

Exploring the Framework of Digital Transformation: A Multilevel Investigation from an Organizational and Employee Perspective

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DOCTORAL THESIS

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I dedicate this work to a future full of happiness.
PhDone '22

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Disfruta leyendo,

Pauline Weritz

Abstract

Digital technologies are disrupting industries, organizations, and individuals globally. New opportunities and threats arise and require strategic and behavioral responses. This dissertation emerged from the question of how the phenomenon of digital transformation impacts organizations and employees in a disruptive environment. The initial motivation is the constantly changing digital environment leading to uncertainties and the need for shifted digital strategies in the global economy to stay competitive and attract employees. Therefore, this dissertation aims to explore the digital transformation framework by doing a multilevel investigation from an organizational and employee perspective. Existing research lacks empirical evidence on critical predictors and consequences of a successful digital transformation for businesses. Further, the recent pandemic and digital opportunities led to a rapid digital workplace transformation impacting employees. Thus, the first two papers of this dissertation form a framework for digital transformation success, drawing on an organizational resource-based view. The third paper introduces the employee experience and puts an emphasis on the digital culture of organizations. The last two articles of this investigation dive into the digital workplace transformation and close the bracket of the framework of digital transformation. Multiple consecutive studies were conducted to achieve the research objectives of this dissertation. Starting with the findings from a multiple-industry case study with multinational firms (paper A and paper D), three research streams were followed. A subsequent quantitative study was performed with survey data from Spanish IT and business executives (paper B and paper C). The previous work was complemented with a quantitative investigation of digital workplace transformation to follow a generalizable approach (paper E). Initial exploratory findings indicate that dynamic capabilities and digital cultural values influence digital transformation success. The following quantitative analysis supports the role of capabilities and shows that digital transformation further increases firm performance. Also, results indicate that digital transformation leads to employees' organizational commitment when the relationship is mediated by digital leadership and continuous learning. Lastly, this dissertation studies the future of work by highlighting the importance of critical skills in the digital workplace and employees' hybrid workplace preferences. Overall, this research explores the framework of digital transformation and thereby contributes to academic literature. More precisely, this dissertation ensures theory advancement by clarifying the concept of digital transformation success, understanding facilitators in terms of dynamic capabilities and digital cultural values, especially with a focus on digital leadership and continuous learning, and lastly, new knowledge on critical skills in the digital workplace and the relevance of a hybrid workplace setting for the future of work. By considering three research avenues, (1) digital transformation success, (2) digital culture and employee experience, and (3) digital workplace transformation, this dissertation contributes to future work on digital transformation and its implications for practice.

Resumen

Las tecnologías digitales están revolucionando las industrias, las organizaciones y las personas en todo el mundo. En este contexto, surgen nuevas oportunidades y amenazas para las organizaciones que requieren de respuestas estratégicas y de comportamiento. Esta tesis doctoral surgió a partir de la pregunta sobre cómo el fenómeno de la transformación digital impacta en las organizaciones y los empleados en un entorno disruptivo. La motivación inicial reside en el entorno digital en constante cambio que genera incertidumbres y la necesidad de cambiar las estrategias digitales de las empresas, en la economía global, para seguir siendo competitivos y atraer empleados. Por lo tanto, esta tesis tiene como objetivo explorar el marco de la transformación digital mediante una investigación multinivel desde una perspectiva organizacional y de los empleados. La investigación existente hasta el momento carece de evidencia empírica sobre predictores críticos y consecuencias de una transformación digital exitosa para las empresas. Además, la reciente pandemia y las oportunidades digitales han conducido a una rápida transformación digital del lugar de trabajo que ha afectado a los empleados en diferentes ámbitos. Por lo tanto, los dos primeros artículos de esta tesis presentan un marco para garantizar el éxito de la transformación digital de las empresas, aprovechando las capacidades dinámicas. El tercer artículo introduce la experiencia del empleado y pone énfasis en la cultura digital de las organizaciones. Los dos últimos artículos de esta investigación profundizan en la transformación del lugar de trabajo digital y cierran la brecha del marco de la transformación digital. Se realizaron múltiples estudios consecutivos para lograr los objetivos de investigación de esta tesis. Comenzando con los hallazgos de un estudio de caso de múltiples industrias con nueve empresas multinacionales (artículo A y artículo D), se realizó posteriormente un estudio cuantitativo con datos de encuestas de directivos de empresas y TI españoles (artículo B y artículo C). Los estudios anteriores se complementaron con una investigación cuantitativa de las preferencias laborales de los empleados en el mercado estadounidense para seguir un enfoque generalizable (artículo E). Los hallazgos exploratorios iniciales indican que las capacidades dinámicas y los valores culturales digitales influyen en el éxito de la transformación digital. El siguiente análisis cuantitativo respalda el papel de las capacidades y muestra que la transformación digital aumenta aún más el rendimiento de la empresa. Además, los resultados indican que la transformación digital conduce al compromiso organizacional de los empleados cuando la relación está mediada por el liderazgo digital y el aprendizaje continuo. Por último, esta tesis estudia el futuro del trabajo destacando la importancia de las habilidades críticas en el lugar de trabajo digital y las preferencias de los empleados en el lugar de trabajo híbrido. En general, esta investigación explora el marco de la transformación digital y, por lo tanto, representa un avance sustancial a la literatura académica actual. Más concretamente, esta tesis asegura el avance de la teoría al aclarar el concepto de éxito de la transformación digital entendiendo a los facilitadores en términos de capacidades dinámicas y valores culturales digitales. Especialmente, este trabajo se centra en analizar el papel del liderazgo digital, del aprendizaje continuo y de los nuevos conocimientos sobre habilidades críticas en el lugar de trabajo digital, así como la relevancia de un lugar de trabajo híbrido para el futuro del trabajo. Al considerar tres vías de investigación, (1) el éxito de la transformación digital, (2) la cultura digital y la experiencia del empleado, y (3) la transformación del lugar de trabajo digital, esta tesis doctoral supone un avance en el conocimiento académico actual sobre transformación digital en las empresas y ofrece importantes implicaciones prácticas.

Resum

Les tecnologies digitals estan revolucionant les indústries, les organitzacions i les persones a tot el món. En aquest context, sorgeixen noves oportunitats i amenaces per a les organitzacions que requereixen respostes estratègiques i de comportament. Aquesta tesi doctoral va sorgir a partir de la pregunta sobre com el fenomen de la transformació digital impacta a les organitzacions i els empleats en un entorn disruptiu. La motivació inicial resideix en l'entorn digital en canvi constant que genera incerteses i la necessitat de canviar les estratègies digitals de les empreses, en l'economia global, per continuar sent competitius i atraure empleats. Per tant, aquesta tesi té com a objectiu explorar el marc de la transformació digital mitjançant una investigació multinivell des d'una perspectiva organitzacional i dels empleats. La investigació existent fins ara no té evidència empírica sobre predictors crítics i conseqüències d'una transformació digital amb èxit per a les empreses. A més, la pandèmia recent i les oportunitats digitals han conduït a una ràpida transformació digital del lloc de treball que ha afectat els empleats en diferents àmbits. Per tant, els dos primers articles d'aquesta tesi presenten un marc per garantir l'èxit de la transformació digital de les empreses, aprofitant les capacitats dinàmiques. El tercer article introdueix l'experiència de l'empleat i posa èmfasi en la cultura digital de les organitzacions. Els dos darrers articles d'aquesta investigació aprofundeixen en la transformació del lloc de treball digital i tanquen la bretxa del marc de la transformació digital. Es van fer múltiples estudis consecutius per assolir els objectius de recerca d'aquesta tesi. Començant amb les troballes d'un estudi de cas de múltiples indústries amb nou empreses multinacionals (article A i article D), es va fer un estudi quantitatiu posterior amb dades d'enquestes de executius d'empreses i TI espanyols (article B i article C). Els estudis anteriors es van complementar amb una investigació quantitativa de les preferències laborals dels empleats al mercat nord-americà per seguir un enfocament generalitzable (article E). Les troballes exploradores inicials indiquen que les capacitats dinàmiques i els valors culturals digitals influeixen en l'èxit de la transformació digital. La següent anàlisi quantitativa dona suport al paper de les capacitats i mostra que la transformació digital augmenta encara més el rendiment de l'empresa. A més, els resultats indiquen que la transformació digital condueix al compromís organitzacional dels empleats quan la relació és intervinguda pel lideratge digital i l'aprenentatge continu. Finalment, aquesta tesi estudia el futur del treball destacant la importància de les habilitats crítiques al lloc de treball digital i les preferències dels empleats al lloc de treball híbrid. En general, aquesta investigació explora el marc de la transformació digital i, per tant, representa un avenç substancial a la literatura acadèmica actual. Més precisament aquesta tesi assegura l'avenç de la teoria en aclarir el concepte d'èxit de la transformació digital entenent els facilitadors en termes de capacitats dinàmiques i valors culturals digitals. Especialment, aquest treball se centra a analitzar el paper del lideratge digital, de l'aprenentatge continu i dels nous coneixements sobre habilitats crítiques al lloc de treball digital, així com la rellevància d'un lloc de treball híbrid per al futur del treball. En considerar tres vies de recerca, (1) l'èxit de la transformació digital, (2) la cultura digital i l'experiència de l'empleat, i (3) la transformació del lloc de treball digital, aquesta tesi doctoral suposa un avenç en el coneixement acadèmic actual sobre transformació digital a les empreses i ofereix importants implicacions pràctiques.

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List of abbreviations

%	Percent
\$	Dollar
ADANCO	Advanced Analysis for Composite
AMCIS	Americas Conference on Information Systems
AVE	Average variance extracted
C	Company
CI	Confidence interval
CIO	Chief information officer
d_G	Geodesic discrepancies
DNA	Deoxyribonucleic acid
DT	Digital transformation
d_{ULS}	Unweighted least squares
E.g.	For example
EUR	Euro
H	Hypothesis
H_{199}	99 percent quantile
I.e.	Id Est (that is)
ICIS	International Conference on Information Systems
IS	Information systems
IT	Information technology
ITOT	IT-enabled organizational transformation
JCR	Journal citation reports
JIF	Journal impact factor
N	Total sample size
n	Number within sample
p	Probability value
PLS	Partial least squares
R^2	R-squared
RQ	Research question
SABI	Iberian balance sheet analysis system
SD	Standard deviation
SEM	Structural equation modelling
SRMR	Standardized root mean square residual
TAM	Technology acceptance model
US	United States of America
VAF	Variance accounted for

1 Introduction

1.1 Digital transformation background and motivation

Disruptions enabled through digital technologies and new environmental, financial, and societal influences impact organizations globally (Kane et al., 2021). These effects can be seen as opportunities where firms can thrive in adjusting their strategies to stay competitive (Wessel et al., 2021). Nowadays, businesses are confronted with new information technologies (IT) like big data, advanced analytics, artificial intelligence, machine learning, and the internet of things (Vial, 2019). However, organizations lack knowledge on how to integrate and use these for their own advantage and build a digital business strategy (Bharadwaj et al., 2013; Wimelius et al., 2021). Businesses, leaders, and employees need implications and assumptions on how digital transformations can be managed and sustained successfully (Baiyere et al., 2020). Although the interest in digital transformation increases rapidly, literature is still in its infancy and does not provide guidance for businesses, either on a macro- nor a micro level (Markus & Rowe, 2021).

Digital transformation has been a present term across managerial and research outlets but often appears challenging to grasp (Hanelt et al., 2021). For example, the CEO of Microsoft said that organizations were confronted with a digital disruption that led to years' worth of digital transformation over a few months of the pandemic (Westerman, 2021). Still, nearly 70% of digital transformation initiatives are unsuccessful, with many resources wasted as digital opportunities are barely understood (Kane et al., 2019; Oberländer et al., 2021). Firms must leverage digital transformation to adjust business value and organizational identity (Wessel et al., 2021). However, digital transformation is often linked to technology adoption solely, but digital transformation goes beyond that (Kane et al., 2019; Wessel et al., 2021). Digital transformation enables opportunities for all stakeholders (Wessel et al., 2021; Wimelius et al., 2021). Especially during this organizational redesign, firms must elaborate and develop the antecedents that can lead to success in digital transformation (Gurbaxani & Dunkle, 2019). This includes reinventing how to interact with employees, customers, and competitors and thereby restructuring processes and strategy (Baiyere et al., 2020; Nambisan et al., 2017). For instance, companies like Google, Facebook, and Twitter make use of digital business models and shift their operations accordingly (Bharadwaj et al., 2013). Manufacturers like Michelin or Faurecia also undergo digital transformation that leads to increased business value by considering capabilities, digital culture, and employees (Bonnet & Duke, 2021; Kupp & Reppard, 2021).

There are several levels to explore when understanding digital transformation success from a multilevel perspective (Abhari et al., 2021). Digital transformation research is often focused on the organizational level, but a holistic and overarching view is more important for firms to stay competitive (Hanelt et al., 2021; Wessel et al., 2021). Amongst others, it can impact the individual level (i.e., employee perspective) in terms of behavior, skills, demands, organizational commitment and intention to leave, and workplace preferences (e.g., Kane et al., 2021). Moreover, digital transformation processes also impact the entire workforce concerning digital workplaces, leadership, and collaboration between employees, customers, colleagues, and partners (Attaran et al., 2019; Colbert et al., 2016; Zimmer et al., 2020). Digital workplaces drive success (Dery et al., 2017), but recent literature also raised that a balance of remote and office settings might be most effective (Kane et al., 2021). Especially now, in the digital age, where novel influences arise and impact practices and existing rules (Hinings et al., 2018), the entire ecosystem of businesses must be redesigned (Hanelt et al., 2021).

Digital technologies certainly act as triggers and drivers for the digital transformation of organizations (Hanelt et al., 2021; Teubner & Stockhinger, 2020; Verhoef et al., 2021). Nevertheless, previous literature researching the paradoxical phenomenon of digital transformation is still in its infancy and requires further advancements (Wimelius et al., 2021). For instance, investigations often follow qualitative approaches (e.g., Warner & Wäger et al., 2019) or conclude on literature reviews (e.g., Teubner & Stockhinger, 2020; Vial, 2019). However, to contribute to IS literature, there is a need for a holistic conceptualization of a digital transformation perspective as well as exploration and understanding of predictors and outcomes to emphasize the urgency and importance of this matter. The latest distinguishment between IT-enabled organizational transformation (ITOT) and digital transformation defined DT as leveraging digital technologies to (re)define an organization's value proposition leading to a new organizational identity (Wessel et al., 2021). Linking this approach with the relevance of considering the digital culture and employee perspective, digital transformation success is understood as combining a digital-first mindset, digitized practices and operations, empowered talent, and data access and collaboration tools in this dissertation (Bonnet et al., 2015). Businesses with a digital-first mindset follow an open approach toward digital opportunities and prioritize digital solutions compared to traditional ones (Bonnet et al., 2015). Successfully transformed firms also have digitized practices and operations, including the automation of processes, data-driven decision-making, and collaborative learning. Moreover, firms empower talent by developing digital skills. Lastly, digitally transformed firms have data access and collaboration tools to use real-time customer and operations data and

implemented collaboration tools. In sum, the digital transformation perspective contains the described four dimensions to redefining business value creation and organizational identity enabled through technologies. Still, within the framework of digital transformation, there are various layers that are not well explored and hence leave gaps for further research. In the following, there is an overview of identified challenges that are critical to be addressed.

First, developing critical organizational capabilities can be decisive for digital transformation success (AlNuaimi et al., 2022). Drawing on the resource-based view (Grant, 1991), organizational capabilities are a powerful asset for creating competitive advantage (Oberländer et al., 2021). Particularly in the context of digital transformation, organizational capabilities have lately gained attention (Steininger et al., 2022; Warner & Wäger, 2019; Yeow et al., 2018). For instance, with a case study approach, researchers identified capabilities for customer value creation through adopting digital technologies (Matazarro et al., 2021). Although prior literature recognized the importance of organizational capabilities during digital disruption (e.g., Li & Chan, 2019; Mikalef & Gupta, 2021; Steininger et al., 2022), studies are focused on IT-related resources (e.g., big data analytics capability, digital platform capabilities, IT-enabled dynamic capabilities) and barely include a comprehensive understanding of digital transformation as this dissertation does. However, specific capabilities are required to transform digitally (Gurbaxani & Dunkle, 2019; Soluk & Kammerlander, 2021; Verhoef et al., 2021). Dynamic capabilities can be relevant to dealing with this digital environmental change (Pavlou & El Sawy, 2011; Teece, 2007). Prior literature exposed its relevance to achieving organizational performance (Braojos et al., 2019; Matarazzo et al., 2021; Mikalef et al., 2020). Dynamic capabilities are the amalgamation of abilities and skills to sense, seize, and transform knowledge (Teece, 2007). Yet, the question remains how companies can achieve digital transformation success by leveraging these still unknown dynamic capabilities. Clarifying which dynamic capabilities are part of a framework for digital transformation success can be a paramount base for future research paths.

Second, digital cultural values and the employee experience can further be crucial in the process of digital transformation (e.g., Duerr et al., 2018; Morakanyane et al., 2020). As digital innovations affect employees' lives and work (Baygi et al., 2021), there is a need to understand the digital transformation from the employee perspective regarding goals, values, and culture (Abhari et al., 2021; Nambisan et al., 2017). When considering digital transformation success, culture can be a prominent element for organizations (Eden et al., 2019; Kane et al., 2019). Digital cultural values are part of organizational culture and the accumulation of an organization's acquired patterns and hidden rules (Hartl & Hess, 2017;

Schein, 1990). Specifically, digital cultural values like continuous learning and development, ethics and data governance, and digital leadership can be relevant. First, continuous learning and development include an environment where firms encourage employees to take learning opportunities in and outside the firm. Next, there is an increasing relevance of ethics and data governance, described as ethical policies and guidelines for digital disruption (Lobschat et al., 2021). Also embedded in the context of digital culture is digital leadership. Literature defines a digital leader as a passionate and digitally oriented role model accompanying organizational digital transformation (Hansen et al., 2011; Warner & Wäger, 2019). The relevant role has been recognized across various research streams and might contribute to digital transformation. As the development of digital cultural values might support digital transformation success (e.g., Hartl & Hess, 2017), it is crucial to identify the specific key drivers in the framework of digital transformation.

Third, committed employees that stay in the organization are a vital asset in the digital workplace (Meyer et al., 2002). It is relevant for organizations to investigate how employees perceive the framework of digital transformation and how to accompany this organizational change (Attaran et al., 2019). Therefore, businesses have to deal with the topic of digital workplace transformation as it contains a cultural change and a consideration of the employees (Baumgartner et al., 2021; Zimmer et al., 2020). Businesses also need to know what type of employees they need to recruit for the future and what skills are critical to addressing the challenges in the workplace (e.g., creating digital innovations like digital products or services).

Fourth, not only the organizational level has to be reconsidered in the context of a digital workplace transformation. Digital technologies further reshape individual behavior and how people interact, communicate, and collaborate in the workplace (Colbert et al., 2016). At the same time, a global talent shortage and a high employee turnover put the labor market under (Subel et al., 2022). Pressure on the value of work, skills, and competencies experience a reconsideration as the “war of talents” affects all industries, and firms are forced to enhance the employee experience in the digital age (Dery et al., 2017; Kane et al., 2017). The role of the employees’ abilities is also critical to transforming and staying competitive in the digital era. Since the workforce is confronted with new tools, techniques, and demands of the market and external environment, individuals must adapt, experiment, and train themselves (Kane et al., 2021). For instance, when working with new technologies, employees might need to be sensitive about ethical aspects, expand their knowledge of different roles, increase their communication skills, and develop abilities to work with social media, data analytics, and web

development. These skills are the individual abilities to carry out processes to effectively perform in the workplace.

Finally, transforming traditional working environments into digital workplaces is a topic that has increasingly interested academics and practitioners (e.g., Dery et al., 2017; Meske, 2019; Selimovic et al., 2021; Zimmer et al., 2020), but still, there is a lack of critical skills from the individual perspective that are needed to meet the demands in the future workplace. The increased usage of technologies also shifted expectations within the digital workforce. Organizations are confronted with threats related to finding and maintaining employees (Dery et al., 2017; Gratton, 2022). The pandemic has still fostered digital change, and firms need empirical evidence and derived implications on considering employees' preferences (Nambisan et al., 2019; Wade & Shan, 2020). Since previous research only slightly revealed the composition of a hybrid workplace setting as part of digital workplace transformation, this booming interest needs further investigation by considering the employee' perceptions. A way to place these individual perceptions in a digitally enabled transformation is the use of social cognitive theory (Bandura, 1986). This framework builds on the interaction of personal cognitive perceptions, the environment, and individual actions while highlighting the reciprocal interaction between these dimensions and offers a theoretical background to frame the study in the IS literature around digital workplace transformation.

To conclude, competition and pressure for organizations to innovate and manage new difficulties in the digital context are increasing, and the motivation of this dissertation is to explore the framework of digital transformation from an organizational and employee perspective. There are still a lot of uncovered aspects of the larger topic of digital transformation which need to be explored from the organizational and employee perspective. Theory and practice call for more investigations and exploration of the framework and all its facets (e.g., Markus & Rowe, 2021; Wessel et al., 2021). Motivated by the urgency of understanding digital transformation success, this dissertation aims to capture the framework of digital transformation, goes beyond the surface and state-of-the-art, and shifts the mainly organizational perspective of knowledge on digital transformation to the employee level. Thereby, the focus is enlarged to the phenomenon of digital culture and employee experience, as well as digital workplace transformation. Given the importance of the framework of digital transformation as a topic for the global economy, and while knowledge is scattered, this dissertation focuses on an interdisciplinary investigation of the subject by considering organizational science and psychological perspectives and integrating these into the information systems literature.

1.2 Dissertation purpose and research objectives

There is no clear consensus under which conditions companies can achieve digital transformation success (Hanelt et al., 2021). Based on the elaborated problems of many organizations failing in digital transformation processes and the increasing relevance of strategic redefinition due to rapid technological disruptions, there is a need for more exploratory and confirming insights and findings regarding the role of different perspectives within organizations (Kane et al., 2021). The purpose of this dissertation is to address this lack of comprehensive research on the framework of digital transformation and its consequences for the digital workplace. The work is motivated to investigate the framework from a multilevel, more precisely from an organizational and employee perspective. Thus, all five studies in this dissertation pursue the main research question of how digital transformation impacts the organizational and employee level.

The first research direction of this dissertation explores the framework of digital transformation success. Literature on digital transformation is still nascent and needs further development and research is often based on literature or practical oriented, which leads to a lack of empirical confirmation of the key factors for a successful digital transformation (Vial, 2019). Therefore, this dissertation seeks to answer the following research question as a starting point: RQ 1. How can companies achieve digital transformation success by leveraging dynamic capabilities and digital cultural values? Intending to respond to this research question, the purpose is to elaborate on the understanding of digital transformation (objective 1.1), identify facilitators for a successful transformation (objective 1.2), and to build an exploratory foundation for future empirical research (objective 1.3).

The following research question in the dissertation aims to classify the findings from RQ 1 in the framework of digital transformation success. Due to the lack of empirical confirmation of capabilities that support digital transformation success, a gap evolved that must be addressed. Moreover, the influence of digital transformation on firm performance remains unclear and must be developed. Hence, the following two sub-questions in the IS domain remain unsolved and need to be addressed: RQ 2.1. Which dynamic capabilities enhance digital transformation success? RQ 2.2 How can digital transformation success improve firm performance? To answer these two research questions, the following two objectives are targeted: First, to clarify critical dynamic capabilities that enhance digital transformation success (objective 2.1), and second to examine firm performance as the outcome of digital transformation success (objective 2.2).

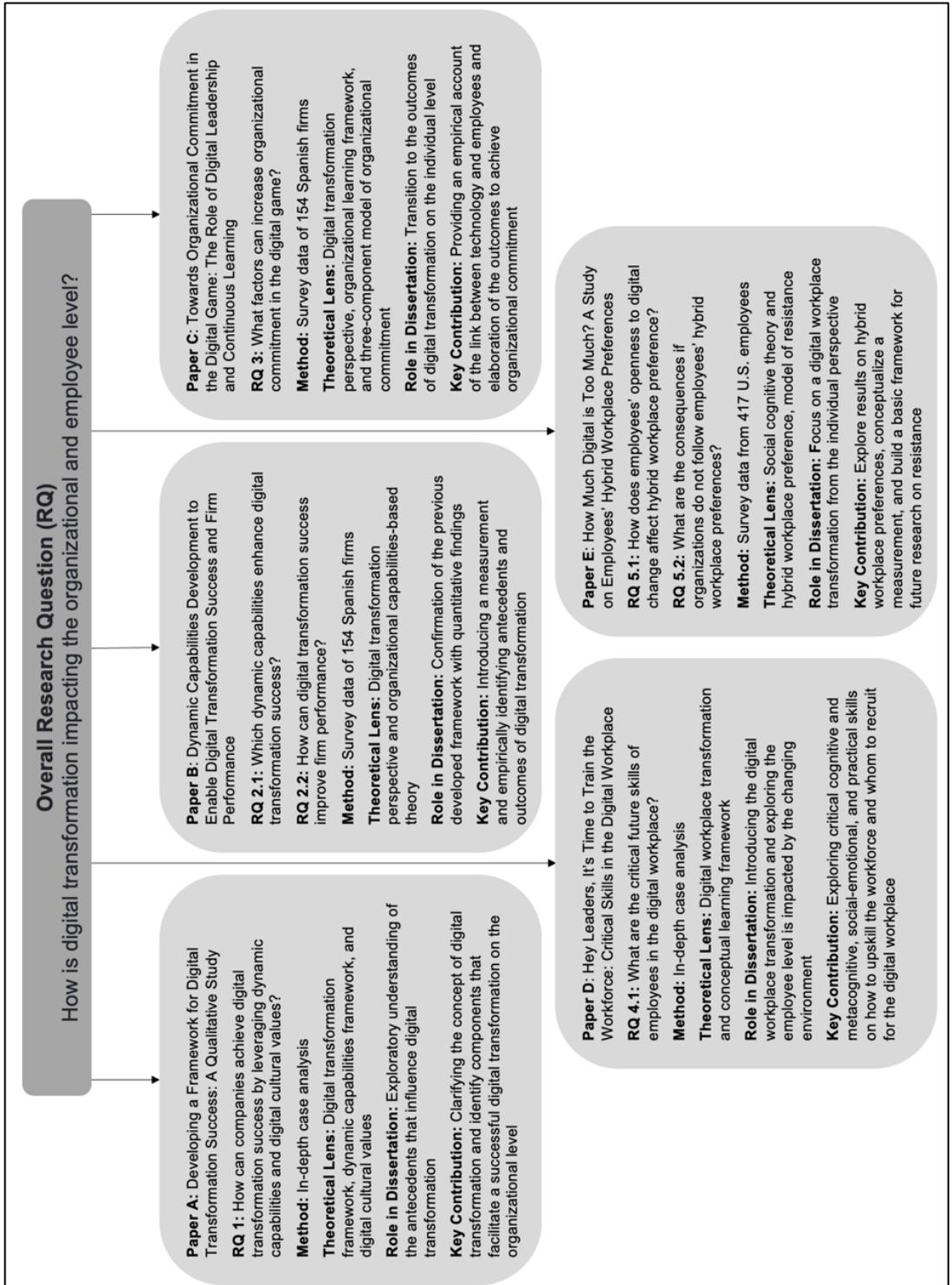


Figure 1.1 Comprehensive overview of the articles forming this dissertation.

The second research direction moves toward digital culture and employee experience. Digital transformation is related to technologies, strategic planning, and, even more, the employees within the organization (Kane et al., 2019). The labor market is constantly changing, and firms also must consider how to bind employees. In the digital context, businesses must gain knowledge on how to commit employees with their knowledge and competencies (Hess et al., 2016; Schrage et al., 2021). Although literature claims to take the human side of the digital transformation process into account (Abhari et al., 2021), there is a lack of research investigating the phenomena of organizational commitment. Thus, this dissertation considers the following research question: RQ 3. What factors can increase organizational commitment in the digital game? By finding an answer to this question, the aim is to recognize the role of digital leadership and continuous learning in the digital transformation framework (objective 3.1) and provide an understanding of the factors leading to organizational commitment in the digital game (objective 3.2).

The third research direction is related to the IT-enabled shift that also impacts digital workplace behaviors from different perspectives. As the requirements for the workforce change and work tasks enlarge, organizations need to know how to train and adapt to the digital workplace. Businesses require expanding their knowledge on skill transformations and findings on how to ensure effective workforce management in the future. Therefore, research needs to explore a set of abilities that are essential in the digital workplace. With the purpose of staying competitive and attractive as an employee, this research explored what skills are necessary in the digital workplace. This motivates the next research question: RQ 4. What are the critical future skills of employees in the digital workplace? Responding to this gap, the research aims to understand what is required from the employees in the digital environment (objective 4.1). Moreover, addressing this research interest reveals knowledge of future cognitive and metacognitive, social-emotional, and practical skills (objective 4.2). Overall, the objective of answering this research question is to explore a set of critical abilities in the digital workplace (objective 4.3). This builds a theoretical linkage between organizational requirements and employees' responses in the future workplace and a practical contribution to how to upskill the workforce and what abilities to look out for to recruit new employees.

Additionally, within this research stream, the purpose is to discover if a hybrid workplace is an achievable setting to balance employee expectations with the value of personal connections (Kane et al., 2021). More research is needed to determine which disruptive workplace practices can be implemented in the future to suit employees' demands in a highly competitive labor market. As physical co-location is no longer necessary for productivity, academia should

assess workforce-related behaviors, systems, and procedures in order to establish a value-creation ecosystem (Altman et al., 2021). As a result, hybrid workplace environments may be a viable choice for attracting and retaining digitally open individuals under the current upheavals. In sum, the importance of exploring employees' preferences during digital workplace transformation is casting the following two sub-research questions: RQ 5.1. What effect does employees' openness to digital change have on hybrid workplace preference? RQ 5.2. What are the consequences if organizations do not follow employees' hybrid workplace preferences? The intention to resolve these questions is manifold. The first objective is to assess digitally open employees' hybrid workplace preferences (objective 5.1), while the second aims to evaluate potential consequences if employees' hybrid workplace preference is not met (objective 5.2). The third objective for these two sub-research questions is to develop guidelines for future digital workplace transformations (objective 5.3). Overall, all sub-questions address different areas within the framework. On the one hand, the organizational level and, on the other hand, the employee level. The sub-questions guide the overall investigation that delves into the main research question. The general connection between the research questions and objectives is shown in Figure 1.1.

1.3 Overview of articles forming this dissertation¹

This dissertation follows a mixed-method research design, starting with an exploratory approach to uncover the framework of digital transformation success (paper A). In particular, the first article "Developing a framework for digital transformation success: A qualitative study" is based on a multiple-industry case study analysis. Semi-structured interviews were conducted with chief information officers (CIOs) from nine large multinational firms, following the methodology of grounded theory (Strauss & Corbin, 1998). The point of departure was a clear understanding of digital transformation. After clarifying this conceptualization, the resource-based view (Grant, 1991) and the three-level model of culture (Schein, 1990) provided a theory for explaining facilitators of digital transformation success. More precisely, results led to a set of dynamic capabilities and digital cultural values related to organizations' digital transformation success, helping to create a framework of supporting factors. Notably, six dynamic capabilities (absorptive capacity, organizational agility, customer-centricity capability, cross-functional collaboration capability, innovation capability, and relational capability) were identified as the amalgamation of abilities and skills to generate, identify, and analyze new knowledge. Further, three digital cultural values (continuous learning and

¹ The information about the articles are partly excerpts from the following research papers.

development, ethics and data governance, and digital leadership) were recognized as critical mechanisms. This paper is highly relevant for this dissertation as it builds the grounding foundation for the following investigations. By developing an initial understanding of facilitators, the study contributes to the literature by consolidating dynamic capabilities in the digital transformation literature, adding the dimension of digital cultural values, and creating a framework of relevant components for digital transformation success. With the first study, there is an answer to the research question of how companies achieve digital transformation success by leveraging dynamic capabilities and digital cultural values (RQ1). This work advances the understanding of facilitators of digital transformation success. It is closely tied to paper B (dynamic capabilities) and paper C (digital cultural values) as the exploratory base. The paper was co-authored by Dr. Jessica Braojos and Dr. Jorge Matute and is currently under review at the International Journal of Information Management.

While the foremost paper follows an exploratory approach, the second article “Dynamic capabilities development to enable digital transformation success and firm performance: Theory and empirical evidence” detects necessary predictors and outcomes of the prominent digital transformation matter with a quantitative survey. Drawing on dynamic capabilities as enablers for the redefinition of business value and organizational identity in the digital era, it is proposed that such empower digital transformation success (H1), which in turn improves firm performance (H2). The organizational capabilities-based view provided the theoretical lens to understand digital transformation success (Collis, 1994; Grant, 1991). Using structural equations modeling with data from 154 CIOs in Spanish firms, results confirmed the hypothesized relationship and showed that dynamic capabilities enhance digital transformation success, which increases firm performance. Thereby, research questions 2.1 and 2.2. are addressed by clarifying that dynamic capabilities enhance digital transformation success and examining that firm performance is a significant outcome of digital transformation success. This work empirically confirms unexplored facilitators for digital transformation success by providing validation of dynamic capabilities in the form of a set of abilities (i.e., exploring external knowledge, responding quickly to changes, aligning workforce functions, understanding customers, detecting revolutionary ideas, and connecting with the ecosystem). Findings contribute to IS research by disentangling the digital transformation framework and integrating the organizational capabilities-based theory into the digital transformation perspective. Finally, the study identifies critical abilities as a foundation for digital transformation success and the onset of further investigations in this research field. The paper further sharpens the conceptualization of digital transformation and provides a measurement

scale for the construct. The results are highly relevant for this dissertation by confirming the previous exploratory results and building a guideline for predictors. The paper was co-authored by Dr. Jessica Braojos, Dr. Jorge Matute, and Dr. Jose Benitez from EDHEC Business School, France, and is currently under revision in *Decision Support Systems*.

The third article “Towards organizational commitment in the digital game: The role of digital leadership and continuous learning” moves from the organizational to an employee perspective. It focuses on an in-depth examination of one more finding of the exploratory results (paper A), namely digital cultural values. By integrating organizational science literature into IS research, this study incorporates the three-component model of organizational commitment and the organizational learning framework in the digital transformation perspective. The three-component model of organizational commitment (Meyer & Allen, 1997) includes affective, normative, and continuance commitment and describes the role of the affection for the job, the fear of loss, and the obligation to stay. This research study also draws on the organizational learning framework to conceptualize continuous learning as an encouraging environment within a firm that supports generating, maintaining and sharing knowledge (March, 1991). As it is critical for companies to investigate how employees do not leave the firm with their advanced knowledge and competencies in the digital era, this paper bridges the gap between technology and employees by focusing on the consequences of digital transformation on the individual level. Following the same data sample as the previous investigation, the model was tested with an empirical study of 154 CIOs in Spain. The findings of the quantitative analysis do not show a direct relationship between digital transformation success and organizational commitment. However, the positive impact of digital transformation success on organizational commitment is significant when two potential mediators from the area of digital cultural values are present. More precisely, the paper finds that digital leadership and continuous learning mediate the impact of digital transformation success on organizational commitment. These results give an answer to the third research question asking for factors that increase organizational commitment in the digital game (RQ 3). By proving the connection between digital transformation and the employee perspective, the third paper offers the transition from the organizational to the employees' perspective in this dissertation. Moreover, this study contributes to IS literature by giving a theoretical foundation and clarification on the impact of digital transformation on employee experience. The work was co-authored with Dr. Jessica Braojos and Dr. Jorge Matute and is currently under review in the *Information Systems Journal*.

The fourth paper is a single-author work based on nine semi-structured interviews with business and IT executives from multinational corporations. The article “Hey leaders, it’s time to train the workforce: Critical skills in the digital workplace” was accepted and published in *Administrative Sciences* in 2022. It explores and identifies nine essential skills of employees for the digital workplace. Drawing on the theoretical background of digital workplace transformation and the conceptual learning framework, the paper carries substantial practical value and business relevance, as it can bring enormous benefits for rapid advancement in the digital era. With this study, the following question is aimed to be answered: What are the critical future skills of employees in the digital workplace? (RQ 4) The contribution shows in a skillset for leaders on how to train the workforce in the future workplace in terms of cognitive and metacognitive, social-emotional, and practical skills. The findings reveal that organizations should monitor the abilities of their employees and offer opportunities for individuals to develop their skills. The final skillset consists of an entrepreneurial mindset, digital responsible thinking, digital literacy, transformative skills, personal development skills, communication skills, community management skills, data analytic skills, and web development skills. Based on that, this study derives theoretical and practical implications and offers a diversity of ideas to address future research. The paper further acts as an introduction to the digital workplace transformation and shows the urgency to explore the change in the expectations of employees and businesses.

The fifth paper of this dissertation is named “How much digital is too much? A study on employees’ hybrid workplace preferences” and resulted from my research stay at Boston College when working with Dr. Jerry Kane in the Information Systems Department. Due to the rapidly changing digital environment that impacts not only organizations but also individual perceptions and behavior (Ratz et al., 2021), the idea of investigating the future of work was born. Employees recently had much time reconsidering their interests, values, routines, and competencies, especially since the younger generations have new requirements in the job market (Gratton, 2022). Digital workplace transformations have been a prominent topic in IS research before, however often focused on the competitive advantage of the organization (Meske, 2019; Zimmer et al., 2020). As physical co-location is no longer needed to work effectively, a new field of research evolves and can be seen as a pinpoint for academia to evaluate workforce-related practices, systems, and processes (Altman et al., 2021). Still, the literature did not offer knowledge on the status quo of employees’ preferences for their future workplace and the potential consequences that might occur when firms do not follow these requirements. This is a start for this article which focuses on the effect of employees’

openness to digital change on hybrid workplace preferences (RQ 5.1) and the consequences if organizations do not follow employees' hybrid workplace preferences (RQ 5.2). The model draws on social cognitive theory (Bandura, 1986) and sheds light on the interplay of employees' choices and potential consequences for businesses. The data stem from a survey of 417 U.S. employees working in an office environment. Findings show that hybrid settings are critical to attracting employees open to digital change. Further, performance and personal outcome expectations have a mediating role in this relationship (Compeau et al., 1999). Employees open to digital change expect positive performance and personal outcomes from working in a hybrid workplace. Finally, hybrid workplace preferences can lead to office resistance and the willingness to leave the organization if the preferred hybrid workplace setting is not accommodated. The contribution to IS literature is manifold and contains implications on how to envision the future workplace successfully. The study reveals valuable insights regarding the relevance of hybrid workplace settings to attract and keep digitally open employees in the current competitive labor market. Hence, this paper refers to the connection between employees' openness to digital change, a hybrid workplace preference, and adverse outcomes for the organization. The last article closes the bracket around this dissertation in exploring the digital transformation framework by focusing on the employee level and revealing individual perceptions and preferences. The work was co-authored by Dr. Jessica Braojos, Dr. Jorge Matute, and Dr. Jerry Kane. It has been recently submitted to the Journal of Management Information Systems.

Overall, the five articles forming this dissertation contribute to an understanding and advancing theory on digital transformation in several ways. On the one hand, by developing a new framework for digital transformation success, increasing knowledge on facilitators in terms of capabilities and digital cultural values, especially with a focus on digital leadership and continuous learning, and on the other hand with new knowledge on the relevance of a hybrid workplace setting for future digital workplace transformations. Thereby, this dissertation contributes to future research on digital transformation by improving the state-of-the-art and adding novel implications for practice. Yet, businesses need to understand the relevance of digital transformation to stay competitive in evolving markets and also as an employer in the labor market landscape. Not responding to these disruptions due to a lack of understanding and missing capabilities or cultural values can harm the company's business value in comparison to incumbent firms in the industry.

The chronological outline of the five underlying articles of this dissertation can be found in Figure 1.2.

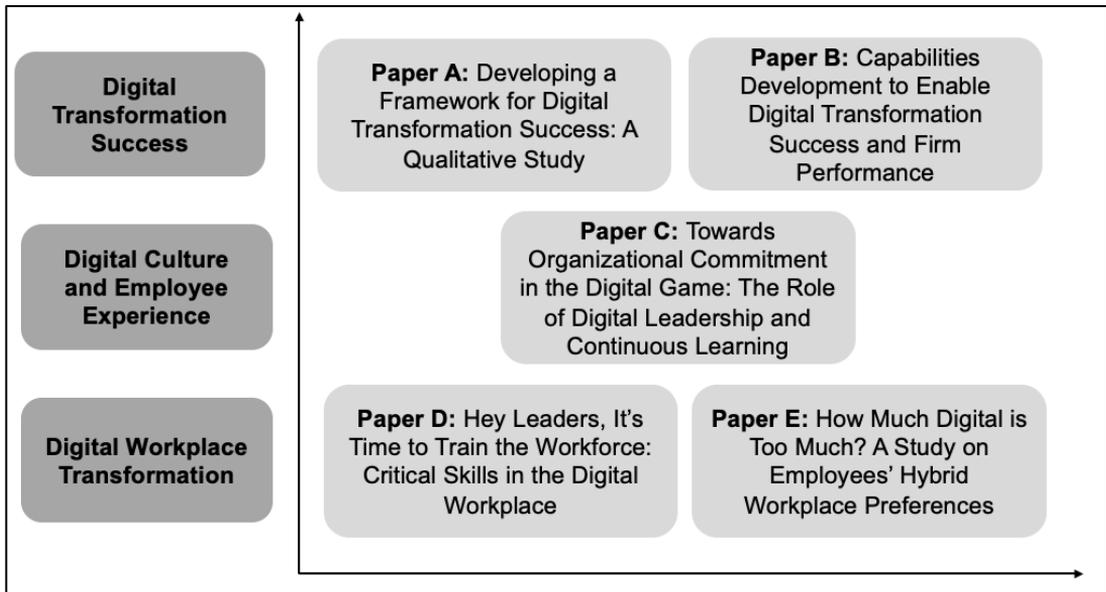


Figure 1.2 Chronological outline of the underlying articles.

1.4 Dissertation structure

This dissertation is structured in a five-study format. It consists of free-standing papers in a journal article style in terms of structure and length. The topic is coherent throughout the dissertation, namely the multilevel investigation of the framework of digital transformation from an organizational and employee perspective. In this first chapter, the research background and motivation of the studies are presented, and the research purpose, questions, and objectives for each paper are explained. This includes an overview of the articles forming this dissertation, their contributions, and their relevance. The subsequent chapters are organized as follows: Chapter 2 presents the fundamental exploratory study, developing a framework for digital transformation success. Next, chapter 3 gives an overview of the subsequent quantitative study, empirically testing dynamic capabilities as enablers for digital transformation success and as a predictor for firm performance. The third study in chapter 4 goes beyond the organizational perspective and introduces the employee experience into the digital transformation perspective. Thereby, the role of digital culture in terms of digital leadership and continuous learning is ascertained. Afterward, in chapter 5, the topic of digital workplace transformation is introduced by exploring the critical skills of employees in the digital future. In addition to that, the work focuses on uncovering the employees' perceptions and preferences for the future of work during chapter 6. Finally, chapter 7 discusses the results of the five studies, highlights the contribution of this work, and concludes the dissertation with final considerations.

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2 Paper A: Developing a framework for digital transformation success: A qualitative study

2.1 Abstract

Firms globally struggle with the redefinition of business value and the creation of a new organizational identity in the digital era. This is caused by a lack of knowledge on essential factors that facilitate digital transformation success and missing implications for managers. This is why theory and practice try to find answers on how to guide businesses through uncertain digital times. Yet, the predictors and essential facilitators for firms' success are still not clearly explored. This paper aims to create a theoretical framework for digital transformation success based on nine interviews with business and IT executives of large multinational firms. The findings lead to a set of six dynamic capabilities and three digital cultural values that are relevant to achieving digital transformation success. Thereby, this study contributes to IS literature by consolidating the theory of dynamic capabilities in the digital transformation perspective, highlighting the importance of digital cultural values, and thus creating a framework of relevant components for digital transformation success.

Keywords: Digital transformation; dynamic capabilities; digital cultural values; case studies.

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2.2 Introduction

Nowadays, firms are increasingly facing a new, challenging, and constantly changing digital environment in which digital transformation emerges. Digital technologies create advanced strategies for value creation and allow new ways of working for organizations. Thereby, digital transformation is a complex procedure enabled through digital technologies that affect the business model, strategy, technology, processes, people, and culture (Gurbaxani & Dunkle, 2019). In a disruptive environment, organizations must adjust their actions and strategies to achieve digital transformation success and remain competitive (Andriole, 2017; Helfat & Raubitschek, 2018; Pavlou & El Sawy, 2006). Further, competition and pressure for organizations to innovate and manage new difficulties in the digital context are increasing (Park & Mithas, 2020; Tallon et al., 2019). Although firms may acknowledge the transition toward a digital business, many organizations struggle with the transformational process and find several barriers to implementing digital changes in practice (Kane et al., 2019; Singh & Hess, 2017). This can occur due to a lack of resources, inadequate capabilities, or a mistaken understanding of digital transformation. Hence, firms need to identify and understand the critical factors in a framework for digital transformation success to shift towards more digital-oriented business models and value creation.

Less than 30 percent of digital transformations are successful, which means most firms are unsuccessful in adapting to the current disruptions or at least fail in some parts of the journey (Kimberling, 2021). For example, at the beginning of the digital transformation processes, *Procter & Gamble* failed to analyze the current market and industry trends and started initiatives in the wrong direction, and put too much effort into unnecessary products and services (Kimberling, 2021; Morgan, 2019). Car manufacturer *Ford* did not integrate new digital segments into the traditional business units and lacked communication between those divisions (Morgan, 2019). Similarly, Nike needed the help of external consultants for digital transformation processes as they did not build the essential capabilities and values within the company. Decreased organizational performance and a falling stock price of 20 percent resulted from that (Kimberling, 2021). These consequences of failures can lead to problems in processes and operations, decreased sales, and unrealistic and unreasonable expectations for the process itself (Kimberling, 2021). All these failures and mistakes would have been turned into more success stories if firms would have throughout focused on building critical dynamic capabilities and inhabiting essential digital cultural values.

Similar to the previous cases, digital transformation in the automotive industry also started dilatorily (Kupp & Reppard, 2021). Once the international automotive parts manufacturer

Faurecia recognized the potential and opportunities provided by digital technologies, they heightened their digital transformation efforts in 2017. Even though an initial resistance occurred, the firm started shifting the business model from manufacturing hardware to software and set very ambitious growth targets. In times where speed matters, Faurecia incorporated innovation, co-creation, agility, new ideas, and market trends into the daily workplace. Further, Faurecia worked in an ecosystem with *Microsoft* and *Accenture* and increased communication and collaboration within the organization. Thereby, the firm realized the urgency of leadership and, above all, evaluated existing infrastructure and balanced it with new opportunities (e.g., cloud computing).

The success story of Faurecia shows that several key factors supported the path towards digital DNA. From a practitioner perspective, the case illustrates the interest in digital transformation among firms. Still, the resistance and difficulties they encounter due to a lack of knowledge of the best way to manage it. Also, from an academic perspective, digital transformation has recently arisen as an essential topic across different research fields like strategic management and organizational behavior (e.g., Matarazzo et al., 2021; Warner & Wäger, 2019). However, in Information Systems (IS) research, there is no clear consensus about the definition of digital transformation and under which conditions companies can achieve success (e.g., Vial 2019). Digital transformation is not a simple implementation of technology in some parts of the business, but a continuous collaboration and fusion of IT (information technology) and resources in the entire business process (Sia et al., 2016). Past literature around IT business value points out that it is not enough to introduce a new technology, but that further capabilities and other factors are needed to facilitate success in the disruptive workplace (e.g., Melville et al., 2004). For example, intending to progress in digital transformation, big data analytics capabilities (e.g., Mikalef et al., 2020; Shamim et al., 2019), business intelligence capabilities (e.g., Chen & Lin, 2021; Torres et al., 2018), and revised IT capabilities (Brosig et al., 2020) were stated in IT business value literature. However, firms should also create new strategies and models supported by dynamic capabilities and digital cultural values (e.g., Hess et al., 2016; Kutzner et al., 2018; Svahn et al., 2017). Again, these elements have a similarity to the case study of Faurecia, but there is still a gap in the framework behind the specific factors that requires further clarification.

Since a successful digital transformation typically requires firms an adjustment in their operations, strategies and business models to sustain their competitive advantages, this study is framed within the dynamic capabilities framework. Dynamic capabilities are relevant drivers to deal with environmental change (Teece, 2007), and prior literature exposed its relevance

to achieving organizational performance (Braojos et al., 2019; Matarazzo et al., 2021; Mikalef et al., 2020). As digital transformation undoubtedly requires organizations to redesign internal structures and align resources to respond to external turbulence, this paper posits that dynamic capabilities also increase success in the digital context by allowing companies to use technologies to provide customers with state-of-the-art products and services. In addition, recent studies emphasize that not only capabilities (e.g., Matarazzo et al., 2021; Soluk & Kammerlander, 2021), but also digital cultural values are crucial in the process of digital transformation (e.g., Duerr et al., 2018; Morakanyane et al., 2020). Previous studies emphasize the idea that strategic management in current digital contexts should be based on a strong digitally oriented mindset (Warner & Wäger, 2019). For example, digital cultural values like leadership style and employees' learning orientation may be relevant in the digital era (Hartl & Hess, 2017; Park & Mithas, 2020; Vial, 2019). Thus, organizations involved in digital transformation processes are frequently required to refresh their digital cultural values to craft an internal digital mindset. Based on these previous findings and the example from Faurecia, where leadership and data governance appeared as key aspects for the company's successful digital transformation (Kupp & Reppard, 2021), this paper aims to uncover the role of cultural values for digital transformation success in this research.

Besides the importance of identifying relevant factors that may facilitate transformation towards a more digital-oriented model in IS literature, most papers focus on an executive (e.g., Kane et al., 2019) or theoretical (e.g., Vial, 2019) level. Thus, capabilities and complementary digital cultural values are urgent topics in digital ecosystems. Despite this, literature on digital transformation is still nascent and needs further development (Benbya et al., 2020; Hanelt et al., 2021; Vial, 2019). Besides the developing nature of digital transformation in IS literature, to the best of our knowledge, there is a lack of conclusive results and empirical confirmation of the key ingredients for a successful digital transformation. This study aims address this research gap by asking the following research question: *Which organizational factors support digital transformation success?* By responding to this research question, the purpose of this research study is to identify the components (i.e., dynamic capabilities and digital cultural values) that facilitate a successful digital transformation. Based on the dynamic capabilities view of the company, this study aims for an in-depth case analysis of nine companies that successfully transformed digitally and identified new important dynamic capabilities and digital cultural values.

We aim to contribute to existing IS literature in different ways: clarifying the concept of digital transformation, consolidating the theory of dynamic capabilities in the digital transformation

literature, adding the dimension of digital cultural values, creating a framework of critical elements for digital transformation success, and providing an outlook for future research around digital transformation. The point of departure is a clear understanding of digital transformation, such as a continuous collaboration and fusion of IT and business resources (Sia et al., 2016). Having clear the digital transformation framework, the theory related to dynamic capabilities provides a new approach in line with digital transformation strategy. Thus, dynamic capabilities contribute to understanding digital transformation success based on the continuous process of change inherent in the digital transformation framework. Furthermore, we introduce a set of digital cultural values as critical mechanisms in the process. Our results support relevant dynamic capabilities and digital cultural values connected with organizations' digital transformation success, creating a framework for digital transformation success.

The paper is organized as follows. The next section gives an overview of the theoretical background of the digital transformation framework, dynamic capabilities framework, and the concept of digital cultural values. Afterward, we present the research methodology, including the design setting, collection, analysis, and sample characteristics. Then, we highlight the results, findings, and insights of the case studies. Finally, we discuss the findings and conclusions with the study's theoretical contributions, practical implications, limitations, and suggestions for further research.

2.3 Theoretical background

2.3.1 *Digital transformation framework*

Digital transformation is a concept in an embryonic state for academia, and prior literature did not find a clear consensus on a definition. Existing research on the topic considers digital transformation a complex procedure that affects business models, strategy, technology, processes, people, and culture (Gurbaxani & Dunkle, 2019; Kane et al., 2017). It is the state of "*rethinking organization's processes, services, and roles from a technology-enabled perspective*" (Eden et al., 2019, p. 1). It implies a combination of using new technology platforms and exploiting current digital infrastructure (Gurbaxani & Dunkle, 2019; Hess et al., 2016). Above all, digital transformation is also considered a risky process that entails decisions that have to be made according to existing threats and opportunities (Andriole, 2017). This concept should be clearly distinguished from digital maturity, the final stage of a company that effectively adapted to the challenges of digital disruption (Bonnet et al., 2015; Kutzner et al., 2018).

This study defines digital transformation success within the domain of digital transformation, according to Bonnet et al. (2015). This concept mainly consists out of four principal dimensions: (1) digital-first mindset, (2) digitized practices, (3) empowered talent, and (4) data access and collaboration tools. First, companies transform digitally by following a digital-first mindset and prioritizing digital solutions (Bonnet et al., 2015). Thereby, firms have a strategic vision and roadmap for the digital future, openly explore digital opportunities, and have strategic alignment during the transformation (Bonnet et al., 2015; Gurbaxani & Dunkle, 2019). That includes changes in the use of technologies, value creation, structures, and financial aspects (Hess et al., 2016). Second, digital transformation requires companies to digitize practices, operations, and data-driven decision-making (Bonnet et al., 2015). This entails automated and simplified processes, so practices are identified and adapted to the digital opportunities (Bonnet et al., 2015). Within this context, innovation is a crucial factor in digital transformation processes, and employees are frequently demanded to experiment with new ideas and share those ideas visibly (Gurbaxani & Dunkle, 2019). Collaborative learning helps to build dexterity and supports seamless collaboration across disciplines (Bonnet et al., 2015). Third, empowered talent is part of digital transformation and includes developing employees' digital skills (Bonnet et al., 2015). In terms of this dimension of digital transformation, firms engage all stakeholders, develop their skills in digital topics, and their capabilities for all relevant aspects connected with their actions (Bonnet et al., 2015; Gurbaxani & Dunkle, 2019). This can be seen as the firm's enlargement of know-how and intellectual property and is helpful to adjust to current digital disruption (Gurbaxani & Dunkle, 2019). Fourth, the digital transformation includes a shift and improvement in data access and collaboration tools. It involves increasing the use of real-time customer and operations data reasoned by a change of customer demands to improve firms' performance (Bonnet et al., 2015; Hansen et al., 2011). This shift demands firms to embrace the use of collaboration tools and technology assets (Bonnet et al., 2015; Gurbaxani & Dunkle, 2019; Hess et al., 2016) that go along with a change in communication and increasing usage of digital technologies and platforms (Colbert et al., 2016).

Finally, digital transformation success is more than just the adoption or implementation of technologies as it entails deep-rooted digital operations on different levels (Kane et al., 2021). Being successful in digital transformation implies data-driven decision-making, fruitful use and access to data and collaboration tools, continuous empowerment of employees, and a complete adaption to digitized practices and processes regarding products and services (Bonnet et al., 2015).

2.3.2 *Dynamic capabilities framework and digital transformation*

The resource-based view of dynamic capabilities provides the theoretical lens to understand digital transformation success. These organizational abilities are processes and routines which integrate existing and new resources to stay competitive (Eisenhardt & Martin, 2000). As they include relevant physical, human, and organizational assets for organizations while competing on the market, dynamic capabilities might support achieving digital transformation success by adapting to new digital opportunities (Iden & Bygstad, 2021; Matarazzo et al., 2021). Thereby, dynamic capabilities focus on aligned actions of the firm and are coupled with the digital strategy (Augier & Teece, 2009; Warner & Wäger, 2019). Similar to previous research by Warner and Wäger (2019), this study argues that organizations need to build dynamic capabilities to achieve a balance between the internal challenges inherent in a process of digital transformation with the need to adapt to market and technological changes. To sustain strategic change and organizational performance during digital disruption, organizations need to sense their environment, enable learning processes, facilitate and shape interaction processes (Pavlou & El Sawy, 2006). Dynamic capabilities support firms in three ways by sensing, seizing, and transforming (Teece, 2007). First, sensing is about the proper handling of uncertainty and new opportunities (Teece, 2007). Thereby, organizations identify and understand environmental changes (e.g., technologies) and customer needs (e.g., habits). In the context of digital transformation, this means that firms that possess particular abilities to perceive the ongoing situation in terms of trends and technologies, new customer preferences, or journeys might have digital transformation success (Warner & Wäger, 2019). For instance, dynamic capabilities related to customer and market orientation may help identify digital changes (e.g., changing preferences in new digital purchase channels). As firms must be able to react to customers' needs, the proper abilities to do so might influence digital transformation success. Companies continuously need to review their product development and compare it to market trends and customer analysis. For example, these processes would be enhanced in the digital context using big data (Warner & Wäger, 2019). Besides, to transform successfully, organizations need to adjust their products, services, and business structures to digital disruption (Pavlou & El Sawy, 2006). Firms must be very careful in choosing the proper digital channels to reach their customers (Todri et al., 2019). As digital customer experience changes, organizations need to evaluate this when building a digital strategy (e.g., customers want their product or services regardless of time or place, on different devices, whenever they need it). For example, Faurecia realized that they had to move their business model from hardware to software as the automotive industry

changed and customers (e.g., BMW and Mercedes) requested adjusted products and services (Kupp & Reppard, 2021). Moreover, knowledge management might be essential to assimilate and interpret newly obtained knowledge regarding digital disruption. This could be exploited into the organizations' knowledge and transformational processes (Engelen et al., 2014; Leal-Rodríguez et al., 2014; Zahra & George, 2002). In the context of digital transformation, this might significantly affect digital practices and operations. Sensing might help firms initiate the digital transformation process in the early detection of new opportunities and threats of the disruptive digital market.

Next, dynamic capabilities support organizations to identify the relevant resources to answer the analyzed changes and opportunities (i.e., seizing). The purpose of seizing is finding relevant gaps and identifying critical missing capabilities. Dynamic capabilities around flexibility and communication might be highly suitable for organizations that aim to achieve a prosperous state of digital transformation. Organizational agility can support the detection of new market opportunities and new ways of thinking, which is particularly important to achieve digital transformation success by developing innovative ideas (Vial, 2019). In those complex digital circumstances, agility regarding the market and operational adjustment agility might be instrumental (Lin et al., 2020). Nevertheless, organizational agility may facilitate organizations to handle unexpected threats and chances and opportunities of the market (Tallon et al., 2019). This might particularly positively influence a digital-first mindset. In addition, abilities like cross-functional collaboration may further help to shape the actions needed to fusion IT and business resources in the entire business process (e.g., transforming business processes required to use the new technology). Cooperation across departments with the same goals and mission can increase digital knowledge, exchange, and development, while cross-functional collaboration might lead to fewer limitations and barriers between different departments, making the alignment between IT and the rest of the business units easier (Denison et al., 1996; Kane et al., 2017). This can support digital transformation success, especially in terms of data access and collaboration tools.

Lastly, dynamic capabilities enable organizations to align these resources to their strategy (i.e., transforming) (Teece, 2007). Therefore, organizations develop and shape the missing expertise by developing new competencies (Teece, 2007). The goal is to coordinate and communicate new obtained information, develop missing resources, and integrate them into the organizations' routines and norms to stay competitive. Still, little has been explored about networking capabilities towards startups, partners, and even competitors (e.g., Duerr et al., 2018; Pradhan et al., 2021). However, with networking collaboration, both sides can profit

from dynamics, gain knowledge, and innovate (Hydle et al., 2021; Lin et al., 2016). Therefore, the usage and establishment of platforms with partners and competitors may enable the digital transformation process (Duerr et al., 2018). These kinds of dynamic capabilities could support digital transformation success by working in an ecosystem with other organizations that follow the same interests (Hydle et al., 2021). A partnership approach could facilitate new resources (e.g., access to technologies) and affect the networking and collaborating capabilities of the firm. Consequently, it might increase data access which is a dimension of digital transformation success. Additionally, firms might need to experiment and increase innovation to achieve digital transformation success (Kane et al., 2017; Sebastian et al., 2017). Previous literature identified risk-orientation and experimentation as essential elements for digital transformation (Kane et al., 2017; Vial, 2019). Employees are more likely to explore new technologies and adequately manage the uncertain digitization environment with these capabilities. Innovation capabilities may help understand how to answer digital changes and opportunities (e.g., seizing employees' skills needed to innovate with a new digital tool). Moreover, risk-taking organizations are good at handling uncertainty in a digital era (Kane et al., 2017).

In summary, this study sees dynamic capabilities as the amalgamation of abilities and skills to generate, identify, and analyze new knowledge in the framework for digital transformation success. In the specific context of IS, dynamic capabilities are considered a source of business value, and previous research identified a relationship between dynamic capabilities and organizational performance (e.g., Karimi & Walter, 2015; Park & Mithas, 2020; Pavlou & El Sawy, 2006). Therefore, developing specific dynamic capabilities may support digital transformation success. However, the critical step is to identify the relevant enabling factors for digital transformation success.

2.3.3 The role of digital culture for digital transformation success

Previous research finds that some specific digital cultural values can be critical elements for companies successfully implementing digital transformation processes (Eden et al., 2019; Kane et al., 2017). Consequently, there has been a recent strong interest in understanding the relationship between digital cultural values and information technologies (Duerr et al., 2018; Morakanyane et al., 2020). However, despite this nascent interest, little is still known about the role of digital cultural values in facilitating digital transformation success and about the identification of those who are more likely to facilitate a successful digital transformation. Digital cultural values are part of organizational culture (Hartl & Hess, 2017) which is the accumulation of acquired patterns and hidden rules approved by all departments across a

firm (Schein, 1990). The three-level model of culture differentiates between artifacts (i.e., visible structures and processes), beliefs and values (i.e., espoused goals, ideals, moral principles, and philosophies), and underlying assumptions (i.e., unexplained beliefs, habits, thoughts, and feelings) (Schein, 1990). These levels of culture play a significant role in the framework for digital transformation success. It affects a firm's mindset, practices and operations, people, data, and ways of collaboration, as part of digital transformation.

The role of culture in information systems research has already been examined before (Leidner & Kayworth, 2006). However, as digital disruption changed during the last decade, there might be increasing importance and connection between digital cultural values and the implementation, usage, and successful adoption of technologies. However, the concept of digital cultural values in the context of IS can have different definitions (Leidner & Kayworth, 2006). Although a cultural change is essential for a successful digital transformation (Duerr et al., 2018; Fitzgerald et al., 2013; Hartl & Hess, 2017), only a little about specific values were named before. Based on previous research, this study proposes digital cultural values can facilitate digital transformation success.

Previous studies indicate that training, development, and the willingness to learn might be critical values of digital culture (Hartl & Hess, 2017; Kane et al., 2017; Vial, 2019). Organizations might need to empower employees to develop their skills and implement new learnings and knowledge in the workplace (Kane et al., 2017). As digital disruption brings several new working conditions, exchanging ideas and communicating through different digital platforms might be essential. Employees could share their thoughts, discuss innovations and new technologies. Training, development, learning might particularly enhance empowered talent and collaboration as part of digital transformation success.

Past work also acknowledges entrepreneurial mindset within the firm as a digital cultural value that empowers employees to actively get involved in the digital transformation process (Hartl & Hess, 2017). If employees across an organization feel part of the process and do understand the motivation and advantage behind digital transformation, they also might have a higher commitment and responsibility towards a successful outcome (Duerr et al., 2018). Related to that, trust and participation might be relevant for digital transformation success (Hartl & Hess, 2017). On the one hand, trust could support a digital working environment as digital tools, and flexible workplace arrangements offer more opportunities for asynchrony work and communication (Kane et al., 2021). Thereby, firms can empower talent as part of digital transformation success. On the other hand, the inclusion and motivation of employees to participate in the process in a non-hierarchical way with easy decision processes (Hartl &

Hess, 2017) could increase digital transformation success with digitized practices, operations, and straightforward data access.

Moreover, efficient data management might be relevant for digital transformation success (Vial, 2019). Ethics in data management get increasingly necessary as the base of decision-making during digital transformation (Mikalef et al., 2020). Organizations must learn how to store newly obtained information and teach employees to use it carefully to transform beneficially. Similarly, governance in data management might be important as new technologies arise, and different stakeholders are involved in digital transformation (Vial, 2019). Thus, the existence of data management might be significant for digital transformation success because the appropriate collection, storage, and handling of customer data are needed for digitized data access. Only this can support the analysis of the customer behavior to provide them with a proper customer journey.

Further, digital leadership might have a sufficient magnitude for digital transformation success (Kane et al., 2021; Singh & Hess, 2017). Digital leaders analyze the disruption of digital technologies, their chances in the workplace, and develop quick responses to ensure organizational transformation (Vial, 2019). Furthermore, a leader has a digital vision and a roadmap for digital transformation to empower talent (Kane et al., 2019). Strong leadership skills, high change orientation, and openness toward new technologies might further increase digital transformation success in terms of prioritizing digital solutions (i.e., digital-first mindset) (Kane et al., 2019). Besides, the digital literacy of a digital leader could support firms' intentions to digitize practices and operations. In summary, a digital leader accompanying digital transformation might mainly enhance success in terms of a digital-first mindset, practices and operations, and empowered talent.

To conclude, previous literature identified digital cultural values as an essential and influential aspect that may facilitate or hamper digital transformation success. Organizations have to consider new digital values for their culture, which are more digitally relevant, and transform their structures, patterns, and assumptions due to disruptive, digital technologies (Kane et al., 2017; Vial, 2019). From there, developing digital cultural values might support digital transformation success. The critical step is to identify different values and their role in the framework for digital transformation success.

2.4 Methodology

2.4.1 *Research design and setting*

This study has the objective of identifying a framework of organizational elements that support digital transformation success. We used an inductive interpretive and exploratory research

approach to achieve this goal (Eisenhardt, 1989). Moreover, for the data analysis, we followed grounded theory (Strauss & Corbin, 1998) to investigate relevant dynamic capabilities and gather insights on digital cultural values which influence digital transformation success. Accordingly, we conducted nine semi-structured interviews with open questions based on the recommendations from Sarker et al. (2013). This number of cases ensures a comprehensive coverage, robustness, and generalizability of the findings (Eisenhardt, 1989). Thus, our approach allows an analysis from different standpoints and effectively gathers data about this specific topic in research. Based on the company cases, this research design will help develop a framework for digital transformation success.

2.4.2 Case study descriptions

For the interviews, we mainly aimed at chief information officers (CIOs) of large multinational companies characterized by a successful implementation of digital transformation in recent years. We chose this target group as these positions have the most knowledge about technological and strategy-related aspects of digital transformation. The sample was composed of large firms that operate internationally in different markets with above 250 employees and revenues above 50 million US\$ in 2019. Thereby, we ensure a stable business background based on their figures and that the companies have the resources and technological assets to manage digital transformation. The names of the companies are anonymous and coded from C1 to C9. Most of the interviewees are currently working in the position of CIO, and two are working as IT managers. Table 2.1 provides an overview of the case studies' characteristics.

Code	Position	Industry	Firm size	Revenue ¹	Headquarter
C1	CIO	Automotive	165,000	137.24	US
C2	CIO	Operations management	30,000	0.99	US
C3	CEO	Technology consulting	25,000	1.55	Spain
C4	CIO	Machinery	5,000	2.34	Japan
C5	IT Director	Beverages and snacks	260,000	64.66	US
C6	IT Director	Automobile manufacturing	25,000	28.28	Germany
C7	CIO	E-Commerce fashion	250	0.72	Spain
C8	CIO	Manufacturing and engineering	95,000	5.35	Germany
C9	CIO	Aerospace	135,000	39.82	Germany

¹ Revenue is stated in billions of US\$ for the fiscal year 2019.

Table 2.1 Sample characteristics.

2.4.3 Data collection

The developed interview guideline with questions for the semi-structured interviews is based on the goal of exploring the framework for digital transformation success (see Table 2.6 in the Appendix). The following points summarize the main topics of the interview guideline: (1) definition of digital transformation success, (2) description of the companies' digital transformation journey, (3) chances and threats of digital transformation, (4) description of relevant abilities a company needs for digital transformation success, (5) illustration of relevant digital cultural values a company for successful digital transformation.

After executing some pilot interviews, we performed nine semi-structured interviews with the respondents through video chat. The interviews took place in February and March 2020 and lasted an average of 50 minutes each. Six of the interviews were conducted in English, while three interviews were in German. The conversations were recorded and immediately transcribed with AmberScript, an automatic transcription software.

2.4.4 Data analysis

Based on the transcripts, we coded the findings and insights of the interviews with MAXQDA, a computer-assisted software program for qualitative data analysis. Hence, we followed the methodology of grounded theory to conceptualize our data and build the theoretical framework of organizational factors for digital transformation success (Strauss & Corbin, 1998). One research team member performed open coding for a first abstraction and an initial step (Strauss & Corbin, 1998). While we worked through all nine interviews, findings were allocated towards situational code phrases. For example, the initial open code for the statement "*agile ways are the only way we can actually deliver the things to meet the expectations of our surrounding*" was "agility". In the next step, we grouped these descriptive, open codes methodically to get a higher level of abstraction and discover the first concepts. For instance, we gathered several codes related to handling, controlling, and using data under the code "data management". This step is called axial coding. Hence, the final list of clusters contained 33 codes (e.g., data management, transformational leadership, open culture, learning, digital skills, risk-orientation, experimentation, innovation, partnerships, customer centricity, and communication). Following the methodological lead (Sarker et al., 2013), we categorized and projected the codes on six dynamic capabilities (absorptive capacity, organizational agility, cross-functional collaboration capability, innovation capability, customer-centricity capability, relational capability) and three digital cultural values (continuous learning and development, ethics and data governance, and digital leadership). In this coding paradigm, we iterated the findings and combined them with relevant theories.

For example, the examination and definition of the axial codes (1) risk-orientation, (2) experimentation, (3) and innovation led to the projection on “innovation capability”, as this includes risk-taking and fostering experimentation with new technologies. Thereby, this step already gave us an initial understanding of the theoretical framework for digital transformation success. Lastly, we interpreted the results based on digital transformation literature as well as dynamic capabilities, and digital cultural backgrounds.

To avoid bias and false conclusions, we identified categories, similarities, and differences between the relevant organizational components (Eisenhardt, 1989). Although the initial analysis (i.e., open coding and axial coding) was done by a single researcher, the whole research team discussed potential problematic understandings (e.g., differentiation between agility and flexibility) during the last step of the analysis. We decided to find joined solutions based on previous IS literature. Hence, analysis followed relevant criteria of internal and external validity, reliability, and high quality of research (Eisenhardt, 1989; Sarker et al., 2013).

2.5 Key findings and insights

In this section, we present the main findings and insights of the study. With the aim of achieving the best outcome of this research, it was essential to have a mutual understanding of digital transformation and a company-wide approach. Accordingly, all interviews began with a question on how the interviewees define digital transformation. Besides a necessary change in companies caused by new technologies and analytics, all cases identify digital transformation as a chance for their industries. According to the CIO of C3, *“digital transformation is trying to rethink the way companies are working and make people embrace the transformation, so they feel that they are part of the journey. Then (...) the company puts in all the assets so that the training happens, that communication happens, and a cultural change happens”*. Moreover, it is a *“new way of thinking about the business by developing and integrating digital capabilities to digitize tasks, structure, people, and culture overall”* (C1). C6 has the vision to *“shift the customer experience in a digital future but also for the internal company while developing more digital products”*. Specifically, C6 referred to digital transformation as involving different key areas: products, customers, employees, and business processes. Accordingly, products include an increasing number of new products each year, which get adapted to new technologies. Therefore, recent trends must be detected and analyzed. Further, customers’ and employees’ needs, expectations, and demands are adapting. In line with that, customers might change their preferences, and new segmentations show up. Therefore, technologies must be applied and integrated to use and exploit customer data and create these new segmentations. Moreover, processes and operational activities

are changing during digital transformation, get automated, and digitized. To sum up, different layers are adapting to disruptions. After the respondents described their companies' digital transformation journey, there was a deeper look into the elements for digital transformation success.

2.5.1 *Dynamic capabilities*

Regarding the role of sensing dynamic capabilities, most respondents stated the relevance of market orientation and customer-centricity to implement digital transformation processes and routines within the organization. For example, C1 supports this since they want their *"customers to explore the products and therefore integrate them directly"*. In this sense, respondents see the understanding of data analytics as necessary for a better customer experience and customer engagement. An overview of the market *"is a very important aspect to be able to innovate. If you do not understand how the industry works best for me and where the emerging value drivers are, innovation will not succeed. You will have ideas, but you will not have execution"* (C2). Similar to that C4 mentions that *"the key is to understand customer needs. This is the first to understand. It means to communicate and to discuss customers with the business to understand what they want, what they need and then a good benchmarking. Thereby, we can analyze all the competitors' experiences and also find the right solution. It is important to understand both sides, competitors that are involved and customers"*. In addition, C3 mentioned a good example: *"We do not think about the challenges of today or tomorrow. We think about the challenges in ten years and in ten years the challenges are completely different from the challenges today. So, you have to think how this can be the company of the future. And this is really crazy sometimes but it what's making things change radically. In ten years, it is going to be completely different, and you understand how technology is going to help you. In that transformation you have to know your competitors today, but you do not know if they really exist in the future"*. To identify trends, C6 is operating in different markets specifically, which they identified as relevant for the current circumstances and technologies. By doing this, they experience the local developments and detect new trends. Moreover, C9 recognizes the importance of customer-centricity regarding the change of distribution, retail, and marketing channels. The digital customer experience changes and firms need to keep that in mind (i.e., customer-centricity capability) when building the digital strategy (Todri et al., 2019).

The study also finds the critical role of creating and managing new knowledge in digital transformation success. Several cases mention the ability to handle new knowledge to improve the organizations' tasks and structures to achieve digital transformation success.

“Companies have to find a combination of new and existing knowledge and skills” to respond to environmental changes (C7). All companies state the importance of the processes to obtain, convert and make use of new knowledge and the relevance of the ability to learn in this context. These points are essential parts of the companies’ routine to detect new knowledge and C8 sees the absorption of external and internal expertise as a given for achieving digital transformation success. Specifically, it is about the *“technological knowledge related to digital transformation”* (C2) as well as about new information about customer needs (C5) and the ability to *“recognize this value”* (C2). It can be related to absorptive capacity, which is the ability to acquire, assimilate, transform and exploit new external and internal knowledge within the firm (Engelen et al., 2014; Leal-Rodríguez et al., 2014; Zahra & George, 2002). It further includes the ability to *“generate new innovations”* as explained by C4 by a *“scan of the external environment”*. Consequently, companies must build resources (i.e., gather and handle new knowledge; transfer information to other stakeholders) within the firm and offer knowledge management for digital transformation.

In exploring how organizations seize the environmental opportunities from new digital trends, the cases note the importance of organizational agility to respond to uncertain and turbulent digital environments. Findings show that companies must be open and adjust quickly to new business opportunities, changing markets, and customer needs. In doing so, firms have to use the right technologies to be agile. Insights from C2 show that *“if the company cannot move its speed, it's never going to catch up to where the digital technology is going right. We work very dynamic and can react with the right technologies”*. Additionally, C3 stated that *“the most important one for transforming is flexibility. And this is one of the most difficult parts that I have seen”*. This finding is further supported by C5 since *“agile ways are the only way we can actually deliver the things to meet the expectations of our surrounding”*. Accordingly, organizations’ ability to be proactive for new business opportunities and rapidly respond to these opportunities (e.g., customer needs and market changes) by implementing and adapting changes into business models and processes can be seen as an essential element (Cegarra-Navarro et al., 2016; Kane et al., 2017).

Concerning the importance of open communication and collaboration, all cases underlined the advantages of better coordination and easier knowledge sharing if all business units work closely together to seize opportunities. Thus, data show that collaboration and coordination between functional areas and are central to avoid silo mentalities and seizing technological opportunities. For example, C5 points out that communication within the departments is necessary to break silos to implement digital transformation successfully. C1 made the

experience that *“the integrations of IT and other business departments additionally leads to faster innovation cycles”* and that *“top levels were also involved but also all different departments. For example, I was working together with marketing or distribution, and we all had the same vision and common goals”*. C9 states that *“a collaborative culture is the most important because any kind of sort of transformation effort is cross-functional, and any kind of value that you can get from data is the ability to combine it across functions. If there is no collaboration it has to be established in the culture, because I don't see digital transformation succeeding otherwise”*. Nearly all cases organize in specific product teams, which means that all departments work together in interfaces with digital technologies. Everyone has the same equipment and digital workplaces to minimize costs and expenditure so that everyone can focus on their actual tasks. These teams have their own decision authority and do not work in hierarchies. This finding can be seen as the ability to align the work of different business units through cooperation with the goals of understanding different perspectives and tasks, a comprehensive knowledge exchange as well as the development of solutions by using new ways of thinking and working (i.e., cross-functional collaboration capability) (Denison et al., 1996; Kahn & Mentzer, 1998; Kane et al., 2017).

Regarding the role of transforming capabilities, data shows that respondents indicate that innovation and experimentation are also crucial for digital transformation success. In this sense, the study's findings suggest that organizations have to be risk-tolerant and open-minded towards new circumstances and transformational change (e.g., organizational processes, products, and services). This further includes an innovative way to be *“keen to accept failures”* (C7). C3 suggests that *“the whole company needs to be involved and act as an early adopter. Creating an innovation culture is important because everybody has to think in a new way”*. C1 also indicated that transformative capabilities related to innovativeness, risk tolerance and creativity allowed to craft their digital strategy and redefine the business models: *“Until 2014, we did not have an innovation department that has nothing to do with IT. Additionally, we had to support a culture that does not fear to make mistakes. We promote good ideas and create challenges for smart people. We make them useful. One way to do so is co-ownerships where we start to develop new things all together”*. The findings of C6 also connect this since *“being brave and open for new ambitious goals of innovation”* is crucial in this field. Thus, enabling employees to experiment and be innovative (i.e., innovation capability) may lead firms to succeed in the digital transformation process (Kane et al., 2017). Also, different methods and approaches for creativity can expand the current product lines to be innovative (e.g., design thinking). These transforming capabilities will help organizations

renew their strategic assets and structures to respond to environmental changes more efficiently.

The cases also revealed an open partnership approach (i.e., ability to build a relationship with various stakeholders) as crucial for a successful digital transformation. This can be combined with the usage of different platforms (e.g., knowledge management networks or low-code development platforms). We find support for this result from C6, which sees an advantage in partnerships and cooperation by using the same technologies and resources. C2, for instance, says that *“starting new business models and partnerships is part of our sort of transformation effort. I think partnerships are very important capabilities. Companies will never have all the talent and the capabilities to keep up with each one of these disciplines. So, the ability of a company to create a trusted partnership is key. I don't see any company that is really close to me if they don't have that capability.”* C8 sees a need to build strong partnerships within Europe to increase innovation, exchange resources, and keep up with technologies from America and China. Connected to that, case C4 introduced intercultural abilities as relevant since they are necessary to cooperate with different cultures and companies globally. With this identified networking collaboration, both sides can *“profit from dynamics, gain knowledge, and innovate”* in a better and more competitive way (C8). Consequently, the ability to build relationships within an internal and external network may help firms succeed in the digital transformation process because it will help them to build transforming capabilities based on the knowledge and experience from external partners.

Dynamic capability	C1	C2	C3	C4	C5	C6	C7	C8	C9
Absorptive capacity		x		x	x		x	x	
Organizational agility		x	x		x	x		x	x
Cross-functional collaboration capability	x				x				x
Innovation capability	x		x	x		x	x		
Customer-centricity capability	x	x	x	x					x
Relational capability		x		x		x		x	

Table 2.2 Summary of identified dynamic capabilities.

2.5.2 *Digital cultural values*

Despite the identified dynamic capabilities, the key insights point out the relevance of digital cultural values that do not mainly aim to sense the environment or implement new knowledge in the firm but more about a digitally open workforce that supports a successful transformation with the right organizational philosophy. As part of that, we can highlight the relevance of three elements, namely continuous learning and development, ethics and data governance, and digital leadership. When discussing the role of digital cultural values for digital transformation success, some interviewees affirm that the employees' education is essential for digital transformation. C1 draws attention that *"we have to be more involved in the education of the people"*. C3 also suggests to *"use the talent in your company and provide the employees with an environment that people are keener to learn new skills. Companies need to train and embrace their employees more and more"*. Accordingly, organizations have to empower employees to develop their skills and implement new learnings in their working environment (Kane et al., 2017). This requires unlearning established practices that may hamper implementing new complex routines that may entail change resistances. In addition, the findings suggest that organizations have to *"encourage employees to exchange ideas and communicate"* (C5) through different digital platforms and communities to share their thoughts, discuss ideas and other technologies, as well as develop new and digital skills. This means that firms must align digital transformation goals of with continuous learning and development of employees' soft and hard skills (C9).

Findings also highlight that digital transformation involves the implementation of cultural mindsets oriented towards data protection and governance. Nearly all companies point out the relevance of data protection, privacy, and security as a relevant component connected to the companies' security and its socially responsible behavior. C7 said that *"if the company doesn't have maturity there, it becomes very tough for them to proceed forward. Data governance and quality have to go together."* However, C9 still sees improvement in this field: *"Nowadays we are all talking about data protection, hackers, invasions and things like that. There has to be a better management of new data otherwise it will cost companies a lot of money"*. Additionally, C3 sees it as *"important because it can be used for the good or for the bad. There are a lot of ethical issues behind it. However, current data protection laws are key, and customers have to be the owner of their data"*. The goal of C6 is to develop a better cybersecurity management system which guarantees that there will be no damage to their customers. As new technologies arise and *"different stakeholders are involved"* (C5) firms have to consider these ethical aspects. Additionally, firms have to keep in mind that even

actions that provide a short-term positive impact on organizational performance and operational efficiency during digital transformation can have a negative long-term effect on ethical performance (Vial, 2019). Hence, ethics and data governance are key factors in digital transformation success.

When discussing the role of leadership, organizations agreed on the fact that leaders have to face several unpredictable challenges. This is why leaders in organizations have to be highly motivated to support the transformation of the structures, processes, and operations. For this reason, several respondents highlight and agree that a “*transformational leadership style*” (C1) should be central for digital transformation. A leader needs to be sensitive as “*people get very scared because lots of those transformations mean that people will have to do things in a different way, and they expect to be replaced with technology*” (C3). Additionally, a leader must be open to acting in uncertain situations and accessible for risks and experimentation. Besides, a leader motivates and empowers employees to think differently with a digital mindset and has a “*digital soul*” (C7). Some cases also mention that they use incentives and clear rewards as an additional common goal to succeed in digital transformation. The following statement underlines this: “*I'd say the leadership is number one to success in digital transformation. As part of that, there has to be a sense of urgency to adapt and involve in the transformation*” (C8). “*I really think that the position of the leader is changing, and digital transformation is taking that into a totally different level because the leader has to be the first one to embrace that transformation*” (C3). Moreover, a leader needs a “*transformative and forward-looking vision*” (C3) and a roadmap for the digital transformation to guide the employees during the changing circumstances. Mainly, a digital leader may provide a culture of innovation and develop and create new digital mindsets within the organization (Fitzgerald et al., 2013; Ready et al., 2020). See Table 2.2 for a summary of the relevance of the dynamic capabilities and Table 2.3 for the importance of the digital cultural values identified in the different cases.

Digital cultural value	C1	C2	C3	C4	C5	C6	C7	C8	C9
Continuous learning and development	x		x		x				x
Ethics and data governance		x	x		x	x	x		x
Digital leadership	x		x				x	x	

Table 2.3 Summary of identified digital cultural values.

2.6 Discussion and conclusion

2.6.1 *Theoretical contribution*

From an academic perspective, this study provides several contributions to IS research. We respond to the central question under which circumstances firms are better positioned to carry out digital transformation. We base our contribution on an in-depth qualitative analysis of nine large companies that successfully transformed digitally to understand which dynamic capabilities and digital cultural values are critical to achieve digital transformation success. While some results confirm the existence of factors discovered in previous research (e.g., experimenting with responding to an unexpected digital environment), this paper also highlights new findings that were not developed before. Specifically, the integration of digital cultural values of continuous learning and development, ethics and data governance, and digital leadership into the framework for digital transformation success is a contribution as there is a lack in adapting and connecting dynamic capabilities and digital cultural values to digital transformation. Thus, this paper addresses this research gap and contributes to the IS field in several ways.

First, this paper provides evidence for digital transformation in practice by clarifying its concept. Earlier studies found no strong agreement in the definition of digital transformation, its differences with digital maturity, or it-enabled organizational transformation (Kane et al., 2017; Wessel et al., 2021; Vial, 2019). Our paper reinforces the idea of digital transformation as a complete integration of technology in the entire organization (i.e., digital-first mindset, digitized practices and operations, empowered talent, data access and collaboration tools), more than a mere implementation of new disruptive technology (Wessel et al., 2021). Second, this paper consolidates existing literature on the theory of dynamic capabilities addressing its application in digital transformation literature. Based on the continuous process of change inherent in the concept of digital transformation, dynamic capabilities contribute to the understanding of digital transformation success (Warner & Wäger, 2019). Earlier studies in IS literature point out dynamic capabilities as enablers of value creation and success (Matarazzo et al., 2021; Soluk & Kammerlander, 2020). The case studies analysis contributes by identifying sensing, seizing, and transforming dynamic capabilities firms should develop to achieve successful digital transformation. Our third theoretical contribution is the integration of digital cultural values into the framework of dynamic capabilities and digital transformation framework. Although previous literature shows strong interest in understanding the relationship between culture and IT (e.g., Leidner & Kayworth, 2006), still little is known about the role of digital cultural values during digital transformation (Hartl & Hess, 2017). Findings

show that having developed a set of dynamic capabilities may not be sufficient for digital transformation and some digital cultural values are required as enablers and reinforcements of digital transformation success. Thus, promoting digital cultural values accelerates the company's digital transformation to efficiently seize opportunities based on digital technologies. Next, this paper is the first attempt at creating a theoretical framework of critical factors for digital transformation success. Finally, we provide an outlook for research around digital transformation success in the future. This paper gives a foundation for a theoretical framework that needs further empirical development. Figure 2.1 shows the developed theoretical framework.

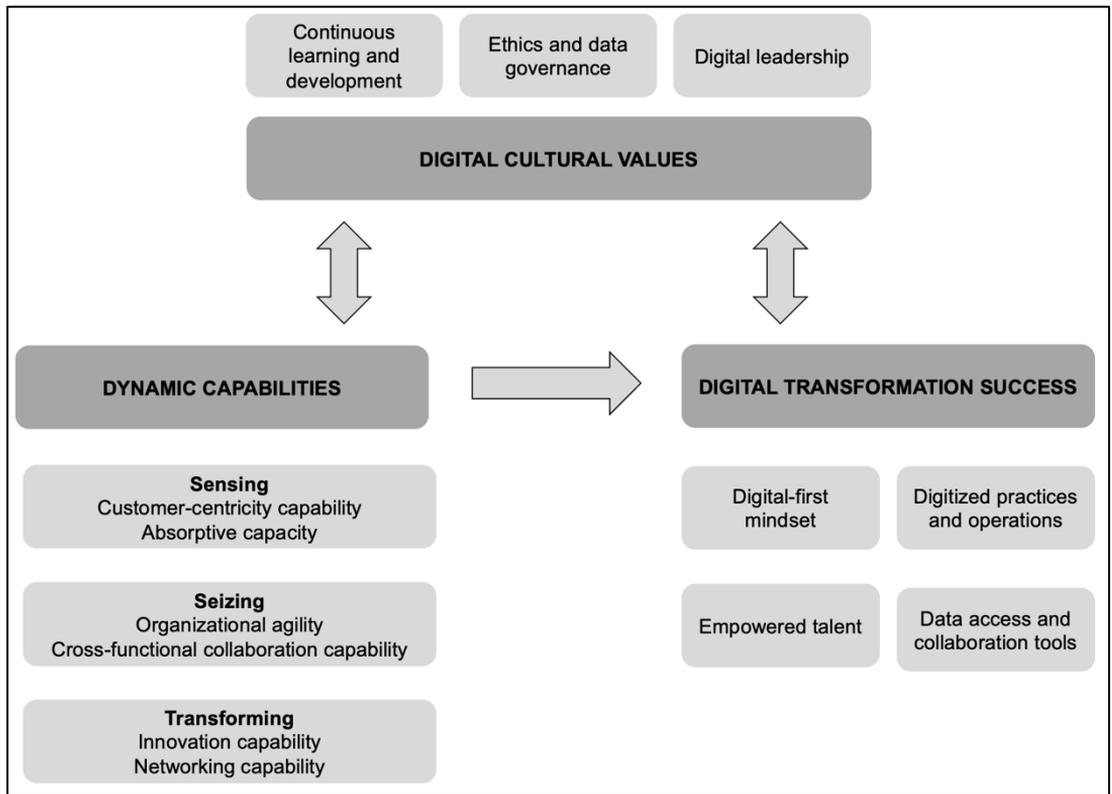


Figure 2.1 Developed theoretical framework.

2.6.2 Framework for digital transformation success

This paper tries to shed light on the theoretical context of digital transformation by creating a framework of components that facilitate digital transformation success. Our findings from the case studies demonstrate a set of six relevant dynamic capabilities and three digital cultural values that correlate with organizations' digital transformation success. First, to understand changes in a new digital environment (i.e., sensing capabilities), we identify absorptive capacity and customer-centricity capability as critical for digital transformation success.

Findings show the importance of obtaining, assimilating, converting, and using new knowledge to respond to digital disruptions and incorporate digitized practices and operations. Further, the ability to translate and exploit this knowledge supports new ways of working in the digital era (i.e., digitized practices and operations) and access to data regarding the usage of digital technologies (i.e., data access and collaboration tools). For instance, to design a digital model, C7 combined new and existing knowledge and skills. Inferring from this, we identify absorptive capacity as relevant for digital transformation success. Moreover, we recognize customer-centricity capability as a relevant dynamic capability. The ability to scan the environment and identify new opportunities makes the firm more likely to be open to exploring digital options (i.e., digital-first mindset) and improve a real-time customer database (i.e., data access and collaboration tools). This can even be supported by using technologies such as big data (Warner & Wäger, 2019). We can conclude that our findings for the critical sensing capabilities (i.e., absorptive capacity and customer-centricity capability) for digital transformation success are in some parts close to previous findings related to digital scouting (Warner & Wäger, 2019). Moreover, Park and Mithas (2020) also identified customer focus as necessary in the framework of digital transformation success. On the other side, results could not support the previous relevance of scenario planning (Warner & Wäger, 2019).

Second, based on the findings, we identify organizational agility and cross-functional collaboration capability as seizing capabilities for responding to identified opportunities and threats in a digital environment. Being proactive and adaptive to changes supports the firm in the strategic alignment and changes in using new technologies and structures (i.e., digitized practices and operations). Due to digital disruption, the ability to react agile and flexible to the fluid environment can make changes easier in new practices and processes (i.e., data access and collaboration tools). For example, when C5 was seizing digital opportunities, agility helped to implement these critical changes to meet customer and market expectations. Moreover, we point out the importance of cross-functional collaboration capability. The ability to understand different perspectives and exchange knowledge along with other business units gives the chance to have a common strategic vision about the digital opportunities (i.e., digital-first mindset). It further facilitates the automation of collaborative tasks (i.e., digitized practices) and embraces collaboration tools needed for the increased use of new technologies (i.e., data access and collaboration tools). These findings align with other studies mentioning agility to help detect new opportunities and ways of thinking and transformational processes (e.g., Tallon et al., 2019; Vial, 2019). Further, agility is a relevant capability for digital transformation to address digital opportunities and minimize threats (Warner & Wäger, 2019).

Previous studies also named collaboration crucial to align department strategies and goals with each other (Kane et al., 2017).

Third, to develop these previously identified opportunities, we emphasize two transforming capabilities based on the findings (i.e., innovation capability and relational capability). Innovation capability is vital for digital transformation success as being risk-tolerant and open for failures may facilitate the transition to a more digital business. Experimentation and the exchange of new ideas are of great importance for adapting practices and operations into digital ones (i.e., digitized practices) and facilitating employees' engagement in digital initiatives (i.e., empowered talent). The ability to transform or create new management practices, structures, processes, or routines is crucial for a successful digital transformation. It is important to discover, try, and implement new practices (Benitez et al., 2018; Braojos et al., 2015). Finally, the insights show that it is crucial to share resources with partners and build strong relations (i.e., relational capability) since no company can own all resources, skills, and capabilities to succeed as some are difficult to copy (Chen et al., 2009). Thus, the ability to build connections and share resources with partners facilitates the process of collaboration and data access needed for digitized structures (i.e., digitized practices, data access and collaboration tools). Moreover, having access to external resources can facilitate digital transformation success in terms of data access and collaboration tools. This finding supports the relevance of relational capability as a dynamic capability to achieve organizational performance (Lin et al., 2016). However, until now there is only little literature connecting relational capability and digital transformation (e.g., Hydle et al., 2021; Pradhan et al., 2021). Nevertheless, strategic partnerships for a digital transformation journey recently increased interest in IS research (Hydle et al., 2021), and other disciplines highlight the ability to "identify, establish, coordinate and develop relationships with different players in the market" (Chen et al., 2009: 295). To conclude, even though we see capabilities that help organizations manage and balance new knowledge (Warner & Wäger, 2019), these transforming capabilities (i.e., innovation capability and relational capability) are partly different from previous work. On the one hand, findings on innovation capability align with previous literature, which also identified risk-orientation and experimentation as essential to explore new technologies and adequately manage a digital environment (Kane et al., 2017; Vial, 2019; Warner & Wäger, 2019). However, on the other hand, Warner and Wäger (2019) certainly focus on redesigning internal structures to improve digital transformation instead of relational capability. Therefore, this capability particularly contributes to the latest research. Table 2.4 presents the definition of the identified dynamic capabilities.

Dynamic capability	Definition	Case study example
Absorptive capacity	Ability to acquire, assimilate, transform, and exploit new external and internal knowledge within the firm (Engelen et al., 2014; Leal-Rodríguez et al., 2014; Zahra & George, 2002).	“Companies have to find a combination of new and existing knowledge and skills.” (C7)
Organizational agility	Ability to rapidly and proactively respond to customers’ needs, market trends, business opportunities, and adapt changes into business models and processes (Cegarra-Navarro et al., 2016; Kane et al., 2017; Lee et al., 2015).	“Agile ways are the only way we can actually deliver the things to meet the expectations of our surrounding.” (C5)
Cross-functional collaboration capability	Ability to align the work of different business units through cooperation with the goals of understanding different perspectives and tasks, wide knowledge exchange and development of solutions by using new ways of thinking and working (Denison et al., 1996; Kahn & Mentzer, 1998; Kane et al., 2017).	“A collaborative culture is the most important because any kind of transformation effort is cross-functional and any kind of value that you can get from data is the ability to combine it across functions.” (C9)
Innovation capability	Ability to transform or create new management practices, structures, process, or routines with the goal of discovering new things, trying, and implementing them (Braojos et al., 2015; Kane et al., 2017).	“The whole company needs to be involved and act as an early adopter. Creating an innovation culture is important because everybody has to think in a new way.” (C3)
Customer-centricity capability	Ability to scan the environment and identify new opportunities as well as customer needs (Pavlou & El Sawy, 2006).	“In ten years, it is going to be completely different, and you understand how technology is going to help you.” (C3)
Relational capability	Ability to build relationships and share financial, institutional as well as technological resources within an internal and external network (Lin et al., 2016).	“The ability of a company to create a trusted partnership is key.” (C2)

Table 2.4 Definition of dynamic capabilities.

This study also sheds light on digital cultural values, which are critical for digital transformation success. Thus, we identify continuous learning and development, ethics and data governance, and digital leadership in the framework for digital transformation success. With these components highlighted, our research supports previous findings that digital culture has

paramount importance for digital transformation success (e.g., Duerr et al., 2018; Kane et al., 2021). Although we could not find specific proof for previous results by Hartl and Hess (2017) regarding the relevance of entrepreneurship, trust, and participation, they can be redefined as related to the digital cultural values that we emphasize as crucial for digital transformation success. Foremost, we found continuous learning and development as an essential digital cultural value for digital transformation as a philosophy of learning supports the adaptability to new technologies and market environments. Similarly, continuous collaborative learning facilitates the change in practices and knowledge initiated by digital disruption (i.e., digitized practices and empowered talent). This is in line with previous literature stating that employees need to exchange ideas in a learning environment where they can develop and apply new digital skills (Kane et al., 2019) and that firms have to encourage employees to take different learning opportunities (e.g., initiatives in or outside the firm).

An additional contribution underlines the role of ethics and data governance as essential to reaching digital transformation success as interviews highlight the relevance of privacy and security. Recent papers in IS research likewise examine ethical policies and guidelines for digital disruption as the “individual’s dignity must be honored, penetrated only by that person’s agreement through informed consent” (Mason, 2021: 567). Especially the increased use of big data for firms’ digital transformational purposes based on technologies (e.g., artificial intelligence) is a new topic that must be explored on the organizational level (Vial, 2019). Therefore, the concept of corporate digital responsibility has been introduced in business research, including values and norms for technologies, tools, and data as part of digital transformation (Lobschat et al., 2021). It is crucial to understand that firms’ ethical and responsible management of digital technologies can support digital transformation success (Mihale-Wilson et al., 2021).

Finally, the results from the study also highlight digital leadership as a relevant element for companies aiming to undertake a successful process of digital transformation. Respondents agree with the idea of having a digital advisor with a straightforward vision (i.e., digital-first mindset) who analyzes environmental changes and disruptions of digital technologies and rapidly reacts to a fluid market environment with unanticipated opportunities and threats. In addition, a digital leader may reinforce the relationship between dynamic capabilities and digital transformation (e.g., enhancing experimentation and collaboration). The characteristics of the identified relevance of digital leadership are in line with previous research showing the importance of a digital leader to compete with the disruption of digital technologies and changes in workplaces to ensure digital transformation success (e.g., Bonnet & Westermann,

2021; Kane et al., 2019; Tumbas et al., 2017). Further, we can see similarities to change orientation, strong leadership skills, and digital literacy, which is the ability to use technologies to show the forward-looking perspective of digital transformation (Kane et al., 2019). The definitions of digital cultural values are shown in Table 2.5.

Digital cultural value	Definition	Case study example
Continuous learning and development	Organizations' support and encourage of a learning environment in which employees can develop and apply new digital skills and exchange ideas (Kane et al., 2017; Tannenbaum, 1997).	"We have to be more involved in the education of people." (C1)
Ethics and data governance	Organizations' objectives and actions align with morality, security, and privacy guidelines of all stakeholders (Vial, 2019).	"Data governance and quality have to go together." (C7)
Digital leadership	Digital advisor with a straightforward vision who analyzes environmental changes and disruptions of digital technologies as well as rapidly react and invest resources to ensure the organizational transformation (Kane et al., 2017; Vial, 2019).	"I'd say the leadership is number one to success in digital transformation." (C8)

Table 2.5 Definition of digital cultural values.

2.6.3 Practical implications

This paper offers managerial implications for organizations and practitioners who aim to successfully engage in the business transformation enabled through digital technologies. Hence, as most firms face problems carrying our digital transformation processes (Kane et al., 2019), we create a guideline for components that facilitate digital transformation success. Particularly, we provide a framework to achieve a digital-first mindset, digitized practices and operations, empowered talent, and data access and collaboration tools.

In a first step, organizations need to identify and pick up information regarding new technologies and digital business strategies (i.e., absorptive capacity). Acquiring and incorporating information about new technologies helps the firm create a roadmap for a digital future (i.e., digital-first mindset) and develop critical digital know-how in the firm (i.e., empowered talent). For instance, organizations must identify new trends in the context of IoT (internet of things), classify this new knowledge, refine this information with current technologies or tools used to create business value, and incorporate potential updates (e.g., customer data analytics software). Moreover, customer centricity and market orientation are vital to detect and develop the right products and services to answer customer needs changes during the digital revolution (i.e., customer-centricity capability). More precisely, firms must

understand the customer journey, change preferences and channels, and show great interest in industry trends and competitors. Therefore, firms must invest time in researching (e.g., visiting fairs) to transform successfully.

As a next step, organizations must be agile regarding new business opportunities, markets, and customers' needs and flexibly adopt new digital business models and practices (i.e., organizational agility). Particularly, firms must quickly react without high top-down hierarchies and long cycles of communication. On top of that, more autonomy for employees or specific departments can be supportive of flexibly responding to a disruptive market. Additionally, organizations must build abilities to coordinate all tasks and structures and have a collective mind about all digital transformation processes through business units and departments (i.e., cross-functional collaboration capability). As part of that, we recommend ensuring and supporting the integration and communication throughout all different departments within the firm (e.g., teams with employees from various departments like operations, IT, design, accounting, etc.). This can be most effective in breaking silos, increase creativity and collaboration, and empower talent.

Afterward, organizations must be open to innovation and experimentation by promoting risk-taking (i.e., innovation capability) to transform and incorporate the acquired knowledge and opportunities. Thereby, failures should be seen as an opportunity for development and intrapreneurship. For example, firms could offer co-creation initiatives like hackathons as a source for brainstorming, creating ideas (e.g., a minimum viable product), and creatively working in a new team. Finally, an open partnership approach and networking skills are essential to sharing resources and knowledge with other companies (i.e., relational capability). Thus, we advise firms to build an ecosystem in different countries and industries to address current challenges. However, being active in a local network, for example, engaging in digital hubs or with start-ups in the region, can also support the digital-first mindset and data access to support digital transformation.

Besides the stated capabilities, we recommend that firms incorporate digital cultural values as part of the framework for digital transformation success. First, organizations must provide employees with an environment that supports continuous learning and development. Firms need to engage and support the employees' development of interests, skills, and ideas and strengthen the relationship between dynamic capabilities and digital transformation. Further, it is crucial to generate learning opportunities to build good relationships with customers and understand their needs and insights. Especially in times where the workplace is continuously changing, new ways of learning must be facilitated by providing a safe space and allocating

time to exchange ideas, innovation, and skills (e.g., rapid prototyping or data analytics). To conclude, learning and development must be integrated into daily routines to ensure experimentation and dynamic collaboration, meet customer demands, and stay competitive, both as a market player and moreover also as an employer.

Additionally, a sensitive view at data protection is helpful in convincing all stakeholders of the success of digital transformation (i.e., ethics and data governance). Firms should learn how to store the obtained information (i.e., data access and collaboration tools) and teach employees how to use it carefully (i.e., empowered talent). One possible way to do this is by launching e-learning opportunities on topics like cyber or cloud security, phishing attacks, or even remote work so that employees can educate themselves and gain more knowledge. Moreover, organizations can also increase awareness that they have customers' data in mind by stating honestly what information they gather and how it will be used (e.g., cookies). Above all, firms should follow the general data protection regulations and regional laws and have a data privacy officer.

Finally, all implications stated above should be supported by a digital leader who motivates and connects employees, increases the commitment towards digital transformation, and stimulates the interest in new digital technologies. Showing employees, a purpose behind digital transformation engages them and highlights the critical values behind the change. Thus, firms should create the role of a chief digital officer (CDO) (i.e., former known as chief information officer). This role digitally drives the transformation, follows the goals, and engages the whole firm in the initiatives. In sum, a transformative digital vision and strategy lead this management.

2.6.4 Limitations and further research

In conclusion, this paper develops a framework for digital transformation success using an in-depth case analysis of nine large companies. The qualitative analysis identifies new critical dynamic capabilities and digital cultural values that facilitate digital transformation processes. However, this research also has some limitations. Even though a multiple case study is a first approximation to verify the framework, more empirical analysis is needed to confirm these results. Future research should prove the supposed elements in a more empirical quantitative study. Although this work contributes to IS research by integrating digital cultural values in the dynamic capabilities view, digital transformation is a broad aspect, and some factors of digital transformation may be disregarded. Thus, future research directions should analyze the empirical operationalization of digital transformation and its consequences on organizational performance. To advance this work, future research could also explore which

other elements make digital transformation successful. For example, it might be reasonable that not only dynamic capabilities and digital cultural values but amongst others also employees' individual skills, participation, and commitment might influence digital transformation success. Therefore, we encourage further research and in-depth analysis on the individual role of employees to achieve digital transformation success. Finally, this research investigated firms from eight different industries. To make the results more generalizable, other industries should be additionally investigated. Nevertheless, this paper is a first step in understanding the complexity of elements of a framework for digital transformation success.

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2.8 Appendix

Topic	Semi-structured questions
Introduction	<ul style="list-style-type: none"> • Can you please tell me what your organization does (industry, number of employees)? • What do you do and what is your background (e.g., age, career, education, tenure)?
General expertise about digital transformation	<ul style="list-style-type: none"> • How would you define digital transformation? Which processes of the company are involved? • What chances do you see in digital transformation? • Which main threats and challenges do you see? • In your opinion, what are the relevant factors for organizations that influence success during digital transformation? • Contrary, what are relevant factors for organizations that impede success during digital transformation? • Please describe the overall journey of your organization's digital transformation. • What was your company's biggest success during the transformation? • How integrated is the IT department with the rest of the business departments? • What problems did you have to face and how did you manage it? What kept you on track?
Experiences with digital transformation	<ul style="list-style-type: none"> • How would you describe the relevant abilities which your company needed during the transformation? • Which of them were there before and which had to be developed? How did you support the development? • Which relevant aspects of a digital culture did you identify during the transformation? How did you support that?
Closing	<ul style="list-style-type: none"> • If you could change something on your companies' journey of transformation: what would it be? • Thank you for the interview! Can you please sum up the most relevant factors to achieve digital maturity?

Table 2.6 Interview guideline.

3 Paper B: Dynamic capabilities development to enable digital transformation success and firm performance

3.1 Abstract

What is needed for organizations to succeed in digital transformation, and what is its advantage? Motivated by the ongoing high amount of failing digital transformations, this study identifies necessary predictors and outcomes of this prominent matter on the macro level. Drawing on dynamic capabilities as enablers for the redefinition of business value and organizational identity in the digital era, we propose that such empower digital transformation success, which in turn improves firm performance. Using structural equations modeling with data from 154 firms in Spain, results support the proposed model that dynamic capabilities enhance digital transformation success and increase firm performance. This work empirically confirms unexplored facilitators for digital transformation success by providing a holistic overview of dynamic capabilities in the form of a set of abilities (i.e., exploring external knowledge, responding quickly to changes, aligning workforce functions, understanding customers, detecting revolutionary ideas, and connecting with the ecosystem). It also contributes to IS research by disentangling the framework of digital transformation and integrating the organizational capabilities-based theory into the digital transformation perspective. Finally, the study identifies critical abilities as a foundation for digital transformation success and the onset of further investigations in this IS field.

Keywords: Dynamic capabilities; digital transformation success; firm performance; business value of information technology.

An earlier version of this study has been accepted and presented at the 31st ACEDE International Conference in 2022 (ACEDE). The paper is currently under revision in Decision Support Systems (JCR Impact Factor 5.795). The manuscript is reproduced with the permission of the author team.

3.2 Introduction

Societies and organizations across all nations are constantly confronted with different kinds of disruptions (Kane et al., 2021). For instance, technologies have attracted much attention, and recently, the pandemic has even more fostered digital change (Nambisan et al., 2019; Wade & Shan, 2020). Organizations worldwide face a technology-enabled transformation, and even though it initially felt like an acute disruption, digital transformation (DT) turned into a chronic one (Kane et al., 2021). This is the case, as it is progressing slowly, long-lasting, and nowadays indeed predictable. However, from an academic and practical perspective, there is an issue with comprehending what digital transformation comprises and how to thrive with it. Finally, even though it is a critical matter on various levels, there is no clear understanding of its enablers and outcomes. Nevertheless, digital transformation is vital to be incorporated into the firm's strategic planning to be effective and long-term advantageous. Thus, to survive under digital disruption, it is crucial for organizations to analyze, create, and adapt their business value and organizational identity (Hanelt et al., 2021; Wessel et al., 2021). Having the proper organizational resources and capabilities in this digital environment can ensure to meet expectations for competitive advantage and execute actions that are needed to align IT and business for this transformation (Wessel et al., 2021).

An illustrative example from the practical perspective is the global transformation department at *Google Cloud*, which prepared the workforce for different kinds of disruptions by assembling abilities (e.g., being updated on news, sustaining collaborations with stakeholders, analyzing trends, being creative). Employees were able to respond to the digital shift and, as a result, successfully adapted (Kane et al., 2021). Finally, *Google Cloud* was able to maintain business value and even increase its competitive advantage in the digital era. Likewise, digital transformation success is critical to growing business, as cases from different industries show. For instance, car manufacturer *Ford* did not integrate new digital segments into the traditional business units and lacked communication between divisions (Morgan, 2019). This led to an initial failure in digital transformation efforts as the strategy did not follow a common approach and was not aligned with the overall identity of the firm.

Even though previous Information Systems (IS) literature identified the importance of organizational capabilities during digital disruption (e.g., Li & Chan, 2019; Mikalef & Gupta, 2021; Steininger et al., 2022), studies are mainly focused on IT-related resources (e.g., big data analytics capability, digital platform capabilities, IT-enabled dynamic capabilities) and might not include a comprehensive understanding of digital transformation. For instance, research on capabilities is limited to work on new product development (Pavlou & El Sawy,

2006), innovation (Joshi et al., 2010), or simply competitive advantage (Karimi & Walter, 2015; Ravichandran et al., 2005) as an outcome. Still, to our knowledge, IS literature predominantly views digital transformation as focusing on technology implementation and usage. However, it affects all organizational foundations, and no study includes a holistic perception of digital transformation success. Hence, it might consist of a digital-first mindset, digitized practice and operations, empowered talent, and data access and collaboration tools (Bonnet et al., 2015). Yet, prior research did not pinpoint digital transformation on a granular level. Although there is a booming interest in the field of digital transformation with widespread endeavors to understand the contexts, there is still a lack of a clear grasp. Also, current knowledge on organizational capabilities that support digital transformation success and affect firm performance remains unclear. Most scholars focus on IT-enabled capabilities, but this study investigates which dynamic capabilities are critical to transforming digitally. These abilities might generate business value, support firm's development, and enable a strategic execution of actions to create a competitive advantage through digital transformation success. Hence, the following questions in the IS domain remain unsolved and need to be developed:

(1) Which dynamic capabilities enhance digital transformation success?

(2) How can digital transformation success improve firm performance?

Drawing on the digital transformation perspective and organizational capabilities-based theory, we propose a research model that interrelates dynamic capabilities, digital transformation success, and firm performance (Figure 3.1). The purpose of this study is to identify relevant dynamic capabilities firms need to build for responding to digital disruptions by undergoing a successful digital transformation. We posit that having absorptive capacity, organizational agility, cross-functional collaboration capability, customer-centricity capability, innovation capability, and networking capability will positively impact digital transformation success. We further posit that a successful digital transformation will lead to increased firm performance.

Despite significant recent work in this area, we try to answer these research questions and fill critical gaps to develop a comprehensive understanding of how to increase digital transformation success and, consequently, firm performance. Thereby, this study has several contributions to IS literature. First, this is the initial paper that integrates the organizational capabilities-based theory with a holistic understanding of the digital transformation perspective. Second, this study identifies which dynamic capabilities are crucial for digital transformation success. Further, we theoretically contribute to existing capability conceptualizations by providing a greater understanding and extending the IT focus (e.g.,

digital-first mindset or empowered talent). Lastly, we give implications for organizations on how to increase firm performance initiated through digital transformation.

Accordingly, the paper is organized as follows. First, there is an overview of this paper's theoretical background and conceptualizations. Based on that, it follows the hypotheses development. Afterward, we give an overview of the methodology of this research. The next section presents an empirical data analysis and the results are presented. Finally, we conclude with a discussion of the findings, contributions, and suggestions for further research.

3.3 Theoretical background

3.3.1 *Digital transformation and organizational capabilities-based theory*

This study's central lens is the digital transformation perspective which emerges as a relevant concept across IS literature (Benbya et al., 2020; Hanelt et al., 2021). Due to the increasingly strategic role of digital technologies for value creation (Castillo et al., 2021; Chantias et al., 2019), both academia and practitioners aim to understand what digital transformation entails (Wessel et al., 2021). Thus, the digital transformation perspective provides a helpful framework for examining predictors for a successful transformation and exploring the aftermath on the macro-level (i.e., firm performance and competitive advantage) (Nadkarni & Prügl, 2020; Vial, 2019).

Digital transformation is a complex process where firms (re)define (1) business value and (2) the organizational identity (Wessel et al., 2021). Notably, this organizational change is predicated on the occurrence of digital technologies and is reshaping business models and structures (Hess et al., 2016). Enabled by a changing business environment (i.e., companies, markets, industries), digital transformation involves reconsidering companies' strategic vision, people and culture, knowledge, and capabilities (Gurbaxani & Dunkle, 2019). For instance, novel consumer behaviors require adjustments from businesses as new purchase opportunities arise on the market. McDonalds is a firm that was analyzing potential options for customer channels and started using digital tools to meet demands (Kane et al., 2021). Having a digital-first strategy, as a consequence, led to higher capacities of the restaurants and higher sales. In conclusion, firms need a digital strategy and essential assets to react to these changes and, in turn, stay competitive (Chantias et al., 2019).

This investigation furthermore draws on organizational capabilities-based theory as it is a useful framework for conceptualizing dynamic capabilities. Capabilities in management and IS research are a long-existing phenomenon (Brinch et al., 2021; Jha et al., 2020; Steininger et al., 2022) since this approach is critical to addressing challenges in the business environment and creating a competitive advantage (Warner & Wäger, 2019; Yeow et al.,

2018). Organizational capabilities are a group of assets that offer opportunities for firms and on which a company can build its strategy (Collis, 1994; Grant, 1991). From previous literature, the notion of capabilities is linked to the resource-based theory (Barney, 1991). This view considers a firm's resource as valuable, rare, inimitable, nonsubstitutable, and an enabler for performance (Barney, 1991). However, the organizational capability-based theory challenges this concept by distinguishing these tangible and intangible assets. Specifically, this means differentiating between capabilities and resources (e.g., patents or capital). Thus, capabilities are seen as an extension of the resource-based theory because capabilities can subsist detached from companies' existing resources. Particularly, capabilities are a stable concept in the changing business environment regardless of the firm's resources (Amiri et al., 2015). In this way, capabilities are abilities that support a firm's development and strategic execution to create a competitive advantage (Hao & Song, 2015; Kane et al., 2021).

Synoptical, this study theoretically builds on the digital transformation perspective because identifying drivers for a successful digital transformation is an urgent and crucial challenge (Hess et al., 2016). The other foundation we draw from is organizational capabilities-based theory, as building critical abilities might increase digital transformation success and firm performance (Benitez et al., 2018). Even though previous research tries to investigate how firms can transform digitally (e.g., Sebastian et al., 2017), there is still a lack of strategic responses to handle opportunities and threats in the digital era (Wade & Shan, 2020).

3.3.2 Conceptualization of the key constructs

Digital transformation is a buzzword in current IS research streams with a blurry definition and several approaches for a sustainable distinguishment from other related terminologies (e.g., Wessel et al., 2021). Nevertheless, the critical role of DT during disruptions is concurring across IS literature (e.g., Hanelt et al., 2021). In the context of this research, digital transformation can be defined as a complex procedure with a broad scope, existing of a technology-enabled shift of value creation and identity across organizations (i.e., business model, strategy, technology, processes, people, and culture) (Hess et al., 2016). Thereby, it is composed of four dimensions (1) digital-first mindset, (2) digitized practices and operations, (3) empowered talent, and (4) data access and collaboration tools, which take a critical role in times of disruptions and contribute to firms' value creation in different ways (Bonnet et al., 2015). First, a digital-first mindset means an open approach toward digital opportunities and prioritizing digital solutions compared to traditional ones (Bonnet et al., 2015). Next, digitized practices and operations include the automation of processes, data-driven decision-making, and collaborative learning. Moreover, empowered talent contains the development of digital

skills across the firm and both internal and external involvement of employees in the digital context (Bonnet et al., 2015). Lastly, data access and collaboration tools comprise the usage of real-time customer and operations data as well as implemented collaboration tools. Overall, these four dimensions reflect a holistic approach to redefining business value creation and organizational identity enabled through technologies.

There are different sorts of capabilities a firm should build its business on (foundational, core, and strategic) (Helfat, 2000). Foundational capabilities (e.g., onboarding new employees) are required to do business and act as the base for core and dynamic capabilities (Kane et al., 2021). Core capabilities (e.g., compliance) are critical for the firm's functionality but are not significantly crucial for competitive advantage (Kane et al., 2021). Eventually, dynamic capabilities in the digital context are a set of abilities that collectively generate value for the organization (Kane et al., 2021). With the aim of digital transformation success, there are distinctive sorts of capabilities to include and conceptualize. First, absorptive capacity is the ability to identify valuable external knowledge and subsequently explore, transform, and adapt it within the organization (Cohen & Levinthal, 1990; Zahra & George, 2002). It contains the evaluation of a new information base concerning prior internal knowledge and the potential renewal of current operations (Roberts et al., 2012). Second, organizational agility draws on responding quickly to changes (e.g., customer preferences, market trends, and business opportunities) and consequently adapting organizational processes beneficially (Benitez et al., 2018). Third, cross-functional collaboration capability refers to the ability to align the work of all departments across the company by understanding different perspectives and tasks, transparency, and developing solutions by using new ways of working (Denison et al., 1996; Kane et al., 2021). For instance, sales and IT units in the workplace link up their work and operate towards common transformational goals. Fourth, customer-centricity capability is the ability to scan the market environment and understand the customer experience, including perceptions and expectations (Pavlou & El Sawy, 2006). For example, by focusing on the customers, market, and competitors, firms are aware of reaching the target group through different sales channels. Fifth, innovation capability is the ability to detect new ideas and develop these. Besides, it includes building innovation infrastructure and empowering people in the company to experiment (e.g., next-generation research) (Westerman & Curley, 2008). Lastly, networking capability happens to be the ability to connect and collaborate with external organizations (e.g., academia or start-ups) (Kane et al., 2021; Sisodiya et al., 2013). Thereby, institutions can share knowledge and resources (e.g., customer data or specific production tools) to build on it. Eventually, these six abilities (i.e., explore external knowledge, respond

quickly to changes, align functions in the workforce, detect revolutionary ideas, understand customers, connect with an ecosystem), united as dynamic capabilities, might cover the essentials to handle opportunities and threats for a successful digital transformation (i.e., digital-first mindset, digitized practice and operations, empowered talent, and data access and collaboration tools).

Firm performance is the assumption for competitive advantage and is often one of the most relevant factors in the business context (Wamba et al., 2017). In terms of this research, it is conceptualized as the aptitude to increase sales, profitability, and return on investment (i.e., financial performance) as well as the qualification to compete in the market (e.g., by introducing new products or services) (i.e., market performance) (Tippins & Sohi, 2003; Wang et al., 2012). Finally, firm performance is a precise measure to assess how firms act in simile to competitors and evaluate companies' success in a holistic way (Mithas et al., 2011).

3.4 Hypotheses development

3.4.1 *Dynamic capabilities and digital transformation success*

As firms' dynamic capabilities are the foundation that generates business value (Benitez et al., 2018), they have a critical function for digital transformation success. While business value must be redefined in the digital era (Wessel et al., 2021), also the essential abilities for these transformational processes have to be reconsidered. Even though recent work highlighted different sorts of micro-foundations and capabilities critical to managing digital opportunities and threats (El Sawy & Pavlou, 2008; Mikalef et al., 2020; Warner & Wäger, 2019), there is a lack of a holistic understanding of enablers in IS research, both of capabilities and digital transformation. As firms need implications on how to successfully manage such processes (Wade & Shan, 2020), our proposition is dynamic capabilities (i.e., absorptive capacity, organizational agility, cross-functional collaboration capability, customer-centricity capability, innovation capability, and networking capability) to enable digital transformation success.

Absorptive capacity can impact the firm's digital-first mindset by providing the proper technological infrastructure and stability by exploring and exploiting external knowledge (Siachou et al., 2021). By actively monitoring information (e.g., technological trends), this ability can contribute to using digital opportunities and digital solutions. Further, organizational agility might result in opportunities to pivot and scale up current aptitudes and increase digitized practices and operations (Verhoef et al., 2021). For example, during the pandemic, the collaboration software Zoom was able to react quickly to the shifting conditions and upscaled its product and services to customer needs (Kane et al., 2021). The ability to rapidly respond to changes and threats from the business environment might increase the exploration

of digital opportunities as part of digital transformation. Despite this, cross-functional collaboration capability might lead to empowered talent as it improves communication and transparency as well as participation and creativity (Vial, 2019). While breaking silos in the workplace, this ability impacts the redefinition of the organizational identity as part of the digital transformation processes. This might be related to the development of employees' analytical skills (Dremel et al., 2017). Also, customer-centricity capability might increase digital transformation success as customer needs and demands will be better assessed (Abbu & Gopalakrishna, 2021; Weritz et al., 2020). For instance, *Skillsoft* analyzed their customer's interest at the beginning of the pandemic and immediately scaled their business of digital learning content (i.e., digital-first mindset) (Kane et al., 2021). This illustrative example shows that a focus on the customer experience and journey (e.g., shifting expectations) increases digitized practices and operations in the organization. Moreover, innovation capability allows firms to think differently and experiment (Braojos et al., 2015). Thereby, the organization might develop a digital-first mindset by exploring digital opportunities and empowered talent. Innovation capability can also lead to shifting structural boundaries (Nambisan et al., 2017) that might affect digitized practices and operations. Innovations further might enable the infrastructure to explore digital opportunities (i.e., a digital-first mindset) (Westerman & Curley, 2008). Finally, networking capability might give opportunities to collaborate to attain similar objectives pool resources and databases (e.g., access customer data) in an ecosystem (Kane et al., 2021). Thereby, relations might increase digital transformation success as firms might have more access to real-time customer and operations data (Kane et al., 2021). Further, firms with this ability constantly enable processes to achieve new knowledge by exchanging information with the network that can be strategically used.

Possessing these dynamic capabilities allows firms to analyze the changing business environment, respond quickly to opportunities and threats, and react by redefining the business value and the entire organizational identity. Consistently with the above arguments, we hypothesize:

Hypothesis 1. (H1): There is a positive relationship between dynamic capabilities and digital transformation success.

3.4.2 Digital transformation success and firm performance

Previous research linked digital technologies with performance improvements and competitive advantage (Ravichandran et al., 2005; van der Meulen et al., 2020). Organizations that redesign and adapt in terms of digital transformation perform better than their competitors (Bonnet et al., 2015). While several studies support a link between

capabilities and firm performance (e.g., Laguir et al., 2022; Mikalef et al., 2020), it was often defined as an IT-enabled competitive advantage (Bharadwaj, 2000; Pavlou & El Sawy, 2010). We suppose that organizations can differentiate themselves based on their digital transformation success. While each of the dimensions (i.e., digital-first mindset, digitized practices and operations, empowered talent, and data access and collaboration tools) are complex to achieve, firms that undergo a successful digital transformation, in turn, enjoy superior financial and market performance by exploring digital opportunities, prioritizing digital solutions, automating processes and data-driven decision making, developing digital skills, and accessing real-time customer and operations data. For example, on the one hand, financial indicators can be positively affected by the usage of digital opportunities. On the other hand, making use of the customer data might increase market performance by developing suitable products and services.

Especially under current disruptions, firm performance might be explained through differences in digital transformation success. Accordingly, we see digital transformation success as a key driver for firm performance and propose the following hypothesis:

Hypothesis 2. (H2): There is a positive relationship between digital transformation success and firm performance.

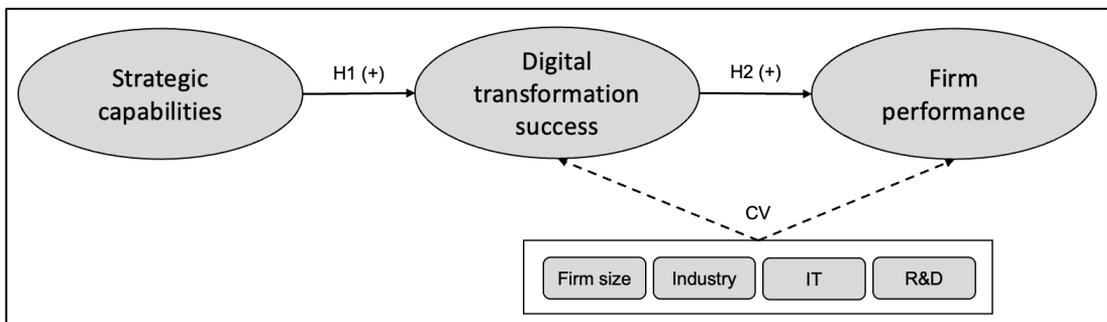


Figure 3.1 Proposed research model.

3.5 Research context, design, and methodology

3.5.1 Sample and data

There was no previous investigation on our proposed model, so we tested the hypothesis using survey data. The process began by searching for medium to large enterprises with more than 50 employees and a minimum of 10 million EUR annual revenue in Spain. We chose the Spanish market because the performance in terms of the Digital Economy and Society Index is above average, indicating solid digital performance (European Commission, 2020). Before the survey administration, we performed a selection of industries where digital transformation is advanced. In this way, 2578 firms were contacted through a well-established consulting

vendor, which finally gathered 154 valid questionnaires. This is an effective response rate of 5.97% and can be considered a satisfactory result due to the current circumstances in the workplace and the difficulty of contacting IT managers (Benitez et al., 2018). The data collection lasted from October 2020 to April 2021.

		n	%
Firm size (number of employees)	50 - 249	88	57.14
	250 - 1.000	48	31.17
	1,001 - 10,000	16	10.39
	> 10,000	2	1.3
Industry	Manufacturing	65	42.21
	Retail	35	22.73
	Technology/ Communication	13	8.44
	Other	41	26.62
Respondent's position	Non-management	33	21.43
	Supervisory management	30	19.48
	Middle management	50	32.47
	Senior management	41	26.62
Respondent's age	18 - 30	19	12.34
	31 - 40	39	25.32
	41 - 50	62	40.26
	51 - 60	32	20.78
	> 60	2	1.3
Gender	Male	98	63.63
	Female	56	36.36
Revenue (Million EUR per year)	10 - 20	51	33.12
	20 - 50	47	30.52
	> 50	56	36.36

Table 3.1 Sample characteristics.

The sample of this study is composed of the following industries: 65 manufacturing (42.21%), 35 technology and communication (22.73%), 13 retail (8.44%), and 41 firms (26.62%) from other industries (e.g., finance/ insurance or energy/ electricity). We employed one single key information per firm to answer the survey's questions. Respondents had IT responsibility in the firm (i.e., non-management 21.43%, supervisory 19.48%, middle management 32.47%, senior management 26.62%). Further sample characteristics can be found in Table 3.1.

Before testing the effects of the proposed research model, we performed a statistical power analysis using G*Power 3.1. software (<http://www.gpower.hhu.de/>) to check the minimum sample size required (Faul et al., 2009). Assuming a medium effect size ($f^2 = 0.150$), a

statistical power level of 0.800, five predictors (i.e., the largest number of structural paths directed to firm performance), and an alpha level of 0.05, the minimum sample size that ensures robustness and generalizability is 92 (Cohen, 1988). The final sample included 154 firms, which suggests an acceptable size to test the statistical significance of the proposed research model.

3.5.2 *Measurements*

Constructs can be modeled as behavioral (latent variables) or design constructs (artifacts) (Henseler, 2020). Behavioral constructs thereby exist in nature and describe attitudes or attributes (e.g., level of satisfaction). Particularly, these kinds of constructs are modeled as either reflective constructs (cause the observed indicators) or causal-formative constructs (are caused by the observed indicators) (Castillo et al., 2021). However, design constructs are the product of theoretical thinking that refer to human-made creations (Benitez et al., 2022). These artifacts can be considered as a mix of elements and are typically modeled as composites as they are a combination of elements that make up the construct (e.g., as ingredients of a receipt) (Benitez et al., 2020). Eventually, all constructs in the proposed model are conceptualized as artifacts and modeled as composites.

Dynamic capabilities were measured as a second-order composite construct composed of six first-order constructs with 28 items in total. First, absorptive capacity was assessed with four items from Kotabe et al. (2014). Second, organizational agility consisted of three items from Felipe et al. (2019) and Lu & Ramamurthy (2011). Third, we measured cross-functional collaboration capability with six items from Tsai & Hsu (2014). Fourth, customer-centricity capability was assessed with five items based on Frambach et al. (2016) and Im & Workman (2004). Fifth, innovation capability was assessed with the help of five items based on the construct of firm innovativeness from Ravichandran (2017). Lastly, networking capability was operationalized with five items based on Sisodiya et al. (2013).

In the survey, digital transformation success is used as a multidimensional construct by Bonnet et al. (2015). Based on this prior conceptualization, we assess digital transformation success as a second-order composite construct composed of four first-order dimensions: digital-first mindset (4 items), digitized practices and operations (4 items), empowered talent (3 items), and data access and collaboration tools (4 items).

Firm performance was measured as a second-order composite construct composed of two first-order dimensions. All items were assessed in relation to the competitors during the last three years. On the one hand, the financial performance consisted of four items based on Tippins & Sohi (2003), measuring sales growth, profitability, return on investment, and overall

financial performance. On the other hand, market performance was operationalized with four items by Wang et al. (2012) with the following items: (1) we have entered the markets more quickly, (2) we have introduced new products or services to the market faster, (3) our success rate of new products or services has been higher, and (4) our market share has exceeded.

Construct	Conceptualization	Measurement	Source
Digital transformation success	Redefinition of business value creation and organizational identity enabled through the occurrence of digital technologies.	Second-order construct: (1) Digital-first mindset (2) digitized practices and operations (3) empowered talent (4) data access and collaboration tools	Bonnet et al. (2015)
Dynamic capabilities	Set of abilities that generate business value, support firm's development, and strategic execution of actions to create a competitive advantage (e.g., through digital transformation success).	Second-order construct: (1) absorptive capacity (2) organizational agility (3) cross-functional collaboration capability (4) customer-centricity capability (5) innovation capability (6) networking capability	Kotabe et al. (2014) Felipe et al. (2019) Lu & Ramamurthy (2011) Tsai & Hsu (2014) Frambach et al. (2016) Im & Workman (2004) Ravichandran (2017) Sisodiya et al. (2013)
Firm performance	Aptitude to increase financial indicators and qualifications to compete in the market in relation to competitors.	Second-order construct: (1) financial performance (2) market performance	Tippins & Sohi (2003) Wang et al. (2012)

Table 3.2 Conceptualization and measures of key constructs.

Finally, we controlled for firm size, industry, IT investment, and innovation investment as they might directly affect digital transformation success or firm performance. First, it is reasonable to assume that larger companies have higher resources to invest in digital transformation and have a higher revenue and market share. Firm size was measured with the number of employees as a composite construct (Braojos et al., 2020). Second, different industries may have different standards and advancements in digital transformation and other performance results. The industry was assessed as a first-order composite (Benitez et al., 2020) with four indicators, while retail was chosen as a dummy variable with the value 0. Lastly, investments in IT and innovation might influence digital transformation success and firm performance as it

might directly support a successful digital transformation and lead to a higher business value. These variables were assessed with one item each, stating the amount of annual investment in this area in relation to the annual revenue on a scale from 1 (very low) to 5 (very high). The range for the other measures was on a scale from 1 (strongly disagree) to 5 (strongly agree). Table 3.2 summarizes the conceptualization, measurements, and sources for the constructs employed in this study.

3.6 Empirical analysis and results

3.6.1 *Motivation of the method of estimation*

We employed partial least squares (PLS) path modeling to test the suggested model. PLS is a structural equation modeling approach widely utilized across IS research (Benitez et al., 2022; Ringle et al., 2012). Particularly, PLS is a helpful strategy for estimating composite models (Benitez et al., 2020). It also is an appropriate technique for complicated models with multidimensional constructs (Hair et al., 2020), such as dynamic capabilities, digital transformation success, and firm performance are in this study. To estimate the measurement and structural model, we used the statistical software package Advanced Analysis for Composite (ADANCO) 2.1 Professional (Henseler & Dijkstra, 2015).

Bootstrapping with 5,000 subsamples was used to determine significant levels of weights, loadings, and path coefficients. Although composite measures are not likely to have common method bias, we considered potential preventions. For instance, anonymity and confidentiality of the data were ensured, and questions were given to the respondents in a random order (Benitez et al., 2020). Also, the correlation matrix does not suggest high correlations between variables (Benitez et al., 2020; Henseler, 2020). The variance-based SEM results were evaluated in a two-step approach. In the first step, the measurement model was validated by checking the quality of the construct measurement. The structural model was examined in a second step by assessing the relationship between constructs.

3.6.2 *Measurement model evaluation*

We checked the external validity of our composite constructs by performing a confirmatory composite analysis before testing the actual model (Henseler et al., 2020). A confirmatory composite analysis compares the empirical and the model-implied correlation matrixes to analyze whether the structure of the composite measures is supported by the data (Benitez et al., 2020). The discrepancy between the empirical and the model-implied correlation matrixes at first and second-order levels was done by calculating SRMR, unweighted least squares (d_{ULS}), and geodesic (d_G) discrepancies. In our model, the values of the discrepancies at first and second-order levels are below the 99% quantile of the bootstrap discrepancies,

which suggests that the structure of the measurements is supported with a 1% probability. Based on an alpha level of 0.01, we can state that the structure of the measures of our model is correct and should not be rejected. Table 3.3 shows the results of the confirmatory composite analysis of the first-order and second-order constructs.

Discrepancy	First-order constructs			Second-order constructs		
	Value	HI ₉₉	Conclusion	Value	HI ₉₉	Conclusion
SRMR	0.049	0.051	Supported	0.046	0.048	Supported
d _{ULS}	3.222	3.421	Supported	0.355	0.400	Supported
d _G	2.576	3.661	Supported	0.216	0.250	Supported

Table 3.3 Results of the confirmatory composite analysis.

Additionally, we evaluated content validity, multicollinearity, and the significance of weights and loadings for items and dimensions (Benitez et al., 2020). Content validity was ensured by using previously validated scales. Further, multicollinearity was evaluated at first- and second-order levels. Thereby, values of the variance inflation factor (VIF) are below the threshold of 10 (Benitez et al., 2020), and thus multicollinearity is not a problem in the data. Lastly, we evaluated the level of significance of weights and loadings at first- and second-order levels, which are significant. In sum, the measurement model results are appropriate, and we can proceed with testing the hypotheses of the proposed research model. The measurement model evaluation is available in Table 3.5 in the Appendix.

3.6.3 Structural model evaluation

The next step was to evaluate the model fit for the structural model in a similar way to the confirmatory composite analysis (Henseler, 2020). The SRMR value for the estimated model is below the threshold of 0.08 (0.046), and discrepancy values of d_{ULS} and d_G are below the 99%-quantile of the bootstrap, which means that the model should not be rejected based on the alpha level of 0.01. Overall, the proposed model is a good theory to explain how dynamic capabilities influence digital transformation success and firm performance. Finally, we can proceed with the test of hypotheses of the model.

To evaluate the relationship between the constructs, we examined path coefficients for the direct effects of H1 and H2 as well as the indirect effect of dynamic capabilities on firm performance. Further, we assessed the level of significance, R² values, and effect sizes. The results support both hypotheses, indicating that dynamic capabilities enable digital transformation success (H1) ($\beta = 0.664$, $p_{\text{one-tailed}} < 0.001$), which in turn improves firm performance (H2) ($\beta = 0.311$, $p_{\text{one-tailed}} < 0.001$). The R² value is 0.734 for digital transformation success and 0.586 for firm performance, which proves a good explanatory power of the

variables. The effect size analysis shows the relative size of including the relationships in the model, leading to f^2 values of 1.015 (H1) and 0.062 (H2). To analyze other potential mediating roles, we evaluated all effects involved in the model. Therefore, we added a link which shows a significant direct ($\beta = 0.469$, $p_{\text{one-tailed}} < 0.001$), indirect ($\beta = 0.207$, $p_{\text{one-tailed}} < 0.001$), and total effect ($\beta = 0.675$, $p_{\text{one-tailed}} < 0.001$) from dynamic capabilities towards firm performance. These results indicate that dynamic capabilities also directly influence firm performance. Finally, there were no significant effects from the control variables (firm size, industry, IT, and innovation investment) neither on digital transformation success nor firm performance. However, including these control variables in the model gives additional credibility to the analysis as hypotheses are sustained after control. To conclude, we find support for both hypotheses in the proposed research model. Figure 3.2 and Table 3.4 show the results of the test of hypotheses.

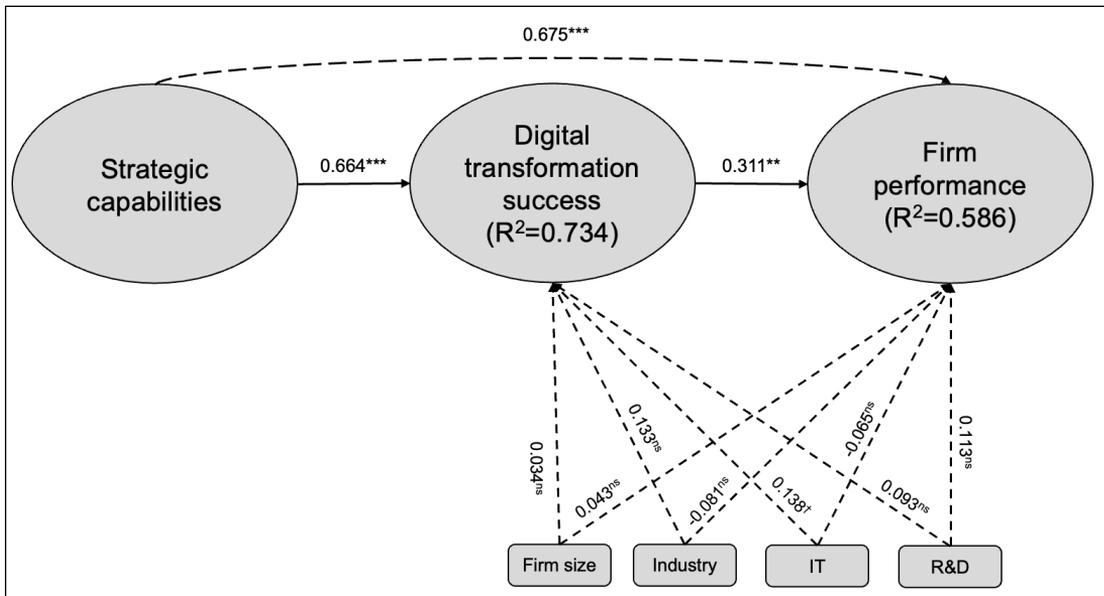


Figure 3.2 Test of hypotheses.

Beta coefficient		Mediation model
Dynamic capabilities → Digital transformation success (H1)		0.664*** (12.195) [0.556, 0.750]
Digital transformation success → Firm performance (H2)		0.311** (2.740) [0.124, 0.486]
Dynamic capabilities → Firm performance		0.469*** (4.779) [0.280, 0.669]
Control variables (CV)		
Firm size → Digital transformation success (CV)		0.034 (0.829) [-0.044, 0.122]
Firm size → Firm performance (CV)		0.043 (0.841) [-0.067, 0.133]
Industry → Digital transformation success (CV)		0.133 (0.956) [-0.224, 0.211]
Industry → Firm performance (CV)		-0.081 (0.765) [-0.226, 0.172]
IT investment → Digital transformation success (CV)		0.138† (1.699) [-0.023, 0.295]
IT investment → Firm performance (CV)		-0.065 (0.730) [-0.244, 0.113]
Innovation investment → Digital transformation success (CV)		0.093 (1.321) [-0.040, 0.235]
Innovation investment → Firm performance (CV)		0.113 (1.263) [-0.051, 0.299]
Mediation analysis	Indirect effect	Total effect
Dynamic capabilities → Firm performance	0.207** (2.706) [0.079, 0.328]	0.675*** (10.655) [0.564, 0.775]
	R²	Adjusted R²
Digital transformation success	0.734	0.725
Firm performance	0.586	0.569
Discrepancy	Value	HI₉₉
SRMR	0.046	0.048
d_{ULS}	0.355	0.400
d_G	0.216	0.250
f² (effect size)		
Dynamic capabilities → Digital transformation success		1.015
Digital transformation success → Firm performance		0.062
<i>Note: †p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001, (n = 5000 subsamples).</i>		

Table 3.4 Structural model evaluation.

3.7 Discussion and conclusions

3.7.1 *Theoretical contribution to IS research*

This research has several contributions to the field of IS. On the one hand, this is one initial paper that integrates the organizational capabilities-based theory with the digital transformation perspective. Thereby, this study conceptualizes digital transformation success not only focused on technology but with a holistic understanding to redefine business value and organizational identity (i.e., digital-first mindset, digitized practice and operations, empowered talent, and data access and collaboration tools) (Bonnet et al., 2015; Wessel et al., 2021). To our knowledge, only a few studies attempted to empirically examine the construct of digital transformation as a measurable, quantifiable concept in research. Besides, even though digital transformation is highly relevant in the current business context, outcomes are still not well researched and justified. Findings significantly show an impact of digital transformation on firm performance. This is implicating the high relevance of this topic for corporates to stay competitive in the future. Hence, this paper is a pinpoint for further IS research that can build on this conceptualization.

On the other hand, this study identifies six critical dynamic capabilities that enable digital transformation success. Even though IT capabilities have been examined for decades (e.g., Bharadwaj et al., 1999), our results show that focusing on dynamic capabilities is critical for competitive advantage enabled through a successful digital transformation. In particular, the identified capabilities are (1) absorptive capacity, (2) organizational agility, (3) cross-functional collaboration capability, (4) customer-centricity capability, (5) innovation capability, and (6) networking capability.

As firms are still failing in digital transformation processes (Kane et al., 2021; Weritz et al., 2020), other scholars did not find critical strategic enablers yet. Yet, previous work that emphasized and focused on dynamic capabilities as necessary for strategic renewal of business value and organizational identity did not identify the relevance of absorptive capacity (Warner & Wäger, 2019). However, this work reveals that to adapt to the changing business environment, a firm's ability to detect and utilize new knowledge within the firm is required. Also, the findings show that the ability to access market opportunities faster than competitors is relevant for the digitalization of operational activities (i.e., organizational agility) (Sambamurthy et al., 2003). Findings also show that collaboration, knowledge transfer, and a change in communication between organizational units are required to empower talent (i.e., cross-functional collaboration capability). Next, a focus on the customers who are constantly evaluating their purchasing choices is also found as significant (i.e., customer-centricity

capability). Above all, an open approach toward these changes and experimenting innovatively supports all transformational processes (Nambisan et al., 2017). Lastly, this research emphasizes the relevance of networking capabilities which have only been slightly highlighted previously (Sisodiya et al., 2013).

In sum, the results of this study expand previous literature on the role of IT as a competitive tool (e.g., Liu et al., 2013) by enlarging it to digital transformation as a whole. Prior work lacked identifying critical capabilities to guide firms towards a successful digital transformation. Thus, we theoretically contribute to existing capability conceptualizations by providing a greater understanding and extending the IT focus (e.g., digital-first mindset or empowered talent) and facilitating empirical evidence.

3.7.2 *Managerial implications*

Our study's managerial implications can help firms redefine their business value and organizational identity in order to stay competitive and increase firm performance in the digital era. Findings show that exploring external knowledge (i.e., absorptive capacity), responding quickly to changes (i.e., organizational agility), aligning workforce functions (i.e., cross-functional collaboration), understanding customers (i.e., customer-centricity capability), detecting revolutionary ideas (innovation capability), and connecting with the ecosystem (i.e., networking capability) is critical for firms to successfully redefine business value and organizational identity in the digital era.

Specifically, the empirical analysis suggests that organizations must constantly acquire new knowledge and integrate this into the firms' processes. Thus, it is recommended for firms to detect and absorb market trends, knowledge, technologies, and innovations to implement them into the digital-first mindset. Furthermore, findings show that firms should be able to respond quickly and adapt to the changing business environment. For example, when *Starbucks* recognized a shift in customer behavior, they immediately started initiatives that supported their digital transformation success in terms of customer data (Bonnet et al., 2015). Moreover, results show that collaboration between departments is increasing successful digital transformations. Thus, firms must support new ways of working and transparency (van der Meulen et al., 2020). This can also be done by transparently sharing common goals and values. Overall, understanding the customers and listening to them is critical. For example, *Tetra Pak* implemented new online platforms, however, the initial goal of operational efficiency did not meet the expectations and preferences of the users. In the end, the firm was flexible and quickly shifted the approach toward an improved customer journey (Van der Meulen et al., 2020). Monitoring customers' needs (e.g., surveys or Apps) is helpful to adjust the

business value to their needs. Also, how to manage digital innovation is a relevant topic across research and firms (Nambisan et al., 2017), as opportunities and threats are affecting those areas. Organizations should build innovation capabilities, for example, as the technology firm *Intel* did by building innovation centers, both in a virtual and physical environment (Westerman & Curley, 2008). Finally, building relationships with stakeholders and networking with such are crucial. It is advisable to start collaborations with research institutions so firms can exchange knowledge

To conclude, this study theorized that dynamic capabilities enable digital transformation success, which further enhances firm performance. We can explain this relationship following a capability-led approach, and the empirical analysis of a sample of Spanish firms supports the proposed model. Even though digital transformation has been a relevant topic across IS literature, outcomes are still rare. With this research, we showed a direct effect on firm performance. Consequently, this paper contributes to IS research by integrating the organizational capabilities-based theory with a holistic understanding of the digital transformation perspective.

3.7.3 Limitations and avenues for future IS research

This research is not without limitations, which offers further research opportunities. First, our results explain the Spanish market and can only be generalized there. Future IS research should explore whether our model is supported in other European countries to validate these findings further. Second, although the sample size of 154 has sufficient statistical power to test the proposed model (Benitez et al., 2020), we recognize that it is relatively small. Scholars could repeat the study with a larger sample with different focuses on industries. Third, it would be interesting to investigate if there are further predictors on the individual level that support digital transformation success. This might be the case as employees influence the execution and building of organizational capabilities (Kane et al., 2021). Finally, to expand the research in the field, we encourage scholars to analyze what other advantages firms can obtain from digital transformation success. Overall, we provide a sufficient framework for future advancements in this field, and the results of this research provide practical lessons for executives to be considered under digital disruption.

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3.9 Appendix

Construct (1: Strongly disagree, 5: Strongly agree)	Mean	S.D.	Weight	Loading
Dynamic capabilities (second-order construct) (composite Mode A)				
Absorptive capacity (composite Mode A)			0.200***	0.845***
Identify and acquire new knowledge.	4.162	0.750	0.270***	0.863***
Quickly understand, analyze and interpret changing knowledge.	4.001	0.750	0.301***	0.920***
Recognize the usefulness of new external knowledge to existing knowledge.	4.018	0.857	0.264***	0.831***
Constantly consider how to better exploit knowledge and revise business processes based on acquired knowledge.	3.875	0.886	0.302***	0.895***
Organizational agility (composite Mode A)			0.192***	0.819***
We fulfill demands for rapid-response and special requests whenever such demands arise.	3.943	1.100	0.436***	0.851***
We can quickly scale up or scale down our production and service levels to support fluctuations in demand from the market.	3.839	0.799	0.361***	0.828***
Whenever there is a disruption in supply from our suppliers, we can quickly make necessary alternative arrangements and internal adjustments.	3.569	0.935	0.386***	0.855***
Cross-functional collaboration capability (composite Mode A)			0.216***	0.867***
Integrate professional knowledge.	3.447	1.017	0.176***	0.872***
Share critical information about the business strategy.	3.575	1.064	0.182***	0.919***
Cooperate in generating new ideas and sharing information.	3.524	1.040	0.183***	0.901***
Exchange complete and accurate information in order to help problem-solving.	3.478	1.089	0.189***	0.907***
Cooperate for strategic consideration.	3.607	1.103	0.184***	0.890***
Accept different opinions from different departments.	3.688	1.010	0.200***	0.897***
Customer-orientation capability (composite Mode A)			0.176***	0.809***
We determine our objectives on the basis of customer satisfaction.	4.096	0.992	0.258***	0.851***
After-sales service occupies an important position in our organization.	3.921	0.911	0.210***	0.728***

We understand customer needs.	4.331	0.993	0.247***	0.867***
The creation of customer value may be seen as a daily activity.	4.236	0.679	0.244***	0.878***
We are strongly committed to the customer.	4.464	0.799	0.249***	0.801***
Innovation capability (composite Mode A)			0.208***	0.863***
Risk taking is encouraged in our firm.	3.325	0.969	0.215***	0.724***
Creativity is encouraged in our firm.	3.666	1.037	0.280***	0.890***
Management actively seeks innovative ideas.	3.687	1.002	0.257***	0.855***
Management is tolerant to mistakes when taking risks.	3.662	0.997	0.206***	0.743***
The firm is often first to market with new products and services.	3.587	0.973	0.271***	0.821***
Networking capability (composite Mode A)			0.201***	0.818***
Assessing the match with a potential exchange partner.	3.653	0.943	0.224***	0.875***
Developing relationships with partners.	3.800	0.897	0.227***	0.917***
Evaluating the benefits of a relationships with specific partners.	3.781	0.930	0.216***	0.920***
Figuring out when to commit to a partner.	3.695	0.899	0.226***	0.928***
Figuring out which exchange partner we can trust.	3.728	0.948	0.212***	0.884***
Digital transformation success (second-order construct) (composite Mode A)				
Data access and collaboration tools (composite Mode A)			0.281***	0.896***
An increase use of real-time customer and operations data.	3.705	1.188	0.298***	0.881***
An increase use of integrated end-user data.	3.544	0.984	0.315***	0.895***
Communication, feedback, and collaboration tools that make it easy to be productive.	3.737	0.976	0.304***	0.865***
Access flexible computing power and storage (e.g. through cloud services and external assets).	3.892	0.978	0.246***	0.783***
Digital-first mindset (composite Mode A)			0.275***	0.896***
W take advantage of digital solutions wherever possible.	4.074	0.706	0.313***	0.906***
People naturally think of digital technologies when we consider ways to improve.	3.615	0.849	0.279***	0.872***
We prioritize digital solutions.	3.740	1.046	0.271***	0.881***
We openly explore digital opportunities.	3.903	0.991	0.272***	0.862***

Digitized practices and operations (composite Mode A)			0.269***	0.860***
Our core operational processes are automated and digitized.	3.587	1.014	0.290***	0.884***
We monitor our operations in real time.	3.464	1.028	0.266***	0.846***
We employ data-driven decision-making.	3.622	1.074	0.314***	0.867***
We standardize processes that require human input.	3.579	1.012	0.300***	0.823***
Empowered talent (composite Mode A)			0.304***	0.891***
Within our firm we have experience with new technologies like mobile devices and applications, social media tools and data, big data and advanced analytics, artificial intelligence, machine learning, and internet of things.	3.694	0.886	0.342***	0.863***
Within our firm digital skills are widely distributed across.	3.500	1.049	0.399***	0.894***
Within our firm we have the skills necessary to conduct digital initiatives.	3.682	1.081	0.391***	0.893***
Firm performance (second-order construct) (composite Mode A)				
Financial performance (composite Mode A): <i>During the last 3 years, the...</i>			0.533***	0.895***
Sales growth improved compared to competitors.	3.681	1.017	0.247***	0.862***
Profitability improved compared to competitors.	3.609	0.939	0.290***	0.937***
Return on investment improved compared to competitors.	3.537	0.969	0.284***	0.915***
Overall financial performance improved compared to competitors.	3.654	0.928	0.275***	0.930***
Market performance (composite Mode A): <i>During the last 3 years ...</i>			0.574***	0.910***
We have entered new markets more quickly than our competitors.	3.396	1.097	0.291***	0.867***
We have introduced new products or services to the market faster than our competitors.	3.465	1.009	0.320***	0.846***
Our success rate of new products or services has been higher than our competitors.	3.432	0.945	0.283***	0.886***
Our market share has exceeded that of our competitors.	3.430	0.920	0.271***	0.835

Table 3.5 Measurement model evaluation.

4 Paper C: Towards organizational commitment in the digital game: The role of digital leadership and continuous learning

4.1 Abstract

Digital transformation on the organizational level is an urgent topic to stay competitive during dynamic disruptions. As a result, there are also changing conditions in the job market and growing demands regarding skills, requirements, and employee expectations in a digital environment. Yet, what are digital transformation opportunities for the individual level, and how can organizations increase employee experience in the digital game? This paper tries to shed light on this emerging interest by providing implications for IS research and practical contributions to organizations. By integrating organizational science literature, this study incorporates organizational commitment and organizational learning in the digital transformation perspective. The proposed model argues that digital leadership and continuous learning mediate the positive impact of digital transformation on organizational commitment. We tested the model with an empirical study in Spain. The PLS analysis shows a significant mediating role of digital leadership and continuous learning in the relationship between digital transformation and organizational commitment. This study contributes to IS literature by giving a theoretical foundation and clarification on the impact of digital transformation on employee experience. Further, this paper conceptualizes and provides a measurement scale for the construct of digital transformation.

Keywords: Organizational commitment; digital transformation; employee experience; digital leadership; continuous learning.

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4.2 Introduction

The disruption of digital technologies is a significant phenomenon and paradox that offers various threats and opportunities on different organizational levels (Hininhns et al., 2018; Soh et al., 2019; Soluk & Kammerlander, 2021). An evolving competitive advantage from digital transformation not only affects products, strategies, or financial performance but even more the people within the firm (Abhari et al., 2021; Kane et al., 2019). In the changing digital age, employees' knowledge and competencies are crucial to support the digital transformation process (Hess et al., 2016). Also new ways of working and workplace transformation offer several opportunities for both employees and employers (Aroles et al., 2021). However, there is a growing amount of job-hopping in an increasingly competitive labor market, especially among millennials, the largest workforce in firms (U.S. Bureau of Labor Statistics, 2020). Thus, there is a high risk that the new digital knowledge will leave the firm if certain parameters are absent, and firms deteriorate.

Highly committed employees can be seen as a vital asset in the digital workplace as previous studies and meta-analyses confirm that these employees have a higher performance and satisfaction (Meyer & Allen, 1997; Meyer et al., 2002). As digital transformation can correlate with organizational commitment (Iyengar & Montealegre, 2021), it is relevant for companies to investigate how to dedicate employees to not leave the firm with their knowledge and competencies in this new environment (Hess et al., 2016; Schrage et al., 2021). For example, when *Michelin*, a multinational tire manufacturing company, initiated its digital transformation process, the management needed to hold on to its workforce because recruiting 120,000 new employees was impossible. *Michelin* decided to "retrain and retain existing workers" (Bonnet & Duke, 2021, p. 14) and used the chances of digital transformation to make the process get accepted across the firm (e.g., competency talent factory for continuous training; digital innovation platforms to empower employees' autonomy and commitment through voluntary learning). Thereby, Michelin's initiatives led to higher productivity, less absenteeism, and employees growing in their roles (Bonnet & Duke, 2021).

Our study suggests a positive impact of digital transformation on organizational commitment and two potential mediators (i.e., the effect of having an appropriate leadership structure and learning culture) organizations should consider in the relationship between digital transformation and organizational commitment. On the one hand, digital leadership might support the development and continuous improvement of the employee experience (Dery et al., 2017), thereby increasing organizational commitment in the digital game. On the other hand, having a continuous learning culture can facilitate changing processes engaging

employees in the new digital environments (Schlagwein & Bjorn-Andersen, 2014). Therefore, this study supposes that digital leadership and continuous learning can be key factors in the influence of digital transformation on organizational commitment. Figure 4.1 presents the proposed conceptual model.

The relevance of organizational commitment is assessed across various disciplines (e.g., Choi et al., 2015; King & Sethi, 1997; Zhou et al., 2017), and predictors like autonomy, socialization, working experiences, personal investment, and personality traits are widely elaborated (Choi et al., 2015; Meyer & Allen, 1997; Meyer & Herscovitch, 2001). But even though literature claims to consider the human side in the digital transformation process (e.g., Abhari et al., 2021; Büchler et al., 2020), there is a lack of information systems (IS) research investigating the phenomena of organizational commitment. Thus, little has been studied on this major challenge in the disruptive digital time (e.g., how to motivate and attract talent and how to meet their new expectations towards the workplace) (Schrage et al., 2021), and there is a need to explore components that increase organizational commitment in the digital game. Therefore, the following research question arose: *What factors can increase organizational commitment in the digital game?*

This study tries to answer this research question and contribute to IS literature by integrating organizational science into the digital transformation perspective and developing new insights on mediators that increase organizational commitment. Moreover, we aim to bridge the gap between technology and employees and focus on the consequences of digital transformation on the individual level. Last, this fundamental empirical study conceptualizes and provides a measurement scale for the construct of digital transformation. The paper is organized as follows. In Section 3, we present the theoretical framework of this study and the conceptualization of the key constructs. In Section 4, we elaborate on the hypotheses development, and in Section 5, we describe the research methodology and expose the empirical analysis and results. The paper finishes with the discussion and conclusion in Section 6.

4.3 Theoretical background

4.3.1 *Digital transformation perspective, organizational learning framework, and three-component model of organizational commitment*

The digital transformation (DT) perspective has emerged as a new theory in IS literature intending to explain the strategic role of digital technologies in redefining the organization's value proposition (e.g., Baiyere et al., 2020; Bonnet & Westerman, 2020). Digital technologies, as a kind of information technology (IT), are dominantly seen as enablers for

new ways of value creation and changes of business models for organizations (Hess et al., 2016; Vial, 2019). The DT perspective bases on the IT-enabled organizational transformation (ITOT) theory with the particularity that digital technologies are not just supporting or reinforcing the organization's value proposition (i.e., ITOT) but also redefining it (Wessel et al., 2021).

Digital transformation is conceptualized as a process of integrating digital technologies to switch the character of the organization and improve business outcomes while reacting to changes (Cha et al., 2015; Hinings et al., 2018). There are different types of strategies to navigate through digital transformation, and multiple factors can influence it (e.g., environmental or organizational contexts) (Sebastian et al., 2017; Weritz et al., 2020). Prior studies suggest that organizations should consider factors like structure, leadership, and culture to succeed in the transformation process (Cha et al., 2015). Hence, the DT perspective provides a helpful framework to theorize that digital leadership and continuous learning should be considered for the digital transformation process to succeed in achieving organizational commitment.

Organizational learning is defined as the cognitive and behavioral process around creating, retaining, and transferring knowledge among employees (March, 1991). The goal of gaining, sharing, and applying new knowledge within a broad business context offers the opportunity to connect old and new knowledge. The three key processes which encourage organizational learning (i.e., gain, share, and apply knowledge) build upon each other and lead to improved situations within firms (e.g., handling new communication tools). This research study draws from the organizational learning framework to conceptualize continuous learning as an encouraging environment within a firm that supports generating, maintaining, and sharing knowledge, helping to improve organizational commitment in a digital context.

The three-component model of organizational commitment is a theory in organizational research that suggests a holistic understanding of the employees' experience with the company (Hackett et al., 1994). Grounded on that, research on human resource management examines the role of the affection for the job, the fear of loss, and the obligation to stay (Meyer & Herscovitch, 2001). The three-component model of organizational commitment was first conceptualized by Meyer and Allen (1997), including three dimensions: (1) affective, (2) normative, and (3) continuance commitment. Affective commitment is defined as the emotional identification with the firm. It can be understood as high if the employees' experiences are consistent with their expectations or, for example, if employees feel satisfaction in the workplace. Normative commitment refers to socialization experiences within

the firm or potential benefits that might occur on the job. This commitment increases the obligation and attachment towards the organization. This can either be the employees' fear of losing the job or related advantages (e.g., social activities or financial stability). Continuance commitment describes the investments that employees put into the company, which would be lost if they do not stay. Continuance commitment results from the importance of employees' own economics or out of missing options. This research study builds on the three-component model theory to conceptualize digital leadership and continuous learning as two factors that can help employees to feel committed to the company.

4.3.2 Conceptualization of the key constructs

Organizational commitment is understood as a psychological state (Meyer & Allen, 1997) and a bond of an employee with an employer that often leads to behavioral actions (e.g., intention to stay). It can be seen as an employee's emotional attachment and the extent of identification with the firm (Cho et al., 2009). It further influences how strong employees follow the organizations' goals and culture (Choi et al., 2015). Consequently, organizational commitment is a characterization of employees' connection to the organization and refers to the employees' desire and intention to stay within the firm (Cho et al., 2009; Meyer et al., 1993).

Digital transformation has received growing interest among IS scholars and practitioners (e.g., Vial, 2019; Wessel et al., 2021). Nevertheless, there is neither a clear consensus nor an established definition of what the term stands for (Wessel et al., 2021). Some studies have examined digital transformation as a complex procedure with a broad scope, digitally affecting all departments and levels in a firm (i.e., business model, strategy, technology, processes, people, and culture) (Hess et al., 2016; Kane et al., 2019). Grounded on a conceptualization from Bonnet et al. (2015) and with a focus on people stated in recent work by Kane et al. (2019), we define digital transformation considering four dimensions: (1) digital-first mindset, (2) digitized practices and operations, (3) empowered talent, and (4) data access and collaboration tools. In summary, it is a complex process that incorporates digital processes and technologies, affecting the business model and strategy and people and culture, thus providing organizations with opportunities for value creation to enhance firm performance.

In the context of digital transformation, leadership has high strategic importance, as organizations need a digital advisor who accompanies the whole process (e.g., Singh & Hess, 2017; Tumbas et al., 2017; Vial, 2019). Previous work showed that leadership in the IS literature has similarities to the transformational and transactional leadership styles (Eom et al., 2020), with a clear digital vision and ability to react rapidly to changing environments and uncertainty (Vial, 2019). Some prior literature defines a digital leader as a passionate role

implementing digital transformation (Hansen et al., 2011), who stays authentic with a strong alignment of words and actions and increases workforce engagement with high credibility (Schrage et al., 2021). Consequently, the role is dedicated to digital transformation and empowers the process with a digital mindset (Hansen et al., 2011; Vial, 2019).

Continuous learning is a knowledge acquisition process, where learning is cultivated regularly (Tannenbaum, 1997). Part of this is a practical learning experience of new knowledge, with a subsequent development and application phase in the working environment. In line with this, the newly acquired knowledge is shared and communicated within the workplace (Kane et al., 2017). Thereby, the firm recognizes the processes around knowledge acquisition (Tannenbaum, 1997), and failures are seen as a chance (Kane et al., 2017). Above all, in a continuous learning environment, employees help each other learn, the firm supports the learning processes (e.g., feedback sessions), and employees are rewarded for learning (Kane et al., 2017). To sum up, continuous learning is an environment within a firm that supports talent through knowledge acquisition, application, and sharing.

4.4 Hypotheses development

4.4.1 *Achieving organizational commitment through digital transformation*

Even though several antecedents of organizational commitment (e.g., autonomy, socialization experience, work experiences, personal investment, personality traits) are known (e.g., Choi et al., 2015; Meyer & Allen, 1997; Meyer & Herscovitch, 2001), only limited literature has shown the increasing importance of this concept in the context of digital transformation (Schrage et al., 2021). As stated by Montealegre and Cascio (2017, p. 67), “technology is fundamental social” which examines the potential for the workplace to get involved in the transformation and be committed towards the firm. Digital transformation offers new opportunities for the entire workplace (e.g., better collaboration and communication between employees, faster data access), influencing the employee experience (e.g., satisfaction, socialization, motivation) and consequently organizational commitment. A prioritization of digital solutions, and data-driven decision-making as part of the firm's digital transformation, might lead to a higher commitment as better-aligned processes increase satisfaction in the workplace (Bonnet et al., 2015; Meyer et al., 1993). Further, new technologies and empowered talent in the digital context affect collaboration and communication between the employees, increasing normative commitment as they experience more socialization (Meyer et al., 1993; Mueller & Renken, 2017). Faster data access and decision-making enabled through successful digital transformation might also lead to higher commitment as it simplifies the employees' tasks (Meyer & Allen, 1997). In summary, digital transformation enhances

employee experiences on different levels: (1) emotional (e.g., feelings about the use or impact of technologies); (2) behavioral (e.g., benefits); and (3) social (e.g., interaction within the firm) (Abhari et al., 2021). Based on that, the following hypothesis arises:

Hypothesis 1 (H1): Digital transformation positively influences organizational commitment.

4.4.2 The mediating role of digital leadership

Digital leadership can facilitate the influence of digital transformation towards organizational commitment. First, digital transformation can help build a digital leader as technology leverages several benefits (i.e., digital-first mindset). The flexibility that occurs from a successful transformation allows leaders to fully exploit new digital opportunities and new ways to manage risk (i.e., digitized practices and operations) (Kane et al., 2019). Above all, digital transformation might increase the effective communication needed for a digital leadership style (e.g., data access and collaboration tools). Second, digital leadership may encourage organizational commitment in a digital context. In current times, when aspects like remote working, digital disruption, or war of talent are taking place (Kane et al., 2021), there is a particular need for a leader who can use digital opportunities to reach the employees and connect them with the organization. Third, a digital leader may acknowledge the value of the organization's transformation, and purpose-driven organizations give employees an increasing intention to stay (Schrage et al., 2021). By pointing out the sense of urgency and purpose behind the transformation, the digital vision of a digital leader might increase employee commitment to stay (Schrage et al., 2021). In addition, clarification regarding expectations and roles achieved by the digital leader regarding the processes might decrease the employees feeling that they could be replaced through technologies (Schrage et al., 2021), which at the same time might enhance the employees' attachment. Lastly, communicating the advantages of digital transformation during the employees' daily activities (i.e., agile data access, collaboration tools with customers, digitized practices) might increase normative commitment since they better understand the benefits of digital transformation (Bonnet & Westerman, 2020).

In conclusion, a digital leader might encourage employees to work with a digital vision and a shared mission based on a successful digital transformation. Thereby, a mediation of the influence of digital transformation on affective and normative commitment (i.e., emotional identification with the digital transformation process, satisfaction, and motivation based on socialization processes). Therefore, we can argue that digital leadership can mediate the relationship between digital transformation and organizational commitment.

Hypothesis 2 (H2): The positive impact of digital transformation on organizational commitment is mediated by digital leadership.

4.4.3 The mediating role of continuous learning

Continuous learning can facilitate the influence of digital transformation towards organizational commitment. First, digital transformation can incentivize a culture of continuous learning by creating a new growth mindset (Kane et al., 2019). Employees are frequently demanded to experiment with new ideas and visibly share those ideas (Gurbaxani & Dunkle, 2019). In a digital transformation process, firms might need to provide employees with a safe continuous learning environment to try things and gain experience in an open risk-taking and experimenting approach (Mueller & Renken, 2017; Tabrizi et al., 2017). As digital transformation (i.e., digitized practices and operations and digital-first mindset) can loosen up fixed mindsets, it can open new perspectives (Kane et al., 2019). Also, data access and collaboration tools can change the learning environment as these parts of digital transformation offer less structures and self-paced opportunities (Kane et al., 2019). Above all, digital transformation unfolds chances for learning on the job (e.g., coding) and to be active in online communities (Kane et al., 2019). Second, continuous learning may lead to a higher organizational commitment. The online platform Skillsoft showed that learning initiatives could act as a “glue that holds the social elements of the company together” during remote work (Kane et al., 2021, p. 10). As individuals are lifelong learners, firms must develop their employees to satisfy their needs and increase their digital literacy (Kane et al., 2019). The right balance between intrinsic motivation and the provided resources and learning opportunities leads to successful knowledge creation needed to bind employees (Kane et al., 2019). Moreover, firms that provide employees the opportunity to build their competencies and capabilities and chances for innovation (Mueller & Renken, 2017) might enhance the identification of employees with changes and opportunities.

In summary, the opportunity of learning and development in a digital context might increase employees' affective, normative, and continuance commitment (e.g., emotional identification, motivation, and responsibility towards the digital transformation process). Therefore, we suppose that continuous learning can mediate the relationship between digital transformation and organizational commitment.

Hypothesis 3 (H3): The positive impact of digital transformation on organizational commitment is mediated by continuous learning.

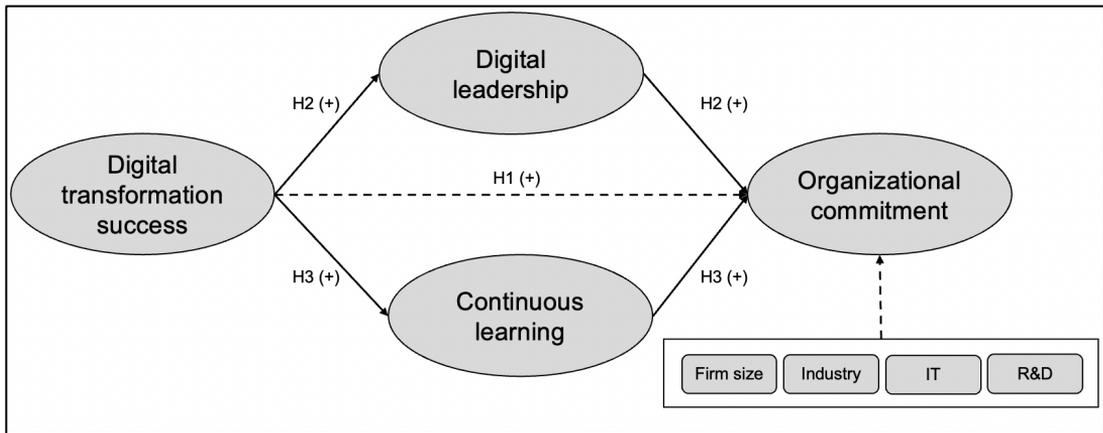


Figure 4.1 Conceptual model.

4.5 Research methodology

4.5.1 Sample

We used survey data to measure the proposed conceptual model. The data collection started using a list of medium to large firms in Spain (i.e., above 50 employees and a minimum of 10 million EUR revenue per year) in the SABI database. We selected the Spanish market since it has recently proven to exhibit increased interest in digitalization. For example, the Spanish government invests more than 11,000 million EUR into the Spanish workforce as part of the 2025 digital agenda to advance digital transformation processes and develop digital competencies and skills within firms (Ministry of Economic Affairs and Digital Transformation, 2021). Before the survey administration, we selected a group of the largest industries in Spain, where digital transformation is highly relevant (European Commission, 2020). In this sense, 3844 Spanish firms were initially chosen. From this list of firms, a market research consultancy company contacted 2578 companies by phone. We finally received 154 valid questionnaires during a collection period from October 2020 to April 2021. This response rate of 5.97% can be considered a satisfactory result because of the difficulty of contacting IT managers under the circumstances of COVID-19 (Benitez et al., 2018).

The sample is composed of the following industries: 65 manufacturing firms (42.21%), 35 technology and communication firms (22.73%), 13 retail firms (8.44%), and 41 firms (26.62%) from other industries (e.g., finance and insurance or energy and electricity). The survey was completed by one single key informant per firm. Thereby, the answers were responded by the IT responsible persons (i.e., non-management 21.43%, supervisory 19.48%, middle management 32.47%, senior management 26.62%).

Before testing the effects of the proposed research model, we performed a statistical power analysis using G*Power 3.1. software (<http://www.gpower.hhu.de/>) to check the required minimum sample size (Faul et al., 2009). Assuming a medium effect size ($f^2 = 0.150$), a statistical power level of 0.800, seven predictors (i.e., the largest number of structural paths directed to organizational commitment in our mediation model), and an alpha level of 0.05, the minimum sample size that technically ensures robustness and generalizability is 103 (Cohen, 1988; Nitzl, 2016). As the sample size is 154, there is enough statistical power to test the statistical significance of the proposed research model.

4.5.2 Data and operationalization of variables

Digital transformation is a newly developed scale that measures the extent to which firms incorporate the use of digital processes and technologies, affecting the business model and strategy as well as people and culture. We generated the items based on a prior conceptualization by Bonnet et al. (2015). The measurement was driven by theory, and guidelines to ensure content validity were considered. As a result, we measured digital transformation as a second-order composite construct composed of four first-order dimensions: digital-first mindset (4 items), digitized practices and operations (4 items), empowered talent (3 items), and data access and collaboration tools (4 items).

We assessed digital leadership with 5 items that were adapted to the context of digital transformation. The original items were taken from Buil et al. (2019) and are based on the transformational leadership scale by Carless et al. (2000). It is measured as a composite first-order construct composed by a scale that measures to which extent the leader (1) communicates a clear and digital vision for the future, (2) supports and encourages the employees' digital mindset and development, (3) gives encouragement for the organizational digital transformation, (4) is clear about the values and practices for the digital transformation, (5) instills pride and respect in others and inspires employees by being digitally competent.

Continuous learning is measured as a composite first-order construct composed of 3 items by adapting the scale from Song et al. (2009) which is based on the dimensions of learning organizations questionnaire (DLOQ) from Watkins and Marsick (1993). The items evaluated the extent to which (1) employees help each other to learn, (2) the company takes time to support learning, and (3) employees are rewarded for learning.

Organizational commitment is a composite first-order construct composed of 5 items from Cegarra-Navarro et al. (2016) and Cho et al. (2009). The scale is based on the three-component conceptualizations from Meyer et al. (1993) and measures (1) staff turnover, (2)

staff absenteeism, (3) feeling like a “part of the family”, (4) feeling a strong sense of “belonging”, (5) desire and intention to stay.

We controlled for the effect of firm size, industry, IT investment, and innovation investment as they might directly affect organizational commitment. We measured firm size with the number of employees per organization and the industry as a composite construct (Braojos et al., 2020). We classified the industries into four groups and set a reference group (i.e., retail). As a next step, we created dummy indicators with the value 0 if the industry was not retail (i.e., manufacturing, technology and communication, and others) and the value 1 if it was the reference industry (Benitez et al., 2020b). Thus, the industry is computed as a first-order composite construct composed of four indicators. IT and innovation investment were assessed by a single-item question, each stating the amount of annual investment on the organization’s annual revenue on a scale from 1 (very low) to 5 (very high).

4.5.3 Empirical analysis and results

We used partial least squares (PLS) path modeling to test the proposed research model empirically. It is a structural equation modeling (SEM) method of estimation that has been often used in the management and IS fields (e.g., Büchler et al., 2020). To estimate the measurement and structural models, we used ADANCO 2.1 professional software package (<http://www.composite-modeling.com/>) (Henseler & Dijkstra, 2015). The levels of significance (i.e., weights, loadings, and path coefficients) were obtained by performing a bootstrapping with 5,000 subsamples. We further checked the correlation ($r > 0.90$) among key variables in the correlation matrix (Table 4.3 in the Appendix) (Bagozzi et al., 1991).

4.5.4 Measurement model evaluation

Variance-based SEM results were assessed in a two-step approach. In the first step, we validated the measurement model by checking the quality of the construct measurement. In the second step, the structural model was validated by assessing the relationship between constructs (Henseler, 2017).

To evaluate the measurement model, we checked the structure of the composite measures by conducting a confirmatory composite analysis (Henseler et al., 2014). The confirmatory composite analysis compared the empirical and the model-implied correlation matrixes to analyze whether the structure of the composite measures is supported by the data (Benitez et al., 2020a). The discrepancy between the empirical and the model-implied correlation matrixes at first and second-order levels was done by calculating SRMR, unweighted least squares (d_{ULS}), and geodesic (d_G) discrepancies. The values of the discrepancies at first and second-order levels are below the 99% quantile of the bootstrap discrepancies, which

suggests that the structure of the measurements is supported with a 1% probability. Hence, the model should not be rejected based on an alpha level of 0.01, and we can state that the structure of the measures of our model is correct. Table 4.1 shows the results of the confirmatory composite analysis.

Discrepancy	First-order constructs			Second-order constructs		
	Value	HI ₉₉	Conclusion	Value	HI ₉₉	Conclusion
SRMR	0.042	0.045	Supported	0.052	0.079	Supported
d _{ULS}	0.728	0.817	Supported	0.761	1.703	Supported
d _G	0.593	0.836	Supported	0.415	0.475	Supported

Table 4.1 Results of the confirmatory composite analysis.

Additionally, we evaluated content validity, multicollinearity, and the significance of weights and loadings for items and dimensions (Benitez et al., 2020b). Previously validated scales ensured content validity. The digital transformation scale was developed by using the foundations we extracted from previous literature. Multicollinearity was evaluated at first- and second-order levels. Values of the variance inflation factor (VIF) for composites estimated in mode B are below the threshold of 5 (Benitez et al., 2020b; Tanriverdi & Uysal, 2015). Thus, multicollinearity is not a problem in our data. We further evaluated the level of significance of weights and loadings at first- and second-order levels. The weights of indicators and dimensions are significant except for one item per dimension of the digital transformation measure. However, we decided to keep them for two reasons: (1) eliminating indicators in composites can alter the meaning of the construct (Henseler, 2017); (2) every loading of an indicator or dimension is at least significant at a level of 0.01.

Results of the confirmatory composite analysis and the measurement properties are appropriate, and we can proceed with testing the hypotheses of the proposed research model. Table 4.4 in the Appendix shows the measurement model evaluation.

4.5.5 Overall fit of the estimated model

We evaluated the model fit in a similar way to the confirmatory composite analysis by examining the accuracy of the fit indices (Henseler, 2017). The SRMR value for the mediation model is well below the threshold of 0.08 (0.069), and discrepancy values of d_{ULS} and d_G are below the 99%-quantile of the bootstrap, which means that our mediation model should not be rejected based on the alpha level of 0.01.

4.5.6 Test of hypotheses

To empirically test the based model, we estimated path coefficients, direct and indirect effects, their level of significance, and R^2 values. The direct effect of digital transformation on organizational commitment (H1) is not significant ($\beta = 0.001$, $p_{\text{one-tailed}} > 0.1$), while the indirect effect is significant ($\beta = 0.590$, $p_{\text{one-tailed}} < 0.001$). These results suggest an indirect-only mediation between digital transformation and organizational commitment. To test whether digital transformation affects organizational commitment through digital leadership (H2) and continuous learning (H3), we evaluated the indirect effect through digital leadership and continuous learning. Results suggest that digital transformation is positively related with digital leadership ($\beta = 0.810$, $p_{\text{one-tailed}} < 0.001$) and continuous learning ($\beta = 0.701$, $p_{\text{one-tailed}} < 0.001$). Moreover, digital leadership ($\beta = 0.342$, $p_{\text{one-tailed}} < 0.01$) and continuous learning ($\beta = 0.447$, $p_{\text{one-tailed}} < 0.001$) are positively related with organizational commitment. As there are multiple mediators in the indirect effect (i.e., digital leadership and continuous learning), a multiple mediation analysis was used to check the effect of each mediator. Results indicate that there is indirect effect through digital leadership ($\beta = 0.277$, CI [0.102, 0.447]) and continuous learning ($\beta = 0.313$, CI [0.178, 0.446]). Digital leadership and continuous learning support the mediation equally as they have similar variance accounted for (VAF) values (0.470, 0.530), and there are no significant differences between the effects.

Consequently, we did not find support for the direct effect of digital transformation on organizational commitment (H1), while the rest of the proposed research model, indicating that digital leadership (H2) and continuous learning (H3) mediate the relationship between digital transformation and organizational commitment, can be proved.

The effects of firm size, industry, IT, and innovation investment on the final endogenous variable are not significant. Nevertheless, including these control variables in the model gives additional credibility to the empirical analysis because the hypotheses are sustained after controlling for these. The R^2 values are 0.656, 0.492, and 0.516 for digital leadership, continuous learning, and organizational commitment, respectively, which presents good explanatory power of the endogenous variables. Figure 4.2 and Table 4.2 show the results of the test of hypotheses and the mediation analysis.

Beta coefficient	Mediation model	
Digital transformation → Organizational commitment (H1)	0.001 ^{ns} (0.001) [-0.257, 0.270]	
Digital transformation → Digital leadership (H2)	0.810 ^{***} (22.524) [0.746, 0.865]	
Digital transformation → Continuous learning (H3)	0.701 ^{***} (14.111) [0.613, 0.777]	
Digital leadership → Organizational commitment (H2)	0.342 ^{**} (2.721) [0.126, 0.550]	
Continuous learning → Organizational commitment (H3)	0.447 ^{***} (3.965) [0.256, 0.627]	
Control variables		
Firm size → Organizational commitment (control variable)	0.040 ^{ns} (0.778) [-0.068, 0.136]	
Industry → Organizational commitment (control variable)	-0.058 ^{ns} (0.710) [-0.163, 0.166]	
IT investment → Organizational commitment (control variable)	-0.044 ^{ns} (0.444) [-0.256, 0.128]	
Innovation investment → Organizational commitment (control variable)	0.017 ^{ns} (0.216) [-0.134, 0.175]	
	R ²	Adjusted R ²
Digital leadership	0.656	0.653
Continuous learning	0.492	0.488
Organizational commitment	0.516	0.493
Overall model fit of the estimated model		
SRMR	0.069	0.082
d _{ULS}	1.318	1.851
d _G	0.470	0.491
Mediation analysis		
	Indirect effect	Total effect
Digital transformation → Organizational commitment (H1)	0.590 ^{***} (6.070) [0.427, 0.754]	0.590 ^{***} (6.492) [0.441, 0.739]
<i>Note: †p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001, two-tailed test for control variables and the direct effect, and one-tailed test for the other relationships.</i>		

Table 4.2 Structural model evaluation.

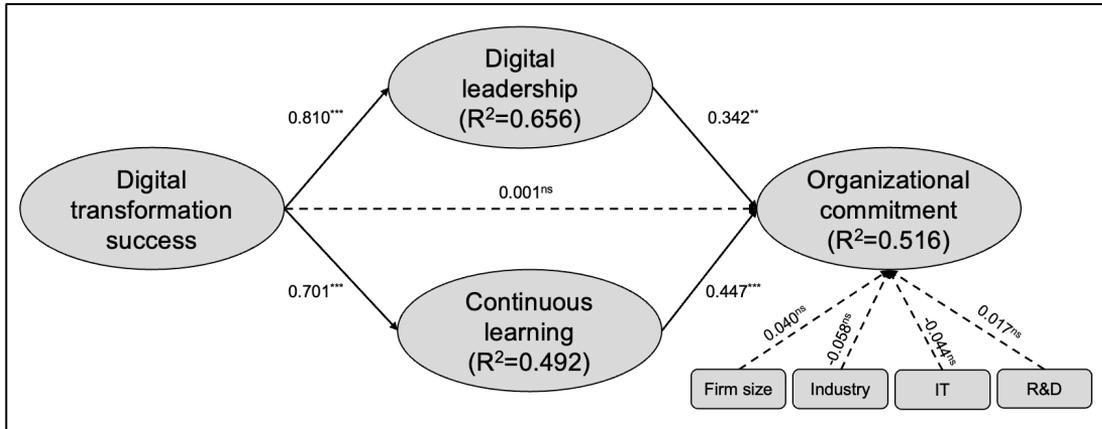


Figure 4.2 Test of hypotheses.

4.6 Discussion and conclusions

4.6.1 Summary of findings

This study tested the proposed research model with survey data, and results show that firms can only achieve organizational commitment through digital transformation when digital leadership and continuous learning are present. Findings show that firms can make use of digital transformation if certain mediators are present. Hence, one of the key findings is that digital leader increases emotional identification and satisfaction towards the digital transformation process, making employees stay (i.e., affective and normative commitment). This result is relatable with previous work by Jackson et al. (2012) regarding the positive impact of transformational and charismatic leadership on affective and normative commitment. Results further support discoveries about the relevance of purpose and impact for employees to stay (Schrage et al., 2021). Like in the example of Michelin, a digital leader with a vision and roadmap can work on the mindset of the employees and thereby point out the benefits and opportunities of digital transformation (i.e., continuance commitment). To conclude, findings show that by supporting the shift of the DNA into a digital one, a leader affects the employees' intention to stay with the firm for all three dimensions of organizational commitment. This result is also supporting research on the importance of digital culture (e.g., Hansen et al., 2011; Hartl & Hess, 2017) and digital leadership (e.g., Bonnet & Westerman, 2020; El Sawy et al., 2016).

Moreover, findings show that a continuous learning environment increases employees' emotional bond and responsibility towards the digital transformation. By providing employees with learning opportunities, the firm embraces skills, capabilities, and innovation (e.g., new products and services) (Singh & Hess, 2017). It further increases the affective commitment

as expectations of personal development are met, and the knowledge exchange through networks increases the normative commitment with socialization experiences (i.e., normative commitment) (Meyer & Allen, 1997). These results support that continuous learning in the workforce is a chance for both employees and the organization (Tabrizi et al., 2019). A culture of learning passes over chances to employees to co-create digital transformation, which increases personal investment (i.e., continuance commitment) (Mueller & Renken, 2017).

Overall, findings show that digital transformation itself does not affect organizational commitment positively without the support of digital leadership and continuous learning. The mediation in the relationship between digital transformation and organizational commitment is needed to aid firms navigating in the digital game.

4.6.2 Theoretical contributions and implications for IS research

This research has several contributions to the field of IS. First, we empirically explore the impact of digital transformation on employees' experience. While IS research mainly focuses on exploring digital transformation from an organizational view (e.g., firm performance, innovation success), previous work identified a bias on the outcomes of digital transformation as the individual level is understudied (Besson & Rowe, 2012). Thus, this paper is a cornerstone by considering the human level and going beyond the strategic level of digital transformation (Wessel et al., 2021).

Second, this research has a unique methodological contribution to IS literature. We conceptualize, measure, and empirically test the embryonic concept of digital transformation. Besides the fact there is no clear consensus on the definition and differences between terms related to digital transformation, this paper bases on prior literature on digital transformation to clarify its concept. Grounded on a conceptualization from Bonnet et al. (2015) and with a focus on people stated in recent work (Abhari et al., 2021; Kane et al., 2019), we define digital transformation considering four dimensions: (1) digital-first mindset, (2) digitized practices and operations, (3) empowered talent, and (4) data access and collaboration tools.

Third, this paper integrates Organizational Science into IS literature to explore a theoretical foundation and clarification on mediating factors (i.e., digital leadership and continuous learning) in the relationship between digital transformation and organizational commitment. In line with that, this research integrates the three-component model of organizational commitment and organizational learning framework with the digital transformation (DT) perspective to theorize that the digital transformation process needs digital leadership and continuous learning to achieve organizational commitment. Additionally, this paper contributes to the recently enlarged IT-enabled organizational transformation (ITOT) theory

(i.e., DT perspective) to explain how digital transformation needs digital leadership and continuous learning to achieve organizational commitment.

4.6.3 Practical contribution

Firms struggle to commit employees to the organization during disruptive times (Schrage et al., 2021), and this research provides valuable lessons for companies to manage this digital game. This study shows that firms can take more advantage of digital transformation besides increasing business value by improving employee experience. Therefore, organizations must include the role of a digital leader to influence the outcome of organizations' digital transformation positively. Findings suggest having a digital mind, being very transparent, and giving the employees a feeling of awareness in the organization. To increase employees' understanding of the change, a digital leader needs to show the impact and purpose of digital transformation, positively influencing the intention to stay (Schrage et al., 2021). A digital leader can also decrease potential fears of the employees related to digital transformation (e.g., being replaced through technologies) and thereby enhance affective commitment (Meyer et al., 2002). In conclusion, a digital leader mediates the relationship between digital transformation and organizational commitment on different levels: (1) through individual work experiences (i.e., affective commitment), (2) through investments while going through digital transformation success (i.e., continuance commitment), and (3) socialization experiences facilitated by the leader (i.e., normative commitment).

Furthermore, firms need to support continuous learning by offering opportunities to learn and grow (e.g., digital competencies). New knowledge needs chances for application in an open and experimentation-friendly environment (Mueller & Renken, 2017). For example, firms could encourage employees to engage in open-source software communities (Kane et al., 2019). By dedicating their time, they get more involved, and gain skills. This will make them stay with the firm as they learn on the job and do not need to acquire knowledge at another organization (Kane et al., 2019). Even though firms might understand the need and lack of skills, less than 50% of organizations ensure an environment to develop employees' skills (Spitzer et al., 2013). Enhancing the innovation and creativity of employees increases autonomy and satisfaction and providing employees the possibilities of support, feedback, and rewards as part of the learning process, increases loyalty towards the firm (Bonnet & Duke, 2021). Thereby, employees can also see their own achievements and investments in digital transformation (e.g., specifically related to digital transformation) and they avoid losing the efforts when changing the company.

With these implications, we provide firms with practical advice on how to take advantage of digital transformation on the employee level and how to act during the challenge of organizational commitment. Thus, besides the importance of digital transformation for business value, a successful outcome that firms can benefit from is organizational commitment, which is supported by digital leadership and continuous learning.

4.6.4 Limitations and future research

This study also has some limitations. First, the findings only result from medium to large firms within selected industries in Spain. Future research could examine whether the results can be replicated in other sectors and different countries. Thereby, the findings of this paper can increase its generalizability. Moreover, different firm sizes should be considered and included in further research. Second, the construct of digital transformation is difficult to measure because of several different definitions. Although our analysis proves the consistency of our measurement, we encourage IS scholars to continue this line of improving the measurement of digital transformation. Lastly, we identified digital leadership and continuous learning as mediating factors in the relation between digital transformation and organizational commitment. However, there might be further mediating variables that could be more deeply investigated. Hence, this research appears to be a promising avenue to address the challenge of organizational commitment during disruptive digital times.

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4.8 Appendix

Construct	1	2	3	4	5	6	7
1. Digital transformation	1						
2. Digital leadership	0.810	1					
3. Continuous learning	0.701	0.742	1				
4. Organizational commitment	0.563	0.650	0.681	1			
5. Firm size	0.137	0.101	0.076	0.095	1		
6. Industry	0.259	0.186	0.119	0.057	0.164	1	
7. IT investment	0.630	0.570	0.549	0.400	0.147	0.257	1
8. Innovation investment	0.579	0.486	0.508	0.374	0.133	0.163	0.724

Table 4.3 Correlation matrix.

Construct: From 1 to 5 (1: Strongly disagree, 5: Strongly agree)	Mean	S.D.	VIF	Weight	Loading
Digital transformation (Second-order Construct)					
Digital-first mindset (Composite Mode B)			3.337	0.281***	0.896***
We take advantage of digital solutions wherever possible.	4.074	0.706	3.024	0.468***	0.940***

People naturally think of digital technologies when we consider ways to improve.	3.615	0.849	2.586	0.197 [†]	0.849 ^{***}
We prioritize digital solutions.	3.740	1.046	2.692	0.198 ^{ns}	0.854 ^{***}
We openly explore digital opportunities.	3.903	0.991	2.439	0.261 [*]	0.856 ^{***}
Digitized practices and operations (Composite Mode B)			2.750	0.281 ^{***}	0.872 ^{***}
Our core operational processes are automated and digitized.	3.587	1.014	2.691	0.230 [*]	0.858 ^{***}
We monitor our operations in real time.	3.464	1.028	2.312	0.182 ^{ns}	0.807 ^{***}
We employ data-driven decision-making.	3.622	1.074	2.247	0.428 ^{***}	0.901 ^{***}
We standardize processes that require human input.	3.579	1.012	1.869	0.325 ^{***}	0.832 ^{***}
Empowered talent (Composite Mode B)			3.083	0.281 ^{***}	0.887 ^{***}
We have experience with new technologies like mobile devices and applications, social media tools and data, big data and advanced analytics, artificial intelligence, machine learning, and internet of things.	3.694	0.886	2.069	0.180 ^{ns}	0.800 ^{***}
Digital skills are widely distributed across.	3.500	1.049	2.218	0.488 ^{***}	0.918 ^{***}
We have the skills necessary to conduct digital initiatives.	3.682	1.081	2.250	0.450 ^{***}	0.907 ^{***}
Data access and collaboration tools (Composite Mode B)			3.223	0.281 ^{***}	0.898 ^{***}
We have an increased use of real-time customer and operations data.	3.705	1.188	3.393	0.278 [*]	0.874 ^{***}
We have an increased use of integrated end-user data.	3.544	0.984	3.519	0.299 ^{**}	0.886 ^{***}
We have communication, feedback, and collaboration tools that make it easy to be productive.	3.737	0.976	2.407	0.429 ^{***}	0.896 ^{***}
We can access flexible computing power and storage (e.g., through cloud services and external assets).	3.892	0.978	1.946	0.147 ^{ns}	0.748 ^{***}
Digital leadership (Composite Mode A)					

Communicates a clear and digital vision for the future.	3.475	0.979	4.187	0.211***	0.908***
Supports and encourages the employees' digital mindset and development.	3.522	1.122	6.004	0.208***	0.940***
Gives encouragement for the organizational digital transformation.	3.617	1.113	5.548	0.211***	0.934***
Is clear about the values and practices for the digital transformation.	3.583	1.127	6.473	0.222***	0.945***
Instills pride and respect in others and inspires employees by being digitally competent.	3.631	1.089	5.835	0.220***	0.939***
Continuous learning (Composite Mode B)					
In my company employees help each other to learn.	3.836	0.913	2.284	0.353**	0.883***
My company takes time to support learning.	3.552	0.967	3.035	0.512***	0.948***
Employees are rewarded for learning	2.964	1.132	2.684	0.233*	0.869***
Organizational commitment (Composite Mode A): Relative to competitors during the last three years					
We have less staff turnover.	3.233	0.849	2.129	0.161***	0.725***
We have less staff absenteeism.	3.554	1.179	1.961	0.190***	0.708***
All employees feel like "part of the family".	3.342	0.982	4.697	0.273***	0.908***
We feel a strong sense of "belonging".	3.419	1.126	5.484	0.281***	0.931***
The employees desire and intend to stay.	3.556	1.124	3.830	0.268***	0.896***
<i>Note:</i> †p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001.					

Table 4.4 Measurement model evaluation.

5 Paper D: Hey leaders, it's time to train the workforce: Critical skills in the digital workplace

5.1 Abstract

Businesses are confronted with digital challenges and require skilled employees to work effectively in the digital workplace. Drawing on the theoretical background of digital workplace transformation and the conceptual learning framework, we conducted a qualitative study. With the help of a cross-case analysis of nine multinational corporations, we provide a skillset for leaders on how to train the workforce in the digital workplace. The insights showed that an entrepreneurial mindset, digital responsible thinking, digital literacy, transformative skills, personal development skills, communication skills, community management skills, data analytic skills, and web development skills are critical in the digital workplace. These findings contribute to the literature by offering an exploratory understanding of essential skills for the digital workplace. Furthermore, we provide a theoretical foundation for future empirical investigations of cognitive and metacognitive, social-emotional, and practical skills. The study also offers practical implications for businesses and leaders on how to upskill the workforce and what kind of employees to recruit in the future workplace.

Keywords: Skills; digital workplace; future workforce; leader; digital transformation; case study.

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5.2 Introduction

In recent years, digital transformation has affected a variety of business decisions, processes, and activities across organizations (Vial, 2019). Digital transformation is a very present terminology as technologies redefine businesses (Böllmann, 2022). During these changing processes, firms are making use of technologies to effectively manage the future of work (Wessel et al., 2021). However, in addition to digital disruptions, the competitiveness in the labor market has also increased, and new demands from the younger generations are revolutionizing the landscape of the digital workplace (Attaran et al., 2019).

A digital workplace design is a commitment to new ways of working (Micic et al., 2022). It also facilitates organizations to rethink their workforce development with the aim of succeeding in the future to handle interruptions in the workplace (Sykes, 2011). More precisely, the nature of shifting skills and demands in the workplace are environmental, economic, and social challenges that need to be addressed (Martin, 2018; Zimmer et al., 2020). Businesses and their leaders are confronted with digital challenges but lack employees with the essential skills to combat these barriers (Buvat et al., 2017). Employees are a critical resource in the digital economy (Araújo & Pestana, 2017). Hence, organizations and employees need the understanding to adjust their skillset, as in the future, workplace abilities could be made redundant or even obsolete (Buvat et al., 2017; Merchel et al., 2021; Selimovic et al., 2021). At the same time, new roles can arise (e.g., chief metaverse officer) (Buvat et al., 2017; Diaz & Halkias, 2021; Kane et al., 2017). For example, artificial intelligence and people will work together in the future, and there must be a way for them to complement one another. Still, technologies might not replace jobs, so employees' skillsets must shift and adapt accordingly (Martin, 2018). Thus, there is a need to reveal these critical skills for the digital workplace and explore what businesses are facing with.

The current literature is still limited to exploring how technologies change the organizational level, and individual behavior is only slightly developed (Colbert et al., 2016). However, recent research has highlighted the potential of workplace design (Chatterjee et al., 2021 McDonald 2014) and the role of employees and workforce management when working with technologies (Wong et al., 2022). At the same time, organizations must meet the employee's interests to work in a hybrid setting, which might also require the acquisition of new skills by the employees to balance different workplace arrangements. Intending to broaden the scope of future work, the purpose of this research was to explore what skills are essential in the digital workplace. As this is leading to a gap in the current scholarly literature, we are answering the call for future research in the field of digital transformation initiatives (Tomičić Furjan et al.,

2020). However, there is a lack of understanding regarding the relevant literature on how to train and adapt employees for the digital workplace. Digital workplace transformation is a challenging process, and human resource practices must be integrated and considered in the digital era (George & Bajbair, 2021). As there is a lack of comprehensive understanding of critical skills, this study aimed to explore a set of abilities essential in the digital workplace by finding an answer to the following research question: What are the critical future skills of employees in the digital workplace?

Drawing on digital workplace transformation and the conceptual learning framework, we revealed nine essential skills to perform in the digital workplace effectively. Considering the constantly changing environment that organizations and employees are confronted with (Kane et al., 2021), there is an urgent need for guidelines for skill transformations and findings on how to ensure effective workforce management in the future. By exploring the skills of multinational corporations perceived as critical in the future workplace, this study contributed to practical implications for businesses on how to conquer the digital challenges of employee training. In addition to the managerial contribution, this paper also created a theoretical linkage by identifying a list of nine critical skills that could help future research to design the nature of employees' abilities. Finally, we increased the understanding of future skills in the digital workplace using insights from multinational corporations and different perspectives.

Accordingly, the paper is organized as follows. First, there is an overview of this study's theoretical background. Afterward, we explain the methodological approach of this research, and in the next section, the results are presented. Finally, we conclude with a discussion of the findings, contributions, and suggestions for further research.

5.3 Theoretical background

This paper was theoretically framed within the concept of digital workplace transformation (Dery et al., 2017; Zimmer et al., 2020). The perspective argues that technologies enable workplace transformation, leading to changes and competitive pressure (Zimmer et al., 2020). To address the digital challenges, this study further built on the conceptual learning framework. This concept draws on the creation of skills to shape the future and achieve desired outcomes of success in the digital workplace (Martin, 2018). To explore critical skills for the future workplace, we integrated the conceptual learning framework into the theory of digital workplace transformation.

5.3.1 *Digital workplace transformation*

Transforming traditional working environments into digital workplaces is a topic that has increasingly interested academics and practitioners (e.g., Dery et al., 2017; Meske 2019;

Selimovic et al., 2021; Zimmer et al., 2020). A digital workplace transformation is a strategic management tool related to digital transformation and a commitment to new ways of working (Baumgartner et al., 2021; Micic et al., 2022). In the digital workplace, businesses are making use of technologies and tools to accomplish tasks in an efficient and effective way (Attaran et al., 2019). Therefore, the productivity and satisfaction of the workforce can be increased (Attaran et al., 2019). Further benefits from a digital workplace transformation can include increased access to digital talents and higher employee retention (Haddud & McAllen 2018). Additionally, digital workplaces enable communication and collaboration (Baumgartner et al., 2021; Colbert et al., 2016; Dery et al., 2017) and enhance the exchange of data, information, and knowledge in a flexible way (Micic et al., 2022). The digital workplace transformation also comprises the use of technologies; for instance, digital platforms (Colbert et al., 2016; Williams & Schubert, 2018) and enterprise resource planning software (Rossi et al., 2020). However, technologies revolutionize the workforce, and organizations must respond by training the workforce and addressing the challenges.

To conclude, digital workplace transformation not only regards technological resources, but also contains a cultural change and a consideration of the employees (Attaran et al., 2019; Baumgartner et al., 2021). Hence, the field of digital workplace transformation brings a micro perspective into the framework of digital transformation (Meske, 2019) and provides opportunities to redesign the workplace to operate effectively in the future of work (Selimovic et al., 2021).

5.3.2 Conceptual learning framework

The conceptual learning framework explains how competencies (i.e., knowledge, skills, attitudes, and values) have a positive impact on shaping the future. It explains the need for a broad skill set to meet the demands in the future workplace and to create value (Martin, 2018). In particular, conceptualization enabled this research to explore the critical skills for the digital workplace within the framework of cognitive and metacognitive, social-emotional, and practical skills (Martin, 2018). Within this conceptualization, skills are the individual ability to carry out processes, and were previously described and distinguished into the following three categories. Moral and intellectual maturity is implied throughout these three dimensions of skills (Martin, 2018).

First, cognitive skills ensure the ability to process language and numbers, and involve logical, intuitive, and creative thinking. They are divided into three categories: verbal, nonverbal, and higher-order skills (Martin, 2018). The ability to learn how to learn and to recognize individual knowledge, skills, attitudes, and values are examples of metacognitive skills (Jaiswal et al.,

2022). For example, digital technologies impact how individuals think and behave, but specific tasks also can be done by machines (Jaiswal et al., 2022). Yet, nonroutine and analytical tasks are strongly demanded, and skills must be built accordingly. Higher-order skills, for instance, include critical thinking and problem-solving in the workplace. Second, abilities that create thoughts, feelings, and behaviors that enable individuals to develop themselves, build relationships and act as a human in society are referred to as social-emotional skills (Chernyshenko et al., 2018). For instance, this means knowing how to express and understand thoughts and feelings, and being able to relate to others. These types of skills are defined as relationship management and social awareness, and facilitate socially appropriate behavior. Third, practical skills are the collection of abilities to apply specific tools, procedures, and functions (Martin, 2018). With the help of these skills, individuals can make use of technologies, methods, and instruments to achieve specific goals (Lissitsa et al., 2017). Previous literature, for example, found a demand for artificial intelligence skills in the labor market (Alekseeva et al., 2021) or knowledge of how to work with robotics (Kane et al., 2017). Finally, the theoretical background of this exploratory study implied that the future skills of employees are critical to respond to the transformation of the digital workplace.

5.4 Methodology

5.4.1 *Research setting and data collection*

The goal of this research was to gain an understanding of the essential future skills that are expected from the digital workforce. While following an exploratory approach, we conducted an in-depth investigation of multiple cases, building on nine interviews with insights from multinational corporations. Following a grounded theory approach (Strauss & Corbin 1998), we performed nine semi-structured interviews with a protocol that included open questions on: (1) the respondents' personal expertise, (2) experiences with digital transformation processes, and (3) critical employees' skills for the digital workplace. In addition, we asked for specific examples to explain the statements. The data collection of the nine semistructured interviews took place with the respondents via Zoom in February and March 2020. A single researcher conducted the interviews, which lasted about 50 min on average. The interview languages were German and English, and the audio files were recorded and afterward automatically transcribed using AmberScript.

5.4.2 *Sample overview*

We primarily targeted IT and business executives from large multinational corporations, as they are the most knowledgeable regarding the resources (e.g., technologies and human factors) allocated to digital transformation procedures (Benitez et al., 2022). On average, the

respondents had about 20 years of experience in similar management functions. The industries of the represented cases were automotive, technology, machinery, beverages, e-commerce, manufacturing, and aerospace, with headquarters in the United States, Spain, Germany, and Japan. The broad insights from the cross-cases ensured a generalizable perspective. To grant confidentiality to the companies, the names were coded using the following abbreviations: SNACK, AUTO, OPER, TECHNO, ECOM, AERO, ENGINE, MANU, and MACHINE. Table 5.1 displays further sample characteristics.

Company	Firm Size	Revenue ¹	Headquarters	Position
SNACK	309,000	79.47	United States	IT Director
AUTO	155,000	127.00	United States	CIO
OPER	37,000	1.12	United States	CIO
TECHNO	24,500	1.19	Spain	CEO
ECOM	450	0.72	Spain	CIO
AERO	138,000	17.83	Germany	CIO
ENGINE	100,000	5.43	Germany	IT Director
MANU	35,500	32.15	Germany	CIO
MACHINE	6,600	2.418	Japan	CIO

¹ Revenue is stated in billions of US\$ for the fiscal year 2021.

Table 5.1 Sample characteristics.

5.4.3 Data analysis

The exploratory nature of this study enabled an inductive way to conceptualize the findings within the conceptual learning framework. For the data analysis, we followed the methodology of grounded theory (Gioia et al., 2013; Strauss & Corbin 1998). As Gioia et al. (2013) stated, this approach has three successive steps (i.e., development of first-order codes, processing into second-order themes, and creating aggregated dimensions).

We initially analyzed the transcripts with the software MAXQDA to obtain a comprehensive understanding of the data. While we worked through the interviews, the findings were allocated toward situational code phrases. To orderly gather the key findings, we also checked for interrelations. This step resulted in 42 first-order codes. For example, the initial code for the statement “ability to focus on the personal strengths and goals and priorities in the workplace” was allocated in the first-order code “self-management”. Next, we interpreted the data and grouped the codes into second-order themes to describe the phenomenon on a theoretical level. We gathered the descriptive first-order statements to obtain a higher level of abstraction and discover the first concepts. For instance, we gathered several codes related to personal development skills (e.g., passion for learning, intrinsic motivation, fast learning, knowledge management, and self-management) and clustered them into one second-order theme. Thus, we created nine second-order themes.

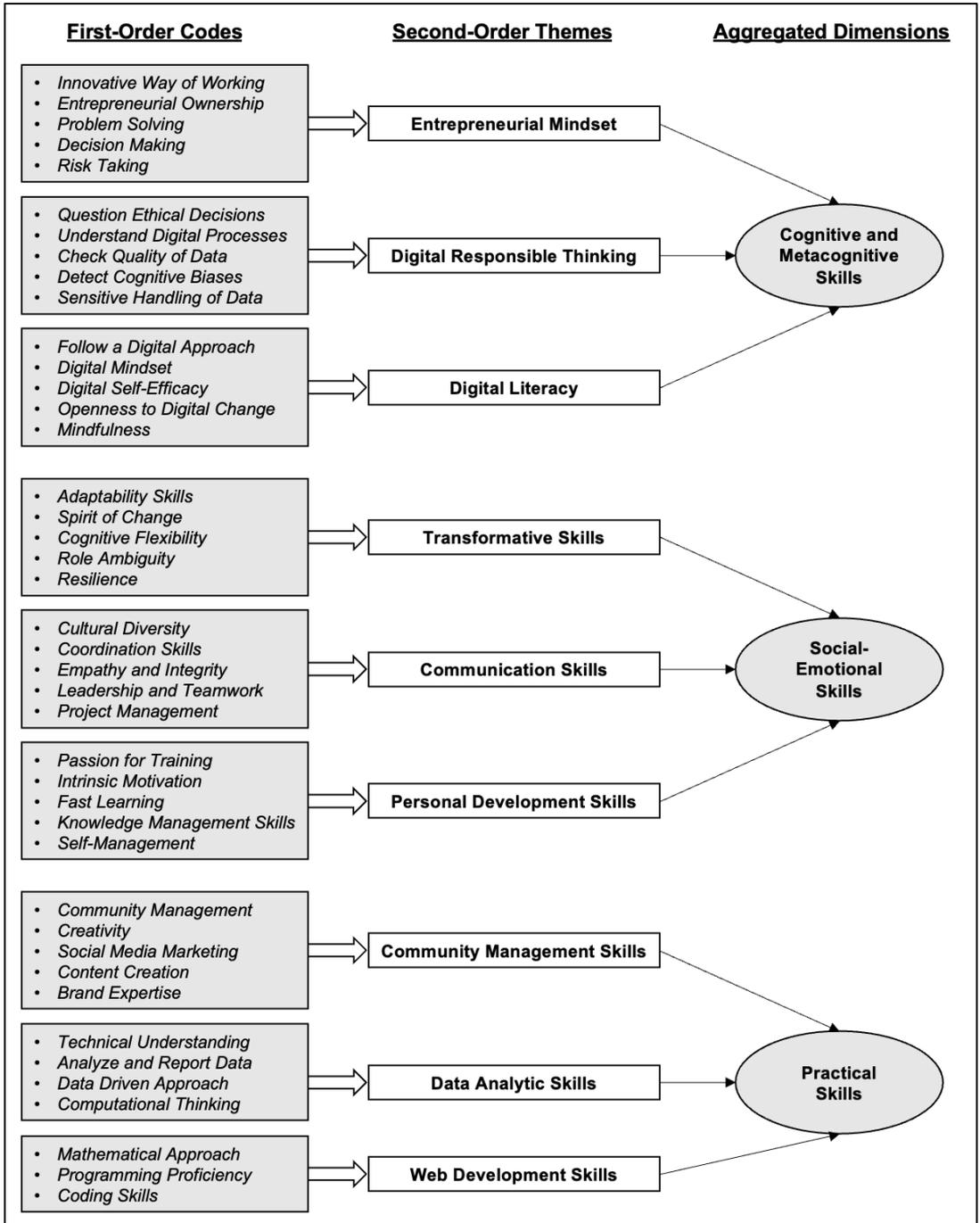


Figure 5.1 Overview of the coding scheme.

In the last step, we evaluated the second-order themes with the help of the conceptual learning framework and allocated them into the aggregated dimensions. Within this coding paradigm, we iterated the findings and combined them with the theory from the conceptual

learning framework. For instance, (1) entrepreneurial mindset, (2) digital responsible thinking, and (3) digital literacy were grouped into cognitive and meta-cognitive skills; (4) transformative skills, (5) communication skills, and (6) personal development skills were allocated to social-emotional skills; and lastly (7) community management skills, (8) web developments skills, and (9) data analytic skills were summarized as practical skills in the digital workplace. As previously described, we finally interpreted the results from the cross-case exploration based on the three dimensions of the conceptual learning framework. Figure 5.1 shows a visual representation of the coding scheme.

5.5 Results

The findings of the interviews showed the necessity of nine critical skills in the digital workplace. First, the results evidenced the relevance of an entrepreneurial mindset, digital responsible thinking, and digital literacy. Second, the findings suggested that transformative skills, communication skills, and personal development skills are critical to respond to the digital workplace's needs. Third, the respondents pointed out the necessity of community management skills, data analytic skills, and web development skills. In the following, the results are described according to the dimensions of the conceptual learning framework.

5.5.1 Cognitive and metacognitive skills

Entrepreneurial mindset. The results showed that employees in the cases should know how to take risks when working with digital innovations toward organizational goals. For instance, AUTO described that organizations “need a group of people that don't fear to make mistakes. They have to be open-minded and challenge themselves in a smart way where they feel intrinsically motivated”. This is also related to an innovative way of working, as AERO mentioned. The results pointed out that employees have to be able “to not only think about the past but more the future”. This was supported by an example by AUTO, in which “employees have to believe in the departments, absorb information, filter everything, think about it, and create new ideas”. ENGINE also described the need for entrepreneurial ownership when creating new value: “We will never be a start-up, and we will never get the same mentality. But we need employees that have these entrepreneurial thoughts, that are not scared to ask something, that is giving us the mix between start-up and multinational company”. Overall, the interviewees AUTO, AERO, and ENGINE described that employees must be able to make critical decisions and solve problems with an entrepreneurial mindset.

Digital responsible thinking. The interviewees SNACK and ENGINE described the importance of digital responsible thinking in the digital workplace. Employees must question the ethical decisions of organizations, the environment, and society related to technologies. This includes

understanding digital processes, checking the quality of data, and detecting potential problems that could harm any parties (SNACK). Employees must consider data ethics, which means understanding norms and codes of conduct related to data management. For example, employees must have the ability to “detect potential biases from artificial intelligence or machine learning” (ENGINE). In the future, digital workplace employees must detect cognitive biases and identify a “lack of complete data”. Further, digital responsible thinking refers to the sensitive handling of data (ENGINE). In addition to work with data, employees will also need to explore how humans and machines can responsibly work together.

Digital literacy. The respondents also revealed the importance of digital literacy. Given the examples, this means to “follow a digital approach” when implementing work tasks (AERO). This was also supported by introducing the term “digital mindset”. Specifically, the belief that digital technologies improve all working-related processes effectively is critical to understanding operating in the digital era (ECOM). In addition, the findings showed that organizations expect the “ability to work with technology” (OPER). This implies a high level of digital self-efficacy, which is the employees’ belief in being able to successfully complete work tasks with digital technologies. As the workplace changes, the companies stated that they are going through digital transformations. Thus, employees must be open to digital change and navigate an uncertain environment (MANU). Above all, for the firms, it was critical that employees engage in mindful use of technology, finding the right balance, for example, when working in a remote setting. They must be able to take breaks and set limits and boundaries in technology use to avoid addiction and over-use (MACHINE).

5.5.2 *Social-emotional skills*

Transformative skills. As employees are confronted with a continuously changing digital environment, the interviews revealed that organizations expect transformative skills in the future workplace. In particular, the respondents showed that employees must possess adaptability skills to remain successful in their jobs. MACHINE stated, “Due to my background, I have a lot of contact with banks and the people that make decisions. They knew nothing about technology in the past. And now those same profiles either are getting trained, so they get knowledge on technology and know the possibilities that technology is giving them as an additional benefit to their jobs. Or they are getting substituted by people who have more experience with technology. I think that understanding technology and knowing the possibilities that technology can bring you to the job is key”. This proves the need for a “spirit of change” (TECHNO). Moreover, employees must contribute to a dynamic working culture with cognitive flexibility. This describes the ability to actively change individual perceptions,

such as what employees think about. Furthermore, as part of transformative skills, we found that role ambiguity will be critical in the future workplace. Employees must be capable of fulfilling different responsibilities, work at the interface of adjacent positions, and “understand that their role has a wider view and not just one function” (OPER). For example, AUTO stated that “robotics and artificial intelligence can also be relevant for a lawyer or an architect, so people have to be continually open to transform themselves”. Finally, employees must also show resilience (TECHNO), which can be proven by their ability to overcome barriers and disappointments, because digital businesses and ideas can fail, and employees must confidently cope with this.

Communication skills. Above all, employees must communicate and collaborate with colleagues, different departments, other branches, industry partners, suppliers, and research institutions (ECOM). This also includes awareness about “cultural diversity” and the inclusion of all employees in the workplace (ECOM). Related to that, empathy and integrity are not only expected among employees, but also among customers. As AERO states, “selling products or services is still a business from people for people, with an emotional component, and you cannot digitalize this”. Therefore, emotional intelligence will be an important skill in the future because technologies cannot do this (AERO). Additionally, leadership and teamwork skills will be critical to managing the workforce with clear and active talking, listening, and delegating to meet the employer’s expectations. Finally, project management skills and agile coordination will be essential to respond to the latter (MANU).

Personal development skills. The findings led to personal development skills as the final social-emotional skill. Specifically, the respondents addressed the willingness to learn from employees (SNACK). They should be intrinsically motivated, quick, passionate about learning, and empowered to challenge themselves (MANU). In addition, by having social-emotional skills, “employees can be more aware and understand the environment, which enables them to acquire the practical skills necessary to be successful” (OPER). This also implies that employees train themselves and gain critical knowledge to effectively perform their job and “know the industry” (MANU). This also leads to general “knowledge management skills”, which can be seen as the ability to find and apply information in new contexts (SNACK). Finally, as part of personal development skills, the respondent TECHNO highlighted the relevance of self-management, which is described as a “focus on the personal strengths and goals and priorities in the workplace”.

5.5.3 Practical skills

Community management skills. In addition to having cognitive, metacognitive, and social-emotional skills, the findings revealed practical skills that will be relevant in the future digital workplace. First, the respondents mentioned the relevance of community management skills. Firms expect their employees to be creative and to have knowledge about social media marketing. Moreover, the use of social media has become more relevant for firms as a marketing tool. Employees might also act as corporate influencers, and should consider how to represent the firm online (ECOM). This can either be internal (e.g., on the intranet) to advocate for existing employees or external platforms such as LinkedIn, which address potential employees or customers (ENGINE). Having knowledge and skills for social media and digital platforms is also aligned with the ability to create digital content. The latter can include being a brand expert on the one hand and text content creation, on the other hand, a “set of editing skills, compared with SEO skills and content promotion” (ECOM).

Data analytic skills. Second, the respondents highlighted that data analytic skills will be critical for employees in the future workplace. For example, this means that employees will need to have the technical understanding to analyze and report data (OPER). ENGINE pinpointed these analytical skills as the central focus. Additionally, “visualizations for colleagues” and data cleaning will be critical, so that everyone has the same understanding of how to work with the data (SNACK). A “data-driven approach from the employee” can thereby strengthen their understanding to make use of data and understand customer demands (OPER).

Web development skills. Finally, the interviews with SNACK and ENGINE also revealed that possessing web development skills will also be a vital ability in the future workforce. Employees must be able to conduct their work with a logical approach in terms of technical and mathematical matters (SNACK). This is related to proficiency with programming languages and coding skills in “usual languages such as Java or Python”, as the findings showed (ENGINE).

5.6 Discussion

5.6.1 Summary of the main findings

The present paper took stock of current knowledge on skills that are crucial in the digital workplace and found an answer to the research question regarding the essential skills of employees in the future. The exploratory study identified nine critical skills in the three categories: (1) cognitive and metacognitive, (2) social-emotional, and (3) practical skills. In relation to the skill map displayed in Figure 5.2, we will explain the key insights of the cases in the following. Thereby, we joined the skills based on their occurrence in the interviews.

First, the highest importance was exposed for digital literacy (five cases), transformative skills (five cases), and personal development skills (four cases). Digital literacy means that employees are open to digital change, have a digital mindset, and work with a digital approach, but still in a mindful way (Reddy et al., 2020). Moreover, transformative skills; that is, employees being adaptable, having the cognitive flexibility to see different roles within the organization, and possessing resilience, were found to be critical in the digital workplace. Furthermore, the insights showed that personal development skills with an intrinsic motivation to learn, self-develop, and self-management can be beneficial.

The second-highest relevance to finding the way in the digital workplace was highlighted as an entrepreneurial mindset (three cases), communication skills (three cases), and data analytic skills (three cases). Employees with an entrepreneurial mindset are open to risks and innovation, and are able to solve problems and make decisions (Daspit et al., 2021). Next, the results showed that communication and collaboration skills are critical in the digital workplace, which means involvement with other employees or external stakeholders in terms of teamwork and empathy, coordination skills, and the emotional intelligence to work with culturally diverse teams (van Laar et al., 2020). Further, employees must own data analytic skills, get familiar with different analysis methods, and hence know-how to work with data (e.g., like a beginning data scientist) (Mikalef et al., 2018).

Finally, the results show the newly emerging importance of digital responsible thinking (2 cases), community management skills (2 cases), and web development skills (2 cases) in the digital workplace. Employees in the future workplace must be able to think digitally responsible (Mueller, 2022) so that they operate with data and digital technologies while consciously keeping ethical aspects in mind. Also, community management skills are critical and include abilities like content creation, social media activities, and being creative with new forms of communication. Finally, we identify web development skills as a critical variable in the future workplace, which presumes that employees have the ability to code and work with programming tools (Vuorikari et al., 2016).

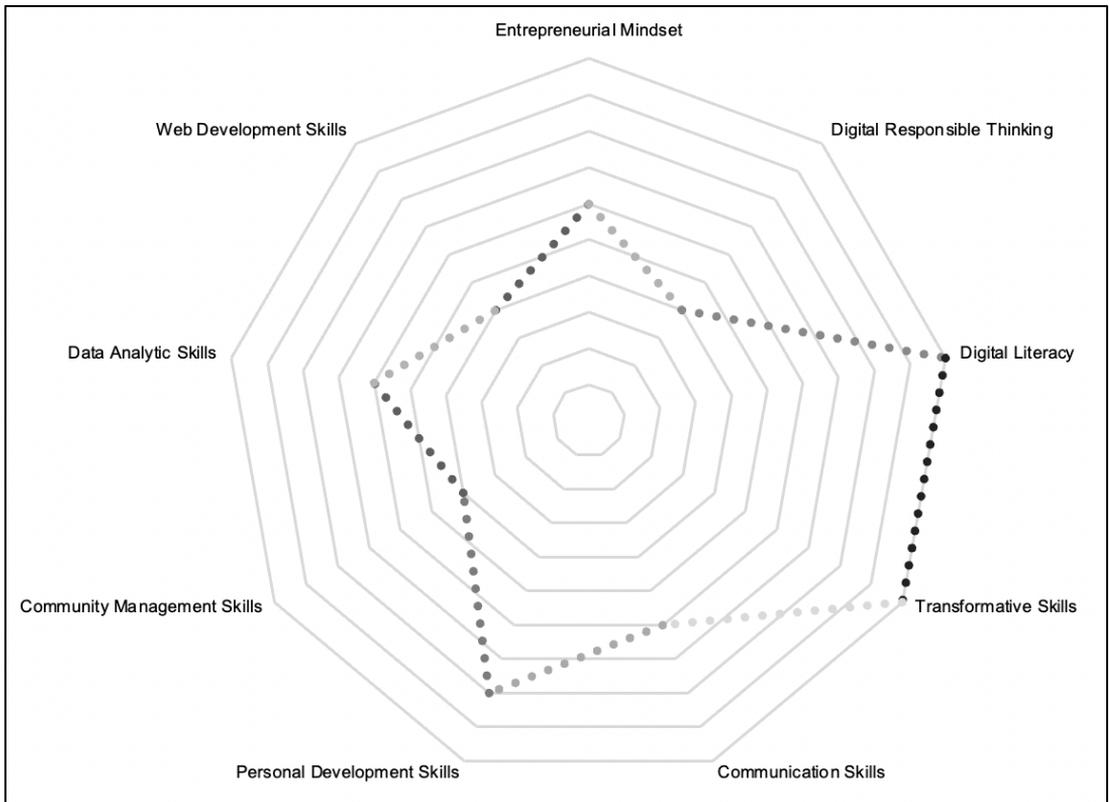


Figure 5.2 Skill map.

5.6.2 Theoretical contribution

This study had several implications for research and led to theoretical contributions. The findings provided insights into the critical skills needed in the digital workplace and revealed the relevance of developments expected from the employees. The results of this study were differentiated from previous results by highlighting the importance of cognitive, metacognitive, and social-emotional skills while still considering the urgency of practical skills in the digital environment. In the following, we explain the contributions of this exploratory study. Moreover, the findings are one initial paper highlighting the relevance of these essential skills to balance remote and in-office workplace arrangements (i.e., hybrid).

The results suggested that an entrepreneurial mindset, digital responsible thinking, and digital literacy will be critical in the future workplace as cognitive and metacognitive skills. This finding was aligned with previous research in the past that emphasized the importance of digital literacy in the future workplace (Kozanoglu & Abedin, 2020). Moreover, the found importance of risk affinity in the digital workplace that was discovered previously (Tuukkanen et al., 2022) was supported in our study. The findings also found academic support in the workplace context, as the previous literature showed that information literacy enhanced innovation

(Ahmad et al., 2020). We further found that transformative skills, personal development skills, and communication skills are crucial in the digital era, and thus were grouped as social-emotional skills. This can advance previous explanations by Kane et al. (2017) in highlighting the relevance of intrinsic self-management of the employees. Related to that, a recent work found that skills management is crucial for social well-being (Araújo & Pestana 2017). The results showed that communication skills are critical to navigating the digital workplace. A previous work found that communication issues can occur between IS professionals and IS users (Chen et al., 2005), and that such a communication gap must be covered. Thus, collaboration, but also interruptions, will be critical in the future workplace (Sykes 2011; Tuukkanen et al., 2022).

The final and most substantial theoretical contribution was the identification of three practical skills that are essential in the digital workplace. The findings revealed community management, data analytic skills, and web development skills as critical. Few examples in the academic literature focused on these skills, primarily due to the value of data in the digital workplace being crucial to achieving business success. In addition, the emphasis on social media marketing skills was aligned with earlier findings regarding marketing skills (Di Gregorio et al., 2019). Overall, our results had several similarities to the digital competence framework that covers information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving (Vuorikari et al., 2016), as well as to the competency model for the information technology workforce (Ho & Frampton 2010). Still, we extended these findings with the cluster within the conceptual learning framework.

5.6.3 Implications for practice

The results of the interviews and the following case study analysis also facilitated a set of practical implications for businesses. These managerial suggestions can guide firms in searching for highly skilled employees and, at the same time, act as a direction on how to train the existing workforce accordingly. They can also be seen as advice to learn what leaders expect in the future workplace in the areas of cognitive and metacognitive, social-emotional, and practical skills. The finding that organizations will expect specific skills in the future also engaged the discussion of a transparent system of career advancement aligned with the goal of digital transformation success. In the following, we describe the implications for practice for businesses and leaders on how to develop the workforce by identifying the current skills, the gap, and training and development.

First, we recommend that firms seek employees with an entrepreneurial mindset that think and act digitally responsible and are open to digital change (i.e., digital literacy). For the social-

emotional skill base, employees should be flexible in this changing environment (i.e., transformative skills). They must possess personal development skills and an intrinsic passion for self-management, and must be able to communicate and collaborate with other colleagues and partners. Finally, organizations should look for employees that are aware of practical skills. Searching for employees with community management and social media marketing skills, the ability to work with data (i.e., data analytic skills), and programming and coding skills (i.e., web development skills) is also relevant. This set of skills contributes to a digital workplace transformation by enabling employees to flexibly react to changing resources by adjusting their work tasks and coordinating with others. Second, in order to manage the skills in the digital workplace, it is recommended that companies analyze the current status quo of skills and make it transparent between departments (Marler & Boudreau, 2017). This can be done by auditing the available resources of the employees (e.g., HR analytics). Recording the existing conditions is a foundation for further improvements, and these insights can be used to re- or upskill the employees toward a digital workplace (Marler & Boudreau, 2017). In sum, the recent implication can help businesses assess their current resources transparently. Third, organizations might identify the workforce's current gaps in future skills. To embrace the demands of a digital workplace, the employees must be ready to discover potential for training and development. For example, the results can be compared to the skill map provided in this paper (Figure 5.2). Finally, after identifying the skill gaps that the workforce shows, firms must enable a continuous learning environment in which employees can develop themselves and have opportunities to grow.

Overall, it is recommended that organizations enable skill transformation as part of a digital workplace transformation. If employees do not own an entrepreneurial mindset, they can be trained by spending time with entrepreneurs, practicing to break the rules, and exchanging with the start-up ecosystem to understand the spirit. Organizations can also teach employees how to analyze situations, evaluate, and reflect on ethical decisions to gain digital responsible thinking. With the aim of persuading digital literacy, leaders should provide an authentic example by being a role model and guiding learning on the job. Transformative skills can be encouraged by trying new roles and training on the job. Thereby, employees will change their perspectives and gain new knowledge that helps them to be cognitively flexible. Organizations should encourage and practice active listening and speaking guidelines to train communication skills for conversation and negotiation situations. Regular workshops on the organizational culture (e.g., diversity and inclusion) can also increase the understanding and ability to collaborate. To facilitate striving for personal development, organizations can inform

employees about options on how to educate themselves (e.g., digital platforms). Lastly, for practical skills, organizations and leaders can teach and train their employees for the skills in workshops and training programs.

5.6.4 Limitations and future research

This study also had some limitations that offer avenues for future research. We examined multinational corporations that had efficient resources to manage a digital workplace transformation in training their employees accordingly. However, it would also be interesting to check the critical abilities of small enterprises. We had the chance to conduct the interviews at the beginning of the pandemic. By now, some skills might have changed, as digital transformation progressed very quickly. Future research could also include the recent metaverse thematic and investigate if and to what extent the skills in the digital workplace changed if the business operates in the metaverse. Moreover, as we followed an exploratory qualitative approach, further quantitative studies could be conducted to confirm the findings empirically. As a recent study introduced a measure for workplace information literacy (Ahmad et al., 2020), additional connecting points can be developed and found. Additionally, future research on essential skills in the digital workplace might focus on the different importance of cognitive, metacognitive, and social-emotional versus practical skills. Finally, although care was taken during the data analysis, the work was done by one single researcher. We encourage further research to explore the thematic to confirm the findings of this study.

5.7 Conclusions

To conclude, this exploratory study identified nine critical skills of employees for the digital workplace. The findings had a significant relevance due to the technological progress that accelerated transformational processes, with a particular lens on multinational corporations. Hence, the paper carries substantial practical value and business relevance, as it dealt with a problem related to digital transformation, and can bring enormous benefits for rapid advancement in the digital era. We highlighted that organizations should monitor the abilities of their employees and offer opportunities for individuals to develop their skills. We finally answered the research question by providing a skillset consisting of an entrepreneurial mindset, digital responsible thinking, digital literacy, transformative skills, personal development skills, communication skills, community management skills, data analytic skills, and web development skills. Based on that, this study derived theoretical and practical implications, and offered a diversity of ideas to address future research on this relevant topic.

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6 Paper E: How much digital is too much? A study on employees' hybrid workplace preferences

6.1 Abstract

How post-pandemic workplaces evolve is one challenging decision organizations must consider. Prior studies have explored remote work and digital workplace transformations. However, literature offers only little insight into the status quo of employees' preferences for their future workplace and its consequences. This paper posits that employees' openness to digital change influences hybrid workplace preference. Performance and personal outcome expectations further have a mediating role in this relationship. Finally, hybrid workplace preferences can lead to office resistance and the willingness to leave. This paper draws on social cognitive theory and sheds light on the interplay of employees' preferences and potential consequences for businesses. We empirically tested the proposed model with survey data from U.S. employees. Findings show that hybrid settings are critical to attracting talent open to digital change. The contribution to literature is manifold and contains implications on how to envision the future workplace successfully.

Keywords: Digital workplace transformation; hybrid workplace preference; office resistance; willingness to leave.

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6.2 Introduction

A global disruption motivated by the recent pandemic led to shifted workplace arrangements as new ways of working evolved (Altman et al., 2021). These changes implied a considerable potential for redesigning how employees work with less geographical, physical, and organizational boundaries, making remote settings no longer seen as emergency solutions (Ameri & Kurtzberg, 2022). At the same time, employees and organizations can profit from a well-evaluated strategy for the workplace arrangement of the future (Altman et al., 2021). Hence, one crucial decision for firms nowadays is to provide employees with solutions for their individual workplace preferences. Businesses must make vital choices regarding workplace modalities and understand employees' needs and interests to identify areas of special attention for workplace design in the post-pandemic world. In addition to technological and workplace disruptions, the labor market is under pressure due to a talent shortage of considerable skills and competencies (e.g., technical, or behavioral). In combination with a high employee turnover, there is a war of talent (Dery et al., 2017; Subel et al., 2022). Digital marketplaces like *Upwork* offer freelancing job opportunities that attract digitally open employees (Dery et al., 2017). Four generations are currently working together, and there is a high need for effective management (Kane et al., 2017; Kelly, 2022). As organizations are confronted with digital threats related to finding and maintaining employees and attracting potential employees, managers start to reconsider the talent market and analyze the competitors (Gratton, 2022).

During the last two years, employees had a lot of time to reconsider their interests, values, routines, and competencies (Gratton, 2022). Millennials and younger generations have new requirements in their jobs (e.g., increased flexibility or experimentation) (Deal et al., 2010; Kelly, 2022). Employees want opportunities to develop in an environment where they can demonstrate their digital abilities (Kane et al., 2017). However, individuals differ in their tendency to work with technologies (Nov & Ye, 2008), so firms must experiment and find strategies to accommodate new ways of working. Employees do not only want to work and retire, so organizations need to offer a future-oriented workplace (Gratton, 2022). This is why organizations across the globe realized a momentum of change in how people work. Microsoft recently introduced a hybrid work model and considered the fact that employees might not be that open to returning to the office (Kelly, 2022). Also, firms in Silicon Valley introduced different models for their workforce (Kane et al., 2021), and *Airbnb* recently announced that their U.S. employees can work permanently remotely (Goldberg, 2022). However, recent

findings show that employees are not interested in working fully remotely, and organizations must recognize what they really want (Hoskins, 2021; Kane et al., 2021).

Previous literature showed a positive relationship between workplace arrangements and performance (Hoskins, 2021; Meske & Junglas, 2021), and organizations that redesign the workplace succeed in the digital world (Dery et al., 2017; Kaarst-Brown, 2019; Kane et al., 2021). Remote work has been a trend for decades, and research shows that it can be effective to a certain degree (Kane et al., 2021). Yet, there is no empirical evidence that employees who are open to digital change prefer a specific workplace setting. Remote work can be beneficial for the employees (e.g., no commute, shorter meetings, asynchronous collaboration tools) (Kane et al., 2021; Schneider & Kokshagina, 2020) and improves organizations by reducing costs for facilities, fewer absenteeism rates, increased fairness, and equality in the workforce. Further, digital disruption and technologies open chances to equalize access to job opportunities for various kinds of employees (Kane et al., 2021). Contrary to the remote benefits, employees can spend their time in the office for increased creativity and innovation tasks. However, there are also related challenges, like managing the employees from a distance, misunderstandings, and trust issues (Chandra et al., 2012). Remote settings might increase the complexity of coordination and a lack of social contact (Edmondson & Mortensen, 2021; Laker, 2021). Moreover, the work-life balance has changed, and boundaries are slimmer, influencing employees' perceptions (Edmondson & Mortensen, 2021). Overall, executives must rethink how people work and structure the future workplace to find a long-term solution. We suppose that this will be combining the benefits of both remote and colocated work (Kane et al., 2021). In particular, we think employees with openness to digital change prefer working in a hybrid workplace where they can flexibly take advantage of the benefits of remote work and, similarly, social interactions in the physical office environment. Moreover, we suggest that this relationship is mediated by performance and personal outcome expectations, as employees might expect higher job-related effectiveness as well as status accomplishments (Meske & Junglas, 2021). Finally, we propose that hybrid workplace preference can lead to pure office resistance and the willingness to leave the firm. Although recent practitioner-oriented sources suggest reinventing the workplace into a hybrid option (e.g., Kane et al., 2021; Laker, 2021), firms need empirical evidence and derived implications on considering employees' preferences. Academic literature on the management of the future workplace is scarce, and it is critical to understand that firms must be flexible and act quickly to avoid losing talent. A hybrid workplace can be a way to combine the expectations of the workforce and the importance of human connection. Despite potential

threats that might be associated with home-based or hybrid working (e.g., lack of culture and isolation), further research must evaluate which disruptive practices in the workplace can be established in the future to meet employees' demands in times of a very competitive job market. As physical co-location is no longer needed for productivity, this is a pinpoint for academia to evaluate workforce-related practices, systems, and processes to develop an ecosystem for value creation (Altman et al., 2021). Hence, hybrid workplace settings might be an option to attract and retain digitally open employees under current disruptions. Therefore, we aim to address this recent interest in theory and practice with our research, so organizations can react accordingly and experiment with hybrid workplace arrangements. This study investigates the following research questions (RQ):

- 1) *How does employees' openness to digital change affect hybrid workplace preference?*
- 2) *What are the consequences if organizations do not follow employees' hybrid workplace preferences?*

Drawing on the social cognitive theory (Bandura, 1986), we aim to answer these research questions by testing a model where employees' openness to digital change as well as performance and personal outcome expectations lead to an increased hybrid workplace preference. Besides, hybrid workplace preference might enhance a specific behavior that shows either office resistance or willingness to leave the firm. This forms the conclusion that it is critical for businesses to foster a hybrid workplace arrangement to attract talent as they might resist and leave the firm otherwise. With these findings, we contribute to information systems (IS) literature in several ways. First, we empirically prove the relationships between openness to digital change to hybrid workplace preference and the mediating effect of performance and personal outcome expectations with a large sample of survey data. We also analyze the relationship of hybrid workplace preference to two outcome variables. In line with that, we introduce a measurement for hybrid workplace preference. Next, we elaborate on the consequences of hybrid workplace preferences as these are essential for firms to stay competitive in the digital age. Lastly, we develop the social cognitive theory in the context of workplace transformations and adapt the personal perception of openness to digital change.

6.3 Theory background

6.3.1 *Social cognitive theory*

The social cognitive theory builds a compelling framework for explaining individual behavior (Bandura, 1986). This solid view has been previously integrated into IS research (e.g., Agarwal & Karahanna, 2000; Chandra et al., 2012; Compeau & Higgins, 1995) and is frequently applied to technology adoption contexts. Thereby, it acknowledges that individual

behavior is not only based on personal characteristics but also impacted by the environment (Bandura, 1986). In particular, this perspective draws on the interaction of personal cognitive perceptions, the environment, and individual actions while highlighting the reciprocal interaction between these dimensions (Bandura, 1986). In the context of this study, we primarily relate to previous work by Compeau et al. (1999), who extended the technology acceptance model (TAM) by adding the relevance of outcome expectations. Specifically, the authors argue that the individual's belief in the ability to perform a specific behavior (self-efficacy) influences the decision about technology usage (Compeau et al., 1999). This interaction is then impacted by perceived outcome expectations which are recognized as potential benefits occurring from a behavioral change (Compeau et al., 1999). Following, individuals have an intention toward something, which leads to a behavior resulting from their beliefs about technology and the perceived possibilities of innovation (Compeau et al., 1999).

Personal cognitive perceptions are abilities to deal with, process, and make sense of information (Bandura, 1986). These mental processes impact an individual's evaluation, attitudes, and behavior. For example, those perceptions might be an individual's belief in the ability to perform a specific task (e.g., computer self-efficacy). Another cognitive style might display an individual's beliefs about the interest in investigating different ways of using digital technologies (e.g., openness to digital change). More precisely, this is the open mind to experiment thoughtfully with digital technologies. Personalities with high openness to digital change have an active imagination in terms of what they can do with digital technologies and are intellectually curious about it (Nov & Ye, 2008). Additionally, they have the tendency to experience new digital technologies as they enjoy those processes and perceive them as valuable. Individuals with great openness to digital change are further creative in working with digital technologies and tolerant of investigating different ways of using them (Nov & Ye, 2008). Personal cognitive perceptions include two scopes of outcome expectations. Performance outcome expectations handle job-related outcomes (i.e., effectiveness, quality, and quantity of output), while personal outcome expectations contain individual senses of accomplishments (i.e., competence, promotion, raise) (Compeau & Higgins, 1995). Those outcome expectations are subjective and personal beliefs of how likely it is that some positive outcomes will be achieved due to a specific behavior (i.e., working in hybrid workplace arrangements). Furthermore, environmental factors that play a central role in social cognitive theory can influence the degree of outcome expectations. Expectations are influenced by the environment where the individual move around (e.g., the workforce). Also, the workplace arrangement of the organization might be one instance that affects the intention of an

individual. This can be illustrated with the concept of hybrid workplace preference as the intention to work in a mix of remote and office workplace arrangements. Last, the individual behavior in this theoretical approach can be the reaction that results from personal cognitive perceptions, environmental factors, and intentions. These behaviors are responses to a stimulus (i.e., openness to digital change and outcome expectations) that an individual must deal with. Referring to this study, office resistance and the willingness to leave are some degrees of these behaviors. To conclude, we conceptualize openness to digital change as the interest in exploring digital technologies and define performance outcome expectations as job-related consequences, while personal outcome expectations contain individual senses of accomplishments (Compeau & Higgins, 1995).

6.3.2 Hybrid workplace settings and employees' preference

Different workplace arrangements (e.g., remote work) have been a topic across IS research for decades (DeSanctis, 1984). According to previous studies, the concept of remote work stands for pursuing a job from a flexible workplace and not in the physical office (e.g., from home). Olson (1983) relates this workplace arrangement with minimum physical requirements, individual control over work pace, defined deliverables and milestones, a need for concentration, and only a few communications. Yet, this conceptualization might have changed under current disruptions like digital transformation and the global pandemic. In the current dynamic organizational context, digital technologies continuously reshape the macro-level (e.g., the workplace) and the micro-level (e.g., individual interests and behavior) (Colbert et al., 2016). Motivated by the competitive talent market, firms must improve employees' workplace experience to attract and sustain digitally open employees by providing an attractive environment (Colbert et al., 2016; Dery et al., 2017).

Formerly known as remote work, current research introduces the term digital workplace transformation (Dery et al., 2017; Meske & Junglas, 2021). As part of this, firms enable a flexible schedule, consider the culture and leadership, and thereby create a workplace of the future (Colbert et al., 2016; Zimmer et al., 2020). On the one hand, the benefits of virtual settings are fewer distractions and a higher level of concentration (Ratz et al., 2021). On the other hand, research also reveals disadvantages associated with fewer social contacts and communication, little information, unstructured workdays, and missing leadership support (Ratz et al., 2021). Moreover, innovation and knowledge sharing are decreasing while more burdens to start new projects exist, and there are less mentoring or coaching opportunities (Kane et al., 2021). Employees are confronted with different collaboration tools and rules, leading to role overload (Incerti et al., 2020). When referring to the described disadvantages,

a mix of remote and office work (hybrid work) might be a successful solution that leads to greater effectiveness and performance (Colbert et al., 2016). Overall, hybrid workplace preference is defined as the intention, liking, and favor of this exact workplace arrangement where employees balance working from home and in the physical office. We place hybrid workplace preference within the broader field of intentions related to individual-level decisions and see it as the motivational factor that leads to a specific behavior.

6.3.3 Office resistance and willingness to leave

Previous research examined whether and to what extent individuals intend to use digital technologies and how processes translate if there is an unwillingness to do so (e.g., Jiang et al., 2000; Kim & Kankanhalli, 2009; Lapointe & Rivard, 2005). This theoretical phenomenon in decision making is named resistance and comprises behavior as a primary dimension (Kim & Kankanhalli, 2009; Lapointe & Rivard, 2005). The different levels of resistance are typically identified as (1) apathy (inaction, distance, and lack of interest), (2) passive resistance (delay tactics, excuses, the persistence of former behavior, and withdrawal), (3) active resistance (voicing opposite points of view, asking others to intervene, or forming coalitions), and (4) aggressive resistance (infighting, making threats, strikes, boycotts, or sabotage seek) (Lapointe & Rivard, 2005). Thereby, resistance focuses on a direct object where they recognize threats or a potential loss. Specifically, this means individuals do not resist a change in general (Lapointe & Rivard, 2005) but have the preference to stay with the current suitable situation (Kim & Kankanhalli, 2009). For instance, this might be the case if employees should work in a workplace setting that is not acknowledging their preferences. Similar to that, the status quo bias perspective has the goal of explicating an individual's preferences for the current situation (Kim & Kankanhalli, 2009). This view includes rational decision-making (assessment of transition and uncertainty costs in relation to the benefits of change), cognitive misperceptions (loss aversion), and psychological commitment (sunk cost, social norms, and effort to feel in control) (Kim & Kankanhalli, 2009; Samuelson & Zeckhauser, 1988). In the context of this study, both theories can either explain the pure office resistance and the willingness to leave the organization if their preference for a hybrid workplace is not implemented. On the one hand, office resistance conceptualizes when employees will not support this way of working and therefore oppose and avoid coming back to the office. On the other hand, the intention to leave is conceptualized as the desire to leave the firm in the near future. In this study, it is contextualized for the case that the firm does not facilitate a hybrid workplace arrangement. To conclude, we draw our proposed model within the framework of social cognitive theory to explain employees' cognitive perceptions (openness to digital

change, performance, and personal outcome expectations) regarding their preferences for a hybrid workplace setting and the resulting behavior of pure office resistance or willingness to leave. The conceptualization can be found in Table 6.1.

Construct	Conceptualization	Source
Openness to Digital Change	Interest in exploring new ways of working with a curiosity for digital technologies	Thatcher et al. (2018) Nov & Ye (2008)
Performance Outcome Expectations	Beliefs in positive and job-related consequences that follow a specific behavior	Compeau & Higgins (1995)
Personal Outcome Expectations	Beliefs in individual sets of accomplishments as consequences that follow a specific behavior	Compeau & Higgins (1995)
Hybrid Workplace Preference	Favor of a workplace arrangement where employees balance working from home and in the physical office	Adapted based on Kane et al. (2021)
Office Resistance	Lack of support from employees for a different way of working and avoidance of coming back to the office	Adapted based on Lapointe & Rivard (2005)
Willingness to Leave	Desire to leave the firm within the near future if the firm does not facilitate a hybrid workplace setting	Adapted based on Kim & Kankanhalli (2009)

Table 6.1 Conceptualization of key constructs.

6.4 Hypotheses development

6.4.1 *Openness to digital change and hybrid workplace preference*

Decisions on individual preferences can be explained by personal resources (Edmondson & Mortensen, 2021). Employees with exposure to digital change might be likely to work in a hybrid workplace setting as this arrangement offers an opportunity for benefiting from both remote and collocated work. Digitally open individuals prefer having a flexible schedule during their workweek. These kinds of people might further be well prepared to work remotely as they possess the skills and competencies to experiment with new ways of technologies. Remote work offers higher autonomy and scheduling (Ratz et al., 2021), which digitally open employees prefer. This might also be connected with higher satisfaction and increased well-being (Ratz et al., 2021). We propose that being able to manage technologies means being able to provide resources to work in a hybrid workplace and balancing remote and office work (Incerti et al., 2020). This might be justified by being aware of the situation and focus on the

tasks in a remote setting (Luo et al., 2019). Moreover, individuals with openness to digital change are curious, try new things, and want to navigate in a digital world. However, digitally open employees are also interested in social interaction, building relations, learning, and mentoring. These opportunities are often encouraged in the physical office (Kane et al., 2021), so digitally open employees might prefer a hybrid workplace. This would give digitally open employees opportunities to develop themselves and grow. Digitally open people are also interested in clear communication and building relations in the workplace (Fosslien & West-Duffy, 2021). As transparency is critical for digitally open people, having some time in the office for information sharing might be preferred as this indicates fewer communication issues (Fosslien & West-Duffy, 2021). Moreover, innovation is also critical in a digital workplace (Kane et al., 2021). Some tasks are better done in person, and hybrid solutions might offer digital open employees' the opportunities for that. Employees want opportunities to develop in an environment where they can demonstrate their digital abilities (Kane et al., 2017). Overall, we propose that employees that are open to digital change prefer working in a hybrid setting because of the flexibility of remote arrangements (e.g., higher productivity and better time management) and office experiences (e.g., social interaction and innovation). Therefore, we hypothesize:

Hypothesis 1 (H1): Employees' openness to digital change positively influences their hybrid workplace preference.

6.4.2 Mediating role of performance and personal outcome expectations

Besides proposing a direct effect from employees' openness to digital change towards hybrid workplace preference, there might also be two mediating instances. In particular, performance outcome expectations can act as a mediator because digitally oriented employees expect higher effectiveness, quality, and quantity of their job for several reasons (Compeau et al., 1999). First, digitally open employees' might be able to build their own routine in a hybrid workplace arrangement. For instance, in the remote workplace setting, they can have a clear schedule and boundaries for the work-life situation. For the office situation, they would clearly know that they can focus more on collaborating than "getting things done". Second, we might expect the ability to better focus on the job tasks themselves as they do not have to commute and there is no direct disturbance from co-workers. Also, previous research showed that productivity in remote situations is higher (Meske & Junglas, 2021). As less than 50% per day is spent on collaboration and more on individual-focus tasks (Hoskins, 2021), digitally open employees can highlight that innovation and social interaction do not mainly take place on a remote day. As digitally genuine individuals are also mindful of technology usage, they might

pay attention to performing their work effectively in a hybrid setting (Luo et al., 2019). They can follow their tasks focused and without frustration. Digitally open employees' might be aware that working in a hybrid workplace enables task completion while being sensitive to how this workplace setting affects the job (Thatcher et al., 2018). Therefore, they expect to be capable of using these to achieve the goals of the job and thus might expect more positive performance outcomes from working in a hybrid workplace setting (Compeau et al., 1999). Consequently, we posit that employees who are more open towards digital disruptions will be more likely to prefer hybrid job settings as they feel that their job performance may increase:

Hypothesis 2 (H2): The relationship between employees' openness to digital change and hybrid workplace preference is mediated by performance outcome expectations.

Digitally open personalities might think that perceived competence, a promotion, or a raise might result from working in a hybrid workplace. This is motivated by several aspects: first, employees who are open to digital change might reduce mindless actions and thereby expect to achieve personal outcome expectations when working in a hybrid setting (Luo et al., 2019). Next, they can show their digital skills and competencies, which might lead to their understanding of being perceived as competent by colleagues, supervisors, or the social environment. If they can navigate well in this workplace environment in a digital world, this might also lead to the perceived chance of a promotion and raise. Being able to manage the work in a hybrid workplace and preferring this arrangement might also be mediated by personal outcome expectations as persons might feel that they get more encouraged, and others might value their abilities. The preference is even increasing with those personal outcome expectations in mind because they tend to prefer environments where they can develop. Furthermore, digitally open people might be more balanced at home, and when people are in the office, they can focus on deep teamwork with collaboration. This might lead to the thought of being perceived as exceptionally competent in the office and during social interaction because the person can show off their skills and creativity during this specific time. People might also think that working in a hybrid workplace increases autonomy (Ratz et al., 2021) which reflects in the relation to a potential promotion. Overall, the emotional regulation of digitally open employees might also lead to higher satisfaction and increased well-being if the employee successfully manages the work in a hybrid solution (Kane et al., 2021; Ratz et al., 2021). Thus, we hypothesize a mediating role of personal outcome expectations in the relationship from openness to digital change to hybrid workplace preference:

Hypothesis 3 (H3): The relationship between employees' openness to digital change and hybrid workplace preference is mediated by personal outcome expectations.

6.4.3 *Relation between hybrid workplace preference and office resistance*

As individuals are favorable to engaging in a behavior they expect to be rewarded (Compeau & Higgins, 1995), we suppose that employees with a hybrid workplace preference might resist pure office settings. Digitally open employees might not aim to return to the office due to a lack of interest in this work. They might prefer taking advantage of the remote and office solutions and not lose the flexibility and autonomy to do so. Employees are unwilling to return to the pre-pandemic status and perceive a potential pure office arrangement as a threat. Following, they do not have enough room to balance their work-life-situation, and resisting would be worth the consequences (Laumer, 2011). We expect hybrid workplace preferences to lead to office resistance because there might be a persistence of former behavior (Kim & Kankanhalli, 2009). People would find excuses not to work in the office again. This might further result in strikes, boycotts, or sabotage as they prefer to stay with the current hybrid situation (Kim & Kankanhalli, 2009). This is mainly justified because people choosing a hybrid situation do not want to go back to a behavior that does not meet their interests and values that they build up in the last years. Finally, as the intention to perform behaviors leads to a specific behavior like resistance, it is proposed that:

Hypothesis 4 (H4): A preference for hybrid workplace settings positively influences employees' resistance to pure office settings.

6.4.4 *Hybrid workplace preference and willingness to leave*

Willingness to leave might be an outcome of a hybrid workplace preference. If the relative benefit or value is not given from this way of working and they feel restricted in their plans, employees might aim to break out from the unliked arrangement. Hence, leaving the firm and finding a new job might be more plausible. Thereby, an assessment of the transition and uncertainty costs in relation to the benefits of the office arrangement might occur (Kim & Kankanhalli, 2009). If the loss is too big, a willingness to leave increases as individuals consider their mental health (e.g., technology addiction, mindfulness, psychological detachment, stress). Additionally, as psychological safety is critical for employees (Edmondson & Mortensen, 2021), they do not like a workplace setting that is not their preference. Overall, employees preferring a hybrid workplace arrangement already inhabited the advantages of this mixed-method and do not want to let go of that flexibility. Following that, we postulate:

Hypothesis 5 (H5): A preference for hybrid workplace settings positively influences employees' willingness to leave the organization if forced to work in a pure setting.

Figure 6.1 displays the proposed model with an overview of the hypotheses.

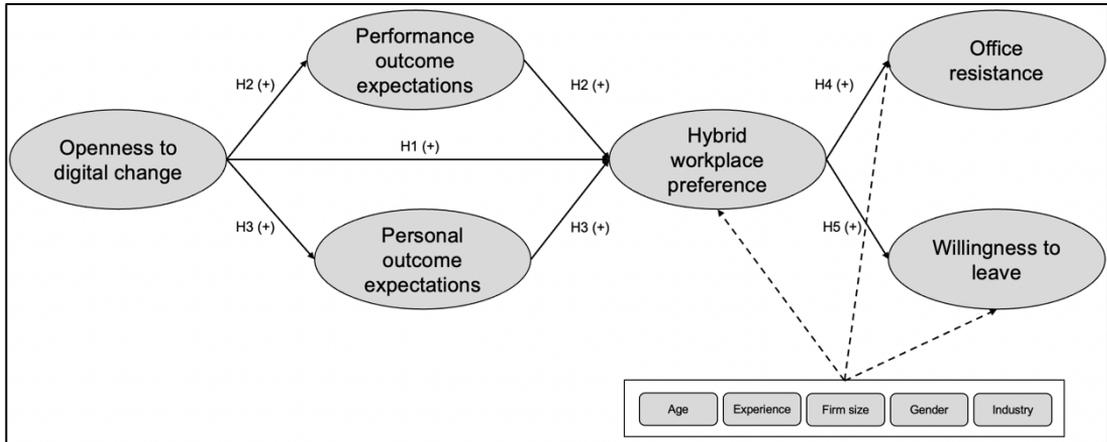


Figure 6.1 Proposed research model.

6.5 Research method and setting

6.5.1 Data and sample

We used survey data to evaluate the proposed hypotheses. With this approach, the well-known market research firm Qualtrics electronically contacted U.S. employees over 18 years that work in an office-environment job. The data collection took place in March 2022 and resulted in the collection of 442 surveys, of which 417 were valid after an initial quality screening. Furthermore, before assessing the suggested model, we did a statistical power analysis with G*Power 3.1 (<http://www.gpower.hhu.de/>) (Faul et al., 2009). The minimum sample size that ensures robustness and generalizability is 160, assuming a medium effect size ($f^2 = 0.150$), a statistical power level of 0.95, eight predictors, and an alpha level of 0.05 (Cohen, 1988; Nitzl, 2016). With a sample size of 417, we have enough statistical power to examine the statistical significance of the suggested research model.

On average, respondents were around 38 years old and had been with the firm for approximately ten years. The sample was well balanced in terms of gender, with 57% female respondents. Employees' positions were divided between manager (31%), associate (31%), c-level and director (16%), entry-level (15%), and others (7%). Respondents' employers mainly possess between 100 and 499 employees and are in the following industries: financial and professional services (23%), consumer goods and entertainment (19%), health care (17%), manufacturing (12%), IT and telecommunications (13%), and others (16%). Employees want to work remotely 3.3 days in a 5-day workweek (66%) which equals 1.7 days (34%) in the office (SD=1.6). Table 6.2 shows the descriptive statistics.

		N	%
Employee Headcount	<i>1-9</i>	49	12
	<i>10-24</i>	50	12
	<i>25-99</i>	79	19
	<i>100-499</i>	95	23
	<i>500-999</i>	55	13
	<i>1000-4,999</i>	43	10
	<i>5,000+</i>	46	11
Industry	<i>Consumer Goods and Entertainment</i>	78	19
	<i>Financial and Professional Services</i>	96	23
	<i>Health Care</i>	69	17
	<i>IT and Telecommunication</i>	59	13
	<i>Manufacturing</i>	49	12
	<i>Others</i>	66	16
Position	<i>Entry-level</i>	64	15
	<i>Associate</i>	129	31
	<i>Manager</i>	128	31
	<i>C-Level and Directors</i>	67	16
	<i>Others</i>	29	7
Gender	<i>Male</i>	179	43
	<i>Female</i>	236	56.5
	<i>Non-Binary</i>	2	0.5

Table 6.2 Descriptive statistics.

6.5.2 Measurements

All items were assessed on a scale from 1 (totally disagree) to 7 (totally agree) and organized as first-order constructs. Constructs can be modeled as behavioral (latent variables) or design constructs (artifacts) (Benitez et al., 2020). Artifacts are made up of a variety of elements and often portrayed as a result of theoretical thinking. The constructs in our model are conceived as artifacts and represented as composites. Openness to digital change was measured with three items from Thatcher et al. (2018), assessing the extent to which the person (1) likes to investigate different ways of using digital technologies, (2) is very curious about different ways of using digital technologies, and (3) likes to figure out different ways of using digital technologies. Performance outcome expectations consisted of three items from Compeau et al. (1999) and measured if the person expects an (1) increased effectiveness on the job, (2) improved quality of output of the job, and (3) increased quantity of output for the same amount of effort when working in a hybrid workplace setting. Similarly, personal outcome expectations were measured with three items regarding (1) if people perceive them as competent, (2) increased chances of obtaining a promotion, and (3) increased chances of getting a raise (Compeau et al., 1999). Hybrid workplace preference was measured with three adapted items

from a behavioral intention scale (Venkatesh et al., 2012). Thereby, we assessed if the employee (1) intends to work in a hybrid workplace arrangement in the future, (2) will always try to work in a hybrid workplace setting, and (3) would like to work in a hybrid workplace setting if they could. The three items to measure the pure office resistance were adapted from Bovey & Hede (2001) and assessed the extent to which the respondent will oppose, avoid, and not support this way of working. Willingness to leave was evaluated with two items measuring if the respondent is (1) likely to leave the organization in the next 12 months and (2) does not desire and intend to remain at this company if the firm they are currently working with will not realize a hybrid workplace setting in the future.

Additionally, we included five variables to control the influence of age, experience, firm size, gender, and industry on the dependent variables in the proposed model (hybrid workplace preference, office resistance, and willingness to leave). First, it is reasonable that the employee's age is a critical predictor of hybrid workplace preference (Venkatesh et al., 2012). Younger respondents are more flexible regarding the workplace situation, while older people are not that favorable towards this setting as they are used to the traditional way (Hauk et al., 2018). Also, age might influence the office resistance and willingness to leave. Older people might not leave firm as they do not have as many opportunities as younger employees might have to find another job on the market. Therefore, they might intend to return to the office due to missing alternatives. Second, we included two questions for the respondent's experience, which were assessed by examining the extent (1-100%) to which their work was remote before and during the pandemic (Venkatesh et al., 2012). On the one hand, if they had low experience, respondents might not know this setting and therefore do not prefer it. On the other hand, if they have a great extent in terms of experience, this might be seen as a habit and therefore increases the resistance towards the pure office setting. Next, the employee headcount might influence the dependent variables as the workforce situation might correspond with the preferences. Also, different firm sizes might lead to strong or less developed regulations regarding the workplace design from the organizations, which might increase the behavioral intentions to resist the office or leave the firm. Fourth, previous studies showed a difference in technology adoption between females and males (Venkatesh et al., 2012). Therefore, varying preferences in terms of preferences and behavioral intentions might exist. As gender perspectives are a present topic in IS research (Gorbacheva et al., 2019), we decided to control for this variable. Finally, we included the industry of the respondents as employees from different sectors might perceive other factors influencing their behavior in the workplace (e.g., willingness to leave). For instance, technology firms like Twitter or Google,

which are built with a digital-first mindset, might prefer remote work as they are used to this way of working (Kane et al., 2021; Venkatesh et al., 2012) and at the same time it might be an option that these industries have a high number of younger employees with an increased willingness to leave, especially since the technology sector has a high fluctuation rate. An overview of the items can be found in Table 6.5 in the Appendix.

6.6 Empirical analysis and results

6.6.1 Measurement model evaluation

We used partial least squares (PLS) path modeling to test the proposed research model as it is widely utilized across IS research (e.g., Benitez et al., 2018; Compeau et al., 1999; Venkatesh et al., 2012). PLS is a structural equation modeling (SEM) method and a great technique to inaugurate explanatory research. It is also recommended when using compositive models in newly developed contexts like ours (Benitez et al., 2020). In particular, we used SmartPLS 3.0 software (Ringle et al., 2014), and the model evaluation took place in two steps. First, the measurement model was validated by checking the quality of the scales.

	1	2	3	4	5	6
1. Openness to Digital Change	0.808	0.448	0.460	0.471	0.042	0.048
2. Performance Outcome Expectations	0.406	0.874	0.859	0.832	0.213	0.276
3. Personal Outcome Expectations	0.397	0.750	0.736	0.762	0.256	0.292
4. Hybrid Workplace Preference	0.415	0.752	0.651	0.809	0.222	0.300
5. Office Resistance	0.004	0.194	0.220	0.201	0.848	0.561
6. Willingness to Leave	-0.025	0.245	0.243	0.263	0.494	0.871
<i>Note:</i> Values in the diagonal represent the AVE values, below the diagonal indicate the constructs' correlations, and above the diagonal are the HTMT ratios.						

Table 6.3 Measurement model evaluation.

To examine the measurement model, we assessed the compositive reliability, convergent validity, discriminant validity, and the significance of loadings. The scales showed good composite reliability with Cronbach's alpha values between 0.82 and 0.93, which is above the threshold of 0.70 (Cronbach, 1951). AVE values (average variance extracted) were checked to achieve convergent validity. This criterion also meets all values above 0.736 (Fornell & Larcker, 1981). For the discriminant validity, we looked at the heterotrait-monotrait (HTMT) ratios that are welcomed with values under 0.90 (Henseler et al., 2015). Besides, factor loadings of all items were higher than 0.70, which shows that they extract sufficient variance

(Hair et al., 2019). Lastly, the correlation matrix among the variables shows no values above 0.90 (Bagozzi et al., 1991), with the highest relation between performance and personal outcome expectations being 0.75. An overview of the measurement model evaluation can be found in Table 6.3.

6.6.2 Structural model evaluation

To empirically test the proposed model, we estimated the path coefficients for the direct and indirect effects, the t-values, confidence intervals, and the level of significance. We also evaluated the effect size (f^2) and exploratory power of the variables (R^2). The levels of significance were obtained by using bootstrapping with 5,000 subsamples. At first, we assessed the direct effects to test if openness to digital change affects hybrid workplace preference (H1) and whether hybrid workplace preference increases office resistance (H4) and the willingness to leave (H5). Findings show that openness to digital change significantly affects hybrid workplace preference ($\beta=0.104$, $p_{\text{one-tailed}}<0.05$). Moreover, hybrid workplace preference increases the office resistance ($\beta=0.162$, $p_{\text{one-tailed}}<0.01$) and the willingness to leave ($\beta=0.225$, $p_{\text{one-tailed}}<0.001$). Next, we did a mediation analysis to assess the hypothesized indirect effects of the mediation of performance outcome expectations (H2) and personal outcome expectations (H3). Results indicate that openness to digital change positively affects performance outcome expectations ($\beta=0.406$, $p_{\text{one-tailed}}<0.001$) and personal outcome expectations ($\beta=0.572$, $p_{\text{one-tailed}}<0.001$). Moreover, performance outcome expectations ($\beta=0.397$, $p_{\text{one-tailed}}<0.001$) and personal outcome expectations ($\beta=0.160$, $p_{\text{one-tailed}}<0.01$) increase hybrid workplace preference. Overall, these direct paths demonstrate that performance outcome expectations ($\beta=0.232$, $p_{\text{one-tailed}}<0.001$) and personal outcome expectations ($\beta=0.064$, $p_{\text{one-tailed}}<0.01$) both mediate the relationship between openness to digital change and hybrid workplace preference. Furthermore, the effects of the control variables show that experience positively influences office resistance ($\beta=0.299$, $p_{\text{two-tailed}}<0.001$) and willingness to leave ($\beta=0.145$, $p_{\text{two-tailed}}<0.01$). Moreover, firm size increases office resistance ($\beta=0.139$, $p_{\text{two-tailed}}<0.01$), while age negatively affects willingness to leave ($\beta=-0.154$, $p_{\text{two-tailed}}<0.01$). To conclude, the results support the five hypotheses of the proposed model, indicating that openness to digital change affects hybrid workplace preference (H1). At the same time, this relationship is also mediated by performance outcome expectations (H2) and personal outcome expectations (H3). Moreover, consequences of a hybrid workplace preference are revealed as office resistance (H4) and the willingness to leave (H5). Figure 6.2 and Table 6.4 provide further details on the structural model evaluation.

Hypothesized Direct Effects	Estimated β, t-value and CI
Openness to Digital Change → Hybrid Workplace Preference (H1)	0.104 [*] (2.256) [0.029, 0.183]
Hybrid Workplace Preference → Office Resistance (H4)	0.162 ^{**} (2.920) [0.070, 0.252]
Hybrid Workplace Preference → Willingness to Leave (H5)	0.225 ^{***} (4.480) [0.139, 0.305]
Hypothesized Indirect Effects	Estimated β, t-value and CI
Openness to Digital Change → Performance Outcome Expectations	0.406 ^{***} (7.735) [0.199, 0.492]
Performance Outcome Expectations → Hybrid Workplace Preference	0.572 ^{***} (9.138) [0.464, 0.669]
Openness to Digital Change → Performance Outcome Expectations → Hybrid Workplace Preference (H2)	0.232 ^{***} (5.950) [0.169, 0.296]
Openness to Digital Change → Personal Outcome Expectations	0.397 ^{***} (7.724) [0.312, 0.482]
Personal Outcome Expectations → Hybrid Workplace Preference	0.160 ^{**} (2.824) [0.071, 0.257]
Openness to Digital Change → Personal Outcome Expectations → Hybrid Workplace Preference (H3)	0.064 ^{**} (2.634) [0.027, 0.107]
Control Variables	Estimated β, t-value and CI
Age → Hybrid Workplace Preference (CV)	-0.044 (1.436) [-0.106, 0.015]
Age → Office Resistance (CV)	-0.060 (1.176) [-0.161, 0.040]
Age → Willingness to Leave (CV)	-0.154 ^{**} (3.346) [-0.244, -0.062]
Experience → Hybrid Workplace Preference (CV)	0.034 (0.911) [-0.040, 0.108]
Experience → Office Resistance (CV)	0.299 ^{***} (4.542) [0.130, 0.328]
Experience → Willingness to Leave (CV)	0.145 ^{**} (2.839) [0.044, 0.245]

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Firm Size → Hybrid Workplace Preference (CV)	-0.003 (0.098) [-0.074, 0.066]
Firm Size → Office Resistance (CV)	0.139** (2.917) [0.046, 0.231]
Firm Size → Willingness to Leave (CV)	0.087 (1.928) [-0.001, 0.176]
Gender → Hybrid Workplace Preference (CV)	-0.022 (0.667) [-0.085, 0.045]
Gender → Office Resistance (CV)	-0.041 (0.859) [-0.134, 0.052]
Gender → Willingness to Leave (CV)	0.007 (0.138) [-0.080, 0.096]
Industry → Hybrid Workplace Preference (CV)	0.075 (0.895) [-0.132, 0.150]
Industry → Office Resistance (CV)	0.026 (0.393) [-0.117, 0.140]
Industry → Willingness to Leave (CV)	0.024 (0.392) [-0.135, 0.142]
Explanatory Power	R² Adj. R²
Performance Outcome Expectations	0.165 0.163
Personal Outcome Expectations	0.158 0.156
Hybrid Workplace Preference	0.602 0.594
Office Resistance	0.119 0.106
Willingness to Leave	0.127 0.114
Effect Size	f²
Openness to Digital Change → Hybrid Workplace Preference	0.021
Openness to Digital Change → Performance Outcome Expectations	0.197
Openness to Digital Change → Personal Outcome Expectations	0.187
Performance Outcome Expectations → Hybrid Workplace Preference	0.335
Personal Outcome Expectations → Hybrid Workplace Preference	0.027
Hybrid Workplace Preference → Office Resistance	0.028
Hybrid Workplace Preference → Willingness to Leave	0.054
Note: *p < 0.05, **p < 0.01, ***p < 0.001, two-tailed test for control variables and one-tailed test for other relationships.	

Table 6.4 Structure model evaluation.

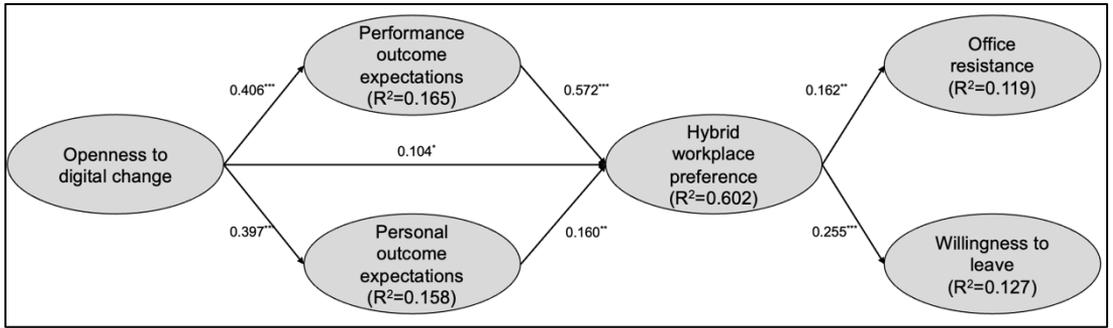


Figure 6.2 Proposed model with results.

6.7 Discussion and conclusion

6.7.1 Summary of findings

This paper empirically tested the proposed model with survey data of 417 U.S. employees working in an office environment job. Findings bring evidence that employees' openness to digital change impacts hybrid workplace preference. This relationship is also mediated by the expected performance outcomes and personal outcome expectations. Furthermore, our results reveal that employees' hybrid workplace preference increases the pure office resistance and the willingness to leave the organization if the preferred setting is not implemented. These findings help answer the initial research questions regarding the effect of employees' openness to digital change on hybrid workplace preference (RQ1) and the consequences if the organization does not meet employees' hybrid workplace preferences (RQ2). We understand that digitally open employees prefer a hybrid workplace arrangement and are willing to resist and leave the firm if they do not get their preference. Lastly, our analysis identified some unhypothesized relationships.

First, we determined that experience positively influences office resistance, which leads to the assumption that especially employees who are used to working in a hybrid workplace do not like to go back to other ways of working. This might be explained by the perceived benefits of this flexible workplace solution. Second, we found that experience positively influences the willingness to leave. This shows that digitally open employees might not have an issue finding a new job in a different organization meeting their requirements. Third, we found that firm size increases office resistance. This indicates that the workplace situation in larger companies might be an additional critical thing to consider. It seems like employees of bigger firms are not satisfied with the workplace design itself. This might be related to noise or space arrangements (Hoskins, 2021). Lastly, we see that age negatively affects the willingness to leave, which leads to the assumption that younger employees are more flexible and open to changing their job as they want to look for an impactful and beneficial position. Overall, we

determine how individual cognitive perception (openness to digital change, performance outcome expectation, and personal outcome expectation) influences the intention to perform a specific behavior (hybrid workplace preference) and finally impacts the behavioral action (office resistance and intention to leave).

6.7.2 Theoretical contributions

Our work reveals valuable insights demonstrating the relevance of hybrid workplace settings to attract and keep digitally open employees in the current competitive labor market. Based on that, we highlight four main theoretical contributions from our research. First, we advance IS literature in theory building by empirically testing the idea that employees that are open to digital change aim for a hybrid workplace setting. Findings show that digitally open employees are actually very strict about the consequences and willing to leave if they do not get the preferred hybrid environment. As previous results are primarily exploratory (e.g., Kane et al., 2021), we confirm the idea that a hybrid workplace might attract digitally open employees with empirical data. Thereby, we also conceptually introduce a measurement for hybrid workplace preference. This construct can now be used for future research directions elaborating on other factors that influence the likeliness of employees towards a hybrid workplace setting. Second, we offer a rich explanation of what consequences fully remote, or pure in-person workplace arrangements have for organizations. Thereby, we provide compelling evidence that employees are serious about their requirements of a hybrid solution as they expect both performance and personal outcomes. Findings support previous literature around resistance, indicating that people do not follow instructions if they do not meet their intentions (Lapointe & Rivard, 2005). We highlight that the firm's workplace strategy must be guided by the individual choice and decisions of employees. Third, we adapt the social cognitive theory to the current digitally disruptive era. We include openness to digital change as the initial component leading to performance and personal outcome expectations. We conceptualize openness to digital change as the interest in exploring new ways of working with a curiosity for digital technologies and adapting it to a new context. Thereby, we complement former literature on the concept of computer self-efficacy and update this predictor to the digital world. Finally, our findings show the balance of remote and office jobs with a flexible schedule leads to the best outcomes for employees and organizations.

6.7.3 Implications for practice

We can also derive several implications for practice from this study. As this study finds empirical evidence that digitally open employees want to work in a hybrid workplace setting, we show that people do not finch to resist other ways of working (i.e., pure office setting) and

are moreover willing to leave the organization if they do not get their preferred hybrid workplace arrangement. Based on that, we recommend firms facilitate this way of working. Thereby, it is not only about enabling this setting, but firms also must coach, teach, and encourage employees (Baskin, 2022). Thereby, firms can create confidence in employees' abilities to achieve potential performance and personal outcomes (Compeau et al., 1999). When offering this way of working, organizations must foster asynchronous collaboration tools and, at the same time, also find solutions for including remote participants (Kane et al., 2021). Managers must consider the individual perspective and see what is critical for employees, as personalization is crucial to meet their needs (Subel et al., 2022). In sum, an initial workplace transformation does not have to be perfect in the beginning but can be developed. Overall, the flexibility in a hybrid workplace is critical, nevertheless, leaders must also ensure a clear and transparent accompaniment of the balance between in-person and remote employees (Odom et al., 2022). On the one hand, leadership and culture are critical to empowering this way of working in changing settings. Leaders must learn how to manage in-person and virtual arrangements, provide employees with the resources needed (e.g., technologies or transparent structures), and should encourage psychological safety. At the same time, they should respect employees' privacy (Teebken & Hess, 2021) and create an environment that promotes a digital culture to exchange ideas and motivate conversations. Clear communication as part of a healthy culture is advantageous for sharing opportunities and challenges. For instance, the U.S. multinational technology corporation *IBM* adjusted its culture to include all employees independently from their workplace setting (Hinds & Elliot, 2021). There might be a blurry line between work and personal time in a remote environment, so leaders should encourage mindful usage to reduce stress (Pflügner, 2022). On the other hand, organizations must enable a great workplace experience in the physical office. For example, it is recommended that employees go into the office on the same day or time so that when the team is together, they are more effective and use the time meaningful. This might foster innovation and increases the interaction with colleagues. Firms can also reevaluate workplace design (i.e., ergonomics) and invest in people-centric resources (Hoskins, 2021). For example, employees still want dedicated desk spaces as this is related to employee ownership (Kane et al., 2021). Office configurations could also be adjusted to task types (e.g., meetings or creativity workshops) and make use of schedules, space, and technology (Laker, 2021). For example, new concepts like hub-and-spoke work models can be considered a forward-thinking hybrid model with offices in different cities (Laker, 2021). This offers a great cultural experience while leveraging technologies to optimize this experience.

6.7.4 Limitations and future research opportunities

Derived from these theoretical and practical implications, this work offers future research opportunities to move forwards from our limitations. First, the results identified the critical role of personal perceptions (openness for digital change, performance, and personal outcome expectations) for hybrid workplace preference. Nevertheless, this is limited to the individual level, and future research could also investigate the role of the organization toward this preference. For instance, organizational readiness in terms of digital transformation and technologies or leadership styles might play a role in this context. Second, the findings offer a base for further confirmation of the proposed model. Our empirical evidence and the conceptualization of hybrid workplace preference is an opportunity to replicate similar research with a larger sample size in a different country or industry. Finally, we identified four significant relationships of the control variables. Future research could investigate these connections (firm size impacts and office resistance) on a deeper level or include other control variables. For instance, companies with a high number of employees struggle even more to bring people back to the office. This might be due to smaller workspaces for employees' higher noise levels (Hoskins, 2021). Additional variables that might be considered for future research can be intrinsic motivation and overall satisfaction, as these might affect performance and personal outcome expectations as well as the final dependent variables.

The present research examined the positive influence of openness to digital change and hybrid workplace preferences. We were able to highlight the relevance of performance and personal outcomes as mediators in this relationship. With this study, we also prove that employees preferring a hybrid workplace arrangement will resist pure office settings or have the willingness to leave. Consequently, this paper contributes to IS research and practitioners with implications for future workplace transformations.

6.8 References

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6.9 Appendix

From 1 (strongly disagree) to 7 (strongly agree)	Mean	SD	Loading
Openness to Digital Change (composite Mode A)			
I like to investigate different ways of using digital technologies.	5.149	1.442	0.893***
I am very curious about different ways of using digital technologies.	5.362	1.370	0.893***
I like to figure out different ways of using digital technologies.	5.429	1.256	0.911***
Performance Outcome Expectations (composite Mode A) <i>When working in a hybrid workplace setting ...</i>			
I will increase my effectiveness on the job.	5.031	1.552	0.932***
I will improve the quality of the output of my job.	5.170	1.554	0.945***
I will increase the quantity of output for the same amount of effort.	5.189	1.547	0.927***
Personal Outcome Expectations (composite Mode A) <i>When working in a hybrid workplace setting ...</i>			
People will perceive me as competent.	5.012	1.512	0.805***
I will increase my chances of obtaining a promotion.	4.875	1.496	0.892***
I will increase my chances of getting a raise.	4.976	1.503	0.873***
Hybrid Workplace Preference (composite Mode A)			
I intend to work in a hybrid workplace setting in the future.	4.712	1.800	0.891***
I will always try to work in a hybrid workplace setting.	4.691	1.791	0.894***
If I could, I would like to work in a hybrid workplace setting.	5.170	1.686	0.912***
Office Resistance (composite Mode A) <i>If my employer indicates that I must work fully in the office ...</i>			
I will oppose this way of working.	3.998	2.029	0.885***
I will avoid this way of working.	4.022	2.005	0.955***
I will not support this way of working.	4.072	2.011	0.922***
Willingness to Leave (composite Mode A): <i>If the firm, I am currently working with will not realize a hybrid workplace in the future ...</i>			
I am likely to leave this organization in the next 12 months.	3.849	1.991	0.937***
I do not desire and intend to remain at this company.	3.961	2.055	0.929***
<i>Note: *p < 0.05, **p < 0.01, ***p < 0.001.</i>			

Table 6.5 Overview of items.

7 Discussion and conclusion

7.1 Summary of dissertation output and overall contribution

This dissertation explores the framework of digital transformation with five connected studies and thereby addresses the overall research question of how the phenomenon impacts the organizational and employee level. By aiming for this main purpose, findings ensure theoretical and practical advancement. The academic objective was to clarify the concept of digital transformation success, identify facilitators (i.e., dynamic capabilities and digital cultural values), recognize the impact of digital transformation success on the employee experience, and gain new knowledge on how to transform the workplace for the future of work.

By answering the first research question on how companies can achieve digital transformation success (RQ 1), the exploratory study contributes to academia by clarifying the framework of leveraging dynamic capabilities and digital cultural values. The study also contributes to consolidating the concept of digital transformation (objective 1.1) with the four dimensions digital-first mindset, digitized practices and operations, empowered talent, and data access and collaboration tools (Bonnet et al., 2015). By addressing objective 1.2 to build a foundation for future empirical research, dynamic capabilities were consolidated within the digital transformation perspective. Findings show that absorptive capacity and customer-centricity capability as sensing capabilities, organizational agility and cross-functional collaboration as seizing capabilities, and innovation capability and networking capability as transforming capabilities must play a role in digital transformation literature. Another contribution resulting from this study is the addition of the dimension of digital cultural values in the framework of digital transformation. Results show that the integration of digital cultural values (continuous learning and development, ethics and data governance, and digital leadership) leads to digital transformation success. Overall, objectives 1.1 and 1.2 answer the first research question by creating a framework of relevant components leading to digital transformation success.

To clarify critical dynamic capabilities that enhance digital transformation success (objective 2.1), and to examine how digital transformation success affects firm performance (objective 2.2) the second article integrated the organizational capabilities-based theory with a holistic understanding of the digital transformation perspective and thereby empirically evaluated the critical dynamic capabilities needed for digital transformation success. Besides, an outcome of this study is the development of measurement for digital transformation success. In the end, the second paper responds to the questions of which strategic capabilities enhance digital transformation success (RQ 2.1) and how this can improve firm performance (RQ 2.2)

by designing implications for organizations. Results provide insightful recommendations proving the relevance of digital transformation.

The contribution of the third paper lies in a broad perspective by identifying the factors that can increase organizational commitment in the digital game (RQ 3). First, the study offers an empirical exploration of the impact of digital transformation on employees' experience and supports an explanation of how digital transformation needs digital leadership and continuous learning to achieve organizational commitment (objective 3.2). With the integration of organizational science into the digital transformation perspective, this work recognizes the role of digital leadership and continuous learning in the framework of digital transformation (objective 3.1). Although the role of digital culture for digital transformation success was highlighted in the first paper, the third study ensures an improved clarification of the relationship. More precisely, the academic output is that organizations must foster digital leadership and continuous learning to make employees stay after digital transformation processes.

The fourth paper introduces the concept of digital workplace transformation in this dissertation. As the organizational environment changes during digital disruptions (Kane et al., 2021), new requirements for employees in the digital future evolve. Thus, this study explores the future skills of employees in the digital workplace. The research purpose is to understand what is required from the employees in the digital environment (objective 4.1). Moreover, by addressing this research interest, the findings reveal knowledge of future cognitive and metacognitive, social-emotional, and practical skills (objective 4.2). Overall, the objective to answer this research question is to explore a set of abilities that are critical in the digital workplace (objective 4.3). This builds a theoretical linkage between organizational requirements and employees' responses in the future workplace and a practical contribution to how to upskill the workforce and what abilities to look out for to recruit new employees. The study's relevance for this dissertation is the exploratory understanding of essential skills for the digital workplace and a theoretical foundation for future empirical investigations of cognitive and metacognitive, social-emotional, and practical skills. Further, this study derives implications for businesses on how to upskill the workforce and whom to recruit in the future workplace.

The fifth paper closes the bracket of this dissertation by deeply exploring the shifted preferences within the digital transformation framework from the employee level. Thereby, results reveal the individual perceptions and preferences of employees concerning the preferences in the future workplace (objective 5.1). In particular, openness to digital change

increases the hybrid workplace preference of employees. Moreover, this relationship is extended by the mediating role of performance and personal outcome expectations. This is opening a new field of research and leading to further theoretical advancements in terms of how to attract the digitally open generations in the workforce, especially as it shows that they expect a better consequence of their work in a hybrid setting. Findings of the last study also bring new knowledge regarding the relationship between hybrid workplace preference towards office resistance and willingness to leave (objective 5.2). This helps to evaluate potential consequences if employees' hybrid workplace preference is not met and is a strong finding showing the importance of a hybrid workplace arrangement. Based on these contributions, the two sub-research questions (RQ 5.1 and RQ 5.2) can be answered, and guidelines for future digital workplace transformations for research and academia can be developed (objective 5.3). Lastly, with this quantitative study, a measurement for hybrid workplace preference was introduced. This offers a base for other researchers to validate a reliable measurement and to integrate and establish it in the IS literature. An overview of the overall contribution of the five papers is displayed in Table 7.1.

	Objective	Contribution
Paper A	<p><i>Objective 1.1</i> To study the understanding of digital transformation</p> <p><i>Objective 1.2</i> To identify facilitators for digital transformation success</p> <p><i>Objective 1.3</i> To build an exploratory foundation for future empirical research</p>	<p><i>Contribution 1.1</i> Clarification of the concept of DT with four dimensions</p> <p><i>Contribution 1.2</i> Consolidation of dynamic capabilities in the digital transformation literature</p> <p><i>Contribution 1.3</i> Adding the dimension of digital cultural values</p> <p><i>Contribution 1.4</i> Development of a framework of facilitators for digital transformation success</p>
Paper B	<p><i>Objective 2.1</i> To clarify critical strategic capabilities that enhance digital transformation success</p> <p><i>Objective 2.2</i> To examine firm performance as the outcome of digital transformation success</p>	<p><i>Contribution 2.1</i> Integration of the organizational capabilities-based theory with a holistic understanding of the digital transformation perspective</p> <p><i>Contribution 2.2</i> Evaluation which dynamic capabilities are crucial for digital transformation success</p> <p><i>Contribution 2.3</i> Development of a measurement for digital transformation success</p> <p><i>Contribution 2.4</i> Design of implications for organizations on how to increase firm performance initiated through digital transformation</p>

Paper C	<p><i>Objective 3.1</i> To recognize the role of digital leadership and continuous learning in the framework of digital transformation</p> <p><i>Objective 3.2</i> To provide an understanding what factors lead to organizational commitment in the digital game</p>	<p><i>Contribution 3.1</i> Empirical exploration of the impact of digital transformation on employees' experience</p> <p><i>Contribution 3.2</i> Explanation how digital transformation needs digital leadership and continuous learning to achieve organizational commitment</p> <p><i>Contribution 3.3</i> Integration of organizational science into the digital transformation perspective</p>
Paper D	<p><i>Objective 4.1</i> To understand what is required from the employees in the digital environment</p> <p><i>Objective 4.2</i> To gain knowledge on future cognitive and metacognitive, social-emotional, and practical skills</p> <p><i>Objective 4.3</i> To explore a set of abilities that are critical in the digital workplace</p>	<p><i>Contribution 4.1</i> Exploratory understanding of essential skills for the digital workplace</p> <p><i>Contribution 4.2</i> Theoretical foundation for future empirical investigations of cognitive and metacognitive, social-emotional, and practical skills</p> <p><i>Contribution 4.3</i> Implications for businesses and leaders on how to upskill the workforce and what to recruit in the future workplace</p>
Paper E	<p><i>Objective 5.1</i> To assess employee's workplace preferences</p> <p><i>Objective 5.2</i> To evaluate potential consequences if a hybrid workplace preference is not met</p> <p><i>Objective 5.3</i> To develop guidelines for future workplace setting</p>	<p><i>Contribution 5.1</i> Proof that openness to digital change leads to hybrid workplace preference</p> <p><i>Contribution 5.2</i> Extension of this relationship by introducing the mediating effect of performance and personal outcome expectations</p> <p><i>Contribution 5.3</i> New knowledge on the relationship of hybrid workplace preference towards the two outcome variables office resistance and intention to leave</p> <p><i>Contribution 5.4</i> Introduction a measurement for hybrid workplace preference</p>

Table 7.1 Objectives and contribution of the dissertation.

7.2 Theoretical implications for academic research²

The contribution from the multilevel investigation offers future avenues of research, and lessons learned derived that result in the framework of digital transformation. This theoretical foundation is summarized in an integrated framework as shown in Figure 7.1. The scientific contributions of this dissertation advance research around digital transformation in several ways. As displayed in the illustration, the latter is clustered in the three research streams that draw through the entire dissertation.

² The implications are partly excerpts from previous research articles of this dissertation.

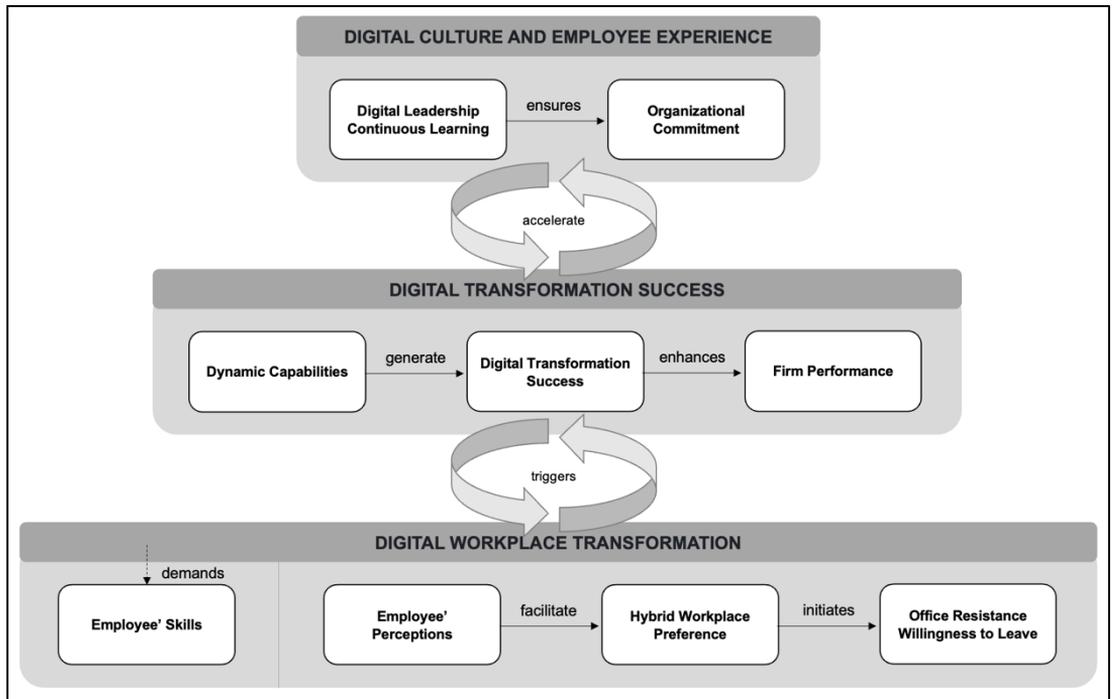


Figure 7.1 An integrated framework of digital transformation.

The first cluster of implications (digital transformation success) results from the contributions of paper A and paper B, which focused on identifying the factors that facilitate digital transformation success. This approach reinforces the idea of digital transformation as a broad redefinition of business value and organizational identity (Wessel et al., 2021). The work finds a holistic conceptualization as a multidimensional construct with four dimensions, that are digital-first mindset, digitized practices and operations, empowered talent, and data access and collaboration tools (Bonnet et al., 2015). The first two papers distinguish from previous conceptualizations (e.g., Chanas et al., 2019) and find that digital transformation is a complex procedure with a broad scope, created by a technology-enabled shift of value creation across organizations (i.e., business model and strategy, operations and processes, people and culture, and tools and data). This contributes to existing research by showing that actions on different levels within the organizational environment are critical to succeed in a changing environment (Vial, 2019). Findings show businesses that achieve digital transformation success possess a digital-first mindset, follow an open approach toward opportunities regarding digital products and services, and prioritize digital solutions compared to traditional ones (Bhardwaj et al., 2013; Gurbaxani & Dunkle, 2019). Those companies have further realized a digital business strategy and went through a process of learning and doing (Chanas et al., 2019) that again led to digitized practices and operations (e.g., automated

processes and data-driven decision-making) (Soluk & Kammerlander, 2020). Finally, the results highlight that success during digital transformation might be recognized by organizations' innovative work with customer operations data (Kane et al., 2021; Vial, 2019). The findings of the first studies show that the development of a set of six dynamic capabilities (absorptive capacity, organizational agility, customer-centricity capability, cross-functional collaboration capability, innovation capability, and relational capability) is required as an enabler of digital transformation success. At the same time, results show that digital cultural values (continuous learning and development, ethics and data governance, and digital leadership) may accelerate transformational processes. These findings contribute to previous work on dynamic capabilities across disciplines that have recently been critically reviewed (Steininger et al., 2022). The work yields a comprehensive understanding of a portfolio that covers sensing, seizing, and transforming capabilities. This completes research on nine microfoundations for strategic renewal in the digital environment (Warner & Wäger, 2019).

The multifaceted theoretical contribution of the first cluster exploring the framework of digital transformation success contributes to IS literature with the newly introduced digital transformation perspective and the empirical validation of this matter. The results of the two studies expand previous literature on the role of IT as a competitive tool by enlarging it to digital transformation from a holistic and overarching perspective (Hess et al., 2016). Prior work lacked identifying critical capabilities to guide firms towards a successful digital transformation (Verhoef et al., 2021), and this dissertation theoretically contributes to existing capability conceptualizations by providing a greater understanding and extending the IT focus (e.g., digital-first mindset or empowered talent) and facilitating empirical evidence. Moreover, findings significantly show the influence of digital transformation success on firm performance. This is implicating the high relevance of this topic for corporations to stay competitive in the future. Hence, it is a pinpoint for further IS research that can build on this conceptualization.

The second cluster of implications (digital culture and employee experience) focuses on the digital culture and employee experience in the context of digital transformation (paper C). By integrating organizational science into IS literature, the study finds a theoretical clarification on the importance of digital leadership and continuous learning as influencing factors in the relationship between digital transformation and organizational commitment. The paper newly incorporates organizational commitment and organizational learning in the digital transformation perspective. The findings represent an advancement in current knowledge of the importance of digital culture for digital transformation (e.g., Hartl & Hess, 2017). As IS research mainly focuses on exploring digital transformation from an organizational view,

previous work identified a bias in the outcomes of digital transformation (Besson & Rowe, 2012). The current research contributes to the recently enlarged discussion on the phenomenon (Markus & Rowe, 2021) and explains how digital transformation requires digital leadership and continuous learning to achieve organizational commitment. Thus, the work empirically explores a cornerstone by considering the human level in the context of digital transformation and conducting research beyond the strategic and pragmatic level of digital transformation (Wessel et al., 2021).

The third cluster of implications (digital workplace transformation) covers the digital workplace transformation and displays the outcomes of paper D and paper E. In this research stream, there is a focus on the individual perspective, in particular the employees' skills and the preference towards a hybrid workplace setting. The introducing paper (D) provides insights into the critical skills needed in the digital workplace and reveals the importance of employee development. Findings differentiate from previous results by highlighting the importance of cognitive and metacognitive, and social-emotional skills while still considering the urgency of practical skills in the digital environment (e.g., Ho & Frampton, 2010). Although previous research tried to grasp the phenomenon of a digital workplace transformation with a forward-viewing approach (e.g., Dery et al., 2017; Zimmer et al., 2020), the theoretical contribution of this direction highlights that an entrepreneurial mindset, digital responsible thinking, digital literacy, transformative skills, personal development skills, communication skills, community management skills, data analytic skills, and web development skills are critical in the future workplace. Yet, only little literature has focused on these skills, and the conceptual learning framework is theoretically expanded (Martin, 2018).

Finally, findings show that openness to digital change positively influences hybrid workplace preferences. Moreover, the results show the relevance of performance and personal outcomes as mediators in this relationship. The theoretical findings further show that employees with a hybrid workplace preference will resist pure office settings or intend to leave the organization if they do not get their favorite setting. Consequently, this research direction contributes to IS research with implications for future workplace transformations and by adapting social cognitive theory to the current digitally disruptive era. Additionally, findings confirm the idea that a hybrid workplace might attract digitally open employees with empirical data. Another implication for theory building is the conceptual and methodological introduction of a measurement for hybrid workplace preference. This construct can be used for future research, elaborating on other factors that influence the likeliness of employees in a hybrid workplace setting. Overall, the third cluster of implications offers a comprehensive explanation

of what organizations and employees have to consider in the digital workplace. In addition, the study provides compelling evidence that employees are serious about their requirements of a hybrid solution as they expect both performance and personal outcomes.

7.3 Implications for practice

Despite the theoretical focus on building avenues for future digital transformation research, this dissertation also offers practical implications for businesses and managers aiming for success in the digital era. The recommendations stem from the five research studies and build a bullet point guideline for organizations in the areas of digital transformation success, digital culture and employee experience, and lastly digital workplace transformation.

7.3.1 *Practical implications for digital transformation success*

- *Build dynamic capabilities*: Organizations have to build a set of dynamic capabilities that enable the redefinition of business value and organizational identity in the digital era. First, for sensing capabilities, firms have to aim to acquire and integrate new knowledge into the current processes and structures and respond quickly to changes from a traditional to a digital format. This can be supported by encouraging employees to detect and absorb market trends, knowledge, and technologies. For instance, organizations can monitor new digital channels and social media to gain information on digital innovations and participate in conferences on the latest advancements and trends in the industry. Thereby, employees can integrate new knowledge into the current structures flexibly. Related to that, managers should also support and incorporate agile methods to increase the rapid introduction of new designs, products, and services. Next, for seizing capabilities, businesses have to create abilities related to cross-functional collaboration between the workforces. It is recommended to introduce teambuilding workshops, communicate organizational values and functions, and facilitate transparency while working towards common goals. By forming diverse teams and bringing in different perspectives, the appreciation and the added value also become visible to various team members. This might lead to an intrinsic motivation to collaborate with other units. Further, it is advisable for firms to understand and develop the shifted customer journey with their new demands and communication channels. Building and strengthening customer-centricity capability can be supported by actively listening to the requests and needs, for example, by monitoring customers' perceptions through surveys or Apps. Lastly, for transforming capabilities enhancing digital transformation success is the ability to detect digital ideas and innovations. This can be done by increasing the opportunities for idea generation and dedicating resources for innovation and experimentation. This also

reveals the importance of establishing the focus on learning through failure and understanding that risk-taking is valuable. Overall, it is critical for businesses to connect with the external ecosystem by getting involved in fairs or stakeholders. Networking in a business environment is crucial for digital transformation success, and it is advisable to start collaborations with research institutions, startups, and competitors to exchange knowledge to grow, for instance, networking events and fairs and listening to other people's ideas, challenges, and stories.

- *Achieve digital transformation success to enhance firm performance:* Businesses have to understand the importance of digital transformation initiatives. It is critical to realize the urgency and prepare for this change on all levels to stay competitive. Thus, firms must create a new digital identity which in turn requires actions within the organizational environment. It is advisable for managers to understand that organizations must consider the employee perspective in addition to the strategic and operational levels when shifting towards a digital business value. Firms must flourish through the growth of digital competencies and the empowerment of the workforce. This can be done by creating a roadmap for a digital future and developing critical digital know-how in the firm.

7.3.2 *Practical implications for a digital culture and employee experience*

- *Ensure digital leadership:* Organizations must facilitate the role of a digital leader to accompany the digital transformation positively. This role has to be filled with a personality that has a digital mindset, and who can give the employees the feeling of awareness in the organization while working towards the vision of digital transformation (Kane et al., 2021). A digital leader must act as a role model when working with digital technologies and be very transparent about the whole process. As a change-oriented person, a digital leader holds a position that shows the impact and purpose of digital transformation and decreases potential fears. As the intersection of technology and people on the executive level, a chief digital officer, for instance, might act as the key evangelist that supports digital transformation processes (Tumbas et al., 2017).
- *Enable continuous learning:* Organizations have to engage and support the employees' interests during digital transformation and generate learning opportunities. It is recommended for firms to facilitate new ways of learning by providing a safe space and allocating time during work to exchange ideas. More precisely, firms have to offer employees opportunities to learn, grow, be creative, and be innovative. Hence, employees can increase autonomy and satisfaction and provide employees with the possibility of support. For instance, organizations can create a hackathon once a year,

where employees can get involved, collaborate, and try new things, tools, methodologies, and potentially create new products or services. This possibility and the allocated time for learning and innovation foster the employees' possibility to grow and expand their abilities. Overall, learning and development must be part of the daily routines to ensure experimentation to meet customer demands and stay competitive.

- *Integrate digital ethics and data governance:* It is recommended for firms to gain knowledge on how to store customer data and teach employees how to use it carefully. To do so, organizations might launch e-learning opportunities on topics like cyber or cloud security, phishing attacks, or hybrid work where employees can educate themselves and gain knowledge. Moreover, organizations must increase awareness that they consider ethical aspects honestly and communicate that to different stakeholders (e.g., general data protection regulation and regional laws). It is also recommended to incorporate positions like a data privacy officer (Mueller, 2022).

7.3.3 *Practical implications for a digital workplace transformation*

- *Upskill the workforce:* As organizations get to feel the competitive labor market, firms must enable employees to react to the changing environment by adjusting their work activities and skills. Leaders should encourage autonomy, allow growth, and give extra support to increase the workforce's abilities. Besides, they must analyze the current status quo of skills, check the existing resources, and identify the current gaps. If there is potential for improvement and training, managers could encourage employees to interact with business owners to grasp the entrepreneurial mindset and train for decision-making situations and moral implications. Leaders should also act as actual role models enabling learning on the job, promoting rules for communication and dialogue, improving teamwork, and informing workers about their possibilities for education and supporting their growth. Finally, through seminars, organizations can train practical skills (e.g., community management skills, data analytic skills, and web development skills).
- *Encourage a digital culture:* Firms have to develop workplace policies where managers consider the individual perspective and see what is critical for employees regarding preferences, needs, and expectations. Flexibility, individuality, and personalization are crucial to meeting the employees' needs. Therefore, leaders must ensure a clear and transparent accompaniment of the balance between in-person and remote employees. Continuous feedback on workplace practices is critical to improving the introduced policies. Moreover, leaders must demonstrate appreciation to all employees regardless

of their workplace preferences and chosen work models. Employees need support, encouragement, and validation of acceptable behavior.

- *Enable a hybrid workplace:* When deciding on hybrid workplace policies, leaders must foster asynchronous collaboration and include remote participants. Leaders must encourage psychological safety, respect employees' privacy, and the mindful usage of technologies to reduce stress. Still, in a flexible workplace setting, team-building activities, regular feedback, and check-ins are critical to keeping the employees connected.
- *Adapt the on-site office:* When firms consider how to create an engaging working environment for employees, the leaders have to communicate and set ground rules and clear expectations. As part of that, they must ensure an environment that promotes a digital culture to exchange ideas and motivate collaboration, for example, with the help of team bonding activities. Although flexibility must be ensured, an idea might be that for creativity and innovative tasks, employees come to the office on the same day or time. This also increases the interaction with colleagues. When planning what the inside office looks like, firms can also reevaluate the workplace design but should consider the dedicated desk for everyone. Managers can also make use of schedules, space, and technology when initiating lunch meetings or mentoring programs in the office. This would also increase the advantages for the individuals when being in the on-site office location. However, everything has to be adjusted to the type of tasks employees or teams conduct.

7.4 Limitations and further research directions

Many promising research avenues can extend this work in terms of methodology and theory and follow the limitations of this dissertation. On the one hand, regarding methodological limitations, there is potential for advancement during the data collection and analysis. First, for the data collection, papers A, B, C, and D focus on medium to large firms within selected industries. Still, it might be interesting to discover the framework of digital transformation for small enterprises and for branches that are not that advanced. Smaller firms might not have the same resources as larger businesses, but again be more flexible in responding to changing market demands (Hönigsberg & Dinter, 2019). Second, papers B and C focus on firms in Spain with a limited sample size. Further research could expand the findings with additional confirmation in different countries and larger audiences. Third, these papers use one single key informant per firm in the studies, and the results could be extended with different views by using a minimum of two key informants from each company. For the data analysis, this dissertation introduces a measurement for digital transformation success and hybrid workplace preference. Thus, the limitation encourages future research directions to

push along the empirical operationalization of digital transformation success (papers B and C). Broadly, although the analysis proves the consistency of the measurement, IS scholars can continue this line of shaping the measurement of digital transformation success. In addition, the conceptualization of hybrid workplace preference in paper E is an opportunity to replicate similar research. However, a limitation is that only a preference for a hybrid workplace setting is considered during data analysis. For instance, a multi-group analysis might compare a preference for on-site and a preference for remote settings. This might reinforce the authenticity of hybrid workplace preferences in future research lines.

On the other hand, the following research avenues can be noticed from the theoretical perspective: First, this dissertation mainly focuses on the organizational and employee level when considering the framework of digital transformation. Further research might focus more on the societal influences, consequences, and social justice within this framework (Aanestad et al., 2021). For instance, future studies can explore the relevance of social impact or shared norms in more detail. Further research might also consider diversity and inclusion in the context of the future of work as this might be an opportunity for underrepresented groups (Aanestad et al., 2021). Additionally, the outcomes of digital transformation success can be developed further since not only is firm performance a critical indicator for competitive advantage, but also the brand might be relevant. Second, the results identified digital leadership and continuous learning as mediating factors in the relationship between digital transformation and organizational commitment (paper C). However, there might be additional mediating variables that can be more deeply investigated in future research lines. For example, it might be important to understand how ready and open the employees are toward these digital transformational changes and processes. Future research could also explore the role of digital culture and other elements to enhance digital transformation success. In-depth analyses for the part of employees to achieve digital transformation success are encouraged.

Third, paper E includes the personal perceptions of a hybrid workplace preference. Still, this perspective is limited to the individual level, and future research could also investigate the role of the organization toward this preference (e.g., organizational readiness or leadership styles). Fourth, another avenue for future research is the unintended finding that companies with a high number of employees struggle even more in bringing back the employees to the office. As hybrid workplace arrangements can offer high flexibility for employees with a balance between work and private life, which improves the employee experience, additional research could examine the role of intrinsic motivation and satisfaction within the framework. Furthermore, also the external environment and regulations might be influencing

organizational factors that facilitate a hybrid workplace arrangement. Finally, a theoretical limitation that can be identified for paper D is that some skills might have changed within the recent turbulent times. Future research can expand the findings, and it might be relevant to analyze to what extent the skills in the digital workplace change if the business operates in different digital channels (e.g., Metaverse). Despite this, it might be gripping to enhance empirical investigations on the different levels of cognitive and metacognitive, and social-emotional versus practical skills, exploring which are most relevant in the digital workplace.

To conclude, these critical reflections give plausibility to the progress this research makes for IS research and at the same also create opportunities for various research streams around digital transformation success, digital culture and employee experience, and digital workplace transformation. As the interest across leading IS journals in exploring digital transformation rapidly increases (e.g., Markus & Rowe, 2021), this dissertation offers an initial understanding and a bunch of opportunities for future research directions.

7.5 Concluding remarks

This is a cumulative dissertation, and the included papers are currently under review or published in emerging and reputed academic journals or conference proceedings with a peer review process. The articles are written in different constellations of authors from several institutions and this multilevel investigation advances the understanding of digital transformation from an organizational and employee perspective. By providing a broad framework with a mixed-method approach, academics across IS and management disciplines can build their future research on the findings and use the measurements for digital transformation success and hybrid workplace preference. At the same time, the contribution of the five papers is paramount for businesses as they obtain managerial implications relevant to leaders. Broadly, the first research stream (i.e., digital transformation success) highlights the importance of dynamic capabilities for digital transformation success and firm performance. The second research stream (i.e., digital culture and employee experience) finds that digital leadership and continuous learning are relevant to committing employees to the organization as a consequence of digital transformation. The third research stream (i.e., digital workplace transformation) identifies critical skills for the digital workplace and highlights the importance of a hybrid workplace to keep the employees that are open to digital change. Finally, the main contribution of this research is the exploration of the framework of digital transformation from an organizational and employee perspective, taking the employee experience into consideration. At the same time, the findings prove the importance of digital transformation success for competitive advantage which is a new outcome of this dissertation.

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