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INDIVIDUAL FACTORS OF AI IMPLEMENTATION BY SMALL ENTREPRENEURS IN AN EMERGING ECONOMY

Chepurenko, A., Dormidontova, Y.

Alexander Chepurenko / HSE University (Moscow), Department of Sociology. 20, Myasnitskaya St., 101900, Moscow, Russia, achepurenko@hse.ru

Yulia Dormidontova / Institute of Foundation Opinion Market, 15/43, Rochdelskaya St., Moscow, Russia, dormidontova@fom.ru

Abstract

This study examines the individual factors of artificial intelligence (AI) implementation by small and medium-sized enterprise (SME) owners, based on a survey of 499 respondents in Russia. Drawing on Innovation Diffusion Theory, the Technology Acceptance Model (TAM), and stakeholder-oriented sustainability approach, the analysis shows that SME owners who already use AI for private purposes are more likely to implement it in their businesses. Owners who see AI as potentially damaging to their businesses are also more likely to adopt it. Those who believe AI will harm the economy overall are less likely to use it. Younger entrepreneurs are more inclined to adopt AI. Education is not significant. Owners of larger SMEs and those in urban areas are more likely to adopt it. The findings challenge TAM based evidence regarding the role of hedonic motivation: in this post-transitional economy, expected damage to one's own business emerges as a key driver of AI implementation by SMEs.

Implications for Central Eastern European audience: As AI penetration grows in CEE, SME owners with personal AI experience should be more likely to implement AI in business, with younger entrepreneurs expected to lead adoption, similar to Russia. However, unlike Russia, urban-rural differences in CEE may be less pronounced due to a closer distances between cities and rural areas, potentially diminishing the role of settlement in AI adoption. Policies emphasizing practical, experiential learning opportunities may be more effective than formal education, given the limited additional technical skills required for AI implementation in SMEs.

Keywords: Artificial Intelligence; innovation adoption; Small and medium-sized entrepreneurs

JEL Classification: D01, D22, O33

Introduction

The development of artificial intelligence (AI) presents both opportunities and challenges for entrepreneurs (Chalmers et al., 2021; Giuggioli & Pellegrini, 2023). Based on a dataset of European firms, Grashof and Kopka (2023) found that AI has a different influence on large firms and small and medium-sized enterprises (SMEs). In their AI adoption strategies, small

businesses are often influenced by their owners' personal skills, attitudes, and abilities (Chinomona, 2013; Kotey & Meredith, 1997).

Research on AI implementation among small entrepreneurs is growing (Ferrigno et al., 2023). However, most studies emphasize organizational strategies and capabilities through frameworks like dynamic capabilities theory (Canhoto et al., 2021; Mikalef et al., 2021; Drydakis, 2022; Al Dhaheri et al., 2024), the resource-based view (Caldeira & Ward, 2003; Kumar et al., 2023), or resource orchestration theory (Kristoffersen et al., 2021; Lu et al., 2026) – all are exploring the firm-level. Meantime, AI adoption in SMEs is driven by individual factors, including owners' personal abilities and entrepreneurial propensity (Fuentelsaz et al., 2018). These micro-level factors vary across countries, yet research on AI in Central European SMEs as well as in Russia remains limited (Jarek & Mazurek, 2019; Zavodna et al., 2024), despite demand (Apostol, 2023; Vrchota et al., 2020) and regional capacity (Iwasaki et al., 2022; Štamfestová et al., 2023).

Russia and Central and Eastern Europe (CEE) still share some entrepreneurial ecosystem challenges (Zbierowski, 2017; Szerb et al., 2017; Ozols & Avotiņš, 2024; Shkolnykova et al., 2024), though divergences have grown post-EU accession for some CEE nations (Becker et al., 2018; Efendic et al., 2022). Insights from Russian SME owners may thus apply to Central Europe.

Russia's macro-institutional environment for small entrepreneurship in recent decades is marked by a shift to state control (Szerb & Trumbull, 2018; Chepurenko & Szanyi, 2023; Tsakaev, 2022; Lazhentsev, 2023). This includes IT-driven surveillance via digital taxation, expanded data access, and a "sovereign Internet" limiting foreign platforms (Kozyulin, 2023; Ustyuzhantseva & Popova, 2025). Regional disparities exacerbate this: large cities enjoy scale economies, innovation incentives, and infrastructure, drawing human capital (Pilyasov & Goncharov, 2023), while a digital divide persists (Untura, 2023; Grishchenko, 2020). Yet Russia's high level of education and digital literacy, especially among youth (Gladkova & Ragnedda, 2020; Vyugina, 2019; Davydov et al., 2020), enables AI business applications.

This paper is an exploratory contextual study that addresses the research question: "Which individual related factors are related to the implementation of AI in current business practices?" It uses survey data from Russian SME owners to identify individual factors correlated with AI implementation in business practices (McGuirk et al., 2015). Its Section 1 reviews literature and develops hypotheses; Section 2 describes data and methods; Section 3 presents findings; Section 4 discusses implications and limitations.

1 Literature review and hypotheses

There is the Innovation Diffusion Theory (IDT), which explains how, why, and at what rate new ideas, technologies, or products spread through a population or social system. The diffusion process unfolds over time, shaped by the innovation's perceived advantages, adopter characteristics, and the social context (Rogers, 2004). Despite some criticisms (Peres et al., 2010), IDT remains the most influential framework for understanding innovative technology adoption; it also suggests that AI's observability and trialability in personal contexts reduce uncertainty and promote organizational uptake (Schwaeke et al., 2025; Faiz et al., 2024). In SMEs, adoption decisions rest primarily with owners and hinge on individual factors. These choices reflect opportunity and constraint recognition within the

entrepreneurial ecosystem (Elia et al., 2020; Polisetty et al., 2024) – an ecosystem that is especially distinct in emerging markets (Guerrero et al., 2021; Paray et al., 2025).

The Technology Acceptance Model (TAM) posits that adoption stems from perceived usefulness and ease of use (Davis, 1989). SME owners anticipating broader social benefits from AI may thus be more willing to implement it (Umbrello & Van de Poel, 2021; Madianou, 2021). Yet AI innovations are unique (Grashof & Kopka, 2023; Jalil et al., 2025), and AI-driven strategies among SMEs in weak entrepreneurial ecosystems like Russia's remain underexplored (Abrokwah-Larbi & Awuku-Larbi, 2024).

Alongside IDT and TAM, stakeholder theory posits that strategic choices should create value for a wide range of stakeholders, including communities and society at large (Russo & Perrini, 2010). From this perspective, the evaluation and adoption of new technologies in SMEs are interpreted not only as efficiency-seeking decisions but also as responses to normative expectations about responsibility toward affected stakeholder groups. Closely related, the "creating shared value" framework in strategic management (Porter & Kramer, 2011) explicitly frames innovation as a means of jointly advancing economic performance and social welfare. These ideas resonate with the values-based innovation approach (Strong, 2009; Visser, 2011; Breuer & Ivanov, 2026) and the sustainability perspective (Van Wynsberghe, 2021), both emphasizing contributions to the common good rather than purely private returns. Ethical leadership research (Brown & Treviño, 2006) shows that leaders' moral beliefs and concern for stakeholders shape strategic decisions, including whether to support or block a particular innovation (Brown & Mitchell, 2010). In the AI domain, work on AI for social good and value-sensitive design argues that adoption decisions are influenced by whether AI is perceived as advancing socially desirable outcomes (Umbrello & Van de Poel, 2021; Madianou, 2021). These perspectives justify assumptions on the role of SME owners' expectations about AI's positive socioeconomic impact as a driver of AI implementation.

1.1 Human Capital Factors and AI Implementation

IDT relates innovation adoption to the assessed relative advantage, complexity, and compatibility of an innovation, as well as to actors' ability to access, interpret, and act on information about it (Rogers, 2004; Peres et al., 2010). Owners with higher levels of human capital are better positioned to understand new technologies, evaluate their strategic implications, and integrate them into existing business models, which increases the perceived relative advantage of adoption and reduces perceived complexity (Leiponen, 2005; Marcati et al., 2008; Gimmon & Levie, 2010; McAdam et al., 2010).

Within this framework, education and age matter because they systematically influence these diffusion-relevant perceptions. Better educated SME owners have stronger analytical capabilities and domain knowledge, which facilitates recognizing AI's potential benefits and aligning AI with business processes, thereby raising perceived usefulness and compatibility (Hovne et al., 2014). Younger cohorts, who typically have greater exposure to and familiarity with digital technologies, are more likely to treat AI as a natural extension of existing digital practices, which lowers the perceived complexity and uncertainty and supports earlier adoption (Arendt, 2008; Kusumaningtyas & Suwarto, 2015; Vyugina, 2019; Pilková et al., 2022).

Digital literacy directly targets the IDT dimension of complexity: owners who can competently use digital tools find AI less difficult to understand and implement, thus increasing the likelihood of adoption (Barkley & Jokonya, 2024; Nikou et al., 2022). At the same time, general education and broader human capital enhance the perceived relative advantage of AI by helping SME owners to identify strategic uses, understand complementarities with existing capabilities, and anticipate long-term performance gains (Kristoffersen et al., 2021; Dey et al., 2024; Hossain et al., 2025). Empirical work on SMEs consistently shows that such human capital and digital skills mediate the link between technology availability and digitalization strategies, including AI-related investments (Shatila et al., 2025; Hossain et al., 2025). Therefore, from an IDT perspective, SME owners' education, age, and digital literacy shape how they perceive AI along the core diffusion attributes of relative advantage, complexity, and compatibility, and thus condition their eagerness to use it.

Accordingly, we formulate **Hypothesis 1**: Eagerness to use AI among SME owners depends on their general education and digital literacy levels; therefore, it will be higher among (1.1) representatives of younger cohorts of entrepreneurs, and (1.2) individuals with higher levels of education.

1.2 Personal Attitudes, Beliefs, Contexts, and AI Adoption

In IDT, adoption is driven by how potential users perceive an innovation's relative advantage, complexity, and compatibility with existing practices, as well as by their exposure to information and experience with the innovation (Rogers, 2004; Peres et al., 2010). Private use of AI by SME owners serves as an early, low-risk trial that allows them to experience AI's benefits and limitations firsthand. This experience can increase the perceived relative advantage (e.g., efficiency, better decisions), reduce perceived complexity by building familiarity and routines, and, finally, improve perceived compatibility, as owners learn how AI can fit their everyday workflows.

Hence, in IDT terms, private AI use functions as a trial stage that precedes and facilitates later implementation in the business domain, because it strengthens favorable diffusion-relevant perceptions and lowers uncertainty.

According to TAM, the role of beliefs in innovation diffusion across SMEs is crucial. Perceived usefulness and perceived ease of use shape user acceptance and behavioral intentions toward new technologies (Davis, 1989; Amoako-Gyampah, 2007). Subsequent research on SMEs shows that favorable beliefs about digital technologies and AI – such as expected performance benefits and manageability – strongly predict adoption decisions (Baabdullah et al., 2021; Chatterjee et al., 2021; Upadhyay et al., 2022).

Personal, non-work use of digital technologies and AI is an important channel through which such beliefs are formed and reinforced. Regular private use increases familiarity, reduces uncertainty, and can enhance perceived usefulness and ease of use, thereby lowering psychological and cognitive barriers to organizational adoption (Arendt, 2008; Kusumaningtyas & Suwarto, 2015; Nikou et al., 2022). Studies of SMEs further indicate that when owners are frequent users of digital tools in everyday life, they are more likely to recognize strategic opportunities and push for digitalization in their firms (McGuirk et al., 2015; Kristoffersen et al., 2021; Hossain et al., 2025).

On this basis, we argue that SME owners who use AI privately are more likely to develop

Volume **15** | Issue **2** | 2026
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positive, experience-based beliefs about AI's business value and usability, which should translate into higher rates of AI implementation in their firms (Davis, 1989; Upadhyay et al., 2022).

Hypothesis 2: The implementation of AI for business purposes positively correlates with SME owners' use of AI for private purposes.

According to stakeholder theory, strategic decisions, including technology adoption, should create value for a broad set of actors rather than solely for owners or shareholders. This perspective frames entrepreneurs' concern for the public good, social inclusion, and environmental sustainability as normative criteria for evaluating innovations, alongside instrumental performance gains (Strong, 2009; Umbrello & Van de Poel, 2021). From a sustainability perspective, shared values and concern for social and ecological outcomes operate as important drivers of strategic choices, including innovation and technology adoption (Bahta et al., 2021; Abrokwah-Larbi and Awuku-Larbi, 2024; Soomro et al., 2025). SME owners who prioritize ethical responsibilities and societal welfare are therefore more inclined to implement the related innovations (Brown & Mitchell, 2010; Choongo et al., 2019). From this standpoint, SME owners who perceive AI as contributing to socio-economic development are more likely to see AI as aligned with their own prosocial values and with a "license to operate" grounded in the common good (Bryson, 2015; Noerman et al., 2025). This value alignment increases the perceived legitimacy and desirability of AI adoption beyond narrow efficiency considerations and should raise owners' willingness to implement it in their businesses.

Hence, **Hypothesis 3** is as follows: AI implementation for business purposes is more likely among SME owners who believe in AI's positive impact on socio-economic development.

In accordance with TAM, perceived usefulness, or the belief that using a technology will enhance performance, is the primary determinant of intention to use and actual adoption (Davis, 1989; Amoako-Gyampah, 2007). IDT similarly emphasizes expected relative advantage as a core driver of diffusion: actors adopt innovations when they anticipate incremental outcomes compared to existing practices (Tiwari et al., 2023). Empirical research on AI and digital technologies in SMEs confirms that owners adopt it when they expect concrete business benefits such as improved efficiency, better decision-making, new value creation, or competitive advantage (Chatterjee et al., 2021; Faiz et al., 2024). Studies show that strategic expectations about performance gains, innovation opportunities, and resilience, rather than the mere availability of technology, explain why some SMEs move faster toward AI and digitalization than others (Borges et al., 2021; Peretz-Andersson et al., 2024; Schwaeke et al., 2025).

Building on this evidence, we assume that SME owners who expect AI expansion to generate positive consequences for their own businesses through higher productivity, cost savings, improved customer service, or new products and markets should exhibit stronger adoption intentions and higher rates of actual implementation. Their expectations directly increase the perceived usefulness and relative advantage, which both TAM and IDT identify as central mechanisms linking beliefs to adoption behavior.

Hypothesis 4 is formulated accordingly: SME owners who expect positive consequences for their businesses from AI expansion are more likely to implement it.

2 Data and method

Data were collected by the Institute of Foundation Opinion Market (FOM) in July 2023. FOM randomly selected 499 respondents from its Small Business Panel (SBP), a database of entrepreneurs who have agreed to participate in regular representative surveys conducted by this major Russian polling agency; this approach enables quasi-representative studies (https://smbiz.fom.ru/post/panel-malogo-biznesa-fom).

The questionnaire included 18 questions on entrepreneurs' general knowledge of AI technologies, their use of AI in personal and business contexts, related concerns, and more. Non-adopters were asked about their willingness to adopt AI and, if interested, which specific solutions they would consider.

The initial dataset appears in Table 1. All "don't know" responses were coded as missing values.

Table 1 | Data description

Variable name	Variable type	Measurement	Cell count	Percentage
AI technologies' implementation in own business in the past year	Binary	yes	275	55.0%
		no	224	44.8%
		missing	1	0.2%
Gender	Binary	female	106	21.2%
		male	394	78.8%
Age	Categorical	18–39	138	27.6%
		40–55	238	47.6%
		56+	124	24.8%
Education	Categorical	secondary and lower	29	5.8%
		specialized secondary	78	15.6%
		higher or unfinished higher	393	78.6%
Settlement	Categorical	500,000 citizens or more	240	48.0%
		50,000 to 500,000 citizens	144	28.8%
		less than 50,000	112	22.4%
		missing	4	0.8%
Financial situation of own business	Categorical	bad	85	17.0%
		satisfactory	276	55.2%
		good	122	24.4%
		don't know	5	1.0%
		missing	12	2.4%
Age of business	Categorical	up to 5 years	88	17.6%
		6–12 years	122	24.4%
		13–20 years	119	23.8%

Volume **15** | Issue **2** | 2026
https://doi.org/10.18267/j.cebr.416

		over 20 years	171	34.2%
Business registration type	Binary	individual entrepreneur	183	36.6%
		juridical person	314	62.8%
		don't know	3	0.6%
Area of business activity	Categorical	sales	143	28.6%
		services	263	52.6%
		manufacturing	69	13.8%
		missing	25	5.0%
Stage of business	Categorical	nascent	30	6.0%
		new	100	20.0%
		established	212	42.4%
		decline	121	24.2%
		closure	28	5.6%
		missing	9	1.8%
Employees	Binary	no	243	48.6%
		yes	254	50.8%
		missing	3	0.6%
AI adoption for personal purposes in the last 12 months	Binary	yes	140	28.0%
		no	359	71.8%
		don't know	1	0.2%
Perceived potential AI influence on the area of own business	Categorical	AI will damage it	13	2.6%
		AI will have no influence on it	168	33.6%
		AI will influence but not damage it	307	61.4%
		don't know	12	2.4%
Potential AI influence on the country's economy generally	Categorical	rather positive	248	49.6%
		rather negative	45	9.0%
		positive and negative equally	149	29.8%
		no influence	7	1.4%
		don't know	51	10.2%
Concerns about AI related technologies' development	Binary	no concerns	413	82.6%
		some concerns	80	16.0%
		don't know	7	1.4%

Source: survey data

To analyze factors influencing AI technology adoption by respondents, we employed a binary logistic regression model. This approach suits examinations of associations between a dichotomous outcome (dependent variable) and categorical or continuous predictors (independent variables) (e.g., Wilson et al., 2015; Maroof, 2012).

The dependent variable derived from the question: "Which artificial intelligence technologies did you implement in your business over the past year? " – followed by a list of relevant AI technologies. Respondents selecting at least one were coded as "1" (adopters); those selecting none were coded as "0" (non-adopters). One respondent answering "I don't know" was excluded. Variable types appear in Table 2.

Table 2 | Variables' description

Variable type	Variable name	Variable type	Measurement	Reference category
Dependent variable	AI technologies' implementation in own business in the past year	Binary	Dummy (0: did not implement; 1: implement)	no
Independent variables (entrepreneur characteristics)	Gender	Binary	Dummy (0: female; 1: male)	female
	Age	Categorical	Category (1: 18–39; 2: 40–55; 3: 56+)	older than 56 years
	Education	Categorical	Category (1: secondary education and lower; 2: specialized secondary education; 3: higher or unfinished higher education)	specialized secondary education
	Settlement	Categorical	Category (1: more than 500,000 citizens; 2: 50,000 to 500,000 citizens; 3: less than 50,000 citizens)	50,000 to 500,000 citizens
	Financial situation of own business	Categorical	Category (1: bad; 2: satisfactory; 3: good)	satisfactory
	Age of business	Categorical	Category (1: up to 5 years; 2: 6 to 12 years; 3: 13 to 20 years; 4: 21 years and more)	below 5 years
Independent variables (business characteristics)	Business registration type	Binary	Dummy (0: individual entrepreneur, 1: juridical person)	individual entrepreneur
	Area of business activity	Categorical	Category (1: sales; 2: services; 3: manufacturing)	manufacturing
	Stage of business	Categorical	Category (1: nascent; 2: new; 3: established; 4: decline, 5: closure)	new
	Employees	Binary	Dummy (0: no employees; 1: has employees)	no employees
Independent variables (attitude towards AI technologies)	AI adoption for personal purposes in the last 12 months	Binary	Dummy (0: no, 1: yes)	no use of AI privately in the last 12 months
	Perceived potential AI influence on the area of own business	Categorical	Category (1: AI will damage it, 2: AI will have no influence on it, 3: AI will influence but not damage it)	will have no influence

Volume **15** | Issue **2** | 2026
https://doi.org/10.18267/j.cebr.416

	Potential AI influence on the country's economy generally	Categorical	Category (1: rather positive; 2: rather negative; 3: positive and negative equally; 4: no influence)	will have no influence
	Concerns about AI related technologies' development	Binary	Dummy (0: no concerns; 1: some concerns)	no concerns

Source: survey data

3 Results

After excluding missing data or "I don't know" responses, 390 of 499 cases remained for analysis. The final data are shown in Table 3.

Table 3 | Final cell count

Variable name	Variable type	Measurement	Frequency
AI technologies' implementation in own business in the past year	Binary	implemented	181
		not implemented	209
Gender	Binary	female	82
		male	308
Age	Categorical	18–39	111
		40–55	190
		56+	89
Education	Categorical	Secondary and lower	22
		Specialized secondary	64
		Higher or unfinished higher	304
Settlement	Categorical	500,0000 citizens or more	190
		50,000 to 500,000 citizens	117
		less than 50,000	83
Financial situation of own business	Categorical	bad	68
		satisfactory	226
		good	96
Age of business	Categorical	up to 5 years	74
		6–12 years	99
		13–20 years	89
		21 years or more	128
Business registration type	Binary	individual entrepreneur	138
		juridical person	252
Area of business activity	Categorical	sales	117
		services	213
		manufacturing	60

Stage of business	Categorical	nascent	22
		new	83
		established	179
		decline	92
		closure	14
Employees	Binary	no	196
		yes	194
AI adoption for personal purposes in the last 12 months	Binary	no	92
		yes	298
Perceived potential AI influence on the area of own business	Categorical	will damage it	13
		will have no influence on it	168
		will influence but not damage it	307
		don't know	12
Potential AI influence on the country's economy generally	Categorical	rather positive	219
		rather negative	35
		negative and positive equally	131
		no influence	5
Concerns about AI related technologies' development	Binary	no concerns	329
		some concerns	61

Source: survey data

The binary logistic regression model explained 38% of the variation in AI technology adoption among SME owners' businesses ($R^2 = 0.38$) and correctly predicted 75.1% of cases. Nearly all independent variables related to personal experience with and attitudes toward AI were statistically significant.

*Key Findings***.** Younger cohorts of entrepreneurs (18–39 years old) were 2.34 times more likely to implement AI than those over 56 ($p < 0.10$) (cf. Table 4). Education level was not significant. Thus, hypothesis 1.1 was confirmed, while hypothesis 1.2 not.

Respondents with personal AI experience were 5.39 times more likely to implement AI in their businesses than those without ($p < 0.01$). Hypothesis 2 was supported.

Respondents expecting general negative effects of AI on the Russian economy in general, were only 0.09 times as likely to implement AI as those who did not ($p < 0.05$). SME owners concerned about AI development were 3.14 times more likely to use it than those without such concerns ($p < 0.01$). Therefore, hypothesis 3 was supported.

Counterintuitively, those anticipating AI would damage their businesses were 6.02 times more likely to implement AI than those expecting impact without damage ($p < 0.05$), and 3.63 times more likely than those expecting no impact ($p < 0.01$). Hence, hypothesis 4 was rejected.

Volume **15** | Issue **2** | 2026
https://doi.org/10.18267/j.cebr.416

Among control variables, settlement type mattered: SME owners in large cities (≥ 500,000 residents) were 1.94 times more likely to implement AI than those in medium-sized towns ($p < 0.05$). Similarly, owners of businesses with employees were 1.84 times more likely to adopt AI than those without ($p < 0.05$). Other variables – gender, self-assessed financial situation, years of business experience, firm development stage, and area of business activity – were not significant.

Table 4 | Binary logistic regression

Variables		Odds ratios	Coefficients
Gender	male	0.60	-0.50
Age	18–39 years old	2.34	0.85*
	40–55 years old	0.78	-0.26
Education	up to secondary education	2.08	0.73
	higher or unfinished higher education	1.60	0.47
Settlement	500,0000 citizens or more	1.94	0.66**
	less than 50,000	1.02	0.02
Financial situation of own business	good	1.12	0.11
	bad	0.98	-0.02
Age of business	6 to 12 years	0.93	-0.08
	13 to 20 years	1.73	0.55
	21 years and more	1.93	0.66
Business registration type	individual entrepreneur	1.13	0.12
Area of business activity	sales	0.60	-0.51
	services	0.61	-0.49
Stage of business	establishment	0.75	-0.29
	maturity	0.77	-0.26
	decline	0.78	-0.25
	closure	0.56	-0.58
Employees	has employees	1.84	0.61**
AI adoption for personal purposes in the last 12 months	yes	5.39	1.68***
Perceived potential AI influence on the area of own business	will damage it	6.02	1.79**
	will influence but not damage it	3.63	1.29***
Potential AI influence on the Russian economy generally	rather positive	0.36	-1.01
	rather negative	0.09	-2.39**
	positive and negative equally	0.18	-1.72
Concerns about AI related technologies' development	some concerns	3.14	1.15***

Nagelkerke R Square	0.38

Note: Significance levels: *$p < 0.10$, **$p < 0.05$, *** $p < 0.01$
Source: Authors' own calculations

4 Analysis and discussion

This paper contributes to the ongoing discussion in entrepreneurship research by addressing the following questions: In what ways and to what extent does AI affect entrepreneurs' perceived uncertainty, their intentions, and subsequent behavior regarding entrepreneurial activities? What factors explain this influence? (Obschonka et al., 2025). The novelty of it lies in its focused shift from macro-, or organizational level perspectives to the individual characteristics of SME owners. Unlike most prior research, which applies firm-level frameworks like dynamic capabilities theory, resource-based view, or resource orchestration (e.g., Canhoto et al., 2021; Mikalef et al., 2021), this study centers on the personal attributes, attitudes, and experience of SME owners.

Key evidence is as follows. First, personal AI experience is the strongest predictor of AI implementation for business purposes: experienced AI users for private purposes among SME owners are significantly more likely to adopt it in business also in emerging market economies, which aligns with IDT's emphasis on trialability (Kulviwat et al., 2009; Lambert et al., 2026; Patnaik & Bakkar, 2024). Second, SME owners most often develop a defensive AI adoption strategy aiming to diminish the expected threats from AI development to their business; similar results were rare in previous studies (Andersen et al., 2022). Conversely, those seeing AI as economically harmful overall are less likely to implement it in their businesses, suggesting skepticism toward public goods in low-trust settings (Shlapentokh, 2006; Outila et al., 2020; Rodgers et al., 2022).

Third, age but not education matters: younger owners (18–39) are more likely to adopt AI for business purposes (Chatterjee et al., 2022), but the level of general education is insignificant. The latter might support previous findings that the relative simplicity of the most commonly used AI tools may reduce the impact of formal education on AI adoption (Gursoy et al., 2019; Chatterjee et al., 2021) in favor of the greater importance of the narrow field of study (Maliranta & Nurmi, 2019).

Fourth, urban and scale effects do matter. SME owners located in larger cities were more likely to adopt AI, reflecting more developed entrepreneurial ecosystems and faster innovation diffusion in urban areas (Ferreira et al., 2017; Eder & Trippl, 2019; Mayer & Motoyama, 2020). This urban-rural divide persists in Russia despite improved internet access (Grishchenko, 2020; Gladkova & Ragnedda, 2020; Kramin & Imasheva, 2024). This pattern may be characteristic not only of Russia (Zubarevich, 2012; Pilyasov & Goncharov, 2023; Untura, 2023) but also of other large countries with an uneven spatial distribution of both human and physical capital (Luan et al., 2023; De Clercq et al., 2023).

Business size was also significant: SMEs with employees were more likely to adopt AI. This finding offers new evidence that the larger the small business, the greater the potential benefits expected from AI. This is important because most SMEs globally are micro-businesses, so their readiness and ability to adopt AI may be limited. So far, there is some empirical evidence supporting this supposition (Mabenge et al., 2022; Leegon, 2024).

*Theoretical and Practical Implications***:** The findings challenge key assumptions of TAM, particularly regarding the importance of hedonic motivation. In post-transitional economies, SME innovativeness appears to be driven more by market turbulence and defensive motivations than by beliefs in the common good. This pattern runs counter to some prior empirical results on TAM and innovation adoption (Bodlaj & Čater, 2019; Upadhyay et al., 2022; Ledesma Chaves et al., 2026).

Implications for CEE. In CEE, AI adoption by SMEs is likely to be polarized between a minority of digitally experienced, opportunity-driven SME owners and a large group of resource-constrained, defensive adopters, as recent research suggests (AI Chamber CEE, 2025). This pattern is consistent with broader evidence on EU SMEs, where digital maturity and internal capabilities significantly increase the likelihood of AI adoption (Arroyabe et al., 2024).

First, at the country level, it is reasonable to expect that in relatively more advanced CEE economies (such as Poland, Estonia, and Czechia) entrepreneurial ecosystems make it more likely that AI is leveraged for growth-oriented, opportunity-driven entrepreneurship. By contrast, in structurally weaker contexts (for example, parts of the Western Balkans), AI is more likely to be deployed as a defensive cost-cutting and survival tool by some SMEs.

Second, the capability-institution mismatch identified in the Russian case directly carries over to the CEE context. Even when affordable AI applications are widely available, SMEs often lack the managerial capabilities, or institutional support required to convert these tools into productivity gains (Zavodná et al., 2024). These constraints mirror the broader finding that financial literacy, networks, and institutional access are critical "conversion factors" that determine whether additional resources translate into sustainable SME growth.

Third, spatial patterns are likely to differ from the Russian case. CEE countries are geographically more compact, with relatively dense settlement systems and commuting zones, so physical urban-rural distance may be a less decisive barrier to AI diffusion than digital and organizational divides. Evidence from CEE suggests that the main fault lines run along firm size, sector, and digital maturity rather than location per se (AI Chamber CEE, 2025). Nonetheless, owners of micro-businesses can still be structurally excluded from the benefits of AI.

Policy Recommendations for CEE governments. For CEE governments, broad-based measures that expand general adoption of AI tools can generate important spillover effects into business adoption, particularly among SMEs. Public awareness and behavioral campaigns can complement these efforts: carefully designed "nudges" that highlight the risks of inaction and the benefits of early AI adoption may shift SME behavior more cost-effectively than traditional subsidies alone (Benartzi et al., 2017).

Given that most SMEs require only limited additional technical depth to start using off-the-shelf AI solutions, policy should prioritize practical, experiential learning over purely formal education. Short, applied formats, such as SME-focused hackathons, sandbox programs, hands-on workshops and curated AI toolkits, can lower experimentation costs and help owner-managers build the organizational capabilities needed to implement AI into their business models (e.g. through targeted training, implementation support and peer learning platforms).

Limitations and Future Research: This study's sample primarily included "everyday entrepreneurs", who may be generally less innovative than high-tech SME owners. Moreover, the sample mainly consisted of micro- and small entrepreneurs who, on the one hand, may perceive less need for AI implementation in their work and, on the other hand, have fewer resources to pursue it. A study specifically focusing on high-tech SMEs and medium-sized businesses could present a different perspective on AI adoption.

The relatively small sample size and the substantial amount of missing data restricted the use of advanced analytical techniques and limited the depth of detailed analysis. Future research should address these limitations by employing larger, more diverse samples and advanced analytical tools. Specifically, a larger sample would allow for a more thorough analysis of how regional and sectoral differences, as well as particular concerns regarding AI development, influence business owners' decisions about implementing AI-based technologies in their businesses.

Finally, as our research was conducted among a group of predominantly everyday entrepreneurs, we adopted a broad definition of "implementation of AI technologies", not distinguishing between predictive and generative AI. With ongoing AI development, future research should use a more nuanced approach, differentiating between rare and partial versus consistent and complex implementations of AI, as well as between the adoption of various AI technologies.

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