing a new or adapted process that provides more value to customers or saves costs. While this effect often does not satisfy managers' expectations, this paper highlights the positive impact of intrapreneurship projects that do not achieve their initial goal. These effects result from what is usually known as a failure, i.e., when participants return to their original department or another area of the organization because their project did not become a venture. For example, participants use the personal, social, methodological, and technical competencies acquired during their project to drive innovative initiatives within the core organization. Further, we observe cultural, structural, and technological changes in favor of an organization's collective transformation efforts as participants of the intrapreneurship program act differently after they return and colleagues of returning participants adopt their behaviors. We also identify positive effects on the organization's learning capability, employee motivation, retention, and hiring.

Overall, our results show that intrapreneurship programs act as a mechanism that fosters personal, social, methodological, and technological competencies on the individual level and cultural, structural, and technological change and learning capabilities on an organizational level. Accordingly, intrapreneurship programs positively affect the individual and the organization, independent of the success or failure of an intrapreneurship project. Our results imply that even failed intrapreneurial activities yield benefits for their digital transformation efforts and their organization's competitiveness, which in the long run may prove more valuable than a single

successful venture. Hence, organizations can utilize intrapreneurship programs to drive product or service innovations and facilitate digital transformation. Our work demonstrates that the failure of intrapreneurship programs can provide valuable contributions to digital transformation. We emphasize the significance of intrapreneurship programs as a valuable contribution to digital transformation and challenge existing knowledge on failure in digital transformation research. Our study contributes to the existing body of digital transformation research by adding knowledge on the value of intrapreneurship programs and integrating both research streams.

## **5.7 Essay 7: Reconceptualizing Digital Transformation – A Theory of Digital Transformation as an Autopoietic System and Its Implications**

In Essay 7, we propose autopoiesis (Luhmann, 1986) as a fruitful theoretical lens to overcome the current focus on stable outcomes in digital transformation research and consider the phenomenon's complexity. The concept of autopoiesis (Greek: autos = self; poiein = to produce) revolves around a living system that repeatedly (re-)produces itself through the (re-)production of its inherent elements. Accordingly, an autopoietic system can be defined as a unity that reproduces itself based on its inherent elements to ensure its preservation and demarcates itself from its environment (Varela et al., 1974; Zeleny, 1981). The concept originated in biology and was transferred to social systems by Luhmann (1986). Based on existing IS literature on autopoiesis and system theory, we theorize the overarching phenomenon of digital transformation as a system with autopoietic characteristics reproducing itself through the interplay of its elements, i.e., digital technologies, data, and human actors. We build upon our insights on digital transformation (see Essay 1-6), stating that digital technologies alone are not the driver of digital transformation but that human actors play a significant role in the speed and direction of development. Our theory acknowledges that data, especially its characteristics, presence, usage, and interpretation, in the interplay with technology and human action, fuel the autopoietic nature of digital transformation. Our theory highlights three relevant insights that align with current knowledge on digital transformation but are not reflected in currently used theories in the IS discourse. First, there is no end to digital transformation. Instead, digital transformation strives for its preservation based on the operations of the reproducing interplay of its elements. Accordingly, digital transformation follows an emergent goal shaped by human desire and technological feasibility. Thereby, digital transformation transforms its environment into an increasingly digital world. However, the meaning of digital and the target state evolve through the interrelation with its environment and the shared influence on each other. Second, the digital transformation process is complex, so the



interplay of technologies, data, and human actors can barely be forecasted. How the process evolves depends on the perception of the environment and the affordances and characteristics of the elements. Third, in contrast to existing models, the environment is not only a one-time trigger to digital transformation. Instead, digital transformation and the environment shape each other through their constitutive relationship.

Our research provides a novel perspective on digital transformation by elucidating autopoiesis' potential for theorizing different forms of digital transformation (e.g., in the organizational context as referred to in Essay 1-6) and digital transformation as the phenomenon itself, which we observe in almost every area of social life. Our theory opens alternative perspectives on extant research, e.g., it questions the distinction between digital and IT-enabled organizational transformation. Instead, we argue that we observe the ongoing reproduction of the same system. Our work provides digital transformation and IS scholars with a mid-range theory. It acts as a structuring element with an associated vocabulary that future research can adopt and leverage to discuss digital transformation as a form of continuous change and complex system. We offer a starting point to examine why and how digital transformation unfolds its implications. Further, future research can make insightful contributions by instantiating our theory in different contexts, e.g., individual, organizational, and societal levels.

## **6 Discussion**

In the forthcoming section, I discuss my dissertation comprehensively, synthesizing the various threads explored within this thesis. First, I describe the essence of my essays (Section 6.1). Subsequently, I present the thesis' contribution to theoretical advancement and practical application from a meta-perspective (Sections 6.2 and 6.3). Following this, I outline the overarching limitations inherent in our work (Section 6.4). Finally, I offer directions for future research (Section 6.5).

### **6.1 Summary**

Motivated by the need for organizations to transform themselves in the context of digital technologies and a turbulent environment, this dissertation aims to guide researchers and practitioners in structuring digital transformation (Research Goal 1), enabling and sustaining continuous change (Research Goal 2), and theorizing the overall phenomenon (Research Goal 3).

Besides design science research (Essay 1) and a conceptual paper (Essay 7), the essays within this thesis build on inductive, qualitative research (Essay 2-6), using an interview study (Essays 2-4) and case study research (Essays 5 and 6). Intending to structure digital transformation (Research Goal 1), Essay 1 delivers a multi-dimensional maturity model. Essay 2 takes a deep dive into the maturity model's focus area of *people & culture* and shows that digital transformation is not a one-time change. Therefore, organizations need not only a (digital) transformation of their business model but also a transformation of their methodological and structural approaches (agile transformation) and their culture (cultural transformation) to develop an organization capable of changing continuously. Building on this understanding, Essays 3-6 address particular aspects of this collective transformation effort to guide researchers and practitioners in enabling and sustaining continuous change (Research Goal 2). Essay 3 provides insights into the interplay between digital, agile, and cultural transformation and shows that cultural transformation facilitates the other two transformation efforts. The essay offers action fields and how they demand and develop each other. Essay 4 emphasizes that continuous change also needs stability. While former dimensions of stability are prone to continuous change themselves, managers need to establish stability on other dimensions (e.g., culture or purpose) to facilitate continuous change in products, processes, or structures. Essay 5 identifies 13 tensions in agile transformation. Organizations can scale agility beyond individual teams and drive continuous change intentionally only if they handle these tensions. Essay 6 outlines the (positive) effects of intrapreneurship programs on digital transformation and demonstrates why it might be a meaningful endeavor to foster intrapreneurship programs even if individual projects do not deliver a new business model or venture. It highlights that project failure might be an enabler for digital transformation and continuous change in the long run. Finally, Essay 7 delivers a theoretical lens on digital transformation (Research Goal 3) that stresses its emergent goal, the complexity of the transformation process, and the continuous interaction between digital transformation as a system and its environment.

## 6.2 Theoretical Contribution

This thesis contributes to the ongoing discussion on digital transformation in the IS literature (Hanelt et al., 2021; Vial, 2019; Wessel et al., 2021). It also offers insights into research on agile transformation and intrapreneurship, which usually represent different research streams. In the following, I will focus on the contributions to digital transformation research, as this is the main focus of this work.

By synthesizing insights from diverse publications (Berger et al., 2020), I provide an overview of digital transformation dimensions and capabilities and offer a common vocabulary. I disentangle digital transformation from agile and cultural transformation (Bitzer et al., 2021) and make this transformation effort toward continuous change graspable. Future research can position its work within these dimensions and transformations to clarify where and how it contributes to digital transformation research.

The thesis offers an alternative perspective to the traditional episodic change paradigm that current studies often implicitly assume (e.g., Verhoef et al., 2021; Wessel et al., 2021). In my essays, we outline why traditional assumptions about transformation do not hold for digital transformation and offer a continuous change perspective that extends the prevailing assumption that continuous change can only be unintended and incremental, occurring within deep structures. We deliver in-depth insights on the phenomenon and offer prescriptive knowledge on enabling and sustaining continuous change, e.g., through the interplay of digital, agile, and cultural transformation and the role of purpose, values, and people in balancing continuous change and stability. Thereby, my work extends the call of Hanelt et al. (2021) that we need novel perspectives to explain digital transformation and provides a novel conceptual lens for theorizing digital transformation that suffices the phenomenon's continuity and complexity. By introducing the concept of autopoiesis, we offer researchers a novel conceptual lens beyond prevailing change paradigms in IS and digital transformation research.

My work highlights the role of people and culture in digital transformation. So far, research mainly focuses on leadership roles, e.g., chief digital officers (Haffke et al., 2016; Singh et al., 2020; Tumbas et al., 2017). However, ordinary employees play a crucial role from a continuous change perspective and the proposition of decentralization. My research provides insights into what employees need for continuous change and how different changes and initiatives, e.g., intrapreneurship programs, facilitate continuous change.

Our work reconceptualizes the interplay between continuous change and stability. While organizations foster continuous change, organizations and people need stability (Venus et al., 2019). Based on our interview study, we provide propositions on how to facilitate continuous change and, at the same time, ensure stability, direction, and guardrails for the organization and employees. Thus, my work provides valuable insights into how to enable continuous change and how to sustain it. Further, the thesis offers findings on challenges in enabling continuous change. It shows that organizations must resolve tensions between agile organizational units that foster continuous change and the non-agile environment.

### **6.3 Practical Implication**

Managers should consider that digital transformation is not a traditional one-time transformation with a pre-defined target they strive to achieve. Instead, they must prepare themselves for continuous change, which requires a different approach. The interplay between digital, agile, and cultural transformation implies that managers should not (only) focus on short-term gains. To leverage the full potential of digital transformation, they need to consider agile and cultural transformation. If they neglect or deprioritize these two transformations, their efforts will have limited effects. Cultural and agile transformation focus on continuous change, decentralization, and changes in leadership. Accordingly, managers may need to adapt their behavior. For example, while managers made decisions in the past, today, they might set the guardrails but strive to decentralize decision-making to enable fast, customer-centric decisions and adaptations. Managers must create a setup that inspires people to innovate and change.

Transformations driven by positive outlooks often failed in the past, and only the necessity to change helped overcome inertia (Tabrizi, 2023). However, under the condition of continuous change, this might change as continuous pain might have adverse effects. Thus, managers should focus more on what people need to change and what inspires them. The current thesis delivers several insights for this endeavor. For example, my work reconceptualizes failure in the context of digital transformation. While failure is often perceived as a negative outcome, this might change as well from a continuous change perspective. Failure offers learning effects that might increase the chance for future success. Thus, managers should encourage their employees to explore and learn.

### **6.4 Limitations**

Like any scholarly endeavor, this dissertation operates within certain limitations. In the following, I describe the significant limitations of my thesis.

The thesis's insights mainly build upon qualitative-empirical research methodologies (Essays 2-6). This approach was instrumental in achieving detailed descriptions of organizational realities and facilitated understanding of this complex phenomenon within an emerging and heterogeneous research domain characterized by occasionally nebulous concepts and definitions (Markus and Rowe, 2023). Consequently, the conclusions drawn from this thesis inherently reflect the distinctive realities of the surveyed organizations, the perspectives of the respondents, and the researchers themselves. Due to the background of the surveyed organizations, the results have a

strong backing within the German-speaking area. Still, they may be entirely different for organizations grounded in other parts of the world, especially since culture plays a significant role in the results.

My dissertation scrutinizes digital transformation from a snapshot perspective. While my thesis endeavors to transcend the current change paradigm of digital transformation research, which predominantly centers on one-off changes, the insights of my essays lack evidence over time. Therefore, future research needs to evaluate the results and investigate if and how they change.

The primary focus of this thesis, except for Essay 7, revolves around an intra-organizational perspective on the challenges and decisions encountered during an organization's digital transformation and its corresponding collective efforts toward continuous change. While we recognize the interplay with a turbulent environment as a driving force necessitating organizations capable of changing continuously, the thesis sidesteps the implications of associated transformations on individuals, industries, and society. In alignment with Vial's (2019) conceptualization of the digital transformation process, my essays primarily delve into strategic responses, contextual and structural adaptations, and shifts in value creation. The antecedents (e.g., technological disruptions prompting strategic adjustments) and consequences (e.g., positive and negative outcomes stemming from alterations in value creation trajectories) lay beyond the scope of this thesis.

## **6.5 Avenues For Future Research**

Even though my thesis provides different insights on digital transformation through the lens of continuous change, relevant questions remain untouched or only handled superficially.

This thesis provides insights into digital transformation from a continuous change perspective and illustrates that organizations must orchestrate digital, agile, and cultural transformation to foster continuous change. However, these insights draw from a broad interview study, which makes it impossible to consider the details and specifications of individual organizations and industries. Thus, future research should challenge our propositions through in-depth case studies that provide insights into our theories' boundary conditions and contingencies. Further, with our transformation triad, we set a new direction in digital transformation research. In a second step, future research should build upon our insights and challenge our hypothesis on how the three transformations interact and which action fields are important.

While we claim that organizations need to prepare for continuous change, there is no consensus among researchers about whether digital transformation will come to an end (Bitzer et al., 2021; Sciuk et al., 2023). Based on the insights gained through my thesis, I would argue that the change is continuous, but there might be a point when digital transformation is normalized (Carroll et al., 2023; Carroll et al., 2021b). This normalization would mean that an organization reached an equilibrium in which change is the new normal. So far, research has no answer to the question of whether and if so when digital transformation comes to an end. An interesting starting point for this question might be if born-digital organizations must also conduct a digital transformation at some point. Suppose we argue that these organizations do not need to conduct digital transformation even though they must continuously adapt to stay relevant in today's turbulent business environment. This argument would necessitate the hypothesis that digital transformation ends when pre-digital organizations have achieved some characteristics born-digital organizations inherit by nature. In this case, we need an answer to which characteristics pre-digital organizations need to achieve. The question of if digital transformation comes to an end might be a theoretical question. However, what constitutes an organization that can thrive in a continuously changing environment is relevant and still unanswered.

According to this thesis, digital transformation describes the overall transformation effort. While this digital transformation is described as a continuous change, the change itself happens on an underlying level in the form of initiatives considered in backlogs and other agendas. In contrast to the overall transformation, these initiatives need to deliver results and should come to an end. So far, the relationship between the two layers has not been investigated. Most often, researchers examine a particular initiative and attribute their insights to digital transformation in general (e.g., Dremel et al., 2017). The essence of this thesis leads to the proposition that we need to distinguish between both. Future research should investigate if organizations can conduct wide-ranging change initiatives in the context of digital transformation without changing deep structures as soon as they achieve a state that enables continuous change. It would be exciting and relevant to understand which changes organizations can conduct without traditional transformation procedures and for which they still need to change deep structures. In this context, it might also be interesting to investigate if and, if so, how different forms of inertia differ or change through digital transformation toward continuous change.

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## **Appendix**

### **Appendix 1: Declarations of Co-Authorship and Individual Contributions**

This thesis is cumulative, consisting of seven essays that comprise the main body of work. All essays were developed in teams with multiple authors. In the following, I describe the co-authors' contributions to the essays.

## **Essay 1: Approaching Digital Transformation – Development of a Multi-dimensional Maturity Model**

This research paper was co-authored by Stephan Berger, Michael Bitzer, Björn Häckel, and Christian Voit. The co-authors contributed as follows:

### **Stephan Berger (co-author)**

Stephan Berger provided the initial research idea and contributed by co-initiating and co-developing the entire research project. He contributed to the development of the research design and the final artifact. Further, he engaged in textual elaboration during the initial submission and the revision of the paper. Additionally, he contributed research experience and feedback during all phases of the project. Thus, Stephan's co-authorship is reflected in the entire research project.

### **Michael Bitzer (co-author)**

Michael contributed by co-initiating and co-developing the entire research project. Further, he managed the research process and conducted the literature analysis. Specifically, he engaged in the further development of the research idea, the development of the research design and the final artifact, as well as textual elaboration. Thus, Michael's co-authorship is reflected in the entire research project.

### **Björn Häckel (co-author)**

Björn Häckel supervised the research project and provided mentorship. Further, he participated in research discussions, provided feedback on the paper's content and structure, and engaged in textual elaboration during the initial submission and the revision process. Thus, Björn's co-authorship is reflected in the entire research project.

### **Christian Voit (co-author)**

Christian Voit contributed by co-initiating and co-developing the entire research project. He contributed to the development of the research design and the final artifact. Further, he engaged in textual elaboration during the initial submission and the revision of the paper. Additionally, he contributed research experience and feedback during all phases of the project. Thus, Christian's co-authorship is reflected in the entire research project.

## **Essay 2: Everything Is IT, but IT Is Not Everything – What Incumbents Do to Manage Digital Transformation Towards Continuous Change**

This research paper was co-authored by Michael Bitzer, Silvana Hinsén, Jan Jöhnik, and Nils Urbach. The co-authors contributed as follows:

### **Michael Bitzer (co-author)**

Michael Bitzer contributed by co-initiating and co-developing the entire research project. Further, he contributed by conducting expert interviews and data analysis. Additionally, he managed the research process and engaged in the further development of the research idea as well as textual elaboration. Thus, Michael's co-authorship is reflected in the entire research project.

### **Silvana Hinsén (co-author)**

Silvana Hinsén contributed by co-initiating and co-developing the entire research project. Further, she contributed by conducting expert interviews and data analysis. Additionally, she managed the research process and engaged in the further development of the research idea as well as textual elaboration. Thus, Silvana's co-authorship is reflected in the entire research project.

### **Jan Jöhnik (co-author)**

Jan Jöhnik contributed by co-initiating and co-developing the entire research project. Further, he contributed by partially assisting with the interview execution. Additionally, he participated in research discussions, provided feedback on the paper's content and structure, and engaged in textual elaboration. Thus, Jan's co-authorship is reflected in the entire research project.

### **Nils Urbach (subordinate co-author)**

Nils Urbach supervised the research project and provided mentorship. Further, he participated in research discussions, provided feedback on the paper's content and structure, guided the research process, and engaged in textual elaboration. Thus, Nils' co-authorship is reflected in the entire research project.

### **Essay 3: Sustaining digital transformation: Exploring the interplays between organizations' collective transformation efforts toward continuous change**

This research paper was co-authored by Silvana Hinsen, Michael Bitzer, Jan Jöhnk, and Nils Urbach. The co-authors contributed as follows:

#### **Silvana Hinsen (leading co-author)**

Silvana Hinsen contributed by co-initiating and co-developing the entire research project. Further, she contributed by conducting expert interviews and was deeply involved in the data analysis. Additionally, she managed the entire research process and engaged in the further development of the research idea as well as textual elaboration of all sections. Thus, Silvana's co-authorship is reflected in the entire research project.

#### **Michael Bitzer (subordinate co-author)**

Michael Bitzer contributed by co-initiating and co-developing the entire research project. Further, he contributed by conducting expert interviews and supporting the data analysis. Additionally, he managed the entire research process and engaged in the further development of the research idea as well as textual elaboration of all sections. Thus, Michael's co-authorship is reflected in the entire research project.

#### **Jan Jöhnk (subordinate co-author)**

Jan Jöhnk contributed by co-initiating and co-developing the entire research project. Further, he contributed by partially assisting with the interview execution. Additionally, he engaged in the further development of the research idea as well as textual elaboration, specifically in the Theoretical Background and Discussion Section. Further, he participated in research discussions, provided feedback on the paper's content and structure, and helped to finalize the paper for submission. Thus, Jan's co-authorship is reflected in the entire research project.

#### **Nils Urbach (subordinate co-author)**

Nils Urbach supervised the research project and provided mentorship. Further, he participated in research discussions, provided feedback on the paper's content and structure, guided the research process, and engaged in textual elaboration. Thus, Nils' co-authorship is reflected in the entire research project.



## **Essay 4: Navigating Organizations in Times of Constant Unfreeze – On the Importance of Stability in Organizations’ Digital Transformation**

This research paper was co-authored by Michael Bitzer, Silvana Hinsen, Jan Jöhnk, Antonie Teuchert, and Nils Urbach. The co-authors contributed as follows:

### **Michael Bitzer (co-author)**

Michael Bitzer contributed by co-initiating and co-developing the entire research project. Further, he contributed by conducting expert interviews and data analysis. Additionally, he participated in research discussions, provided feedback on the paper’s content and structure, and engaged in textual elaboration. Thus, Michael’s co-authorship is reflected in the entire research project.

### **Silvana Hinsen (co-author)**

Silvana Hinsen contributed to co-initiating and co-developing the entire research project. Further, she contributed by conducting expert interviews and data analysis. Additionally, she managed the entire research process and engaged in the further development of the research idea as well as textual elaboration. Thus, Silvana’s co-authorship is reflected in the entire research project.

### **Antonie Teuchert (co-author)**

Antonie Teuchert contributed by co-developing the entire research project. Further, she contributed by mainly conducting data analysis. Additionally, she managed the entire research process and engaged in the further development of the research idea as well as textual elaboration. Thus, Antonie’s co-authorship is reflected in the entire research project.

### **Jan Jöhnk (subordinate co-author)**

Jan Jöhnk contributed by co-developing the research project. Further, he contributed by partially assisting with the interview execution. In addition, he participated in research discussions, provided feedback on the paper’s content and structure, and engaged in textual elaboration. Thus, Jan’s co-authorship is reflected in the entire research project.

### **Nils Urbach (subordinate co-author)**

Nils Urbach supervised the research project and provided mentorship. Further, he participated in research discussions, provided feedback on the paper’s content and structure, guided the research process, and engaged in textual elaboration. Thus, Nils’ co-authorship is reflected in the entire research project.

## **Essay 5: Scaled Agile Framework Meets Traditional Management – A Case of a Financial Service Provider**

This research paper was co-authored by Michael Bitzer, Franziska Brax, and Antonie Teuchert. The co-authors contributed as follows:

### **Michael Bitzer (co-author)**

Michael Bitzer contributed by initiating and co-developing the entire research project. Further, he contributed by conducting expert interviews and taking field observations. Additionally, he participated in research discussions and data analysis, provided feedback on the paper's content and structure, and engaged in textual elaboration. Thus, Michael's co-authorship is reflected in the entire research project.

### **Franziska Brax (co-author)**

Franziska Brax contributed to co-developing the entire research project. Further, she contributed by conducting expert interviews and data analysis. Additionally, she managed the entire research process and engaged in the further development of the research idea as well as textual elaboration. Thus, Franziska's co-authorship is reflected in the entire research project.

### **Antonie Teuchert (co-author)**

Antonie Teuchert contributed by co-developing the entire research project. Further, she participated in research discussions, provided feedback on the paper's content and structure, and engaged in textual elaborations. Additionally, she managed the revision process. Thus, Antonie's co-authorship is reflected in the entire research project.

## **Essay 6: The Multi-level Effects of Intrapreneurship Programs on Digital Transformation – Insights From a Multiple Case Study**

This research paper was co-authored by Lena-Marie Pätzmann and Michael Bitzer. The co-authors contributed as follows:

### **Lena-Marie Pätzmann (leading co-author)**

Lena-Marie Pätzmann contributed by co-initiating and co-developing the entire research project. Further, she was in the lead regarding the expert interviews and data analysis. Additionally, she managed the entire research process and engaged in the further development of the research idea as well as textual elaboration, especially the first draft of the paper. Thus, Lena-Marie's co-authorship is reflected in the entire research project.

### **Michael Bitzer (subordinate co-author)**

Michael Bitzer contributed by initiating and co-developing the entire research project. Further, he contributed by conducting expert interviews. Additionally, he participated in research discussions and data analysis, provided feedback on the paper's content and structure, and engaged in textual elaboration, especially the finetuning. Thus, Michael's co-authorship is reflected in the entire research project.

## **Essay 7: Reconceptualizing Digital Transformation – A Theory of Digital Transformation as an Autopoietic System and Its Implications**

This research paper was co-authored by Michael Bitzer, Silvana Hinsen, Jan Jöhnk, Marc-Fabian Körner, and Nils Urbach. The co-authors contributed as follows:

### **Michael Bitzer (leading co-author)**

Michael Bitzer contributed by co-initiating and co-developing the entire research project. Further, he was heavily engaged in the theorizing process and the textual elaboration of all sections. Further, he managed the research process and engaged in the further development of the research idea. Thus, Michael's co-authorship is reflected in the entire research project.

### **Silvana Hinsen (subordinate co-author)**

Silvana Hinsen contributed by co-initiating and co-developing the entire research project. Further, she engaged in textual elaboration, especially in theoretical background, theory development, and discussion sections. Additionally, she managed the research process and engaged in the further development of the research idea. Thus, Silvana's co-authorship is reflected in the entire research project.

### **Marc-Fabian Körner (subordinate co-author)**

Marc-Fabian Körner contributed by co-developing the entire research project. In addition, he participated in research discussions, provided feedback on the paper's content and structure, and engaged in textual elaboration. Thus, Marc's co-authorship is reflected in the entire research project.

### **Jan Jöhnk (subordinate co-author)**

Jan Jöhnk provided the initial research idea and contributed by co-initiating and co-developing the entire research project. In addition, he participated in research discussions, provided feedback on the paper's content and structure, and engaged in textual elaboration. Thus, Jan's co-authorship is reflected in the entire research project.

### **Nils Urbach (subordinate co-author)**

Nils Urbach supervised the research project and provided mentorship. Further, he participated in research discussions, provided feedback on the paper's content and structure, guided the research process, and engaged in textual elaboration. Thus, Nils' co-authorship is reflected in the entire research project.

## Appendix 2: Other Publications

Table 3. Overview of Other Publications

Authors	Title	Year	Outlet	VHB JQ3 ranking
Pätzmann, Lena-Marie; Cahenzli, Marcel; Bitzer, Michael	What is Digital Intrapreneurship? Insights from a Structured Literature Review	2024	Proceedings of the 57 <sup>th</sup> Hawaii International Conference on Systems Sciences (HICSS), Honolulu, Hawaii, USA	C
Leuthe, Daniel; Weiß, Florian; Dersch, Julian; Bitzer, Michael	Towards Secure Cloud-Computing in FinTechs - An Artefact for Prioritizing Information Security Measures.	2024	Proceedings of the 57 <sup>th</sup> Hawaii International Conference on System Sciences (HICSS), Honolulu, Hawaii, USA	C
Bitzer, Michael; Crome, Carlotta; Graf-Drasch, Valerie; Hinsen, Silvana; Huber, Florian; Pantzer, Jonas; Meyer-Hollatz, Tim; Oberländer, Anna Maria; Schleich, Eric; Urbach, Nils; Wilkens, Holger	Building a Digital and Sustainable Future - How Companies Can Pioneer Twin Transformation	2023	Ernst & Young and Fraunhofer FIT Whitepaper	n/a
Bitzer, Michael; Weiß, Floarian; Strobel, Jacqueline	From Observing to Understanding: Empirical Insights on the Organizational Foundations of Security Chaos Engineering	2023	Proceedings of the 44 <sup>th</sup> International Conference on Information Systems (ICIS), Hyderabad, India	A
Bitzer, Michael; Häckel, Björn; Leuthe, Daniel; Ott, Joshua; Stahl, Bastian; Strobel, Jacqueline	Managing the Inevitable: A Maturity Model to Establish Incident Response Management Capabilities	2023	Computers & Security	B

<b>Authors</b>	<b>Title</b>	<b>Year</b>	<b>Outlet</b>	<b>VHB JQ3 ranking</b>
Pätzmann, Lena-Marie; Bitzer, Michael; Back, Andrea	Organizational Readiness for Digital Intrapreneurship: Towards the Design of an Assessment Tool	2022	Proceedings of the 30th European Conference on Information Systems (ECIS), Timișoara, Romania	B
Bitzer, Michael; Stahl, Bastian; Strobel, Jacqueline	Empathy for Hackers: An IT Security Risk Assessment Artifact for Targeted Hacker Attacks	2021	Proceedings of the 29th European Conference on Information Systems (ECIS), Marrakech, Morocco	B
Bitzer, Michael; Brinz, Nicolas; Ollig, Philipp	Disentangling the Concept of Information Security Properties: Enabling Effective Information Security Governance	2021	Proceedings of the 29th European Conference on Information Systems (ECIS), Marrakech, Morocco	B
Bitzer, Michael; Bürger, Olga; Häckel, Björn; Voit, Christian	Toward an Economically Optimal Team Design in IT- related Innovation Projects	2020	International Journal of Innovation and Technology Management	C
Bitzer, Michael; Kleylein-Feuerstein, Joachim; König, Ulrich; Röglinger, Max, Urbach, Nils; Wenninger, Annette	Smart Devices erfolgreich in Produktionsprozesse integrieren	2019	Fraunhofer FIT Whitepaper	n/a

## Essay 1: Approaching Digital Transformation – Development of a Multi-dimensional Maturity Model<sup>9</sup>

Authors: Berger, Stephan; Bitzer, Michael; Häckel, Björn; Voit, Christian

Published in: *Proceedings of the 28th European Conference on Information Systems (ECIS)*

Abstract: Driven by the ever-faster emergence and adoption of digital technologies, digitalization affects almost every organization. Especially for organizations in the manufacturing industry, the development from traditional manufacturers of physical products to providers of individual digital service solutions entails massive changes on all organizational levels, e.g., infrastructure and business model. Despite growing awareness about the importance of digital transformation, scientific and professional literature mostly focuses on select aspects. Yet, an approach for structuring digital transformation in the manufacturing industry that provides an integrated view on various organizational levels is missing. Hence, managers still struggle to transform their organizations in a structured way. Against this backdrop, we develop a maturity model to support organizational stakeholders in addressing digital transformation at various levels. Based on design science research principles, we deductively and inductively derive six focus areas, 26 dimensions, and associated capabilities. We conduct evaluation rounds with researchers and industry experts to revise and evaluate our model. Our contribution is twofold: From an academic perspective, we add to the descriptive knowledge of digital transformation. For practitioners, we provide a profound basis for developing a digital transformation strategy by enabling the determination of an organization's current situation and desired target state.

Keywords: Digital Transformation, Digital Transformation Strategy, Manufacturing, Organizational Transformation, Maturity Model.

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<sup>9</sup> This essay has been published in the Proceedings of the 28<sup>th</sup> European Conference on Information Systems (ECIS 2020): Berger, Stephan; Bitzer, Michael; Häckel, Björn; Voit, Christian (2020). Approaching Digital Transformation – Development of a Multi-dimensional Maturity Model. In: Proceedings of the 28<sup>th</sup> European Conference on Information Systems.

## **Essay 2: Everything Is IT, But IT Is Not Everything - What Incumbents Do to Manage Digital Transformation Towards Continuous Change<sup>10</sup>**

Authors: Bitzer, Michael; Hinsen, Silvana; Jöhnk, Jan; Urbach, Nils

Published in: *Proceedings of the 42nd International Conference on Information Systems (ICIS), Austin, Texas, USA*

Abstract: Driven by the ongoing emergence of digital technologies, today's business environment is changing at tremendous speed. Thus, incumbents have initiated digital transformation programs to cope with the associated challenges. While transformation programs are typically associated with punctuated change, emerging research conceptualizes digital transformation as an ongoing process that demands new approaches to organizational change. Hitherto, we lack insights into how organizations prepare themselves for such continuous change. Thus, we conducted an explorative interview study with 29 interview partners who provided insights from different roles, organizations, and industries. Thereby, we gain an overview of organizations' digital transformation realities and challenges. We contribute to the existing literature on digital transformation by elucidating the individual foci and interdependencies of digital, agile, and cultural transformation. Further, we shed light on additional elements that foster continuous change, i.e., organizational culture, purpose, vision, and values in the context of digital transformation.

Keywords: Digital Transformation, Continuous Change, Interview Study, Organizational Change

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<sup>10</sup> This essay has been published in the Proceedings of the 42<sup>nd</sup> International Conference on Information Systems (ICIS 2021): Bitzer, Michael; Hinsen, Silvana; Jöhnk, Jan; Urbach, Nils (2021). Everything Is IT, But IT Is Not Everything - What Incumbents Do to Manage Digital Transformation Towards Continuous Change. In: Proceedings of the 42<sup>nd</sup> International Conference on Information Systems, Austin, Texas, USA



## **Essay 3: Sustaining Digital Transformation - Exploring the Interplays Between Organizations' Collective Transformation Efforts Toward Continuous Change<sup>11</sup>**

Authors: Hinsen, Silvana; Bitzer, Michael; Jöhnk, Jan; Urbach, Nils

*Submitted Working Paper*

### **Extended Abstract**

Owing to the increasing emergence of digital technologies, many established organizations have initiated digital transformation to remain competitive in today's fast-changing business environment (Vial, 2019). Even though IS and other disciplines have theorized the digital transformation phenomenon, researchers and practitioners still lack explanations and guidance on how organizations can cope with this continuous and complex change beyond initial change initiatives (Hanelt et al., 2020). In our earlier work, we demonstrated that organizations simultaneously conduct an agile and cultural transformation alongside digital transformation with the aspiration to enable and sustain continuous change (Bitzer et al., 2021). We build on this work to deepen our insight by exploring the interplays between the three transformations. Thus, we ask: *How can we conceptualize the interplays between digital transformation and other organizational transformation efforts?*

Therefore, we analyzed the data from an exploratory interview study (Myers and Newman, 2007; Schultze and Avital, 2011) with 36 practitioners from different organizations and industries. We followed Gioia et al.'s (2013) guidance since they offer a systematic approach to rigorous inductive research. Due to the complexity and huge amount of interview data collected, we decided to apply Leavitt's (1964) diamond model, consisting of actors, structure, task, and technology, to structure the data. Finally, we identified 36 themes that organizations address through their collective transformation efforts. By matching these themes with the understanding of digital, agile, and cultural transformation, we gained insights into how established organizations

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<sup>11</sup> At the time of publication of this thesis, this essay is in preparation for re-submission to a scientific journal. Thus, I provide an extended abstract that covers the essay's content.

should orchestrate their collective transformation efforts and their interplays to unfold digital transformation's full potential.

Our results indicate that digital, agile, and cultural transformation demand and develop one another. Thus, organizations need to integrate digital, agile, and cultural transformation. Our results underline recent contributions that propose that digital transformation is not a matter of a large organization-wide transformation program that eventually achieves a desired target state. Instead, we observe multiple transformations that follow the fluctuating imperatives of organizations' turbulent business environment. Our insights challenge prevailing assumptions of organizational change behaviors and build connections between well-known concepts that may guide future research in times of continuous change. We conclude that digital transformation should not be conceptualized as a punctuated change to reach a new stable state but as a new *modus operandi* that facilitates continuous yet intentional change as the new normal. Based on our results, we discuss approaches to how organizations can cope with continuous change, i.e., systematically managing and sustaining digital transformation.

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## Essay 4: Navigating Organizations in Times of Constant Unfreeze – On the Importance of Stability in Organizations' Digital Transformation<sup>12</sup>

Authors: Bitzer, Michael; Hinsén, Silvana; Teuchert, Antonie; Urbach, Nils

*Submitted Working Paper*

### Extended Abstract

Digital transformation dominates practitioners' and researchers' agendas (Nadkarni & Prügl, 2021). Based on recent studies, we describe digital transformation as a continuous change in a state of constant unfreeze (Hanelt et al., 2020). Despite substantial efforts and ongoing discourse, there is still ambiguity regarding the underlying assumptions on the nature of this change (Markus & Rowe, 2021). Thus, it is unclear how organizations can navigate this change. We contrast the common focus on what needs to change by seeking to understand what provides stability and orientation in a state of constant unfreeze. Against this backdrop, we ask: *What do organizations strive for to navigate digital transformation in a state of constant unfreeze?*

We conducted an exploratory interview study (Myers and Newman, 2007; Schultze and Avital, 2011) with 48 practitioners to advance our understanding of this novel form of change. Guided by the approach of Gioia et al. (2013), we clustered our insights into five aggregate dimensions, i.e., environment, structure and strategy, culture, people, and purpose. Our results highlight that dimensions that provided stability in the past, e.g., structure & strategy, cannot fulfill this role today without constraining digital transformation. Instead, organizations must focus on topics that offer orientation, drive, and stability simultaneously. Our results indicate that culture, people, and purpose can provide stability and foster change simultaneously, thus becoming essential for an organization's digital transformation. Thus, organizations should increasingly focus on people who may drive this change but need to orient themselves in this environment. While our findings support Hanelt et al.'s (2020) insights regarding malleable organizational designs, we stress that these designs are only as malleable as the people within them. If people find stability on another level, the chances for malleable organizational designs and, thus, the success of digital

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<sup>12</sup> At the time of publication of this thesis, this essay is in preparation for re-submission to a scientific journal. Thus, I provide an extended abstract that covers the essay's content.

transformation rise. Based upon our findings, we derive three suitable areas for future research, i.e., diving deeper into our understanding of change in a state of constant unfreeze, examining the purpose of digital transformation, and fostering our understanding of dimensions that provide stability and drive change at the same time.

Our research contributes to descriptive knowledge on digital transformation, extends the theory of continuous change in organizations, and offers practitioners inspiration on navigating their organization in a state of constant unfreeze.

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## **Essay 5: Scaled Agile Framework Meets Traditional Management – A Case of a Financial Service Provider<sup>13</sup>**

Authors: Bitzer, Michael; Brax, Franziska; Teuchert, Antonie

Published in: *Proceedings of the 44th International Conference on Information Systems (ICIS), Hyderabad, India*

Abstract: Inspired by the success of agile practices in small teams, organizations seek to achieve agility at scale, leading to large-scale agile transformations. Several frameworks have been developed to guide organizations through this process. While multiple challenges for adopting scaled agile frameworks have already been identified, research on the interplay between traditional management approaches and scaled agile frameworks is scarce. We conduct an in-depth exploratory case study with a German financial services provider to identify tensions that arise when applying a scaled agile framework in a non-agile environment. As a result, we derive 13 tensions along with three areas: goal-setting, planning, and reporting. We advance the understanding of tensions within large-scale agile transformations and provide a foundation for future research on scaled agile practices in traditional organizations. Further, we provide insights for managers to ensure the successful application of scaled agile frameworks.

Keywords: Agile Transformation, Scaled Agile Framework, Project Management, Case Study

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## Essay 6: The Multi-level Effects of Intrapreneurship Programs on Digital Transformation – Insights From a Multiple Case Study<sup>14</sup>

Authors: Pätzmann, Lena-Marie; Bitzer, Michael

*Submitted Working Paper*

### Extended Abstract

Digital transformation has become a crucial topic across various disciplines (Verhoef et al., 2021). Despite extensive research, many organizations face significant challenges in changing and establishing novel digital business models (Haskamp et al., 2021). While the research emphasizes the important role of individual employees and intrapreneurial competencies (Blanka et al., 2022), digital transformation research lacks insights on how to leverage the potential of individual employees. Intrapreneurship programs might be a promising solution. So far, most organizations perceive the high failure rate of intrapreneurship programs as a negative outcome and question the investment in such programs (Onetti, 2021). However, research shows that participants of intrapreneurship programs who do not achieve their goal of developing a new venture still acquire intrapreneurial competencies that might be vital for digital transformation (Ambos and Tatarinov, 2022). Thus, we ask: *How do intrapreneurship programs contribute to digital transformation?*

To address this research question, we conducted a multiple case study following the approaches by Yin (2018) and Gioia et al. (2013). Our findings reveal that intrapreneurship programs have multi-level effects on digital transformation beyond the development of new ventures.

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<sup>14</sup> At the time of publication of this thesis, this essay is in the review process of a scientific journal. Thus, I provide an extended abstract that covers the essay's content. A shorter and slightly adapted version of this essay is accepted for publication in the Proceedings of the 32<sup>nd</sup> European Conference on Information Systems (ECIS 2024): Bitzer, Michael; Pätzmann, Lena-Marie; Buck, Christoph (2024). The Effects of Intrapreneurship Programs on Digital Transformation – Insights From a Multiple Case Study. In: Proceedings of the 32<sup>nd</sup> European Conference on Information Systems. Paphos, Cyprus.

We differentiate between five levels of effects: (1) Effects on the organization's cash flow through successful (digital) innovations, (2) effects on participants acquiring personal, social, methodological, and technical competencies, (3) effects on colleagues of returning participants that profit from cultural, structural, and technological changes, (4) effects on organization's learning capability development, and (5) effects on motivation, retention, and hiring of employees.

The paper focuses on the effects that emerge when an intrapreneurship project does not achieve its initial goal, i.e., a venture or results directly impacting the organization's future cash flow. Our results demonstrate that the failure of intrapreneurship programs can provide valuable contributions to digital transformation and challenge existing knowledge on the notion of failure in digital transformation research. Theoretically, our study contributes to the existing body of digital transformation research by adding descriptive knowledge on the value of intrapreneurship programs. Furthermore, we integrate intrapreneurship and digital transformation research. For practitioners, our results imply that even failed intrapreneurial activities yield benefits for their digital transformation efforts and their organization's competitiveness, which in the long run may prove more valuable than a single successful venture. Hence, organizations can utilize intrapreneurship programs to drive product or service innovations and facilitate digital transformation.

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## **Essay 7: Reconceptualizing Digital Transformation – A Theory of Digital Transformation as an Autopoietic System and Its Implications<sup>15</sup>**

Authors: Bitzer, Michael; Hinsén, Silvana; Jöhnk, Jan; Urbach, Nils

*Submitted Working Paper*

### **Extended Abstract**

Digital transformation is a widely discussed and investigated phenomenon in the IS community (e.g., Vial, 2019) and related research fields like strategic management or organizational studies (e.g., Hanelt et al., 2020). Our paper is motivated by the literature's divergence between recent narratives and prevalent theories on digital transformation. While scholars regularly describe digital transformation as a continuous and complex change process (e.g., Hanelt et al., 2020), theorizing and the associated vocabulary hitherto mainly reflect a one-time transformation (e.g., Wessel et al., 2021). However, these theories increasingly reach their limits in describing how digital transformation will evolve in the future. Accordingly, we observe a possible overemphasis on short-term, one-time outcomes and a concomitant, possible underemphasis on medium- to long-term objectives of digital transformation. Thus, our paper seeks to extend our reasoning around such initial descriptions to find explanations for digital transformation that hold beyond currently proposed short-term outcomes.

We propose autopoiesis (Varela et al., 1974) as a fruitful theoretical lens to overcome the current focus on stable outcomes and consider the phenomenon's complexity. The theory of an autopoietic system originates in biology and is well-known within various research disciplines and transferred to the context of social systems by Luhmann (1986). The Greek term autopoiesis can be translated as self-production, but autopoiesis's well-defined concept reaches far beyond the mere self-production of a system. An autopoietic system can be defined as a unity that reproduces itself based on its inherent elements to ensure its preservation and demarcates itself from its environment (Zeleny, 1981). Following principles of system theory, we theorize the overarching phenomenon of digital transformation as a system with autopoietic characteristics

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<sup>15</sup> At the time of publication of this thesis, this essay is in preparation for re-submission to a scientific journal. Thus, I provide an extended abstract that covers the essay's content.



reproducing itself through the interplay of digital technologies, data, and actors. Our theory provides scholars with a rich vocabulary to discuss digital transformation as a form of continuous change and a complex system. We argue that digital transformation is not a means to an end since it strives to reproduce itself but a means to define a moving target and ways to move toward it. Our theory offers a starting point to examine why and how digital transformation unfolds its implications on an individual, organizational, and societal level. Our theory opens alternative perspectives on extant research, e.g., it may question the distinction between digital transformation from IT-enabled organizational transformation (Wessel et al., 2021). Instead, we see the ongoing reproduction of the same system through its elements and the structural coupling with its environment. In doing so, our theory enables future research to explain novel developments in the context of digital transformation, e.g., artificial intelligence. Our theory allows future research to derive more insightful contributions by instantiating our theory in different contexts, e.g., individual, organizational, and societal levels. With our work, we provide digital transformation and IS scholars with a mid-range theory as a structuring element with an associated vocabulary that future research can adopt and leverage in diverse contexts.

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