Managing Digital Transformation in Form of Continuous Change

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"Whether you think you can, or you think you can't,
you are right."

(Henry Ford)

Abstract

Digital technologies are fast-evolving and drive digitization and digitalization within organizations and their business environments (Berger et al., 2018; Legner et al., 2017). These rapid technological developments on one the hand provide organizations new opportunities, like digital business models (e.g. Berman, 2012; Dixon et al., 2017), but on the other hand come along with a lot of challenges, like global competition or disruptive threats (Blume et al., 2020). In response to these profound changes, organizations initiate digital transformation (DT) programs to overcome their deep structures and transform their core practices, processes, strategies, corporate culture, and mindset (Carroll et al., 2023; Vial, 2019).

The organizational change resulting from DT has often been associated with episodic change or punctuated equilibrium (Besson & Rowe, 2012), i.e., going through a profound change to reach a new stable state (Gersick, 1991). This especially results from conceptualizing DT in the same way as IT-enabled organizational transformation which is well-researched change concept (Wessel et al., 2021). However, with recent research investigating the differences between DT and IT-enabled organizational transformation (Baiyere et al., 2020; Wessel et al., 2021) and acknowledging DT as being an ongoing and never-ending process (Carroll et al., 2023; Warner & Wäger, 2019), there is a need to understand the nature of change of DT and how to manage and sustain it (Carroll et al., 2021; M. L. Markus & Rowe, 2021). Since continuous change has been identified as an alternative organizational change approach to DT (Hanelt et al., 2020), I pursue the overarching research aim *to elucidate how organizations approach the shift in the nature of change of DT towards continuous change and how they manage this transformation effort with further transformation efforts in their organizations*.

This thesis consists of five individual essays to contribute to the overarching research goal. Thereby, organizational change, DT, culture transformation, and agile transformation are the main theoretical lens for this thesis. I structured the thesis along three major research goals.

First, I seek to unravel the concept of continuous change for DT. Essay 1 conceptualizes continuous change along five research streams to contribute to the success of DT.

Second, I seek to foster the understanding of the transformation efforts of and

associated with DT that organizations need to cope with continuous change. While Essay 2 provides an initial overview on the collective transformation efforts surrounding DT, Essay 3 dives deeper into the relations of these transformation efforts. In Essay 4, I focus on understanding the factors that provides organizations stability in their ongoing DT journey.

Third, I seek to foster the understanding on the nature of change of DT with a complex transformation process and ever-changing outcomes. Hence, Essay 5 provides a new theory on the DT phenomenon to grasp the specifics of DT by describing the phenomenon from system theory perspective.

In sum, I provide a thorough and multifaceted research on DT. Furthermore, I contribute to the scientific discourse on DT by focusing on the nature of change of DT and how to manage the related transformation efforts. Thereby, I stimulate future research on the DT phenomenon and the underlying organizational change.

Keywords: Digital Transformation, continuous change, transformation triad, agile transformation, cultural transformation, autopoiesis

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Introduction to *Managing Digital Transformation in Form of Continuous Change*

Abstract

This thesis elaborates on digital transformation (DT) and the associated organizational change with a primary focus on understanding how to manage DT and the surrounding transformation efforts to cope with continuous change. It comprises 5 essays which are structured along three major research goals. The introduction to this thesis starts with a general motivation (Section 1), followed by introducing different forms of organizational change as well as describing the transformation efforts of and associated with DT (Section 2). Then, I derive and motivate the three research goals of this thesis (Section 3), illustrate the research method of each essay (Section 4), and summarize the essays' results (Section 5). Lastly, I conclude and discuss the results of this thesis, depict the limitations, and delineate avenues for future research (Section 6).

Keywords: Digital Transformation, continuous change, transformation triad, agile transformation, cultural transformation, autopoiesis.

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1 Motivation

Organizations operate in an increasingly digital world today, mainly driven by the rapid technological development of digital technologies (Bharadwaj et al., 2013). The special characteristics of digital technologies i.e., re-programmability, homogenization of data, and their self-referential nature, provide a lot of opportunities for organizations (Yoo et al., 2010). These include, among others, the development of new business models (e.g. Berman, 2012; Dixon et al., 2017), building digital platforms and ecosystems (e.g. Karnebogen et al., 2021; Seidel et al., 2020), and designing client-centric service and product portfolios (Mihale-Wilson et al., 2019; Wulf et al., 2017). However, with opportunities there also come a lot of challenges. Organizations are faced with global competition, rapidly changing customer needs, increased velocity, and emergence of disruptive threats (Blume et al., 2020). To cope with these challenges of their fast-changing business environment, organizations engage in digital transformation (DT) to change their deep structures to overcome their organizational inertia resulting from long periods of no change (Romanelli & Tushman, 1994; Vial, 2019). Consequently, DT is currently of highest importance in practice as well as in research.

Since DT requires profound changes by organizations of strategy, organizational forms, processes, skills, and corporate culture, it is not surprising that we observe an increasing amount of research on the topic of DT over the last decade to better understand the DT phenomenon and its impact (Carroll et al., 2023). Thereby, IS research especially focuses on investigating the DT process (e.g. Vial, 2019), DT strategy (Hess et al., 2016; e.g. Matt et al., 2015), associated action fields (Gimpel et al., 2018), success factors and challenge (e.g. Barthel, 2021; Heavin & Power, 2018) as well as the role of technology within in DT (e.g. Berger et al., 2018; Schneider & Kokshagina, 2021). Furthermore, research strives to understand the difference between DT and the well-established concept of IT-enabled organizational transformation (Baiyere et al., 2020; Wessel et al., 2021).

Traditionally, DT as well as IT-enabled organizational transformation are mainly associated with radical change or the change concept of punctuated equilibrium (Besson & Rowe, 2012; Lyytinen & Newman, 2008). The change concept of punctuated equilibrium assumes that organizations remain in a stable state over long periods of

time which often leads to organizational inertia and the inability to adapt to a fast-changing environment (Gersick, 1991; Weick & Quinn, 1999). However, at some point the misalignment of an organization to its business environment is so immense that adaptation to it is inevitable. Due to the sense of urgence to adapt, organizations thus perform a radical change to reach a new stable equilibrium in which they again attempt to remain.

Only recently, research has acknowledged that this prevalent understanding of organizational transformation does not give justice to the change underlying DT. Rather, DT is seen as an ongoing process and continuous complex endeavor preventing the lingering in a stable equilibrium over long periods of time (Matt et al., 2015; Vial, 2019; Warner & Wäger, 2019). Consequently, Hanelt et al. (2020) rightly claim that DT "cannot […] be explained entirely using established theoretical models" (Hanelt et al., 2020, p. 1161). The authors conclude that while there are episodic phases of change caused by DT, in the long run these phases cause continuous change. The authors go even one step further asserting that because organizations are embedded in digital business ecosystems affected by environmental turbulence, no new stable equilibrium will ever be reached but organizations are in a constant unfreezing phase requiring continuous adaptation. As established theoretical models no longer serve us to reflect the underlying nature of change of DT, we as a research community are in dire need of further research to theorize the DT phenomenon and especially how to manage this new form of change. Thus, the overarching aim of this research is *to elucidate how organizations approach the shift in the nature of change of DT towards continuous change and how they manage this transformation effort with further transformation efforts in their organizations*.

To address the overarching research aim, this thesis is organized around three further research goals (RG) which I address in five individual essays. This introduction to the individual essays comprises the theoretical foundation (section 2), research gaps and research questions (section 3), as well as the research design (section 4) and research results (section 5). Lastly, I outline and discuss the key findings of the thesis to show the contributions to the overarching research aim. My thesis adds to the conceptualization of organizational change in DT (Essay 1), a better understanding of the management of collective organizational transformation efforts surrounding DT to cope with continuous change (Essay 2 & 3), a better understanding of what does

organizations provide stability in time of constant flux (Essay 4) and a new conceptual perspective on the DT phenomenon (Essay 5). Consequently, my thesis contributes to the current research discussion on DT to better understand this phenomenon. Especially by combining the organizational transformation and DT research lens, this work contributes to the interdisciplinary nature of our research field.

2 Organizational Change and Transformation Efforts of Digital Transformation

This section provides an overview of the various forms of organizational change (section 2.1), the transformation efforts of organizations underlying DT (section 2.2), and the transformation efforts of organizations accompanying DT (section 2.3). Consequently, this section provides a selective, yet comprehensive overview of the theoretical concepts which are relevant to this thesis.

2.1 Forms of Organizational Change

Research on organizational change has a long tradition since researchers dealing with this topic already for decades (Besson & Rowe, 2012). Change is understood as "a set of behavioral science-based theories, values, strategies, and techniques aimed at the planned change of the organizational work setting for the purpose of enhancing individual development and improving organizational performance, through the alteration of organizational members' on-the-job behaviors" (Porras & Robertson, 1992, p. 723). Accordingly, change is "alterations in the organization's routines and structures" (Dean et al., 1999, S4), and thus a transformation process "that engenders a qualitative different organization" (Besson & Rowe, 2012, p. 103).

Organizational change is predominantly associated with planned or episodic change (Weick & Quinn, 1999). Episodic change is infrequent, discontinuous, and intentional. Kurt Lewin's three staged model 'unfreeze'-'move'-'refreeze' is the most well-known change model to deal with episodic change. This model was developed by Lewin in the mid of the last century and is based on the assumptions that an organization unfreezes the present Level L1 to move to a new level L2 and freezes in that new level (Lewin, 1947). Consequently, it is presumed that an organization remains in a stable state, a so-called equilibrium, for a long period of time. During this period, an organization does not experience any profound changes except for small incremental changes

through which an organization improves but remains in the same stable state as before (Tushman & Romanelli, 1985). However, since the business environment of an organization does not stand still but changes over time, an organization becomes misaligned with its business environment which negatively affects an organization's financial performance and competitiveness over time (Weick & Quinn, 1999). Due to an organization's inability to continuously align with its business environment, it feels a sense of urgency to perform a revolutionary change to align again to its business environment, and thus punctuates the current equilibrium. Since an organization stayed very long in the current state, it builds inertia and resistance to change so that the revolutionary change requires a lot of energy to profoundly adjust the existing deep structures, i.e. psychological, socio-cognitive, economic, and political inertias resulting from routinization (Besson & Rowe, 2012). At the end of such a revolutionary change, the target is to enter a new equilibrium and to remain in this one again over a long period. Consequently, episodic change is often described through the punctuated equilibrium model (Gersick, 1991). These kind of revolutionary change endeavors are every risky and stressful for organizations (Dean et al., 1999) so that organizations try to stay in their current equilibrium as long as possible. However due to the vast technological developments and ubiquity of digital technologies as well as increased complexity, organizations are facing a highly turbulent environment which is characterized by hypercompetition (D'Aveni & Gunther, 1994; El Sawy et al., 2010). These circumstances make the well-established change paradigm of episodic change obsolete and require for alternatives since organizations are not able to remain in an equilibrium long-term but need to adapt constantly (Hanelt et al., 2020).

Continuous change has been identified as an alternative change approach to episodic change since it has been recognized a success factor for organization's long-term survival (Brown & Eisenhardt, 1997; Du & Pan, 2016). Continuous change is ongoing, evolving, and cumulative and is perceived as a process with continuous adaptations (Chakravarthy & Lorange, 2007; Ford, 2006). In contrast to episodic change, continuous change is not based on deep structural changes at one time but on the day-to-day, micro-level human actions of organizational members that cumulates to substantial change (Weick & Quinn, 1999). These actions are emergent and not intentionally planned and as such result from experimental adaptations to the "everyday contingencies, breakdowns, exceptions, opportunities, and unintended consequences" (Orlikowski, 1996, p. 65). Since continuous change is unintended, the

outcome of this process of change is unpredictable so that further adjustments are needed. This process of change neither has a beginning nor an end but is an evolutionary process through which organizations morph into their future based on their present (Orlikowski, 1996). While organizations strive to reach a new equilibrium through episodic change, organizations are in a state of constant disequilibrium when following a continuous change approach that enables them to change rapidly and constantly (Brown & Eisenhardt, 1997; Weick & Quinn, 1999). However, while continuous change is acknowledged as a successful alternative to episodic change, episodic change should not be neglected. Rather, the approach should be chosen that best fits the respective situation (Burnes, 2004).

2.2 Transformation Efforts of Digital Transformation

Due to the complex nature of DT and its divergent impact on individuals, organizations, and society, there is not that one definition for DT (Vial, 2019). Rather, we observe a wide range of definitions covering various aspects and partly leading to confusion (Gong & Ribiere, 2021). Adding to the confusing landscape of DT definitions, there is also the misconception of DT with digitization and digitalization which is not surprising as all three concepts relate to digital technologies (Carroll et al., 2023). While digitization refers to the process of transferring analog information into a digital format driven by the use of digital technologies (Carroll et al., 2023; J. Freitas Junior et al., 2016; Legner et al., 2017), digitalization refers to the general integration of digital technologies into the everyday life of individuals, organizations, and society (Carroll et al., 2023; Legner et al., 2017). Thus, digitalization reflects "the state of an organization or a society referring to its current digital development and usage of ICT innovations" (Bockshecker et al., 2018, p. 8).

For Carroll et al. (2023) DT goes beyond digitization and digitalization since it profoundly "change[s] […] core practices, processes, culture, and mindset [within organizations], with a focus on delivering new value to customers, employees, and the wider society" (Carroll et al., 2023, p. 347). While Carroll et al. (2023) explicitly interpret DT as the transformation of business and organizational activities and processes, Vial (2019) takes a more general, technology-centric perspective and defines DT as "a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and

connectivity technologies" (Vial, 2019, p. 121). In turn, Hinings et al. define DT as "the combined effects of several digital innovations bringing about novel actors (and actor constellations), structures, practices, values, and beliefs that change, threaten, replace or complement existing rules of the game within organizations and fields" (Hinings et al., 2018). Only these selected definitions of DT from the wide range of definitions within and beyond the IS community depict the ambiguous understanding of DT and ambitions of research to shed light on DT phenomenon.

Hence, we observe a massive increase in DT research trying to explain the DT process and how to manage it (e.g. Barthel & Hess, 2019; Berger et al., 2020), DT strategizing (e.g. Chanias et al., 2019; Dang & Vartiainen, 2020; Hess et al., 2016), the organizational and digital capabilities required by organizations in the context of DT (e.g. Dremel et al., 2017; J. C. Freitas Junior et al., 2017; Warner & Wäger, 2019), the development of digital ecosystems (e.g. Bharadwaj & Yeo, 2021; Tan et al., 2020), and the development of new forms of value creation for customers (e.g. Khuntia et al., 2022) as well as how to manage the underlying digital technologies and infrastructure (e.g. Fürstenau et al., 2019; Wimelius et al., 2021). For example, Gimpel et al. (2018) developed a framework of action fields for DT that includes six different action fields, namely customer, data, value proposition, organization, operations, and transformation management, on how to structure DT initiatives. Instead of considering transformation initiatives as a whole, Fischer et al. (2023) in turn focus on the starting points of organizations' DT to become a data-driven organization. Furthermore, organizational capabilities are identified as a necessary mean for a successful DT. Thus for example, Konopik et al. (2022) developed a conceptual framework of organizational capabilities relevant to manage DT. They embedded these capabilities into the dynamic capability theory since organizational capabilities do not only foster DT but also develop over the course of such a transformation. Despite immense number of publications on how to manage DT journeys within organizations, we still observe a huge failure rate of DT within organizations leading (Wade & Shan, 2020) to further studies on barriers to DT (Vogelsang et al., 2019), challenges (Heavin & Power, 2018), and lessons learned (Hansen & Sia, 2015).

The uncertainties and risks that lead to the failure of DT in organizations are caused by the underlying digital technologies. Digital technologies are constantly evolving and thus drive DT. As a result, more and more voices are being raised questioning whether

DT should continue to be viewed as IT-enabled organizational transformation, which is often understood as a one-time transformation in the form of episodic change. Wessel et al. (2021) have already shown that DT is different from IT-enabled organizational transformation through its impact on value proposition and identity, which are profoundly changed due to DT. In addition, only recently it has been acknowledged that DT is an ongoing process and thus does not fulfil the requirements of a one-time transformation (Vial, 2019; Warner & Wäger, 2019). Rather, DT is "often considered to be a 'journey' or a never-ending process of continuously reconfiguring an organisation through the exploitation of digital technologies to enhance its value" (Carroll et al., 2023, pp. 347–348). Consequently, DT is often associated with continuous change (Hanelt et al., 2020). However due to the specificity of DT, it can only be limitedly described with existing theoretical concepts (Hanelt et al., 2020) and there is still a need to understand the nature of change of DT (M. L. Markus & Rowe, 2021) and how to manage and sustain DT long-term (Carroll et al., 2023).

2.3 Transformation Efforts beyond Digital Transformation

As outlined above, conducting DT means profound changes for an organization. Hence, research has aimed to understand what is required to make such a transformation successful. Two success factors, that have been identified as positively influencing DT, are organizational culture and agility (e.g. Barthel, 2021; Holotiuk & Beimborn, 2017). Organizational culture and agility do not have to be part of DT per se but are transformed in accordance with the requirements of DT through interrelated transformations, i.e. agile transformation (AT) and cultural transformation (CT).

Edgar Schein defines organizational culture as "the deeper level of basic assumptions and beliefs that are shared by members of an organization, that operate unconsciously, and that define in a basic 'taken-forgranted' fashion an organization's view of itself and the environment" (Schein, 1985, p. 6). Schein (1985) distinguishes four different levels of organizational change: artifacts, espoused beliefs, values, and underlying assumptions. Even though, the impact of organizational culture to successfully introduce new technologies to organizations has been acknowledged (Eden & Burton-Jones, 2018), organizational cultural change is often a side effect of other ongoing transformation endeavors than a clear focus of organizations to support technological change (Gilmore et al., 1997). However for example, Hartl (2019) has shown the

importance of digital culture change, i.e. establishing an organizational culture which is suitable for DT, to enable constant learning. In line with this, Duerr et al. (2018) have shown, based on the four levels of definition of organizational culture by Schein (1985), which aspects of organizational culture of digitalizing firms are required, e.g., such as values and beliefs of failure culture or embracing digital skills, to build a 'digital organizational culture'. Hence in the context of this thesis, I define CT as a profound change of the organizational culture of an organization to establish a digital culture to support DT.

Furthermore, organizational culture does not only impact the success of DT but also cultural aspects are crucial for organizational agility whereby organizational agility like organizational culture does positively influence DT (Goncalves et al., 2020; Nguyen et al., 2020). Hence, we do not only observe CT accompanying DT but also organizations' ambitions to increase organizational agility through AT (Fuchs & Hess, 2018). While originally agile methods come from software development based on the Agile Manifesto (Beck et al., 2001), we now observe how these methods are applied at large-scale in organizations. Especially, incumbents are struggling with becoming agile compared to digitally born startups (Gerster et al., 2018). Hence, research on investigating how to implement agile methods on a large-scale in incumbents has grown. For example, Gerster et al. (2018) observe how organizations adopt agile methods on a large-scale not only in the IT organization but also in their business units whereby the organizations adopt the well-known template by Spotify. Furthermore, Dikert et al. (2016) analyzed 42 industrial cases on large-scale agile transformation to identify 35 challenges and 29 success factors. In addition, Trippensee and Remané (2021) systematically review 11 practices, grouped in 4 categories, through which agile methods can be scaled in organizations. Large-scale agile transformations are oftentimes performed to establish the structures and ways of working to support and enable DT in organizations (Fuchs & Hess, 2018). Consequently, I define AT in the context of this thesis as the implementation of agile methods at large-scale in an organization to change organizational structures, hierarchies, and ways of working.

3 Derivation of Research Gaps and Research Questions

To address the overarching aim of this research, I address three distinct research fields which are thematically interrelated: "*Unraveling the concept of continuous change for*

DT" (Section 3.1), "*Understanding transformation efforts of and associated with DT to cope with continuous change*" (Section 3.2), and "*Understanding the nature of change of DT with a complex transformation process and ever-changing outcomes*" (Section 3.3). I illustrate the RGs for each research field along the five essays which this overarching research comprises. The three research foci shift from *analytical*, i.e. conceptualizing continuous change in the context of DT, to *explanatory*, i.e. understanding and explaining the transformation efforts of and beyond DT as well as providing a new perspective on the DT phenomenon (Gregor, 2006).

3.1 Continuous Change for Digital Transformation

Traditionally, organizational transformation caused by technological development is associated with episodic change (Lyytinen & Newman, 2008). One of the most well-known episodic change models is the three-staged model by Lewin: *unfreeze-transition-refreeze* (Lewin, 1951). This form of change is characterized by infrequent, radical change that forces organizations to move from one equilibrium to another (Gersick, 1991). This is done with the ambition to again be aligned with the business environment and strengthen competitive advantages. However, since in recent research DT is seen as an ongoing transformation process without aiming for a new equilibrium, reconsideration is needed which organizational change models might support the requirements of ongoing DT in the context of environmental turbulences (Hanelt et al., 2020). One promising approach might be the organizational change model of continuous change. Hence, my first RG for this thesis is:

RG_1: Unraveling the concept of continuous change for DT

Continuous change is understood as ongoing, evolving and cumulative since change occurs in the day-to-day activities of every employee which over time accumulate to radical change (Weick & Quinn, 1999). As Orlikowski stated, change "is often realized through the ongoing variations which emerge frequently, even imperceptibly, in the slippages and improvisations of everyday activities" (Orlikowski, 1996, pp. 88–89). Consequently, continuous change is change that happens on an ongoing basis without aiming to achieve a concrete target. Even though, the concept of continuous change is already known for decades and acknowledged as an appropriate change approach to survive in digital business (Brown & Eisenhardt, 1997), research on continuous change is still scarce in IS research. Due to the lack of knowledge on the nature of change of

DT, IS research would benefit from a comprehensive overview of the existing body of knowledge on continuous change and relations to relevant IS concepts for DT. Thus, I ask:

What can IS research learn from extant literature on continuous change of organizations in hypercompetitive environments? (Essay 1)

3.2 The Transformation Triad to Sustain Digital Transformation

Organizations struggle with the fundamental change of their deep structure and legacy systems required by DT to deal with their highly turbulent business environment (Sebastian et al., 2017; Svahn et al., 2017). Especially by acknowledging DT as continuous change which differs from the previously predominate understanding of IT-enabled organizational transformation as episodic change (Hanelt et al., 2020), the question raises "'how' to support managers in [this] organizational change" (Bordeleau & Felden, 2019, p. 1). Not the achievement of a desired target state is the goal of such company-wide transformation programs but rather the preparation to be able to cope with change in the long run so that continuous, yet intentional change becomes the new normal (Lyytinen & Newman, 2008). Traditional change concepts and models do not serve any longer to explain and describe the management of the transformation process of DT but rather need to be complemented (Hanelt et al., 2020). In addition, DT does not unfold as one big transformation endeavor but rather in form of multiple concurrent initiatives or through organizational improvisation (El Sawy et al., 2010; Jöhnk et al., 2020; Zimmer, 2019) requiring organizations to deal with immense transformation efforts. Thus, there is a need to better understand how to manage and sustain the "never-ending process of continuously reconfiguring an organisation" (Carroll et al., 2023, p. 347). Therefore, my second research goal is:

RG_2: Understanding transformation efforts of and associated with DT to cope with continuous change

I address RG_2 with three thematically interrelated research questions. The second research questions emerged from the results of the first research project as well as the extant DT literature (e.g. Hanelt et al., 2020; Vial, 2019). Thus, the second research project directly continues the line of reasoning. Compared to startups or digitally born companies like Air BnB, incumbents today struggle to transform themselves towards

digital business (Metzler & Muntermann, 2020). To support managers in steering this transformation, we need to complement the immense body of conceptual and in-depth case studies on DT by taking on a broader overview of incumbents' DT journeys and understand how they approach this journey, especially when considering DT in the context of continuous change. Thereby, it is favorable to adopt an actor-centric perspective to explore the change process of DT (Nadkarni & Prügl, 2021). In addition, we need to understand where our scientific understanding on how incumbents approach DT follows or differentiates from practice. Consequently, I ask:

What are incumbents' approaches to DT and how do these efforts contribute to continuous change? (Essay 2)

Following the results of Essay 2, I was motivated to dive deeper into incumbents' DT journey. Incumbents are not solemnly engaged in DT efforts. Rather, incumbents approach DT jointly with further organizational transformation efforts to be able to cope with continuous change. Thus, this adds to the emergent understanding that organization's transformation efforts differentiate from what we know so far on DT (Wessel et al., 2021). However, the previous results only provide preliminary insights on DT and its interplay with further organizational transformation efforts. In addition, research is still scarce on managing the transformation process of DT and providing guidance on how to sustain DT (Carroll et al., 2021). Thus, I ask:

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

While it is important to better understand how organizations approach their DT journey and further collective transformation efforts to cope with continuous change, the question remains how to navigate through this ongoing and complex change. By associating DT with continuous change disrupted by episodic bursts, Hanelt et al. (2020) refers to the state of constant unfreezing as after an episodic burst no new stable state is reached but change remains. Thus, if former concepts of stability like structures, processes or strategies do not provide stability or guidance any longer, organizations, and especially the people in them, have to look for alternative concepts and approaches to orient themselves through the state of constant unfreezing (Hanelt et al., 2020; Venus et al., 2019). Accordingly, I ask:

What do organizations strive for to navigate DT in a state of constant unfreezing?

(Essay 4)

3.3 The Autopoietic Nature of Digital Transformation

Digital technologies are evolving and emergent (Berger et al., 2018). This implies that the impact of digital technologies not only on organizations but also individuals and society will never come to end. Rather, we can assume that the constant technological advancements will lead to further turbulences in organizations' environments and thus requiring continuous change. Nevertheless, existing research on DT and the underlying transformation process entails that organizations are striving to a stable outcome with their DT efforts, like a new digital business model or new an organizational identity (e.g. Wessel et al., 2021). This contradicts on the one hand with the acknowledgement of DT as an ongoing process as well as on the other hand with the ever-evolving nature of digital technologies (Vial, 2019). Thus, IS research is being in dire need of better understanding and theorizing the DT phenomenon to grasp these contracting aspects (L. M. Markus & Rowe, 2021). Thus, my third research goal is:

RG_3: Understanding the nature of change of DT with a complex transformation process and ever-changing outcomes

Following the assumption of ever-evolving digital technologies, the question remains how DT will evolve in the future. Current research leaves many questions open, like what are organizations striving towards when reaching a new business model is accomplished? Will DT come to an end? Are we calling out the next wave of DT or will there be a new phenomenon? Current theories and models do not provide answers to these open questions, so we need to develop new theories on DT that reflect the evolvement of the phenomenon and its complex nature.

To contribute to the ongoing theorizing on DT in the IS research community, I aim to develop a new theory on DT phenomenon to give justice to the evolving nature of DT by applying the concept of autopoiesis. (Essay 5)

4 Thesis Structure and Research Designs

This thesis consists of five essays to address the three research goals described in Section 3. The essays follow this introduction chapter. Thereby, Essay 1 addresses RG_1

Table 1. Publication Histories of the Essays in This Thesis

Research Goals	Title	Publication Outlet	VHB JQ3 Ranking	Publication Status
RG_1: Unraveling the concept of continuous change for the DT	**Essay 1:** Disentangling the Concept and Role of Continuous Change for IS Research – A Systematic Literature Review	Proceedings of the 40th International Conference on Information Systems (ICIS 2019)	A	Published
RG_2: Understanding transformation efforts of and associated with DT to cope with continuous change	**Essay 2:** Everything Is IT, but IT Is Not Everything – What Incumbents Do to Manage Digital Transformation Towards Continuous Change	Proceedings of the 42nd International Conference on Information Systems (ICIS 2021)	A	Published
	Essay 3: Sustaining Digital Transformation: Exploring the Interplays between Organizations' Collective Transformation Efforts toward Continuous Change	(European Journal of Information Systems)	(A)	Rejected after 2nd round; Re-submission in preparation
	Essay 4: Navigating Organizations in Times of Constant Unfreezing – On the Importance of Stability in Organizations' Digital Transformation	(Information Systems Journal)	(A)	Rejected after 1st round; Re-submission in preparation
RG_3: Understanding the nature of change of DT with a complex transformation process and ever-changing outcomes	**Essay 5:** Reconceptualizing Digital Transformation – A Theory of Digital Transformation as an Autopoietic System and Its Implications	(Information Systems Journal) **Previous Version:** (Journal of the Association for Information Systems)	(A) (A)	Rejected after 3rd round; Re-submission in preparation Rejected after 2nd round

Essay 2 to 4 address RG_2, and Essay 5 addresses RG_3. As described, each essay addresses a specific research question to contribute to the existing body of knowledge on the DT phenomenon and continuous change. At the time of publishing this thesis and due to the cumulative nature of this thesis, the essays are either published in, in review for or in preparation for submission to well-recognized conferences or journals. Table 1 provides an overview of the current preparation status for each essay. All essays are the product of joint work with my co-authors.[1] Thus in the follow sections, I will use the plural *we* to reflect the joint work while outlining the research design for each essay.

Table 2. Applied Research Methods of the Essays in This Thesis

Research Goals	Title	Research Method
RG_1: Unraveling the concept of continuous change for the DT	**Essay 1:** Disentangling the Concept and Role of Continuous Change for IS Research – A Systematic Literature Review	• Structured literature review (Webster und Watson 2002)
RG_2: Understanding transformation efforts of and associated with DT to cope with continuous change	**Essay 2:** Everything Is IT, but IT Is Not Everything – What Incumbents Do to Manage Digital Transformation Towards Continuous Change	• Interview study (Myers und Newman 2007; Schultze und Avital 2011) • Open coding and data analysis (Saldaña 2013)
	Essay 3: Sustaining Digital Transformation: Exploring the Interplays between Organizations' Collective Transformation Efforts toward Continuous change	• Interview study (Myers und Newman 2007; Schultze und Avital 2011) • Inductive concept development (Gioia et al. 2013) • Leavitt's diamond model (Leavitt 1964)
	Essay 4: Navigating Organizations in Times of Constant Unfreezing – On the Importance of Stability in Organizations' Digital Transformation	• Interview study (Myers und Newman 2007; Schultze und Avital 2011) • Inductive concept development (Gioia et al. 2013)
RG_3: Understanding the nature of change of DT with a complex transformation process and ever-changing outcomes	**Essay 5:** Reconceptualizing Digital Transformation – A Theory of Digital Transformation as an Autopoietic System and Its Implications	• Theory development (Leidner, 2018) • Problematization (Alvesson & Sandberg, 2011, 2020)

[1] See Appendix A for the declaration of the Co-Authorship and my individual contribution to each essay

Research recommends a multimethodological approach to IS research (Mingers, 2001). Therefore, this thesis mainly follows epistemological assumptions relying on interpretivism to contribute to the scientific discourse on DT as well as generating insights for practitioners. In addition, following recent calls to develop new theories on DT to better understand the phenomenon and the underlying dynamics (e.g. Baiyere et al., 2021; M. L. Markus & Rowe, 2021), a theorizing research approach was chosen to develop a new concept for the DT phenomenon. In the following, I will briefly outline the research design of each essay part of this thesis. Table 2 provides a brief overview on the research designs on data collection and data analysis.

In Essay 1, we conduct a structured literature review (SLR) to gain a comprehensive overview on the existing literature on the concept of continuous change (Webster & Watson, 2002). Thereby, we aim to unravel the concept of continuous change for the IS domain and develop a future research agenda (Paré et al., 2015). Based on initial discussions with practitioners and experts as well as a preliminary literature research, we develop a first understanding on the concept of continuous change which helps us to derive our search string for the SLR. By applying the search string in interdisciplinary scientific databases on titles, abstracts, and keywords, we end up with a set of 730 research results. We reduce the number of research results through four screening iterations to a set of 34 eligible papers. We extensively analyze conceptualizations, theories, and findings from the eligible set of papers and synthesize relevant insights in several analysis iterations. At the end, we derive five predominant research streams and recommendations for future research on the concept of continuous change for the IS domain.

In Essay 2, we conduct an exploratory in-depth interview study to understand how incumbents engage with DT and its impact on the organizational change behavior (Myers & Newman, 2007; Schultze & Avital, 2011). We develop a semi-structured interview guide consisting of three major blocks inspired by extant DT literature (Hanelt et al., 2020; Vial, 2019) and our own research in this field. The first interview block comprises the introduction of the respective interviewee. The second interview block focuses on the interviewees' understanding of change behavior in their organizations and how it develops over time. The last interview block concerns how our interviewees engage in DT and how this impacts the organizational change behavior. We interview practitioners who hold leadership positions and were

responsible for DT initiatives within their organizations. Due to the average length of 85 minutes per interview, we collect a large amount of interview data which provides us deep insights into the respective organizational context. For data analysis reasons, all interviews are recorded and transcribed. To analyze the interview data, we chose an open coding style due to the exploratory nature of our interview approach (Saldaña, 2013). We summarize key statements and emerging ideas in comments based on the open codes from which we derive recurring patterns in theoretical memos (Birks et al., 2008). Due to the large amount of interview data collected, we focus on the key topics and challenges of our interviewees. We identify an interplay of DT, AT, and CT which we framed as the Transformation Triad helping organizations to manage their collective transformation efforts to cope with continuous change.

In Essay 3, we build on the initial analysis conducted in Essay 2. While our initial analysis reveals the close interrelations among DT, AT, and CT as well as key topics and challenges, we aim to understand the interplay of the collective transformation efforts of organizations on a deeper level. Consequently, while starting with an open-coding approach without imposing pre-defined categories (Saldaña, 2013), we decide to structure our findings along the four dimensions of Leavitt's diamond model (*actors*, *tasks*, *structures*, and *technologies*) on organizational change in the analysis phase. We take this decision due to the immense amount of available interview data and to be able to deal with the complexity of the collective transformation efforts of DT, AT, and CT of our interviewees' organizations. Further, we apply the methodology by Gioia et al. (2013) for guidance in the further synthesis iterations of our data analysis. We go back and forth in our synthesis iterations while deriving first order-concepts (in total 207) which we further condensed in 36 second-order concepts and 11 aggregate dimensions until we found a consensus among all authors (Saunders et al., 2018). We derive three different types of relationships among the second-order themes and the three transformations (74 relationships in total) which we finally condense to four different types of relationships among the aggregate dimensions and the three transformations (33 relationships in total).

In Essay 4, we again follow an exploratory research approach by conducting an interview study to understand how organizations navigate in an environment of constant unfreezing which is a new phenomenon (Myers & Newman, 2007; Schultze & Avital, 2011). Hence, based on recent research on DT (Hanelt et al., 2020; Vial, 2019),

we develop an interview guide. First, we aim to gain insights on which future capabilities are needed to navigate in a state of constant unfreezing. Second, we want to understand which hurdles organizations face while developing these capabilities. Third, we ask for aspects which provide stability and orientation in times of constant flux. Lastly, we strive to understand what organizations want to actively preserve as it already helps them to stay competitive in the past and might as well do so in the future. We conduct interviews with 48 practitioners from 42 different organizations. All interviewees have diverse backgrounds but are involved or responsible for DT-related activities in their organizations. Like in Essay 3, we followed the systematic approach by Gioia et al. (2013) which on the one side ensures qualitative rigor in inductive research and on the other side allows the emergence of new concepts and ideas. Consequently, we derive first-order concepts, second-order themes, and aggregate dimensions from our interview data along the iterative three-step analysis process. We ensure close alignment among the author team during each process steps through e.g. multiple brainstorming session until we reach a stable set of 17 second-order themes (Saunders et al., 2018). While we initially derive the second-order themes inductively, we alter our approach to be abductively (Gioia et al., 2013) to finally come up with 5 aggregate dimension: *environment, structure & strategy, culture, people,* and *purpose*.

Essay 5, we conduct a theory development on DT (Leidner, 2018). Thus, this Essay is a conceptual paper in which we apply the biological concept of autopoiesis to theorize DT from a new perspective. The concept of autopoiesis refers to the self-reproducing nature of a living system, wherein they continuously (re-)produce and organize their inherent components to sustain their identity and structure (Varela et al., 1974; Zeleny, 1981). We problematize the lack of current theories in existing literature to reflect the complex, ongoing transformation process and ever-changing outcomes of DT (Alvesson & Sandberg, 2011, 2020). This shows the necessity of developing a new theory to address this gap. Consequently, we first aim to classify existing research on organizational digital transformation (ODT), i.e., digital transformation which occurs in the organizational context. We derive the two dimensions *degree of process complexity* and *degree of outcome evolution* to define four types of ODT which are *revolutionary stability*, *outcome emergence*, *process complexity*, and *evolutionary complexity*. As we strive for integration and not for separation of all four types, we suggest developing a new theory and defining a common vocabulary on DT

independent of the organizational context to address its complexity and ever-changing outcomes. Hence, we introduce and apply the concept of autopoiesis to theorize the DT phenomenon by leveraging the system principles by Demetis and Lee (2016). These system principles are based on general system theory and autopoiesis. We include the five system principles: *holism, goal-seeking, transformation process, self-reference & autopoiesis, and system-environment distinction*.[2] We further include the concept of Zeleny (2006) on the reproducing cycle on information and knowledge as well as Demetis and Lee (2019) distinguishing between data and information to leverage the system principles to theorize DT as a system with autopoietic characteristics.

5 Summary of Results

In the following paragraphs, I will summarize the results of each essay which are part of this overarching thesis and contribute to the three RGs outlined in Section 3. Accordingly, Essay 1 structures the extant existing body of knowledge on continuous change from an interdisciplinary perspective into a conceptual model and relates the findings to well-established IS concepts like dynamic capabilities, ambidexterity, and agility (Section 5.1). Essay 2 is based on a broad explorative interview study and demonstrates insights on how organizations cope with continuous change through the interrelations of DT, AT, and CT in the form of the Transformation Triad (Section 5.2). Essay 3 follows the findings of Essay 2 and provides deeper insights into the interrelations of DT, AT, and CT to depict how these transformations can foster as well as limit each other (Section 5.3). Essay 4 presents the results on an explorative interview study which shows components providing organizations stability in times continuous change (Section 5.4). Lastly, Essay 5 theorizes the DT phenomenon as a self-reproducing system by applying the biological concept of autopoiesis to explain the complex transformation process and ever-changing outcomes of DT (Section 5.5). All essays are the result of joint work with my co-authors so that I will refer to the plural from *we* in my following explanations.

[2] Originally, Demetis and Lee ((2016)) define six principles but only the five mentioned system principles where applicable for our development process of a new theory on DT

5.1 Essay 1: Disentangling the Concept and Role of Continuous Change for IS Research – A Systematic Literature Review

In Essay 1, we develop a conceptual model on continuous change consisting of 5 research streams – *cause, process, governance, capabilities, result* - which we derive from a systematic literature review. The research stream *cause* focuses on the environmental and internal factors that drive organizations to continuously change. *Process* reflects the ongoing and orchestrated change process on the strategic, tactic, and operational level. The two research streams *governance* and *capabilities* comprise the governance components and organizational capabilities which facilitate and foster continuous change. Lastly, *result* describes the expected outcomes of the continuous change process for organizations. We further elucidate our findings against the backdrop of the well-established concepts dynamic capabilities, ambidexterity, and agility in the IS research. We demonstrate how these three concepts foster continuous change and thus contribute to long-term competitive advantage of organizations.

Our findings highlight the diverse nature of continuous change and its significance in helping organizations thrive in highly turbulent business environment (El Sawy et al., 2010). We advocate for a greater emphasis on continuous change in IS research, moving away from traditional punctuated change models (Lyytinen & Newman, 2008), to better consider the emergent character of digital technology leading to constant change and their management in organizations (Kumar et al., 2016). Our findings contribute to a clearer understanding of the conceptual boundaries of continuous change and its connections to IS research, while also presenting a research agenda to encourage future research based on our systematic literature review. Finally, the identified five research streams may offer valuable insights to organize managerial decision-making.

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

In Essay 2, we describe the findings of our exploratory interview study for DT, AT, and CT as well as the interdependencies between these three transformations. We identify four key topics for DT in which our interviewees are involved. First, our interviewees focus on developing *client-centric business models* in which they treat their customers as a collaborative partner and put their needs at the center of their business models to

quickly adopt to the ever-changing needs. Second, we find *technology and data* which on the one hand is seen as an enabler to create client-centric business models but on the other hand is still a major challenge due to disharmonized databases and heterogeneous IT landscapes. Third, we recognize different *organizational setups* on how our interviewees approach and drive DT efforts within their organizations. Lastly, we observe different *strategic planning* approaches on how interviewees plan their DT endeavors. For AT, we identify three key topics in which our interviewees are engaged: the restructuring of *decision-making processes* to speed up decision making, the establishment of new *incentive structures* to encourage the adoption of new ways of agile working, and the creation of a new *work environment*. Finally for CT, we also observe three key topics: the necessity to change the understanding of *leadership*, in the context of leadership the provisioning of *psychological safety*, and the importance of *cultural values* to build a culture of trust and good failure handling. Based on the various key topics for DT, AT, and CT, we recognize important interrelations between the three transformations so that the three transformations must be considered from an integrative perspective, which we call *Transformation Triad*. Approaching the three transformations from an integrative perspective and thus considering the interrelationships help organizations to set themselves up towards continuous change.

Our empirical interview study shows that we must see DT as an ongoing process closely related with AT and CT so that organizations are able to continuously adapt to rapidly changing environments (Hanelt et al., 2020; Vial, 2019). The success of one transformation is bound to the progress of the other two interrelated transformations so that if one transformation stagnates the others do too. Further, the transformational endeavors of the Transformation Triad strive for enabling to employees to become the flexible organ of an organization. Therefore, we place employees at the center of Transformation Triad since digital technologies do play an important role in this context, but people are the engine for the transformation (Dang & Vartiainen, 2020). To give employees a direction on the path towards continuous change and beyond, organizations provide employees with a long lasting purpose and vision as a North Star in times of constant flux (Venus et al., 2019).

5.3 Essay 3: Sustaining Digital Transformation: Exploring the Interplay between Organizations' Collective Transformation Efforts toward Continuous Change

Based on the initial findings of Essay 2, we dive deeper into interplay of the collective transformation efforts of organizations along DT, AT, and CT which form the Transformation Triad. Following an exploratory, inductive research approach (see Section 3), we derive 11 aggregate dimensions that reflect how the three transformations relate to each other. We structure the aggregate dimensions along the 4 dimensions of Leavitt's diamond model: *Actors*, *Tasks*, *Structures*, and *Technologies* (Leavitt, 1964). First, we identify four aggregate dimensions for *Actors*. *Mindset* pertains to desired attitudes and characteristics in employees, *Skills* refers to diverse skill sets, *Leadership* encompasses expectations of leaders' roles, and *Culture/Values* describes the desired corporate culture to create a flourishing work environment. Second, we derive the two aggregate dimensions *Task Focus,* i.e., what tasks needs to be done, and *Task Execution*, i.e., how tasks need to be done, for the dimension *Tasks*. Third, for the *Technologies*, we extract two aggregate dimensions: *Technological Development*, which involves the ongoing advancement of technology impacting the organizations, and *IT Landscape Foundation*, which emphasizes the need to align the existing IT landscape to facilitate future technological changes. Lastly, we elicit the three aggregate dimensions *Inter-organizational collaboration structures, Inter-team collaboration structures,* and *Within-team collaboration structures* for dimension *Structures*.

Each aggregate dimension represents an action field which our interviewees approach on their transformation journeys. DT shall not be understood as an isolated transformation endeavor but as part of collective transformation efforts, i.e., the interplay of DT, AT, and CT in form the Transformation Triad. By orchestrating these transformation efforts, organizations strive for systematically sustaining and managing DT to cope with continuous change. Consequently, we describe the relationships between the action fields and the three transformations to reveal how each transformation not only in isolation but also collectively impacts the overarching transformation journey of organizations. We identify *developing* and *demanding relationships* between the action fields and transformations. These relationships highlight how the three transformations cannot only enable but also restrict each other. Consequently, our findings show that organizations should take an integrative

approach to lever potentials of each transformation. Further, we outline future research avenues on the interrelations of the three transformations.

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

In Essay 4, we derive a framework summarizing 5 aggregate dimensions – *environment*, *structure & strategy*, *culture*, *people*, and *purpose* - to elucidate how organizations deal with change and stability in a state of constant unfreezing caused by the DT phenomenon (Hanelt et al., 2020). Each aggregate dimension is based on several second-order concepts. Each second-order concept reflects a specific area that an organization needs to address. Thereby, each second-order concept encompasses the organizational capabilities that organizations need, the hurdles organizations face in time of continuous change, and the factors that will remain in the future independent of the type of change organizations will face.

The framework depicts the interrelatedness of the five aggregate dimensions and how they reflect the tension between change and stability in organizations. Thereby, it suggests that organizations' DT efforts may focus on change or stability in each dimension, and changes in one dimension can influence the capacity to change in others. Our findings show that dimensions, which have provided organizations stability in the past, are today constantly changing, i.e., *structure & strategy* as well as *environment*, and are thus part of the outer shell. Simultaneously, *culture*, *people* and especially *purpose* are providing organizations stability today and help them to navigate in times of constant unfreezing. Thus, these dimensions build the inner core for organizations. Consequently, we derive three different archetypes along the along the outer shell and inner core of organizations. Our findings provide insights on the nature of change of DT and how organizations can navigate in this continuous change. In addition, we illustrate different areas for future research potentials.

5.5 Essay 5: Do All Things Come to an End? Exploring Digital Transformation's Autopoietic Nature and Its Implications

In Essay 5, we theorize DT as a system with autopoietic characteristics by applying five system principles by Demetis and Lee (2016) which are based on general system theory and the biological concept of autopoiesis. Since in general an autopoietic system first

and foremost strives for its perseverance based on the reproduction of its inherent elements, we describe the reproduction of DT on the interplay of data, technology, and actors. Further, we distinguish the application of the five system principles in two different perspectives. First, we apply the system principles *holism*, *self-reference & autopoiesis*, and *goal-seeking* to describe how DT operates as a system with autopoietic characteristics, i.e., its inner functioning (inward-oriented perspective). Second, we apply the principles *system-environment distinction* and *transformation process* to describe how DT as a system interacts with and impacts its environment (outward-oriented perspective).

By theorizing DT as a system with autopoietic characteristics, we aim to provide a new of way of describing DT as complex transformation process and ever-changing outcomes. Our developed theory depicts a new vocabulary to describe DT in general as well as in specific context. We contribute to the IS research domain by adopting the concept of autopoiesis. The concept of autopoiesis only played a minor role so far in the IS research domain whereby the concept is already well-established in other research fields like social science and organizational studies. By transferring the concept of autopoiesis to research on DT, we provide scholars a foundation for a common language to compare and demarcate the DT phenomenon in diverse contexts, like individual, organizational and social contexts. In addition, we provide directions for future on DT based on our theory.

6 Discussion and Conclusion

In the following, I will discuss my results and conclude my thesis in terms of my overarching research aim: *to elucidate how organizations approach the shift of the nature of change of DT towards continuous change and how they manage this transformation effort with further transformation efforts in their organizations*. Hence, I briefly summarize this introduction to my thesis, outline contribution to theory as well as practical implications, and give an outlook on future research into the shifting nature of change of DT and its management.

6.1 Summary

Motivated by the shifting nature of change of DT, this thesis elaborates on DT in the form of continuous change, the underlying transformation efforts of and associated

with DT as well as a new theoretical perspective on DT considering the complex transformation process and ever-changing outcomes. Prior work on organizational change in form of continuous change and DT serves as starting point and theoretical lenses for this thesis. It is structured along three research goals encompassing five essays that provide perspective on continuous change for the IS research (Essay 1), overview on the collective transformations surrounding DT to cope with continuous change (Essay 2), insights into the relationships among the collective transformation efforts (Essay 3), guidance on balancing change and stability within the DT journey (Essay 4), and theory of DT as a system with autopoietic characteristics (Essay 5).

6.2 Contributions to Theory and Implications for Practice

At the interface of IS research and organizational studies, this thesis contributes to the ongoing discussion on DT in our IS community. By building on existing theories from IS research and organizational studies, I extend our current thinking about the nature of change of DT and how to manage the related transformation efforts. The insights gained from my research also induce implications for practitioners who deal with DT.

Summarizing the insights from the five essays, this thesis provides five main contributions to the ongoing academic discourse. First, this thesis present continuous change as an alternative organizational change concept for DT to conceptualize DT in the context of highly dynamic environments (El Sawy et al., 2010). Thus, I add to the research on organizational change in the context of DT. Second, this thesis elucidates interfaces of DT with other transformation efforts, i.e., AT and CT, in incumbents to cope with continuous change and to manage the transformation process (Carroll et al., 2023; Fuchs & Hess, 2018; Nguyen et al., 2020). Hence, I provide insights on how to manage and sustain DT together with AT and CT by diving deeper into their interrelations, forming the Transformation Triad. Third, this thesis highlight the importance of cultural aspects and focus on people to drive DT in particular and related collective transformation efforts in general (Barthel, 2021; Berghaus & Back, 2016; Hartl, 2019). Accordingly, I contribute to research into the development of digital cultures and importance of cultural change for the success of DT. Fourth, this thesis shows the importance of concepts like purpose, vision, and cultural values as a form of stability and guidance in the context of constant change not in contradiction to change but as a complement (Farjoun, 2010; Venus et al., 2019). Fifth, this thesis provides a

new theoretical lens and vocabulary to better understand the DT phenomenon (Baiyere et al., 2021; M. L. Markus & Rowe, 2021). Consequently, I add to the ongoing discourse on the necessity to better understand the nature of DT and develop new theories.

In addition to the theoretical contributions, this thesis provides practical implications. First, practitioners might benefit from my results by understanding DT not as a next radical transformation striving for a new stable state but rather as a form of continuous change. Thereby secondly, this thesis provides practitioners insights of how to set up their DT journey in alignment with AT and CT to cope with this form of change. The identified interrelations between the three transformations might support practitioners where these three transformations enable and limit each other to manage the collective transformation efforts successfully in the long run. Third, it will be valuable for practitioners to not focus solemnly on technology in the context of DT but to put people in the center of their transformation efforts. Managers have to enable people to become the driving force of their transformation. Lastly, organizations might find it helpful to engage people into transformation efforts not by sense of urgency but by providing purpose or vision which serves as a guidance and motivation during constant change.

6.3 Limitations

Although research on DT has accelerated in the last two decades, this research field is still in its fancy (Nadkarni & Prügl, 2021). Thus, in order to gain new insights into DT as an emergent phenomenon and contribute to the ongoing academic discourse, this thesis is mainly based on an explorative research design as well as aims to develop a new theory on DT. Thus, this thesis is subject to several limitations. In the following, I will reflect on the overarching limitations of this thesis. For details on the limitations, I may refer to the respective essay's discussion and conclusion sections.

First, this thesis outlines the relevant interfaces of DT with AT and CT for organizations to cope with continuous change. So far, these derived interfaces are described on a meta-level and thus provide only initial insights on the interrelations of the Transformation Triad. However, more in-depth analysis is required to profoundly understand all interactions, mechanisms, and how they influence each other within the Transformation Triad (Lyytinen & Newman, 2008).

Second, this thesis's results are mainly based on explorative in-depth interview data to gain novel insights on the DT phenomenon. Hence, the results are highly subjective in various ways, like interviewees' interpretation of the questions, interviewees' understanding of DT, the interpretation of the answers during the interviews, the coding process as well as the synthesis of the codes. To overcome the subjectivity bias, the analysis of the interview data and later synthesis of the derived codes were conducted by three researchers in several brainstorming sessions and close alignment until a common understanding was achieved.

Third, by conducting interviews at a certain point in time, only a snapshot of the DT journey of an organization is captured. Since DT is understood as an ongoing process that requires adaptations (Vial, 2019), an investigation of organizations' DT journey over longer period of time might lead to even deeper insights and a better understanding on how DT unfolds over time (Carroll et al., 2023). In addition, interviews were conducted with one or at maximum two representatives of one organization, so that DT is only explored from a single perspective in the various organizations. Thus, an interviewee's role, here mainly executive management, professional experience, and the length of employment with the company might influence the interviewee's answers. Nevertheless, due to large number of interviews, that were conducted, general patterns across all interviews could be derived.

6.4 Future Research

In consideration of the results of this thesis and its limitations, three main avenues of future research emerge: evolvement of organizational culture to support DT, sustainable management of DT in the long run, and understanding the DT phenomenon and its underlying nature of change.

The results of this thesis reflect the importance of developing an organizational culture through which DT flourishes and engages people to become the driving force. In line with this, also previous research emphasized the importance of organizational culture as a key success factor for DT (Barthel, 2021). Thereby, it is important to overcome the inertia to change culture on an individual as well as on an organizational level (Haskamp et al., 2021). Regardless of this acknowledgement so far, research only briefly touches on the change of organizational culture to drive DT (Hartl, 2019). Hence, I see two promising areas for future research to focus on when aiming to change

organizational culture. First, future research should focus on the changing nature of middle management (Nadkarni & Prügl, 2021). Middle managers play a crucial role for the success of DT by "redefining a firm's strategic context and by this driving organizational transformation" (Nadkarni & Prügl, 2021, p. 261). Hence, it is important to investigate how their role and tasks evolve in the context of DT and how to deal with potential resistance by middle managers. Second, an organizational culture should be based on cultural values and a corporate vision that provide stability and guidance in times of continuous change and a digital world (Gurbaxani & Dunkle, 2019; Hylving & Koutsikouri, 2020; Venus et al., 2019). Therefore, future research might investigate guiding principles to define cultural values and a corporate vision to engage employees into DT long-term. In addition, it might also be of value for future research to investigate the impact of corporate visions on the success of DT that go beyond pure shareholder value, like e.g., environmentally sustainable ambitions and contribution to a greater good.

By shifting the focus from technology to organizational culture aspects in the context of DT (Kane et al., 2019), it becomes essential to better understand the transformation process underlying DT, i.e., how to implement, embed, integrate, and evaluate digital technologies to change cultural aspects (Carroll, 2020). However, research so far is scarce on managing and sustaining the DT process and the assumptions, that have been made so far, are only weak (Carroll et al., 2023). The findings of this thesis open an alternative perspective on the DT process by examining the relationships of DT to AT and CT in the form of the Transformation Triad, which are necessary to manage and sustain DT. While there is existing research on the relationships between DT and AT (e.g. Fuchs & Hess, 2018) as well as DT and CT (e.g. Duerr et al., 2018), research on an integrative perspective on all three transformations is sparse. While this thesis elucidates the interrelations of the three transformations on a meta-level, further research could benefit from investigating these interrelations on a deeper level to better understand the underlying transformation process, particularly for DT but also in relation to the other essential transformation efforts.

Lastly, IS research calls for new theories and concepts to reflect the ever-evolving dynamics characterizing the DT phenomenon (M. L. Markus & Rowe, 2021). Recent research already distinguishes DT and IT-enabled organizational transformation (Baiyere et al., 2020; Wessel et al., 2021) to better understand the DT phenomenon.

Further, Baiyere et al. (2023) introduces guidelines to differentiate between digital “x” and IT “x”, while x stand for well-established concepts, like strategy, to provide even more clarity between the two phenomena. Nevertheless, with the development of the digital world coming first and purposefully shaping our reality (Baskerville et al., 2020), we as a research community should “focus less on explaining phenomena and instead concentrate on making them explainable, by finding ways to capture and represent the complexity” (Grisold et al., 2023, p. 61). Hence by providing a new vocabulary to describe DT, this thesis stimulates new future research on theorizing DT from a system theory perspective to explain the DT phenomenon and how it evolves over time. Thereby, researchers can reflect the complexity and dynamics of the DT phenomenon in future research by demarcating DT from comparable phenomenon, describe DT in different contexts, like on individual, organizational or societal contexts, or integrating knowledge from other disciplines.

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Disentangling the Concept and Role of Continuous Change for IS Research – A Systematic Literature Review[3]

Authors

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Abstract

To ensure their business success in the digital age, organizations must continuously adapt to an increasingly hypercompetitive environment. Although the topic of continuous change has been addressed by previous research, we perceive a lack of attention on continuous change as an appropriate organizational change approach to tackle the challenges of digital business in the IS domain. Thus, our research goal is to analyze what IS research can learn from extant literature on continuous organizational change in today's business environments. By carrying out a systematic literature review and analyzing 34 relevant papers, we identify and describe five major research streams which explore continuous change from different perspectives. Furthermore, we discuss links to well-known theoretical concepts to stimulate interdisciplinary exchange and we present a research agenda to transfer the identified results into the IS domain. Finally, we provide organizations with guidance to manage the challenges of digital business.

Keywords: Organizational change management, continuous change, dynamic capabilities, ambidexterity, agility, systematic literature review.

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Everything Is IT, but IT Is Not Everything – What Incumbents Do to Manage Digital Transformation Towards Continuous Change[4]

Authors

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

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 on how organizations prepare themselves for such continuous change. Thus, we conduct an explorative interview study with 29 interview partners that provide 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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Sustaining Digital Transformation: Exploring the Interplays between Organizations' Collective Transformation Efforts toward Continuous Change[5]

Authors

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

Extended Abstract

The characteristics of digital technologies spur digital innovations in organizations globally and have changed the rules of competition and markets (Bennett & Lemoine, 2014; Nambisan et al., 2017; Song et al., 2022; Yoo et al., 2010). To cope with these rapid changes and the corresponding turbulent business environment, organizations are forced to engage in digital transformation (DT) programs to change their deep structures (Baiyere & Hukal, 2020; Hanelt et al., 2020). Recent research has acknowledged that DT differentiates from known IS-related change phenomena (Besson & Rowe, 2012; Wessel et al., 2021), so that we are in dire need to better theorize the DT phenomena (Markus & Rowe, 2021). Further, organizations lack valid explanations and prescriptive guidance to cope with continuous change and sustain DT activities beyond initial one-time changes (Carroll, Hassan, et al., 2021). This kind of change requires a more comprehensive transformation approach for which thus far only preliminary insights is provided into the interplays between DT and further organizational transformation efforts (Bitzer et al., 2021; Carroll, Mc Lafferty, et al., 2021; Kane et al., 2015). Consequently, we ask:

How can we conceptualize the interplays between digital transformation and other organizational transformation efforts?

To answer this research question, we conducted an exploratory in-depth interview study with 36 practitioners from 32 organizations in various industries to gain a better understanding on organizational transformation efforts and to derive common patterns from these insights (Myers & Newman, 2007; Schultze & Avital, 2011). Using a semi-structured interview guide inspired by latest DT-research (Hanelt et al., 2020; Vial, 2019), our focus is on organizational changes prompted by DT. Our interview guide was divided into three sections, which aimed at setting the context,

[5] At the time of publication of this thesis, this essay is in preparation to be re-submitted to a scientific journal.

understanding the concept of DT and how it was managed within the organization, and examining organizational changes in the DT context. Based on the initial analysis of the interview data done a former research (Bitzer et al., 2021), we identified that organizations simultaneously conduct DT, cultural transformation (CT), and agile transformation (AT) that are interconnected. Our data analysis focused on understanding these interplays. Following methodology by Gioia et al. (2013) to analyze the explorative interview, we derive 207 first-order concepts and further 36 second-order themes which we finally clustered into 11 aggregate dimensions. To do so, we also leverage the four dimensions actors, tasks, structures, and technologies of diamond model by Leavitt (1964) to structure our results.

Based on our empirical findings, we discern that DT should not be viewed as an isolated transformation program but as part of collective transformation efforts with AT and DT to cope with continuous change. Thus, the three transformations form the transformation triad. Despite the unique strategies each organization utilizes to achieve its aspirations, we discovered strong commonalities across organizations and industries. We recognized the importance of understanding how to orchestrate these collective transformation efforts for sustaining DT. The identified 11 aggregate dimensions build actions fields across all three transformations, i.e., DT, AT, and CT, where organizations direct their focus to cope with continuous change. We derive four different relationship types between these action fields and the three transformations. Acknowledging the interdependencies between these three transformations and the actions fields, we realized that they are mutually enabling and restrictive. Our findings urge organizations to take an integrated view across the transformation triad and orchestrate their collective transformation efforts more holistically, including e.g., cultural and structural aspects, towards fostering continuous change, thus enabling sustained DT.

Our research led us to three significant theoretical contributions, all of which open up potential avenues for future research. Firstly, we encourage researchers to evaluate the dynamic interplays of the three transformations and the identified actions in greater depth, especially considering the impact of organization's status quo on their transformation journey and the impact of cultural aspects. Secondly, we note a shift is underway, moving away from the traditional change paradigm of episodic change towards continuous change requiring different elements to provide stability and

orientation. Hence, since corporate strategies become short-term, research should explore whether concepts such as purpose and vision can provide organization guidance long-term. Lastly, we identified gaps in understanding how organizational culture and CT affect technology dimension, thus future research would benefit from exploring the impact of these on organization's transformation journeys.

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Keywords: agile transformation, continuous change, cultural transformation, digital transformation, interview study, organizational change.

Navigating Organizations in Times of Constant Unfreezing – On the Importance of Stability in Organizations' Digital Transformation[6]

Authors

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Extended Abstract

Despite digital transformation (DT) being a focus of both practice and research for over a decade (Lanzolla & Anderson, 2008; Nadkarni & Prügl, 2021), we still encounter significant challenges in managing this change process, with failure rates as high as 70% (Bucy et al., 2016). Even though digital technologies demand continuous organizational change (Bitzer et al., 2021; Vial 2019, Hanelt et al, 2020), we currently lack a full understanding of the nature of change during DT (Markus & Rowe, 2021). Going even one step further, Hanelt et al. (2020) describe DT as a constant state of unfreezing with occasional episodic bursts. However, this understanding is incompatible with our current understanding of both change concepts episodic change and continuous change (Weick & Quinn, 1999). Thus, we observe three primary issues persisting in extant research. First, different change paradigms are mixed in organizations' DT journeys, which are inappropriate for DT efforts that have no clear target or aim for a new stable state (Chanias et al., 2019; Warner & Wäger, 2019). Second, though there is ample research on how to e.g., implement DT strategy (e.g., Matt et al., 2015) or orchestrate digital ecosystems (e.g., Tan et al., 2020), a compass to navigate through continuous DT journeys is still lacking, therefore, we need other concepts to provide needed direction for organizations. Finally, as traditional factors which provided stability in times of episodic change are unable to do so in times of continuous change, we need other concepts to discover what provides organizations stability in a state of constant unfreezing. This leads us to the pressing need to enhance our understanding of the nature of DT. Hence, we ask:

What do organizations strive for to navigate DT in a state of constant unfreezing?

Since our study aims at shedding light on investigating how organizations can navigate in an environment of constant unfreezing being a novel phenomenon, we followed an

[6] At the time of publication of this thesis, this essay is in preparation to be re-submitted to a scientific journal.

exploratory approach and conducted an in-depth interview study as a proven method for data collection in qualitative research (Myers & Newman, 2007; Schultze & Avital, 2011) To gather data, we conduct an in-depth interview study with 48 individuals from 42 different organizations, selected from our industry network. The interviewees held positions in digitalization, IT, strategy, or innovation and were either leading or involved in DT efforts. We create a semi-structured interview guide inspired by recent works on DT (Hanelt et al., 2020; Vial, 2019). The guide helps us gain an overview of future capabilities organizations need for continuous change and the hurdles they face in becoming such an organization. In an era of constant change, we also sought to understand what provides stability and orientation by asking the interviewees about factors that remain and what their organizations should actively preserve.

We utilize the systematic approach by Gioia et al. (2013) for data analysis. This approach, designed for qualitative rigor in inductive research, supports the emergence of new concepts, ideas, and theories and is particularly useful when a deep understanding of organizational dynamics and processes is needed. Our data analysis involves an iterative three-step coding process deriving 100 first-order concepts, 17 second-order themes, and five aggregate dimensions whereby these five dimensions guide our theoretical understanding of the phenomenon under study.

Our main result is a framework developed based on the five derived aggregate dimensions environment, structure and strategy, culture, people, and purpose. The second-order concepts, from which the dimensions are derived, represent specific areas that an organization need to address. The framework enables us to depict how organizations manage constant change and stability amid DT. This includes the future capabilities necessary for organizations, the hurdles they encounter during continuous change, and the factors that remain constant regardless of the type of change they face. The framework reveals the interdependence of these dimensions and the tension between change and stability, indicating that changes in one dimension can influence an organization's ability to change in others. We note a shift in which traditionally stable dimensions, such as structure and strategy and environment, are now subject to continuous change, while areas like culture, people, and purpose provide the stability for organizations during times of continuous change. Hence, we categorize three organizational archetypes based on tension between change and stability. These findings illuminate the nature of DT's continuous change and guide organizations in

navigating these changes.

Our research prompts three key areas for future exploration in the context of DT: the nature of DT, the purpose of DT, and stability during times of constant unfreezing. With respect to understanding the nature of DT as a form of constant unfreezing, we encourage future research to consider alternative perspectives possibly including theories on complex systems and the evolution of digital technologies. Understanding DT as a means to an end, we highlight the need for additional research to identify compasses to guide continuous transformation efforts and to consider the concept of purpose beyond merely surviving. In addition, we suggest further exploration into the future capabilities, challenges, and factors that remains to better understand how organizations might deal with a state of constant unfreezing. Lastly, we propose examining the role of stability in times of continuous change. This involves identifying other potential sources of stability in addition to purpose and investigating stability not in contrast to the nature of change of DT but as a complement and enabler to provide guidance and orientation.

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

Reconceptualizing Digital Transformation – A Theory of Digital Transformation as an Autopoietic System and Its Implications [7]

Authors

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Extended Abstract

Digital transformation (DT) is a phenomenon recognized across multiple research fields (e.g., Hanelt et al., 2020; Iscaro et al., 2021; Vial, 2019) as a process that requires significant changes of organizations' deep structures, in order to stay competitive in changing market environments (e.g., Berger et al., 2020). While IS research has made tremendous contributions by studying DT in organizations (e.g., Baiyere et al., 2020; Carroll & Conboy, 2020; Wessel et al., 2021), the broader phenomenon of DT also requires changes by individuals (e.g., Blanka et al., 2022) as well as to society (e.g., Bodrožić & Adler, 2022). Hence, we distinguish between organizations' digital transformation (ODT) and DT as a phenomenon going beyond the organizational context.

While recent research has shown that ODT differentiates from previous IT-enabled change phenomenon (e.g., Sebastian et al., 2017; Verhoef et al., 2021; Wessel et al., 2021), they all describe ODT as a phenomenon with unique but discrete one-time outcomes that do not change over time. However, digital technologies' unique characteristics and rapid development cycles lead to a constantly changing and increasingly complex business environment, stimulating changes at individual, organizational, and societal levels (Bharadwaj et al., 2013; Faik et al., 2020; Lucas & Goh, 2009; Yoo et al., 2010). Thus, existing models of ODT potentially overlook ongoing evolutionary changes and suggest that ODT is complete with particular achievements. This provides an interesting point of tension with the narrative of ODT as a form of complex (Carroll et al., 2021; Jöhnk et al., 2022) and continuous change that leads organizations to chase a moving target (Bitzer et al., 2021; Faro et al., 2019; Hanelt et al., 2020). Even though, Hanelt et al. (2020) conceptualized ODT as a transformation that breaks the traditional unfreeze-transform-refreeze paradigm, we

[7] At the time of publication of this thesis, this essay is in preparation to be re-submitted to a scientific journal.

lack theories that push the frontier of prevailing IS research on the outcome perspective and theorize ODT beyond individual outcomes. Consequently, our research is driven by the perceived disparity between the current narratives and theories on ODT in particular and DT in general, with an overemphasis on short-term outcomes and lack of focus on medium to long-term objectives.

Hence, we first classify the existing literature of ODT by deriving the two dimensions degree of process complexity and degree of outcome evolution. Based on these dimensions, we can define four types of ODT: revolutionary stability, outcome emergence, process complexity, and evolutionary complexity. Thus, we advocate for integration, rather than separation, of these four types but at the same time also call for new theories and a new vocabulary that reflect ODT's complexity and evolving outcomes. Consequently, our research adopts the concept of autopoiesis (Varela et al., 1974), originating from biology and applied to social systems by Luhmann (1986), as a means to theorize DT. We apply the autopoietic and general system principles by Demetis and Lee (2016) to describe DT as a system with autopoietic characteristics, continually reproducing itself through the interplay of its elements digital technologies, data, and actors.

As DT seeks its own preservation through self-reproduction, it shapes its environment, creating a continuously evolving 'digital world'. Despite the changing perceptions of this 'digital world', DT maintains a code of 'digital' versus 'non-digital' throughout its evolution. Overall, we provide a mid-range theory, encompassing an essential vocabulary for future researchers to investigate DT across different contexts and organizations. This approach facilitates a common language and comparability across varied DT research, helping scholars to understand the inherent complexities and dynamics of DT.

With our theory development of DT as a system with autopoietic characteristics, we contribute to recent research on DT by identifying six propositions for future research along the two dimensions complexity and outcome evolution. Further, we outline implications for the four types of ODT revolutionary stability (1), outcome emergence (2), process complexity (3), and evolutionary complexity (4). First, while autopoiesis theory questions if we observe novel phenomena or just the reproduction of the same phenomenon, research and practice will always be interested in understanding the latest effect of the reproduction. Accordingly, by referring to our theory, we can

understand that the outcomes and the ways to reach that outcomes will change over time and since we can only describe a snapshot, our new provided vocabulary enables us to identify where the change in logics might originate. Second, while the interactions between the elements of DT's reproduction remain stable on an abstract level, they continuously evolve in concrete contexts, like changing attitudes towards digital technologies and data. Hence, different and transient outcomes might be investigated through our theorized model in concrete cases. Third, our theory posits that while DT generates continually evolving outcomes, its inherent 'digital' versus 'non-digital' code remains stable so that no natural end to DT exists. Rather DT's reproduction and interaction with its environment as well as interpretation of what is ' digital' perpetuate a continuous process. Lastly, by leveraging the autopoiesis framework, our theory provides a valuable lens for researchers to investigate the complexity and transient outcomes of ODT, by illustrating how DT through its reproducing nature and inherent "digital vs non-digital" code contributes to dynamically evolving outcomes in an increasingly interconnected system.

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Keywords: Digital Transformation, Autopoiesis, System Theory, Theorizing.