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# Employee acceptance of digital transformation strategies: A paradox perspective

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## Abstract

Digital transformation (DT) strategies often aim at innovating an organization's business models (BMs) and developing digital innovations. However, most of the DT strategies fail or result only in incremental innovation. Research predominantly identified critical management capabilities for DT success, neglecting the role of employees, although employee support is vital for the successful implementation of DT strategies. We conceptualize employee acceptance of DT strategies and draw on paradox theory and organizational change literature to shed light on the antecedents of employee acceptance. Using survey-based data from an incumbent introducing a DT strategy, we find empirical support that employees with a paradox mindset are likely to accept the DT strategy regardless of the expected scope of change, while a high scope of expected changes weakens the effect of a positive attitude toward change on acceptance. The findings contribute to understanding the micro-level aspects of DT and extend research emphasizing top-down management approaches in DT with an employee perspective. This study extends previous findings in innovation management that predominantly provide evidence on the acceptance of specific digital technologies and offer insights into the antecedents of DT strategy acceptance. We offer managers insights into how employees perceive DT strategies, which can help to leverage the potential of digital innovation.

## KEYWORDS

digital transformation strategy, employee acceptance, paradox mindset, paradox theory

## 1 | INTRODUCTION

Digital transformation (DT), defined as “a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies” (Vial, 2019), comprises the transformation

of business processes, organizational structures and identity (Wessel et al., 2021). Therefore, DT is intrinsically linked to organizational innovation by driving innovative products and services (e.g., with 3D printing and additive manufacturing) and by creating new business models (BMs) (e.g., digital platform BMs) (Ceipek et al., 2021; Foss & Saebi, 2017). Despite internal optimization,

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“innovation from data” allows firms to innovate their offerings by obtaining data from customers with digital tools (Rindfleisch et al., 2017). Consequently, DT creates opportunities for BM innovation (Spieth et al., 2022). In the manufacturing context, Airbus found a way to use the immense amount of data generated by airlines (i.e., Airbus’ customers), suppliers, airports, and so forth, and to make it accessible to the aviation industry with its open data platform called Skywise.<sup>1</sup>

With Skywise, Airbus creates value and new offerings with its novel platform BM. For example, Airbus analyses data with the application of AI tools aiming for predictive maintenance, increasing fuel efficiency, and increasing passenger safety.<sup>2</sup> Ultimately, the use of digital tools to collect and analyze data and the creation of a platform BM creates value for Airbus by increasing operational efficiency, reliability, and safety. This example illustrates how manufacturing incumbents can use DT to innovate offerings, improve business and manufacturing processes, and create novel BMs.

However, despite a few examples of successful DTs, traditional manufacturing firms often struggle with the successful implementation of their DT strategy (Gregory et al., 2015), “supposed to coordinate, prioritize, and implement a pre-digital organization’s transformation efforts” (Chanas et al., 2019; p. 17). Hence, the DT strategy defines the scope and objectives of the DT initiative in an organization. As these often are ambitious and aim for radical organizational innovation (Moschko et al., 2023) like the example of Airbus shows, a large portion of DT initiatives *fail* to achieve the initial objectives, that is, they end up with incremental optimizations instead of (BM) innovation (Moschko et al., 2023; Smith & Beretta, 2021). While there is a common understanding that DT suffers from high failure rates, that is, DT initiatives fall significantly short of their objectives, a meta-analysis conducted by Wade and Shan (2020) concludes that 87.5% of DTs fail, which also represents a higher failure rate compared to conventional organizational change. Although the reasons for DT failure are manifold (e.g., unrealistic expectations, limited scope, poor governance, and cultural barriers), Wade and Shan (2020) explain that the cultural challenge represents the main reason for failed DT strategies as the cultural barriers are underestimated by managers (Wade & Shan, 2020), pointing to the role of employees in DT. This underestimation is also reflected in research related to the management of DT. This is surprising, as DT strategies need to be implemented, relying on the support of employees (Schneider & Sting, 2020), while

### Practitioner points

- A paradox mindset supports the efficient implementation of a digital transformation (DT) strategy.
- Managers need to pay attention to provide valuable information concerning the changes associated with the DT strategy in order to gain support.
- When employees expect complex business model changes, managers should provide additional information about the DT strategies’ objectives, concrete outcomes, and implications for the business model and organizational structure.
- Managers should support the ability of paradoxical thinking within the workforce, helping employees to accept and understand tensions, as these are inherent in DT and surface through change.

engaging employees effectively with digital technologies is key to digital innovation (Dery et al., 2017). However, we lack a coherent understanding of the underlying micro-level implications of innovation in the context of DT initiatives that may cause DT initiatives to fail to reach its objectives (Poláková-Kersten et al., 2023), consequently representing an intriguing research opportunity.

Research considering the individual employee is rare in the context of DT (Poláková-Kersten et al., 2023), thereby neglecting that DT may alter deeply rooted organizational routines, values, and principles (Schafft et al., 2022). Although research frequently points to capabilities and competencies, culture, and digital mindsets required for successful DT (Cetindamar et al., 2022), these studies mainly focus on the top-down management and leadership side and not on employees. However, to understand how employees can support the objectives of a firm’s DT strategy, it is vital to understand first what drives employee support, as employees need to accept the DT strategy (Schneider & Sting, 2020). Employee acceptance is crucial during an organizational change like BM change and technological change (Spieth et al., 2021), influencing the success and implementation of change (Kim & Mauborgne, 2003; Shin et al., 2012). While DT comprises both technological change and organizational change (Hanelt et al., 2020), prior research in innovation management either investigated the acceptance of digital technologies (Jiao & Zhao, 2014) or organizational change in isolation (Bouckennooghe et al., 2021; Caldwell et al., 2004; Elias, 2009). Hence, it is not yet clear whether

<sup>1</sup><https://aircraft.airbus.com/en/services/enhance/skywise>.

<sup>2</sup><https://aircraft.airbus.com/en/services>.

DT and organizational change are entirely comparable cases (Hanelt et al., 2020) and whether existing acceptance of change research is directly applicable to the context of DT.

This becomes even more relevant, as employees are often confronted by competing demands in DT that may cause employees to experience tensions, defined as “competing elements such as contradictory demands, goals, interests, and perspectives” (Miron-Spektor et al., 2018, p. 27). For instance, consider a manufacturer changing from a pre-digital B2B BM to a digitally enabled B2C BM for illustration of possible tensions. First, employees may struggle to see the fit between the new (competing) digital BM and the traditional BM (Soh et al., 2019). Second, employees need to focus on their core tasks while also developing a holistic, customer-oriented thinking (Smith & Beretta, 2021) and need to exploit existing (manufacturing) skills while learning new digital skills (Lanzolla et al., 2020; Smith & Beretta, 2021; Svahn et al., 2017). Thus, employees need to use digital technologies and tools in their daily work routines, which transforms their workplaces (Kokshagina & Schneider, 2023). Third, BM innovation might entail structural changes, causing changes in employee roles and responsibilities.

Consequently, employees need to handle complexity, competing demands, and tensions continuously (Hanelt et al., 2020). The illustrated tensions can lead to dysfunctional responses (Miron-Spektor et al., 2018) and cause employees to disagree with the DT strategy and leave the company (Baiyere et al., 2020). To shed light on DT strategy acceptance, we draw on paradox theory, which is suitable for understanding how tensions influence employee behaviors in complex environments (Hahn & Knight, 2021a; Moschko et al., 2023; Smith & Beretta, 2021; Smith & Lewis, 2011). Here, paradox theory suggests that an individual's *paradox mindset*, which is the general tendency to feel comfortable with tensions, influences how employees approach and interpret competing demands (Miron-Spektor et al., 2018). A paradox mindset can be described as both/and thinking, that is, the cognitive juxtaposition of competing demands to leverage tensions to achieve beneficial outcomes (Miron-Spektor et al., 2018). Ultimately, individuals with a paradox mindset feel comfortable with and are energized by tensions. On the other, organizational change literature suggests that individuals with a positive attitude toward change embrace upcoming change (Fugate et al., 2012; Wanberg & Banas, 2000). However, we argue that the acceptance of DT strategies offers a unique context, as DT comprises both—continuous and episodic change *and* competing demands—requiring a paradox perspective to understand how employees accept DT strategies. In consequence, the complexity of DT questions the

assumptions on employee acceptance of non-DT strategies, indicating the need for empirically testing the acceptance of DT strategies from a paradox perspective.

Consequently, we seek to fill this gap by exploring how the attitude toward change—essential in explaining non-DT strategies (Fugate et al., 2012)—predicts the employees' acceptance in the context of a DT strategy, while we also consider the influence of a paradox mindset. An attitude toward change refers to the overall positive or negative evaluative judgment of a change initiative by an employee (Elias, 2009). Although both concepts represent cognitive aspects of making sense of change, a paradox mindset comprises how employees cope with tensions induced by, for example, change (Miron-Spektor et al., 2018). Accordingly, this research aims to answer the following research question: How are paradox mindset and attitude toward change related to employees' acceptance of a DT strategy? In detail, we assess the influence of a paradox mindset (Miron-Spektor et al., 2018) and a (positive) attitude toward change on the acceptance of a DT strategy. Despite the change context, we will also consider the moderating effect of the expected scope of changes to the BM, as paradox theory and organizational change literature suggest that change surfaces tensions (Hahn & Knight, 2021b; Smith & Lewis, 2011). We build on a quantitative dataset ( $n = 204$ ) in a major European incumbent that communicated a new DT strategy prior to the survey distribution. Our results show that the paradox mindset and the attitude toward change positively influence the acceptance of the DT strategy. However, the interaction analysis also reveals a negative moderating effect of the expected scope of changes on the effect of attitude toward change, while we found no significant influence on the effect of the paradox mindset on DT strategy acceptance. Subsequently, the results concerning a stable influence of a paradox mindset indicate that the relative importance of a paradox mindset in explaining the acceptance of the DT strategy by employees increases with a higher expected scope of changes. We explain these findings with the experience of tensions during DT, supporting the theoretical assumptions of competing demands resulting in tensions being inherent and socially constructed (Hahn & Knight, 2021b).

We contribute to extant research in several ways and extend the understanding of the micro-level aspects of innovation in the context of DT and how to manage DT. First, with a perspective on employees, we extend prior research that mostly identified organizational drivers for the success of DT strategies (Ceipek et al., 2021). We believe that understanding the micro-level implications of DT can help to understand why DT strategies often fail or lead to incremental instead of

radical innovation (Moschko et al., 2023). Most research in this realm concentrated on managerial capabilities critical to the success of DT strategies (Appio et al., 2021; Smith & Beretta, 2021). We complement this understanding of top-down management by revealing that employees with a paradox mindset embrace the DT strategy, irrespective of the scope of change. We complement top-down management approaches by drawing attention to a critical aspect of bottom-up processes in continuous change to support the DT: employee acceptance (Schneider & Sting, 2020).

Second, we contribute to DT research by explaining the antecedents of DT strategy acceptance. Thus, this study conceptualizes acceptance by employees in the context of DT strategies, and the findings offer important implications for understanding why some employees embrace the DT strategy while others reject it (Schneider & Sting, 2020). Consequently, the study provides insights into an important prerequisite to implementing digital innovation: employee support. This study extends previous findings in innovation studies that predominantly provide evidence of the acceptance of specific digital technologies (Jiao & Zhao, 2014) rather than DT strategies (Chanias et al., 2019). While research identified many critical management capabilities concerning organizational culture and leadership management for successful DT, surprisingly little research concentrated on the employees (Cetindamar et al., 2022). We extend this research and even go one step back, as understanding the acceptance of DT strategies by employees can also inform the development of proper management and leadership capabilities needed to increase employee support.

## 2 | THEORETICAL BACKGROUND

### 2.1 | Micro-level perspective on digital transformation

Through the rise of the internet and other related digital technologies, firms face changing technological and socio-technological environments (Teece, 2010). For DT, most organizations need to change their organization, their BMs, and (innovation) processes (Bharadwaj et al., 2013; Ceipek et al., 2021; Foss & Saebi, 2017), resulting in micro-level changes regarding the organizational identity, skills, routines, and required capabilities (Wessel et al., 2021).

DT differs from most organizational change initiatives induced by technologies investigated in the mature research field of organizational change, adding to its uniqueness and research importance (Lanzolla et al., 2020). Furthermore, the following characteristics of

DT can also explain the high failure rates of DT initiatives (Wade & Shan, 2020). Specifically, Meindl et al. (2021) describe DT as a process that builds on the support of the implementation of the base technologies of the Internet of Things, cloud computing, big data, and artificial intelligence. In contrast to episodic change, like integrating new IT tools, organizations initiating DT will not remain stable after change; they will rather change infrequently but continuously (Hanelt et al., 2020). Subsequently, Hanelt et al. (2020, p. 20) contend that even episodic changes of DT “lead to new phases of continuous change in organizations, which may endure for a comparably long time” going beyond the boundaries of established perspectives on change. Thus, continuous change is often driven by an organization's constituents, for example, by the cumulative change of routines of individuals (Wee & Taylor, 2018). While technology-induced change enhances the existing value proposition, DT refines and innovates the value proposition, leading to changes in organizational identity and routines, especially in the transformation from a non-digital to a digital BM (Wessel et al., 2021). Therefore, the focus of this study is not on the management of DT but rather on the micro-level concerning employees' acceptance of the DT strategy, as it is vital for the implementation of DT (Schneider & Sting, 2020). We conceptualize the *acceptance of the DT strategy* as a positive employee response to organizational change due to DT (Kim et al., 2011; Rafferty et al., 2013; Wanberg & Banas, 2000), that is, the behavioral reaction to support the DT strategy.

Researchers increasingly argue that employees and their support are essential for the success of DT strategies (Poláková-Kersten et al., 2023; Schneider & Sting, 2020; Wade & Shan, 2020), as employees are directly affected by DT, being a part of the transformation (Cetindamar et al., 2022; Kokshagina & Schneider, 2023). Employees' commitment is central to digital innovation (Dery et al., 2017; Zahoor et al., 2023), as they contribute to the development of innovative value propositions with their tacit knowledge and bottom-up ideas (Chanias et al., 2019; Poláková-Kersten et al., 2023). However, bottom-up contributions require employees to embrace the DT strategy (Schneider & Sting, 2020), while research taking an employee perspective of DT is still in its infancy (Appio et al., 2021; Cetindamar et al., 2022; Ritala et al., 2021). Here, researchers recently started to take employee capabilities into account that influence the success of DT strategy implementation. For instance, Ritala et al. (2021) found that the individual entrepreneurial orientation of employees is positively associated with digital strategy performance, while Poláková-Kersten et al. (2023) found that employees' perceptions of threat due to

DT lead to suboptimal DT outcomes. Despite the organizational outcomes of employee reactions to DT, employees disagreeing with the changes associated with DT have been shown to leave the company (Baiyere et al., 2020; Poláková-Kersten et al., 2023). These negative personal reactions result from a perceived misalignment between the employees' identity and the envisioned new organizational identity (Poláková-Kersten et al., 2023; Schneider & Sting, 2020).

However, we argue that to complement findings on critical employee capabilities, we need first to take a step back and understand employees' reactions to DT strategies and why some employees reject the associated change while others embrace the change (Schneider & Sting, 2020). Prior scholarly investigations of employee acceptance concentrated either on the acceptance of digital technologies (Jiao & Zhao, 2014), or on the acceptance of organizational change in isolation (Elias, 2009; Rafferty et al., 2013). While the former research focuses on the characteristics and perceived usefulness of specific digital technologies (often explained with the technology acceptance model) (e.g., Venkatesh et al., 2003), these studies provide limited explanations for the acceptance of DT strategies. On the contrary, organizational change research frequently examined why employees embrace or reject change (Bouckennooghe et al., 2021; Rafferty et al., 2013; Shin et al., 2012). Therefore, the factors that influence employees' reactions to change have received wide attention, while there is broad agreement about two types of antecedents (Bouckennooghe et al., 2021): dispositional traits like self-efficacy or locus of control (Caldwell et al., 2004; Wanberg & Banas, 2000), and change-related factors like the extensiveness of the change (Caldwell et al., 2004; Herold et al., 2007).

However, to the best of our knowledge, no studies investigated the employee acceptance of DT, which comprises both—the implementation and adoption of digital technologies and major organizational changes aiming for organizational innovation, affecting employees, for example, regarding organizational identity, employee roles, and value proposition (Wessel et al., 2021). Given the unique characteristics of DT that create competing demands resulting in tensions (Wessel et al., 2021), we aim to shed light on the employees' acceptance of DT by using paradox theory as a meta-theory.

## 2.2 | Paradox theory: Coping with tensions in digital transformation

As outlined in the previous paragraph, prior literature identified several DT strategy-driven competing demands that result in tensions for the individual and

organizational actors, characterizing these as *paradox* (Baiyere et al., 2020; Smith & Beretta, 2021; Soh et al., 2019; Wimmelius et al., 2021), defined by Smith and Lewis (2011, p. 382) “as contradictory yet interrelated elements that exist simultaneously and persist over time.” Underlying tensions represent a key component of paradoxes, that is, elements that seem logical individually but inconsistent and even absurd when juxtaposed (Smith & Lewis, 2011, p. 382). Thus, we consider tensions and not necessarily paradoxes in our study context to be prevalent. Prior research increasingly contextualizes tensions during DT (Moschko et al., 2023; Smith & Beretta, 2021; Wimmelius et al., 2021). For instance, tensions in DT arise in organizations that innovate their pre-digital B2B BM to a digitally enabled B2C BM, as employees might not see the fit between the new identity as a B2C organization and the traditional BM (Soh et al., 2019). Smith and Beretta (2021) found several tensions arising from the structural separation and integration of DT activities due to the need to engage in exploration and exploitation, affecting employees on the micro-level. Due to the continuous shift and refinement of identity during DT (Utesheva et al., 2016; Wessel et al., 2021), we expect contradictions to arise because employees need to encounter ambidexterity, and dual organizational identities among others. Therefore, paradox theory is promising for gaining insight into employee acceptance of DT strategies (Gregory et al., 2015; Smith & Beretta, 2021).

In response to the theoretical discussion of paradoxes being inherent or socially constructed within organizations, Hahn and Knight (2021b) introduced the ontology of organizational paradox by using a quantum approach based on theories of quantum mechanics that conceptualize organizational paradox as both socially constructed and inherent in organizations, which has also been suggested by Smith and Lewis (2011). In the following, we will outline the relevance of the key ontological assumption of the quantum approach concerning this study, which builds the theoretical base for our research model and the development of hypotheses. As we focus in this study on the individual level and how employees accept the DT strategy, we emphasize the notion of individual attitudes, mindsets, and perceptions in the context of tensions during DT. We follow the quantum approach of Hahn and Knight (2021b) by arguing that latent paradoxes exist in the organization, are interwoven, and are best conceptualized as entities (Hahn & Knight, 2021b). The quantum approach further suggests that paradoxes become salient and enacted through the socio-material context, which comprises “the individuals' perceptions, predispositions, and interpretations, as well as socially constructed expectations” (Hahn & Knight, 2021b). As such, Hahn and Knight (2021b, p. 363) conceptualize

latency as “indeterminate potentialities of paradox” and salience as “the selective enactment of paradox in a specific socio-material context”. Therefore, the context of enactment (e.g., changes due to DT strategy) shapes how tensions will be enacted, implying that salience is subjectively experienced by employees. This view is in line with research on how organizational tensions impact individuals and how individuals cope with tensions, mostly applying a cognitive perspective (Miron-Spektor et al., 2018; Miron-Spektor, Erez, & Naveh, 2011). In consequence, the quantum approach of organizational paradox suggests that a specific context and situation might increase the probability of paradoxes being perceived as salient (“enactment”) by organizational members, whereas the enactment depends on individuals’ predispositions and perceptions (Miron-Spektor et al., 2018). Following this logic, we acknowledge that tensions are inherent during DT and provide a special context that necessitates the investigations of employees’ acceptance of DT strategies.

### 3 | DEVELOPMENT OF HYPOTHESES

#### 3.1 | Direct effects

In line with these ontological underpinnings, researchers conceptualize individual capabilities to explain the effects of coping with tensions (Miron-Spektor, Gino, & Argote, 2011; Schad et al., 2016). For instance, Miron-Spektor et al. (2018) developed a measurement scale for investigating the microfoundations of tensions and introduced the concept of a paradox mindset. The paradox mindset is conceptualized as the extent to which individuals accept and feel energized by tensions (Miron-Spektor et al., 2018) and offers an approach to how employees address tensions. A mindset generally represents a framework that helps to interpret experiences (Dweck, 2006). Thus, the paradox mindset is not paradox *itself* but helps to interpret and make sense of contradictions and competing demands. Miron-Spektor et al. (2018) argue that people with a paradox mindset accept and feel comfortable when experiencing tensions, unlocking the positive potential of tensions. Thus, the paradox mindset represents a cognitive mechanism that allows employees to recognize tensions (Hahn & Knight, 2021b). Consequently, Miron-Spektor et al. (2018) offer an opportunity to understand and empirically validate individual differences in interpreting and coping with tensions inherent in DT (Wimelius et al., 2021).

Whereas competing demands are often dysfunctional, the paradox mindset encourages employees to cognitively

juxtapose competing elements (Miron-Spektor, Gino, & Argote, 2011) in DT compared to those without a paradox mindset. Moreover, a paradox mindset allows the development of creative solutions to tensions (Miron-Spektor, Gino, & Argote, 2011; Schad et al., 2016). On the other, persistent tensions can be threatening, evoking negative emotions and reactions like anxiety (Miron-Spektor et al., 2018). Therefore, competing demands that are rooted in DT are likely to evoke negative reactions to the DT strategy (Poláková-Kersten et al., 2023). However, the recognition of tensions by employees with a paradox mindset (Hahn & Knight, 2021b; Smith & Tushman, 2005), leads to accepting these tensions (Smith & Lewis, 2011). Thus, coping with tensions by juxtaposing competing demands might convert the aforementioned dominant negative effect of tensions into a positive one (Schad et al., 2016). Employees with a paradox mindset feel comfortable with these competing demands and think about potential benefits by acknowledging the tension and approaching it as an opportunity (Miron-Spektor et al., 2018). Moreover, acceptance (of tensions and their consequences) is in the nature of a paradox mindset (Smith & Lewis, 2011) and represents a positive reaction to change. Based on the discussion of related research and findings, we argue:

**Hypothesis 1.** A paradox mindset has a positive relationship with employees’ acceptance of the digital transformation strategy.

Owing to the characteristics of DT initiatives comprising episodic, change, and technological change while also evoking competing demands resulting in tensions (Lanzolla et al., 2020; Smith & Beretta, 2021), we seek to provide insights into how established concepts from organizational change literature also explain the acceptance of a DT strategy. Thus, we believe the DT strategy context helps to sharpen existing research results concerning the acceptance of change. Therefore, we briefly lay out the positive effect of the attitude toward change on the reaction to change (Bouckennooghe, 2010; Herold et al., 2007). From its early definition, attitude toward change “is a multifaceted concept comprised of a set of feelings about change, cognitions about change and intentions toward change” (Elizur & Guttman, 1976, p. 612). Thus, it is different from a paradox mindset in its conceptualization as the paradox mindset reflects how individuals cope with tensions, which may result from change but also from other situations like scarcity or plurality (Smith & Lewis, 2011). In contrast, an attitude toward change conceptually relates to change initiatives exclusively. Furthermore, attitude toward change represents an individual state (Bouckennooghe, 2010), whereas

a paradox mindset is conceptualized as a lens for interpreting experiences (Dweck, 2006). Regarding the acceptance of organizational change, Wanberg and Banas (2000) found that a positive attitude toward change enables one to adapt to competing demands during change, leading to positive outcomes like job satisfaction. Fugate et al. (2012) found that positive change orientation influences the acceptance of change events. Although these concepts influence acceptance, they differ from the notion of a paradox mindset, as they reflect an either/or (seeking to eliminate contradictions) rather than a both/and logic constituting a paradox mindset.

A positive attitude toward change might evoke employees to adapt to the demands of DT (Fugate et al., 2012), for instance, by learning to use new IT tools or by adapting to shifting employee roles (Vial, 2019). While DT comprises continuous change, accompanied by planned change events (Hanelt et al., 2020), employees with a positive attitude toward change are likely to demonstrate positive reactions to DT. Continuous change involves micro-level change processes, with employees being more able to take the initiative to participate in the change process (Bouckennooghe, 2010). Thus, we expect that a positive attitude toward change is positively related to the acceptance of a DT strategy.

**Hypothesis 2.** Attitude toward change has a positive relationship with the employees' acceptance of the digital transformation strategy.

### 3.2 | Moderation hypotheses: Influence of expected scope of (business model) changes

As prior research indicates, in several instances, there are manifold contradictory elements leading to tensions inherent in DT (Smith & Beretta, 2021; Wimelius et al., 2021). For instance, research highlights DT-specific tensions resulting from the need for data-driven innovation and autonomous decision-making while simultaneously maintaining human control over manufacturing systems (Moschko et al., 2023). In contrast to these studies, in this research, we do not specify tensions but rest on the empirical findings mentioned above and argue that several tensions are inherent during DT. DT strategies are complex (Wade & Shan, 2020) and comprise organization-wide episodic change that triggers continuous change (Hanelt et al., 2020). While the former change aims for radical innovation, the latter often stems from bottom-up, incremental innovation (Bouckennooghe, 2010; Moschko et al., 2023). This setting creates a network of reinforcing

tensions (Moschko et al., 2023). In the following, we argue for a moderating effect of the expected scope of changes to the BM by outlining the underlying primary mechanism.

Despite the organizational setting, which shows that paradoxes are inherent in DT, Hahn and Knight (2021b) argue that the socio-material context enacts inherent tensions to make them salient, that is, recognizable. Smith and Lewis (2011) propose that three factors make latent tensions salient: plurality, change, and scarcity. As such, plurality is associated with competing goals, change with competing but coexisting employee roles, and scarcity with resource limitations (Smith & Lewis, 2011). As outlined above, all these factors are prevalent in DT. However, we argue that the expected scope of changes to the BM as perceived by the employees will surface these paradoxes, making them salient. This resides with the theoretical arguments of Hahn and Knight (2021b).

First, expected changes to the BM and value proposition might clash with employees' social norms and identity (Whitley et al., 2014) and the inner and outer context of the firm (Wimelius et al., 2021). Thus, the BM defines the purpose of a business (Spieth et al., 2014) and acts as a tool for shaping a common understanding and identity of an organization. Thus, the BM accounts for the complexity and interrelatedness between activities for value creation and capture (Klein et al., 2021). Prior BM research acknowledges the role of a BM as a cognitive representation of the firm, residing in organizational members' heads (Massa et al., 2017). Therefore, the BM shapes employees' understanding of "who we are". With increasing expectations of the changes to the BM, each employee needs to cope with changing identity and social relationships based on their individual characteristics (Wessel et al., 2021). Ultimately, decisive BM changes associated with the DT strategy might spur identity crises when an organization fails to reconstrue individual and organizational identities (Utesheva et al., 2016; Whitley et al., 2014). Soh et al. (2019) found that employees experience tensions in the transformation from a pure B2B BM toward a digital B2C BM as they identify themselves with an organization that serves business partners. Changes to organizational identity can result in inertia (Tripsas, 2009) that ultimately spurs resistance to change. Consequently, the plurality of competing goals increases and intensifies tensions (Smith & Lewis, 2011).

Second, expected changes in the BM intensify change in the workplace directly concerning daily practices and employee roles (Vial, 2019). A concrete example of paradoxes due to changing roles of employees concerns IT personnel that need to align dual roles – IT staff and business-oriented employees, resulting in tensions between professional norms and emerging norms (Soh

et al., 2019; Vial, 2019). Furthermore, in a transformation from a manufacturing firm to a digital business offering platform services, employees need to consider a more customer-centric and business ecosystem view, as emphasized in a B2C BM (Hanelt et al., 2020). Despite this, employees need to use digital technologies and tools in their daily work routines, which transforms their workplaces (Kokshagina & Schneider, 2023). Consequently, increasing expected BM changes will also affect changes in the workplace, employee roles, and relationships between departments.

Third, expected changes to the BM can increase scarcity. Especially in DT, firms face the dilemma of exploitation vs. exploration decisions concerning the deployment of resources for technologies (Ceipek et al., 2021). Yeow et al. (2018) found that DT strategies cause adaptations in a BM value proposition, leading to tensions regarding the alignment of resources between the traditional and the digital BM. Thus, during DT, departments compete for resources (Yeow et al., 2018). Other studies indicate that the scarcity of human resources (e.g., skilled workforce) for the implementation of DT creates tensions among employees and project teams (Smith & Beretta, 2021).

In sum, all these consequences of changes to the BM expected by employees increase the three factors triggering tensions: plurality, change, and scarcity (Smith & Lewis, 2011). Thus, we argue that higher levels of expected BM changes by the employees will increase the experience of tensions. However, this experience will have different effects on the relationship between a paradox mindset, respectively attitude toward change, and the acceptance of the DT strategy.

In detail, employees with a paradox mindset can cope with uncertainty and tensions by acknowledging the contradictions (Miron-Spektor et al., 2018; Schad et al., 2016). In contrast, a paradox mindset allows employees to gain a deeper understanding of competing demands, which supports accepting the causes of tensions (Miron-Spektor et al., 2018). Thus, we suggest that employees with a paradox mindset apply both/and thinking, implying that they embrace the competing elements (e.g., dual employee roles) spurred by increasing expectations about BM changes. As such, employees with a paradox mindset leverage experienced tensions to achieve beneficial outcomes (Miron-Spektor et al., 2018). Owing to this ability to cope with contradicting demands, we expect the positive relation of a paradox mindset on the acceptance of the DT strategy to increase when employees expect the BM change to be high, being energized by high levels of paradoxes:

**Hypothesis 3.** Expected business model change positively moderates the relationship

between the paradox mindset and the acceptance of the digital transformation strategy.

This study also seeks to demonstrate statistically that a paradox perspective on DT strategy acceptance can yield new insights compared to a non-paradox perspective captured in the concept of attitude toward change from traditional organizational change literature. Although one can argue that the expectation of greater extents of expected BM changes might strengthen the effect between attitude toward change and DT strategy acceptance, our argumentation concerning the latency and salience of tensions (Hahn & Knight, 2021b) allows for positing an opposing effect of the expected BM changes compared to Hypothesis 3. Based on the theoretical underpinnings guiding these hypotheses (Hahn & Knight, 2021b; Smith & Lewis, 2011) and empirical studies emphasizing tensions during DT (Wimelius et al., 2021), a positive attitude toward change does not conceptually comprise coping with possible competing demands resulting in tensions that are triggered by plurality, scarcity, and change (Smith & Lewis, 2011). In contrast to employees with a paradox mindset who gain an understanding of competing demands, tensions may evoke negative feelings in others, as they are not able to accept the competing elements. This is likely to increase with increasing complexity and scope of change. Instead, employees are encouraged to engage in short-term solutions to solve tensions (Miron-Spektor et al., 2018; Schad et al., 2016). Thus, the tensions triggered through expected BM changes can exceed an employee's coping resources. However, being unable to solve tensions in the short term leads to frustration and stress among employees (Smith & Lewis, 2011). Subsequently, this leads to a dysfunctional response of employees (Miron-Spektor et al., 2018).

Second, perceptions of complex changes to the BM and the use of new digital technologies might evoke feelings of increasing uncertainty with increasing changes, as each employee can perceive the outcomes and the impact of the DT strategy quite differently (Nambisan et al., 2017; Soh et al., 2019). Research often argues that uncertainty created through change is an important source of resistance (Stouten et al., 2018). As uncertainty is reciprocally associated with perceived control and participation in decision-making, research argues that uncertainty has negative implications for change reactions (Oreg et al., 2011). Furthermore, higher levels of expected scope of BM change may intensify tensions and feelings of uncertainty about future job prospects and outcomes of the change, threatening pleasantness and job satisfaction (Bordia et al., 2004). Consequently, we argue that the relationship between attitude toward change and the

acceptance of the DT strategy is weaker with increasing expectations concerning the scope of BM changes, as the context of the DT strategy is likely to induce tensions:

**Hypothesis 4.** Expected business model change negatively moderates the relationship between attitude toward change and the acceptance of the digital transformation strategy.

## 4 | METHOD

### 4.1 | Research design and data collection

We aim to test hypotheses that can be derived from previous (qualitative) studies about the consequences of the paradox mindset and the acceptance of a DT strategy. Therefore, we applied a quantitative study design to evaluate our hypothesized relationships. As the primary data source, we distributed an online questionnaire to a globally acting and leading pharmaceutical and medical device company in Europe. Furthermore, we collected secondary data like press releases and internal corporate documents with the help of key informants. We further collected business news articles and public interviews with the CIO and CEO concerning the case company's DT strategy. The secondary data helps to fulfill two aims. First, the secondary data ensures that the company actively communicated the objectives and vision of the DT strategy as well as concrete transformation steps articulated in a DT strategy before the primary data collection process started. For this study's aim, it is important to identify the objectives and elements of the DT strategy in the case company, leading to possible tensions during DT.

Second, the statements of the CEO and CIO reveal the challenges, scope, and implications of the DT strategy. We primarily focus on changes to the company's value offerings and BM associated with the DT strategy. Thus, we sought to identify planned changes to the case company's BM and possible tensions by thoroughly investigating the collected data to ensure the suitability of the case company. Generally, investigating the influence of change initiatives on employee behavior may benefit from using surveys in different organizations (Oreg et al., 2011). However, this study focuses on individual perceptions and tensions, which are likely to differ between employees (Hahn & Knight, 2021b). Like previous studies (Elias, 2009) that investigated individuals' reactions to an organizational transformation, we surveyed one company that communicated and started to implement a DT strategy. Hence, we investigate the

employees' *mindsets and perceptions* on the individual level. Moreover, for studying tensions, a single organization is suitable, as the socio-material context for the enactment of tensions differs for each individual, based on socially-constructed expectations, perceptions, and predispositions, while the objective organizational context is similar (Hahn & Knight, 2021b). Hence, the case offers an organizational setting that is likely to foreground tensions while we can assess variance in individual perceptions of employees. Therefore, we chose to survey a single organization. In the questionnaire, we ensured that respondents knew about the DT strategy by asking them directly. We approached the respondents with a key informant, who asked possible respondents via E-Mail. Prior to the distribution of the questionnaire, the key informant created a list of knowledgeable employees (401) who are affected by the DT strategy based on their job descriptions. The respondents ( $n = 204$ ) come from different departments and are members of different business units within the company (see Appendix Table A1 for further sample information). Prior research asserts that tensions surface when "actors experience paradoxes arising from different divisional and group memberships, loyalties and identities" (Jarzabkowski & Lê, 2017).

### 4.2 | Case description

The company is especially suited for studying the DT phenomenon as a technology-induced, company-wide transformation: About 6 months prior to the data collection, the top management team introduced a new vision regarding DT, followed by a concrete DT strategy. The strategy comprises formulating company-wide goals that the company aims to reach with DT, for instance, the digital disruption of the health care sector and concrete guidelines for managers. In the press release, the CIO states that the aim is to foster new BMs while increasing the efficiency and digitization of processes. In detail, the case company developed an Internet of Things (IoT) platform to develop innovative services and products. Prior to the initiative, the company offered a wide range of products for home health care, for example, for diabetic people or dialysis. However, they presented their products mainly B2B without direct contact with the consumers. As a result, the case company transforms from a manufacturing company to a digital service provider with direct customer interaction, which has been shown in prior research to spur tensions (Wimelius et al., 2021). Accordingly, the CIO stated, "It's also about a change of culture. The employees need to learn more end-to-end networking [...] Instead of IT functions, we have to think

in terms of business functions to make the changes understandable for everyone.” Based on these statements, we conclude that the DT strategy is in line with the conceptualizations of DT, DT strategy, and its outcomes as proposed by Chanas et al. (2019) and Wessel et al. (2021), including major changes to the value proposition and BM that are reflective of a refinement of the organizational identity. Thus, we further conclude that the DT strategy in the case company concerns all employees, affecting their organizational identity beliefs, work routines, and required skills. Furthermore, these cultural changes also spur tensions, as outlined in the following, increasing the relevance of a paradox perspective on employee acceptance of the DT strategy.

In an additional media article published in a business newspaper, the CIO reflects on the challenges that have arisen so far during DT. The CIO argues that breaking with established structures within the departments is challenging. For instance, the case company integrated IT experts into the established processes in other departments. However, “the middle management felt left out and superfluous in their new roles.” These examples indicate that employees need to acknowledge new roles and social interactions, which creates conflicts, resulting in tensions (Smith & Lewis, 2011).

### 4.3 | Measures

#### 4.3.1 | Independent variables

For measuring the employee's paradox mindset, we chose the measurement scale of Miron-Spektor et al. (2018), which measures the paradox mindset of an individual with eight items. Although there are certain scales for related constructs like the paradox frame, to the best of our knowledge, this is the only scale to measure the paradox mindset. The scale asks the respondents to assess how they embrace conflicting demands or how they feel about conflicting demands (Miron-Spektor et al., 2018). In order to assess the individual employee's attitude toward change, we used 12 items of the scale suggested by Dunham et al. (1989).

#### 4.3.2 | Dependent variable

For measuring the acceptance of the DT strategy, we adapted the acceptance scale of Jiao and Zhao (2014) to the context of a DT strategy. We introduced the questions with a reminder to think of and answer the questions considering the current DT strategy. For instance, we asked the respondents to assess the

following statement: I believe DT leads to positive changes in my job. In sum, we used five items of the adapted scale (see Table 2). We chose this measurement of acceptance, as its conceptualization comprises the assessment of DT strategy's impact on oneself and the direct working environment, capturing the individual level.

#### 4.3.3 | Moderator variables

For assessing the scope of expected BM changes, we chose to use the perceived future BM changes in the next 5 years due to the DT strategy as a detailed proxy for the change of the organizational identity. As outlined in the development of the moderation hypothesis, we argue that the expectation of changes to the BM reflects the enactment of tensions triggered through plurality, change, and scarcity (Smith & Lewis, 2011). The BM concept accounts for the interrelatedness of the activities needed for value creation and capture, providing a comprehensive reflection of the scope of changes associated with DT. Thus, we chose this measurement as it comprises all dimensions of BM change in a formative construct, allowing for assessing the complexity of expected changes. We asked for expected changes in the next 5 years, as corporate documents show that the top management team plans a 5-year implementation of the DT strategy. Spieth and Schneider's (2016) BM innovativeness scale offers the advantage of a holistic perspective on perceptions of an upcoming change. The scale used consists of 12 items that formatively measure the changes in the value offering, value architecture, and revenue model on a 7-point Likert scale.

#### 4.3.4 | Control variables

In addition to the variables in the model, we controlled for several other possible influences. As organizational change literature outlines the important role of information within a change event, we controlled for the quality of the information provided on the DT strategy and its objectives (Wanberg & Banas, 2000) and adapted the scale of Miller et al. (1994). As we surveyed employees in one organization, we did not control for organizational culture, assuming that an organization-wide culture dominates within the organization. Furthermore, we controlled for the strategic clarity (Kock & Gemünden, 2016) of the planned DT strategy to assess the understanding of DT's influence, which is important for making sense of a DT strategy. To ensure that respondents assess the clarity of the DT strategy, we reminded the respondents to think

of and refer to the introduced DT strategy. As we outlined before, several empirical studies indicate tensions in the DT context, as well as the interplay of different tensions. However, these might be latent and surface in different stages of the DT strategy implementation (Soh et al., 2019). Therefore, we controlled for the experience of tensions (Miron-Spektor et al., 2018) as we focused in the moderation analysis on the expected BM changes that might surface tensions by intensifying plurality, scarcity, and change.

#### 4.4 | Analysis approach

As we aim to identify the relationships between different cognitive constructs, we chose a quantitative research design, allowing for generalizability. As these constructs are latent variables that are not observable, we used structured equation modeling (SEM) in order to test the hypothesized relationships. In detail, we applied the variance-based partial least squares (PLSs) approach by using the software SmartPLS 3.2 (Hair et al., 2017). In contrast to covariance-based SEM, this approach offers the advantage of calculating models with formative and reflective indicators and items as well as higher-order constructs (Hair et al., 2017). As we formatively measured the perceived expected BM changes, that is, the BM innovativeness scale, this approach is adequate for calculating the model. Furthermore, SmartPLS relies on the bootstrapping method for calculating significance (Tenenhaus et al., 2005). Thus, the calculation does not require assumptions on the sample's distribution and allows us to run the model with small sample sizes while providing higher levels of statistical power compared to covariance-based SEM (Reinartz et al., 2009). In detail, the sample size required for proper statistical analysis with PLS-SEM is 10 times the maximum number of exogenous constructs that load on the dependent variable (Chin, 1998). For estimating the model's parameters, we used a path weighting scheme with 300 iterations and a stop criterion of  $10^{-7}$  (Hair et al., 2013). We applied a nonparametric bootstrapping procedure with 1000 subsamples to test the significance of the measurement and structural model (Hair et al., 2017). In line with previous research, for analyzing the hypothesized moderation, we used the two-stage approach to create the interaction term, which is adequate for formative constructs (Hair et al., 2017). Thus, we ran a separate model for the moderation analysis, as the direct effects (main effects) between the predictor and the outcome variable can take different values when considering the moderation in the same model.

#### 4.5 | Common method bias

Although we rely on key informants, there might be a potential risk of a common method bias due to single respondents (Podsakoff et al., 2003). Therefore, we followed the suggestions of Podsakoff et al. (2003) to control for this potential issue first by applying pre-hoc techniques before the data collection and second with post-hoc statistical analysis. Thus, we relied on established measurements, explained that the responses in the survey were anonymous, and stated that there were no right or wrong answers. Furthermore, we engaged in a psychological separation of the variables, as we separated the order of the items in the questionnaire to avoid that respondents might reveal the hypotheses of this study (Podsakoff et al., 2003). In line with previous publications (e.g., Maueroefer et al., 2017), we additionally tested for pathological collinearity as an indication of common method bias and employed the full collinearity assessment approach (Kock, 2015). The highest variance inflation factor (VIFs) of all the constructs turned out to be 1.375 and, thus, well below the conservative threshold of 3.3, which indicates the absence of a common method bias (Kock, 2015). Furthermore and in line with prior research (Messerschmidt & Hinz, 2013) we used the PLS marker variable method by Rönkkö and Ylitalo (2011), who suggest a stepwise procedure to assess the influence of a common method bias. The first step aims at identifying a set of marker items in the survey data which are not part in the research model. Rönkkö and Ylitalo (2011) suggest the selection of indicators based on the correlation matrix of all items collected in the survey, while ideal marker items need to be minimally correlated with the other items but be subject to the same measurement effects as the constructs in the study. Following these guidelines, we identified four items that met the criteria. In the second step, we calculate the mean correlation between the marker items and study items, which is 0.066 and larger than the proposed threshold of 0.05, indicating to compare the results of a baseline and a PLS marker variable model (Rönkkö & Ylitalo, 2011). The PLS marker variable model contains a method factor, in which we modeled the identified items as a latent exogenous variable with a path to each endogenous construct (in this study, the acceptance of DT strategy). The analysis of its impact on the endogenous variable reveals that the marker variable has no significant influence ( $\beta = 0.010$ , n.s.) on the dependent variable and does not change the significance of the hypothesized relationships (see Appendix Table A2), although the path coefficients slightly drop. Therefore, in addition to the implications of the highest VIF (Kock, 2015) the results from the PLS

marker approach indicate that a common method bias is unlikely to distort our results.

## 5 | RESULTS

### 5.1 | Measurement validation

Table 1 shows the correlations between the constructs. Although attitude toward change and paradox mindset correlate significantly, the VIF values (highest 1.375) indicate no multicollinearity bias. We also find significant correlations between experiencing tensions and the expected BM changes, which supports our argumentation for Hypotheses 3 and 4, and with a paradox mindset, which also resonates with our theoretical arguments. For validation of the measurement model (see Table 2), we followed the suggestions of Hair et al. (2017) and assessed the internal consistency, the convergent and discriminant validity, as well as the indicator and construct reliability. Although we ran two models due to moderation analysis, we applied all the aforementioned validity and reliability criteria to the moderator variable. We assessed the internal consistency reliability by calculating the constructs' composite reliability. We assume internal consistency when constructs' estimations for composite reliability are above the threshold of 0.7 (Bagozzi & Yi, 1988). Since all estimations are above 0.9, internal consistency can be asserted. We checked for the reflective constructs' outer loadings and the significance of the loadings. All outer loadings were significant, and most items had outer loadings above 0.708 (Hair et al., 2013). Three items of

the attitude toward change construct had outer loadings that are only slightly below this threshold (e.g.,  $\beta = 0.64$ ). As these three items meet all other validation criteria, we chose to retain them in the model. Thus, we assume that these three items do not jeopardize convergent validity. For further measurement validation, we evaluated the convergent validity of the constructs by considering the average variance extracted by each construct (AVE). The corresponding AVE values were all above 0.5, meaning that each construct explains more than half of its indicators' variance, confirming convergent validity for the constructs (Chin, 1998). For establishing the discriminant validity, we relied on a suitable approach for models with formative constructs (Hair et al., 2017): the heterotrait–monotrait ratio (HTMT Henseler et al., 2015), which is more accurate than traditional approaches like the Fornell-Larcker criterion (Henseler et al., 2015). The correlations' HTMT describes the ratio of the between-trait correlation to the within-trait correlations and counterbalances the Fornell-Larcker criterion's shortcomings for formative constructs (Henseler et al., 2015). The HTMT values of all the construct pairs were clearly below the threshold of 0.85 (Henseler et al., 2015).

Concerning the formative moderator variable, we followed the six evaluation guidelines suggested by Cenfe-telli and Bassellier (2009). First, we tested for collinearity issues by examining the formative indicators' outer variance inflation factors (VIF). A VIF below the value of five suggests the absence of collinearity (Hair et al., 2017). Since the outer VIFs of all indicators are below that threshold (highest 2.681), we concluded that we did not have to contend with collinearity issues. Second,

TABLE 1 Correlation table.

	1	2	3	4	5	6	7	8	9	10
1. Paradox mindset	1									
2. Attitude toward change	0.491**	1								
3. Expected BM change	0.316**	0.314**	1							
4. Acceptance of DT	0.439**	0.626**	0.479**	1						
5. Experiencing tensions	0.558**	0.185**	0.331**	0.245**	1					
6. Information	0.117	0.257**	0.037	0.108	0.013	1				
7. Strategic clarity	0.116	0.353**	0.030	0.147*	0.022	0.643**	1			
8. Marker variable	0.067	0.197**	0.343**	0.127	−0.035	0.128	0.288**	1		
9. Expected BM change × Attitude toward change	−0.037	−0.002	0.005	−0.247**	−0.081	0.127	0.051	0.129	1	
10. Expected BM change × Paradox mindset	−0.072	−0.038	−0.093	−0.158*	−0.094	0.043	0.006	0.000	0.500**	1

Abbreviations: BM, business model; DT, digital transformation.

\*Significance level:  $p < 0.05$  (two-tailed test); \*\*Significance level:  $p < 0.01$  (two-tailed test).

TABLE 2 Measurement model results: reflective items.

First-order construct	Item	Loadings	Significance (bootstrapping; $n = 1000$ )
Paradox mindset (Miron-Spektor et al., 2018) Mean = 4.589 SD = 1.039 CR = 0.920 AVE = 0.591	I am comfortable dealing with conflicting demands at the same time.	0.722	16.913
	Accepting contradictions is essential for my success.	0.714	21.218
	Tensions between ideas energize me.	0.806	31.687
	I enjoy it when I manage to pursue contradictory goals.	0.790	21.984
	I often experience myself as simultaneously embracing conflicting demands.	0.756	17.907
	I am comfortable working on tasks that contradict each other.	0.801	27.424
	I feel uplifted when I realize that two opposites can be true.	0.795	22.888
	I feel energized when I manage to address contradictory issues.	0.762	18.632
Attitude toward change (Dunham et al., 1989) Mean = 5.182 SD = 0.883 CR = 0.936 AVE = 0.550	I find most changes to be pleasing.	0.746	18.600
	I usually benefit from change.	0.717	17.790
	I intend to do whatever possible to support change.	0.640	10.189
	Change usually benefits the organization.	0.763	19.000
	Change usually helps improve unsatisfactory situations at work.	0.733	17.004
	Most of my co-workers benefit from change.	0.718	15.161
	I am inclined to try new ideas.	0.752	17.271
	I look forward to changes at work.	0.843	36.710
	I often suggest new approaches to things.	0.648	11.206
	Change often helps me perform better.	0.801	31.126
	Changes tend to stimulate me.	0.819	29.139
	Other people think that I support change.	0.691	11.761
Acceptance of the digital transformation (DT) strategy (Jiao & Zhao, 2014) Mean = 5.66 SD = 0.968 CR = 0.957 AVE = 0.815	I believe the DT strategy leads to positive changes in my job.	0.846	34.778
	I want to fully use the outcomes of the DT strategy in my work.	0.923	64.600
	Using the outcomes of the DT strategy is a good idea.	0.922	57.620
	In my opinion, it is very desirable to execute the DT strategy.	0.931	60.220
	It is a very wise idea to start the DT strategy.	0.890	41.541
Information (Miller et al., 1994) Mean = 3.21 SD = 1.384 CR = 0.956 AVE = 0.846	The information I have received about the DT strategy has been timely.	0.859	4.693
	The information I have received about the DT strategy has been useful.	0.958	4.403
	The information I have received has adequately answered my questions about the changes.	0.945	5.397
	I have received adequate information about the forthcoming changes.	0.913	5.543

(Continues)

TABLE 2 (Continued)

First-order construct	Item	Loadings	Significance (bootstrapping; $n = 1000$ )
Experiencing tensions (Miron-Spektor et al., 2018) Mean = 4.214 SD = 1.16 CR = 0.887 AVE = 0.530	I often have competing demands that need to be addressed at the same time.	0.759	9.895
	I sometimes hold two ideas in mind that appear contradictory when appearing together.	0.737	7.509
	I often have goals that contradict each other.	0.639	4.204
	I often have to meet contradictory requirements.	0.801	7.224
	Usually when I examine a problem, the possible solutions appear contradictory.	0.635	4.028
	I often need to decide between opposing alternatives.	0.706	5.280
	My work is filled with tensions and contradictions.	0.798	9.479
Strategic clarity (Kock & Gemünden, 2016) Mean = 3.561 SD = 1.296 CR = 0.937 AVE = 0.831	We have a written mission, long-term goals, and strategies for implementation of DT.	0.912	6.778
	Goals and DT strategies are communicated in our company.	0.886	6.444
	Our long-term competitive strategy is clear and understandable.	0.937	8.144

TABLE 3 Measurement model results: Formative items.

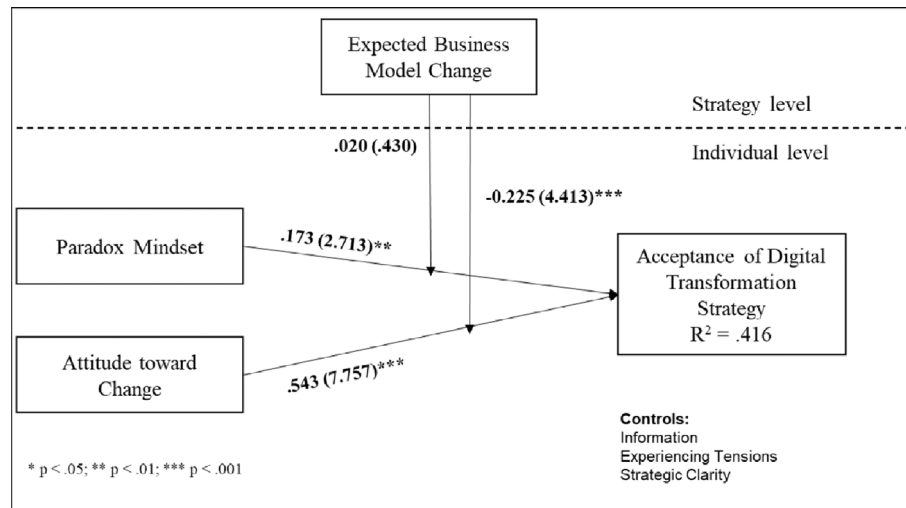
First-order construct	Indicator	Weight	Significance (bootstrapping; $n = 1000$ )
Expected business model change (Spieth & Schneider, 2016) Mean = 4.69 SD = 1.021 VIF = 1.165	Target customers will change.	0.096	3.395
	The product and service offering will change.	0.164	7.858
	The firm's positioning in the market will change.	0.110	4.381
	The firm's core competences and resources will change.	0.155	8.037
	Internal value creation activities will change.	0.200	9.051
	The roles and involvement of partners in the value creation process will change.	0.209	8.246
	Distribution will change.	0.158	6.142
	Revenue mechanisms will change.	0.167	9.520
	Cost mechanisms will change.	0.114	5.401

Cenfetelli and Bassellier (2009) argue that large numbers of indicators will cause nonsignificant weights. This is not the case in our measurement model since all indicators' weights are significant (see Table 3). The bootstrapping method (1000 subsamples) allowed for assessing the indicators' relevance and significance. Third, no indicator shows negative weights. Fourth, Cenfetelli and Bassellier (2009) suggest controlling the

indicator loadings for indicators with low weights. All loadings are above 0.5, as recommended, indicating the indicators' importance (Cenfetelli & Bassellier, 2009). The fifth guideline concerns nomological network effects and comparing the weights across different studies. However, we measured the perceived BM change as a first-order formative construct because we did not disentangle the scale's composites, whereas prior studies used the

**TABLE 4** Heterotrait–monotrait ratio of correlations.

	Constructs	1	2	3
(1)	Attitude toward change			
(2)	Paradox mindset	0.491		
(3)	Acceptance of digital transformation strategy	0.627	0.465	

**FIGURE 1** Results of the structural model.

construct as a second-order type 4 model (e.g., Spieth et al., 2019). Thus, a comparison of indicator weights across studies is not possible. Last but not least, Cenfetelli and Bassellier (2009) suggest taking inflated weights into account due to the PLS estimation technique. However, the estimates of the weights calculated with the consistent PLS modeling technique are significant too. Thus, we assume that our indicator weights should not be inflated, fulfilling all the guidelines suggested by Cenfetelli and Bassellier (2009) for formative measurements.

Table 4 (HTMT) presents the values for the checks for discriminant validity.

## 5.2 | Structural model evaluation: Direct effects

As mentioned before, we ran two models: a model including only direct effects but excluding moderation and another model that includes the interaction. Thus, we first analyzed the direct effects as hypothesized in Hypotheses 1 and 2. Figure 1 shows the direct paths and interaction paths. We find a significant positive effect of the paradox mindset on the acceptance of the DT strategy ( $\beta = 0.173$ ,  $p \leq 0.01$ ). Thus, the data support Hypothesis 1. Furthermore, the analysis reveals a strong positive and highly significant effect on the relationship between

the attitude toward change and the acceptance of the DT strategy ( $\beta = 0.553$ ,  $p \leq 0.001$ ). This result supports the hypothesized relationship Hypothesis 2. Although both—paradox mindset and the attitude toward change—positively affect the acceptance of the DT strategy, the attitude's influence is much stronger, as indicated by the high path coefficient. Overall, the estimations of our sample fit the data well, and both exogenous variables explain 41.6% of the variance in the acceptance of the DT strategy. Figure 1 provides an overview of the paths between the constructs and their significance.

We find that experiencing tensions and the expected scope of BM changes are positively correlated ( $0.345$ ,  $p \leq 0.001$ ), providing statistical evidence—despite qualitative empirical support from prior literature—for the relationship between both. The moderation analysis reveals how the perceived BM change influences the hypothesized relationships Hypotheses 1 and 2. We found no support that the perceived BM change influences the relationship between a paradox mindset and the acceptance of a DT strategy. Hence, the data do not support Hypothesis 3. However, we found support for Hypothesis 4. The results show a strong and significant negative moderating influence of the perceived BM changes ( $\beta = -0.225$ ,  $p \leq 0.001$ ;  $R^2 = 0.549$ ). Thus, by adding the moderator to the model, the explained variance in the dependent variable increased from 41.6% to

54.9%. We employed a blindfolding approach and evaluated the model's predictive power, leading to a Q2 value of 0.314 for the acceptance of the DT strategy, which confirms the structural model's predictive power (Geisser, 1974; Stone, 1974). Regarding the control variables, we did not find any significant influence of one of the tested controls on the acceptance of DT strategy (Information:  $\beta = -0.016$ ,  $t = 0.216$ ; Experiencing tensions:  $\beta = 0.07$ ,  $t = 1.116$ ; Strategic clarity:  $\beta = -0.063$ ,  $t = 0.872$ ).

## 6 | DISCUSSION

In this article, we aimed to identify the influence of a paradox mindset and attitude toward change on the employees' acceptance of a DT strategy after its organization-wide communication and how the expected scope of changes moderates these relationships. Given the investigation of employee perceptions of DT strategy, we sought to test the effects by surveying employees in a major European company. As several empirical studies associate BM changes with shifts in organizational identity due to DT strategies (Soh et al., 2019; Svahn et al., 2017; Tripsas, 2009), potential *tensions* arise from competing identities (Jarzabkowski et al., 2013), or dual employee roles (Yeow et al., 2018). Although we did not directly measure specific tensions, the expected BM changes in DT, that is, changes to value offering, architecture, and revenue model, reflect the sociomaterial context to enact latent tensions. The empirical results support the hypothesized relationships, providing significant insights into the drivers of employees' acceptance of the DT strategy. Owing to the uniqueness of employee acceptance in the DT context (Nambisan et al., 2017; Wessel et al., 2021) due to inherent tensions (Smith & Beretta, 2021), we draw on paradox theory (Hahn & Knight, 2021b) and applied the concept of a paradox mindset (Miron-Spektor et al., 2018) to research DT strategies and found that the paradox mindset positively influences the acceptance of a DT strategy, as also a positive attitude toward change does. Although this finding might not be surprising, we found interaction effects on these relationships that unleash the different conceptualizations and contributions of applying paradox theory (i.e., both/and thinking) to understand DT strategy acceptance (Smith & Beretta, 2021). Specifically, we found no support that the expected scope of BM changes influences the relationship between a paradox mindset and the acceptance of the DT strategy. The relation appears to be stable and unrelated to perceptual variables triggered by the conditions that spur tensions, implying that employees with a paradox mindset tend to accept the DT

strategy *despite* expecting a high scope of changes in the BM. Paradox theory offers a possible explanation for this finding, as people with a strong paradox mindset can accept contradictory elements (Miron-Spektor et al., 2018). Thus, a paradox mindset (both/and thinking) enacts tensions (Hahn & Knight, 2021b) and allows identifying, understanding and valuing contradictory but interrelated elements (Smith & Lewis, 2011). On the other side, employees with a positive attitude toward change might be open for change, but they are less able to understand competing demands. Here, paradox theory researchers suggest that change, scarcity, and plurality foregrounds tensions (Smith & Lewis, 2011).

### 6.1 | Implications for theory

With this study's empirical results, we advance the research field of managing DT and digital innovation in several ways. First, much research identified drivers and characteristics for the success of DT strategies from an organizational perspective (Ceipek et al., 2021). Nevertheless, recent studies show that most DT initiatives fail (Wade & Shan, 2020) or result in incremental innovation, failing to create digital BM innovation (Moschko et al., 2023). Therefore, we extend research on managing innovation in DT by investigating the micro-level implications of innovation in the context of DT (Moschko et al., 2023; Poláková-Kersten et al., 2023), drawing attention to individual reactions to DT strategies that might collectively influence the success or failure of DT strategies. As such, most micro-level research regarding DT concentrated on managers, resulting in important findings regarding critical management capabilities (Appio et al., 2021; Hanelt et al., 2020; Smith & Beretta, 2021; Zahoor et al., 2023). While prior research mostly assumes that managing DT represents a top-down process, we argue that these top-down approaches need to be complemented by understanding the bottom-up processes (Poláková-Kersten et al., 2023). By relying on insights from paradox theory, we add to the findings of Moschko et al. (2023) and Smith and Beretta (2021), who identified tensions during DT and management approaches to cope with tensions. In detail, our findings reveal that employees with a paradox mindset embrace the DT strategy, irrespective of the scope of change. While DT comprises continuous change, ideas for digital innovation and BM innovation might often come from internal practices that aggregate over time (Hanelt et al., 2020; Schneider & Sting, 2020; Weick & Quinn, 1999). We contribute by drawing attention to a critical aspect of bottom-up processes in continuous change to support the DT: employee acceptance (Schneider & Sting, 2020).

Thus, our findings also extend the understanding of why many DT strategies result in incremental innovation (Moschko et al., 2023), as employee acceptance and support have been argued to be critical factors for DT success (Wade & Shan, 2020).

Second, prior research largely neglected the role of individual employees in DT (Cetindamar et al., 2022; Meske & Junglas, 2021). Research regarding the micro-level aspects of DT mostly relies on examinations of capabilities, especially management capabilities (Hanelt et al., 2020), arguing for developing a digital culture or mindset (Solberg et al., 2020). As many of these management capabilities concern leadership, it is surprising that research directly concerning the employee is rare (Cetindamar et al., 2022). We complement these studies by focusing on employees who are not directly involved in managing the DT. Furthermore, efficient leadership also requires understanding how employees react to the DT strategy and what factors drive the acceptance (Schneider & Sting, 2020). As critical leadership capabilities identified in DT aim at boosting employee commitment to DT (Jafari-Sadeghi et al., 2023), we go one step back and explain the antecedents of the acceptance of DT by employees. To the best of our knowledge, this study is the first to conceptualize and investigate the antecedents of employee acceptance of DT strategies. Thus, we extend the literature, as prior research on digital technologies extensively researched how employees adopt IT technologies, predicting IT use with the technology acceptance model among others (Venkatesh et al., 2003). However, recent conceptualizations of DT strategy implementation indicate that DT differs regarding its involved technologies from prior IT (Bharadwaj et al., 2013), while the implications and consequences of DT regarding the BM and organizational identity go beyond IT-enabled change (Hanelt et al., 2020; Wessel et al., 2021). Consequently, this study's empirical findings extend previous findings that predominantly provide evidence of accepting specific digital technologies (Jiao & Zhao, 2014; Venkatesh et al., 2003) rather than DT strategies (Chanias et al., 2019).

Furthermore, we extend very recent research on the role of employees in supporting DT. As such, individual entrepreneurial orientation and digital literacy have been found to be vital employee characteristics to drive DT strategy performance (Cetindamar et al., 2022; Ritala et al., 2021). However, these capabilities will unfold and develop their effects only when employees accept the changes associated with the DT strategy. Thus, our focus on attitudes and mindsets complements the findings by Schneider and Sting (2020), who investigated the perceptions of the DT by employees. We also contribute to research by Solberg et al. (2020), who proposed a

typology of a digital mindset of employees. As Solberg et al. (2020) specifically focus on the employees' beliefs regarding the technological aspects of DT initiatives (e.g., the ability to learn to use digital technologies), we acknowledge that DT initiatives comprise complex continuous and episodic organizational change induced by digital technologies (Hanelt et al., 2020). Thus, we complement the concept of a digital mindset with a paradox mindset. In sum, we encourage researchers to dive deeper into the micro-level aspects of employee cognition and behavior to understand how managers can successfully leverage the innovation potential given by digital technologies in DT.

## 6.2 | Implications for practice

This research offers implications for innovation managers in charge of developing or implementing a DT strategy as we provide insights into the employees' acceptance of the DT strategy. As most of the DT initiatives fail to achieve their objectives (Wade & Shan, 2020), resulting in incremental innovation, employees have a vital contribution to DT's success (Schneider & Sting, 2020). Regarding managerial practice, we show that for employees with a positive attitude toward change, increasing the scope of changes (as expected by employees) decreases the acceptance of the DT strategy. On the other hand, the expected scope of changes shows no influence on employees with a paradox mindset. In the DT context, especially in the transformation from a pre-digital B2B manufacturer to a digital B2C company, the findings suggest the inference that employees with a paradox mindset can embrace the DT, regardless of the scope of changes. Paradox theory can explain this finding, as employees with a paradox mindset can embrace consistency *and* change of organizational identity while also accepting dual or changing employee roles and routines (Miron-Spektor et al., 2018) instead of resisting in response to change. Hence, we conclude that a paradox mindset supports the efficient implementation of a DT strategy. These findings contribute to the understanding of how employees initially make sense of DT strategies (Schneider & Sting, 2020), which represents an important aspect for managers to consider when communicating DT strategies.

Much research on the micro-level of DT that identifies critical management capabilities emphasizes proper communication of the DT strategy and leadership capabilities to enhance the commitment of employees. In line with previous studies regarding communication strategies for change events (Armenakis et al., 2007; Hess et al., 2016; Holt et al., 2007), we argue that managers need to pay attention to provide valuable information

concerning the changes associated with the DT strategy in order to gain support. However, when employees expect complex BM changes, managers should provide additional information about the DT strategies' objectives, concrete outcomes, and implications for the BM and organizational structure. This might be an important strategy to reduce potential tensions for those who do not employ a paradox mindset as organizational identity, value propositions, and work routines change.

However, we argue for supporting the ability of paradoxical thinking, as our results indicate that a paradox mindset positively influences the acceptance of the DT strategy despite expected BM changes. Thus, rather than seeking to resolve specific tensions in the DT context, we encourage managers to support both/and thinking within the workforce, helping employees to accept and understand tensions, as these are inherent in DT and surface through change. By revealing the paradox mindset's influence on the acceptance of the DT strategy, we suggest that managers should emphasize the development of paradox mindsets. For instance, Miron-Spektor, Gino, and Argote (2011) demonstrated that it is possible to evoke a paradox mindset, and organizations facilitate the paradox mindset with external interventions. Workshops might, for instance, help support a successful DT strategy by influencing employees' mindsets (Lüscher & Lewis, 2008). Hence, we also encourage managers to foster a paradox mindset to develop a digital mindset among employees (Solberg et al., 2020), helping to accept and value a culture of continuous change.

### 6.3 | Limitations and future research

A limitation of this research is the use of cross-sectional data. Although we tried to minimize the shortcomings of cross-sectional data by theorizing relationships between fairly stable predictors and change-specific outcomes, research can explain change reactions better with longitudinal data. Thus, our data choice does not allow for drawing strong causal inferences. Furthermore, common method variance might bias the results given the cross-sectional data. However, we conducted several statistical tests that indicate a lack of common method bias. Nevertheless, future research can investigate different points of time during the implementation of a DT strategy. For instance, it might be possible that employees' acceptance varies in different stages of DT as different tensions surface (Soh et al., 2019). At the beginning of DT, after communicating the DT strategy, a paradox mindset might be more important to cope with changing identities than in the later stages of a DT strategy. We, therefore, encourage

researchers to investigate these different stages in more depth. Qualitative research might contribute to a better understanding of the role of a paradox mindset during different stages of DT. Furthermore, foregrounding the implications of specific tensions, like learning or performing in the context of DT strategies, is promising for understanding employee acceptance of DT strategies. This might also allow for delving deeper into the explicit reactions to a DT strategy. Furthermore, our research design does not allow us to observe the actual behavioral reactions of employees. Although we believe and outlined before that we deem the scope of BM changes measurement appropriate for reflecting the salience of tensions, future research might use a direct measurement for these paradoxes. Qualitative research might extend our findings and link the consequences of a paradox mindset during DT to concrete behaviors or emotions. We conducted this study in a single organization. Although we selected the case company carefully and found it explicitly suitable for yielding novel insights and answers to the research questions, these might be different in other organizations. For instance, different cultures, strategies, and beliefs might influence how employees react to DT strategies. However, this opens paths for future research to investigate organizational factors that might affect the experience of tensions during DT. With a micro-level perspective on individual employees during DT, this research offers a starting point for a critical aspect of DT success that lacks empirical research: employees' digital mindset (Solberg et al., 2020; Warner & Wäger, 2019). According to prior research, the unique characteristics of DT (Lanzolla et al., 2020) require employees to shift their mindsets to accept the complexity of continuous change driven by digital technologies (Hanelt et al., 2020) while also developing capabilities like being innovative, entrepreneurial, and technology-oriented (Solberg et al., 2020; Warner & Wäger, 2019). However, it is not sufficiently clear what this digital mindset is about and what elements a digital mindset constitutes. Thus, future research might use the findings of this study to conceptualize elements of a digital mindset.

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## APPENDIX A

TABLE A1 Sample characteristics.

Sample characteristics	%
<i>Gender</i>	
Male	72
Female	28
<i>Tenure with company (in years)</i>	
<1	0
1–2	10
3–5	19
6–10	23
11–20	29
>20	19
<i>Role</i>	
Staff responsibility	43
No staff responsibility	57
<i>Department</i>	
R&D	10
Marketing & sales	34
Production and logistics	14
Controlling	6
Project management	21
Others	15

TABLE A2 Assessment of common method bias with PLS marker variable.

Path coefficients	Research model	CMB marker variable model
<i>Hypothesized effects</i>		
Paradox mindset → Acceptance of DT strategy	0.173**	0.173**
Attitude toward change → Acceptance of DT strategy	0.543***	0.540***
<i>Interaction</i>		
Expected BM change × paradox mindset	0.020 n.s.	0.018 n.s.
Expected BM change × Attitude toward change	−0.224***	−0.218***
<i>Control variables</i>		
Information → Acceptance of DT strategy	−0.016 n.s.	−0.012 n.s.
Experiencing tensions → Acceptance of DT strategy	0.07 n.s.	0.073 n.s.
Strategic clarity → Acceptance of DT strategy	0.063 n.s.	−0.073 n.s.
<i>Marker variable</i>		
Marker variable → Acceptance of DT strategy		0.031 n.s.

*Note:* The identified items of the marker variable consisted of four items of the scale by Spieth and Schneider (2016) for the experienced revenue model innovations in the past, as we asked about the BM changes experienced in the past 5 years.

Abbreviations: BM, business model; CMB, common method bias; DT, digital transformation; PLS, partial least square.

\*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .