The role of digitalization and inclusive climate in building a resilient workforce: An ability–motivation–opportunity approach

Author(s): Zahoor, Nadia; Roumpi, Dorothea; Tarba, Shlomo; Arslan, Ahmad; Golgeci, Ismail

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Authors:

Nadia Zahoor,
Department of Business and Society
Queen Mary University of London, UK
Adnan Kassar School of Business, Lebanese American University,
Lebanon
InnoLab, University of Vaasa,
Finland
Email: n.zahoor@qmul.ac.uk

Dorothea Roumpi,
School of Labor and Employment Relations
507C Keller, Pennsylvania State University
University Park, PA 16802, USA
Email: dzr352@psu.edu

Shlomo Tarba (Corresponding author),
Birmingham Business School,
University of Birmingham, UK
Email: s.tarba@bham.ac.uk

Ahmad Arslan,
Department of Marketing, Management & International Business,
Oulu Business School, University of Oulu,
Finland
InnoLab, University of Vaasa,
Finland
Email: ahmad.arslan@oulu.fi

Ismail Golgeci,
School of Business and Social Sciences,
Department of Business Development and Technology,
Aarhus University, Denmark
InnoLab, University of Vaasa,
Finland
Email: i.golgeci@btech.au.dk

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Abstract

Organizations need resilient employees to navigate and leverage constant change and maneuver in turbulent, disruptive contexts. As such, it is imperative to advance a nuanced understanding of drivers and enablers of employee resilience, especially in the current business context of pervasive digitalization and the growing practice of work-from-everywhere. Our research explores how digitalization in the organization is reflected in the employees' behavior of taking charge and resilience. By accounting for core self-evaluation, digital literacy, and inclusive climate boundary conditions, we offer a holistic picture of under what conditions digitalization enhances taking charge and employee resilience. To test our study model, we follow a survey research design and rely on 173 employees' data working in the United Arab Emirates (UAE) (study 1). Our results show that digitalization is positively related to employee resilience. Further, our findings show that core self-evaluation, digital literacy, and inclusive climate moderate the impact of digitalization on employee resilience. Our results received further support in a two-wave online survey with 306 employees in the U.S. (study 2). The support we found for the hypothesized mediating relationship highlights the criticality of taking charge in relation to digitalization and employee resilience. Taking charge is critical in relatively turbulent environments as they help employees deal with changes in processes, procedures, and structures.

Keywords: Digitalization, inclusive climate, core self-evaluation, taking charge, employee resilience, UAE, USA

INTRODUCTION

Employee resilience—i.e., the "*effective coping and adaptation in the face of major life stress*" (Tedeschi & Kilmer, 2005: 231)—has arguably emerged as an organizational goal of prime importance in turbulent environments (Liu et al., 2019; Van Der Vegt, et al., 2015). As an example, the disruption caused by the unprecedented COVID-19 pandemic crisis to the traditional ways of living and working (Malhotra, 2021) brought to the fore the importance of employees being able to rapidly adapt, cope, and even thrive during such stressful and unexpected events (Liu et al., 2019). Within the "[h]*ighly volatile, uncertain, complex and ambiguous*" (Biron et al., 2021: 2) environment created by the COVID-19 pandemic, organizations all over the world had to learn almost overnight how to swiftly adjust the way they conducted business to protect not only their operational viability, but also the health of their employees and customers (Collings et al., 2021; Roumpi, 2023). It has thus become apparent that organizations need to ensure they have a resilient workforce that will enable them to navigate and survive through turbulent times and unforeseen challenges.

While the crucial role played by employee resilience for continuous organizational success and competitive advantage has been recognized (e.g., de Oliveira Teixeira & Werther, 2013), the relevant research remains limited (Bardoel et al., 2014). In particular, King et al. (2016) highlighted that it is important to identify the organizational factors and individual characteristics that can enhance employee resilience. In addition, while the extant research has largely addressed some 'reactive' organizational deployments (e.g., grief counseling) that focus on dealing with a crisis post factum and could potentially influence employee resilience (Luthans et al., 2006), only a few studies have focused on some more proactive organizational deployments—such as resilience training, work-life balance practices, and flexible work arrangements (Bardoel et al., 2014; Bonanno, 2004). There is thus a need for more research aimed at exploring how organizations can build a resilient workforce in the context of the workplaces of today and the

future. Specifically, digitalization is emerging as a core organizational development that could potentially influence workforce resilience. Even though, over the last two decades, advances in digital and information technology have been contributing to the transformation of organizations and, in particular, of the ways in which employees are managed (Bondarouk & Ruël, 2009), this process has been almost forcefully accelerated by COVID-19 (Antonacopoulou & Georgiadou, 2020; Malhotra, 2021). Digitalization, therefore, has essentially become one of the key organizational factors suited to impact employee work-related attitudes and behaviors (Leonardi & Treem, 2020; Schneider & Sting, 2020) and to consequently create a new context for organizations to develop resilient workforces. On this basis, our study was aimed at exploring the organizational deployments and individual characteristics that influence employee resilience.

In order to theoretically and empirically explore our research question, we draw on the Ability-Motivation-Opportunity (AMO) framework (Appelbaum et al., 2000; Blumberg & Pringle, 1982; Purcell & Hutchinson, 2007), which suggests that the work-related outcomes of employees are determined by the impact of three important situational and personal factors: ability, motivation, and opportunity (Appelbaum et al., 2000; Purcell & Hutchinson, 2007). Ability refers to the employees' "*physiological and cognitive capabilities*" (Hong & Gajendran, 2018: 798) and to other characteristics such as personality traits (Roumpi & Delery, 2019). Motivation focuses on the extent to which an employee is willing to make an effort (as well as on the intensity and duration of such effort) geared toward the attainment of organizational goals (Hong & Gajendran, 2018; Purcell & Hutchinson, 2007; Subramony, 2009). Finally, opportunity or empowerment centers on those situational factors that either enable or constrain the employees' ability to perform (e.g., the availability of the necessary organizational resources and job characteristics such as autonomy) in relation to completing any job-relevant tasks (Delery & Roumpi, 2017; Delery & Shaw, 2001; Hong & Gajendran, 2018).

On these grounds, we suggest that digitalization—as the set of digital and information technology advancements adopted by an organization (Leonardi & Treem, 2020)—potentially represents a situational opportunity-enhancing factor suited to improve employee resilience. While digitalization broadly refers to the organizational adoption of digital and/or information technology (Harteis, 2018; Leonardi & Treem, 2020) or, more specifically, to "*the use of algorithmic calculations and advanced information structures for the exhibition of control, correspondence, and the execution of tasks*" (Low & Bu, 2021: 212), the main manifestation of digitalization to have become extremely widespread during the COVID-19 pandemic was the adoption of remote work or work from everywhere (Antonacopoulou & Georgiadou, 2020; Shao et al., 2021; Wang, et al., 2020). This form of digitalization seems to be here to stay, as statistics indicate that such a practice is viewed favorably both by employees (e.g., Saad & Hickman, 2021) and some companies (e.g., Stroller, 2021). Overall, digitalization can be viewed as an opportunity-enhancing organizational factor that has the potential of augmenting employee resilience; this is because digital technologies constitute a tool suited to support employees in fulfilling their daily tasks and to contribute to strategic renewal (Warner & Wäger, 2019).

Despite the advantages potentially offered by the digitalization of organizational processes and even of workplaces, concerns have been raised about the possibility of digitalization actually exacerbating any issues pertaining to employee inclusion (Antonacopoulou & Georgiadou, 2021; Wang et al., 2020). While it has been suggested that, in digitalized work environments, the status-triggering characteristics that influence performance expectations are 'hidden' or 'camouflaged' as a result of the use of digital and information technologies—and employees should thus experience greater sense of inclusion and belonginess—more recent research has demonstrated that "*status differences persist or can even be magnified in groups that work exclusively in computerized environments*" (Bianchi et al., 2012: 342). It is therefore important to explore digitalization in tandem with inclusive organizational practices. We argue that an inclusive

climate—i.e., a climate stemming from a set of organizational practices that are equitable (e.g., equal pay and fair promotions), focus on the integration of differences (e.g., appreciation of differences and promotion of work-life balance), and allow individuals to participate in decision making (Nishii, 2013)—constitutes a motivation-enhancing organizational deployment that interacts with digitalization and influences employee resilience. As suggested by numerous studies (e.g., Guillaume et al., 2014; Holmes et al., 2021; Jansen et al., 2017), inclusive practices can have a motivating effect on employees. For example, Ellemers and Jetten (2013) found that those employees who experience higher levels of inclusion are more motivated to contribute to their work teams. Thus, it can be argued that an inclusive climate interacts with digitalization and that, by mitigating any potentially negative impacts of digitalization, it strengthens the relationship between digitalization and employee resilience.

We also acknowledge that the effects on employees' resilience of any organizational efforts aimed at the implementation of digitalization and inclusiveness do not manifest themselves in a vacuum—the employees' knowledge, skills, abilities, and personalities can play a moderating role in this process. We propose that digital literacy—a concept that captures the employees' competencies in relation to the use of and interaction with digital devices/technologies (Neumeyer et al., 2020)—will further enhance the interactive relationship between digitalization and an inclusive climate and employee resilience. Similarly, we also hypothesize and test the moderating role played by core self-evaluations—i.e., the combination of self-esteem, generalized self-efficacy, locus of control, and emotional stability (e.g., Judge & Bono, 2001)—in consideration of those research findings that have emphasized their importance in coping with the challenges of digitalized work environments (e.g., Raghuram et al., 2003).

Finally, we draw on the behavioral perspective (Schuler & Jackson, 1987; Jackson et al., 1989) to delve into the mechanisms through which digitalization impacts employee resilience. The behavioral perspective proposes a simple yet effective sequence: organizational practices,

policies, and processes influence employee behaviors; these, in turn, impact those employee outcomes that are important for the organization (Delery & Roumpi, 2017; Schuler & Jackson, 1987). As such, the behavioral perspective complements the AMO framework by explaining how ability, motivation, and opportunity lead to employee resilience. A factor that could play an important role is employee proactive work behavior (PWB), which refers to "*taking initiative in improving current circumstances or creating new ones; it involves challenging the status quo rather than passively adapting to current conditions*" (Crant, 2000: 436). PWB typically, involves the element of anticipation rather than reaction (Grant & Ashford, 2008) and can be influenced not only by individual factors (e.g., proactive personality), but also situational factors (e.g., supportive supervision) (Parker et al., 2006). We are particularly interested in a PWB dimension, namely taking charge. Taking charge is an extra role behavior that "*entails voluntary and constructive efforts, by individual employees, to affect organizationally functional change with respect to how work is executed within the contexts of the jobs, work units, or organizations*" (Morrison & Phelps, 1999: 403). In the context of a continuously changing work landscape, those employee behaviors that involve taking the initiative to adapt are arguably critical in building a resilient workforce. While there are some studies that have suggested that PWBs can be an outcome of resilience (e.g., Caniëls & Baaten, 2019), we argue that taking charge precedes employee resilience, because taking charge entails engaging in voluntary proactive behaviors to change organizational processes (Morisson & Phelps, 1999) which, in turn, enable employees to effectively adapt and cope in turbulent and stressful situation. Essentially, taking charge enables employees to establish a level of preparedness for potential tumultuous situations, making them, in turn, more resilient.

To test our hypotheses, we conducted two studies. First, we collected survey data from firms operating in the emerging market of the United Arab Emirates (UAE) (study 1). The UAE population is predominantly made up of expatriates, which makes it vital to understand how an

inclusive climate and digitalization promote taking charge behavior for employee resilience in locally-based firms. We analyzed the data using the structural equation modeling technique. Second, we conducted an online two-wave survey of 306 employees in the US (study 2).

Our findings make several contributions. First, in line with the call King et al.'s (2016), we investigate an important gap in the literature regarding employee resilience—namely, in relation to the organizational factors suited to enhance resilience in individuals and to whether the effectiveness of various practices hinges on the relevant characteristics of the incumbent individuals and teams and on the pertinent contexts in which such practices are applied. In particular, our findings shed light on the effects of an inclusive climate and digitalization on employee proactivity, which, in turn, may influence employee resilience. In addition, while most of the extant research has focused on the organizational practices and policies implemented reactively in order to enhance employee resilience in response to crises, we answer Bardoel et al.'s (2014) call for a greater emphasis on those organizational deployments aimed at proactively improving employee resilience. Second, we account for the hitherto overlooked moderating role played by digital literacy and core self-evaluations. By incorporating the moderating role of these individual characteristics, we highlight that the influences of inclusive climate and digitalization on taking charge are conditioned by relevant individual characteristics, which, in turn, shape how taking charge mediates the link between digitalization and employee resilience. Finally, we contribute to the AMO research by following the calls for exploring the interactive effects between ability, motivation, and opportunity (Hong & Gajendran, 2018; Kim et al., 2015). Figure 1 presents the conceptual framework of the study.

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THEORETICAL BACKGROUND AND HYPOTHESES

The Ability-Motivation-Opportunity framework

The AMO framework suggests that employees' work-related outcomes are the product of three important situational and personal factors: ability, motivation, and opportunity (Appelbaum et al., 2000; Purcell & Hutchinson, 2007). Opportunity or empowerment centers around situational factors that either enable or constrain employee ability to perform (e.g., having the necessary organizational resources and job characteristics, such as autonomy) in relation to completing job-relevant tasks (Blumberg & Pringle, 1982; Delery & Roumpi, 2017; Hong & Gajendran, 2018; Jiang et al., 2012). We contend that digitalization constitutes an opportunity-enhancing organizational factor. Specifically, as Bos-Nehles et al. (2023) summarized in their recent review, one of the most commonly-cited opportunity-enhancing characteristics is job design and, in particular, autonomy. Digitalization focuses on the digital and information technology that individuals use in order to perform their tasks (Harteis, 2018; Leonardi & Treem, 2020). Therefore, by definition, digitalization influences job design as it affects how and where tasks are performed. Moreover, given the increasing popularity of remote work or work from everywhere (Antonacopoulou & Georgiadou, 2020; Roumpi, 2023; Shao et al., 2021; Wang et al., 2020), which is made feasible due to digitalization, the element of autonomy is at the epicenter of such work arrangements (Biron et al., 2021; Raghuram et al., 2003). Consequently, digitalization can be viewed as an opportunity-enhancing organizational factor that enables employees to perform their work-related tasks.

Motivation focuses on the extent to which an employee is willing to make an effort toward the completion of organizational goals (Hong & Gajendran, 2018; Purcell & Hutchinson, 2007). In other words, motivation refers to the direction of employees' efforts and to the energy and time they devote to a specific task (Van Iddekinge et al., 2017). Bos-Nehles et al.'s (2023) review of the AMO literature highlights that, despite the high degree of variation found in the practices and in the organizational or individual characteristics that scholars consider to be motivation-enhancing, a common thread is that they are often "*related to a particular organizational climate*

or shared culture" (734). In acknowledging that, in the context of digitalization, research suggests that the sense of belonginess and inclusion might be reduced, we suggest that it is important to consider the interactive effect of digitalization and of an inclusive climate on employee resilience. Given the research findings indicating the motivational elements of an inclusive climate (Ellemers & Jetten, 2013; Guillaume et al., 2014; Holmes et al., 2021; Jansen et al., 2017), we argue that inclusive climate can strengthen the relationship between digitalization and an inclusive climate.

Finally, ability refers to the knowledge, skills, abilities, and other characteristics of employees, such as personality traits (Hong & Gajendran, 2018; Kim et al., 2015; Roumpi & Delery, 2019). Within the context of our study, digital literacy (i.e., an employee's ability to use and interact with technology; Neumeyer et al., 2020) and core self-evaluations (capturing "*fundamental appraisals that people make of their own self-worth, competence, and capabilities*" Chang et al., 2012: 82) can both be considered relevant abilities in the AMO framework because they denote contemporary employee capabilities that are relevant to digitalization.

It is also important to highlight that, while some studies have focused on the simple additive effects of AMO (combining them together in systems of characteristics or practices), there is evidence pointing at the need and continuous calls for research aimed at exploring the interactive or synergistic effects of the three components of the AMO framework (e.g., Bos-Nehles et al., 2023; Kellner et al., 2016; Kim et al., 2015).

Employee resilience

In social sciences, resilience is a prominent concept suited to "*understanding how various entities can achieve positive outcomes despite the presence of adverse challenges*" (Raetze et al., 2022: 867). In management and organization research, resilience is argued to be individually and organizationally determined as part of a multi-level system (Kossek, & Perrigino, 2016). In this

research, we particularly focus on employee resilience. Given the growing presence of turbulence, uncertainty, complexity, and ambiguity in the workplace (Biron et al., 2021), employee resilience has become an increasingly important and relevant concept in organizational behavior research (Caniëls & Hatak, 2022; Davies et al., 2019; Malik & Garg, 2020).

Despite the increasing interest in employee resilience, controversy surrounds its conceptualization. Specifically, two conceptualizations are prevailing: i) resilience as a trait and ii) resilience as a behavioral outcome (e.g., Britt et al., 2016; King et al., 2016). First, as a trait, employee resilience—which refers to the capability of employees to positively cope, adapt, and thrive in the workplace in response to adversity and changing work circumstances (Kuntz et al., 2016)—entails the dispositional capacity of employees to overcome adversity (Britt et al., 2016). Luthar et al. (2000) argued that this trait, like the conceptualization of employee resilience, should be termed resiliency. Second, resilience as a behavioral outcome has been defined as "*the positive psychological capacity to rebound, to 'bounce back' from adversity, uncertainty, conflict, failure or even positive change, progress and increased responsibility*" (Luthans, 2002: 702). In other words, this approach highlights resilience as both a coping response and a demonstration of positive adaptation (Bardoel et al., 2014; Britt et al., 2016). Another element critical to this distinction is also the ability to develop resilience. Specifically, when viewed as a dynamic adaptation, rather than a dispositional trait, resilience can be developed through appropriate organizational interventions (Malik & Garg, 2020). Therefore, for the purposes of this study, we adopt the conceptualization of resilience as a behavioral outcome.

Digitalization as an opportunity-enhancing factor

Digitalization is associated with many opportunities, such as significantly lowering transaction and coordination costs (Iftikhar et al., 2024), reinventing products and innovation processes, (Del Giudice et al., 2021), enhancing organizational creativity (Ameen et al. 2024), and enabling

entry into foreign markets (Adomako et al., 2021). However, it also has a dark side. For example, the risk algorithms that underpin artificial intelligence (AI) may cause biases to affect the decision-making process (Lanzolla et al., 2020) and might even exacerbate any ambiguity and paradoxes, posing unique challenges to employees (Menz et al., 2021). Appio et al. (2021) pointed to the fact that the research hitherto conducted on digitalization in the organizational setting has been fragmented, leaving many gaps to be addressed at the macro, meso, and micro levels of analysis.

As digitalization becomes increasingly embedded in current business environments, the workplace and employees' work experiences become ever more strongly influenced by its intensity (Wang et al., 2020). Digitalization can influence job definitions and workforce needs (Akter et al., 2023). However, despite the pervasiveness of digital connectivity in contemporary organizations, its implications for employee well-being remain under-explored (Holland & Brewster, 2021; Ren et al., 2021). Moreover, rather strikingly, many empirical studies and reviews of digital transformation have mainly focused on the business and strategic levels, with only a few zooming in on employee-related factors such as resilience (Trenerry et al., 2021).

As recently emphasized by Zhang et al., (2022), research has significantly enhanced our understanding of the conceptualization, antecedents, and outcomes of resilience from multiple perspectives. However, more research is imperative to ensure a better and more comprehensive understanding of resilience, including the crafting of an overarching and multidisciplinary framework suited to nurturing resilience and developing scalable and cost-effective interventions aimed at boosting resilience at the national, organizational, and, particularly, individual levels. One of the key attributes of digitalization is that it is an enabling and driving force behind process efficiencies and the simplification of complex tasks (Kohtamäki et al., 2020). In today's complex and hypercompetitive business environment, employees often face the danger of being overwhelmed with intimidating job demands and task complexity. The rapid technological

change occurring in the external environment constantly feeds technological complexity and may downscale employees' knowledge and competencies in the workplace (Duan et al., 2019). Nonetheless, workplace digitalization and the ensuing increased use of digital technologies, such as smart algorithms, can guide employees on what work tasks they should fulfill and/or how, enhancing their resilience. Therefore, organization-wide digitalization can be an important opportunity-creating situational factor in enhancing employee resilience. Furthermore, digitalization is increasingly seen as an integral element of strategic renewal (Warner and Wäger, 2019), which is a core element of employee resilience (Raetze et al., 2022). Likewise, organization-wide commitment to digitalization helps employees identify and respond to digital opportunities and threats (Lokuge et al., 2019), which may bolster their readiness for disruptions and adversity and subsequently foster their resilience. Thus, despite potential pitfalls of digitalization with regard to employee resilience, on balance, we expect an overall positive impact and based on the above, we posit that:

H1: *Digitalization is positively related to employee resilience.*

Inclusive climate as a motivation-enhancing factor

With widespread applications of digital tools and technologies in the workplace (Antonacopoulou & Georgiadou, 2020; Wang et al., 2020) and growing calls for inclusive climate (Davies et al., 2019; Li et al., 2019), both inclusive climate and digitalization are fast becoming hallmarks of contemporary organizations. The importance of exploring the impact of digitalization in tandem with inclusive climate is supported by recent research that draws on the status characteristics theory. Status characteristics theory (e.g., Berger et al., 1972; Wagner & Berger, 1993), in its simplest form, suggests that personal characteristics that are associated with status may influence one's own and others' expectations regarding contributions to a task and, ultimately, performance (Bianchi et al., 2012; Bunderson, 2003). As Bianchi et al. (2012) summarize, early research

conducted in digitalized work environments assumed that these status-triggering characteristics suggested to influence performance expectations were "hidden" or "camouflaged" due to the use of digital and information technologies. Contrary to these early findings, more recent research demonstrates that "*status differences persist or can even be magnified in groups that work exclusively in computerized environments*" (Bianchi et al., 2012: 342) and digitalization, ultimately, can decrease the sense of inclusion and belongingness among employees. In view of these arguments, we examine the complementary roles of inclusive climate as a motivation-enhancing situational factor and digitalization as an opportunity-enhancing situational factor in employee resilience.

Inclusive climate is defined as an organizational environment that is "*characterized by a collective commitment to integrating diverse cultural identities as a source of insight and skill*" (Nishii, 2013: 1754). Organizational climate embodies a set of attributes and expectancies for working individuals that describe the overall pattern of organizational activities and represents a unifying force for individual capabilities and actions (Bradley et al., 2023; Ehrhart et al., 2013). It can have a pivotal impact on the way employees feel and work in their firms. Thus, organizational climate can be a profound motivating force behind desired employee capabilities and behaviors, especially when it is characterized by inclusiveness. The role of inclusive climate in enhancing the work environments has been highlighted earlier (Shore et al., 2018). Recently Nishii (2013) has stressed the criticality of inclusive climate, which entails eliminating relational sources of bias by creating opportunities for heterogeneous individuals, establishing personalized cross-cutting ties, and integrating ideas across organizational boundaries.

Employee resilience is often a reflection of conditions in the workplace (Kossek, & Perrigino, 2016), and inclusive climate is an important element of the organizational environment. A diverse workforce linked to inclusive climate could serve as a factor that enhances employee resilience because it establishes conducive conditions to help an organization cope with uncertainty and

demonstrate social inclusion (Kim et al., 2021). Employees working in inclusive organizations are often better positioned and probably more motivated to be and stay resilient because inclusive climate stimulates justice, equality, and empowerment in the workplace. Thus, inclusive climate can be a conducive motivation-enhancing situational factor that can energize and motivate employees to be resilient in times of disruptions and hardships. It can also provide an enabling ground for social cohesion as a critical driver of employee resilience (Kossek, & Perrigino, 2016; Townshend et al., 2015), as it can prompt rapport and better collaboration between co-workers. More importantly, however, inclusive climate can increase employees' motivation to become more resilient and adapt to the changing organizational environment and needs. Specifically, prior research shows a decreased sense of belongingness intensifies when inequalities or status differences between employees intensify (Bianchi et al., 2012). Thus, a lack of inclusive climate can be a vicious precursor to reduced/weakened employee resilience.

Similarly, in the context of COVID-19, job security and the sense of organizational identification have decreased significantly (e.g., Lin et al., 2021; Roumpi, 2023). An organizational inclusive climate that fosters equitable practices (e.g., equal pay and fair promotions), integration of differences (e.g., appreciation of differences and promotion of work-life balance), and participation in decision-making (Nishii, 2013) can potentially enhance employees' motivation to become more resilient since such organizational deployments enhance the commitment and the ties of employees with the organization and their coworkers (Bardoel et al., 2014). In sum, inclusive climate is an important motivation-enhancing factor that can offset any potentially negative consequences of digitalization on employee resilience. Based on the above, we posit that:

> ***H2:*** *Inclusive climate moderates the relationship between digitalization and employee resilience, such as the relationship is stronger when perceptions of inclusive climate are high.*

Core self-evaluations as an ability-enhancing factor

Core self-evaluation is an important ability-related concept in organization studies (Bono & Judge, 2003) that has been conceptualized as a higher-order construct that captures individuals' self-esteem, generalized self-efficacy, locus of control, and emotional stability (Chen, 2012; Judge et al., 1997, 1998). It represents a baseline self-evaluation of whether individuals (employees) perceive themselves to be worthy and tend to be free from anxiety or stress (e.g., Johnson et al., 2008; Kim et al., 2015). Individuals with high core self-evaluation appraise themselves favorably as being competent, valuable, and in control of their own lives (Zhang et al., 2020). Core self-evaluation has been found to positively influence the performance as well as job and life satisfaction of employees (Chang et al., 2012).

As digitalization's impact is becoming increasingly more visible in today's workplaces (Arslan et al., 2021), we propose that high levels of core self-evaluations are critical in creating a resilient workforce. Rapid changes associated with digitalization have forced organizations to innovate and adapt continuously (Hanelt et al., 2021). At the same time, in the larger context, digitalization has forced employees to go out of their comfort zones/routines (Harteis, 2018). Digitalization represents a major organizational change, where technostress has been a common problem. Acknowledging that in order to build a resilient workforce employees need to be able to "*cope and continue to withstand adversity in an adaptive way*" (Fabio & Saklofske, 2014: 20) and that individuals with high core self-evaluation tend to deal easily with stressful situations, including organizational changes (Chang et al., 2012), we argue that high levels of core self-evaluations are necessary to offset the potentially negative consequences of digitalization, such as technostress, allowing employees to become more resilient by capitalizing on the opportunities digitalization offers.

Research shows that individuals with aspects of high core self-evaluation, such as high levels of self-efficacy, can deal with technostress better due to their emotional stability and capability to learn faster (Tarafdar et al., 2015; Yener et al., 2021). Other studies, outside the context of digitalization, show that core self-evaluation lessens the psychological distress that stems from job demands as well as work stress, making employees more resilient (Morris et al., 2013; van Doorn & Hülsheger, 2015). Similarly, in a cross-lagged study of Finnish university employees Moazami-Goodarzi et al. (2015) found that core self-evaluations predict vigor, of which one of the core components is resilience (Bakker et al., 2007). Such findings, on the basis of digitalization-induced stress (e.g., González-López et al., 2021), indicate that individuals with high levels of core self-evaluations are better positioned to utilize digitalization in favor of enhanced resilience. They can combine the opportunity-enhancing situational factor of digitalization and the ability of core self-evaluation to bolster their resilience. Along with learning about the new technologies associated with digitalization, knowledge sharing is also a critical aspect in this concern (e.g., Zhang et al., 2020). Employees with high core self-evaluation are also better than others in knowledge sharing concerning new technologies (Zhang et al., 2020). Thus, we argue that core self-evaluation strengthens the relationship between digitalization and resilience. Hence, we propose that:

> ***H3a****: Core self-evaluation moderates the relationship between digitalization and employee resilience, such as the relationship is stronger when digital literacy is high.*

In addition, we propose that the positive relationship between digitalization and resilience will be simultaneously moderated by inclusive climate and core self-evaluations. Specifically, as we have already argued, both inclusive climate and core self-evaluations can offset the potentially negative consequences of digitalization, namely reduced sense of inclusion (Bianchi et al., 2012) and enhanced stress due to technological changes (Tarafdar et al., 2015; Yener et al., 2021),

strengthening the positive relationship between digitalization and employee resilience. On this basis, we hypothesize that:

> ***H3b:*** *Core self-evaluations and inclusive climate moderate the relationship between digitalization and employee resilience, such as the relationship is stronger when core self-evaluations and inclusive climate are high.*

Digital literacy as an ability-enhancing factor

With the increasingly ubiquitous prevalence of digitalization in the organizational task environment (Leonardi & Treem, 2020; Ritter & Pedersen, 2020), individuals are expected to work with digital technologies and improve their capabilities for using and leveraging digital tools (Cetindamar et al., 2021). Rapid technological change constantly demands new knowledge and competencies in utilizing digital resources for work purposes (Henfridsson et al., 2014). Thus, employees are required to equip themselves with a new and dynamic set of capabilities that we label as digital literacy.

The concept of digital literacy was introduced more than two decades ago (Gilster, 1997) in response to the rise of digital technologies and to explain the new set of capabilities for using and leveraging these technologies. The term *literacy* may have a basic connotation, and a narrow view of digital literacy may suggest mere technical skills. Nonetheless, recent research suggests that digital literacy is vastly beyond just the ability to master the keystrokes but, in fact, about mastering the ideas and potential embodied by digitalization (Bawden, 2008). As such, it has gained substantial and growing attention in organization and management research (Cetindamar et al., 2021; Hunter, 2018; Neumeyer et al., 2020).

We follow the American Library Association's definition and defines *digital literacy* as "*the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills.*" As such, digital literacy

denotes the competencies needed to participate in a knowledge society through the use of and interaction with digital devices/technologies (Neumeyer et al., 2020). That said, digital literacy is not about any particular technology. It is about the ideas, capabilities, and mindsets within which particular skills and competencies operate in a dynamically changing world (Bawden, 2008). In line with this definition and the above discussion, we position digital literacy as an instrumental boundary condition of the relationships between digitalization and employee resilience.

As the world of digital technologies is embodied by constant, rapid, and pervasive change, there is a relentless and pressing need to build new digital competencies (Anand et al., 2010; Henfridsson et al., 2014), which can be surmounted by digital literacy in the pursuit of resilience. For example, employees at Amazon Inc, known for the widespread application of digitalization in its workplaces, are often compelled to use new technologies in their work environments (Kelly, 2021). Under such circumstances of overwhelming pressures amplified by digitalization, digital literacy can embody a strategic set of skills that can rise to the challenge of digitalization and make better use of digitalization to enhance resilience (Hunter, 2018) by reducing the stressors associated with the implementation, interaction, and use of digital technologies (Tarafdar et al., 2015; Yener et al., 2021). Moreover, the combination of digitalization provided by the firm as an opportunity-enhancing factor and digital literacy employees' capability can create synergies in enhancing employee resilience. Specifically, employees' ability to browse, evaluate, and manage data, information, and digital content, share, engage, and collaborate through digital technologies, create digital content, and solve technology-related problems (Cetindamar et al., 2021) can give them an upper hand in turning digitalization into a tool they can utilize in coping and adjusting to the turbulent environment of today's world of work.

As critical as digitalization can be for the organization (Leonardi & Treem, 2020), it, in its essence, embodies technological change and its organizational implications. As digitalization is driven by organizational processes (Leonardi & Treem, 2020), it may not be fully sufficient on its

own to promote employee resilience, especially for employees who cannot leverage it in their daily work routines. Digitalization represents potential affordances provided to the firm and its employees that need to be utilized and realized by individuals working in the firm (Kohtamäki et al., 2020). As such, it needs to be complemented with capabilities, activities, and mindsets that comprise digital literacy to be translated into employee resilience (Ritter & Pedersen, 2020). Digitally literate individuals can better exploit affordances provided by digitalization through the use of digital technologies to achieve greater employee resilience. Hence, we expect:

> ***H4a:*** *Digital literacy moderates the relationship between digitalization and employee resilience, such as the relationship is stronger when digital literacy is high.*

We also propose that the positive relationship between digitalization and resilience will be simultaneously moderated by inclusive climate and digital literacy. As digital literacy is "a competence consisting of the abilities of employees in utilizing digital technologies in work-related practices" (Cetindamar et al., 2021: 1) it can be argued to reduce the stress associated with the introduction and use of new digital technologies (Tarafdar et al., 2015; Yener et al., 2021). Simultaneously, as previously discussed, inclusive climate reduces the potential threat of isolation and lack of inclusion that may stem from digitalization (Bianchi et al., 2012). As such, digital literacy and inclusive climate together bolster the positive effect of digitalization on employee resilience. Thus, we hypothesize that:

> ***H4b:*** *Digital literacy and inclusive climate moderate the relationship between digitalization and employee resilience, such as the relationship is stronger when core self-evaluations and inclusive climate are high.*

Unpacking the relationship between digitalization and employee resilience: The mediating role of taking charge

According to the behavioral perspective (Schuler & Jackson, 1987; Jackson et al., 1989), organizational practices, policies, and procedures do not only directly impact desirable outcomes for the organization; they can also occur by influencing employees' behaviors (Delery & Roumpi, 2017). On this basis, we suggest that an organization's levels of digitalization (opportunity-enhancing organizational factor) can influence employee resilience through taking charge.

Taking charge is one of the manifestations of PWB at work and "*entails voluntary and constructive efforts, by individual employees, to effect organizationally functional change concerning how work is executed within the contexts of their jobs, work units, or organizations*" (Morrison & Phelps, 1999: 403). In other words, taking charge captures an individual's discretionary initiative to change an organization's processes, procedures, and structures (Thomas et al., 2010).

Thomas et al.'s (2010) meta-analysis showed that personal initiative (one's tendency to engage in PWB) and taking charge were positively correlated with two different measures of performance, namely overall and subjective performance. It can be argued that taking charge is critical for organizations because, nowadays, organizational life is characterized by fast-paced changes, the need for flexibility, and enhanced autonomy. To succeed in such environments, employees need to exhibit self-initiative and proactiveness in implementing functional change (Crant, 2000; Sonnentag, 2003). Digitalization has the potential of being positively linked to employees' taking charge, because it enhances employees' opportunity to engage in such behaviors. Ostmeier and Strobel (2022) found evidence that the digital maturity of an industry is positively related to employees' proactive skill development. The authors suggest that digital industry maturity can influence employees' proactive skill development via three different routes (Ostmeier & Strobel, 2022): a) viewing digitalization as controllable (higher levels of information regarding digital technology enhance the feelings of controllability of digitalization within their organizations), b)

viewing digitalization as an opportunity (when employees view digitalization as an opportunity for their organization they are more willing to develop relevant skills), and c) viewing digitalization as a threat (the fear regarding the future due to digitalization "forces" employees to engage in proactive skill development). Similarly, digital technologies can be viewed as an organizational resource and an opportunity (due to easier communication and information sharing) that offers employees the tools to exhibit discretionary behaviors and empowers them to better the processes and the outcomes of their work. Thus, we argue that digitalization at the organizational level (e.g., use of technology for communicating information and interacting with other employees) gives employees the opportunity or, in other words, offers both the necessary tools and fertile ground to engage in taking charge.

Moreover, the interrelationships between leadership styles and taking charge by employees was found to be moderated by employee risk aversion (Li et al., 2016). Yet, despite the risks associated with it, employees under certain conditions might tend to take charge at work. Thus, taking charge is an important form of proactive behavior that is positively associated with employees' promotability and visibility and thus enhances the organizational survival and success (Xu et al., 2023). Moreover, employees who take charge are perceived as more competent and are more likely to emerge as informal leaders (Zhang et al., 2021), and are more likely to experience thriving at work, which in its turn helps them enrich their family life (Xu et al., 2020).

In this vein, taking charge, in turn, can lead to enhanced employee resilience. The importance of taking charge heightens under adverse and stressful conditions. When organizations and their employees are faced with rapid changes, they have to adjust swiftly to the continuously changing work landscape (e.g., Collings et al., 2021; Malhotra, 2021). For employees to be resilient in stressful and turbulent environments, they often need to take charge. In other words, continuous changes require employees to be able to take initiative and adapt to new conditions. Moreover,

acknowledging that remote work might be here to stay even after the end of the pandemic (e.g., Antonacopoulou & Georgiadou, 2021; Roumpi, 2023), taking charge becomes a critical extra-role behavior that can help employees be more resilient. Specifically, it has been suggested in cases when there is reduced supervision, engaging in taking charge and other forms of PWBs are crucial (Sonnentag, 2003). Given that there is a physical distance between subordinates and supervisors/managers in remote work, it can be argued that employees have more autonomy to make job-related decisions. Therefore, engaging in self-initiated taking charge that can improve the outcome of future work becomes increasingly important in this context.

Furthermore, as Raub and Liao (2012) aptly highlight, taking charge and PWBs more generally capture not only a forward-thinking way but also employees' willingness to exert effort and search for opportunities to better their work environment. As employees who take charge are more likely to actively try to make adjustments to the way they perform their tasks and the way they interact with their organizational environment, they are also more likely to have developed the flexibility required to "'bounce back' from adversity, uncertainty, conflict, failure or even positive change" (Luthans, 2002: 702), characteristics that are inherent in today's turbulent global environment. Thus, employees' taking charge creates the necessary conditions (e.g., flexibility and adaptability) for developing resilience. Therefore, when employees take charge, they are more likely to become more resilient.

On these grounds, we hypothesize that:

> ***H5****: Taking charge mediates the relationship between digitalization and employee resilience.*

METHODOLOGY

Study 1

Research context

We tested our hypotheses on a sample of firms operating in the economic capital of the Middle East (Dubai, the UAE). The UAE provided an ideal setting to examine how digitalization and inclusive climate influence employee resilience at work. First, the UAE has a predominantly expatriate population, with 8.84 million foreign nationals in 2021 compared to 1.15 million local ones (GMI, 2021). The demographic structure of the UAE made it a context suitable to understand how an inclusive climate and digitalization promote taking charge for employee resilience in locally-based firms. Due to the global nature of UAE workplaces, organizations need to design policies and adopt practices that appreciate the differences among workers and maximize their potential (DCC, 2014). The government has also enacted regulatory provisions that require organizations to maintain an inclusive climate and to offer equal opportunities to individuals (KhaleejTimes, 2022; Wam, 2021). Second, the UAE is emerging as a digital economy that uses the advantages offered by digital transformation (Sharma, 2021). The digital economy contributes up to 4.3% of the UAE's gross domestic product (GDP). The local businesses are also dedicated to digital transformation and to empowering people in order to execute the UAE's digital vision. As such, understanding the impacts of inclusive climate and digitalization on employee resilience is essential, and the UAE is a fitting research context in this pursuit.

Data collection procedure

We drew our sampling frame from the Commercial Directory of the Dubai Chamber of Commerce and Industry (DCCI), which lists 245,000 firms. From this directory, we identified 96,102 active firms operating in the manufacturing and service industries, with full contact details available. Based on organization size (i.e., 10 to 250 and over 250 employees) and industry (manufacturing versus services), we accordingly derived a stratified random sample of 518 firms from our shortlist of 96,102. We contacted these 518 firms to elicit their participation in our study; 435 of them agreed. With the assistance of the HR director, we obtained the contact details

of a senior manager and an employee from each sample firm. Each senior manager/employee pair was linked via a formal hierarchical relationship. Our assumption was that senior managers design organizational practices and systems to support the activities performed by their employees (Keegan & Hartog, 2018).

Scholars have highlighted the differences between intended, implemented, and experienced organizational practices and structures, and have emphasized that experience holds more weight than what is on paper in influencing employee attitudes and behaviors (e.g., Boxall & Purcell, 2008; Kehoe & Wright, 2013; Roumpi & Delery, 2019). On this basis, we conducted our main analysis using only the data drawn from our employee sample. For our supplementary analysis and in order to deal with any potential issues of common method bias in our main analysis, we used the data collected from senior managers.

Using a drop-off and collection technique, which is a commonly used approach in developing countries given the reduced response rate in postal and online surveys (Nakos et al., 2019; Zahoor & Lew, 2021), we collected the data from firms highlighting that the survey was anonymous and voluntary. We used self-generated identification codes (i.e., company A, participant 1 – senior manager, participant 2 – employee) to match the initial senior manager survey with the follow-up employee survey. At Time 1, the senior managers received the first questionnaire package to evaluate the study measures and control variables. A total of 186 questionnaires were returned, generating a response rate of 42.77%. At Time 2, after 1 month, the second questionnaire package was sent to employees of those 186 firms (whose senior managers completed the first questionnaire) in order to rate their assessment of study measures and control variables[1]. It was instructed that only administrative employees who do not hold managerial positions should

[1] Due to time and cost limitations, we followed previous studies (e.g., Liu et al., 2022; Zhang et al., 2021; Singh et al., 2018) and administered the survey to employees at only one time-frame.

complete the second questionnaire. A total of 173 matching responses were returned, yielding a response rate of 93.01%.

We examined non-response bias by comparing early-respondent and late-respondent groups. The results of independent samples T-tests suggest that early respondents did not differ from late respondents in terms of gender ($M_{(respondents)}$ = -0.01, SD = 0.09; $M_{(non\text{-}response)}$ = -0.01, SD = 0.09; t = -0.08, p = 0.93), employee age ($M_{(respondents)}$ = -0.15, SD = 1.63; $M_{(non\text{-}response)}$ = -1.15, SD = 1.54; t = -0.71, p = 0.48), and organizational tenure $M_{(respondents)}$ = 0.16, SD = 0.15; $M_{(non\text{-}response)}$ = 0.16, SD = 0.14; t = 1.10, p = 0.27).

Measures

The survey was administered in the English language. In UAE, English is the most commonly spoken language in businesses due to the companies' international nature and the workforce (Child et al., 2017; Lythreatis et al., 2019). All the measures were adopted from existing literature. The multi-item variables were measured using 7-point Likert scales.

Inclusive climate

Inclusive climate refers to the workplace environment that involves and integrates diversity into organizational systems and processes (Boekhorst, 2015). Following Nishii (2013), inclusive climate was operationalized as a multidimensional second-order construct consisting of three first-order dimensions: the foundation of equitable employment practices, integration of differences, and inclusion in decision-making. *Foundation of equitable employment practices* was measured using five items focusing on fair promotion, performance review, employee development, and equal pay processes. The Cronbach's α value for this scale was 0.91. *Integration of differences* was captured using three items related to work-life balance, conflict management, value for people, learning and sharing about each other, and appreciation of differences. The Cronbach's α value for this scale was 0.89. *Inclusion in decision-making* was

measured using four items related to employee input, consideration of employee ideas, and rethinking of work practices. The Cronbach's α value for this scale was 0.90. To further endorse the multidimensional nature of inclusive climate, we compared the second-order measurement model linking each dimension with a higher-level latent construct with the first-order measurement model. The fit indices suggest that the measurement model that assumes inclusive climate to be a second-order multidimensional construct returns a better fit ($\chi 2/DF = 1.30$, CFI = 0.99, RMSEA = 0.04, and SRMR = 0.03) than the model that assumes inclusive climate as a first-order unidimensional construct ($\chi 2/DF = 1.41$, CFI = 0.97, RMSEA = 0.05, and SRMR = 0.04).

Digitalization

Digitalization relates to using digital technologies (e.g., the internet of things, artificial intelligence, and big data analytics) to interact with employees, share information, and manage diverse employees (Ritter & Pedersen, 2020). Three items were adopted from Kohtamäki et al. (2020) to measure digitalization. Sample item is "We use digital technologies for interacting with employees" (Cronbach's α = 0.87).

Taking charge

We operationalized taking charge as employees' active engagement in job tasks. It was measured using ten items adopted from Morrison and Phelps (1999). Sample items are "I often try to adopt improved procedures for doing his or her job" and "I often try to correct a faulty procedure or practice" (Cronbach's α = 0.94).

Digital literacy

Employees' digital literacy was measured as a multidimensional second-order construct adopted from Cetindamar et al. (2021). It consists of five first-order dimensions: information literacy, interaction and collaboration, digital content creation, safety, and problem-solving. *Information*

literacy was measured using three items to evaluate the employee's ability to browse, evaluate, and manage data, information, and digital content (Cronbach's α = 0.89). Three items were used to measure *interaction and collaboration* in terms of sharing, engaging, and collaborating through digital technologies (Cronbach's α = 0.93). Three items were used for *digital content creation* (Cronbach's α = 0.91). *Safety* was assessed using four items capturing the ability to protect devices, data and privacy, health and well-being, and the environment (Cronbach's α = 0.89). Finally, *problem-solving* evaluated the ability to solve technical problems, identify needs and technological responses, creatively use digital technologies, and identify digital competence gaps using three items (Cronbach's α = 0.93). We further confirmed the multidimensionality of digital literacy by comparing the measurement model. Specifically, a second-order multidimensional construct of digital literacy provided a better fit ($\chi 2/DF = 1.34$, CFI = 0.99, RMSEA = 0.04, and SRMR = 0.04) than the model that assumes digital literacy as a first-order unidimensional model ($\chi 2/DF = 1.42$, CFI = 0.98, RMSEA = 0.05, and SRMR = 0.05).

Core self-evaluation

Core self-evaluation captures the traits of employees in terms of self-esteem, emotional stability, general self-efficacy, and an internal locus of control. It was measured using twelve items adopted from Judge et al. (2003). Sample items are "Sometimes I feel depressed." and "1 determine what will happen in my life." (Cronbach's α = 0.93).

Employee resilience

Employee resilience was measured using Luthans et al.'s (2007) three-item scale, which assessed the extent to which employees recover quickly from disruptions in functioning. A sample item is "When I have a setback at work, I have trouble recovering from it." (Cronbach's α = 0.90).

Control variables

We included control variables to account for the factors that might influence dependent variables. First, we included employee gender (0 = male, 1 = female) given its potential influence on taking charge and employee resilience (e.g., Malik & Garg, 2020). Second, we controlled for employee education (1 = Less than high school, 2 = high school, 3 = some college, 4 = 2-year degree, 5 = 4-year degree, 6 = professional degree, 7 = doctorate) as it represents a possible confounding variable on taking charge and employee resilience (Yang et al., 2022). Third, we included employee age (in years) as age has been shown to change cognition processes (Santoro et al., 2021). Finally, we included employee tenure (1 = less than 3 years, 2 = 3 to 5 years, 3 = more than 5 years) that might influence employee engagement and resilience (Caniëls & Hatak, 2022).

STUDY 1: RESULTS

Measurement model and bias testing

To assess the reliability and validity of our constructs, we performed a confirmatory factor analysis in the AMOS (28.0) statistical software package. We assessed the measurement model using a range of fit indices, including the chi-square to degree of freedom ratio ($\chi 2/DF$), comparative fit index (CFI), root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). As a rule of thumb, a reasonable fit between the model and the data is achieved if $\chi 2/DF < 2$, CFI > 0.90, RMSEA < 0.50, and SRMR < 0.08 (Hu & Bentler, 1999). The results suggested a reasonable measurement model fit: $\chi 2/DF = 1.26$, CFI = 0.96, RMSEA = 0.04, and SRMR = 0.05. Furthermore, we tested two alternative models to compare possible improvements. First, we modeled inclusive climate as a single latent construct and loaded all items on it. This produced a poor measurement model: $\chi 2/DF = 1.72$, CFI = 0.59, RMSEA = 0.07, and SRMR = 0.09. Second, we modeled digital literacy as a single latent construct by loading all items on it, which produced poor measurement model fit: $\chi 2/DF = 2.13$,

CFI = 0.78, RMSEA = 0.08, and SRMR = 0.08. These results confirm that our proposed measurement model fits the data well.

The reliability of study measures was supported as values of Cronbach's alpha, and composite reliability exceeded the recommended threshold of 0.70 and 0.60, respectively (Bagozzi & Yi, 2012). All the standardized factor loadings were positive and significant at 1% (Hair et al., 2017). Also, the factor loadings were greater than the cutoff point of 0.40 and the average variance extracted (AVE) exceeded the benchmark of 0.50 (Kline, 2015). Together, these results support the convergent validity of constructs. The discriminant validity was evaluated using the procedure suggested by Fornell and Larker (1981) to compare the square of AVE with the inter-construct correlation. We found that the square of AVE for each construct was greater than the inter-construct for each pair of constructs (see Table 1). Thus, discriminant validity of constructs was confirmed. The descriptive statistics and correlation estimates are provided in Table 1.

---- Insert Table 1 About Here ----

Hypotheses testing

The hypothesized relationships were tested using hierarchical regression analysis. This approach helped us to test the effects of the independent variable, interaction terms of the independent and moderating variables, and mediating variable on dependent variable while reporting the model fit changes after each model estimation. Before hypotheses testing, all the variables involved in moderation analysis were mean-centered to prevent the issue of multicollinearity (Aiken & West, 1991). We then calculated the variance inflation factors (VIF) to test for the potential multicollinearity. The largest VIF was 2.39 which is considerably below the rigid threshold of 3 and well below the suggested threshold of 10 (Hair et al., 1998). Thus, it indicates that multicollinearity is not an issue in our analysis. In all, we estimated seven models. Model 1 and Model 5 are baseline models that estimate the effect of control variables including the direct

effects of core self-evaluation, digital literacy, and inclusive climate on employee resilience and taking charge respectively. In Model 2, the direct effect of digitalization on employee resilience is tested. Model 3 estimates the moderating effects of core self-evaluation, digital literacy, and inclusive climate. Model 4 tests three-way interaction effects of core self-evaluation, digital literacy, and inclusive climate on employee resilience. Model 6 tests the direct effect of digitalization on taking charge. In Model 7, the direct effects of both digitalization and taking charge on employee resilience are tested. The estimation indices for each model are reported in Table 2.

The results in Table 2 shows that the association between digitalization and employee resilience is positive and significant ($b = 0.23$, $p < 0.01$; Model 2). Thus, hypothesis 1 is supported.

---- *Insert Table 2 About Here* ----

Hypothesis 2 argues that inclusive climate moderates the impact of digitalization on employee resilience. The results provide support for this hypothesis as the impact of the interaction term between digitalization and inclusive climate on employee resilience is positive and marginally significantly ($b = 0.15$, $p < 0.05$; Model 3).

Hypothesis 3a argues for the moderating role of core self-evaluation and digital literacy. We find empirical support for this hypothesis as the interaction term between digitalization and core self-evaluation drives employee resilience ($b = 0.21$, $p < 0.01$; Model 3). Hypothesis 3b posits the three-way interaction between core self-evaluation, inclusive climate, and digitalization. We find that the interaction term between digitalization, core self-evaluation and inclusive climate is positively and significantly related to employee resilience ($b = 0.21$, $p < 0.05$; Model 4), thus providing support for hypothesis 3b.

Hypothesis 4a contends that digital literacy moderates the relationship between digitalization and employee resilience. Results in Table 2 provide support for this hypothesis as the interaction term

of digitalization and digital literacy is positively and significantly related to employee resilience ($b = 0.29$, $p < 0.001$; Model 3), suggesting that the relationship between digitalization and employee resilience is stronger when digital literacy is high. Hypothesis H4b posits that core self-evaluations and inclusive climate moderate the relationship between digitalization and employee resilience. The results provide support for this hypothesis as the inclusive climate enhances the effect of the interaction between digitalization and digital literacy on employee resilience ($b = 0.18$, $p < 0.05$; Model 4).

We further confirmed the moderating effects using PROCESS macro. Results in Table 3 provides support for H2 where high level of inclusive climate strengthens the impact of digitalization on employee resilience ($b = 0.36$, 95% CI [0.19, 0.53]), but when inclusive climate is low, the impact of digitalization on employee resilience is weaker ($b = - 0.08$, 95% CI [-0.11, 0.26]). We further interpreted the significance of interaction term on employee resilience using the previously recommend approaches (Cohen et al., 2003; Aiken and West, 1991). Specifically, we plotted the effect of the product term between digitalization and inclusive climate in Figure 2, which suggests that the relationship between digitalization and employee resilience is stronger when perceptions of inclusive climate are high.

---- *Insert Table 3 About Here* ----

---- *Insert Figure* 2 About Here ----

For Hypothesis 3a, the results suggest that the higher level of core self-evaluations intensifies the effect of digitalization on employee resilience ($b = 0.39$, 95% CI [0.22, 0.57]) compared to the lower level of digital literacy ($b = -0.001$, 95% CI [-0.19, 0.18), thus supporting this hypothesis. This is further confirmed by Figure 3a that shows a stronger impact of digitalization on employee resilience when core self-evaluations are high. We used Model 3 in PROCESS macro to test the three-way interaction. As shown in Table 3, the interaction effect of digitalization and core-self-

evaluation on employee resilience is high when inclusive climate is high (b = 0.49, 95% CI [0.31, 0.68]) as compared to when it is low (b = -0.07, 95% CI [-0.38, 0.25]), thus providing support for Hypothesis 3b. We plotted three-way interaction in Figure 3b.

---- *Insert Figures* 3a and 3b About Here ----

Testing Hypothesis 4a suggests the moderating effect of digital literacy such that high level of digital literacy strengthens the impact of digitalization on employee resilience (b = 0.43, 95% CI [0.25, 0.61]) as compared to low level of digital literacy (b = - 0.03, 95% CI [-0.23, 0.16]). As shown in Figure 4a, high levels of digital literacy enhance the effect of digitalization on employee resilience – confirming our initial results. For Hypothesis 4b, the results of PROCESS macro yield a positive interaction effect of digitalization and digital literacy on employee resilience at high levels of inclusive climate (b = 0.56, 95% CI [0.37, 0.75]) as compared to low levels (b = -0.07, 95% CI [-0.37, 0.28]). Furthermore, as shown in Figure 4b, consistent with our predictions, the trajectory of these slopes reveals that the relationship between digitalization and employee resilience is the strongest when both digital literacy and inclusive climates are high.

---- *Insert Figures* 4a and 4b About Here ----

Hypothesis 5 argues for the mediating effect of taking charge. We found a positive and significant impact of digitalization on both employee resilience (b = 0.23, p < 0.01; Model 2) as well as on taking charge (b = 0.41, p < 0.001; Model 6). More importantly, when direct effects of both digitalization and taking charge were estimated in Model 7, the path between digitalization and employee resilience was insignificant (b = -0.07, p > 0.10; Model 7) but the association between taking charge and employee resilience is significant (b = 0.42, p < 0.001; Model 7). Hence, hypothesis 5 is supported. The results of PROCESS macro in Table 3 further provide support for the mediating role of taking charge for the relationship between digitalization and employee resilience (b = 0.29; 95% CI [0.17, 0.43]). Thus, hypotheses 5 is supported.

Supplementary analyses

We conducted supplementary analyses to enhance the robustness of our findings. The data of our study 1 was collected at one time and from the same source (employees) and, therefore, common method bias is a possible (Podsakoff et al., 2003). To deal with this issue we utilized in our supplementary analysis data from two different informants (i.e., senior managers and employees). We initially conducted Harman's one-factor test using exploratory factor analysis (EFA). No significant single factor emerged, which provides some, yet limited, evidence of no issue of common method bias (Podsakoff et al., 2003). Given the limitations of this test (Podsakoff et al., 2003), three competing CFA models were estimated: Model 1 as a method-only model wherein all items were loaded onto a single latent construct ($\chi 2/df = 4.13$, CFI = 0.38, RMSEA = 0.14, SRMR = 0.16); Model 2 as a trait-only model wherein each item was loaded onto respective latent construct ($\chi 2/DF = 1.26$, CFI = 0.96, RMSEA = 0.04, and SRMR = 0.05); and Model 3 as a method-trait model wherein a common factor was linked with all the items in Model 2 ($\chi 2/df = 1.23$, CFI = 0.97, RMSEA = 0.04, SRMR = 0.04). Based on the comparison of the three CFA models, we found that Model 2 and Model 3 are superior to Model 1, and Model 3 is not substantially better than Model 2. Thus, we concluded that CMB is not an issue in this study.

Second, we tested for moderated mediation effect using PROCESS macro. The results suggest that the indirect effect of digitalization on employee resilience via taking charge is conditioned on core self-evaluation ($b = 0.08$, 95% CI [0.01, 0.17]) and inclusive climate ($b = 0.07$, 95% CI [0.01, 0.15]), but not on digital literacy ($b = 0.10$, 95% CI [-0.04, 0.20]). Furthermore, the results indicate that moderating role of digital literacy for indirect relationship between digitalization and employee resilience via taking charge is contingent on inclusive climate ($b = 0.04$, 95% CI [0.001, 0.09]). However, we found no support for the moderating role of core self-evaluation for indirect relationship between digitalization and employee resilience via taking charge at different levels of inclusive climate ($b = 0.02$, 95% CI [-0.05, 0.09]).

Third, it can be argued that senior managers' perception about the use of digital technology can be relevant to employees' taking charge and resilience. Thus, we used digitalization variables measured via senior managers' rating. Our results suggest that digitalization ($b = 0.17$, $p < 0.05$) is positively and significantly related to employee resilience in support of hypothesis 1. Further, we found support for the mediating role of taking charge for the relationship between digitalization and employee resilience ($b = 13$; 95% CI [0.04, 0.24]). Thus, hypothesis 5 was supported. This confirms that results were consistent with the study's main results when senior manager perspective was used to measure digitalization.

Fourth, we measured both taking charge (the mediator) and employee resilience (the dependent variable) from the employee perspective. Given the single source data collected simultaneously, the common method bias can inflate the relationship. Despite the confirmation of ex-post statistical procedures that common method bias is not an issue in this study, we further validated this issue by using senior managers' perception of taking charge measured at Time 1 and employees' perception of employee resilience at Time 2. Harman's single factor test revealed that the factor explained 29% of the total variance, thus indicating common method bias is not a concern (Podsakoff et al., 2003). We further found that taking charge is positively and significantly related to employee resilience ($b = 0.40$, $p < 0.001$).

Finally, endogeneity can occur when the predictor variable correlates with the residuals in the model (Wooldridge, 2002). In such a case, estimates can be biased and inconsistent as the error term is not random. To account for the issue of endogeneity between the mediating variable (taking charge) in our study) and dependent variable (employee resilience in our study), we first added four control variables to alleviate the problem of omitted variables. Further, we used two-stage least squares (2SLS) estimation procedure with instrumental variables (e.g., Liu et al., 2016; Ullah et al., 2021). Before conducting 2SLS test, we searched in our questionnaire and identified felt authenticity as the instrumental variable of taking charge. This is appropriate because felt

authenticity is suggested to relate significantly to taking charge (Caza et al., 2018; Guenter et al., 2017). The correlation results also confirmed that taking charge is positively correlated with employee resilience ($r = 0.36$; $p < 0.001$) but insignificantly correlated with employee resilience ($r = 0.02$; $p > 0.10$). This increased the confidence that felt authenticity is a suitable instrumental variable. Felt authenticity is measured using four items adapted from Kernis and Goldman (2006). In the first stage, taking charge was regressed on its instrumental variable (i.e., felt authenticity) and control variables. The F-statistics ($F = 15.29$, $p < 0.001$) and R^2 value (0.21) were above the cut-off point related to weak instrumental variables (Stock et al., 2002). In the second stage, the saved values of predicated values were used, and results suggested that the effect of taking charge on employee resilience remained significant and in the expected positive direction ($b = 0.49$, $p < 0.001$), even in the presence of an instrumental variable. Overall, these results confirm that endogeneity does not threaten our study.

Study 2

Data collection procedure and sample

In order to enhance the generalizability of our findings and further deal with the potential of common method bias in our study 1, we conducted a supplementary two-wave online survey in a distinct setting—specifically, the US. Data for study 2 was gathered at two different times from employees working in the US. Participants were recruited through Prolific Academic, an online panel platform. Research findings show that Prolific Academic participants tend to be more honest and more diverse than other online panel platforms (e.g., Peer, Brandimarte, Samat, & Acquisti, 2017). Participants received a total of $2.10 for completing both surveys ($1.40 for the first survey and $0.70 for the second survey).

Utilizing the screeners Prolific Academic offers, we recruited participants who were adults and working full-time in the US (the inclusion criteria were also confirmed using screening questions

at the beginning of the first survey). To address common method bias, data collection was completed in two waves. In the initial wave, participants were asked to provide information on digitalization, core self-evaluation, inclusive climate, digital literacy, and relevant control variables. A total of 523 responses were initially received. After removing participants who failed to provide their Prolific IDs (and thus it would be impossible to match them with the survey 2 responses), did not pass the attention checks, had a significant number of missing values in the constructs of interest, our sample was comprised of 458 responses. One week later, we contacted the same 458 employees to gather data on taking charge and employee resilience in the second survey. In this phase, a total of 345 responses were collected. Similar quality checks to survey 1 were applied, resulting in a final sample of 306 responses.

To rule out the issue of common method bias in survey 1 (where most of our data was collected), we used the marker variable technique (Lindell & Whitney, 2001; Williams, Hartman, & Cavazotte, 2010) with a theoretically unrelated variable, namely the attitude toward the color blue variable (Miller & Simmering, 2023). The marker variable was proved to be unrelated to the main variables as correlations between the marker variable and model's variable were insignificant and small (0.00 to 0.08). This suggests the common method bias is not an issue in our study.

STUDY 2: RESULTS

The descriptive statistics and correlation estimates are reported in Table 4.

---- Insert Table 4 About Here ----

Consistent with study 1 analysis, we employed hierarchical regression analysis to examine the postulated relationships. The multicollinearity issue was assessed by using VIF. The highest VIF observed was 2.99, well below the suggested threshold of 10 (Hair et al., 1998), indicating the absence of multicollinearity in our analysis. In total, we estimated seven models, with Models 1

and 5 serving as baseline models assessing the effects of control variables, including the direct impacts of core self-evaluation, digital literacy, and inclusive climate on employee resilience and taking charge, respectively.

The results in Table 5 indicated a positive and significant association between digitalization and employee resilience ($b = 0.19$, $p < 0.001$; Model 2), supporting hypothesis 1.

---- *Insert Table 5 About Here* ----

Hypothesis 2 posited that inclusive climate moderates the impact of digitalization on employee resilience. Model 3 offers support for this hypothesis, revealing a positive and marginally significant impact of the interaction term between digitalization and inclusive climate on employee resilience ($b = 0.25$, $p < 0.001$).

Hypotheses 3a and 3b suggested the moderating roles of core self-evaluation and digital literacy. Model 3 results provided empirical support for Hypothesis 3a, with the interaction term between digitalization and core self-evaluation positively and significantly influencing employee resilience ($b = 0.18$, $p < 0.01$). Hypothesis 3b received support in Model 4, where the three-way interaction term was positively and significantly related to employee resilience ($b = 0.23$, $p < 0.05$).

Hypothesis 4a proposed that digital literacy moderates the relationship between digitalization and employee resilience. Results in Table 5 provide support for this hypothesis, indicating a positive and significant relationship between the interaction term of digitalization and digital literacy and employee resilience (Model 3: $b = 0.17$, $p < 0.01$). Hypothesis 4b posited that core self-evaluations and inclusive climate moderate this relationship, with Model 4 results supporting H4b by indicating that inclusive climate enhances the effect of the interaction between digitalization and digital literacy on employee resilience ($b = 0.30$, $p < 0.001$).

To further confirm the moderating effects, we used PROCESS macro, with results in Table 6 supporting H2, H3a, H3b, H4a, and H4b. Further interpretations and visualizations were provided in Figures 5, 6a, 6b, 7a, and 7b.

---- Insert Table 6 About Here ----

---- Insert Figures 6a, 6b, 7a, and 7b About Here ----

Hypothesis 5 argued for the mediating effect of taking charge. The results in Table 5 showed a significant impact of digitalization on both employee resilience ($b = 0.19$, $p < 0.001$; Model 2) and taking charge ($b = 0.31$, $p < 0.001$; Model 6). However, in Model 7, the direct path between digitalization and employee resilience became insignificant ($b = 0.11$, $p > 0.10$), while the association between taking charge and employee resilience remained significant ($b = 0.28$, $p < 0.001$), supporting Hypothesis 5. The PROCESS macro results in Table 6 further substantiated the mediating role of taking charge for the relationship between digitalization and employee resilience ($b = 0.11$; 95% CI [0.05, 0.17]).

DISCUSSION

The COVID-19 pandemic crises brought about unprecedented disruptions across various facets of life, profoundly impacting the traditional ways people lived and worked. As countries implemented stringent lockdowns and safety measures to curb the spread of the virus, workplaces underwent a seismic shift. Employees grappled with heightened stress, uncertainty, and isolation, necessitating the ability to cope with and overcome the psychological challenges posed by the crisis. This epochal disruption underscored the pivotal role of employee resilience as a foundational basis, compelling individuals to embrace change and resiliently evolve in the face of unprecedented challenges.

While the importance of employee resilience for continuous organizational success and competitive advantage has been underscored (e.g., Cooper et al., 2019; Liang & Cao, 2021;

Malik & Garg, 2020), relevant research remains limited (Bardoel et al., 2014). Lu et al. (2023) highlighted that it is important to identify the organizational factors as well as the individual characteristics that can enhance employee resilience. While a large body of research focused on "reactive" organizational deployments by focusing on strategies dealing with a crisis post factum that could drive employee resilience (Luthans et al., 2006), limited studies focused on proactive organizational deployments, such as resilience training, work-life balance practices, and flexible work arrangements (Bardoel et al., 2014; Bonanno, 2004). Specifically, the advancements in digital technology have drastically reshaped the organizational structures and transformed the employees' management (Bondarouk & Ruël, 2009). The outbreak of the COVID-19 pandemic further acted as a catalyst that has accelerated this ongoing evolution (Antonacopoulou & Georgiadou, 2020; Malhotra, 2021). In this regard, digitalization emerged as a key mechanism that acts not only as a technological facilitator but also a transformative force that reshapes employees' work-related attitudes and behaviors (Leonardi & Treem, 2020; Schneider & Sting, 2020). This study aims to understand whether and how digitalization influence employee resilience. In addressing the study aim, we contribute to the literature in three ways.

First, our study contributes to the resilience literature by showing that digitalization is a vital determinant of employee resilience. Due to widespread adoption of digital and information technologies, the traditional landscape of work is transformed due to the introduction of new paradigms where employees collaborate, communicate, and engage in their professional roles, transcending geographical barrier. Employees can seamlessly transition between different work modes, such as working from home or in hybrid setups, allowing them to balance professional commitments with personal needs (Aroles et al., 2021). This flexibility empowers employees to manage unexpected situations without compromising work productivity (Hannola et al., 2018). Overall, digitalization is an opportunity-enhancing organizational factor that augments employee

resilience because digital technologies constitute a tool that supports employees to fulfill their daily tasks and contribute to strategic renewal (Warner & Wäger, 2019).

Second, our study adds to the debate that digitalization can endure the issues associated with the employees' inclusivity (Antonacopoulou & Georgiadou, 2021; Wang et al., 2020). Factors including perceived expertise in utilizing digital tools, response times to messages, or virtual communication styles could cause status differentials within these work environments. However, another research stream argues that digitalization leads to an equitable landscape where traditional status makers and hierarchies have become less apparent (Behl et al., 2022). In line with this, our study argues that inclusive climate acts as a moderating factor for the relationship between digitalization and employee resilience. Specifically, inclusive climate acts as a motivation-enhancing organizational deployment that interacts with digitalization and influences employee resilience (Holmes et al., 2021; Jansen et al., 2017). Employees who experience higher levels of inclusion are more motivated who can rely on digitalization to contribute to their work teams and remain resilient (Kim et al., 2021). In the context of COVID-19, an organizational inclusive climate that fosters equitable practices (e.g., equal pay and fair promotions), integration of differences (e.g., appreciation of differences and promotion of work-life balance), and participation in decision-making potentially enhance employees' motivation to become more resilient since such organizational deployments enhance the commitment and the ties of employees with the organization and their coworkers (Bardoel et al., 2014).

Furthermore, our study argued that the effects of organizational efforts for digitalization and inclusive climate on employees' resilience do not occur in isolation. Instead, the ability, knowledge, and personality of employees can play a moderating role in this process. We propose that digital literacy (Neumeyer et al., 2020) and core self-evaluations (e.g., Judge & Bono, 2001) of employees are important moderating mechanisms in coping with the challenges of a digitalized work environment (e.g., Raghuram et al., 2003). The rapid technological transformation has

forced organizations to adapt practices and innovate processes (Hanelt et al., 2021). This requires employees to deviate away from their comfort zones (Harteis, 2018). Acknowledging that in order to build a resilient workforce employees need to be able to "*cope and continue to withstand adversity in an adaptive way*" (Fabio & Saklofske, 2014: 20). In this context, our study shows that the individuals with high core self-evaluation tend to deal easily with stressful situations and overcome the potentially negative consequences of digitalization, allowing employees to become more resilient. Similarly, digital literacy embodies a strategic set of skills that operate in a dynamically changing world. Through exploiting high level of digital literacy, organizations can overcome the challenge of digitalization and make better use of digitalization to enhance resilience.

Third, we draw insights from AMO framework (Appelbaum et al., 2000; Blumberg & Pringle, 1982; Purcell & Hutchinson, 2007) arguing that employees' work-related outcomes are the product of the impact of three important factors: ability, motivation, and opportunity. We suggest that digitalization is a situational opportunity-enhancing factor that interacts with inclusive climate (i.e., motivation) and core self-evaluation and digital literacy (i.e., abilities) to support employee resilience. Our findings suggest that both inclusive climate and core self-evaluations can offset the potentially negative consequences of digitalization, strengthening the positive relationship between digitalization and employee resilience. We also found that the positive relationship between digitalization and employee resilience is simultaneously moderated by inclusive climate and digital literacy. These findings contribute to the AMO research by following the calls for exploring the interactive effects between ability, motivation, and opportunity (Hong & Gajendran, 2018; Kim et al., 2015).

Finally, we relied on the behavioral perspective (Schuler & Jackson, 1987; Jackson et al., 1989) to explore the mechanisms through which digitalization promotes employee resilience. The behavioral perspective argues an effective sequence where organizational practices, policies, and

processes influence behavior of employees, which, in turn, influences employee outcomes (Delery & Roumpi, 2017; Schuler & Jackson, 1987). Specifically, we conceptualized taking charge as a mediating mechanism that link organizational practices of digitalization with employee resilience. Taking charge is an extra role behavior that "*entails voluntary and constructive efforts, by individual employees, to effect organizationally functional change with respect to how work is executed within the contexts of the jobs, work units, or organizations*" Morrison & Phelps, 1999: 403). We argue that the use of technology gives employees the opportunity to engage in taking charge, which can lead to enhanced employee resilience.

From a practitioner perspective, our research highlights the critical role of interaction between organizations and employees in supporting employee resilience and transcending challenges posed by strong winds of digitalization and work-from-everywhere schemes. Based on our findings, we suggest that organizations going through digitalization need to promote inclusive climate in the workplace and invest in improving their employees' digital literacy to better navigate pervasive and disruptive forces and enhance taking charge. For example, managers can initiate inclusivity training, champion inclusive climate with exemplary behaviors, and provide incentives for inclusive climate in the workplace. They may also design support programs to enhance digital literacy and ensure that digitalization processes align with employees' digital competencies. In turn, employees can leverage the taking charge to achieve greater levels of resilience in the face of unexpected and daunting headwinds. They may take the initiatives and challenge the status quo in the workplace to foster their resilience. They may also focus on future opportunities instead of waiting for negative change and channel difficulties they face toward positive change and ensuing resilience.

Limitations and future research directions

Despite the important contributions, our study is not free from limitations, which warrant future scholarly attention. First, our first study might have a generalizability challenge due to non-response bias. Although the independent sample t-tests for early and late respondent groups suggest no difference between the two groups, we do not have access to the data needed to compare respondents to non-respondents. In addition, our first study focuses on the unique context of UAE, which could potentially raise further questions regarding the generalizability of our findings. However, it is important to highlight that the choice of UAE as the context of this study was intentional because the workforce of UAE is predominantly international (with almost 9 million foreign nationals; GMI, 2021). Thus, the issue of inclusive climate in the workplace is rather critical for the well-being of international employees and the success and survival of organizations. In addition, UAE has been characterized as an emerging digital economy (Sharma, 2021), making it an ideal context to study digitalization. In addition, our second study focused on full-time employees in the US and offered support to the results of our first study, strengthening the generalizability of our findings. Despite the appropriateness of UAE context for this study and further support found in a sample of employees in the US, future research should explore the effects of inclusive climate and digitalization on employee resilience in other contexts with varying levels of workforce diversity and organizational digitalization.

Second, we used employees as key informants of study, whereas senior managers responses were used as a part of supplementary analysis. A potential limitation of our sampling approach is that we used a ratio of one senior manager to one administrative employee. Surveying more administrative employees per organization could have potentially offered a more accurate depiction of the workforce's resilience levels in each organization. As recently emphasized by Zhang et al. (2022), the conceptualization, antecedents, and outcomes of employee resilience from multiple perspectives could be interesting. Therefore, future research is imperative to ensure a better and more comprehensive understanding of resilience, including crafting an overarching

and multidisciplinary framework for nurturing resilience and developing scalable and cost-effective interventions for boosting resilience at the national, organizational, and, particularly, individual levels.

Finally, our study considered digitalization as an organizational initiative that can support the survival of organizations in dynamic environments. As we move more into the digitalization era, we believe that digitalization will no longer be pursued as a stand-alone initiative, but will be intertwined with other phenomena like remote working, telecommuting, cybersecurity, and automation. Thus, future studies should focus on exploring how digitalization along with other phenomena will be embedded within the organizational initiatives. Moreover, it is important to shed more light on what form the inclusive climate will have, for instance, in an all-virtual work environment.

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Biographical notes:

Nadia Zahoor, is a Senior Lecturer (Associate Professor) in Strategy at the Queen Mary University of London, UK. She completed her PhD in Management at University of Huddersfield, UK. She completed her PhD in Management at University of Huddersfield, UK. Her research interests are strategic alliances, global strategy, innovation, and organizational resilience. She is particularly interested in the context of small and medium-sized enterprises in emerging markets. Her research has been published in mainstream journals, including *Journal of World Business, British Journal of Management, International Marketing Review, Journal of Business Research, Business Strategy and the Environment, International Small Business Journal, International Journal of Management Reviews, International Business Review*, among others. She is serving as a guest-editor for the special issues at such leading journals as *R&D Management, Journal of Knowledge Transfer,* and *European Management Journal*.

Dorothea Roumpi is the LER Alumni Endowed Early Career Professor and Assistant Professor of Human Resource Management in the School of Labor and Employment Relations at The Pennsylvania State University, USA. Her research focuses on strategic human resource management, strategic human capital, factors that influence employee mobility, and inclusive human resource management practices and policies. She has published her work in various internationally recognized journals including *Journal of Management, Personnel Psychology, Human Resource Management*, and *Human Resource Management Journal*.

Shlomo Tarba, is Chair (Full Professor) in Strategy and International Business at the University of Birmingham, UK. He is a Fellow of the British Academy of Social Sciences. He served as Head of Department of Strategy & International Business at the Business School, University of Birmingham, UK between August 2015 and September 2018. Prof. Tarba is currently an Associate Editor of *Journal of Product Innovation Management*, and has previously served as a Deputy Editor-in-Chief and Co-Editor-in-Chief of *British Journal of Management*, and Associate Editor of *Human Resource Management Review*. He is a member of the editorial boards of *Journal of Management Studies, California Management Review, Journal of World Business, Long Range Planning,* and *Management International Review*. His research interests include digitization, resilience, agility, ambidexterity, and mergers and acquisitions. Prof. Tarba's papers are published in premier journals such as *Journal of Management* (SAGE), *Journal of Product Innovation Management, Journal of Organizational Behavior, Human Resource Management (US), Human Relations, Academy of Management Perspectives, Journal of Corporate Finance,* and others. One of his papers has been selected and published in Best Paper Proceedings of the Academy of Management (USA) in 2006.

Ahmad Arslan is currently working at the Department of Marketing, Management and International Business, University of Oulu, Finland He is also affiliated with InnoLab, University of Vaasa, Finland, and holds the position of Honorary Chair at the Business School, University of Aberdeen, Scotland, UK. His earlier research has been published in such premier academic journals as *British Journal of Management, Human Resource Management (US), IEEE Transactions on Engineering Management, International Business Review, International journal of Human Resource Management, International Marketing Review, Journal of Business Research, Journal of International Management, Journal of Product Innovation Management, Production Planning & Control, Public Management Review, Supply Chain Management, and Technological Forecasting and Social*

Change, among others. He also holds several editorial board memberships and is currently an Associate Editor of *International Journal of Entrepreneurship and Small Business.*

Ismail Gölgeci, D.Sc. (Econ. & Bus. Adm.) is an Associate Professor at Aarhus University, Herning, Denmark, and is an affiliate of InnoLab at the University of Vaasa, Finland. Dr. Gölgeci's research interests range from global and sustainable supply chain management to business-to-business marketing and technology in the workplace. His research has been published in about 80 peer-reviewed academic articles and appeared in journals such as *Journal of International Business Studies, Human Relations, International Journal of Operations & Production Management, Industrial Marketing Management, Supply Chain Management: An International Journal, Production Planning & Control, Journal of Business Research, International Business Review, International Small Business Journal, International Marketing Review, IEEE Transactions on Engineering Management, Technological Forecasting and Social Change, Journal of International Management,* and amongst others. He is an Associate Editor of *Journal of Business Research* and *International Marketing Review* and Senior Associate Editor of *International Journal of Physical Distribution & Logistics Management.*

Table 1. Descriptive statistics and correlation estimates (Study 1).

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Gender†	0.55	0.51	1.00									
2. Education	4.52	1.55	-0.12	1.00								
3. Age	44.96	9.70	-0.08	0.14	1.00							
4. Tenure	8.25	6.37	0.14	-0.11	0.05	1.00						
5. Inclusive climate	4.83	1.25	-0.05	0.11	0.10	0.09	**0.75**					
6. Digitalization	4.79	1.48	0.01	0.24***	0.02	0.01	-0.10**	**0.87**				
7. Taking charge	4.98	1.32	0.16*	0.21**	0.04	0.06	0.17*	0.52***	**0.77**			
8. Core self-evaluation	5.07	1.33	0.2**	0.02	0.14	0.09	0.33***	0.12	0.12	**0.76**		
9. Digital literacy	4.99	0.92	-0.05	-0.05	0.08	-0.03	0.21**	0.15*	0.23**	0.12	**0.74**	
10. Employee resilience	4.84	1.43	0.16*	0.18*	0.06	0.02	0.20**	0.22**	0.54***	0.07	0.04	**0.86**

Notes. Square-root of AVE in bold on the diagonal and correlations between constructs below the diagonal; SD = standard deviation; † = dummy variable; significance levels: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Table 2. Results of path analyses (Study 1).

Independent variables	Dependent variables						
	Employee resilience				*Taking charge*		*Employee resilience*
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*	*Model 7*
Control paths							
Gender	0.20** (2.63)	0.20** (2.69)	0.17* (2.28)	0.18* (2.51)	0.19* (2.57)	0.14* (2.31)	0.12 (1.77)
Education	0.18* (2.39)	0.12 (1.53)	0.07 (0.94)	0.09 (1.20)	0.24** (3.12)	0.07 (1.06)	0.06 (0.88)
LogAge	0.04 (0.53)	0.05 (0.62)	0.05 (0.67)	0.07 (1.02)	0.01 (0.08)	0.01 (0.22)	0.07 (1.00)
LogTenure	-0.01 (-0.13)	-0.02 (-0.21)	-0.05 (-0.69)	-0.04 (-0.58)	0.05 (0.70)	0.05 (0.90)	-0.06 (-0.96)
Core self-evaluation (CSEV)	-0.05 (-0.62)	-0.09 (-1.10)	-0.07 (-0.85)	-0.04 (-0.49)	0.03 (0.31)	-0.03 (-0.41)	-0.03 (-0.37)
Digital literacy (DLTR)	0.02 (0.29)	-0.02 (-0.28)	-0.09 (-1.16)	-0.05 (-0.67)	0.22** (3.03)	0.12+ (1.88)	-0.10 (-1.40)
Inclusive climate (INCL)	0.19* (2.39)	0.24** (2.99)	0.23** (2.99)	0.17* (2.13)	0.10 (1.23)	0.13 (1.88)	0.11 (1.53)
Direct path							
Digitalization (DIGT)		0.23** (2.90)	0.25*** (3.35)	0.10 (1.15)		0.41 (5.42)	-0.07 (-0.75)
Two-way interaction paths							
DIGT x CSEV			0.21** (2.83)	0.04 (0.47)		0.05 (0.65)	0.02 (0.26)
DIGT x DLTR			0.29*** (4.03)	0.15+ (1.83)		0.01 (0.10)	0.15+ (1.91)
DIGT x INCL			0.15* (2.08)	0.08 (0.86)		0.17* (2.28)	0.01 (0.05)
CSEV x DLTR			0.21 (2.69)	0.27** (3.49)		0.25*** (3.76)	0.17* (2.21)
CSEV x INCL			0.03 (0.40)	0.02 (0.24)		-0.15* (-2.18)	0.08 (1.06)
DLTR x INCL			-0.09 (-1.13)	-0.13 (-1.56)		-0.06 (-0.77)	-0.11 (-1.37)
Three-way interaction paths							
DIGT x CSEV x INCL				0.21* (2.42)		0.04 (0.51)	0.21 (2.54)
DIGT x DLTR x INCL				0.18* (2.11)		0.27** (3.12)	0.08 (0.85)
Mediation path							
Taking charge							0.42*** (4.71)
Goodness-of-fit indices							
R^2	0.10	0.15	0.28	0.33	0.15	0.51	0.41
ΔR^2	---	0.05	0.10	0.05	---	0.36	---
F-Value	2.70	3.52	4.42	4.80	4.23	10.25	6.43
VIF	1.23	1.27	1.82	2.25	1.23	2.25	2.39

Notes. Standardized errors are reported in parentheses; significance levels: *** p< 0.001; ** p < 0.01; * p < 0.05.

Table 3. Results of PROCESS macro (Study 1).

Description	Estimate	SE	95% confidence interval	
			Lower bound	Upper bound
Mediation				
Digitalization → Taking charge	0.47*	0.06	0.35	0.58
Taking charge → Employee resilience	0.63*	0.08	0.47	0.79
Digitalization → Employee resilience	0.21*	0.07	0.07	0.35
Indirect effect of Taking charge	*0.29**	*0.07*	*0.17*	*0.44*
Moderation				
Digitalization x Core self-evaluation	0.15*	0.05	0.06	0.24
Low level of Core self-evaluation (Digitalization as antecedent)	*-0.001*	*0.10*	*- 0.19*	*0.18*
High level of Core self-evaluation (Digitalization as antecedent)	*0.39**	*0.09*	*0.21*	*0.57*
Digitalization x Digital literacy	0.25*	0.07	0.12	0.39
Low level of Digital literacy (Digitalization as antecedent)	*- 0.03*	*0.10*	*- 0.22*	*0.16*
High level of Digital literacy (Digitalization as antecedent)	*0.43**	*0.09*	*0.25*	*0.61*
Digitalization x Inclusive climate	0.11*	0.05	0.02	0.20
Low level of Inclusive climate (Digitalization as antecedent)	*0.08*	*0.15*	*- 0.11*	*0.26*
High level of Inclusive climate (Digitalization as antecedent)	*0.36**	*0.11*	*0.19*	*0.53*
Digitalization x Core self-evaluation x Inclusive climate	0.08*	0.03	0.02	0.13
Low level of Core Self-evaluation and Inclusive climate	*-0.07*	*0.16*	*- 0.38*	*0.25*
High level of Core Self-evaluation and Inclusive climate	*0.49**	*0.09*	*0.31*	*0.68*
Digitalization x Digital literacy x Inclusive climate	0.09*	0.04	0.01	0.18
Low level of Digital literacy and Inclusive climate	*-0.07*	*0.15*	*- 0.37*	*0.28*
High level of Digital literacy and Inclusive climate	*0.56**	*0.10*	*0.37*	*0.75*

Note. * denotes significance; unstandardized beta coefficients are reported; SE = standard error.

Table 4. Descriptive statistics and correlation estimates (Study 2).

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Gender†	0.44	0.50	1.00										
2. Education	4.82	1.24	-0.01	1.00									
3. Age	39.96	11.09	0.09	-0.05	1.00								
4. Tenure	7.56	6.64	-0.05	-0.10	0.55***	1.00							
5. Marker variable	5.89	0.98	-0.04	-0.06	-0.09	-0.01	1.00						
6. Inclusive climate	4.93	1.41	-0.14*	0.00	0.04	-0.06	-0.06	**0.84**					
7. Digitalization	5.26	1.19	-0.02	0.05	0.06	0.07	-0.02	0.04	**0.75**				
8. Taking charge	5.00	1.15	0.08	-0.03	-0.02	0.01	0.04	0.01	0.36***	**0.78**			
9. Core self-evaluation	4.53	0.88	0.05	0.00	-0.19**	-0.14**	0.00	-0.05	0.01	0.12*	**0.70**		
10. Digital literacy	5.39	1.11	-0.14*	0.09	-0.03	0.02	0.03	0.23***	0.30***	0.13*	0.06	**0.74**	
11. Employee resilience	5.21	1.08	0.06	-0.03	-0.05	0.06	-0.04	-0.07	0.21***	0.35***	-0.06	0.11	**0.79**

Notes. Square-root of AVE in bold on the diagonal and correlations between constructs below the diagonal; SD = standard deviation; † = dummy variable; significance levels: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Table 5. Results of path analyses (Study 2).

Independent variables	Dependent variables						
	Employee resilience				*Taking charge*		*Employee resilience*
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*	*Model 7*
Control paths							
Gender	0.09 (1.58)	0.09 (1.53)	0.11 (1.83)	0.09 (1.59)	0.09 (1.58)	0.08 (1.36)	0.071.26)
Education	-0.04 (-0.68)	-0.05 (-0.79)	-0.04 (-0.75)	-0.04 (-0.66)	-0.04 (-0.68)	-0.05 (-0.95)	-0.02 (-0.42)
LogAge	-0.11 (-1.50)	-0.12 (-1.68)	-0.09 (-1.37)	-0.08 (-1.20)	-0.11 (-1.50)	0.01 (0.18)	-0.08 (-1.29)
LogTenure	0.08 (1.15)	0.08 (1.12)	0.07 (0.95)	0.05 (0.77)	0.08 (1.15)	-0.07 (-1.13)	0.07 (1.11)
Core self-evaluation (CSEV)	-0.08 (-1.39)	-0.08 (-1.43)	-0.01 (-0.20)	-0.07 (-1.13)	-0.08 (-1.39)	0.10 (1.76)	-0.10 (-1.65)
Digital literacy (DLTR)	0.14^{*} (2.40)	0.08 (1.37)	0.15^{*} (2.30)	-0.13^{*} (-2.12)	0.14^{*} (2.40)	0.06 (0.96)	0.12^{*} (2.00)
Inclusive climate (INCL)	-0.09 (-1.44)	-0.08 (-1.37)	-0.07 (-1.12)	0.14^{*} (2.19)	-0.09 (-1.44)	-0.07 (-1.21)	-0.11 (-1.86)
Direct path							
Digitalization (DIGT)		0.19^{***} (3.30)	0.21^{***} (3.41)	0.19^{**} (3.14)		0.31^{***} (5.13)	0.11 (1.75)
Two-way interaction paths							
DIGT x CSEV			0.18^{**} (3.10)	0.10 (1.12)		0.02 (0.18)	0.10 (1.11)
DIGT x DLTR			0.17^{**} (2.89)	0.06 (0.84)		0.10 (1.35)	0.04 (0.49)
DIGT x INCL			0.25^{***} (4.42)	0.22^{***} (3.26)		0.21^{**} (3.20)	0.16^{*} (2.45)
CSEV x DLTR			0.16^{*} (2.13)	0.17 (1.68)		-0.05 (-0.47)	0.18 (1.85)
CSEV x INCL			-0.04 (0.63)	-0.02 (-0.30)		-0.03 (-0.36)	-0.02 (-0.21)
DLTR x INCL			0.15^{*} (2.49)	0.17^{*} (2.39)		0.14^{*} (2.06)	0.13 (1.89)
Three-way interaction paths							
DIGT x CSEV x INCL				0.23^{*} (2.16)		0.10 (0.85)	0.19 (1.71)
DIGT x DLTR x INCL				0.30^{***} (3.39)		0.22^{*} (1.99)	0.09 (0.74)
Mediation path							
Taking charge							0.28^{***} (4.71)
Goodness-of-fit indices							
R^2	0.04	0.08	0.15	0.19	0.04	0.19	0.25
ΔR^2		0.04	0.07	0.04		0.15	0.06
F-Value	1.81	3.00	3.67	4.22	1.81	5.56	5.57
VIF	1.54	1.58	2.72	2.99	1.58	2.72	2.99

Notes. Standardized errors are reported in parentheses; significance levels: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Table 6. Results of PROCESS macro (Study 2).

Description	Estimate	SE	95% confidence interval	
			Lower bound	Upper bound
Mediation				
Digitalization → Taking charge	0.35*	0.05	0.25	0.45
Taking charge → Employee resilience	0.30*	0.05	0.19	0.40
Digitalization → Employee resilience	0.19*	0.05	0.09	0.29
Indirect effect of Taking charge	0.11*	0.03	0.05	0.17
Moderation				
Digitalization x Core self-evaluation	0.13*	0.04	0.04	0.22
Low level of Core self-evaluation (Digitalization as antecedent)	0.10	0.05	-0.01	0.22
High level of Core self-evaluation (Digitalization as antecedent)	0.33*	0.07	0.19	0.46
Digitalization x Digital literacy	0.10*	0.03	0.04	0.16
Low level of Digital literacy (Digitalization as antecedent)	0.11	0.05	-0.00	0.22
High level of Digital literacy (Digitalization as antecedent)	0.32*	0.07	0.19	0.46
Digitalization x Inclusive climate	0.12*	0.03	0.07	0.18
Low level of Inclusive climate (Digitalization as antecedent)	0.02	0.06	-0.11	0.14
High level of Inclusive climate (Digitalization as antecedent)	0.36*	0.06	0.24	0.49
Digitalization x Core self-evaluation x Inclusive climate	0.05*	0.02	0.01	0.10
Low level of Core Self-evaluation and Inclusive climate	0.18	0.06	-0.01	0.36
High level of Core Self-evaluation and Inclusive climate	0.55*	0.09	0.36	0.73
Digitalization x Digital literacy x Inclusive climate	0.03*	0.02	0.001	0.06
Low level of Digital literacy and Inclusive climate	0.11	0.06	-0.00	0.23
High level of Digital literacy and Inclusive climate	0.45*	0.08	0.29	0.61

Note. * denotes significance; unstandardized beta coefficients are reported; SE = standard error.

Figure 1. Conceptual framework of the study.

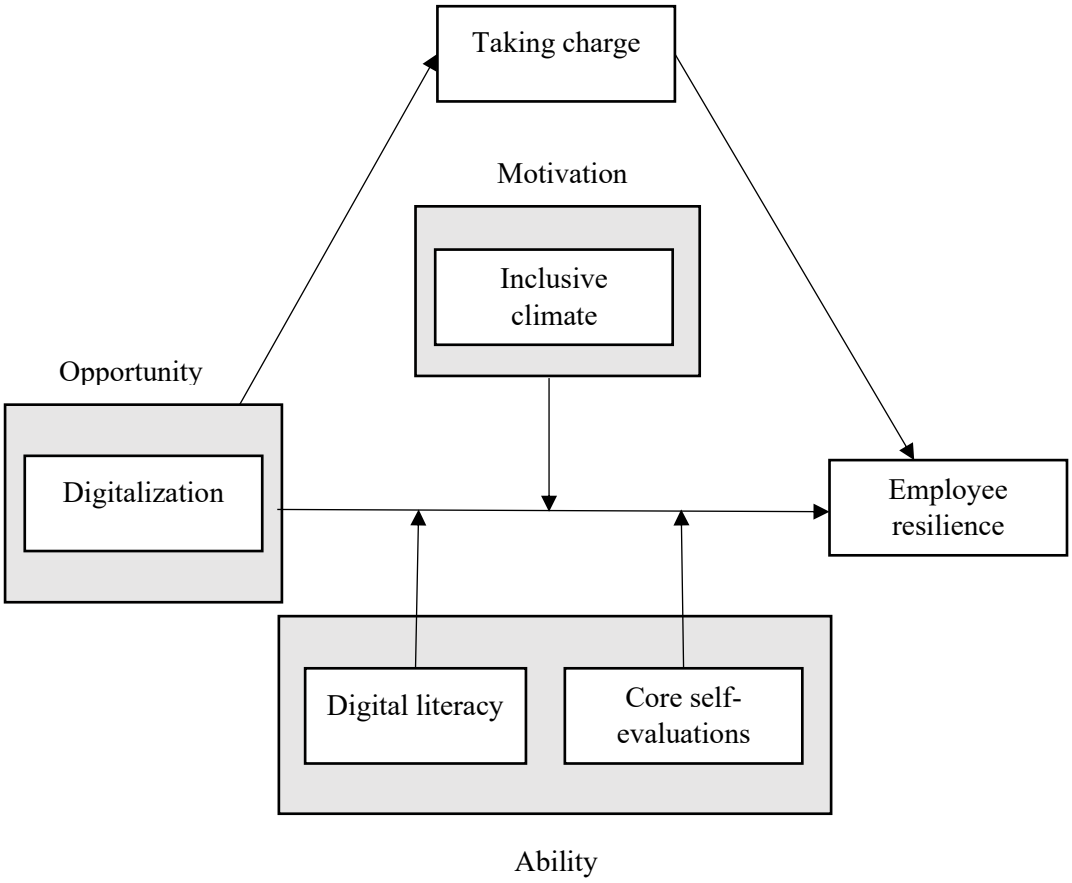

Figure 2. The interactive effect of digitalization and inclusive climate on employee resilience (study 1).

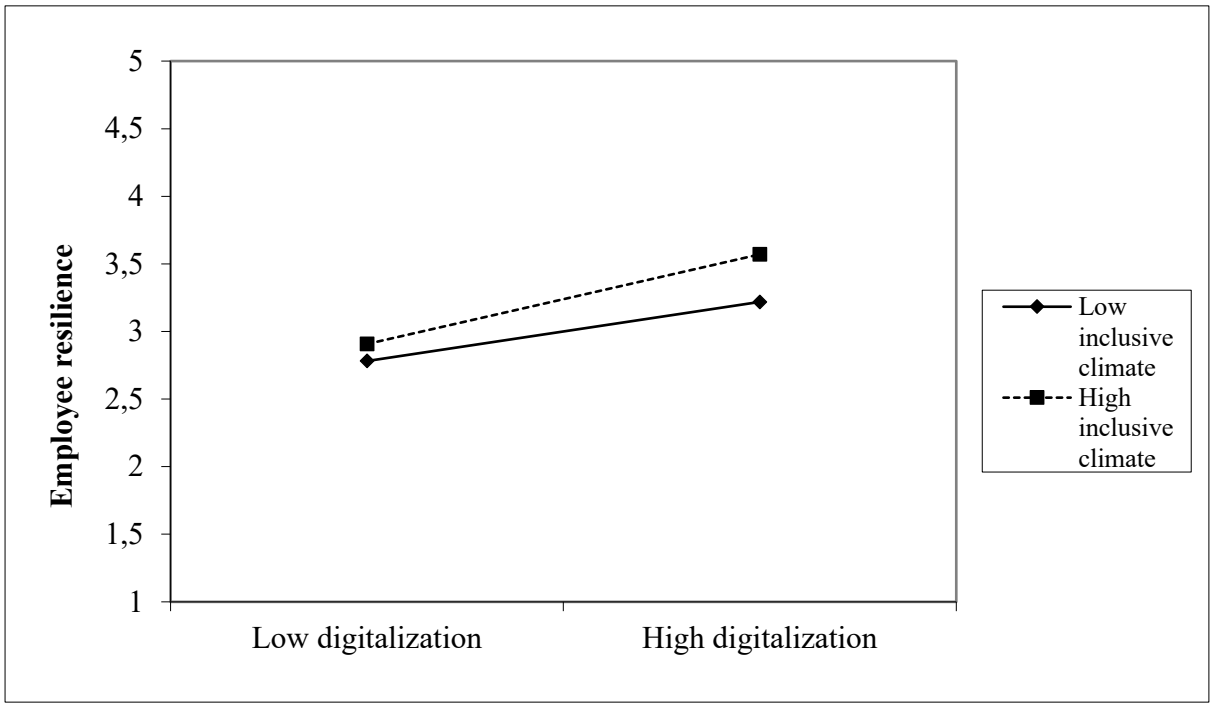

Figure 3a. The interactive effect of digitalization and core self-evaluations on employee resilience (study 1).

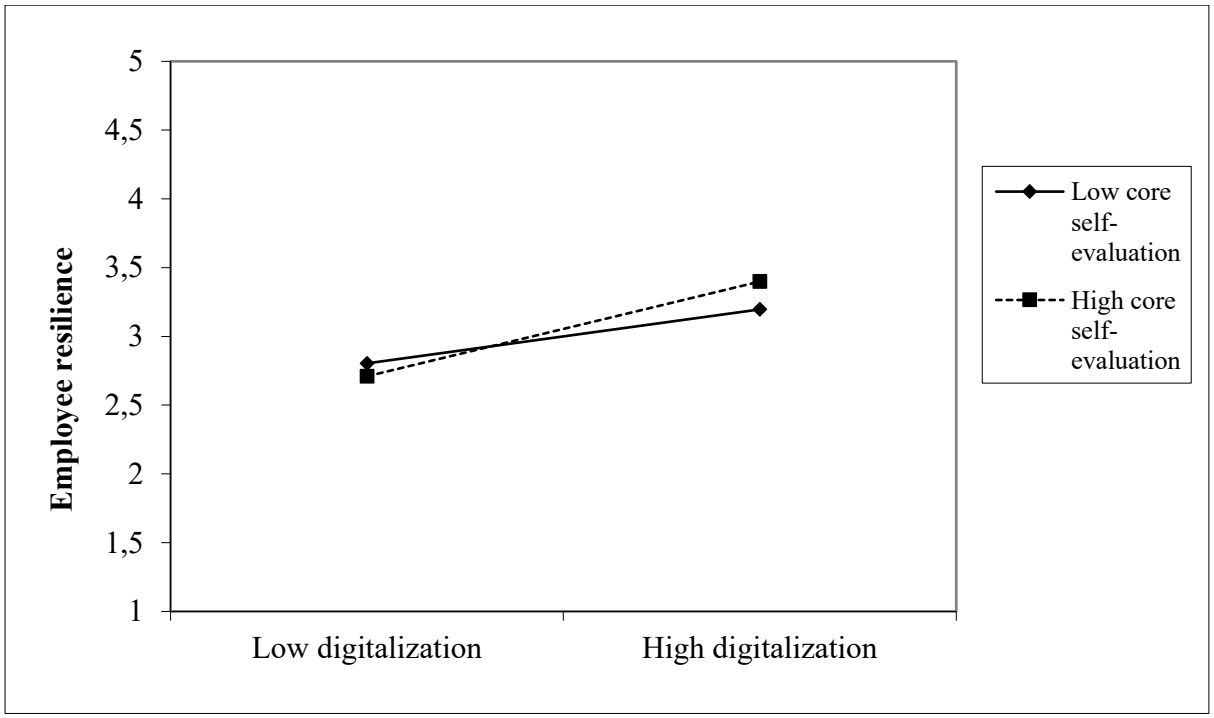

Figure 3b. The interaction effect of digitalization, core self-evaluation, and inclusive climate on employee resilience (study 1).

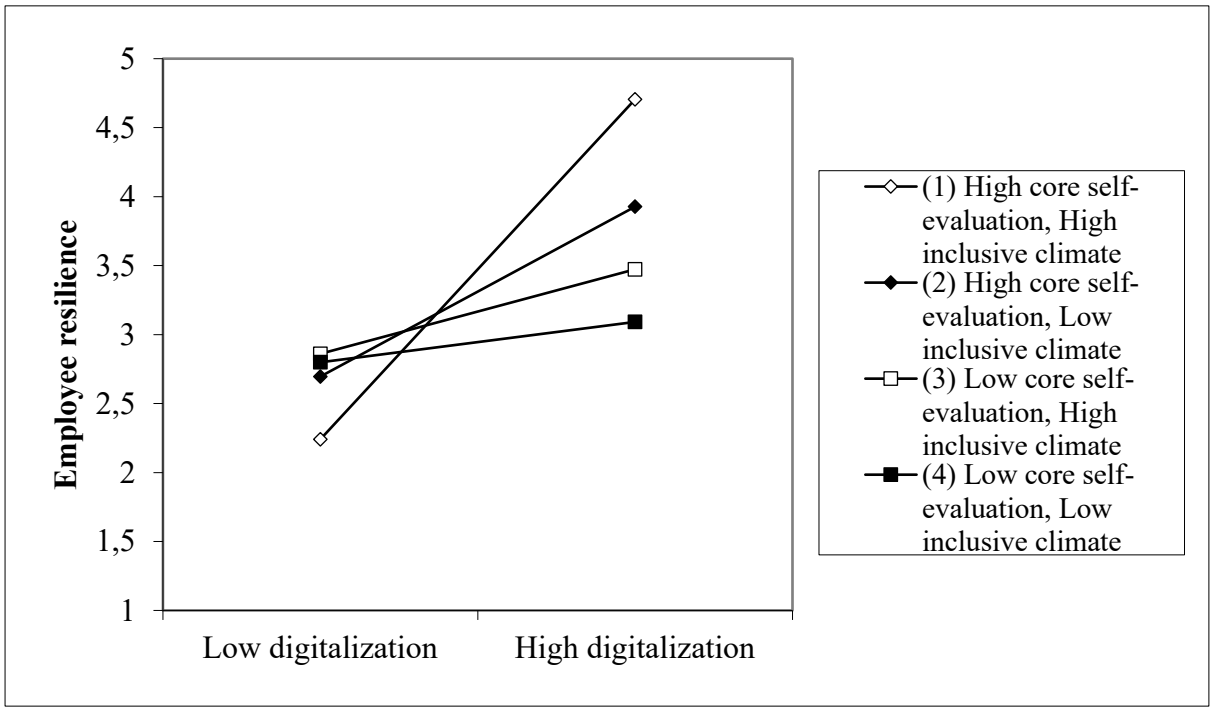

Figure 4a. The interactive effect of digitalization and digital literacy on employee resilience (study 1).

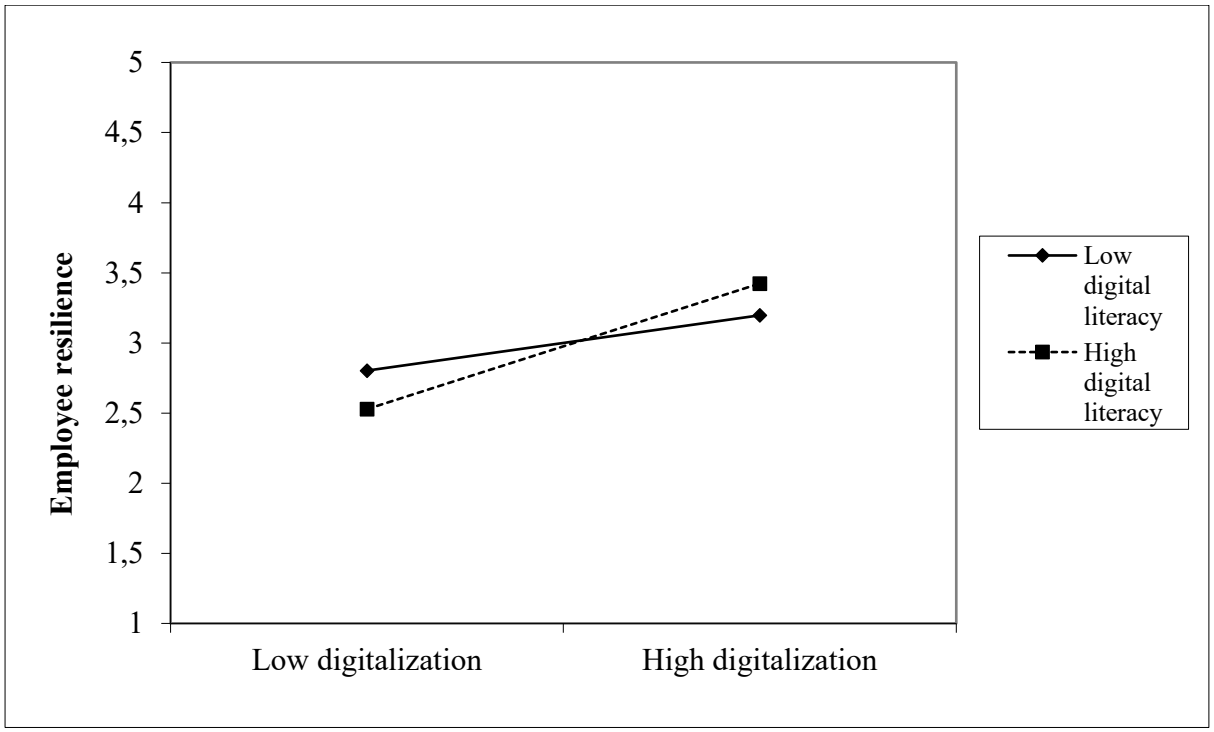

Figure 4b. The interaction effect of digitalization, digital literacy, and inclusive climate on employee resilience (study 1).

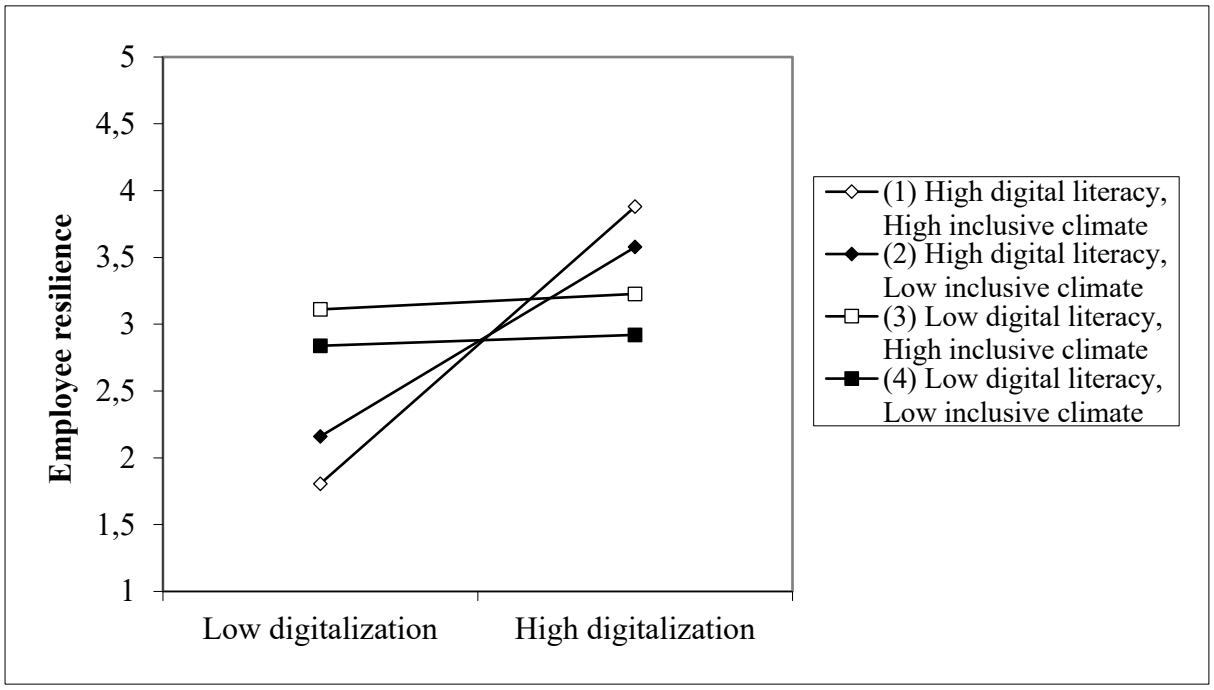

Figure 5. The interactive effect of digitalization and inclusive climate on employee resilience (study 2).

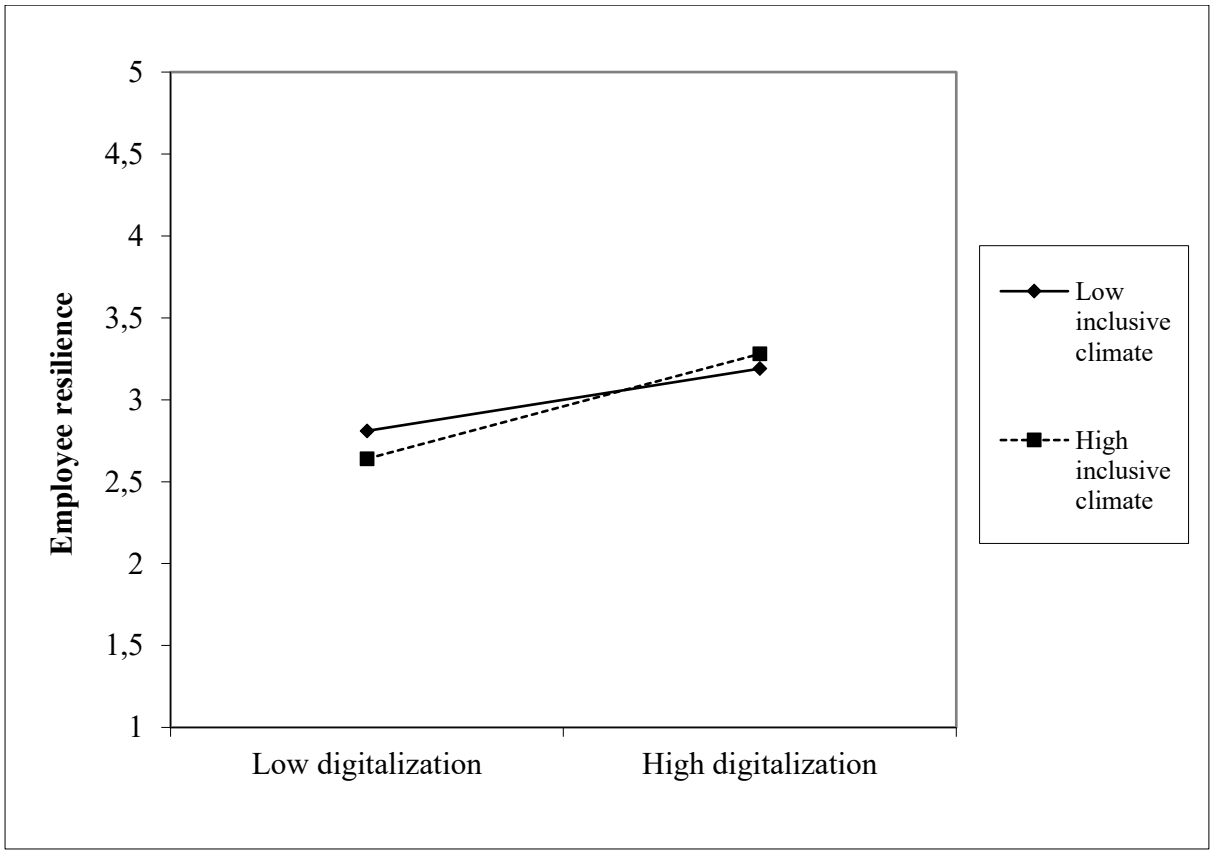

Figure 6a. The interactive effect of digitalization and core self-evaluations on employee resilience (study 2).

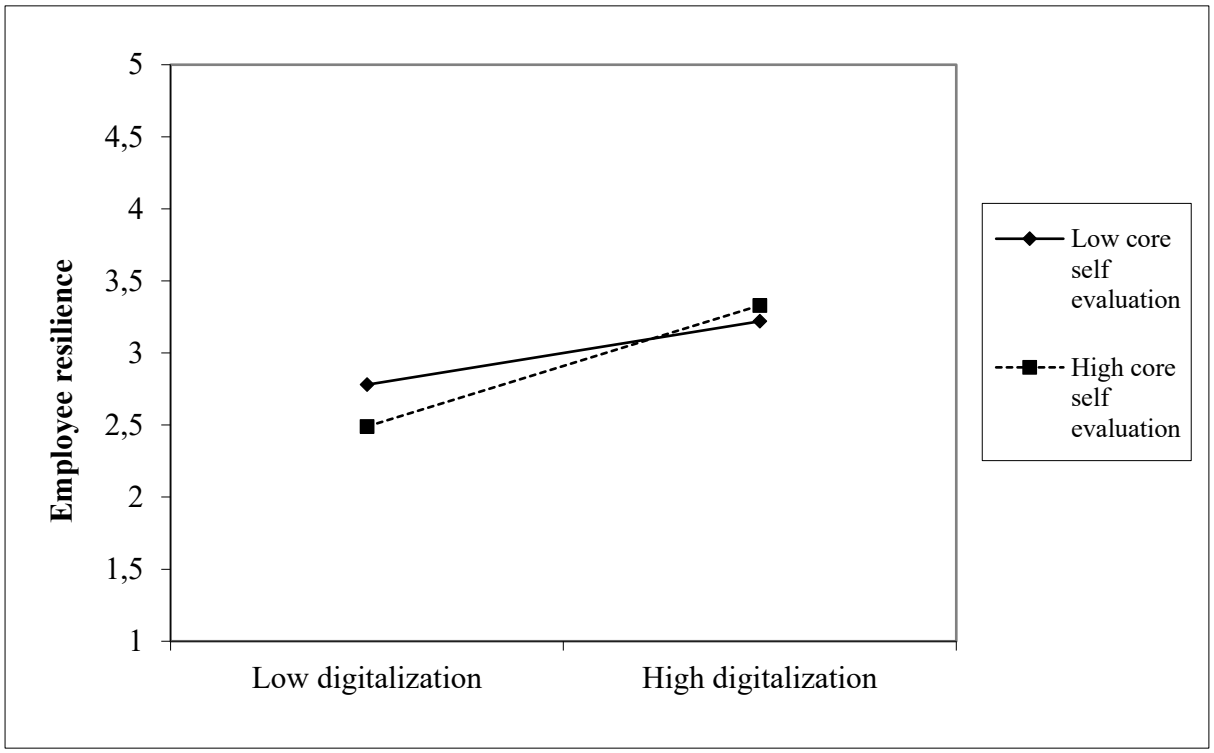

Figure 6b. The interaction effect of digitalization, core self-evaluation, and inclusive climate on employee resilience (study 2).

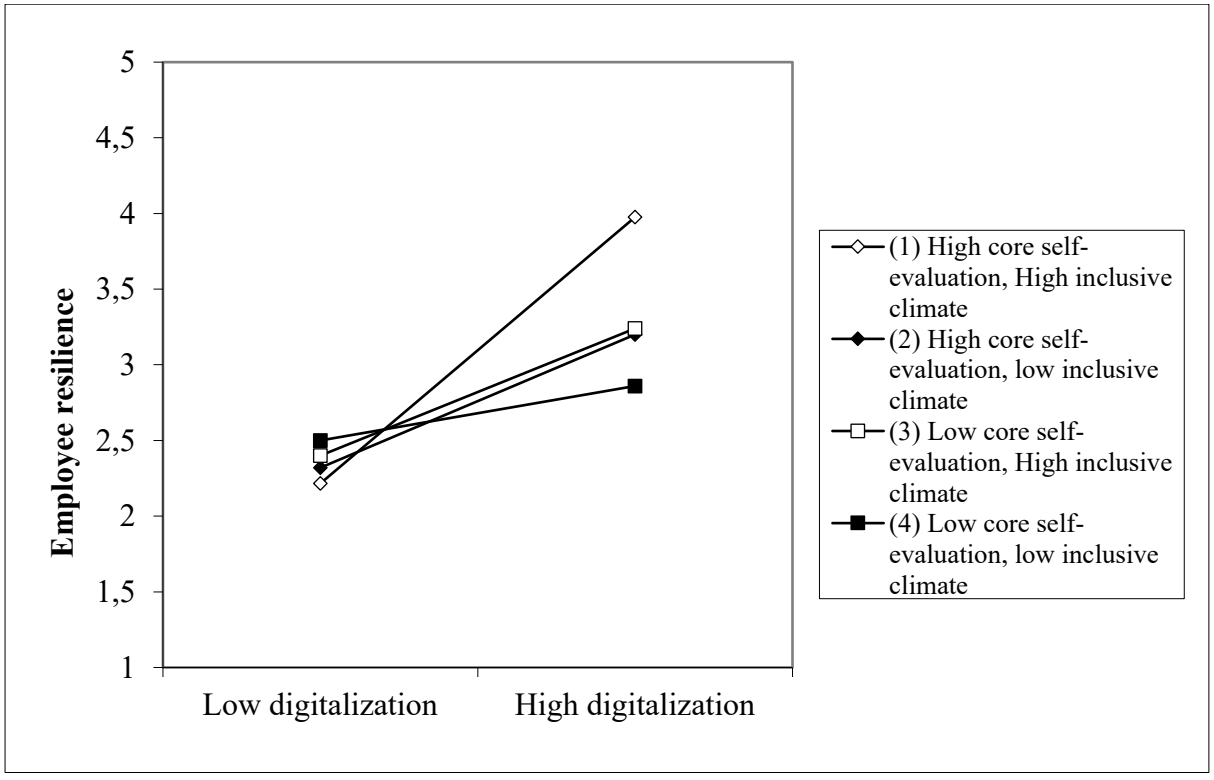

Figure 7a. The interactive effect of digitalization and digital literacy on employee resilience (study 2).

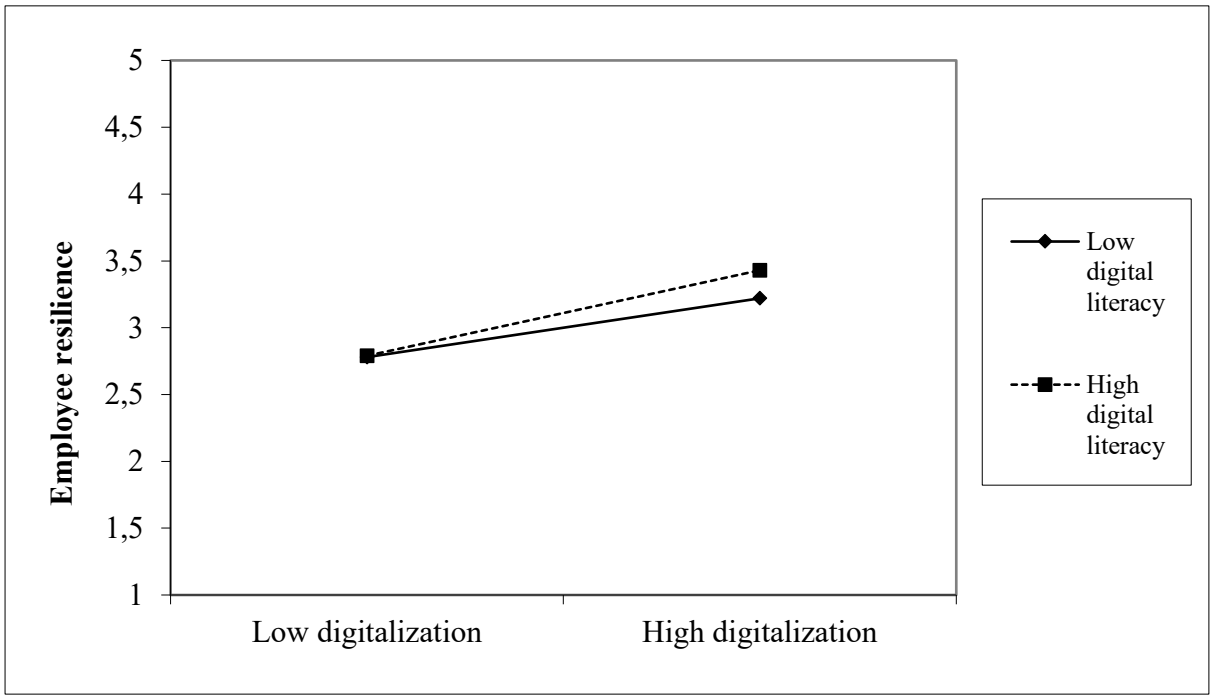

Figure 7b. The interaction effect of digitalization, digital literacy, and inclusive climate on employee resilience (study 2).