ChatGPT adoption in entrepreneurship and digital entrepreneurial intention: A moderated mediation model of technostress and digital entrepreneurial self-efficacy

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Abstract

Research background: In the rapidly evolving milieu of digital entrepreneurship, the integration of artificial intelligence (AI) technologies, exemplified by ChatGPT, has witnessed burgeoning prominence. However, there remains a dearth of understanding regarding the relationships between ChatGPT adoption in entrepreneurship and individuals’ cognitive career processes of digital entrepreneurship.

Purpose of the article: The primary aim of the research is to adopt the Social Cognitive Career Theory and a moderated mediation model to unravel the intricate dynamics that characterize...
the impact of ChatGPT adoption in entrepreneurship and digital entrepreneurial intentions, underlying a moderated mediation mechanism of digital entrepreneurial self-efficacy and technostress.

Methods: Drawing on the sample of 1326 respondents in Vietnam using a stratified sampling approach, first, Cronbach’s alpha and confirmatory factor analysis were used to test the reliability and validity of scales; after that, Harman’s single-factor and common latent factor were employed to test the common method bias; finally, the PROCESS macro approach was utilized to test the hypothesized model.

Findings & value added: Our findings reveal positive impacts of ChatGPT adoption in entrepreneurship on digital entrepreneurial self-efficacy and digital entrepreneurial intentions. Moreover, digital entrepreneurial self-efficacy is found to significantly mediate the impact of ChatGPT adoption in entrepreneurship on digital entrepreneurial intention. Furthermore, technostress emerges as a significant negative moderator, influencing the impact of ChatGPT adoption in entrepreneurship on both digital entrepreneurial self-efficacy and intentions. This study thus contributes to the literature by advancing our understanding of how AI technologies shape entrepreneurial aspirations, offering valuable insights for scholars and practitioners navigating the transformative landscape of digital entrepreneurship.

Introduction

In today’s rapidly evolving business landscape, the largest global enterprises are fundamentally shifting towards embracing the digital economy, departing from traditional industrial practices (Upadhyay et al., 2022; Yáñez-Valdés & Guerrero, 2024). This transformation is characterized by a proactive pursuit of continuous innovation in products and services (Civelek et al., 2023), accompanied by a strategic adoption of diverse digital technologies to revolutionize consumer value creation and decision-making processes (Cramarenco et al., 2023). Notably, businesses worldwide increasingly recognize the transformative potential of emerging technologies such as artificial intelligence (AI), the Internet of Things, cloud computing, and big data (Dávid & Dadkhah, 2023; Ho, 2024; Lazaroiu & Rogalska, 2023; Piotrowski & Orzeszko, 2023; Upadhyay et al., 2022). These technologies are pivotal in reshaping traditional business approaches, strategies, operational frameworks, and entrepreneurial endeavors (Abaddi, 2023). Entrepreneurs today find themselves amidst unprecedented opportunities to leverage these technological advancements, empowering them to innovate, create, and scale their ventures within an interconnected and digitized business environment (Fernandes et al., 2022).

The Internet, alongside cutting-edge technologies, provides a vast landscape of entrepreneurial and disruptive prospects for budding entrepreneurs and young innovators and serves as a catalyst for the effective and
efficient establishment and management of businesses (Ajayi, 2023; Aloulou et al., 2023). This transformative digital environment has sparked a notable surge in entrepreneurial interest, particularly within the context of the digital age, giving rise to the distinctive realm of digital business venturing within the broader entrepreneurial domain (Al-Mamary & Alraja, 2022; Tsai et al., 2024). Amidst this backdrop of technological innovation and entrepreneurial fervor, the recent introduction of generative pre-trained transformer technology, such as ChatGPT, stands as a significant milestone in AI advancement, enabling the generation of natural language texts, images, sounds, and videos with unprecedented fidelity and creativity (Abaddi, 2023). This paradigm shift not only underscores the transformative potential of AI in reshaping entrepreneurial practices, but also introduces new avenues for exploration within entrepreneurial literature.

The intersection of emergent technologies, such as ChatGPT, with digital entrepreneurship constitutes a pivotal juncture warranting comprehensive exploration to address prevailing knowledge lacunae (Upadhyay et al., 2022). This imperative is accentuated as individuals navigate the dynamic terrains of business and innovation, where the convergence of technology and entrepreneurship holds considerable potential for transformative impact (Gupta et al., 2023). Despite the burgeoning scholarly discourse surrounding AI adoption and its implications, encompassing platforms like GPT and the emergence of digital business venturing (Abaddi, 2023; Aloulou et al., 2023), notable gaps persist in empirical investigations examining the nuanced ramifications of ChatGPT adoption within entrepreneurship on individuals’ propensity to engage in digital entrepreneurial pursuits. There needs to be more research interrogating the mediating influence of social career cognition in this context, thereby delineating a significant research lacuna. Our study thus seeks to delve into the intricate dynamics surrounding the adoption of ChatGPT within entrepreneurship, aiming to elucidate its impact on digital entrepreneurial intentions while exploring the underlying mechanisms of digital entrepreneurial self-efficacy and technostress. Particularly, the recent research aims to adopt the social cognitive career theory (SCCT) (Lent et al., 1994) to address the following research queries (RQs).

RQ1. Is the SCCT suited to explore an individual’s digital entrepreneurial intentions in the landscape of the AI (i.e., ChatGPT) revolution?
RQ2. How does ChatGPT adoption in entrepreneurship increase individuals’ digital entrepreneurial intentions, especially the underlying mediation mechanism of digital entrepreneurial self-efficacy?

RQ3. How does technostress act as a negative moderator in the effects of ChatGPT adoption in entrepreneurship on digital entrepreneurial self-efficacy and digital entrepreneurial intention?

RQ4. Does technostress negatively moderate the indirect impact of ChatGPT adoption in entrepreneurship on digital entrepreneurial intention via digital entrepreneurial self-efficacy?

To tackle these research inquiries, the subsections of our research are structured as follows. After the introduction, we delve into the theoretical foundation and hypothesis formulation based on the SCCT. Subsequently, the third section encompasses the presentation of scales and details about the sampled participants. Following this, the fourth section illustrates the results and hypothesis testing. Finally, the last section includes a discussion, conclusions, limitations, and suggestions for further research.

**Literature review**

**Digital entrepreneurship**

The conceptual foundation of digital entrepreneurship originates from the utilization of digital technology in various roles: a facilitator, a mediator, the product itself, and ultimately, as an omnipresent component in every entrepreneurial endeavor (Sitaridis & Kitsios, 2023). It also compasses intentional efforts by individuals to convert business ideas into tangible products or services, requiring the development of essential processes wherein digital technology plays a pivotal role as a crucial input (Kraus et al., 2023). Through digital technologies, numerous business ventures transition their business processes, operations, and solutions from offline to online, giving rise to digital business venturing as a novel branch of entrepreneurial activities (Upadhyay et al., 2021). In our study, digital entrepreneurship is conceptualized as a subcategory of entrepreneurship involving the transformation of some or all aspects of entrepreneurial activities, pro-
cesses, and operations to digitize assets, services, or a significant portion of the business (Sitaridis & Kitsios, 2023). Digital entrepreneurship focuses on digitizing the majority or entirety of a business’s products and services, aiming to provide innovative and distinct value propositions (Tsai et al., 2024). The incorporation of digital technologies is endorsed as a fundamental competency for crafting products and services tailored to customers within the domain of digital entrepreneurship (Upadhyay et al., 2021).

Digital technologies are propelling digital entrepreneurship to the forefront, fundamentally altering, and restructuring business and communication. Emerging technologies, such as AI, introduce new platforms and development paradigms, fostering the creation of innovative products and services (Lamine et al., 2023). Recently, AI technology has been deemed essential in various digital entrepreneurship domains, spanning medical technologies, retail, manufacturing, and other sectors, entrepreneurs have thus demonstrated a keen interest in leveraging AI to streamline, redefine and reshape various aspects of business activities, operations, and values (Lamine et al., 2023). AI holds substantial potential across all stages of the entrepreneurial process. As an illustration, AI can possess the capability to hasten the establishment of ventures by facilitating swift data collection, conducting market, and feasibility studies during the exploration phase. Moreover, it optimizes the processes of positioning and targeting markets in the exploration phase (Upadhyay et al., 2021).

The social cognitive career theory

The SCCT (Lent et al., 1994) serves as an extension of the Social Cognitive Theory (SCT) (Bandura, 2011). Its emphasis lies in exploring how external supports or barriers can augment or diminish an individual’s career self-efficacy and intentions to pursue specific career paths (Duong, 2023). Built on the SCCT, our study develops a moderated mediation model to test whether technostress can negatively moderate the direct and indirect effects of ChatGPT in entrepreneurship on digital entrepreneurial self-efficacy and digital entrepreneurial intention because of the following rationales. From a psychological standpoint, the first attention is directed toward individual behavior, with researchers delving into the influence of social cognitive processes used by individuals to construct representations of their external environment, especially underlying a cognitive and motivational mechanism driving them pursuing these goals (Pérez-López et al.,
The SCCT has thus garnered research interest concerning entrepreneurial endeavors (Adebusuyi et al., 2022). This interest stems from its incorporation of central components found in extended models of startup intentions, such as self-efficacy (Pérez-López et al., 2019). As such, the SCCT can provide a theoretical foundation that aids in exploring the conditions under which an individual might choose to become an entrepreneur (Duong & Vu, 2023). It thus sheds light on how psychological barriers (i.e., technostress) can impede the cognitive process of business venture creation. Moreover, the SCCT enhances these components by incorporating a more comprehensive array of entrepreneurship-related antecedents and outcomes, affecting the decision-making process individuals go through when pursuing an entrepreneurial career path (Duong, 2023). It, therefore, offers a sufficient framework to explore the proximal and mediation role of digital entrepreneurial self-efficacy on the link between ChatGPT adoption in entrepreneurship and digital entrepreneurial intention.

**ChatGPT adoption in entrepreneurship**

In the field of business venturing, previous studies have provided a thorough analysis outlining the requirements for entrepreneurs to harness AI, like ChatGPT, in formulating their business plans (Abaddi, 2023; Aloulou et al., 2023). These studies have emphasized the practical use of ChatGPT by offering customized prompts tailored to aid entrepreneurs in developing various segments of their business strategies, encompassing elements such as marketing and financial aspects (Lamine et al., 2023).

Based on the SCCT, it is assumed that ChatGPT in entrepreneurship can significantly increase individuals’ digital entrepreneurial self-efficacy and digital entrepreneurial intention.

The SCCT underscores the significance of self-efficacy—individuals’ belief in their capacity to accomplish specific tasks in sculpting career-related decisions. In the entrepreneurial context, the adoption of AI (i.e., ChatGPT—an advanced AI tool) can provide entrepreneurs with a multifaced learning and mastery experience (Short & Short, 2023). As entrepreneurs engage with ChatGPT to perform tasks essential to their ventures, such as crafting business plans or conducting market analyses, they will likely acquire a nuanced understanding of its capabilities (Upadhyay et al., 2021). This firsthand engagement contributes to an experiential learning process, enhancing their digital entrepreneurial self-efficacy. In addition, adapting to
technological innovation is crucial for entrepreneurial success in today’s rapidly evolving business landscape (Davidsson & Sufyan, 2023). By embracing ChatGPT and other AI technologies, entrepreneurs are willing to embrace innovation and leverage emerging trends (Upadhyay et al., 2021). This adaptability strengthens their digital entrepreneurial self-efficacy and positions them as innovative leaders within their respective industries. Furthermore, successfully incorporating ChatGPT into entrepreneurial activities is tangible evidence of entrepreneurial competence and proficiency in leveraging technology for business growth (Abaddi, 2023). This validation of competence reinforces entrepreneurs’ belief in their ability to navigate the digital landscape effectively, further enhancing their digital entrepreneurial self-efficacy.


The integration of AI, exemplified by ChatGPT, equipped with advanced natural language processing (NLP) capabilities, offers individuals a powerful tool for efficiently navigating vast datasets (Huy et al., 2023; Short & Short, 2023). Through rapid analysis and comprehension of information, ChatGPT becomes instrumental in enhancing individuals’ ability to discern emerging trends, identify market gaps, and recognize potential opportunities (Gupta et al., 2023). Adoption of emerging technology (i.e., ChatGPT) plays a significant role in fostering individuals’ intentions to become digital entrepreneurs. Moreover, given the instrumental role of ChatGPT in enhancing individuals’ ability to discern trends, identify market gaps, and recognize potential opportunities, its adoption plays a significant role in fostering individuals’ intentions to become digital entrepreneurs (Abaddi, 2023). ChatGPT empowers aspiring entrepreneurs to envision and pursue innovative ventures that leverage emerging technologies and capitalize on market dynamics by equipping individuals with the tools and insights needed to navigate the complexities of the digital landscape (Short & Short, 2023). Thus, the integration of AI, exemplified by ChatGPT, catalyzes cultivating individuals’ aspirations and intentions to embark on digital entrepreneurial endeavors.

Digital entrepreneurial self-efficacy

Entrepreneurial self-efficacy refers to an individual’s intentional belief in their ability to competently perform entrepreneurial tasks associated with initiating and managing a business venture (Nwosu et al., 2022). The concept of self-efficacy is also rooted in the SCCT, asserting that human intentions are significantly governed and motivated by self-efficacy (Valdez-Juárez & García Pérez-de-Lema, 2023). In this context, digital entrepreneurial self-efficacy is characterized as an individual’s confidence in their capability to operate proficiently as a digital entrepreneur (Xin & Ma, 2023). In accordance with Bandura (2011)’s the SCT, individuals exhibiting evaluated levels of self-efficacy are inclined to participate in actions they believe they can execute successfully. Within the realm of digital business venturing, a heightened level of digital entrepreneurial self-efficacy indicates robust confidence in one’s ability to navigate the complexities of the digital business landscape (Ashraf et al., 2021; Xin & Ma, 2023). This confidence stems from a perceived mastery of digital tools, technological proficiency, and an understanding of digital market dynamics, all of which are essential for success in digital entrepreneurship. Furthermore, individuals with elevated levels of digital entrepreneurial self-efficacy will likely exhibit greater initiative, persistence, and resilience in pursuing entrepreneurial opportunities within the digital sphere (Adebusuyi et al., 2022; Valdez-Juárez & García Pérez-de-Lema, 2023). Their confidence in their ability to overcome challenges and capitalize on digital innovations fosters a proactive approach to entrepreneurship, characterized by a willingness to take calculated risks and pursue innovative ventures. It is thus assumed that individuals’ digital entrepreneurial self-efficacy is assumed to have a positive impact on their intentions to become digital entrepreneurs.


Within the SCCT framework, entrepreneurial self-efficacy serves as a crucial mediator in transferring the impacts of various antecedents onto entrepreneurial intention (Valdez-Juárez & García Pérez-de-Lema, 2023). As individuals integrate ChatGPT into their entrepreneurial activities, they encounter tangible outcomes and benefits these AI technologies facilitate. This integration sets in motion a process where individuals formulate in-
intentions or goals, a vital component of the SCCT (Lent et al., 1994), as they anticipate positive results from incorporating ChatGPT into their entrepreneurial endeavors. These goals may encompass a spectrum of objectives, including improved efficiency, enhanced creativity, and increased effectiveness in various entrepreneurial tasks (Nwosu et al., 2022). When individuals witness the tangible benefits and positive outcomes associated with ChatGPT adoption, their confidence in their ability to navigate the digital entrepreneurial landscape, or digital entrepreneurial self-efficacy, is likely to be heightened. This elevation in digital entrepreneurial self-efficacy, in turn, strengthens their intentions to become digital entrepreneurs. The observed positive outcomes resulting from ChatGPT adoption, and an elevated sense of digital entrepreneurial self-efficacy contribute to a more robust intention to pursue digital entrepreneurship. Individuals who feel empowered and confident in their ability to leverage ChatGPT for entrepreneurial purposes are more likely to harbor stronger intentions to embark on digital entrepreneurial ventures. Consequently, digital entrepreneurial self-efficacy significantly mediates the relationship between ChatGPT adoption in entrepreneurship and digital entrepreneurial intention. By bolstering individuals’ confidence in their ability to succeed in the digital entrepreneurial domain, digital entrepreneurial self-efficacy serves as a conduit through which the positive impacts of ChatGPT adoption translate into heightened intentions to engage in digital entrepreneurship.

H4. Digital entrepreneurial self-efficacy significantly mediates the impact of ChatGPT adoption in entrepreneurship on digital entrepreneurial intention.

Technostress

Technostress, as characterized in the literature, represents a contemporary challenge arising from rapidly integrating new computer technologies into various aspects of life, focusing on individual well-being (Truța et al., 2023). It manifests as a psychological condition marked by stress stemming from the use of technology, accompanied by observable mental and emotional consequences (Kim et al., 2022). In the context of our study, technostress is hypothesized to serve as a negative moderator, diminishing the positive impacts of ChatGPT adoption on digital entrepreneurial self-efficacy and digital entrepreneurial intention while also impeding the indirect effect mediated by digital entrepreneurial self-efficacy. The rationale
behind this hypothesis lies in the dual nature of ChatGPT adoption. High technostress may counteract these positive effects, while it is expected to enhance digital entrepreneurial self-efficacy by facilitating efficient information processing and aiding in entrepreneurial tasks (Short & Short, 2023). When individuals experience high levels of technostress, the stress associated with technology use may overwhelm the potential benefits derived from ChatGPT adoption. This negative moderating effect suggests that the advantages gained from adopting ChatGPT, such as improved information processing and task efficiency, may be compromised by technology-induced stress. Consequently, the development of digital entrepreneurial self-efficacy may be hindered as individuals struggle to cope with the psychological burden imposed by technostress.

H5. Technostress negatively moderates the effect of ChatGPT adoption in entrepreneurship on digital entrepreneurial self-efficacy.

ChatGPT, an advanced AI tool, is anticipated to enhance individuals’ intention to participate in digital entrepreneurship by offering valuable insights and aiding in the start-up decision-making process (Abaddi, 2023). Its capacity for rapid analysis and comprehension of information empowers entrepreneurs with actionable intelligence, facilitating informed decision-making and strategic planning. However, the potential positive effects of ChatGPT adoption may be dampened by the emergence of technostress—a psychological and emotional strain associated with technology use. Technostress, characterized by anxiety, frustration, and being overwhelmed, poses a significant threat to individuals’ well-being and commitment to digital entrepreneurial intentions (Truța et al., 2023). High levels of technostress can create barriers to the formation and persistence of entrepreneurial aspirations as individuals grapple with the mental and emotional toll imposed by technology use. Consequently, even with the beneficial aspects of ChatGPT adoption, technostress may weaken or offset the intended positive outcomes, hindering individuals’ progression toward digital entrepreneurship.

H6. Technostress negatively moderates the effect of ChatGPT adoption in entrepreneurship on digital entrepreneurial intention.
Furthermore, digital entrepreneurial self-efficacy is expected to play a pivotal role in mediating the impact of ChatGPT adoption on digital entrepreneurial intention. As individuals gain confidence in their ability to leverage ChatGPT for entrepreneurial purposes, they are more likely to harbor intentions to engage in digital entrepreneurship (Abaddi, 2023; Aloulou et al., 2023). Yet, introducing technostress as a moderator adds complexity to this mediation process. When technostress levels are elevated, the positive mediating effect of digital entrepreneurial self-efficacy may be weakened. The stress induced by technology use may interfere with the effective mediation of self-efficacy in the pathway from ChatGPT adoption to digital entrepreneurial intention as individuals struggle to maintain confidence and motivation amidst technological challenges. Consequently, the presence of technostress complicates the relationship between ChatGPT adoption, digital entrepreneurial self-efficacy, and digital entrepreneurial intention, highlighting the importance of considering individual well-being and psychological factors in understanding the dynamics of technology adoption in entrepreneurial contexts.

H7. Technostress significantly moderates the indirect effect of ChatGPT adoption in entrepreneurship on digital entrepreneurial intention via digital entrepreneurial self-efficacy. Especially, the positive mediation effect of digital entrepreneurial self-efficacy on the link between ChatGPT adoption in entrepreneurship and digital entrepreneurial intention is weakened when technostress is high.

The conceptual model is represented in Figure 1.

Research methods

Data collection

While prior studies employ undergraduate students as a sample to explore the entrepreneurial phenomenon, numerous scholars contend that only most students consistently maintain their initial intentions post-graduation (Laukkonen, 2022; Tran et al., 2023). Hence, to fulfill the research objectives, we opted for a sample derived from MBA students in Vietnam since the rationales are as follows. First, MBA programs often emphasize real-world applications and strategies (Tiberius et al., 2023). MBA students may thus
provide insights that are directly applicable to business practices and the challenges faced by entrepreneurs. Second, MBA students often pursue the degree with the intention of advancing their careers in business, which may include entrepreneurial endeavors (Ver Steeg, 2022). Furthermore, MBA programs often allow students to specialize in specific areas of business, such as marketing, finance, or strategy (Tiberius et al., 2023). This specialization can bring a targeted perspective to entrepreneurship research.

Our data collection process employed a stratified random sampling method. In Vietnam, MBA programs attract a diverse pool of students spanning various academic disciplines, including both background in economics and management, engineering, and others, such as biotechnology, food technology, technology information, electronics-telecommunication, medicine, and more. Acknowledging the significance of capturing this diversity, we meticulously integrated participants’ educational backgrounds as a crucial criterion within our stratified random sampling approach. First, our sampling process began with a thorough examination of the landscape of MBA programs across the Northern and Southern regions of Vietnam. Leveraging data from reputable sources such as the ranking web of Vietnamese universities (Webometrics, 2023), we identified six universities renowned for their MBA offerings. These universities were selected based on their impact ranking, ensuring representation of high-quality educational institutions from both regions. Second, with the assistance of lecturers from these universities, we then identified and selected two to three MBA classes within each institution to facilitate the distribution of questionnaires. This collaborative effort allowed us to access a broad cross-section of MBA students, ensuring the inclusion of participants from diverse educational backgrounds. Once the classes were identified, we delved into the intricate stratification task. Beyond considering traditional factors like university ranking and geographic location, we significantly emphasized participants’ academic backgrounds. Within each stratum, we meticulously ensured a balanced representation of students from economics and business management-related backgrounds and those with backgrounds in engineering and other programs. This involved careful consideration of the proportion of students from each background within the MBA classes selected for questionnaire distribution.

To achieve this balance, we collaborated closely with university administrators, faculty members, and lecturers to gain insights into the composition of MBA student cohorts. Through extensive consultations and data
analysis, we refined our strata to more accurately reflect the demographic composition of these cohorts. By incorporating educational background as a stratification criterion and assisting lecturers in class selection, we aimed to mirror the intricate tapestry of MBA student demographics in Vietnam. This proactive approach enabled us to capture the nuanced differences and similarities in experiences and perspectives across diverse academic disciplines. Throughout the sampling process, transparency and ethical considerations remained paramount. Participants were provided with comprehensive information regarding the voluntary nature of their participation and were assured of their autonomy to withdraw from the research at any stage. This commitment to ethical conduct underscored our dedication to upholding the principles of research integrity and participant welfare.

The survey was conducted between 25th September and November 5th 2023. Out of the 2000 questionnaires distributed, 1361 were completed. However, 35 questionnaires were excluded due to missing responses. Consequently, 1326 valid responses were used to analyze, comprising 57.5% males and 42.5% females. 44.5% of participants had an economics and business management-related background, while 55.5% of them belonged to the background in engineering and other programs (i.e., technology information, biotechnology, food technology, electronics-telecommunication, medicine, etc.). Regarding age distribution, 51% of participants fell within the 24 to 30 bracket, 19.1% were under 24, and 42.5% were over 30. In terms of monthly income, a significant segment of participants earned between 25 and 35 million VND, accounting for 41.6% of the respondents. The subsequent categories included those with incomes less than 25 million VND (34.5%), 36 to 45 million VND (15.2%), 46 to 55 million VND (5.2%), and more than 55 million VND (3.5%).

Scales

The scales and associated items were thoughtfully crafted by adapting content from existing literature, incorporating minor adjustments to align them with our study’s unique context and goals. A 5-point Likert-type scale was employed to gauge responses, providing participants with a rating spectrum ranging from 1 (strongly disagree) to 5 (strongly agree). To measure the adoption of ChatGPT in entrepreneurship, a collection of seven items was borrowed and adjusted from the research conducted by Zaremohzzabieh et al. (2016) and Abdelfattah et al. (2022). The scale for
measuring digital entrepreneurial intention, comprising six items with one reserved, was adopted from the study of Aloulou et al. (2023). A set of seven items was incorporated from the research conducted by Madawala et al. (2023) to assess digital entrepreneurial self-efficacy. Additionally, the scale comprising six items for measuring technostress was adopted from the studies of Beyens et al. (2016) and Verkijika (2019). The specific items employed in the present study are outlined in Table 1.

**Statistical analysis**

The data analysis for this study was performed using SPSS version 28.0 and AMOS version 25.0. First, to confirm the reliability and validity of the scales used in this study, we estimated Cronbach’s alpha for each variable and conducted confirmatory factor analysis (CFA). Furthermore, we applied Harman’s single-factor modeling and Common Latent Factor technique to test for the presence of CMB. In social sciences, the PROCESS macro is frequently utilized to examine mediating, moderating, and conditional effects (Hayes, 2018), given that Structural Equation Modeling (SEM) has certain limitations when it comes to testing moderated mediation coefficients (Duong, 2023; Park et al., 2024). Our study employed the PROCESS macro, specifically Model 4, to investigate the mediation effect of digital entrepreneurial self-efficacy. Additionally, moderated mediation analysis was conducted using Model 8 of the PROCESS macro to examine the moderated mediation effect of technostress (Hayes, 2018). Using a random sample of 5000 observations, bootstrapping with 95% confidence intervals was applied to estimate the statistical significance of associations in both Model 4 and Model 8.

**Results**

**Scale assessment**

Cronbach’s alpha is first used to test consistent reliability. Two items of technostress construct (TS4 “I feel drained from tasks that require me to read or study using technology” and DEI6 “I have no firm intention to start a digital firm someday”) were eliminated from the original constructs since their correlated item-total correlations only reached 0.276 and -0.064 < 0.3,
respectively (Nunnally & Bernstein, 1994). Then, measurement models (confirmatory factor analysis-CFA) were employed to assess the construct validity. The results revealed the significant fitness indicators, in the four-factor unconstrained model: \( \chi^2 \) (Chi-square Statistics) = 1036.553, \( df \) (Degree of Freedom) = 242, \( GFI \) (Goodness-of-Fit index) = 0.935, \( AGFI \) (Adjusted Goodness-of-Fit index) = 0.919, \( CFI \) (Comparative Fit Index) = 0.956, \( TLI \) ( Tucker-Lewis Index) = 0.950, \( NFI \) (Normed Fit Index) = 0.943, and \( RMSEA \) (Root Mean Square Errors of Approximation) = 0.050 (see Figure 2).

Table 2 reported that the CR (Composite reliability) of constructs in the four-factor unconstrained model exceeded the threshold values of 0.7. The AVE (Average variance extracted) of ChatGPT adoption in entrepreneurship (CAE), technostress (TS) and digital entrepreneurial intention (DEI) was higher than 0.5, while the AVE of digital entrepreneurial self-efficacy (DES) only accounted for 0.494. However, some scholars argue that although AVE was lower than 0.5, its CR was higher than 0.8 (CR\textsubscript{DES} = 0.870), it can be satisfactory for further analyses (Ertz et al., 2016; Lam, 2012). Moreover, standardized regression weights of all items were above 0.5, the MSV (Maximum shared variance) of all scales was lower than their AVE, whereas the square root of AVE was greater than inter-construct correlations (Hair et al., 2020). Notably, Table 3 further demonstrated that the indices of the four-factor unconstrained measurement model exhibited superior fit when contrasted with those of the three-factor, two-factor, and one-factor constrained measurement models. These results suggested the validity and reliability of constructs within the conceptual model.

**Common method variance**

Precautions were implemented during both data collection and analysis stages to reduce the potential influence of common method bias (CMB). The study was meticulously designed to uphold a balanced questionnaire structure and administration method, thereby reducing systematic biases that could contribute to CMB. Indeed, Various strategies were employed to tackle potential CMB, including randomizing the sequence of measurement items and implementing a stratified random sampling technique. These measures were aimed at diminishing systematic biases and bolstering the credibility of the gathered data (Kock, 2021).
Moreover, statistical testing was performed to assess common method variance CMB, we first applied Harman’s single-factor test, disclosing that only 35.233 of the total variance, below the 50% cut-off value, suggested by Harman (1976), was accounted for by single-factor, illustrating that CMB is not an important concern in our study. Furthermore, common laten factor technique was also used to test CMB. The one-factor constrained model exhibited notably poor indices, with $\chi^2 = 7747.912$, $df = 251$, $GFI = 0.550$, $AGFI = 0.464$, $CFI = 0.584$, $TLI = 0.544$, $NFI = 0.576$, and $RMSEA = 0.150$ while the standardized regression weights in this model displayed a difference of less than 0.2 (Podsakoff et al., 2003). More importantly, the one-factor constrained model demonstrated inferior fit in comparison to the four-factor unconstrained model ($\Delta \chi^2 (df) = 6711.359 (10), p < 0.001$) (see Table 3). This affirms that CMB does not pose a significant concern in our study.

Hypothesis testing

The PROCESS macro approach (Models 8 and 4) was employed to examine the moderated mediation model, as recommended by Hayes (2018). Particularly, model 8 involves the moderation effects of technostress on the direct links between ChatGPT adoption in entrepreneurship, digital entrepreneurial self-efficacy, and digital entrepreneurial intention, while Model 4 examines the mediation effect of digital entrepreneurial self-efficacy on the relationship between ChatGPT adoption in entrepreneurship and digital entrepreneurial intention. This approach has been used in a number of prior studies to test moderated mediation models (Duong, 2023; Park et al., 2024). The $R^2$ value for digital entrepreneurial self-efficacy and digital entrepreneurial intention accounted for 0.274 and 0.423, respectively > 0.1, signifying that the conceptual model is capable of elucidating a substantial proportion of the variance of dependent variables (Upadhyay et al., 2022), such as digital entrepreneurial self-efficacy and digital entrepreneurial intention.

Table 4 reported that ChatGPT adoption in entrepreneurship was positively correlated with digital entrepreneurial self-efficacy ($\beta = 0.729$, $p < 0.001$) and digital entrepreneurial intention ($\beta = 0.489$, $p < 0.001$) while digital entrepreneurial self-efficacy was found to positively influence digital entrepreneurial intention ($\beta = 0.482$, $p < 0.001$). H1, H2, and H3 were therefore supported. Also, the results from mediation testing, using model
4 in the PROCESS macro approach, indicated that the impact of ChatGPT adoption in entrepreneurship on digital entrepreneurial intention was significantly mediated by digital entrepreneurial self-efficacy ($\beta = 0.250$, 95% CI [0.189, 0.314]), pertaining the support for H4.

The results illustrated that the impacts of ChatGPT adoption in entrepreneurship on digital entrepreneurial self-efficacy ($\beta = -0.099$, $p < 0.001$, 95% CI [-0.140, -0.058]) and digital entrepreneurial intention ($\beta = -0.075$, $p < 0.001$, 95% CI [-0.112, -0.038]) were negatively moderated by technostress. The negative moderation impacts of technostress on the relationship between ChatGPT adoption in entrepreneurship, digital entrepreneurial self-efficacy, and digital entrepreneurial intention were visually plotted in Figures 3 and 4. The simple slope test result illustrates that the impact of ChatGPT adoption in entrepreneurship on digital entrepreneurial self-efficacy and the entrepreneurial intention was significant at all technostress levels. Table 4 revealed that the positive effects of ChatGPT adoption in entrepreneurship on digital entrepreneurial self-efficacy and digital entrepreneurial intention were weaker when the technostress was at the high levels ($\beta = 0.295$, $p < 0.001$, 95% CI [0.224, 0.366]; $\beta = 0.160$, $p < 0.001$, 95% CI [0.096, 0.225]), but these effects significantly increased at the equal ($\beta = 0.359$, $p < 0.001$, 95% CI [0.302, 0.417]; $\beta = 0.209$, $p < 0.001$, 95% CI [0.156, 0.263]) and low ($\beta = 0.424$, $p < 0.001$, 95% CI [0.369, 0.479]; $\beta = 0.258$, $p < 0.001$, 95% CI [0.206, 0.311]) levels of technostress. H5 and H6 were thus supported.

After confirming the presence of moderation impacts, a subsequent analysis was undertaken to delve into the moderated mediation impact of technostress and digital entrepreneurial self-efficacy on the relationship between ChatGPT adoption in entrepreneurship and digital entrepreneurial intention. Regrettably, the results reported a non-significant moderated mediation impact when the index of moderated mediation exhibited a zero probability ($\beta = -0.048$, 95% CI [-0.087, 0.003]). Moreover, the bootstrapping analysis revealed that the 95% confidence intervals for three pairwise contrasts between conditional indirect effects included zero. Consequently, H7 was, therefore, not supported.
Discussion

Built on the SCCT, the current research first reveals the transformative impact of ChatGPT adoption in entrepreneurship on individuals’ digital entrepreneurial self-efficacy and intention. This finding is aligned with the assumption in the H1 and H2. It means that individuals who actively embrace and utilize ChatGPT in entrepreneurial activities tend to experience a boost in their perceived self-efficacy. Drawing from the SCCT, which posits that individuals cultivate self-efficacy through diverse sources, including mastery experiences, social persuasion, vicarious experiences, and physiological states (Nwosu et al., 2022; Valdez-Juárez & García Pérez-del-Lema, 2023), the positive association between ChatGPT adoption in entrepreneurship and digital entrepreneurial self-efficacy can be rationalized. This association can be attributed to the capabilities of ChatGPT, which harnesses advanced NLP techniques to assist individuals in efficiently processing vast amounts of information, discerning emerging trends, and making well-informed decisions (Short & Short, 2023). As potential entrepreneurs engage with ChatGPT in their entrepreneurial activities, they gradually develop a heightened sense of confidence in their ability to navigate the intricate landscape of digital entrepreneurship. By leveraging ChatGPT’s analytical prowess and decision-making support, individuals acquire firsthand experience and mastery in utilizing advanced AI technologies for entrepreneurial purposes, thus bolstering their digital entrepreneurial self-efficacy.

Moreover, the positive correlation between ChatGPT adoption in entrepreneurship and digital entrepreneurial intention implies that individuals who adopt ChatGPT are likelier to express a solid intent to engage in digital entrepreneurial ventures. This relationship can be attributed to ChatGPT’s role in offering valuable insights, aiding in decision-making processes, and assisting individuals in identifying potential opportunities within the digital terrain (Huy et al., 2023; Short & Short, 2023). As individuals harness the capacities of ChatGPT, they perceive a pathway to realizing their digital entrepreneurial goals, thereby inspiring their intention to actively participate in digital business ventures (Gupta et al., 2023). This empirical evidence not only substantiates the theoretical propositions of the SCCT but also aligns with the study’s overarching aim, which seeks to illustrate the mechanisms through which ChatGPT adoption influences individuals’ intentions to engage in digital entrepreneurship. By elucidating
the positive association between ChatGPT adoption, digital entrepreneurial self-efficacy, and intention within the framework of the SCCT, the study contributes to a deeper understanding of how emerging technologies shape entrepreneurial behavior and aspirations in the digital age.

Additionally, the positive digital entrepreneurial self-efficacy-digital entrepreneurial intention relationship draws attention to the importance of individuals’ beliefs in their capacities in shaping them to pursue digital entrepreneurial activities. This finding is in line with the proposition of H3 and consistent with some prior studies (Ashraf et al., 2021; Nwosu et al., 2022; Xin & Ma, 2023). It also suggests that when individuals develop confidence in their ability to overcome challenges and succeed in digital business ventures, their intent to become digital entrepreneurs is heightened. This relationship aligns with the SCCT, which posits that self-efficacy plays a crucial role in affecting individuals’ career-related intentions SCCT (Lent et al., 1994). By establishing a robust connection between digital entrepreneurial self-efficacy and intention within the framework of the SCCT, the study provides valuable insights into the motivational processes underlying entrepreneurial behavior in the digital realm. According to the SCCT, individuals’ beliefs in their capabilities play a pivotal role in shaping their career-related intentions, with self-efficacy as a critical determinant of their willingness to pursue entrepreneurial opportunities. Therefore, the observed linkage between digital entrepreneurial self-efficacy and intention not only reinforces the theoretical foundations of the SCCT but also highlights its applicability in the context of digital entrepreneurship.

The results indicate a significant mediation effect, reinforcing the pivotal role of digital entrepreneurial self-efficacy in translating the impact of ChatGPT adoption into digital entrepreneurial intention and supporting for the assumption in H4. This signifies that a considerable proportion of the influence exerted by ChatGPT adoption in entrepreneurship on digital entrepreneurial intentions is channeled through the mediation mechanism of digital entrepreneurial self-efficacy. These findings align with the SSCT premise that self-efficacy serves as a critical mediator between external influences and career-related outcomes (Valdez-Juárez & García Pérez-de-Lema, 2023). Notably, our study shows that when individuals interact with ChatGPT, their growing self-efficacy beliefs become a transformative factor in shaping their intentions to participate in digital business venturing. This mediation mechanism also contributes to a more nuanced understanding of the relationship between external technological adoption and the internal
cognitive processes that drive individuals’ intentions to become digital entrepreneurs.

The results reveal that technostress significantly moderates the impacts of ChatGPT adoption in entrepreneurship on both digital entrepreneurial self-efficacy and digital entrepreneurial intention. This finding is consistent with the proposition in H5 and H6. This implies that when potential entrepreneurs experience heightened technostress, the positive effects of ChatGPT adoption on self-efficacy and intentions to become digital entrepreneurs are diminished, reflecting a dampening influence of technostress on beneficial outcomes of adopting ChatGPT in business venturing. In alignment with the SCCT, these findings accentuate the significance of examining the psychological consequences of technological adoption in the entrepreneurial context. The SCCT argues that external factors, in this case, the adoption of ChatGPT, can be influential in sculpting individual cognition and behaviors (Adebusuyi et al., 2022; Nwosu et al., 2022). The moderation effect of technostress aligns with SCCT’s emphasis on how contextual factors can impact individuals’ cognitive processes and outcomes in career-related decisions (Pérez-López et al., 2019). The moderation results highlight the nuanced interplay between technological advancements and individuals’ stress responses. Potential entrepreneurs facing high levels of technostress may encounter challenges in fully leveraging the potential benefits of ChatGPT adoption. Conversely, at equal and low levels of technostress, the positive impacts of ChatGPT adoption are more pronounced, suggesting that a favorable technological environment enhances the positive effects on digital entrepreneurial self-efficacy and intention. Hence, these findings affirm the influence of technostress as a significant moderator in the relationship between ChatGPT adoption and its subsequent impacts on self-efficacy and intention in digital entrepreneurship.

Regrettably, the findings reveal a non-significant moderated mediation effect, indicating that, within the examined framework, technostress does not exert a significant moderating influence on the mediation impact of digital entrepreneurial self-efficacy on the relationship between ChatGPT adoption in entrepreneurship and digital entrepreneurial intention. This finding is inconsistent with the assumption of H7. Yet, this outcome emphasizes the intricate relations between individual cognitions, contextual factors, and outcomes as emphasized by the SCCT (Duong & Vu, 2023; Nwosu et al., 2022; Pérez-López et al., 2019). The absence of a significant moderated mediation effect implies that, in digital entrepreneurship, tech-
nostress does not substantially alter the pathway from ChatGPT adoption to intention through self-efficacy. Despite the potential stress induced by technology use, individuals’ confidence in their digital entrepreneurial abilities remains relatively unaffected, and their intentions to pursue digital entrepreneurship are not significantly influenced by the presence of technostress. This finding underscores the robustness of the relationship between ChatGPT adoption, digital entrepreneurial self-efficacy, and intention, which persists despite technological stressors. While technostress may pose challenges in the digital entrepreneurial landscape, individuals’ beliefs in their capabilities and aspirations to engage in entrepreneurial activities remain resilient. Thus, the study contributes to a nuanced understanding of the dynamics between emerging technologies, individual cognitions, and entrepreneurial outcomes within the framework of the SCCT, highlighting the multifaceted nature of career decision-making processes in the digital age.

Conclusions

Theoretical contributions

This research offers several significant theoretical contributions to digital entrepreneurship, technology adoption, and career development, particularly within the SCCT framework. Firstly, by applying the SCCT framework to explore individuals’ digital entrepreneurial intentions within the context of the AI revolution, explicitly focusing on ChatGPT, the study contributes to integrating well-established psychological theory into the rapidly evolving domain of digital business venturing. This integration provides a structured lens for comprehending how individuals formulate intentions and make career decisions in the era of AI, thus enriching our theoretical understanding of digital entrepreneurship. Secondly, the study illuminates the positive impact of ChatGPT adoption on digital entrepreneurial self-efficacy and intention, offering theoretical insights into how advanced AI technologies, exemplified by ChatGPT, influence individuals’ cognitive processes and propel them towards digital entrepreneurship. This finding indicates the transformative potential of AI technologies in shaping entrepreneurial behavior and aspirations, thereby advancing our theoretical understanding of technology-driven entrepreneurship.
Thirdly, the research reinforces the pivotal role of digital entrepreneurial self-efficacy as a crucial mediator in the relationship between ChatGPT adoption and digital entrepreneurial intention. This theoretical contribution enhances our understanding of the motivational mechanisms underlying entrepreneurial behavior within the digital landscape by demonstrating the psychological processes through which individuals form intentions to engage in digital business venturing. Moreover, recognizing technostress as a negative moderator in the relationships between ChatGPT adoption in entrepreneurship, digital self-efficacy, and digital entrepreneurial intention adds nuance to our existing understanding of the challenges introduced by advanced AI technologies. This acknowledgment of the potential adverse impact of technostress on individuals’ psychological responses is essential for comprehending the complexities and intricacies of digital business ventures, thus enriching our theoretical understanding of technology-induced stress and its implications for entrepreneurial behavior.

**Practical implications**

The findings of this research have several practical implications for various stakeholders, including educators, policymakers, and potential and aspiring entrepreneurs.

For higher education institutions, educational institutions benefit significantly from the insights gleaned from this study, as they can utilize these findings to adapt and enhance their entrepreneurial curricula to better align with the evolving digital landscape. By integrating AI-related content and emphasizing the development of digital entrepreneurial self-efficacy, educational institutions can equip students with the necessary knowledge and skills to navigate the complexities of modern entrepreneurship. Moreover, workshops and training programs focused on mitigating technostress and fostering a positive relationship with AI technologies can be instrumental in preparing students for the challenges and opportunities presented by advanced technology adoption in entrepreneurship. Furthermore, educational institutions can enhance students’ learning experiences by providing them with real-world projects involving AI’s practical integration into entrepreneurial scenarios. This hands-on experience enhances students’ technical skills and instills confidence in their ability to leverage AI technologies effectively in entrepreneurial endeavors. By incorporating such experiential learning opportunities into their curricula, educational
institutions can ensure that students are well-prepared to harness the power of AI in their future entrepreneurial ventures. In addition to technical skills development, educators should also prioritize strategies to help students manage the stress associated with technological advancements. Establishing counseling services and wellness programs within educational institutions can provide students with much-needed support in coping with stress and anxiety related to AI adoption in entrepreneurship. By fostering a supportive environment that prioritizes student well-being, educational institutions can ensure that students are better equipped to navigate the challenges of the digital age and thrive in their entrepreneurial pursuits.

For policymakers, policymakers can leverage this study’s findings to inform the design and implementation of initiatives aimed at supporting the integration of AI technologies in entrepreneurship. Such initiatives can take various forms, including, but not limited to, tax benefits, grants, and other financial incentives, which serve to incentivize individuals and organizations to explore and adopt AI solutions in their entrepreneurial endeavors. By providing tangible support and resources, policymakers can facilitate the uptake of AI technologies, thereby fostering innovation and growth in the entrepreneurial ecosystem. Moreover, policymakers play a critical role in ensuring AI’s ethical and responsible use in entrepreneurship. To this end, they should establish clear and comprehensive ethical guidelines and actively engage with industry experts and stakeholders to ensure that these guidelines remain relevant and adaptable in the face of rapid technological advancements. By collaborating with experts in the field, policymakers can gain valuable insights into the ethical considerations surrounding AI adoption in entrepreneurship and develop policies that balance promoting innovation and safeguarding ethical principles. Furthermore, policymakers can support initiatives promoting AI literacy and awareness among entrepreneurs and business owners. By investing in educational programs, workshops, and training initiatives focused on AI adoption and utilization, policymakers can empower entrepreneurs with the knowledge and skills to effectively leverage AI technologies in their ventures. Additionally, policymakers can facilitate partnerships between academia, industry, and government agencies to foster innovation and knowledge exchange in AI entrepreneurship.

For potential and nascent entrepreneurs, in navigating the entrepreneurial landscape amidst the proliferation of AI, individuals embarking on
entrepreneurial endeavors are advised to prioritize continuous learning as a cornerstone of their journey. This entails actively seeking out skill enhancement programs encompassing technical and non-technical aspects, thereby equipping potential entrepreneurs with the requisite competencies to remain competitive in a swiftly evolving environment. Engaging with entrepreneurial communities and fostering connections with peers, mentors, and industry professionals are invaluable platforms for knowledge sharing and insights about AI adoption, facilitating informed decision-making and strategic planning. Given the potential stressors associated with integrating AI technologies, cultivating mental resilience is paramount for aspiring entrepreneurs. Incorporating mindfulness practices into daily routines, such as meditation and stress-relief exercises, can aid in bolstering mental well-being and fortifying individuals against the adversities of entrepreneurial pursuits. Additionally, mastering practical time management skills assumes significance in navigating the demands of AI-driven business venturing. Learning to adeptly prioritize tasks, delegate responsibilities, and maintain a harmonious work-life balance is essential for mitigating the risk of burnout and fostering sustained success in the dynamic landscape of AI entrepreneurship.

Limitations and avenues for further research

Our study, though contributing valuable insights, is not without its limitations. The cross-sectional nature of our design hinders the establishment of causal relationships, urging future research to employ longitudinal approaches for a more nuanced understanding of ChatGPT adoption, technostress, and digital entrepreneurial dynamics over time. Inherent to reliance on self-reported data is the potential for common method bias. To address this, future investigations could adopt diverse data collection methods such as interviews or observational approaches, enhancing the validity and reliability of findings. Moreover, while our study focuses on ChatGPT, a single AI technology, future research should broaden its scope to encompass various AI applications, recognizing the unique implications each may have on entrepreneurial activities. Also, considering our predominant focus on individual-level analysis, avenues for future research lie in extending the examination to organizational and societal levels. Investigating how AI adoption influences business ecosystems and social structures can enrich our understanding of the broader impact of AI in the entrepre-
neurial domain. Moving forward, researchers can explore the moderating role of contextual factors such as organizational culture, industry characteristics, and regulatory environments in shaping the impact of AI on entrepreneurial activities. Additionally, delving into user characteristics, like digital literacy and personal traits, can shed light on different responses to AI adoption in entrepreneurship. Finally, although our study used two statistical approaches, including Harman single factor and common latent factor to test CMB, some scholars argue that these approaches still indicates certain shortcomings (Williams et al., 2010; Ye et al., 2021). Further studies thus should also adopt marker variable (MV) technique, which is deemed comparable to multitrait-multimethod based on the CFA in terms of assessing the influence of CMB. This study can help ensuring robustness in their studies (Lindell & Whitney, 2001).

References


## Annex

### Table 1. Scale items

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Codes</th>
<th>Measures</th>
<th>M</th>
<th>S.D.</th>
<th>λ</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChatGPT adoption in entrepreneurship</td>
<td>CAE1</td>
<td>I use ChatGPT to obtain information on the benefits realized in the area of digital entrepreneurship</td>
<td>3.959</td>
<td>0.633</td>
<td>0.728</td>
</tr>
<tr>
<td></td>
<td>CAE2</td>
<td>I use ChatGPT to obtain information on the problems and obstacles that will be met in the area of digital entrepreneurship</td>
<td>3.905</td>
<td>0.683</td>
<td>0.730</td>
</tr>
<tr>
<td></td>
<td>CAE3</td>
<td>I obtain information about entrepreneurial opportunities offered by government agencies/individual through ChatGPT adoption</td>
<td>3.905</td>
<td>0.672</td>
<td>0.773</td>
</tr>
<tr>
<td></td>
<td>CAE4</td>
<td>I use ChatGPT to obtain information on loan deals for digital entrepreneurship</td>
<td>3.896</td>
<td>0.663</td>
<td>0.781</td>
</tr>
<tr>
<td></td>
<td>CAE5</td>
<td>I can increase lots of knowledge about the digital entrepreneurship through ChatGPT adoption</td>
<td>3.907</td>
<td>0.668</td>
<td>0.759</td>
</tr>
<tr>
<td></td>
<td>CAE6</td>
<td>I consider ChatGPT as an excellent opportunity to start my digital business venture</td>
<td>3.981</td>
<td>0.647</td>
<td>0.758</td>
</tr>
<tr>
<td></td>
<td>CAE7</td>
<td>I use ChatGPT as a helping platform to increase the business performance</td>
<td>3.944</td>
<td>0.662</td>
<td>0.749</td>
</tr>
<tr>
<td>Digital entrepreneurial self-efficacy</td>
<td>DES1</td>
<td>I am confident in my ability to identify new digital business opportunities successfully</td>
<td>3.992</td>
<td>0.693</td>
<td>0.635</td>
</tr>
<tr>
<td></td>
<td>DES2</td>
<td>I am confident in making decisions about digital entrepreneurship</td>
<td>3.959</td>
<td>0.740</td>
<td>0.548</td>
</tr>
<tr>
<td></td>
<td>DES3</td>
<td>I am confident in managing money for digital businesses</td>
<td>3.904</td>
<td>0.759</td>
<td>0.579</td>
</tr>
<tr>
<td></td>
<td>DES4</td>
<td>I am confident in my ability to think creatively</td>
<td>3.989</td>
<td>0.712</td>
<td>0.649</td>
</tr>
<tr>
<td></td>
<td>DES5</td>
<td>I am confident in my ability to commercialize an idea or new development successfully</td>
<td>3.903</td>
<td>0.746</td>
<td>0.835</td>
</tr>
<tr>
<td></td>
<td>DES6</td>
<td>I am confident being able to solve problems related to digital entrepreneurship</td>
<td>3.858</td>
<td>0.751</td>
<td>0.799</td>
</tr>
<tr>
<td></td>
<td>DES7</td>
<td>I am confident in being a digital entrepreneur</td>
<td>3.877</td>
<td>0.721</td>
<td>0.815</td>
</tr>
<tr>
<td>Digital entrepreneurial intention</td>
<td>DEI1</td>
<td>I am ready to do anything to be an entrepreneur in the digital field</td>
<td>3.995</td>
<td>0.643</td>
<td>0.812</td>
</tr>
<tr>
<td></td>
<td>DEI2</td>
<td>My professional goal is to become an entrepreneur in the digital field</td>
<td>4.024</td>
<td>0.672</td>
<td>0.766</td>
</tr>
<tr>
<td></td>
<td>DEI3</td>
<td>I will make every effort to start and run my own digital firm</td>
<td>3.970</td>
<td>0.662</td>
<td>0.772</td>
</tr>
<tr>
<td></td>
<td>DEI4</td>
<td>I am determined to create a digital firm in the future</td>
<td>3.983</td>
<td>0.674</td>
<td>0.751</td>
</tr>
<tr>
<td></td>
<td>DEI5</td>
<td>I have very seriously thought of starting a digital firm</td>
<td>3.971</td>
<td>0.680</td>
<td>0.768</td>
</tr>
<tr>
<td>Technostress</td>
<td>TS1</td>
<td>I am forced by technology to live with very tight time schedules</td>
<td>3.687</td>
<td>0.839</td>
<td>0.835</td>
</tr>
<tr>
<td></td>
<td>TS2</td>
<td>I feel tired from using technology</td>
<td>3.817</td>
<td>0.722</td>
<td>0.676</td>
</tr>
<tr>
<td></td>
<td>TS3</td>
<td>Interacting all day with technology is a strain for me</td>
<td>3.714</td>
<td>0.830</td>
<td>0.836</td>
</tr>
<tr>
<td></td>
<td>TS5</td>
<td>I feel burned out from my technology related activities</td>
<td>3.781</td>
<td>0.734</td>
<td>0.678</td>
</tr>
<tr>
<td></td>
<td>TS6</td>
<td>I feel my personal life being invaded by technology</td>
<td>3.669</td>
<td>0.820</td>
<td>0.834</td>
</tr>
</tbody>
</table>

Notes: N= 1326; M: Mean; S.D.: Standard deviation; λ: Standardized regression weights.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean ± SD</th>
<th>Skew</th>
<th>Kurtosis</th>
<th>α</th>
<th>CR</th>
<th>AVE</th>
<th>MSV</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>2.1086 ± 0.6919</td>
<td>-0.147</td>
<td>-0.913</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>2. Gender</td>
<td>1.4246 ± 0.4944</td>
<td>0.305</td>
<td>-1.91</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>0.046</td>
<td>-0.022</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>3. Income</td>
<td>2.0166 ± 1.0122</td>
<td>1.091</td>
<td>0.942</td>
<td>n/a</td>
<td>n/a</td>
<td>0.066</td>
<td>0.047</td>
<td>-0.020</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>4. DES</td>
<td>3.9261 ± 0.5532</td>
<td>-1.326</td>
<td>5.596</td>
<td>0.875</td>
<td>0.870</td>
<td>0.494</td>
<td>0.456</td>
<td>0.003</td>
<td>-0.006</td>
<td>0.008</td>
<td>(0.703)</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>5. CAE</td>
<td>3.9281 ± 0.5247</td>
<td>-0.962</td>
<td>4.613</td>
<td>0.902</td>
<td>0.902</td>
<td>0.569</td>
<td>0.280</td>
<td>0.005</td>
<td>0.000</td>
<td>0.026</td>
<td>0.477</td>
<td>(0.754)</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>6. TS</td>
<td>3.7335 ± 0.6552</td>
<td>-0.984</td>
<td>1.943</td>
<td>0.886</td>
<td>0.882</td>
<td>0.602</td>
<td>0.218</td>
<td>-0.003</td>
<td>0.028</td>
<td>0.013</td>
<td>0.382&quot;</td>
<td>0.456&quot;</td>
<td>(0.776)</td>
<td></td>
</tr>
<tr>
<td>7. DEI</td>
<td>3.9887 ± 0.5487</td>
<td>-1.318</td>
<td>6.211</td>
<td>0.881</td>
<td>0.882</td>
<td>0.599</td>
<td>0.456</td>
<td>-0.009</td>
<td>0.013</td>
<td>-0.017</td>
<td>0.612&quot;</td>
<td>0.471&quot;</td>
<td>0.307&quot;</td>
<td>(0.774)</td>
</tr>
</tbody>
</table>

Notes: N = 1326. "*: Significance at 0.01 level; α: Cronbach’s alpha; AVE: Average variance extracted; CR: Composite reliability; MSV: Maximum Shared Variance; The square root of the AVE of each construct are shown in parentheses.
<table>
<thead>
<tr>
<th>Models</th>
<th>$\chi^2$ (df)</th>
<th>GFI</th>
<th>AGFI</th>
<th>CFI</th>
<th>TLI</th>
<th>NFI</th>
<th>RMSEA</th>
<th>$\Delta \chi^2$ (df)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-factor model</td>
<td>1036.553 (242)</td>
<td>0.935</td>
<td>0.919</td>
<td>0.956</td>
<td>0.950</td>
<td>0.943</td>
<td>0.050</td>
<td>-</td>
</tr>
<tr>
<td>3-factor model</td>
<td>3741.901 (249)</td>
<td>0.740</td>
<td>0.687</td>
<td>0.806</td>
<td>0.785</td>
<td>0.795</td>
<td>0.103</td>
<td>2705.348 (7)***</td>
</tr>
<tr>
<td>2-factor model</td>
<td>5996.145 (251)</td>
<td>0.624</td>
<td>0.551</td>
<td>0.681</td>
<td>0.649</td>
<td>0.672</td>
<td>0.131</td>
<td>4959.592 (9)***</td>
</tr>
<tr>
<td>1-factor model</td>
<td>7747.912 (252)</td>
<td>0.550</td>
<td>0.464</td>
<td>0.584</td>
<td>0.544</td>
<td>0.576</td>
<td>0.150</td>
<td>6711.359 (10)***</td>
</tr>
</tbody>
</table>

Notes: N= 1326. Reference model: Four-unconstrained factors; ***p < 0.001.
### Table 4. Moderated mediation model analysis

<table>
<thead>
<tr>
<th>Predictors</th>
<th>β (Coeff)</th>
<th>se</th>
<th>t</th>
<th>p</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.428</td>
<td>0.287</td>
<td>1.492</td>
<td>0.136</td>
<td>-0.135</td>
<td>0.990</td>
</tr>
<tr>
<td>ChatGPT adoption in entrepreneurship (X)</td>
<td>0.729**</td>
<td>0.074</td>
<td>9.795</td>
<td>0.000</td>
<td>0.583</td>
<td>0.874</td>
</tr>
<tr>
<td>ChatGPT adoption in entrepreneurship (X) x Technostress (Z)</td>
<td>-0.099**</td>
<td>0.021</td>
<td>-4.707</td>
<td>0.000</td>
<td>-0.140</td>
<td>-0.058</td>
</tr>
<tr>
<td><strong>Conditional effects of ChatGPT adoption in entrepreneurship (X)-focal predictor at the values of technostress (Z) (moderator): Z = M ± S.D.</strong></td>
<td>Effect</td>
<td>se</td>
<td>t</td>
<td>p</td>
<td>LLCI</td>
<td>ULCI</td>
</tr>
<tr>
<td>-1 S.D. (0.655)</td>
<td>0.424**</td>
<td>0.028</td>
<td>15.098</td>
<td>0.000</td>
<td>0.369</td>
<td>0.479</td>
</tr>
<tr>
<td>M (3.734)</td>
<td>0.359**</td>
<td>0.029</td>
<td>12.260</td>
<td>0.000</td>
<td>0.302</td>
<td>0.417</td>
</tr>
<tr>
<td>+1 S.D. (0.655)</td>
<td>0.295**</td>
<td>0.036</td>
<td>8.145</td>
<td>0.000</td>
<td>0.224</td>
<td>0.366</td>
</tr>
<tr>
<td>Digital entrepreneurial self-efficacy (M) (R² = 0.274; F = 166.363***)</td>
<td>Constant</td>
<td>0.140</td>
<td>0.254</td>
<td>0.552</td>
<td>0.581</td>
<td>-0.358</td>
</tr>
<tr>
<td>ChatGPT adoption in entrepreneurship (X)</td>
<td>0.489**</td>
<td>0.068</td>
<td>7.179</td>
<td>0.000</td>
<td>0.355</td>
<td>0.623</td>
</tr>
<tr>
<td>Digital entrepreneurial self-efficacy (M)</td>
<td>0.482**</td>
<td>0.024</td>
<td>19.806</td>
<td>0.000</td>
<td>0.434</td>
<td>0.529</td>
</tr>
<tr>
<td>ChatGPT adoption in entrepreneurship (X) x Technostress (Z)</td>
<td>-0.075**</td>
<td>0.019</td>
<td>-3.999</td>
<td>0.000</td>
<td>-0.112</td>
<td>-0.038</td>
</tr>
<tr>
<td><strong>Conditional effects of ChatGPT adoption in entrepreneurship (X)-focal predictor at the values of technostress (Z) (moderator): Z = M ± S.D.</strong></td>
<td>Effect</td>
<td>se</td>
<td>t</td>
<td>p</td>
<td>LLCI</td>
<td>ULCI</td>
</tr>
<tr>
<td>-1 S.D. (0.655)</td>
<td>0.258**</td>
<td>0.027</td>
<td>9.608</td>
<td>0.000</td>
<td>0.206</td>
<td>0.311</td>
</tr>
<tr>
<td>M (3.734)</td>
<td>0.209**</td>
<td>0.027</td>
<td>7.654</td>
<td>0.000</td>
<td>0.156</td>
<td>0.263</td>
</tr>
<tr>
<td>+1 S.D. (0.655)</td>
<td>0.160**</td>
<td>0.033</td>
<td>4.891</td>
<td>0.000</td>
<td>0.096</td>
<td>0.225</td>
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<tr>
<td><strong>Boot indirect effect BootSE BootLLCI BootULCI</strong></td>
<td>Indirect effect of ChatGPT adoption in entrepreneurship (X) on digital entrepreneurial intention (Y) via digital entrepreneurial self-efficacy (M)</td>
<td>0.250</td>
<td>0.032</td>
<td>0.189</td>
<td>0.314</td>
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Table 4. Continued

<table>
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<tr>
<th>Conditional indirect effects of ChatGPT adoption in entrepreneurship (X) on digital entrepreneurial intention (Y) at the values of technostress (Z-moderator): $Z = M \pm S.D.$</th>
<th>Effect</th>
<th>BootSE</th>
<th>Confidence intervals</th>
<th>BootSE</th>
<th>BootSE</th>
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<tbody>
<tr>
<td>-1 S.D. (-0.655)</td>
<td>0.204</td>
<td>0.026</td>
<td>0.153</td>
<td>0.255</td>
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<tr>
<td>M (3.734)</td>
<td>0.173</td>
<td>0.023</td>
<td>0.128</td>
<td>0.219</td>
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</tr>
<tr>
<td>+1 S.D. (0.655)</td>
<td>0.142</td>
<td>0.029</td>
<td>0.089</td>
<td>0.202</td>
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<tr>
<td>Index of moderated mediation</td>
<td>Effect</td>
<td>BootSE</td>
<td>BootSE</td>
<td>BootSE</td>
<td></td>
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<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>-0.048</td>
<td>0.023</td>
<td>-0.087</td>
<td>0.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pairwise contrasts between conditional indirect effects (effect 1 minus effect 2)</td>
<td>Effect 1</td>
<td>Effect 2</td>
<td>Contrast</td>
<td>BootSE</td>
<td>BootLLCI</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>0.173</td>
<td>0.204</td>
<td>-0.031</td>
<td>0.015</td>
<td>-0.057</td>
<td>0.002</td>
</tr>
<tr>
<td>0.142</td>
<td>0.204</td>
<td>-0.062</td>
<td>0.030</td>
<td>-0.114</td>
<td>0.004</td>
</tr>
<tr>
<td>0.142</td>
<td>0.173</td>
<td>-0.031</td>
<td>0.015</td>
<td>-0.057</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Note: N= 1326; **p < 0.001; *p < 0.01; p < 0.05.
**Figure 1. Hypothesized model**

- **Technostress**
  - H1
- **ChatGPT adoption in entrepreneurship**
  - H2
  - H6
- **Digital entrepreneurial self-efficacy**
  - H3
- **Digital entrepreneurial intention**
  - H4
  - H7

*Indirect effect*
Figure 2. Unconstrained measurement model

Chi-Square=1036.553; df=242; P=.000
;Chi-Square/df=4.283
;GFI=.935; AGFI=.919
;CFI=.956; TLI=.950; NFI=.943
;RMSEA=.050
Figure 3. Interaction impact of technostress and ChatGPT adoption on digital entrepreneurial efficacy

Figure 4. Interaction impact of technostress and ChatGPT adoption on digital entrepreneurial intention