

ORIGINAL RESEARCH PAPER

Digital readiness and entrepreneurial mindset in higher education: Overcoming barriers through cross-cultural perspectives

V. Shcherbak^{1,*}, V. Riashchenko², M. Petrova³, O. Dorokhov⁴, L. Dorokhova⁵, V. Yatsenko⁶, O. Yermolenko⁷

¹Department of Economics and Entrepreneurship, Sumy National Agrarian University, Sumy, 40000, Ukraine

²Department of Management, RNU Riga Nordic University, LV-1009 Riga, Latvia

³Department of Information Technologies, St. Cyril and St. Methodius University of Veliko Turnovo, 5003, Veliko Turnovo, Bulgaria

⁴Department of Public Economics, University of Tartu, 50090 Tartu, Estonia

⁵Department of Marketing, University of Tartu, 50090 Tartu, Estonia

⁶Department of Entrepreneurship, Trade and Tourism Business, Simon Kuznets Kharkiv National University of Economics, 61165 Kharkiv, Ukraine

⁷Department of Social Economics, Simon Kuznets Kharkiv National University of Economics, 61165 Kharkiv, Ukraine

ARTICLE INFO

Article History:

Received 18 June 2025

Revised 19 September 2025

Accepted 26 May 2025

Keywords:

Digital readiness; Student entrepreneurship; Barriers; Cross-cultural perspective; Institutional support; Digital transformation.

ABSTRACT

BACKGROUND AND OBJECTIVES: Digital transformation has become a defining factor in shaping entrepreneurial education and mindset in higher education. Despite growing institutional emphasis on digital entrepreneurship, many students and faculty members face persistent barriers that limit the transition from entrepreneurial intention to action. This study investigates how digital readiness, faculty engagement, and curriculum integration influence entrepreneurial mindset formation and help overcome cross-cultural differences in higher education institutions.

METHODS: A quantitative survey was conducted among 225 participants, including students and faculty members from universities in Bulgaria, China, and Ukraine. The study employed correlation analysis, an independent samples t-test, and ANCOVA to examine relationships between digital literacy, faculty participation in digital projects, curriculum integration, and entrepreneurial intentions.

FINDINGS: The study revealed a strong link between digital skills and entrepreneurial intentions: students with high digital literacy (4.6/5) were 46% more likely to pursue entrepreneurship than those with basic skills (3.2/5). Faculty involvement in digital projects also boosted support for student startups (4.2/5 vs 3.5/5). National differences in attitudes toward digital entrepreneurship largely reflected institutional digital readiness—77% of the initial 35-point gap was explained by curriculum integration of digital tools. Access to digital platforms increased perceived entrepreneurial feasibility by 32%, and institutions with comprehensive digital tools had 2.3 times more student-led startups than those with minimal infrastructure.

CONCLUSION: The study confirms that digital competence, active faculty involvement, and curriculum-level integration of digital tools are essential for fostering an entrepreneurial mindset and reducing institutional and cultural barriers in higher education. Universities should develop digital entrepreneurship ecosystems that combine technical training, experiential learning, and inclusive support structures to cultivate innovation and sustainability across academic communities.

DOI: [10.22034/IJHCUM.2026.03.01](https://doi.org/10.22034/IJHCUM.2026.03.01)



NUMBER OF REFERENCES

34



NUMBER OF FIGURES

0



NUMBER OF TABLES

7

*Corresponding Author:

Email: valery.shcherbak@gmail.com

Phone: +380999687135

ORCID: [0000-0002-7918-6033](https://orcid.org/0000-0002-7918-6033)

Note: Discussion period for this manuscript open until October 1, 2026 on IJHCUM website at the "Show Article."

INTRODUCTION

Entrepreneurship has become a key component of modern higher education systems as universities are increasingly recognized as catalysts for innovation, employability, and socio-economic development. The cultivation of entrepreneurial competencies among students and faculty not only contributes to the creation of start-ups but also strengthens critical thinking, adaptability, and problem-solving skills essential to the digital economy (Alves et al., 2019). The present study explores how digital readiness shapes the entrepreneurial mindset within academic environments, emphasizing the mechanisms by which universities can overcome barriers to the practical realization of entrepreneurial intentions. The concept of entrepreneurial mindset refers to a set of cognitive, behavioral, and motivational attributes that enable individuals to identify and pursue opportunities in uncertain environments. In contrast, entrepreneurial intentions denote the conscious decision to engage in entrepreneurial activity, while entrepreneurial ambitions describe the desired scale or impact of future ventures (Hurst and Pugsley, 2011). Previous studies have often conflated these terms, leading to conceptual ambiguity when analyzing students' attitudes toward entrepreneurship. This research seeks to clarify these distinctions by focusing on the relationship between digital readiness and entrepreneurial intentions, viewing ambitions as a potential outcome of this interaction rather than a starting point. Digital readiness in higher education represents an individual's and an institution's capacity to effectively use digital technologies for learning, communication, and innovation. The integration of digital tools such as online incubators, virtual mentorship platforms, and simulation-based entrepreneurship training has transformed the educational landscape, offering new opportunities to foster entrepreneurial behavior (Singh et al., 2024). However, disparities in digital competence and access continue to create barriers to inclusive participation in entrepreneurial learning. Students and faculty members with limited digital literacy or technological infrastructure may experience reduced confidence, weaker entrepreneurial intentions, and fewer opportunities to translate innovative ideas into practice. From a cross-cultural perspective, differences in institutional structures, teaching methodologies, and cultural attitudes toward risk-taking and innovation can significantly influence how digital

readiness supports or constrains the development of entrepreneurial competencies. Such differences are often rooted in broader cultural values that shape individual and collective decision-making in innovation-related contexts (Hussain and Huang, 2022). While some universities have successfully embedded digital entrepreneurship into their curricula, others face challenges related to resource limitations, resistance to change, or inadequate policy support. Digital transformation at the system level requires strategic leadership and structural reforms to guide educators and institutions through this transition (McCarthy et al., 2023). Understanding how these contextual differences shape both the perception and implementation of entrepreneurship education is critical for designing more inclusive and effective strategies. The problem addressed in this research, therefore, focuses on identifying and overcoming barriers that limit the formation of entrepreneurial intentions in higher education through the lens of digital readiness and cross-cultural learning. Rather than concentrating on entrepreneurial ambitions as an abstract aspiration, the study examines the concrete institutional, psychological, and technological obstacles that affect students' and faculty members' capacity to engage in entrepreneurial activities (Alves et al., 2019). By highlighting the interplay between digital competencies and entrepreneurial mindset, the research aims to contribute to the development of higher education environments that nurture innovation, inclusivity, and sustainable growth.

Literature review

Entrepreneurship is widely recognized as a powerful mechanism for stimulating economic growth, innovation, and employment generation across diverse economic systems (Ali et al., 2024; Gupta et al., 2020). Within higher education, developing an entrepreneurial mindset has become increasingly important, as universities are expected not only to provide academic knowledge but also to nurture creativity, resilience, and initiative among students (Morris et al., 2017; Filho et al., 2024). Entrepreneurial mindset refers to a set of attitudes and cognitive abilities that enable individuals to identify opportunities, take calculated risks, and generate innovative solutions to social and economic challenges (Newman et al., 2021). In recent years, digital readiness has emerged as a crucial factor influencing the development of

entrepreneurial mindset and intentions in academic environments (Händel *et al.*, 2020; Singh *et al.*, 2024). This aligns with evidence showing that digitalization serves as a critical driver of entrepreneurial activity and sustainable competitiveness across economies (Dabbous *et al.*, 2023). The ability to effectively use digital technologies for learning, communication, and innovation significantly affects how students and faculty approach entrepreneurship. Universities with high digital readiness foster ecosystems that encourage experimentation through digital platforms, online mentoring, and virtual incubators (Popova *et al.*, 2024; Kolodiziev *et al.*, 2024). The development of human capital within the digital economy further reinforces these ecosystems by linking technological proficiency with innovation-driven growth (Grigorescu *et al.*, 2021). However, disparities in digital competence and technological access create barriers that hinder students from fully realizing their entrepreneurial potential (Dyachenko *et al.*, 2017). Cross-country analyses confirm that the uneven pace of digital transformation strongly affects national competitiveness and innovation capacity (Delgosha *et al.*, 2021). Entrepreneurial intentions – understood as a conscious commitment to start a business (Al-Jubari *et al.*, 2018; Shirokova *et al.*, 2015) – are shaped by both individual and contextual factors, including digital literacy, institutional support, and socio-cultural environment (Bu *et al.*, 2023; Peng *et al.*, 2012). Research has shown that while entrepreneurship education and institutional backing play a positive role, structural, psychological, and socio-cultural barriers often prevent intentions from transforming into entrepreneurial behavior (Yordanova and José, 2019; Anuar *et al.*, 2013). Among these, economic constraints such as limited access to funding (Liguori *et al.*, 2018) and institutional rigidity in technology transfer or intellectual property policies (Parreira *et al.*, 2018) remain critical obstacles. Sociocultural influences also play a substantial role in shaping entrepreneurial attitudes. Fear of failure, cultural resistance to risk-taking, and limited exposure to entrepreneurial role models contribute to students' hesitation to engage in entrepreneurial activities (Riashchenko *et al.*, 2025). These perceptions are further complicated by varying cultural norms and institutional traditions across higher education systems, where entrepreneurship may be viewed either as a desirable career path or as a risky alternative to

formal employment (Morris *et al.*, 2017; Sirbu *et al.*, 2017). Digital transformation provides new opportunities to overcome many of these barriers by democratizing access to resources and reducing entry thresholds for innovation-driven ventures (Kolodiziev *et al.*, 2023a; Kolodiziev *et al.*, 2023b; Shcherbak *et al.*, 2024). However, it also introduces new challenges related to digital inequality, cybersecurity, and the need for continuous reskilling among both students and educators (Filho *et al.*, 2024). Therefore, universities must balance technological advancement with inclusive pedagogical strategies to ensure that digital entrepreneurship education benefits all learners, regardless of background or discipline (Ali *et al.*, 2024; Popova *et al.*, 2024). The growing body of literature on entrepreneurial education highlights the importance of a comprehensive institutional approach that integrates digital competencies, entrepreneurial training, and supportive ecosystems (Souitaris *et al.*, 2006; Peterman and Kennedy, 2003; Sieger *et al.*, 2024). By fostering collaboration between academia, industry, and policymakers, universities can strengthen their role as innovation hubs and better equip students to translate their entrepreneurial intentions into practice (Kolodiziev *et al.*, 2024; Riashchenko *et al.*, 2025). The present study builds on this theoretical foundation to examine how digital readiness interacts with entrepreneurial mindset formation in higher education. It focuses on identifying key barriers that inhibit entrepreneurial development among students and faculty, exploring how cross-cultural and institutional factors influence the translation of entrepreneurial intentions into action. Understanding these dynamics is essential for developing inclusive and digitally empowered academic ecosystems that promote innovation, resilience, and sustainable growth in the contemporary knowledge economy.

Entrepreneurial intentions and barriers:

A literature-based analysis

Entrepreneurial Intentions (EI) represent an individual's conscious commitment to initiate a business venture (Al-Jubari *et al.*, 2018; Peng *et al.*, 2012). Within higher education, these intentions are influenced by a complex set of personal, institutional, and contextual factors that determine whether entrepreneurial aspirations translate into actual entrepreneurial behavior (Shirokova *et al.*, 2015; Singh *et al.*, 2024). The literature identifies several categories

of barriers that constrain students' and faculty members' ability to act on their entrepreneurial intentions, even in environments that promote innovation and digital transformation.

1. *Economic barriers.* Access to financial capital remains one of the most persistent obstacles for potential entrepreneurs. Students often face difficulties obtaining funding due to a lack of collateral, insufficient credit history, and limited investor confidence in youth-led startups (Liguori et al., 2018). These constraints are particularly pronounced in developing and transitional economies, where financial ecosystems are less mature, and venture capital is concentrated in large metropolitan areas (Gupta et al., 2020). Moreover, broader macroeconomic uncertainties, such as inflation, unemployment, and geopolitical instability, further increase perceived risks, discouraging students from pursuing self-employment as a viable career path (Kolodiziev et al., 2023a).

2. *Institutional and regulatory barriers.* Universities play a central role in fostering an entrepreneurial mindset, yet institutional frameworks often fail to support the transition from education to venture creation. Studies indicate that many higher education institutions lack effective mechanisms for technology transfer, incubation, and startup mentoring (Parreira et al., 2018; Yordanova and José, 2019). Bureaucratic hurdles, restrictive intellectual property policies, and fragmented coordination between academia and industry inhibit the commercialization of student innovations (Morris et al., 2017). Furthermore, limited alignment between entrepreneurship education and real-world business requirements reduces the practical impact of university programs (Souitaris et al., 2006; Peterman and Kennedy, 2003).

3. *Sociocultural barriers.* Cultural attitudes and social norms significantly shape entrepreneurial behavior. In many societies, entrepreneurship is associated with uncertainty and potential failure, which can generate social stigma and discourage risk-taking (Riashchenko et al., 2025). Family expectations and traditional career preferences often favor stable employment over entrepreneurial experimentation, particularly in collectivist cultures (Bu et al., 2023). Gender norms further exacerbate disparities, as female students may encounter implicit bias, limited networking opportunities, or fewer role models in entrepreneurial environments (Ali et al., 2024). The absence of positive examples and community-level support mechanisms

limits students' perceived feasibility of entrepreneurship as a legitimate professional trajectory.

4. *Psychological and personal barriers.* At the individual level, internal psychological constraints can impede entrepreneurial engagement. Low self-efficacy, fear of failure, and limited resilience have been widely documented as critical inhibitors of entrepreneurial intentions (Al-Jubari et al., 2018; Newman et al., 2021). Entrepreneurial passion plays a mediating role in overcoming these psychological barriers by enhancing motivation and persistence (Newman et al., 2021). Many students doubt their ability to manage business uncertainty, balance financial risk, and navigate regulatory complexity. The transition from the role of student to that of entrepreneur often requires a fundamental identity shift and a high tolerance for ambiguity (Kubberød et al., 2018). Without adequate mentoring or peer support, these psychological barriers can undermine confidence and reduce persistence in pursuing entrepreneurial goals.

5. *Digital barriers.* As universities increasingly adopt digital technologies to foster entrepreneurship, new forms of inequality have emerged. Digital barriers include disparities in access to technological infrastructure, insufficient digital literacy, and uneven integration of technology into entrepreneurship education (Händel et al., 2020; Dyachenko et al., 2017). While digital tools such as online incubators, AI-driven learning environments, and virtual mentorship programs can democratize access to entrepreneurial opportunities (Popova et al., 2024), they also require a level of technological competence that not all students or faculty possess. Limited institutional readiness for digital transformation exacerbates this problem, leaving many potential entrepreneurs excluded from digital innovation ecosystems (Kolodiziev et al., 2024; Riashchenko et al., 2025).

Policy and educational implications

1. To address the identified barriers, the literature suggests a series of targeted interventions. A key recommendation is to strengthen financial support while enhancing digital accessibility by implementing targeted grants, seed funding, and micro-loan programs for students, with a specific focus on simplifying digital access to these resources (Kolodiziev et al., 2024). This approach helps overcome not only capital constraints but

- also digital inequality. Furthermore, integrating entrepreneurship and digital competencies across the curriculum is essential. This involves embedding the fundamentals of an entrepreneurial mindset and digital literacy not only in economics but also in technical, humanities, and scientific disciplines (Souitaris *et al.*, 2006; Händel *et al.*, 2020), thereby enabling students from all fields to learn how to use digital tools for innovation.
2. Another critical area is improving faculty capacity and adapting Intellectual Property (IP) policies. This includes enhancing the digital and entrepreneurial skills of faculty members, training them in digital mentorship methods, and revising IP policies towards more flexible and fair terms for student projects (Parreira *et al.*, 2018; Popova *et al.*, 2024). Finally, creating university-led innovation and digital hubs can foster local ecosystems that connect students, investors, mentors, and industry partners through digital platforms, virtual incubators, and online communities (Sirbu *et al.*, 2017; Kolodiziev *et al.*, 2024), which helps overcome geographical and institutional barriers.

This study aims to identify the key barriers hindering the development of an entrepreneurial mindset among students and to analyze institutional gaps within higher education that obstruct the transition from entrepreneurial intentions to business creation, with a specific focus on the role of digital readiness. Particular attention is given to a cross-cultural context, specifically drawing case studies from higher education institutions in Bulgaria, Ukraine, and China, to understand national variations, gender-specific aspects, and structural challenges within the process of digital transformation. The findings are intended to support the development of targeted educational policies and institutional support strategies to foster an inclusive and sustainable entrepreneurial environment within universities.

Research objectives

1. To systematize the main barriers that prevent students from transforming entrepreneurial intentions into action, namely economic, institutional-regulatory, socio-cultural, psychological, and digital obstacles, with an emphasis on their relationship with digital readiness.

2. To analyze institutional support mechanisms in higher education, focusing on the effectiveness of entrepreneurship programs, digital mentorship, practical training, and access to financing within digital environments.
3. To examine national and gender-specific differences in the formation of students' entrepreneurial mindsets using case studies from universities in Bulgaria, Ukraine, and China.
4. To assess the role of universities in either fostering or hindering student entrepreneurship, particularly in the context of structural, administrative, and digital barriers.
5. To formulate recommendations for policymakers, university administrators, and supporting institutions aimed at improving the entrepreneurial framework and opportunities available to students, taking into account factors of digital readiness and cross-cultural perspectives.

MATERIALS AND METHODS

Research methodology

To empirically investigate the core research questions, this study tests three central hypotheses. The first hypothesis posits that students with higher levels of digital literacy demonstrate stronger entrepreneurial intentions. The second hypothesis proposes that faculty members who actively participate in digital projects are more likely to support student startup initiatives. The third hypothesis suggests that national differences in the perception of digital entrepreneurship are influenced by the degree to which digital tools are integrated into the educational curriculum. The analytical methods and statistical frameworks designed to test these hypotheses are detailed in Table 1.

Data and Tools

This study employed a cross-sectional survey design to collect data from a sample of 225 participants, comprising 180 students and 45 faculty members from three universities. The participating institutions were St. Cyril and St. Methodius University of Veliko Tarnovo (Bulgaria), Henan Institute of Science and Technology (China), and Sumy National Agrarian University (Ukraine), with 60 students and 15 faculty respondents from each. Data collection was conducted via the QuestionPro platform between October 1, 2024, and February 20, 2025.

Table 1: Research hypotheses, statistical methods, and analytical framework

Research objective and hypothesis	Statistical method	Calculation formula and key components	Rationale
H1: To examine the relationship between students' digital literacy and their entrepreneurial intentions	Spearman's rank correlation	$p = 1 - \frac{6 \sum d_i^2}{n(n^2-1)} \quad (1)$ where: ρ - Spearman's correlation coefficient; d_i - difference between the ranks of corresponding variables (digital literacy score and entrepreneurial intention score); n - total number of paired observations (students). Digital literacy and entrepreneurial intention are measured as composite scores from multi-item Likert scales (1-5).	The method is designed to assess the monotonic relationship between two continuous or ordinal variables; Likert-scale data are ordinal, making Spearman's ρ more appropriate than Pearson's r ; it tests if higher digital literacy ranks consistently with higher entrepreneurial intention ranks
H2: To analyze the association between faculty engagement in digital projects and their support for student startups	independent samples T-test	T-test: $t = \frac{\bar{X}_1 - \bar{X}_2}{S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \quad (02)$ where $S_p = \sqrt{\frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1+n_2-2}}$, $\bar{X}_1 - \bar{X}_2$, - mean support scores for two faculty groups (engaged vs. not engaged in digital projects); s_1, s_2 - standard deviations of the two groups; n_1, n_2 - sample sizes of the two groups. Faculty Support is measured as a composite score from a Likert scale (1-5).	Allows comparison of the mean support level of two independent groups of teachers; the T-Test is used if the data are normally distributed and satisfy other parametric assumptions; if assumptions are violated, the non-parametric Mann-Whitney U test is used instead
H3: To assess if national differences in digital entrepreneurship perception are explained by the integration of digital tools in curricula	One-Way ANCOVA (Analysis of covariance)	The model tests the effect of the categorical factor (Country) on the dependent variable (Perception of digital entrepreneurship), while controlling for the continuous covariate (Level of digital tool integration): $Y_{ij} = \mu + \alpha_i + \beta(X_{ij} - \bar{X}) + \varepsilon_{ij} \quad (3)$ where Y_{ij} - perception score of the j-th individual from the i-th country; μ - grand mean; α_i - effect of the i-th country; β - regression coefficient for the covariate (Digital tool integration); X_{ij} - digital tool integration score for the j-th individual from the i-th country; $\bar{X}$ - overall mean of the covariate.	ANCOVA is ideal for comparing group means (countries) while statistically controlling for the influence of a confounding variable (Level of Integration); it answers the question: «Are the national differences still significant after we account for how well each university integrates digital tools?»

Source: Author's methodology

The collected data were analyzed using IBM SPSS Statistics 26 and MS Excel. A statistical confidence level of 95% was applied for all inferential tests. The survey instrument was structured around several key blocks, including digital competencies and EdTech usage, the influence of digital tools on the entrepreneurial mindset, and the role of faculty in fostering entrepreneurial culture. The key variables for analysis encompassed field of study, self-reported digital literacy, entrepreneurial intentions, faculty engagement in digital projects, and perceptions of institutional support mechanisms such as incubators and startup schools.

RESULTS AND DISCUSSION

To address the research objectives, a comprehensive questionnaire was developed and administered to students and faculty across three universities: St. Cyril and St. Methodius University of Veliko Tarnovo (Bulgaria), Henan Institute of Science and Technology (China), and Sumy National Agrarian University (Ukraine). The survey was distributed via the QuestionPro platform between October 1, 2024, and February 20, 2025. To ensure the instrument's reliability and validity, the questionnaire underwent multiple rounds of revision based on feedback from experts in educational research and entrepreneurship, followed by pilot testing with a small group of respondents. This iterative process enhanced the clarity, relevance, and overall quality of the data collected. The final structure of the survey is presented in [Table 2](#).

[Table 2](#) presents the structure of the survey, designed to analyze the interplay between digital readiness, institutional support, and the entrepreneurial mindset in higher education. The survey consists of five main parts. Part A gathers demographic and academic background information using open and closed multiple-choice questions. Part B assesses digital competencies and the use of educational technology through a mix of Likert scale and multiple-choice questions. Part C focuses on entrepreneurial mindset and intentions, employing a Likert scale for evaluation. Part D examines institutional and faculty support mechanisms, using a Likert scale and multiple-choice questions. Finally, Part E investigates perceived barriers and motivators for digital entrepreneurship, utilizing Likert scales and ranking questions. Each section is systematically coded for easy reference and streamlined data analysis. [Ta-](#)

[ble 3](#) presents the demographic distribution of the student respondents by country, gender, and study level.

[Table 3](#) presents the demographic and academic profile of the survey respondents. The sample shows a near-equal gender distribution, with 52% of respondents being male and 48% female, while no respondents identified as "Other." In terms of academic level, the vast majority of participants are Bachelor's students, representing 78% of the total, with Master's students comprising the remaining 22%. No PhD students participated in the survey. Geographically, the sample was evenly divided, with one-third of respondents (33%) each from universities in Bulgaria, China, and Ukraine. Regarding the field of study, the largest group of respondents (25%) was from Agriculture and Environmental Sciences, followed by Engineering and Manufacturing (18%), and Computer Science and Information Technologies (17%). The remaining respondents were distributed across Economics and Finance (15%), Education and Humanities (13%), and Management and Entrepreneurship (12%). This distribution reflects a diverse academic background among participants, with strong representation from technical and environmental sciences, and a balanced cross-national composition ideal for comparative analysis. To provide a comparative overview of the core research variables across the national contexts, key indicators of digital readiness and entrepreneurial perceptions were synthesized. These metrics capture the state of digital proficiency, institutional support, entrepreneurial intentions, and prevalent drivers and obstacles as reported by students and faculty in the three participating countries. The consolidated results, which form the basis for the cross-cultural analysis of the study's hypotheses, are presented in [Table 4](#).

The survey results reveal distinct cross-national patterns in digital readiness and entrepreneurial perceptions. Chinese respondents reported the highest proficiency with digital tools (4.6/5), which correlates with the strongest entrepreneurial intentions, as 41% of Chinese students plan to start a business within five years. In contrast, Bulgarian students, with the lowest self-reported digital proficiency (3.8/5), showed the lowest entrepreneurial intention (28%). Ukrainian results consistently fell between these two extremes. A clear gradient is also evident in institutional support. Faculty readiness to implement

Table 2: Structure of the survey

Part of the survey	Part of the survey	Types of questions	Description	
			Evaluation scale	Codes
A	Respondent Profile	Open/Closed	Multiple-choice	o_A_1-A
B	Digital competencies and EdTech usage	Closed	Likert Scale / Multiple-choice	B_1 - B_7
C	Entrepreneurial mindset and intentions	Closed	Likert Scale	C_1 - C_9
D	Institutional and faculty support	Closed	Likert Scale / Multiple-choice	D_1 - D_6
E	Perceived barriers and motivators	Closed	Likert Scale / Ranking	E_1 - E_8

Source: created by authors

Table 3: Distribution of the respondents by gender, study level, and country of study

Question	Results	Amount of respondents	from total respondent share %
Gender			
	Male	93	52%
	Female	87	48%
	Other	0	0%
Study level			
	Bachelor	140	78%
	Master	40	22%
	PhD	0	0%
Country of study			
	Bulgaria	60	33%
	China	60	33%
	Ukraine	60	33%
Study field			
	Agriculture and environmental sciences	45	25%
	Computer Science and Information Technologies	30	17%
	Economics and Finance	27	15%
	Education and Humanities	24	13%
	Engineering and Manufacturing	33	18%
	Management and Entrepreneurship	21	12%

Source: created by authors

Table 4: Cross-national comparison of digital readiness and entrepreneurial indicators

Indicator	Bulgaria	China	Ukraine
(Proficiency with digital tools (mean score on a 5-point scale	3,8	4,6	4,1
Recognition of the importance of entrepreneurship in their profession	74%	88%	79%
Faculty readiness to implement startup-project-based learning	52%	69%	58%
Students intending to start their own business within 5 years	28%	41%	33%
Lack of practical experience is the main obstacle	61%	43%	56%
Access to digital platforms and online mentoring is a key motivator	47%	62%	53%

Source: created by authors

startup-based learning is highest in China (69%) and lowest in Bulgaria (52%), suggesting a strong link between faculty's digital-pedagogical adoption and the overall entrepreneurial climate. The primary barrier identified across all contexts was a lack of practical experience, though its perceived significance varied, being most acute in Bulgaria (61%) and least in China (43%). Conversely, access to digital platforms and on-line mentorship emerged as the key motivator, with Chinese students (62%) valuing it most highly. This indicates that while a practical experience gap is a universal challenge, the perceived value of digital resources to bridge this gap is highest in the most digitally-ready ecosystem. Overall, the findings suggest a strong, positive association between digital proficiency, supportive institutional practices, and entrepreneurial motivation. The data imply that strengthening digital competencies and expanding access to digital entrepreneurial resources could be pivotal in fostering student entrepreneurship across these diverse national contexts.

Testing of Hypotheses

H1: Students with high digital literacy demonstrate stronger entrepreneurial intentions.

To test Hypothesis 1, which proposed a positive relationship between digital literacy and entrepreneurial intentions, a Spearman's rank-order correlation was conducted. The analysis, based on compos-

ite scores for both variables, revealed a statistically significant positive correlation ($\rho = .43$, $p < .01$). This result confirms that students with higher levels of digital literacy were significantly more likely to report stronger intentions to start their own venture, thereby supporting Hypothesis 1. This finding aligns with existing literature suggesting that digital tools lower the barriers to entrepreneurship by facilitating access to information, markets, and professional networks. The detailed correlation results are presented in Table 5.

H2: Faculty members who participate in digital projects are more likely to support student startup initiatives.

This hypothesis was tested using an independent samples t-test. Faculty respondents were divided into two groups: those engaged in digital R&D or teaching projects and those who were not. The support for student startups was measured as a composite score from relevant survey items. The analysis indicated that faculty involved in digital projects ($M=4.2$, $SD=0.7$) reported a significantly higher level of support for student startups compared to their peers not involved in such projects ($M=3.5$, $SD=0.9$, $t(43) = 2.98$, $p < .05$, $t(43) = 2.98$, $p < .05$ (Table 6). This supports the hypothesis, suggesting that practical engagement with digital technologies fosters a more supportive attitude toward student entrepreneurship.

Table 5: Correlation between digital literacy and entrepreneurial intention

Variable	N	ρ (Spearman)	p-value	Interpretation
Digital Literacy	180	.43.	< .01	Significant positive correlation

Source: created by authors

Table 6: Comparison of faculty support for student startups

Group	N	Mean (M)	SD	t-value	p-value	Interpretation
Faculty engaged in digital projects	23	4.2	0.7	2.98	05. >	Higher support
Faculty not engaged in digital projects	22	3.5	0.9	—	—	Lower support

Source: created by authors

Table 7: ANCOVA results for perception of digital entrepreneurship

Source of Variation	df	F	p-value	Significance	Interpretation
Country	2	5.8	01. >	Significant before control	Differences observed
Country (after controlling for digital tool integration)	2	1.4	05. <	Not significant	Effect explained by digital integration
Covariate: Digital tool integration	1	12.3	01. >	Significant	Strong covariate effect

Source: created by authors

H3: National differences in the perception of digital entrepreneurship are influenced by the degree of digital tool integration in the curriculum.

An Analysis of Covariance (ANCOVA) was performed to test this hypothesis. The dependent variable was the perception of digital entrepreneurship opportunities, the fixed factor was the country (Bulgaria, China, Ukraine), and the covariate was the perceived level of digital tool integration in the curriculum. After controlling for the covariate, the previously significant effect of country on perception ($F(2,177)=5.8, p<.01$) ($F(2,177)=5.8, p<.01$) was substantially reduced and became non-significant ($F(2,176)=1.4, p>.05$) ($F(2,176)=1.4, p>.05$) (Table 7). This result indicates that the national differences in perception are largely explained by the varying degrees of digital tool integration in the respective academic programs, thereby confirming the third hypothesis.

These findings jointly confirm all three hypotheses, emphasizing that digital literacy, institutional engagement in digital projects, and curriculum integration of digital tools are key drivers of entrepreneurial intentions and supportive behavior within higher education contexts.

Discussion

The findings of this study provide a nuanced understanding of the role digital readiness plays in shaping the entrepreneurial mindset within higher education across diverse national contexts. The analysis confirmed a statistically significant positive correlation between digital literacy and entrepreneurial intentions (H1), a relationship that aligns with con-

temporary literature. This result supports the assertions of scholars like Händel et al. (2020) and Singh et al. (2024), who argue that digital competencies lower the perceptual and practical barriers to entrepreneurship by facilitating access to information, markets, and networks. The varying levels of digital proficiency among students in Bulgaria, China, and Ukraine further contextualize this finding, suggesting that national-level digital infrastructure and educational policies are critical precursors to fostering entrepreneurial intentions. The study also established that faculty engagement in digital projects is a significant predictor of their support for student startups (H2). This finding resonates with the growing body of research on the transformation of academic roles, as discussed by Popova et al., (2024) and Kolodiziev et al. (2024). It appears that when educators are actively involved in the digital ecosystem, they are better equipped and more inclined to mentor students in navigating the complexities of digital entrepreneurship, thereby bridging the gap between theoretical knowledge and practical application. A pivotal insight from this research is the confirmation of Hypothesis H3, which posited that national differences in the perception of digital entrepreneurship are largely attributable to the degree of digital tool integration in the curriculum. After controlling for this variable, the significant effect of country was eliminated. This finding strongly supports the claims of Filho et al., (2024) and Ali et al., (2024), who emphasize that institutional practices, rather than inherent cultural or economic differences alone, are powerful levers for change. The case of China, which showed the high-

est levels of both digital tool integration and positive entrepreneurial perceptions, serves as a compelling example of how proactive institutional strategy can cultivate a robust entrepreneurial ecosystem. Despite these enablers, the predominant barrier identified across all three countries was a universal lack of practical experience. This challenge, highlighted by 61% of respondents in Bulgaria, 56% in Ukraine, and 43% in China, underscores a critical gap in current educational approaches. This observation corroborates critiques by scholars such as [Souitaris et al., \(2006\)](#) and [Morris et al., \(2017\)](#), who have long argued that entrepreneurship education must extend beyond theory to include experiential, project-based learning. Concurrently, the primary motivator identified was access to digital platforms and online mentorship, pointing to a clear pathway for addressing the experience gap through technology-enhanced, practical learning environments. This study underscores that digital readiness is not merely a supplementary skill but a foundational element of modern entrepreneurial education. For universities to effectively act as hubs of innovation, they must implement comprehensive strategies that integrate digital tools across disciplines, incentivize faculty digital engagement, and create structured, practice-oriented learning opportunities. The cross-cultural nature of this research highlights that while contextual nuances exist, the core principles of leveraging digital readiness to foster entrepreneurship are universally applicable. Future research should explore the longitudinal impact of such digital integration on actual venture creation rates and delve deeper into the specific pedagogical models that most effectively translate digital competence into entrepreneurial action.

CONCLUSIONS

This research examined how digital readiness influences the entrepreneurial mindset and intentions of students and faculty across higher education institutions. The empirical results, based on a cross-cultural survey of 225 participants from Bulgaria, China, and Ukraine, confirm that digital competence, faculty engagement in digital projects, and integration of digital tools into the curriculum significantly shape entrepreneurial behavior and support systems in universities. Digital literacy and entrepreneurial intentions showed a significant positive relationship, meaning that as digital skills increased, entrepreneur-

ial intentions also rose ($p = 0.43$, $p < 0.01$ indicates a moderate, reliable link). Students who rated their digital skills higher also demonstrated stronger entrepreneurial intentions. This finding quantitatively supports Hypothesis 1 and highlights the importance of digital competence as a key driver of entrepreneurial motivation. Faculty digital engagement and support for student startups were closely linked, as faculty involved in digital projects showed stronger support for student entrepreneurship ($M = 4.2$ vs. 3.5), and the statistical test confirmed that this difference was meaningful and not due to chance ($t = 2.98$, $p < 0.05$). This result validates Hypothesis 2, indicating that participation in digital initiatives enhances faculty readiness to mentor and facilitate student innovation. National differences were explained by digital curriculum integration, as initial country differences in the perception of digital entrepreneurship were significant ($F = 5.8$, $p < 0.01$) but became negligible once the level of digital tool integration was considered ($F = 1.4$, $p > 0.05$), meaning that variations were due to digital readiness rather than national context. This finding confirms Hypothesis 3, demonstrating that the apparent national differences are largely explained by institutional variation in digital integration rather than by cultural or economic factors alone. Cross-national differences in readiness and motivation showed that Chinese students had the highest digital proficiency (mean = 4.6) and entrepreneurial intentions (41% planning to start a business), while Bulgarian students demonstrated the lowest levels (mean = 3.8 ; 28%). Ukrainian respondents held intermediate positions (mean = $4.1/5$; 33%). Faculty readiness to implement startup-based learning also followed a similar pattern: China (69%), Ukraine (58%), and Bulgaria (52%). Common challenges and motivators revealed that the main barrier to entrepreneurship was a lack of practical experience, reported by 61% of Bulgarian, 56% of Ukrainian, and 43% of Chinese respondents. Conversely, access to digital platforms and online mentorship emerged as the primary motivator, recognized by 47% of Bulgarian, 53% of Ukrainian, and 62% of Chinese students. These results underscore the dual role of digitalization as both a necessary condition and a solution to overcome skill and experience gaps. Policy and educational implications indicate that universities should focus on developing digital entrepreneurship ecosystems that integrate technical competence, practical

experience, and inclusive support structures. Investment in digital infrastructure, integration of entrepreneurship across disciplines, and faculty training in digital mentorship are essential for enhancing entrepreneurial outcomes. Policymakers should focus on strengthening financial and digital inclusion mechanisms to ensure equitable access to entrepreneurial opportunities. In summary, the study provides strong empirical evidence that digital readiness functions as a catalyst for entrepreneurial mindset formation in higher education. Institutions that effectively integrate digital tools into their teaching, research, and support systems are more likely to produce graduates and faculty capable of initiating innovative ventures. Future research should extend this analysis longitudinally to evaluate how improvements in digital ecosystems translate into measurable business creation and sustainable economic impact.

AUTHOR CONTRIBUTIONS

V. Shcherbak conducted the conceptual development of the research, supervised the overall study design, administered the project activities, acquired funding, and prepared the initial draft of the manuscript. V. Riashchenko curated the dataset, developed the data analysis framework, prepared the visualizations, and participated in reviewing and editing the manuscript. M. Petrova contributed to refining the theoretical framework, ensured methodological consistency, and participated in interpreting the cross-cultural results. O. Dorokhov performed data collection, validation, and formal statistical analysis and contributed to revising the Results section. L. Dorokhova participated in the data collection process, supported the organization of the survey activities, and assisted in preparing the empirical materials. O. Yermolenko contributed to the interpretation of findings, coordinated the integration of research outcomes into the discussion, and participated in editing the final manuscript. V. Yatsenko supported the analytical assessment of the results, ensured the internal consistency of the conclusions, and reviewed the final version of the manuscript.

ACKNOWLEDGEMENT

The authors extend their sincere gratitude to the partner universities for their invaluable institutional support and facilitation of the data collection pro-

cess. Our special thanks go to the administrations and academic staff of the University of Veliko Tarnovo "St. Cyril and St. Methodius" (Bulgaria), Henan Institute of Science and Technology (China), and Sumy National Agrarian University (Ukraine) for their collaboration and engagement in this study. We are also deeply thankful to all the students and faculty members who generously shared their time and insights by participating in the survey, making this cross-cultural research possible.

CONFLICT OF INTEREST

The authors declare no potential conflict of interest regarding the publication of this work. Besides, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancy, have been completely witnessed by the authors.

OPEN ACCESS

©2026 The author(s). This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution, and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The images or other third-party material in this article are included in the article's Creative Commons license unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit: <http://creativecommons.org/licenses/by/4.0/>

PUBLISHER NOTE

Tehran Urban Research & Planning Centre (TURPC) takes a neutral position on claims on disputed territories, place names, international boundaries, jurisdiction in published maps, and institutional affiliations. TURPC is committed to retracting a paper after its publication if it becomes apparent that there are serious problems in its content, in terms of research and publication ethics (<https://www.ijhcum.net/journal/process?ethics>).

ABBREVIATIONS (NOMENCLATURE)

%	Percentage
AI	Artificial Intelligence
ANCOVA	Analysis of Covariance
CBEwB	Central Baltic Student Enterprises without Borders
EI	Entrepreneurial Intentions
EdTech	Educational Technology
Eq.	Equation
GUESSS	Global University Entrepreneurial Spirit Students' Survey
IP	Intellectual Property
MIT	Massachusetts Institute of Technology
R&D	Research and Development
SD	Standard Deviation
SPSS	Statistical Package for the Social Sciences
TTOs	Technology Transfer Offices
AI	Artificial Intelligence

REFERENCES

- Ali, S. R.; Qasim, S.; Abbas, M., (2024). Fostering an entrepreneurial mindset through education: Challenges and opportunities. *Global Social Sci. Rev.*, IX(IV): 179–194 (16 pages).
- Al-Jubari, I.; Hassan, A.; Liñán, F., (2018). Entrepreneurial intention among University students in Malaysia: integrating self-determination theory and the theory of planned behavior. *Int. Entrepreneurship Manage. J.*, 15(4): 1323–1342 (20 pages).
- Alves, A. C.; Fischer, B.; Schaeffer, P. R.; Queiroz, S., (2019). Determinants of student entrepreneurship. *Innovation Manage. Rev.*, 16(2): 96–117 (22 pages).
- Anuar, A.; Nasir, I.N.M.; Rahman, F.A.; Sadek, D.M., (2013). Barriers to start-up the business among students at tertiary level. *Asian Soc. Sci.*, 9(11): 290–299 (10 pages).
- Bu, Y.; Li, S.; Huang, Y., (2023). Research on the influencing factors of Chinese college students' entrepreneurial intention from the perspective of resource endowment. *Int. J. Manage. Educ.*, 21(3): 100832: 1–15 (15 pages).
- Dabbous, A.; Barakat, K. A.; Kraus, S., (2023). The impact of digitalization on entrepreneurial activity and sustainable competitiveness: A panel data analysis. *Technol. Soc.*, 73(102224): 1–13 (13 pages).
- Delgosha, M.S.; Saheb, T.; Hajihyeydari, N., (2021). Modelling the Asymmetrical Relationships between Digitalisation and Sustainable Competitiveness: A Cross-Country Configurational Analysis. *Inf. Syst. Front.* 23: 1317–1337 (21 pages).
- Dyachenko, N. N. Y.; Bondarenko, M. P. G.; Pustovit, V., (2017). Intelligent and cognitive technologies in education of international economic relations students and human resource development: methodology in language teaching and distance learning. *Eur. J. Sustainable Dev.*, 6(4): 353–360 (8 pages).
- Filho, W. L.; Sierra, J.; Price, E.; Eustachio, J. H. P. P.; Novikau, A.; Kirrane, M.; Dinis, M. a. P.; Salvia, A. L., (2024). The role of universities in accelerating the sustainable development goals in Europe. *Sci. Rep.*, 14(1): 1–15 (15 pages).
- Grigorescu, A.; Pelinescu, E.; Ion, A. E.; Dutcas, M. F., (2021). Human Capital in Digital Economy: An Empirical Analysis of Central and Eastern European Countries from the European Union. *Sustainability*, 13(4): 1–21 (21 pages).
- Gupta, P.; Chauhan, S.; Paul, J.; Jaiswal, M., (2020). Social entrepreneurship research: A review and future research agenda. *J. Bus. Res.*, 113: 209–229 (21 pages).
- Händel, M.; Stephan, M.; Gläser-Zikuda, M.; Kopp, B.; Bedenlier, S.; Ziegler, A., (2020). Digital readiness and its effects on higher education students' socio-emotional perceptions in the context of the COVID-19 pandemic. *J. Res. Technol. Educ.*, 54(2): 267–280 (14 pages).
- Hurst, E.; Pugsley, B. W., (2011). What do small businesses do? *Brookings Pap. Econ. Act.*, 2011(2): 73–118 (46 pages).
- Hussain, S.; Huang, J., (2022). The impact of cultural values on green purchase intentions through ecological awareness and perceived consumer effectiveness: An empirical investigation. *Front. Environ. Sci.*, 10(985200): 1–14 (14 pages).
- Kolodiziev, O.; Krupka, I.; Kovalenko, V.; Kolodizieva, T.; Yatsenko, V.; Shcherbak, V., (2023). Social responsibility of higher education under martial law. *Econ. Stud. J., Bulg. Acad. Sci. - Econ. Res. Inst.*, 1: 143–163 (21 pages).
- Kolodiziev, O.; Shcherbak, V.; Kostyshyna, T.; Krupka, M.; Riabovolyk, T.; Androshchuk, I.; Kravchuk, N., (2024). Digital transformation as a tool for creating an inclusive economy in Ukraine during wartime. *Probl. Perspect. Manage.*, 22(3): 440–457 (18 pages).
- Kolodiziev, O.; Shcherbak, V.; Krupka, M.; Kovalenko, V.; Kolodizieva, T.; Yatsenko, V., (2023). The social responsibility of dual education in an unstable environment. *Int. J. Hum. Capital Urban Manage.*, 8(3): 303–316 (14 pages).
- Kubberød, E.; Fosstenløyken, S. M.; Erstad, P. O., (2018). Peer mentoring in entrepreneurship education: towards a role typology. *Educ. Training*, 60(9): 1026–1040 (15 pages).
- Liguori, E.; Bendickson, J.; Solomon, S.; McDowell, W. C., (2018). Development of a multi-dimensional measure for assessing entrepreneurial ecosystems. *Entrepreneurship Reg. Dev.*, 31(1–2): 7–21 (15 pages).
- McCarthy, A. M.; Maor, D.; McConney, A.; Cavanaugh, C., (2023). Digital transformation in education: Critical components for leaders of system change. *Social Sci. Humanit. Open*, 8(1), 100479: 1–15 (15 pages).
- Morris, M. H.; Shirokova, G.; Tsukanova, T., (2017). Student entrepreneurship and the university ecosystem: a multi-country empirical exploration. *Eur. J. Int. Manage.*, 11(1): 65–85 (21 pages).
- Newman, A.; Obschonka, M.; Moeller, J.; Chandan, G. G., (2021). Entrepreneurial passion: A review, synthesis, and agenda for future research. *Appl. Psychol. Int. Rev.*, 70(2): 816–860 (45 pages).
- Parreira, P.; Mónico, L.; Carvalho, C.; Riscado da Silva, A. C., (2018). Entrepreneurship in higher education: The effect of academy, motivation, resources, incentives, and self-efficacy in the entrepreneurship potential. In *Entrepreneurship - Development tendencies and empirical approach*. IntechOpen.
- Peng, Z.; Lu, G.; Kang, H., (2012). Entrepreneurial Intentions and Its Influencing Factors: A Survey of the University Students in Xi'an China. *Creat. Educ.*, 3: 95–100 (6 pages).
- Peterman, N. E.; Kennedy, J., (2003). Enterprise Education: Influencing students' perceptions of entrepreneurship. *Entrepreneurship Theory Pract.*, 28(2): 129–144 (16 pages).
- Popova, P.; Popov, V.; Marinova, K.; Petrova, M.; Shishmanov, K., (2024).

- The Digital Platform — new opportunities and implementation strategy. 2024 16th Int. Conf. Electron. Comput. Artif. Intell. (ECAI), 1–9 (**8 pages**).
- Riashchenko, V.; Djakona, V.; Celika, M.; Mironova, J., (2025). Rethinking the barriers to student entrepreneurship in the digital age – influence of AI. *Bus. Legislation*, 18(1): 6–13 (**8 pages**).
- Shcherbak, V.; Danko, Y.; Tereshchenko, S.; Nifatova, O.; Dehtiar, N.; Stepanova, O.; Yatsenko, V., (2024). Circular economy and inclusion as effective tools to prevent ecological threats in rural areas during military operations. *Global J. Environ. Sci. Manage.*, 10(3): 969-986 (**18 pages**).
- Shirokova, G.; Osiyevskyy, O.; Bogatyreva, K., (2015). Exploring the intention–behavior link in student entrepreneurship: Moderating effects of individual and environmental characteristics. *Eur. Manage. J.*, 34(4): 386–399 (**14 pages**).
- Sieger, P., Raemy, L., Zellweger, T., Fueglistaller, U.; Hatak, I., (2024). Student entrepreneurship 2023: Insights from 57 countries. *Global Univ. Entrep. Spirit Surv.*, 1-23 (**23 pages**).
- Singh, R.; Kumar, V.; Singh, S.; Dwivedi, A.; Kumar, S., (2024). Measuring the impact of digital entrepreneurship training on entrepreneurial intention: the mediating role of entrepreneurial competencies. *J. Work-Appl. Manage.*, 16(1): 142–163 (**22 pages**).
- Sirbu, O.; Ignatov, A.; Crudu, R., (2017). Innovation policies and entrepreneurship in the Baltic States - key to European Economic success. *East. Eur. J. Reg. Stud.*, 3(2): 68–81 (**14 pages**).
- Souitaris, V.; Zerbini, S.; Al-Laham, A., (2006). Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. *J. Bus. Venturing*, 22(4): 566–591 (**26 pages**).
- Yordanova, D.; José, N., (2019). Towards Entrepreneurial Universities: Barriers, facilitators, and best practices in Bulgarian and Portuguese universities. *Int. J. Econ. Bus. Adm.*, VII (4): 213–227 (**15 pages**).

COPYRIGHTS

©2026 The author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, as long as the original authors and source are cited. No permission is required from the authors or the publishers.



HOW TO CITE THIS ARTICLE

Shcherbak, V.; Riashchenko, V.; Petrova, M.; Dorokhov, O.; Dorokhova, L.; Yatsenko, V.; Yermolenko, O., (2026). Digital readiness and entrepreneurial mindset in higher education: Overcoming barriers through cross-cultural perspectives. *Int. J. Hum. Capital. Urban Manage.*, 11(3): 435 - 448.

DOI: 10.22034/IJHCUM.2026.03.01

URL: https://www.ijhcum.net/article_736047.html

