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# ReImagining Individuals' Digital Mindset: Toward A Theoretical Synthesis

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# (Re-)Imagining Individuals' Digital Mindset: Toward A Theoretical Synthesis

*Short Paper*

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## **Abstract**

*The idea that individuals can have a digital mindset has gained popularity against the backdrop of radical shifts toward digital transformation and the future of work. Despite the burgeoning scholarly interest across disciplines, efforts to conceptualize digital mindset remain fragmented so far. This paper starts a discourse about unresolved ontological assumptions and theoretical inconsistencies. We address the prevailing knowledge fragmentation by synthesizing three research streams on individuals' affect, behaviors, and cognitions in the context of digital transformation and revealing their underlying commonalities. We propose that two beliefs jointly form the integrative foundation of individuals' digital mindset: how individuals think about and perceive (a) digital technologies (as opportunity or threat) and (b) their own abilities (as malleable or fixed) in the context of digital transformation. Our theoretical synthesis lays the groundwork for future research to work toward an inter-nomological network and a more holistic understanding of individuals' digital mindset.*

**Keywords:** digital mindset, digital transformation, theoretical synthesis, innovation, adaptation

## **Introduction**

Today's world is shaped by fast-paced technological developments that require organizations and individuals to act in new and innovative ways. Recent advancements, e.g., in artificial intelligence (AI), clearly demonstrate the transformative impact of information technologies (IT) on organizations' business models, individuals' jobs, and the future of work (Curtis et al. 2022). Digital transformation is often described as a double-edged sword, bearing unimagined opportunities *and* unpredictable threats (e.g., Sebastian et al. 2017). As a never-ending change process, digital transformation substantially affects organizations' structures, processes, value proposition, identity, and culture (Bitzer et al. 2021; Hanelt et al. 2021; Wessel et al. 2021). The main conceptual focus of the digital transformation literature has been on the organizational level as a result (Mosconi et al. 2023). Nevertheless, the evolution toward greater flexibility and adaptability in the future of work should pull our attention to the individual level, too. Whether digital transformation becomes an opportunity or a threat will be fundamentally determined by how individuals respond to the changes they are confronted with. Prior literature has established that individuals' cognitions motivate different responses to new IT (Bala and Venkatesh 2015; Beaudry and Pinsonneault 2005). Since digital transformation goes beyond merely implementing new IT (Wessel et al.

2021), it changes individuals' jobs and their work environment fundamentally (e.g., Schwarzmüller et al. 2018). Digital transformation thus starts at the individual level and is largely dependent on individuals' mental representation and cognitive processes (De Paula et al. 2023; Mueller and Renken 2017), making it crucial to understand individuals' perceptions for a successful digital transformation (Trenerry et al. 2021).

So, what makes individuals embrace or refuse digital transformation and seize or reject its opportunities? The unprecedented change brought about by digital transformation requires us as scholars to adopt new logics of theorizing, re-investigate overlaps, and develop new theories and measurements (Berger et al. 2021; Young et al. 2021). However, despite burgeoning scholarly interest in the idea of a digital mindset, various ontological questions persist. Prior research has approached digital mindset from different disciplinary and theoretical perspectives (Hildebrandt and Beimborn 2021). While a discursive formation around digital mindset is evolving, current attempts to conceptualize and operationalize digital mindset remain fragmented so far. This leaves ontological assumptions and theoretical inconsistencies unresolved, facilitating an emerging jingle fallacy (Thorndike 1904). Such construct identity fallacies obstruct theoretical integration within and across disciplines (Hovorka et al. 2013). As these inconsistencies become apparent, fundamental questions about what digital mindset encompasses and how it relates to existing concepts remain unaccounted for. Given the pivotal current and future importance of individuals' digital mindset, the current heterogeneity of conceptualizations is troubling. We argue that it is time to scrutinize the ontological assumptions underpinning a digital mindset to address the ever-more salient fragmentation of relevant knowledge. To promote theoretical and empirical advancement and create new understanding, scholars first have to resolve existing construct identity fallacies (Hovorka et al. 2013) and address unrecognized construct overlaps (Larsen and Bong 2016). In light of this, the current literature lacks an integrative framework that accounts for individuals' affective, behavioral, and cognitive responses to the opportunities and threats posed by rapidly evolving, malleable technologies. These responses are essential to understand how individuals navigate digital transformation (Neeley and Leonardi 2022).

In this conceptual paper, we develop a theoretical synthesis of prior research as a foundation for an integrative understanding of individuals' digital mindset. Instead of inventing yet another novel construct, we synthesize prior knowledge to come up with a renewed and comprehensive understanding of digital mindset (Hovorka et al. 2020). We introduce a theoretical synthesis of the fragmented literature and propose that digital mindset is grounded in two meta-cognitive beliefs: how individuals think about (a) digital technologies (as opportunity or threat) and (b) their own abilities (as malleable or fixed) in the context of digital transformation. To "re-imagine" digital mindset, we conceptualize and integrate it in a comprehensive framework building on three major research streams concerned with human experience: affect, behavior, and cognition (Breckler 1984). Taken together, these research streams jointly explain how individuals perceive and respond to stimuli in the context of digital transformation. We synthesize the research streams and reveal their higher-level commonalities, partial overlaps, and contradictions. As these three dimensions of human experience interact (Ward and Szabó 2019), we suggest the streams of literature should be synthesized to enable scholars to gain a more comprehensive understanding of how individuals encounter digital transformation. Given employees' crucial role in this change process (Bitzer et al. 2021; Mueller and Renken 2017), we propose that individuals' digital mindset has implications for adaptation, thus, successful implementation of digital transformation at the organizational level.

Our paper has two main goals: First, by introducing a theoretical synthesis of existing research, we resolve current inconsistencies and ambiguities about what digital mindset is (and what it is not). This integrative framework is a crucial first step to build a solid foundation for the empirical investigation of digital mindset. By shifting the focus to what we already know, we will create a more holistic view on digital mindset. Second, we carry forward prior endeavors to redirect scholarly attention to the individual level. We thereby shed light on the micro-level mechanics of digital transformation that have remained a black box so far. Our overarching aim is to lay a theoretical foundation to comprehensively understand individuals' affective, behavioral, and cognitive responses to digital transformation that resolves existing ambiguities and enables empirical advancement in the field.

## **The Theoretical Synthesis of Individuals' Digital Mindset**

Building on the assumption that digital transformation brings profound continuous changes (Hanelt et al. 2021; Wessel et al. 2021) and the central role of employees (e.g., Li et al. 2017; Mueller and Renken 2017), we suggest that individuals' digital mindset plays a crucial role for two key reasons. First, maintaining a

successful business in times of digital transformation requires a resilient workforce (Trenerry et al. 2021). Digital transformation encompasses multiple new demands for employees, such as lifelong learning and adaptation to constantly-evolving technologies and uncertainty (e.g., Neeley and Leonardi 2022). These fundamentally transformative developments can create fear that digital technologies will threaten jobs and identities (Craig et al. 2019), requiring individuals to keep pace not only in terms of skills, but also in terms of mindset (Kane et al. 2022). Thus, successful digital transformation is more about the will than about the skills of employees (e.g., Bitzer et al. 2021; Neeley and Leonardi 2022). Second, employees “can become the engine of organizational change” (Bitzer et al. 2021, p. 13) and act as digital transformers of organizations (Mueller and Renken 2017). A digital mindset at the individual level is therefore a crucial prerequisite for successful bottom-up organizational change (Bitzer et al. 2021).

Scholars across disciplines have recognized the relevance of a digital mindset and begun to investigate the phenomenon with different theoretical approaches (e.g., Rauch 2022; Solberg et al. 2020). The growing scholarly interest has led to a variety of different definitions and conceptualizations of digital mindset (Hildebrandt and Beimborn 2021) and prevented the establishment of a common understanding. Current conceptualizations are still in their infancy, both conceptually and methodologically. Conceptually, existing approaches lack focus on individuals' overarching cognitions about digital technologies and about their abilities to (learn to) use these technologies and benefit from them. They comprise, e.g., thinking patterns (Hildebrandt and Beimborn 2021), personal meanings of digitalization (Rauch 2022), or include digital consciousness, expertise and entrepreneurship (Goldmann et al. 2022). Methodologically, other approaches are not yet operationalized (Plattfaut and Borghoff 2021) or adapt existing scales (Solberg et al. 2020), thus not measuring what we argue is digital mindset, but rather general mindsets in the context of digital transformation. To date, scholars researching digital mindset have not integrated these approaches and findings within the broader context of individuals' affect, behavior, and cognition, leaving research on digital mindset divided. This heterogeneity of existing conceptualizations hinders theoretical and empirical advancement. Resolving unrecognized overlaps of existing constructs is thus crucial to make progress, develop new insights, and improve theoretical integration (Larsen and Bong 2016).

### ***Combining Distinct Streams of Research for a Theoretical Synthesis***

Digital transformation exposes individuals to unprecedented changes that necessitates them to adapt and think differently (Neeley and Leonardi 2022). More broadly speaking, digital transformation can be seen as a novel stimulus that requires individuals to adapt their responses (Fugate et al. 2008). However, the ongoing change triggered by digital transformation demands a fundamental adaptation beyond the existing situation- and technology-specific coping literature (e.g., Beaudry and Pinsonneault 2005). It is crucial to understand how individuals perceive and respond to stimuli in a more general sense. We posit that comprehensively understanding the multifaceted nature of individuals' perceptions and responses of digital transformation requires an integrative approach which considers *all* dimensions of human experience: affect, behavior, and cognition. As prior research has focused on either affective, behavioral, or cognitive responses to digital transformation, these different research streams neither seem to share underlying theoretical frameworks nor communicate with each other. Because affect, behavior, and cognition “operate interactively rather than in isolation” (Ward and Szabó 2019, p. 641), drawing on only one aspect of human experience will not be sufficient to fully comprehend this complex phenomenon. This tripartite approach helps us to synthesize existing research to gain a novel perspective on how individuals encounter digital transformation. Following Locke and Golden-Biddle (1997), we synthesize these research streams and reveal their underlying commonality of describing individual perception and response to stimuli and reveal previously uncharted overlaps. This synthesis builds the foundation of our integrative framework. Together with our conceptualization of digital mindset, we integrate the synthesis into a comprehensive framework to gain a more holistic understanding of individuals' perception and responses to digital transformation.

### **The Role of Individuals' Affect in Digital Transformation**

Affect represents individuals' emotional responses, ranging from pleasurable to unpleasurable emotions (Breckler 1984). Prior research examining individuals' affective perceptions and responses to digital transformation is mainly rooted in the information systems (IS) and psychology literature and has mainly focused on negative emotions, such as anxiety and stress (Pfaffinger et al. 2021; Tarafdar et al. 2017), including constructs like technophobia and -philia (e.g., Martínez-Córcoles et al. 2017), digitalization

anxiety (e.g., Pfaffinger et al. 2021), or technostress (e.g., Ragu-Nathan et al. 2008). Without adequate coping, negative emotions have detrimental behavioral, psychological, and physiological effects (e.g., Pfaffinger et al. 2021; Tarafdar et al. 2017). Individuals respond to their emotions with different adaptation behaviors, reflected in specific patterns of IT use (Stein et al. 2015). As driving forces of behavior, emotions are helpful to obtain a more complete picture of individuals' perceptions about digital transformation as well as their behavioral response to it (Beaudry and Pinsonneault 2010).

### **The Role of Individuals' Behavior in Digital Transformation**

Behavior refers to individuals' actions and behavioral intentions that vary from favorable to unfavorable (Breckler 1984). Individuals' behaviors in the context of digital transformation have been addressed both in the IS and the management discipline. The user adaptation literature addresses individuals' perceptions and responses to (new) IT (Bala and Venkatesh 2015; Beaudry and Pinsonneault 2005), which is fundamental for our understanding of individuals' digital mindset. The Coping Model of User Adaptation (CMUA; Beaudry and Pinsonneault 2005) states that individuals' IT use depends on users' appraisal of IT as an opportunity or a threat. The CMUA helps to understand when individuals show behaviors such as avoidance, trying to reestablish previous habits, using recommended IT features, exploring or altering IT features (Bala and Venkatesh 2015; Beaudry and Pinsonneault 2005). This innovation-seeking adaptation behavior ties in with the employee innovation literature which helps us to understand how individuals respond to digital transformation. Employee innovation implies creativity and refers to proactive, exploratory employee behavior outside their usual work aimed at developing new products or processes (Bäckström and Bengtsson 2019; Laviolette et al. 2016; Wallace et al. 2016). It is positively associated with personal growth and wellbeing and also involves digital innovation (Gawke et al. 2017; Opland et al. 2022). Given employees' crucial role in successfully implementing digital transformation (e.g., Mueller and Renken 2017), these insights into individuals' behavioral responses are fundamental to understand when and why individuals seize opportunities of digital transformation.

### **The Role of Individuals' Cognition in Digital Transformation**

Cognition includes individuals' thoughts, beliefs, and knowledge structures, ranging from favorable to unfavorable (Breckler 1984). Individuals' cognitions determine how they adapt to (new) IT (Bala and Venkatesh 2015; Beaudry and Pinsonneault 2005). In light of complex change such as digital transformation, examining single beliefs such as computer self-efficacy (i.e., an individuals' evaluation of their competence in utilizing a computer; Compeau and Higgins 1995) will not be sufficient to fully understand individuals' experience. We therefore draw on research on mindsets, i.e., sets of beliefs that direct our experience and responses (Lankshear and Knobel 2006). These meta-cognitive beliefs (Crum et al. 2017) help us understand how individuals behave toward, think, and feel in the context of digital transformation. The most central theory in this field posits that individuals with fixed mindsets believe that their abilities are static, whereas individuals with growth mindsets believe that their abilities are malleable and can be developed (Dweck 2006). While prior research has focused on the educational domain (Apiola and Laakso 2019; Han and Stieha 2020), considerably less evidence can be found on employees or in the context of digital transformation. Given that constant technological advancement necessitates continuous learning, believing that one's abilities can change and grow is crucial for individuals in adapting to digitalization (Solberg et al. 2020). A growth mindset, motivating individuals to explore, continuously learn and see challenges as opportunities for growth, could be essential for digital transformation readiness (Pätzmann et al. 2022). As a cognitive frame, mindset theory provides a fundamental cornerstone for our conceptualization of digital mindset.

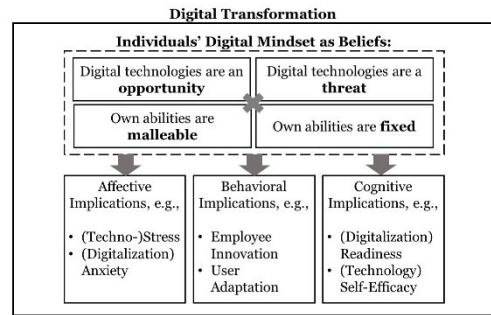
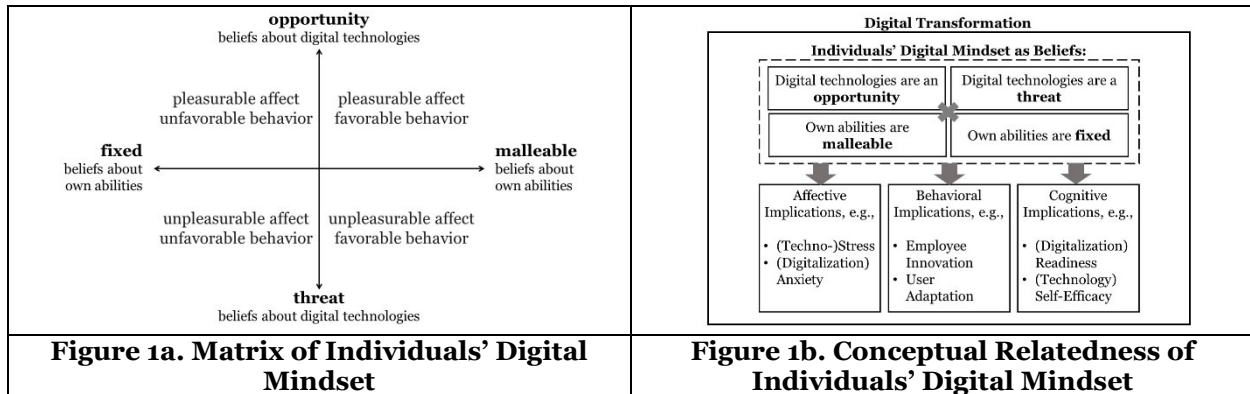
### ***Congruent Relationships and Latent Consensus Between the Streams of Research***

While these distinct research streams each contribute valuable insights into the affect, behaviors, and cognitions of individuals in digital transformation, research on individuals' digital mindset has yet to integrate these different perspectives. Given the unprecedented nature of digital transformation, examining the multifaceted phenomenon of a digital mindset from a single perspective will not be sufficient to fully comprehend its complexity. We demonstrate that, at a higher level, all three streams share the goal of explaining how individuals perceive and respond to stimuli and that by synthesizing these streams, we can gain a more comprehensive understanding of how individuals encounter digital transformation. Within the

affective dimension, the literature shows how emotions are fundamental for IT use behavior and adaptation strategies. This connects with the behavioral dimension, where user adaptation and employee innovation literature focus on how individuals adapt to IT and seize opportunities for (digital) innovation. Within the cognitive dimension, mindset theory centers around how individuals encounter challenges and perceive their abilities, shaping their response to new stimuli. Spanning boundaries across the three streams, growth mindset and employee innovation research implicitly share the underlying notion of individuals as proactive actors who can shape themselves and their environment and see change as an opportunity for growth (Bernecker and Job 2019; Gawke et al. 2017). Mindset and user adaptation literature address how individuals respond to (new) stimuli based on the attribution or cognitive appraisal of stimuli and their abilities (Beaudry and Pinsonneault 2005; Dweck 2006). The CMUA ties in with the resulting behavioral responses (Beaudry and Pinsonneault 2005). Employee innovation and user adaptation literature both describe proactive and innovative, goal-oriented behaviors (Bala and Venkatesh 2015; Gawke et al. 2017). Assuming that individuals' mindset and affect shape appraisal of stimuli and resulting adaptation strategies such as exploration to innovate (see Bala and Venkatesh 2015; Beaudry and Pinsonneault 2010; Crum et al. 2017) closes the interlocking cycles of the three research streams. Our synthesis of these research streams demonstrates the close relationships between these different dimensions of human experience as well as its joint relevance for understanding how individuals perceive and respond to digital transformation. Together with our novel conceptualization of digital mindset, the synthesized existing scientific work on individuals' affect, behavior and cognition can be integrated into an overarching framework, with many of the affective, behavioral, and cognitive responses being shaped by individuals' digital mindset. Digital mindset thus represents a meta-cognition that is closely intertwined with these responses.

### ***Toward A Theoretical Synthesis of Individuals' Digital Mindset***

Following our synthesis of distinct research streams, we now turn to conceptualizing digital mindset to integrate it into the overarching framework we introduce in this paper. We (re-)define individuals' digital mindset as their two-fold meta-cognitive beliefs about (a) digital technologies and (b) their own abilities to continuously adapt to new and evolving digital technologies. The first dimension builds on the CMUA (Beaudry and Pinsonneault 2005) and describes whether individuals generally think about digital technologies rather as a promising *opportunity* or a looming *threat*. Individuals with an opportunity focus will think that technology enhances their productivity and serves as a source of innovation and self-expression. Individuals with a threat focus may perceive technology as overwhelming, frightening, and detrimental for their job and wellbeing. The second dimension builds on mindset theory (Dweck 2006) and describes whether individuals believe that their own abilities to continuously adapt to new and changing digital technologies are *fixed* or *malleable*. Individuals with a fixed focus will believe that they are "not good with technology" and that there is little they can do to improve their innate skills. Individuals with a malleable focus will view learning new technological skills as an opportunity for personal growth, believing their learning efforts will lead to improvement. Both dimensions of fixed versus growth beliefs about one's own abilities and opportunity versus threat beliefs about digital technologies represent two poles at the end of a continuum rather than mutually exclusive categories. Perceived threat and fixed abilities represent unfavorable cognitions, whereas perceived opportunity and malleable abilities reflect favorable cognitions. Depending on individuals' expression of the two beliefs, they will differ in how they think, feel, and act toward digital transformation. Their digital mindset will affect the extent to which individuals are willing to proactively seize opportunities of digital transformation, whether they embrace continuous digital change, proactively seek opportunities to develop skills, and explore digital technologies. More specifically, individuals who perceive their abilities as fixed and digital technologies as a threat may experience both unpleasurable affect (e.g., high technostress) and behavior (e.g., avoiding new IT), whereas individuals with fixed beliefs about their abilities but perceiving digital technologies as an opportunity will still show unfavorable behavior (e.g., trying to find workarounds), but experience pleasurable affect (e.g., low anxiety). If individuals consider their abilities to be malleable and digital technologies as a threat, they will experience unpleasurable affect (e.g., high technophobia), but still (or just because of it) show favorable behavior (e.g., using recommended IT features). At best, individuals perceive digital technologies as an opportunity and their abilities as malleable, experiencing both pleasurable affect (e.g., enthusiasm for new technology) and behavior (e.g., high innovativeness). We assume that individuals' digital mindset can be depicted as a matrix of two continuous dimensions (see Figure 1a) and will have significant implications for a wide range of associated cognitive processes, emotional responses, and behavioral patterns, many of which are already known in the literature as outlined above (see Figure 1b).



Our theoretical synthesis departs from existing constructs and approaches to conceptualize individuals' digital mindset in three important ways. First, we take into account the complex nature of digital transformation (Hanelt et al. 2021), which requires drawing on more than one single cognition. Referring to sociomateriality (e.g., Orlikowski and Scott 2008), the imbrication of human and material agency that shape individuals' perception of digital technologies (Leonardi 2011), and the idea that IT can be integral to individuals' identity and expand their self-concept (Carter and Grover 2015), the individual and digital technologies are closely entangled (Leonardi 2011; Orlikowski and Scott 2008). This inseparability of the individual and digital technologies requires digital mindset to comprise a combination of two ontologically entangled cognitions: beliefs about oneself (i.e., one's own abilities to use and cope with ever-changing digital technologies) and beliefs about digital technologies themselves (i.e., whether they pose a threat or opportunity to oneself). This is reflected in our proposed combination of higher-level beliefs about oneself on one hand and about digital technologies on the other.

Second, our framework extends beyond the previous focus on technology- and situation-specific perceptions, e.g., user responses to the implementation of specific IT in the user adaptation and coping literature. Instead, we understand digital mindset as individuals' overarching response to (new) stimuli, stable across situations in the context of digital transformation (see Beaudry and Pinsonneault 2005; Crum et al. 2017; Tarafdar et al. 2017). We conceptualize a digital mindset as a prerequisite to adaptation and its consequences that is needed for successful continuous adaption required by digital transformation.

Third, we propose a more holistic view on digital mindset by not only referring to existing or newly-introduced IT but acknowledging their increasing malleability, prompting different responses in the future (see Kallinikos et al. 2013). The combination of two fundamental meta-cognitions enables future research to consider and observe even complex ambivalent individual responses to digital transformation (e.g., simultaneous positive affect but dismissive behavior). Our theoretical synthesis lays a foundation to further examine the complexity of existing boundary-spanning constructs and their conceptual relatedness to build an inter-nomological network across disciplines (Larsen and Hovorka 2012) to foster theoretical advancement. In doing so, we contribute to a more profound understanding of how individuals perceive and respond to digital transformation. As a key driver of this process, individuals' digital mindset is essential to successfully implementing digital transformation (Bitzer et al. 2021).

## Conclusion

In a world shaped by profound and perpetual change, we suggest that research needs to focus on individual-level mechanisms as success factors for digital transformation. Our paper demonstrates the need to revisit and integrate existing research and paves the way for new research questions and meaningful theoretical progress in the interdisciplinary discourse on individuals' digital mindset. The digital mindset matrix and its conceptual embeddedness introduced in this paper synthesize what we know and serve as a starting point to establish a more holistic comprehension of individuals' digital mindset. Our proposed integrative perspective focuses on individuals as a driving force of digital transformation while taking into account the complex nature of both digital transformation and individuals' meta-cognitive beliefs about it. By spelling out a comprehensive theoretical foundation and shedding light on when and why employee-driven digital innovation occurs, we address recent calls to develop new theories that account for the evolutionary nature of digital technologies (Young et al. 2021) and to investigate preconditions for and how they shape

employee-driven digital innovation (Opland et al. 2022). Although scholars across disciplines have started to generate initial insights, much theoretical work remains to expand our knowledge of individuals' digital mindset and how it relates to existing constructs in the nomological nets. While making individuals' digital mindset measurable has its uncontested merits, the most significant contribution at this stage is working toward a theoretical synthesis of existing research in the first place. This allows for meaningful progress in a fragmented intellectual field and moving the discourse forward in exciting and promising new directions. Once having carefully established a theoretical foundation, conceptual and construct clarity (Suddaby 2010), we can move forward to empirically investigate digital mindset. Empirical research on digital mindset should examine the temporal stability, potential antecedents, consequences, and causal relationships in the nomological net to manifest its relevance for addressing the challenges of digital transformation in organizational practice.

Apart from the theoretical realm, each combination of individuals' beliefs, i.e., their digital mindset, has implications for employees and managers. In line with findings from the post-adoption literature (e.g., Mueller and Renken 2017), the matrix can help managers to identify the digital mindset of their employees and to differentiate their beliefs about themselves and about digital technologies. Where an employee can be located in the matrix can help managers to decide on adequate measures considering an employee's digital mindset or develop targeted measures to alter an employee's mindset. For example, whether personnel development measures should rather address improving perceptions about digital technologies or beliefs in the ability to develop new skills. Being aware about employees' digital mindset is also important as it determines different affective, behavioral, and cognitive outcomes. Knowing where to locate employees in the matrix will enable managers and supervisors to act and intervene deliberately. Individuals with opportunity-growth digital mindsets could be multipliers and support their colleagues in adopting digital mindsets (Neeley and Leonardi 2022). Being aware of digital mindsets, including one's own, can be helpful in implementing and navigating digital transformation (Solberg et al. 2020).

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