The Role of IT Identity and Paradoxes in Explaining Avoidance Strategies

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Abstract

The increasing use of technology in personal and professional environments has led to the development of an information technology (IT) identity, which describes the extent to which individuals view IT as integral to their sense of self. Further, technology paradoxes describe the contradictory nature of IT, which can lead to behavioral disengagement, causing significant disruptions in enterprise digitization. To better understand the interrelationships of IT identity, technological paradoxes, and user behavior, the study develops a theory-based model to explore the interplay between IT identity and technology paradoxes and their effects on behavioral disengagement. The findings reveal that IT identity mitigates the perception of technology paradoxes and impacts coping behaviors. We contribute to literature by quantifying and validating their effects and suggesting opportunities for future research. That way, practitioners can develop more effective strategies for promoting engagement and addressing disengagement among employees or users.

Keywords: IT Identity, Technology Paradoxes, Employee Behavior, Coping Mechanisms, Digital Technology

Introduction

The continuous integration of information technology (IT) into our daily lives has transformed how people connect with others, express themselves, and engage in various activities (Carter and Grover 2015). As an answer to this continuous intertwinement of people and IT, the construct of IT identity enhances our understanding of human behavior (Hillmer 2009). IT identity is defined as "*the extent to which an individual views use of an IT as integral to his or her sense of self*" (Carter and Grover 2015) and provides a deeper understanding of how individuals interact with technology (Carter et al. 2020b). As identity provides meaning to individuals about who they are and significantly determines behavioral outcomes (Caza et al. 2018; Welbourne and Paterson 2017), the concept of IT identity is informing research on different forms of behavior, such as feature and exploratory usage, ultimately driving competitive advantage in the digital economy (Carter et al. 2020b). For instance, research emphasizes the role of IT identity in

shaping individual behavior, as threats to IT identity can lead to resistance to technology adoption and usage (Craig et al. 2019). This finding results from the initial identity research, which found that if individuals experience a conflict with their identities, they are likely to avoid it to maintain their self-esteem (Petriglieri 2011). Therefore, when IT leads to conflicts with one's identity, stress can be induced, which translates into avoidance coping behaviors, such as behavioral disengagement (Carver et al. 1989; Marakas and Hornik 1996; Mick and Fournier 1998). This behavioral disengagement not only slows down internal processes but can also permanently disrupt the progress of enterprise digitization.

Behavioral disengagement may also be the result of technology paradoxes. While the dependency on technology has facilitated greater efficiency and convenience for technology users (Mick and Fournier 1998), it has also resulted in a range of technology paradoxes formally described as *"a situation, act, or behavior that seems to have contradictory or inconsistent qualities*" (Jarvenpaa and Lang 2005). On the one hand, modern communication tools have an immense potential to support interaction and collaboration while increasing their efficiency and autonomy (Schneider 2020). On the other hand, employees can experience greater stress due to constant accessibility and expectation of an immediate response to incoming messages (Maier et al. 2019). Similarly, mobile technology was found to allow users to acquire new competencies and perform tasks more efficiently and effectively (Jarvenpaa and Lang 2005). As users try to use their new competencies, they experience a new sense of incompetence due to unexpected challenges that arise (Jarvenpaa and Lang 2005). This paradoxical nature of IT illustrates that trade-offs and unintended consequences, which often accompany the introduction of new technologies, lead to different behavioral reactions (Mick and Fournier 1998). When experiencing technology paradoxes, users started to cope by avoiding or confronting interaction with IT (Holahan and Moos 1987; Mick and Fournier 1998). While the former refers to behavioral disengagement by ignoring, neglecting, or even abandoning the technology, confrontation describes a way of understanding and accommodating the technology (Jarvenpaa and Lang 2005; Mick and Fournier 1998).

However, despite previous research on IT identity and technology paradoxes, the complex interplay between these constructs in shaping employee behavior remains an open issue. As IT can produce unintended and paradoxical consequences leading to behavioral disengagement, a strong identification with IT may reduce the occurrence of technology paradoxes when a new system conflicts with established work processes. Resolving such conflicts and resulting behavioral disengagement is essential, as the success of information systems (IS) is critical to ensure organizational competitiveness. As discussed above, IT identity affects user behavior and technology engagement (Carter et al. 2020b), while technological paradoxes can lead to different coping behaviors to reduce negative emotions associated with technological paradoxes (Mick and Fournier 1998). Therefore, we suspect that both concepts – IT identity and technology paradoxes – are interrelated, and a combined view of IT identity and technological paradoxes can improve our understanding of behavioral disengagement. Consequently, we aim to answer the following question:

RQ: What is the role of IT identity and technology paradoxes in behavioral disengagement?

Addressing our research question, we develop a theory-based model and test it using a structural equation model in SmartPLS 4. We explore the conceptualization of technology paradoxes and IT identity, their potential mediating effect, and the boundary conditions under which they may or may not impact behavioral disengagement. We shed light on how behavioral disengagement arises, with technology paradoxes and IT identity emerging as key explanatory factors. Our analysis provides a novel contribution to the literature on IT identity by revealing its direct and indirect impact on coping behaviors and its ability to mitigate the perception of technology paradoxes. Additionally, our findings enrich the literature on paradoxes by quantifying and empirically validating their theoretically posited adverse effects.

The following sections examine relevant literature to provide a theoretical understanding of IT identity, technology paradoxes, and coping behavior. Afterward, we theoretically develop and test hypotheses in light of our research question. Finally, we present the limitations and theoretical and practical contributions of our research and provide opportunities for future research.

Theoretical Background

In the following sections, we will provide an overview of existing research on the two underlying theoretical constructs of IT identity and technology paradoxes, as well as their influence on behavioral outcomes.

IT Identity

Identity can be understood as a personal and subjective interpretation of who someone is (Ashforth and Mael 1989). This interpretation is shaped by a complex interplay of socio-demographic characteristics, such as age, gender, ethnicity, personal attributes, roles, and group memberships (Caza et al. 2018). These factors all contribute to how individuals perceive themselves and their place in society and influence their behavior and decision-making. Literature on IT identity adds to existing identity literature by showing that social structures and IT are intertwined, acknowledging the fact that with the growing integration of IT into modern workplaces, employees increasingly rely on various digital tools and systems to perform their jobs (Hillmer, 2009; Hinings et al., 2018; O'Brien & Marakas, 2006; Vial, 2021). As an answer to this intertwinement of people and IT, the construct of IT identity enhances our understanding of human behavior (Carter et al. 2020b). As stated above, IT identity refers to how individuals identify with and attach meaning to technology, manifested through different emotional responses (Carter and Grover 2015).

According to Carter et al. (2020a), individuals' emotional responses are represented by relatedness, emotional energy, and dependence and reflect the extent to which IT is integrated into individuals' self-concepts. Relatedness refers to individuals' sense of connectedness to IT. This emotional response reflects the degree to which IT is perceived as a part of individuals' lives. Precisely, relatedness describes the feeling that individuals incorporate IT capabilities into their respective selves, blurring the line between their own capabilities and the capabilities of IT. That is, individuals view IT capabilities as a self-expansion of the own capabilities, leading to positive emotions and energy toward IT to enhance self-esteem (Carter et al. 2020a). Further, emotional energy reflects the degree to which IT causes strong emotional attachments and enthusiasm from individuals. It is built through accumulated positive interactions with an IT and represents the resulting feelings of confidence, enthusiasm, and energy when thinking about the own self and the IT. Exemplarily, using an IS repeatedly successful for a task over time leads individuals to positive confidence and enthusiasm when they think of themselves and the IS, resulting in an overall increased emotional attachment (Carter and Grover 2015). Finally, dependence indicates the level of individuals' reliance on IT to meet essential requirements such as social connections, cognitive functioning, and emotional well-being. Exemplarily, individuals express feelings of reliance when thinking of their selves in relation to their smartphone, as it holds memories to identify themselves (e.g., through images or conversations) or mechanisms to communicate and sustain relationships (e.g., instant messengers or contact lists) (Carter and Grover 2015). These emotional responses reflect the affective meanings that individuals associate with IT and can be used to assess the degree to which IT is integrated into individuals' self-concepts.

By examining how individuals identify with and use ITs, researchers have started to gain insight into how these technologies shape roles and relationships and how they impact individuals' sense of self (Carter & Grover, 2015). In the current body of IS literature, IT identity studies have shown different antecedents to and consequences of IT identity (Mosafer and Sarabadani 2021). The antecedents to IT identity in IS literature are multi-faceted, encompassing individual characteristics (Polites et al. 2018), technological characteristics (Weng et al. 2019), social influence (Ogbanufe and Gerhart 2020), and organizational factors (Boroon et al. 2019). For instance, an individual's personality traits, like the process of identity verification based on past experiences with technology, can promote the development of IT identity (Esmaeilzadeh 2021). In addition to solely individual characteristics, aligning technology features with personal values fosters the development of IT identity (Weng et al. 2019). Finally, social interactions enabled by the IT (Ogbanufe and Gerhart 2020) and organizational policies and practices that promote or discourage IT use can reinforce or undermine the identification with IT (Boroon et al. 2019). Initial research has started to explore the emotional responses that reflect IT identity and their implications for individuals' behaviors and outcomes (Carter et al. 2020a).

Findings show that individuals who possess a strong sense of self-identification with IT (in this case, a social networking site) are more likely to perceive their ability to exercise self-control over their time as inadequate (Polites et al. 2018). This indicates that a deep identification with IT may result in a decreased sense of self-regulation over time management (Polites et al. 2018). In other studies, individuals with a strong IT identity experienced benefits such as higher job satisfaction, greater job performance, and enhanced organizational commitment (Carter et al. 2020b; Esmaeilzadeh 2021; Hassandoust 2017; Sundrup et al. 2019). For instance, individuals with stronger IT identities are more likely to view IS as essential and valuable tools and are more willing to adopt and use new systems (Hassandoust 2017). Adding to these insights IT identity

can be an important factor to better understand individuals' interactions with technology (i.e., IT feature and exploratory usage) in the post-adoption context (Carter et al. 2020b).

Previous literature on IT identity reveals two main issues. First, research has extensively explored the effects of IT identity on positive engagement behaviors, such as enhanced IT use (Esmaeilzadeh 2021), explorative IT use (Carter et al. 2020b), or IS infusion (Hassandoust 2017). However, despite these efforts, the literature still needs to adequately address how IT identity can influence behaviors resulting from adverse effects caused by IT. Second, studies on the effects of IT identity on engagement and IT beliefs have primarily included positive beliefs regarding IT outcomes and use, such as usage impact or meaning (Hassandoust 2017), performance expectancy (Carter et al. 2020b), and usability (Esmaeilzadeh 2021). Consequently, it remains unclear whether these effects also occur when negative effects of these technologies are apparent, although simultaneous perceived positive and negative consequences, also named paradoxes, have shown to play a significant role in the context of individuals' identities and their effects (Wu 2019). To address these gaps, our study investigates the role of IT identity in the emergence of paradoxes and consequential coping behaviors, such as behavioral disengagement, associated with technology use.

Technology Paradoxes

The paradoxical character of IT requires technology users to deal with a range of positive and negative outcomes arising from IT use (Park and Zhang 2022). Thereby, technology paradoxes are inconsistencies or contradictions arising from IT use and are an inseparable part of technology and the overall user experience (Jarvenpaa and Lang 2005). The human experience of a paradox is a complex phenomenon that yields a continuum ranging from more or less strong perceptions of a paradox (Lee 1965). Hence, between two extremes lies a range of intermediate positions, reflecting the fact that individuals may experience paradoxes differently depending on a variety of factors, including their personal beliefs, values, and experiences (Smith and Lewis 2011). These tensions are not unique to IT, as many technological advancements throughout history have come with associated risks and benefits (Garity 2012; Lewis 2000). Nonetheless, the increasingly dynamic nature of IT in the digital workplace further complicates the issue, leading to challenging tensions for users (Schneider 2020). As such, understanding the interplay between the positive and negative aspects of IT use becomes crucial for scholars and practitioners alike.

Early research in the area of technological paradoxes identified control/chaos, freedom/enslavement, new/obsolete, competence/incompetence, efficiency/inefficiency, fulfillment of needs/creation of needs, assimilation/isolation, and engagement/disengagement as the eight key paradoxes of technology (Mick and Fournier 1998). Subsequent research found that planning/improvisation and private/public paradoxes are additionally relevant when individuals use mobile technology (Jarvenpaa and Lang 2005), and continuity/asynchronicity, engagement/disengagement, and autonomy/addiction arising from the use of wireless email devices (Mazmanian et al. 2006).

More recently, Schneider (2020) examined technology paradoxes in the workplace as a consequence of the ubiquity of digital technology in professional and personal lives. In their interviews, the researchers discovered that digital communication options lead to an *autonomy paradox*. Digital technologies provide increased autonomy and flexibility, as employees possess constant access to their teams, tasks, documents, or tools, allowing them to complete work tasks independently from location and time. At the same time, employees also reported feeling stressed due to the constant expectancies to be available and responsive (Schneider 2020). These findings and the autonomy paradox are congruent with the freedom/enslavement paradox of prior literature (Jarvenpaa and Lang 2005; Mick and Fournier 1998).

Furthermore, digital technologies provide more and easily accessible available data, enabling employees to find helpful information quickly and derive conclusions about performance easily. At the same time, the available information exceeds employees' absorption and processing capabilities and renders traceability of all activities of employees, raising fears of information overload, too much transparency, and surveillance. In addition to that, the constant possibility of information access and exchange creates new opportunities for interaction and communication, saving time and costs. Simultaneously, these possibilities for communication and interaction lead to challenges, as, for instance, unnecessary interaction is created, and difficulties to communicate conflicts or sensitive information occur. In addition, this enabled interaction can lead to frustration and inefficiencies, for example, due to problems of communication and interaction of information due to connectivity issues (Schneider 2020). Taken together, the expected gains

of efficiencies of information, communication, and interaction and fears of inefficiencies are congruent with the general efficiency/inefficiency of previous literature (Mick and Fournier 1998) and will be referred to as *efficiency paradox* in the following. Finally, Schneider (2020) identified the *engagement paradox*. On the one hand, the employees perceive rising interest and motivation in changes, adaptations, and learnings that new digital technologies entail, optimistically evaluating their potential outcomes. On the other hand, employees experience uncertainty about the complexity of such engagements and the potential future impacts of digital technologies on their work, roles, and tasks (Schneider 2020). The struggle of employees to balance gains and losses of potential engagements with digital technologies is congruent with previous identifications of engagement paradoxes when interacting with technology (Mazmanian et al. 2006; Mick and Fournier 1998). As our research informs about the impact of IS in the workplace and especially the consequential engagement behavior of IS, we will focus on the *autonomy*, *efficiency*, and *engagement paradox* in the scope of this paper.

Coping with Technology and Paradoxes

Coping refers to the range of thoughts and actions an individual employs to handle a particular situation and its outcomes (Folkman and Lazarus 1985). Effective coping with IT is essential as refusing IT usage can threaten organizations' competitiveness. Therefore, it is important to understand the decision process and psychophysiological mechanisms underlying coping behaviors following IT usage (Korosec-Serfaty et al. 2022). An investigation of IS use patterns and negative IT perceptions revealed that the success of IT rather depends on how than on how much individuals use IT (Guinea and Webster 2013). Further, the immediate impact of the introduction of IT impacting how individuals use IT is weakened over time as users start accepting the situation as not changeable (Folkman and Lazarus 1985). However, this perception of non-changeability often leads to disengagement coping (Carver et al. 1989), which includes withdrawing or reducing any behavioral efforts to deal with technology (Guinea and Webster 2013; Gutiérrez et al. 2007). For instance, individuals exposed to technostress and financial insecurity perceived technostress as far more severe by showing a greater impact on disengagement than the apparent financial loss (Korosec-Serfaty et al. 2022).

The technological paradoxes identified in the literature can create emotional responses such as conflict, anxiety, and stress for users (Wilson-Nash and Tinson 2022). Thereby, individuals facing paradoxes must learn to simultaneously process competing demands in order to cope effectively (Raisch et al. 2018; Smith and Tracey 2016). Based on previous insights into different technological paradoxes, subsequent research has found two main coping strategies as behavioral outcomes: *avoidance* and *confrontative strategies* (Mick and Fournier 1998). The former refers to user strategies that aim at minimizing interaction with technology, while the latter describes strategies that involve negotiation with technology (Jarvenpaa and Lang 2005). The unique responses of users and their ability to manage conflicts and deal with technological challenges are, in turn, influenced by situational and contextual factors, such as the kind of technology or social context (Jarvenpaa and Lang 2005). As part of the avoidance strategy, neglecting behavior involves displaying temporary indifference toward a technology, which manifests in declining or discontinuing the use of a technological possession (Mick and Fournier 1998). Further, distancing behavior involves physically or mentally separating oneself from technology by developing restrictive rules for when or how a technological possession will be used or physically placing it in an unobservable or remote site (Mick and Fournier 1998). While these coping strategies can effectively reduce negative emotions associated with technological paradoxes, they can spawn negative consequences. Neglecting or abandoning technologies can result in reduced productivity or reduced engagement with the technology and limit the potential benefits it can offer (Brynjolfsson 1993; Smith and Beretta 2021; Smith and Lewis 2011). Therefore, as the goal of our study is to elaborate on the role of IT identity in adverse behavioral outcomes of IT, we focus on *behavioral disengagement* as a proxy for avoidance strategies with negative consequences.

In other than IS contexts, such as creativity and innovation (Liu et al. 2020; Miron-Spektor et al. 2018; Shao et al. 2019), quantitative studies show that individual differences can significantly affect how paradoxes are perceived in organizations. However, in IS research and the context of IS use in organizations, quantitative results remain scarce, as research regarding paradoxes primarily revolved around conceptual literature-based or explorative qualitative approaches (e.g., Jarvenpaa and Lang 2005; Schneider 2020), focusing on the previously outlined types of occurring paradoxes and resulting coping behaviors. Further, despite the existing literature on IT identity and technology paradoxes, the complex relationship between these constructs and statistical evidence remains an open issue in IS research. Since

engagement with IT is essential to a company's competitiveness in the digital age, the impact of IT identity on technological paradoxes and individuals' behavioral disengagement opens a novel research area to investigate how such negative coping behavior can be influenced. In the following, we develop our theory-based research model illustrating the relationships between IT identity, technological paradoxes, and behavioral disengagement.

Hypothesis Development

In the following, we display the research model of our paper (Figure 1) and develop our hypotheses below.

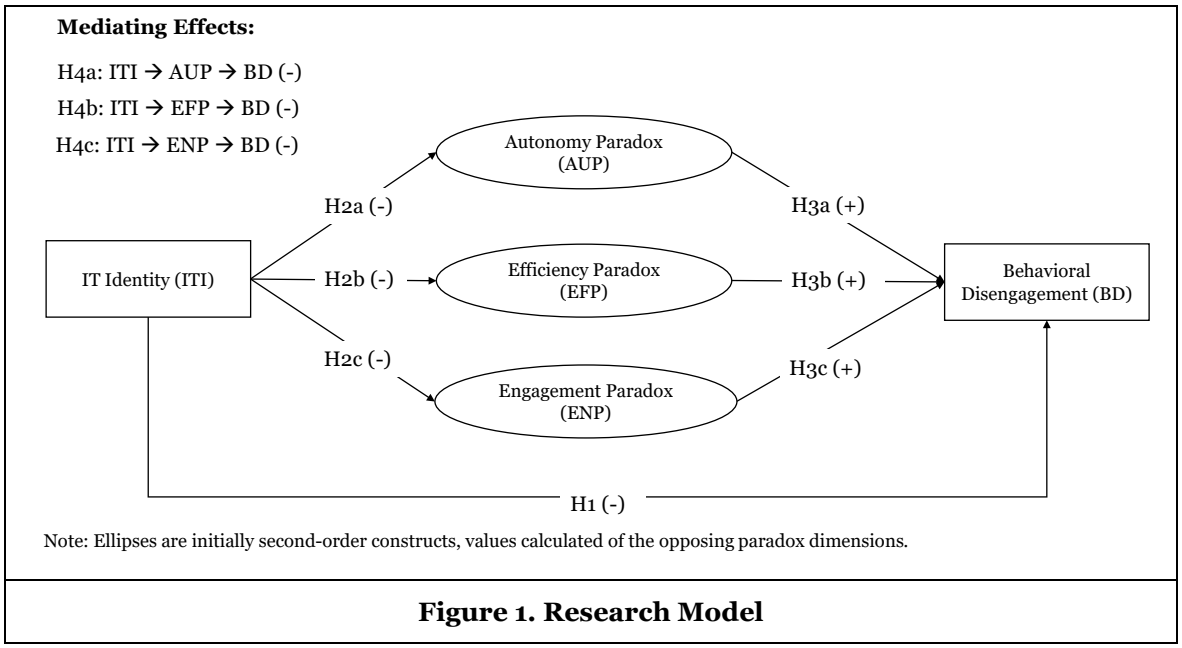

Figure 1. Research Model

We first refer to the relationship between IT identity and behavioral disengagement. As previously outlined, IT identity describes individuals' positive self-identification with IT, reflected by emotional responses of relatedness, positive emotional energy, and dependence when thinking about themselves in relation to a specific IT (Carter et al. 2020a; Carter and Grover 2015). Further, individuals' behavioral disengagement describes the minimization of interaction by reducing coping efforts (Carver et al. 1989). Previous research indicates that the emotional responses reflecting IT identity, such as enthusiasm, increase the probability that individuals will rather actively engage with IT, increasing their efforts in using and exploring technologies, such as exploring IT feature usage and reinforcing the use of IT (Carter et al. 2020b; Ogbanufe and Gerhart 2020). Hence, IT identity positively affects behavioral engagement (Esmaeilzadeh 2021). Accordingly, as those individuals are rather inclined to engage in interactions with IT actively, we derive that, at the same time, they are generally less likely to minimize their actions with IT. We propose:

H1: IT identity is negatively related to behavioral disengagement.

We now turn to the relationships between IT identity and the autonomy paradox, the efficiency paradox, and the engagement paradox.

The autonomy paradox describes tensions between feelings of independence and autonomy and the simultaneous feeling of constraints and dependence when using IT for tasks (Jarvenpaa and Lang 2005; Mick and Fournier 1998; Schneider 2020). As individuals with higher levels of IT identity perceive higher levels of relatedness, which blurs boundaries between IT and one's capabilities, they perceive the functions and features of an IS as their own capabilities (Carter et al. 2020a). Hence, using the capabilities of the IS may create the feeling of using one's own capabilities, reducing the feeling of dependence, and lowering the tensions between feelings of autonomy and dependence. Higher levels of emotional energy may also enhance this, as individuals create positive emotions and enthusiasm when using IT for tasks at work to enhance their self-esteem (Carter and Grover 2015), which may suppress negative feelings associated with dependence. Additionally, as higher levels of dependence on IT identity describe feelings of reliance as a

source of well-being regarding IT (Carter et al. 2020a), individuals may perceive dependence on IT not as negatively constraining but rather interpret them as a positive emotional attachment to the IT. Accordingly, higher levels of relatedness, emotional energy, and reliance on IT identity decrease the negative feelings of constraints and dependence when using the IS for solving tasks at work, reducing the overall tensions between autonomy and enslavement. We formally state:

H2a: IT identity negatively influences the perception of the autonomy paradox.

The efficiency paradox describes tensions that arise between the perception of potential efficiency gains through enabled collaboration, data, or interaction possibilities of IT and inefficiencies driven by tremendous amounts of information, complex systems, or training times (Mick and Fournier 1998; Schneider 2020). With higher levels of relatedness, individuals incorporate multiple IT capabilities, viewing them as their own, which may reduce the probability of training or familiarization requirements when using technology that may lead to perceived potentials for inefficiencies (Jarvenpaa and Lang 2005; Park and Zhang 2022). Feeling more enthusiastic and energetic in relation to IT, individuals might be more likely to perceive potential gains and efficiencies of IT, as these are in line with the expressed positive emotions toward IT (Carter et al. 2020a). Finally, individuals that experience a strong reliance on their IT might rather identify with positive outcomes of IT interactions, such as efficiency gains, as they are emotionally attached to the IT they interact with and sense reliance upon the functions of IT as a source of personal well-being and self-esteem (Carter et al. 2020a). Hence, relatedness, emotional energy, and dependence in relation to IT lead individuals to rather perceive the efficiency potentials instead of sources for inefficiency, decreasing the rising tensions between these opposing poles. We hypothesize:

H2b: IT identity negatively influences the perception of the efficiency paradox.

The engagement paradox describes tensions that arise between feelings of interest and motivation to engage in interactions with IT, as individuals optimistically evaluate IT, and uncertainty about the chances and threats of those engagements (Schneider 2020). In general, research indicates that the perception of the engagement paradox is influenced by the "personal state of mind" (Jarvenpaa and Lang 2005). Exemplarily, by fostering higher levels of relatedness, individuals can establish a closer bond with IT, leading them to perceive IT as an extension of themselves and as possessing integrated IT capabilities (Carter et al. 2020a). As a result, individuals may develop a heightened sense of certainty in their abilities to achieve desired outcomes when engaging with IT capabilities. Further, enthusiasm and positive emotions in relation to IT, associated with higher levels of emotional energy (Carter et al. 2020a), may lead to even more optimistic evaluations, resulting in higher interest and intrinsic motivation to engage (Schneider 2020). Lastly, due to incorporated feelings of reliance regarding IT (Carter et al. 2020b), uncertainty regarding potential engagement outcomes with IT is reduced as individuals are precisely aware of the powers the IT possesses with regard to the own self, resulting in a clearer anticipation of potential threats or chances (Craig et al. 2019; Strich et al. 2021). Accordingly, relatedness and dependence may reduce the feelings of uncertainty regarding engagements with IT, while emotional energy strengthens the interest and motivation of engaging with IT, which may ultimately reduce the tensions of those opposing poles. Therefore, we hypothesize:

H2c: IT identity negatively influences the perception of the engagement paradox.

We now turn to the relationships between behavioral disengagement and the autonomy, efficiency, and engagement paradox. While IT leads users to perceive greater autonomy, efficiency, or engagement, they also experience negative emotional responses such as conflict, anxiety, or stress. One frequently mentioned mechanism to handle such situations is the reduction or cessation of efforts (Mick and Fournier 1998), leading to higher probabilities of withdrawal of individuals from the task instead of actively confronting them. Additionally, previous qualitative studies propose that explicitly behavioral disengagement might play an important role when experiencing those tensions, supporting this assumption (Jarvenpaa and Lang 2005; Mick and Fournier 1998). Hence, it is reasonable that individuals aim to minimize their interactions with IT once they experience such negative emotions. We propose:

H3a: The autonomy paradox negatively influences behavioral disengagement.

H3b: The efficiency paradox negatively influences behavioral disengagement.

H3c: The engagement paradox negatively influences behavioral disengagement.

Taken together H2a-c and H3a-c, we formulate mediation relationships. According to Baron and Kenny (1986, p. 1173), a mediator is "*a third variable, which represents the generative mechanism through which the independent focal variable can influence the dependent variable of interest*". In our model, the dependent variable is behavioral disengagement, the independent variable is IT identity, and the mediators are the technology paradoxes. As the negative emotions resulting from existent tensions of paradoxes generally have a higher impact on behavior (Vaish et al. 2008), direct effects of positive emotions associated with IT identity, such as higher relatedness, positive energy, enthusiasm, or reliance on behavior might be decreased. Instead, these paradoxes might cause these dimensions to attenuate the perception of the negative effects of paradoxes, making reactions like withdrawal less likely, ultimately leading to a reduction of behavioral disengagement. Accordingly, the autonomy, efficiency, and engagement paradox may better explain IT identity's effects on behavioral disengagement, which ultimately classifies it as a mediator (Zhao et al. 2010). We hypothesize:

H4a: The autonomy paradox mediates the negative effects of IT identity on behavioral disengagement.

H4b: The efficiency paradox mediates the negative effects of IT identity on behavioral disengagement.

H4c: The engagement paradox mediates the negative effects of IT identity on behavioral disengagement.

Methodology

Data Collection and Sample Characteristics

We tested our model empirically and collected data in two waves using the crowdsourcing platform Prolific. Collecting data via crowdsourcing platforms showed similar data quality to data collected in organizations and is a well-established data collection method in IS research (Maier et al. 2019). Additionally, we applied recommended data quality mechanisms for crowdsourced data, such as filtering for workers with high acceptance rates (95%), completed each survey in a realistic time frame (i.e., >6 minutes) and are located in the US, as well as including trap questions in each wave (e.g., "What is your favorite color? This is a data quality check. Regardless of the true value, please select blue.") (Jia et al. 2017; Liu and Wronski 2018).

Our sampling strategy was to survey users who perceive digital paradoxes and are likely to possess IT identity. Hence, we applied a pre-screening question (N = 900) to filter for employed people that regularly use an IS (e.g., SAP, Salesforce, Workday, or a system with a smaller range and scope) that significantly affects their daily work. 186 out of 399 pre-screened participants completed both study waves and passed all data quality checks. The sample characteristics for our final sample are presented in Table 1.

Age (years) M = 37.12 STD = 10.98	<18 18-30 31-40 41-50 51-60 > 60	0.0 31.4 27.7 14.7 9.4 2.9	Employment level	Entry Level Associate Manager Owner/Self-employed/Executive Level	14.6 41.3 37.9 6.3
Gender	Female Male	45.1 54.9	IS Relevance M = 3.93 STD = 0.97	Not at all important (1) Slightly important (2) Moderately important (3) Very important (4) Extremely important (5)	0.0 10.7 18.4 37.9 33.0
Level of education	Less than High School High School College without Degree Associate's Degree Bachelor's Degree Master's Degree Doctoral /Professional Degree	0.5 6.3 13.6 7.8 44.7 20.9 6.3			

Table 1. Sample Characteristics (N = 186; M = Mean; SD = Standard Deviation; in Percent)

We used widely established scales and assessed IT identity (4 items), age, gender, educational level, employment level, and the relevance of the IS for tasks in the first wave (Carter et al. 2020a). We also included a 3-item marker variable for fashion consciousness (Malhotra et al. 2006). In the second wave, we assessed behavioral disengagement using a four-item scale (Carver et al. 1989). Further, as there are – besides measurement models that survey the perceived tension instead of independently assessing the opposing poles of paradoxes – no established measurement models for surveying digital paradoxes, we adapted existing survey items to assess perceived autonomy (5 items), efficiency (4 items), and engagement (5 items), on the one hand, and perceived dependence (5 items), inefficiency (4 items), and disengagement (5 items), on the other hand (Johnson et al. 2008; Park and Zhang 2022). All scales were assessed with a seven-point Likert scale, ranging from 1 ("strongly disagree") to 7 ("strongly agree"). Subsequently, we calculated a paradox score using the opposing paradox dimensions and analyzed the model using partial least squares (PLS) in the software SmartPLS 4.

Derived from theory, we conceive paradoxes as a continuum from very weak to very strong (Lee 1965; Smith and Lewis 2011). Therefore, the paradox score should take into account the simultaneous expression of the opposite poles. The more evenly the opposite poles oppose each other, the higher the tensions due to equally expressed opposing perceptions (Lee 1965; Smith and Lewis 2011). If the poles do not oppose each other at all, no paradox is prevalent. In our study, this is the case when a pole x (e.g., inefficiency) is scored with the value 1, while the opposite pole y (e.g., efficiency) is scored with the value 7 or vice versa. Considering this simultaneous expression is important to give more weight to evenly opposed paradoxes (e.g., x = 3 and y = 3) than to unevenly opposed paradoxes (e.g., x = 2 and y = 4). Apart from that, the calculation should consider the poles' absolute strength. This is considered by the sum of the expressions (x + y). Hence, the formula for calculating the paradoxical score is a function of the existing opposition as weight multiplied by the summed expression. The weighting of the existing opposition is calculated from the difference of the maximum possible deviation of the poles (6) minus the amount of the actual deviation (x - y). Accordingly, if the paradoxical dimensions were not rated completely opposite (|x-y| < 6), the following formula is used to calculate a paradox score:

$$f(x,y) = (x + y) \times (6 - |x - y|)$$

Figure 2 illustrates the paradox space within the quadrant of potential dimension value combinations and provides exemplary paradox scores. As an example of the efficiency paradox, the x-axis and the y-axis with values from 1 to 7 represent the respective opposing poles. For instance, the value f(7,7) = 84 is the highest possible paradox value meaning that an individual perceived very high inefficiency while also experiencing very high efficiency using the IS at the workplace. No paradox is present if an individual perceives very high efficiency and no inefficiency (value f(7,1) = 0). The same applies to no efficiency and high inefficiency (value f(1,7) = 0). The diagonal line in the graph denotes a paradox continuum from the lower left (weak paradox) to the upper right (strong paradox). The same holds for the autonomy and engagement paradoxes.

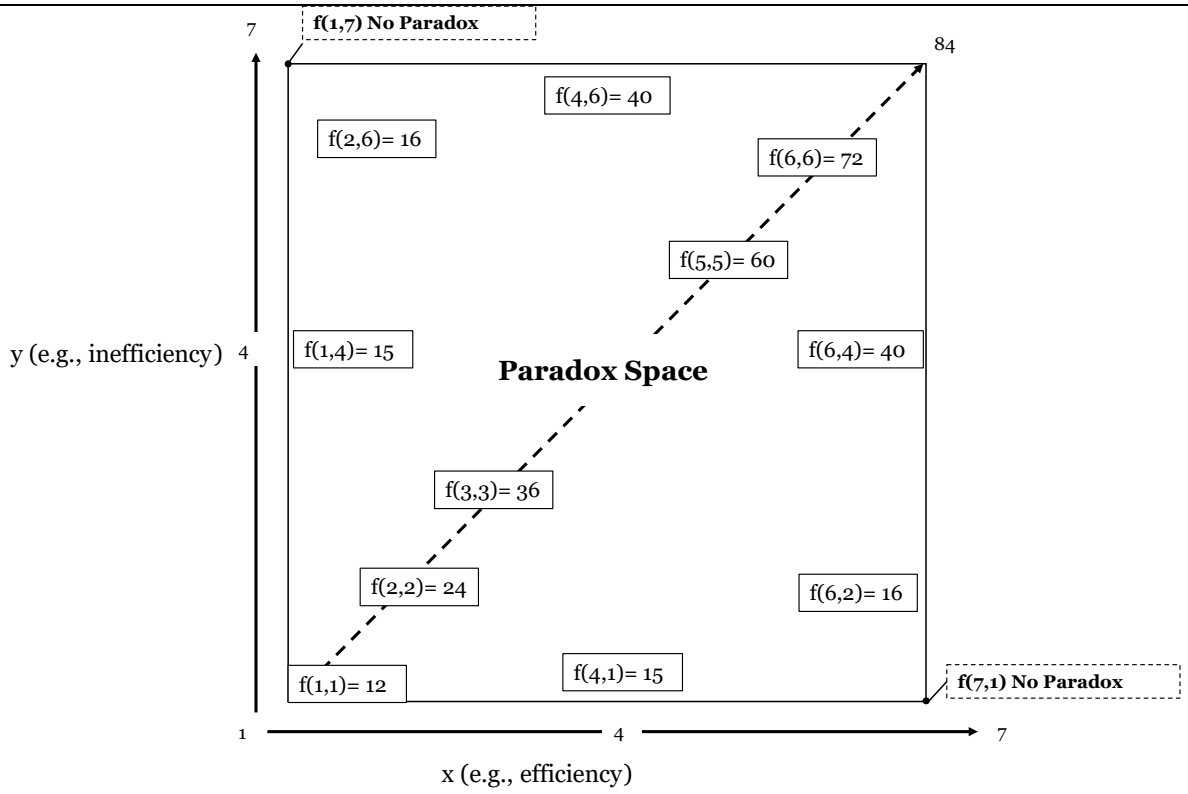

Figure 2. Illustration of Exemplary Paradox Scores Based on the Developed Formula

Common Method Bias

We employed numerous measures and analyses to mitigate the risk of common method bias (CMB) in our research. Our primary approach was to split the data collection into two distinct phases, effectively minimizing various factors that could lead to CMB, including recall biases. Additionally, we performed different tests to detect possible CMB-caused distortions. First, Harman's single-factor test showed that a single factor explains 27.7% of the sample variance. Second, we checked that variances inflation factors (VIFs) were well below 3.3. Third, we included a CMB factor (i.e., *fashion conscientiousness*) in the model and transformed all remaining factors into single-item constructs. A comparison of R^2 with CMB (.106) to R^2 without CMB factor (.099) showed a small average delta of .007 of variance is explained by the CMB factor. Therefore, our tests indicate no observable signs of CMB in our study.

Validation of the Measurement Model

For validating our measurement model, we tested for indicator and construct reliability and discriminant validity (Bagozzi 1981). As every item in our analysis has loadings higher than .707, we can confirm indicator reliability (Carmines and Zeller 1979; see Table 3 in the Appendix). Further, as the average variance extracted (AVE) of all measured constructs exceeded .50 and .70 for composite reliability (CR), we infer sufficient construct reliability (Fornell and Larcker 1981) (see Table 4 in the Appendix). Lastly, we verified discriminant validity as the AVE square root values were found to be higher than the correlations of other constructs (see Table 4 in the Appendix), and the correlation matrices revealed that all indicator correlations are higher with the intended construct than with the items of other constructs (Henseler et al. 2015).[1]

[1] Detailed reports regarding discriminant validity for both samples were excluded due to the page limit but can be obtained from the authors upon request.

Results

Figure 3 summarizes the findings of our structural model analysis. With a value of .042, the standardized roots mean square residual (SRMR) indicates a good model fit below .05 (Cangur and Ercan 2015). Together with the control variables, the IT identity explains 14.3% of the variance of the autonomy paradox, 11.7% of the efficiency paradox, and 7.6% of the engagement paradox, and IT identity and the paradoxes explain 36.8% of the variance of behavioral disengagement. Figure 3 presents the path coefficients for our different tested models and individual effect sizes in further detail.

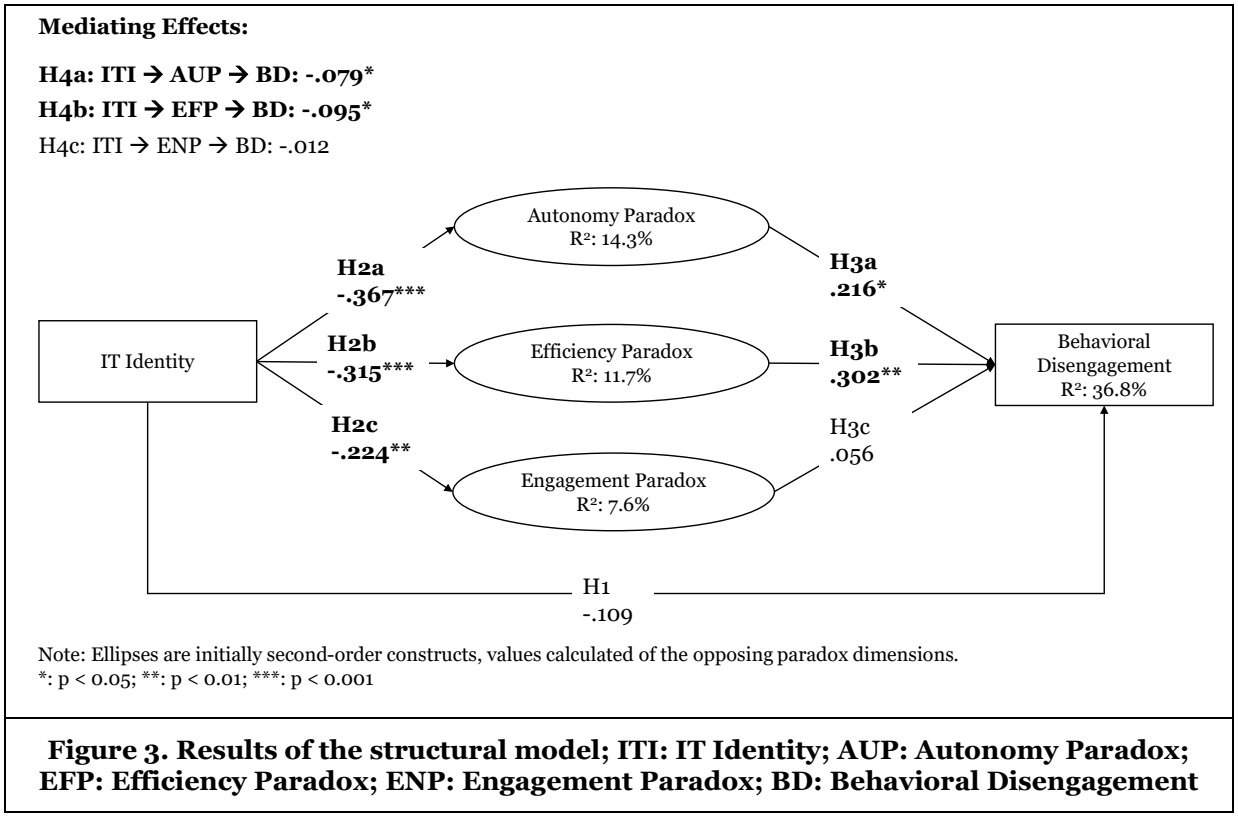

Figure 3. Results of the structural model; ITI: IT Identity; AUP: Autonomy Paradox; EFP: Efficiency Paradox; ENP: Engagement Paradox; BD: Behavioral Disengagement

Overall, IT identity is negatively related to behavioral disengagement (ß = -.109; p > .05) but not significantly, leading to a rejection of H1 (Cohen 1988). Further, some of the occurring digitalization paradoxes are statistically related to behavioral disengagement: the autonomy paradox showed to have a significant effect (ß = .216; p < .05; H3a validated) on behavioral disengagement with a small effect size (f^2 = .038); the efficiency paradox positively influences behavioral disengagement (ß = .302; p < .01; H3b validated) with a small effect size (f^2 = .064); finally, the engagement paradox shows no significant effects on behavioral disengagement (ß = .056; p > .05; H3c rejected). All of the paradoxes showed to be negatively influenced by IT identity. Precisely, IT identity negatively influences the autonomy paradox (ß = -.367; p < .001; H2a validated) with a small effect size (f^2 = .138); the efficiency paradox (ß = -.315; p < .01; H2b validated) with a small effect size (f^2 = .098); and the engagement paradox (ß = -.224; p < .01; H2c validated) with a small effect size (f^2 = .048).

Additionally, we conducted a mediation analysis as suggested in (Hair et al. 2022) and (Zhao et al. 2010) to investigate to which degree the paradoxes mediate the effects of IT identity on behavioral disengagement. IT identity shows small but significant indirect effects through the autonomy paradox (f^2 = -.079; p < .05) and the efficiency paradox ((f^2 = -.095; p < .05), and our tests indicate that IT identity is fully mediated: the direct path from IT identity to behavioral disengagement gets insignificant through the introduction of the mediators (cf. Table 2, direct model compared with mediated model). Therefore, H4a and H4b can be validated, while H4c is rejected.

Model	**Controls only**	**Direct Model**	**Mediated Model**			
IVs: \ DV:	**BD**	**BD**	**AUP**	**EFP**	**ENP**	**BD**
IT Identity	-	**-.268*** / .072**	**-.367*** / .138**	**-.315***/ .098**	**-.224** / .048**	-.109 / .010
Autonomy Paradox (AUP)	-	-	**-**	-	-	**.216* / .043**
Efficiency Paradox (EFP)	-	-	-	-	-	**.302** / .046**
Engagement Paradox (ENP)	-	**-**	**-**	-	-	.056 / .003
Age	**-.194** / .036**	-.138 / .018	-.004 / .000	-.016 / .000	-.048 / .000	-.084 / .008
Gender	.047 / .000	-.025 / .000	-.144 / .001	-.157 / .003	-.021 / .005	-.042 / .001
Education	-.009 / .000	-.017 / .000	-.046 / .000	-.001 / .000	-.084 / .007	-.001 / .000
Professional status	-.051 / .002	-.024 / .001	-.048 / .000	-.041 / .002	.049 / .002	-.033 / .001
IS Importance	**-.216** / .049**	**-.155* / .026**	.046 / .007	-.001 / .000	-.084 / .013	-.119 / .020
R^2	10.2%	16.2%	14.3%	11.7%	7.6%	36.8%

Table 2. Path coefficients (standardized ß *: p < .05; **: p < .01 ***: p< .001) and individual effects (f ²; bold if at least weak effect of >.02); IV: Independent Variable; DV: Dependent Variable; BD: Behavioral Disengagement;

Discussion

As a new concept to IS research, IT identity embraces the beliefs, attitudes, and emotions that individuals associate with IT and reflects the extent to which IT is integrated into their personal identities, which provides explanation on behaviors, attitudes, and well-being (Carter and Grover 2015). Our study shows statistical evidence for indirect but no direct effects of IT identity on behavioral disengagement, indicating that the effects of perceived paradoxes on behavioral disengagement fully mediate the direct effect of IT identity.

Our results show that individuals' IT identity does not directly affect behavioral disengagement when contradictory advantages of autonomy and efficiency and disadvantages of dependencies and inefficiencies are perceived. However, this direct effect is significant if the influence of paradoxes on behavioral disengagement is excluded. That is, IT identity does not directly lead to lower behavioral disengagement but changes how equally the advantages and disadvantages of IS are perceived, reducing perceived paradoxes. As a result of this reduction in perceived paradoxes, individuals experience less stress and negative emotions, showing less behavioral disengagement in response to these paradoxes. Additionally, our results show that although IT Identity reduces perceptions of all paradoxes, the effects of paradoxes on behavioral disengagement differ. Accordingly, high levels of perceived autonomy and efficiency paradoxes lead to more negative emotions and stress, resulting in stronger subsequent behavioral disengagement. This effect and former elucidated mediating effect could not be demonstrated for the engagement paradox. A post-hoc analysis shows that overlap effects of the autonomy and efficiency paradox may explain this absent effect. The positive effects of perceived engagement paradoxes become significant when the autonomy or efficiency paradoxes are removed from the measurement model. This overlapping effect is also theoretically explainable since – besides studies referring to it as a distinct paradox (Jarvenpaa and Lang 2005) – recent work identifies the engagement paradox as an occurring meta-paradox, which occurs superordinately over

other paradoxes (Schneider 2020). That is, when other paradoxes, such as the autonomy paradox or efficiency paradox, occur simultaneously, individual coping behaviors, such as behavioral disengagement, may aim at reducing these paradoxes instead of the overarching engagement paradox.

Contributions to Theory and Practice

Our contribution to theory is twofold. First, we show that the autonomy, efficiency, and engagement paradoxes fully mediate the negative effect of IT identity on behavioral disengagement. Our results indicate that the stronger the IT identity, the lower the perceived paradox, which further reduces the behavioral disengagement with the respective IT. So far, literature has found evidence for the direct effects of IT identity on IT usage behavior in showing how a strong IT identity can lead to an increased willingness to adopt and use new systems (Hassandoust 2017) or greater feature and exploratory usage in the post-adoption context (Carter et al. 2020b). In the nascent research about IT identity, determining mediating variables is essential because it helps to establish causality and provides insights into the underlying mechanisms that drive a relationship (Zhao et al. 2010). Thus, by showing that technology paradoxes fully mediate this effect, we inform literature that while previous literature emphasized a direct connection between IT identity and behavioral outcome, we find evidence that IT identity affects behavior by significantly reducing the technology paradoxes. Hence, we contribute to the IT identity literature by showing that the consideration of paradoxes better explains the impact of IT identity on behaviors.

Second, while paradox literature deals with mechanisms to cope with paradoxes, we identify IT identity as a factor that influences how strong paradoxes are perceived. The literature shows that technology paradoxes can lead to different avoiding and confronting behaviors (Mick and Fournier 1998). Thereby, paradoxes can not only lead to behavioral disengagement but to neglecting or even abandoning a technology (Jarvenpaa and Lang 2005). In that matter, our study offers a valuable contribution to understanding coping mechanisms for technology paradoxes by statistically verifying that a strong IT identity can effectively reduce perceived paradoxes, resulting in improved behavioral outcomes.

As global IT spending is continuously rising to ensure organizations' competitiveness, it is important to look more thoroughly at influencing factors for behavioral disengagement. We contribute to practitioners by understanding the specific ways in which IT identity and technology paradoxes contribute to behavioral disengagement. Managers should consider the IT identity of their employees when facing problems with process efficiency and avoiding behavior, as it reduces paradoxes and behavioral disengagement as well as other negative outcomes of strong paradoxes. By providing empirical evidence of the relationship between IT identity, paradoxes, and disengagement, practitioners can make more informed decisions and develop more effective interventions based on data-driven insights. That way, practitioners can develop more effective strategies for promoting engagement and addressing disengagement among employees or users.

Limitations and Future Research

Despite the contributions of our study, some limitations should be considered. First, the study only focused on three technology paradoxes. However, extant literature features a wide-ranging and exploratory body of work dedicated to the study of technology paradoxes, encompassing, for instance, control/chaos, new/obsolete, competence/incompetence, fulfill/create needs, assimilation/isolation, and private/public paradoxes (Jarvenpaa and Lang 2005; Mick and Fournier 1998). Future research could explore additional mediating variables explaining the relationship between IT identity and behavioral outcome. Second, we specifically asked the participants about IS significantly impacting their work processes. As there are further systems in use in professional and personal environments, future research may consider IT use in a broader context. Additionally, crowdsourced based data is susceptible to bias from professional workers and monetary incentives. We have strived to prevent bias by following best practices and rigorous data cleaning. However, future studies could use further samples from specific companies and their employees to identify more concrete technology-specific paradoxes. Finally, the individuals involved in this research work for companies in the US. Given the increasing trend of outsourcing IT tasks to foreign locations, it would be advantageous to broaden this investigation to encompass IT professionals working in other regions.

Conclusion

The integration of IT has brought about a significant change in how we work. Since engagement with IT is essential to sustain organizational success, we emphasize the role of technology paradoxes and IT identity for behavioral disengagement. Therefore, we developed a theoretical framework to introduce IT identity into its role in technology paradoxes. We demonstrate that a strong IT identity reduces the perceived technology paradoxes, leading to better behavioral outcomes, which is critical for ensuring organizational competitiveness. Furthermore, we contribute to research by identifying IT identity as a factor influencing how strong paradoxes are perceived as important for practitioners seeking to prevent technology avoidance and abandonment.

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Appendix

Construct (Cronbach's α)	**Question**	**Loading**
Behavioral Disengagement (Carver et al. 1989)	*When I experience tensions during my use of the information system I…*	
	…give up the attempt to get what I want.	.922
	… just give up trying to reach my goal.	.930
	…admit to myself that I can't deal with it, and quit trying.	.938

(.924)	…reduce the amount of effort I'm putting into solving the problem.	.828
IT Identity (Carter et al. 2020a) **(.865)**	When thinking about myself at work in relation to the information system, I feel in synch with the software.	.912
	Thinking about myself in relation to the information system, I feel confident.	.839
	The information system is a central part of my work life.	.719
	Thinking about myself in relation to the information system, I am connected with the information system.	.898
Paradox Dimensions		
Efficiency (Park and Zhang 2022) **(.899)**	I can save time at work by using the information system.	.919
	I spend less time in completing tasks since the implementation of the information system.	.752
	The information system makes my work more efficient.	.915
	In general, the information system helps me complete my tasks in a speedier manner.	.933
Inefficiency (Park and Zhang 2022) **(.893)**	Sometimes, using the information system takes more time, since there are so many opportunities.	.840
	If I have a problem and use the information system, completing a task takes longer.	.869
	Figuring out how to use the information system properly is usually too time-consuming.	.895
	The information system is often more complicated than it needs to be.	.876
Engaging (Johnson et al. 2008) **(.812)**	In general, the information system helps facilitate my involvement with the task at hand.	.752
	In general, the information system keeps me focused and on task.	.821
	I am more comfortable interacting with the people than dealing with information system.	.380*
	Using the information system makes me feel electronically connected to my company.	.871
	The information system makes me feel like I'm part of something bigger.	.765
Disengaging (Johnson et al. 2008) **(.766)**	I seldom feel the need to contact a team member since I can solve my tasks due to the help of the information system.	.751
	The information system makes me miss the interaction I used to have with the company.	.780
	Using information system tends to create more disruptions for users.	.779
	Contact with co-workers is no longer critical to solving my work tasks.	.546*
	People rely too much on the information system.	.405*
Autonomy (Johnson et al. 2008) **(.850)**	I complete my tasks at work the way I want using the information system.	.737
	I can complete my tasks at work with the information system whenever I want.	.800
	The information system makes me feel less dependent on individuals to help me manage my work tasks.	.735
	The information system gives me more autonomy.	.810
	The information system improves my independence in managing my work tasks.	.879
Dependence (Johnson et al. 2008) **(.801)**	I have become somewhat dependent on using the information system now that I use it.	.300*
	I feel compelled to check the information system more often than I need to.	.678*
	I am afraid of possible accidental faults in my tasks when using the information system.	.793
	Being forced to use the information system can cause havoc in my day.	.813
	The information system creates more confusion than actually dealing with my tasks.	.829

Table 3. Measurement Items, Cronbach's Alpha, and Loadings

#	Construct	Mean	Std	CR	AVE	1	2	3	4	5	6	7	8
1	Behavioral Disengagement	2.43	1.28	.937	.790	.889							
2	IT Identity	5.12	1.17	.925	.806	-.309	.898						
3	Autonomy	2.91	1.40	.948	.819	-.292	.577	.905					
4	Dependence	5.34	1.13	.92	.743	.509	-.342	-.449	.862				
5	Efficiency	5.25	1.23	.908	.712	-.296	.634	.704	-.336	.844			
6	Inefficiency	2.45	1.26	.873	.632	.559	-.366	-.430	.679	-.376	.795		
7	Engagement	5.07	1.23	.887	.663	-.189	.630	.647	-.358	.627	-.226	.814	
8	Disengagement	3.01	1.48	.864	.682	.462	-.198	-.278	.671	-.198	.626	-.126	.826

Table 4. Descriptives, Reliability and Discriminant Validity Test; CR: Composite Reliability; AVE: Average Variance Extracted; Square Root of AVE on the Diagonal