
Data Privacy Protection, Perceived Financial Risk, and Trust in Artificial Intelligence as Determinants of Smart Device Brand Purchase Intention: The Moderating Role of Digital Literacy

Veljko Sinanović¹, Žaklina Spalević², Aca Jovanović³, Stefan Zdravković⁴
and Dejan Arsenijević³

¹ Accreditation Body of Montenegro, Podgorica

² Singidunum University, Belgrade, Faculty of Tourism and Hotel Management

³ Univerzitet Edukons Sremska Kamenica, Faculty for Project and Innovative Management, Belgrade

⁴ MB University Belgrade, Faculty of Business and Law

Article Information*

Research Article • UDC: 004.8:338.48

Volume: 23, Issue: 2, pages: 1–15

Received: July 19, 2026 • Accepted: September 10, 2026

<https://doi.org/10.51738/kpolisa.2026.2r.ssja>

Author Note

Veljko Sinanović  <https://orcid.org/0009-0005-3135-6880>

Žaklina Spalević  <https://orcid.org/0000-0001-8502-2038>

Aca Jovanović  <https://orcid.org/0000-0003-2284-5875>

Stefan Zdravković  <https://orcid.org/0000-0002-0047-3356>

Dejan Arsenijević  <https://orcid.org/0000-0002-0753-2638>

We have no known conflict of interest to disclose.

Corresponding author: Žaklina Spalević

E-mail: zspalevic@singidunum.ac.rs

* Cite (APA): Sinanović, V., Spalević, Ž., Jovanović, A., Zdravković, S., & Arsenijević, D. (2026). Data Privacy Protection, Perceived Financial Risk, and Trust in Artificial Intelligence as Determinants of Smart Device Brand Purchase Intention: The Moderating Role of Digital Literacy. *Kultura polisa*, 23(2), 1–15, <https://doi.org/10.51738/kpolisa.2026.2r.ssja>



Data Privacy Protection, Perceived Financial Risk, and Trust in Artificial Intelligence as Determinants of Smart Device Brand Purchase Intention: The Moderating Role of Digital Literacy

Abstract

The increasing integration of artificial intelligence into smart devices offers numerous benefits to consumers while simultaneously emphasizing the importance of the legal protection of data privacy and the security of personal information. In this context, the aim of this study is to examine the effects of perceived data privacy protection, perceived financial risk, and trust in artificial intelligence on consumers' purchase intention toward smart device brands. Furthermore, digital literacy is examined as a moderating variable in the relationships between all independent variables and purchase intention. The empirical study was conducted in Serbia in early 2026 using a structured questionnaire administered to a sample of 242 respondents. The proposed conceptual model was tested using Partial Least Squares Structural Equation Modeling (PLS-SEM) implemented in SmartPLS 4. The findings confirmed that perceived effective legal protection of data privacy and trust in artificial intelligence exert statistically significant positive effects on consumers' purchase intention toward smart device brands, whereas perceived financial risk has a statistically significant negative effect. In addition, digital literacy was found to significantly moderate the relationships between data privacy protection, perceived financial risk, and trust in artificial intelligence, on the one hand, and purchase intention toward smart device brands, on the other. This study contributes to the literature by integrating legal, economic, and technological determinants into a unified consumer behavior framework and demonstrates that the establishment of a reliable legal framework for data privacy protection represents one of the key prerequisites for fostering consumer acceptance of artificial intelligence-based products.

Keywords: Artificial Intelligence; Data Privacy Protection; Financial Risk; Digital Literacy; Smart Device Brands; Purchase Intention

Introduction

The rapid development of artificial intelligence (AI) has fundamentally transformed the global market for smart devices, reshaping the ways consumers interact with technology in their daily lives. AI-powered smartphones, smartwatches, voice assistants, smart home systems, and other connected devices increasingly incorporate advanced capabilities such as personalized recommendations, predictive analytics, facial and voice recognition, intelligent automation, and adaptive learning. These innovations enhance user experience by improving convenience, efficiency, and personalization, while simultaneously creating new opportunities for manufacturers to differentiate their products and strengthen competitive advantage (Dwivedi et al., 2021; Mariani et al., 2023; Cao et al., 2021). Consequently, understanding the factors that influence consumers' purchase intention toward AI-enabled smart device brands has become an increasingly important research topic within the fields of marketing, consumer behavior, and information systems (Gursoy et al., 2019; Chatterjee et al., 2021).

Despite the numerous benefits associated with AI integration, the widespread adoption of intelligent technologies has also generated significant concerns regarding the collection, storage, processing, and protection of consumers' personal data. More broadly, previous research indicates that the expansion of information technologies may be accompanied by new behavioral and social risks, including problematic patterns of technology use and Internet addiction (Bjelajac et al., 2022). AI-powered smart devices continuously collect large amounts of personal, behavioral, and location-based information in order to optimize their functionality and provide personalized services. Although these capabilities improve device performance and user satisfaction, they simultaneously increase concerns regarding privacy violations, unauthorized access to personal information, cyberattacks, and the potential misuse of sensitive consumer data (Smith et al., 2011; Aleisa & Renaud, 2020). The potential for malicious use of artificial narrow intelligence further indicates that AI-related risks are not limited solely to technical failures or privacy concerns. Potential misuse may include cyberattacks, mass surveillance, the dissemination of disinformation, discriminatory decision-making, and other harmful or criminal applications, further emphasizing the importance of security, accountability, and public trust in artificial intelligence-based technologies (Bjelajac et al., 2023). Consequently, consumers' perceptions of effective data privacy protection have emerged as one of the critical factors shaping trust in AI technologies and influencing their willingness to purchase smart devices (Malhotra et al., 2004; Jaspers & Pearson, 2022).

The growing importance of data privacy protection has also attracted considerable attention from legislators and policymakers worldwide. Legal frameworks such as the General Data Protection Regulation (GDPR) in the European Union and similar privacy regulations implemented in numerous countries seek to strengthen consumer confidence by establishing clear rules governing the collection, processing, and storage of personal information. Although consumers may not always possess detailed knowledge of these regulations, their perception that personal data are adequately protected can substantially reduce uncertainty and increase confidence in AI-enabled products (Dinev & Hart, 2006; Xu et al., 2012). Therefore, perceived data privacy protection represents not only a legal issue but also an important determinant of consumer behavior in increasingly digitalized markets (Barth & de Jong, 2017).

Alongside privacy concerns, perceived financial risk represents another important factor influencing consumers' purchasing decisions. Smart devices equipped with advanced AI functionalities often require substantial financial investment, making consumers more cautious when evaluating available alternatives. Financial risk may arise from concerns regarding product quality, performance uncertainty, unexpected maintenance costs, cybersecurity incidents, identity theft, subscription-based AI services, or the possibility that purchased technologies may rapidly become obsolete. The higher the perceived financial uncertainty associated with purchasing AI-enabled devices, the lower consumers' willingness to adopt such technologies (Featherman & Pavlou, 2003; Pavlou, 2003). Consequently, understanding the role of perceived financial risk remains essential for explaining consumer purchase intention within technology-intensive markets (Hasan et al., 2021).

Trust in artificial intelligence has likewise become one of the central determinants of technology adoption. Unlike conventional technologies, AI systems are capable of autonomous learning, decision-making, and continuous adaptation, characteristics that often reduce transparency and increase consumers' uncertainty regarding how these systems operate. Because most consumers possess only limited technical knowledge of AI algorithms, they frequently rely on trust when evaluating intelligent

products and services. Higher levels of trust reduce perceived uncertainty, enhance confidence in AI capabilities, and increase consumers' readiness to purchase AI-powered smart devices (Gefen et al., 2003; Choung et al., 2023; Shin, 2021). Accordingly, trust in AI has become an increasingly important construct in studies examining technology acceptance and consumer behavior (Rai, 2020).

In addition to these direct determinants, individual differences among consumers may substantially influence purchasing decisions. One of the most relevant individual characteristics in contemporary digital environments is digital literacy. Digital literacy refers to an individual's ability to effectively access, evaluate, understand, and use digital technologies and information. Consumers with higher levels of digital literacy generally possess greater confidence when interacting with advanced technologies, demonstrate stronger awareness of online privacy protection mechanisms, better understand cybersecurity risks, and more accurately evaluate the benefits and limitations of AI applications. Consequently, digitally literate consumers may perceive lower uncertainty, place greater trust in AI technologies, and respond differently to concerns regarding privacy protection and financial risk (Borgert et al., 2025; Cannizzaro et al., 2020). These arguments suggest that digital literacy may not only directly influence consumer behavior but also strengthen or weaken the relationships between the principal determinants and purchase intention.

Although previous studies have extensively investigated technology acceptance using models such as the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and related theoretical frameworks (Davis, 1989; Venkatesh et al., 2003; Venkatesh et al., 2012; Ajzen, 1991), considerably less attention has been devoted to simultaneously examining legal, economic, and technological determinants of consumers' purchase intention toward AI-enabled smart device brands. Existing research has predominantly focused on constructs such as perceived usefulness, perceived ease of use, innovativeness, social influence, or perceived enjoyment, whereas comparatively fewer studies have integrated perceived data privacy protection, perceived financial risk, and trust in AI within a unified conceptual framework. Furthermore, despite the increasing significance of digital competencies in modern society, digital literacy has only rarely been investigated as a moderating variable capable of shaping the relationships between these determinants and consumers' purchase intention.

Another important limitation of the existing literature concerns geographical context. The majority of empirical studies examining AI adoption and smart technology acceptance have been conducted in developed economies, particularly the United States, China, and Western European countries. Comparatively little empirical evidence is available from transitional economies, where institutional environments, legal systems, levels of digital transformation, and consumer perceptions may differ considerably from those observed in more developed markets. Consequently, examining these relationships within the Serbian market contributes to a broader understanding of consumer behavior under different economic and institutional conditions while extending the international literature on AI-enabled consumer technologies.

Against this background, the primary objective of this study is to examine the effects of perceived data privacy protection, perceived financial risk, and trust in artificial intelligence on consumers' purchase intention toward smart device brands. In addition, digital literacy is investigated as a moderating variable influencing the relationships between all three independent variables and purchase intention. The proposed conceptual framework integrates legal, economic, and technological perspectives into a single model explaining consumer decision-making in the context of AI-powered smart devices.

This study makes several theoretical and practical contributions. From a theoretical perspective, it enriches the existing literature by simultaneously incorporating perceived data privacy protection, perceived financial risk, and trust in AI as determinants of purchase intention while introducing digital literacy as a comprehensive moderating construct. Furthermore, by providing empirical evidence from Serbia, the study extends current knowledge regarding consumer acceptance of AI-enabled products within a transitional economy. From a practical perspective, the findings offer valuable insights for manufacturers of smart devices, technology companies, marketers, and policymakers seeking to strengthen consumer confidence through effective privacy protection, enhanced cybersecurity practices, transparent AI applications, and initiatives aimed at improving digital literacy among consumers.

The remainder of this paper is organized as follows. The next section reviews the relevant literature and develops the research hypotheses. The subsequent section describes the research methodology, including the research design, measurement instruments, data collection procedures, and analytical approach. The following section presents the empirical findings, while the discussion interprets the results in relation to previous studies and highlights their theoretical and managerial implications. Finally, the concluding section summarizes the main findings, discusses the limitations of the study, and proposes directions for future research.

Literature Review

Perceived Data Privacy Protection and Purchase Intention

The rapid expansion of artificial intelligence has considerably increased concerns regarding the collection, storage, and processing of consumers' personal information. AI-powered smart devices continuously collect user data to provide personalized services, improve functionality, and optimize user experience. Although these capabilities create substantial value for consumers, they simultaneously raise concerns regarding privacy violations, unauthorized access to personal information, and the potential misuse of sensitive data (Smith et al., 2011; Aleisa & Renaud, 2020). Consequently, perceived data privacy protection has become an important determinant of consumer behavior in digital environments. It reflects consumers' beliefs that their personal information is adequately protected through effective legal regulations, organizational practices, and technological security mechanisms (Malhotra et al., 2004; Dinev & Hart, 2006; Xu et al., 2012).

Previous studies have consistently suggested that consumers are more willing to adopt digital technologies and purchase smart products when they perceive their personal information to be secure. Effective privacy protection reduces uncertainty, strengthens trust in technology providers, and increases consumers' confidence in AI-enabled products (Pavlou, 2003; Jaspers & Pearson, 2022). In contrast, concerns regarding data breaches or privacy violations discourage consumers from purchasing products that require extensive personal data collection (Barth & de Jong, 2017). Therefore, stronger perceptions of data privacy protection are expected to positively influence consumers' purchase intention toward smart device brands (Hasan et al., 2021).

H1: Perceived data privacy protection has a positive effect on consumers' purchase intention toward smart device brands.

Perceived Financial Risk and Purchase Intention

Perceived financial risk refers to consumers' expectations of potential monetary loss or unfavorable financial consequences associated with purchasing or using a particular product. In the context of AI-powered smart devices, financial risk may arise from high purchase prices, uncertainty regarding product performance, additional costs related to software updates or subscriptions, repair and maintenance expenses, and concerns that rapidly evolving technologies may become obsolete shortly after purchase. These uncertainties may lead consumers to perceive the purchase as financially risky, thereby reducing their willingness to invest in AI-enabled products (Featherman & Pavlou, 2003; Hasan et al., 2021).

Previous studies have shown that perceived financial risk negatively influences consumers' purchase decisions across various technological products and digital services. Higher levels of financial uncertainty increase consumers' hesitation and reduce their confidence in making purchasing decisions, particularly when products involve advanced technologies that consumers may not fully understand (Pavlou, 2003; Dinev & Hart, 2006). Since AI-powered smart devices often represent a significant financial investment, consumers who perceive greater financial risk are expected to exhibit lower purchase intention (Gursoy et al., 2019; Jaspers & Pearson, 2022).

H2: Perceived financial risk has a negative effect on consumers' purchase intention toward smart device brands.

Trust in Artificial Intelligence and Purchase Intention

Trust in artificial intelligence refers to consumers' confidence that AI systems operate reliably, accurately, securely, and in accordance with their expectations. As AI-powered smart devices increasingly perform autonomous tasks, analyze personal data, and make recommendations or decisions on behalf of users, trust becomes a fundamental prerequisite for consumer acceptance. Consumers who believe that AI technologies are competent, transparent, and dependable are more likely to perceive their benefits and feel comfortable integrating them into their daily lives (Dwivedi et al., 2021; Choung et al., 2023; Shin, 2021).

Previous studies have consistently identified trust as one of the strongest determinants of technology adoption and purchase intention. Higher levels of trust reduce perceived uncertainty, alleviate concerns regarding AI decision-making, and strengthen consumers' confidence in intelligent products and services (Gefen et al., 2003; Rai, 2020). Conversely, a lack of trust may increase skepticism toward AI applications and discourage consumers from purchasing AI-enabled devices (Gursoy et al., 2019; Hasan et al., 2021). Therefore, trust in artificial intelligence is expected to positively influence consumers' purchase intention toward smart device brands (Cao et al., 2021).

H3: Trust in artificial intelligence has a positive effect on consumers' purchase intention toward smart device brands.

The Moderating Role of Digital Literacy

Digital literacy refers to an individual's ability to effectively access, understand, evaluate, and use digital technologies and information. Beyond basic technical skills, digitally literate consumers are better equipped to assess the benefits and risks associated with AI-powered technologies, recognize privacy protection mechanisms, and make informed decisions in digital environments. Consequently, digital literacy

has become an important factor influencing consumers' interactions with intelligent technologies (Dwivedi et al., 2021; Mariani et al., 2023).

Consumers with higher levels of digital literacy are more likely to understand how AI systems operate and how personal data are collected and protected, making them more responsive to effective privacy protection measures (Aleisa & Renaud, 2020; Xu et al., 2012). Likewise, digitally literate individuals are generally better able to evaluate financial risks associated with smart devices, which may reduce the negative impact of perceived financial risk on their purchase decisions (Featherman & Pavlou, 2003; Borgert et al., 2025). In addition, greater digital literacy facilitates a better understanding of AI technologies, thereby strengthening the positive influence of trust in AI on consumers' purchase intention (Shin, 2021; Choung et al., 2023; Cao et al., 2021). Accordingly, digital literacy is expected to moderate the relationships between perceived data privacy protection, perceived financial risk, trust in artificial intelligence, and purchase intention toward smart device brands (Jaspers & Pearson, 2022; Cannizzaro et al., 2020).

H4: Digital literacy positively moderates the relationship between perceived data privacy protection and consumers' purchase intention toward smart device brands, such that the positive relationship is stronger among consumers with higher levels of digital literacy.

H5: Digital literacy moderates the relationship between perceived financial risk and consumers' purchase intention toward smart device brands, such that the negative relationship becomes weaker among consumers with higher levels of digital literacy.

H6: Digital literacy positively moderates the relationship between trust in artificial intelligence and consumers' purchase intention toward smart device brands, such that the positive relationship is stronger among consumers with higher levels of digital literacy.

Based on the reviewed literature and the proposed hypotheses, a conceptual model was developed to examine the relationships among perceived data privacy protection, perceived financial risk, trust in artificial intelligence, digital literacy, and consumers' purchase intention toward smart device brands. The model proposes direct effects of the three independent variables on purchase intention, while digital literacy is expected to moderate these relationships. The proposed conceptual model is presented in Figure 1.

Research Methodology

Examples of Minority Rights in the EU:

The empirical study was conducted in Serbia during the first quarter of 2026 using a structured questionnaire administered through an online survey. The target population consisted of consumers who had previous experience using or purchasing AI-powered smart devices, such as smartphones, smartwatches, smart home devices, and other intelligent electronic products. A convenience sampling approach was employed, resulting in a final sample of 242 valid responses.

Regarding the demographic characteristics of the respondents, males accounted for 51.2% of the sample, while females represented 48.8%. The largest proportion of respondents belonged to the 21–30 age group (38.0%), followed by those aged 31–40 years (29.8%), whereas respondents older than 50 years constituted the smallest share of the sample. Most participants had completed higher education (62.8%), while the remaining respondents possessed secondary education or postgraduate qualifications. In terms of employment status, the majority of respondents were employed (58.3%), followed by students

(24.8%), whereas unemployed and retired individuals represented a considerably smaller proportion of the sample. Overall, the sample included respondents with diverse demographic characteristics, providing an appropriate basis for examining consumers' purchase intention toward AI-powered smart device brands.

Measurement Instrument

The research instrument consisted of two sections. The first section collected respondents' demographic information, including gender, age, education level, and employment status. The second section measured the constructs included in the proposed conceptual model. All measurement items were adapted from previously validated scales and modified to fit the context of AI-powered smart device brands. The questionnaire comprised five latent constructs: perceived data privacy protection (PDPP), perceived financial risk (PFR), trust in artificial intelligence (TAI), digital literacy (DL), and purchase intention (PI). Each construct was measured using three items assessed on a seven-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree").

Table 1 presents the measurement items together with the reliability statistics for each construct. Cronbach's alpha values ranged from 0.911 to 0.933, while composite reliability values varied between 0.871 and 0.922. Since all values exceeded the recommended threshold of 0.70, the measurement scales demonstrated satisfactory internal consistency and reliability (Nunnally, 1978).

Table 1: Measurement items, Cronbach's alpha, and Composite reliability for variables

Data Analysis

The proposed conceptual model was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4 software. The analysis was conducted in three stages. First, convergent validity was assessed using the Average Variance Extracted (AVE). Second, the structural model was evaluated by examining the significance of the hypothesized relationships based on path coefficients (β), t-values, and p-values. Finally, the moderating effects of digital literacy were analyzed to determine whether it influences the relationships between the independent variables and purchase intention toward AI-powered smart device brands.

Research results

Convergent validity was assessed using the Average Variance Extracted (AVE). According to the recommended criterion, AVE values should exceed 0.50 to confirm that a construct explains more than half of the variance in its indicators.

Table 2: Average variance extracted (AVE) for research variables

As presented in Table 2, the AVE values range from 0.709 to 0.778, exceeding the recommended threshold of 0.50 for all constructs (Fornell & Larcker, 1981). These results confirm satisfactory convergent validity, indicating that the measurement items adequately represent their corresponding latent variables and support the reliability of the measurement model.

The structural model was evaluated by examining the significance of the hypothesized relationships between the independent variables and consumers' purchase intention toward AI-powered smart device brands. The results of the structural model are presented in Table 3.

Table 3. Results of the Structural Model Assessment

As shown in Table 3, perceived data privacy protection has a significant positive effect on consumers' purchase intention toward AI-powered smart device brands ($\beta = 0.342$; $p < 0.001$), supporting H1. Perceived financial risk exerts a significant negative influence on purchase intention ($\beta = -0.271$; $p < 0.001$), confirming H2. Furthermore, trust in artificial intelligence demonstrates the strongest positive effect on purchase intention ($\beta = 0.418$; $p < 0.001$), providing support for H3. Overall, the findings indicate that consumers are more likely to purchase AI-powered smart device brands when they perceive a higher level of data privacy protection and have greater trust in artificial intelligence, whereas higher perceived financial risk reduces their purchase intention.

The moderating role of digital literacy was examined by assessing the interaction effects between the independent variables and consumers' purchase intention toward AI-powered smart device brands. The results of the moderation analysis are presented in Table 4.

Table 4. Results of the Moderating Effects

As presented in Table 4, digital literacy significantly moderates the relationship between perceived data privacy protection and purchase intention ($\beta = 0.184$; $p = 0.006$), providing support for H4. This finding suggests that the positive effect of perceived data privacy protection on purchase intention becomes stronger among consumers with higher levels of digital literacy. Furthermore, digital literacy positively moderates the relationship between perceived financial risk and purchase intention ($\beta = 0.163$; $p = 0.016$), supporting H5. This positive interaction indicates that higher digital literacy mitigates the negative impact of perceived financial risk on consumers' purchase intention. Finally, the moderating effect of digital literacy on the relationship between trust in artificial intelligence and purchase intention is also positive and statistically significant ($\beta = 0.212$; $p = 0.002$), confirming H6. Overall, the results demonstrate that digital literacy strengthens the positive effects of data privacy protection and trust in artificial intelligence while reducing the adverse influence of perceived financial risk on consumers' intention to purchase AI-powered smart device brands.

Discussion

The findings of this study provide empirical evidence that perceived data privacy protection, perceived financial risk, and trust in artificial intelligence are significant determinants of consumers' purchase intention toward AI-powered smart device brands. Among these factors, trust in artificial intelligence emerged as the strongest positive predictor, highlighting the growing importance of consumers' confidence in AI technologies when evaluating smart devices. This finding is consistent with previous studies emphasizing that trust represents one of the most important drivers of AI acceptance and technology adoption (Gefen et al., 2003; Choung et al., 2023; Shin, 2021). It also suggests that manufacturers should prioritize the reliability, transparency, and accuracy of AI-powered functions to enhance consumers' willingness to purchase (Dwivedi et al., 2021; Gursoy et al., 2019).

The positive effect of perceived data privacy protection indicates that consumers are more inclined to purchase AI-powered smart devices when they believe that their personal information is adequately protected. Given the increasing amount of personal data collected by intelligent devices, privacy protection has become an important factor influencing purchasing decisions. This finding supports previous research demonstrating that effective privacy protection enhances consumer confidence and facilitates technology adoption (Malhotra et al., 2004; Dinev & Hart, 2006; Jaspers & Pearson, 2022). Conversely, perceived financial risk negatively affects purchase intention, suggesting that concerns regarding product costs,

potential financial losses, and uncertainty discourage consumers from purchasing AI-powered smart devices. This result is consistent with prior studies emphasizing the detrimental influence of perceived financial risk on consumers' willingness to adopt innovative technologies (Featherman & Pavlou, 2003; Pavlou, 2003; Hasan et al., 2021).

The results also confirm the moderating role of digital literacy. Specifically, higher levels of digital literacy strengthen the positive effects of perceived data privacy protection and trust in artificial intelligence while weakening the negative influence of perceived financial risk on purchase intention. Consumers with greater digital knowledge and skills appear to better understand AI technologies, evaluate potential risks more accurately, and recognize the benefits of AI-powered products. These findings are consistent with previous studies suggesting that digital competencies improve consumers' ability to evaluate AI technologies, privacy protection mechanisms, and technology-related risks (Cannizzaro et al., 2020; Borgert et al., 2025; Cao et al., 2021).

From a managerial perspective, companies should invest in robust data privacy mechanisms, communicate security practices transparently, and develop trustworthy AI solutions that enhance consumers' confidence. At the same time, educational initiatives aimed at improving digital literacy may contribute to reducing perceived risks and increasing consumers' acceptance of AI-powered smart device brands, thereby supporting the broader diffusion of AI technologies in consumer markets (Mariani et al., 2023; Chatterjee et al., 2021).

Conclusion

This study examined the effects of perceived data privacy protection, perceived financial risk, and trust in artificial intelligence on consumers' purchase intention toward AI-powered smart device brands, while also investigating the moderating role of digital literacy. The empirical findings confirmed that perceived data privacy protection and trust in artificial intelligence positively influence purchase intention, whereas perceived financial risk has a negative effect. In addition, digital literacy significantly moderates all proposed relationships, strengthening the positive effects of data privacy protection and trust in artificial intelligence while mitigating the negative impact of perceived financial risk.

The study contributes to the literature by integrating technological, security, financial, and consumer competency perspectives into a single conceptual framework. It also extends previous research by demonstrating that digital literacy not only directly supports technology adoption but also shapes the extent to which consumers respond to privacy protection, financial risk, and trust in artificial intelligence.

The findings offer practical implications for managers, suggesting that organizations should enhance data privacy protection, develop reliable AI functionalities, and promote transparent communication regarding the use of artificial intelligence. Furthermore, initiatives aimed at improving consumers' digital literacy may facilitate the adoption of AI-powered smart devices and strengthen consumer confidence in emerging technologies.

Despite its contributions, this study has several limitations. The research was conducted using a convenience sample of consumers in Serbia, which may limit the generalizability of the findings to other countries and cultural contexts. Future studies could employ probability sampling techniques, include cross-country comparisons, and examine additional determinants, such as perceived usefulness, perceived ease of use, or ethical concerns related to artificial intelligence, to further explain consumers' purchase intention toward AI-powered smart device brands.

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Attachment

Table 1: Measurement items, Cronbach's alpha, and Composite reliability for variables

Variables	Statements	Cronbach's alpha	Composite Reliability
Perceived Data Privacy Protection (PDPP)	1. I believe that my personal data are adequately protected when using AI-powered smart devices. 2. I trust that manufacturers of AI-powered smart devices implement effective measures to protect users' personal information. 3. I believe that existing legal regulations provide sufficient protection for my personal data when using AI-powered smart devices.	0.933	0.921
Perceived Financial Risk (PFR)	1. Purchasing AI-powered smart devices involves a considerable financial risk. 2. I am concerned that buying an AI-powered smart device may result in unexpected financial losses. 3. The high cost of AI-powered smart devices makes me hesitant to purchase them.	0.918	0.922
Trust in Artificial Intelligence (TAI)	1. I trust AI technologies integrated into smart devices. 2. I believe that AI-powered smart devices operate reliably and accurately. 3. I feel confident using smart devices that rely on artificial intelligence.	0.912	0.889
Digital Literacy (DL)	1. I have the knowledge and skills necessary to effectively use AI-powered smart devices. 2. I can easily understand the functions and capabilities of AI technologies used in smart devices. 3. I feel confident evaluating the benefits and risks associated with AI-powered smart devices.	0.924	0.871
Purchase Intention (PI)	1. I intend to purchase AI-powered smart device brands in the future. 2. I would consider purchasing AI-powered smart devices when making my next purchase decision. 3. I am likely to choose a smart device brand that incorporates artificial intelligence.	0.911	0.901

Table 2: Average variance extracted (AVE) for research variables

Research variables	Average Variance Extracted (AVE)
Perceived Data Privacy Protection (PDPP)	0.709
Perceived Financial Risk (PFR)	0.714
Trust in Artificial Intelligence (TAI)	0.711
Digital Literacy (DL)	0.778
Purchase Intention (PI)	0.752

Source: Auhtors

Table 3. Results of the Structural Model Assessment

Hypothesis	Structural Path	β	t-value	p-value	Decision
H1	PDPP $\rightarrow$ PI	0.342	5.214	<0.001	Supported
H2	PFR $\rightarrow$ PI	-0.271	4.386	<0.001	Supported
H3	TAI $\rightarrow$ PI	0.418	6.753	<0.001	Supported
Hypothesis	Structural Path	β	t-value	p-value	Decision
H1	PDPP $\rightarrow$ PI	0.342	5.214	<0.001	Supported

Source: Auhtors

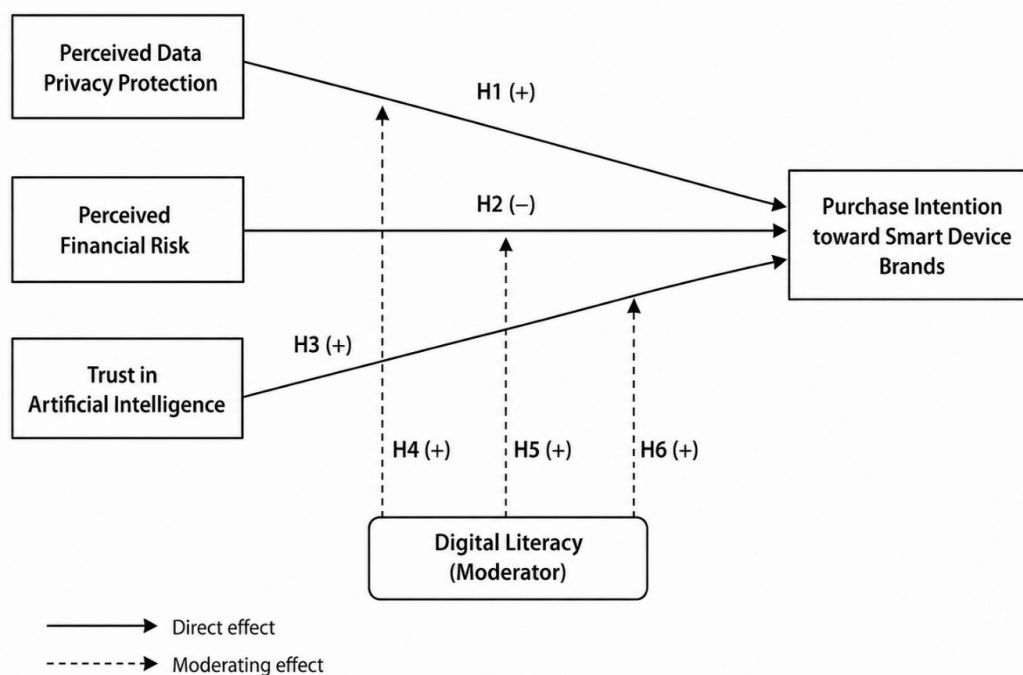
Table 4. Results of the Moderating Effects

Hypothesis	Moderating Effect	β	t-value	p-value	Decision
H4	PDPP $\times$ DL $\rightarrow$ PI	0.184	2.765	0.006	Supported
H5	PFR $\times$ DL $\rightarrow$ PI	0.163	2.418	0.016	Supported
H6	TAI $\times$ DL $\rightarrow$ PI	0.212	3.184	0.002	Supported
Hypothesis	Moderating Effect	β	t-value	p-value	Decision
H4	PDPP $\times$ DL $\rightarrow$ PI	0.184	2.765	0.006	Supported

Source: Auhtors

Figure 1.

Research model



Zaštita privatnosti podataka, percipirani finansijski rizik i poverenje u veštačku inteligenciju kao determinante namere kupovine brendova pametnih uređaja: Moderirajuća uloga digitalne pismenosti

Veljko Sinanović, Žaklina Spalević², Aca Jovanović³, Stefan Zdravković⁴ i Dejan Arsenijević³

¹Akreditaciono telo Crne Gore, Podgorica

²Univerzitet Singidunum Beograd, Fakultet za turistički i hotelijerski menadžment

³Univerzitet Edukons Sremska Kamenica, Fakultet za projektni i inovacioni menadžment Beograd,

⁴MB Univerzitet Beograd, Poslovni i pravni fakultet

Sažetak

Sve intenzivnija primena veštačke inteligencije u pametnim uređajima donosi brojne koristi potrošačima, ali istovremeno povećava značaj pravne zaštite privatnosti podataka i sigurnosti njihovih ličnih informacija. U tom kontekstu, cilj ovog rada je da ispita uticaj percepcije zaštite privatnosti podataka, percipiranog finansijskog rizika i poverenja u veštačku inteligenciju u nameri kupovine brendova pametnih uređaja. Pored toga, digitalna pismenost analizirana je kao moderirajuća varijabla u odnosima između svih nezavisnih varijabli i namere kupovine. Empirijsko istraživanje sprovedeno je u Srbiji početkom 2026. godine na uzorku od 242 ispitanika primenom strukturisanog upitnika. Za testiranje predloženog konceptualnog modela korišćen je parcijalni model strukturnih jednačina (PLS-SEM) u softveru SmartPLS 4. Rezultati istraživanja potvrdili su da percepcija efikasne pravne zaštite privatnosti podataka i poverenje u veštačku inteligenciju ostvaruju statistički značajan pozitivan uticaj na nameru kupovine brendova pametnih uređaja, dok percipirani finansijski rizik ima statistički značajan negativan uticaj. Takođe, potvrđeno je da digitalna pismenost značajno moderira odnose između zaštite privatnosti podataka, percipiranog finansijskog rizika i poverenja u veštačku inteligenciju, s jedne strane i namere kupovine brendova pametnih uređaja s druge strane. Rad daje doprinos kroz integrisanje pravnih, ekonomskih i tehnoloških determinanti u jedinstven model ponašanja potrošača i ukazuje da razvoj pouzdanog pravnog okvira za zaštitu privatnosti podataka, što predstavlja jedan od ključnih preduslova za prihvatanje proizvoda zasnovanih na veštačkoj inteligenciji.

Ključne reči: Veštačka inteligencija; zaštita privatnosti podataka; percipirani finansijski rizik; digitalna pismenost; brendovi pametnih uređaja; namera kupovine.