

## Exploring the association between cultural values and the intention to use digital data wallets

Varvara Keba<sup>a,\*</sup>, Tiago Oliveira<sup>a</sup>, Melanie Trabant<sup>b</sup>

<sup>a</sup> NOVA Information Management School (NOVA IMS), Universidade Nova de Lisboa, Lisbon, Portugal

<sup>b</sup> Department of Marketing, Audencia Business School, Nantes, France

### ARTICLE INFO

#### Keywords:

Digital data wallets  
Culture  
Cultural values  
Privacy calculus  
Privacy-enhancing technologies

### ABSTRACT

Privacy protection remains a significant topic for both researchers and practitioners. We developed a model to examine the intention to use digital data wallets – new privacy-enhancing tools based on the privacy calculus theory and Hofstede's cultural values. We collected 1800 responses from three European countries – Austria, Romania, and Spain to test the model. The main findings suggest that three out of five cultural values are associated with the intention to use digital data wallets, specifically power distance, collectivism, and uncertainty avoidance. This study offers valuable recommendations for establishing strong relationships with digital data wallet users and providers.

### 1. Introduction

Online data privacy is a major concern for researchers and practitioners. A recent survey determined that 80 % of adults worldwide express significant concerns regarding their data privacy (Roundy, 2022). As a result, 85 % of adults are eager to take further steps to protect their online privacy. Nevertheless, a considerable 51 % of adults admit to lacking the knowledge necessary for protecting their data online effectively. Despite the availability of various privacy-enhancing methods and technologies, their adoption among individuals remains low (European Union Agency for Cybersecurity, 2019; Hansen et al., 2016).

Digital data wallet solutions securely and conveniently store and share personal data, empowering users to become active actors of their online privacy (European Commission, 2023; SOTERIA, 2023). Nowadays, consumers conduct billions of commercial transactions annually; as a result, personally identifiable information is currently more accessible than it has been in the past ten years (Li et al., 2019). Many people who use smart gadgets are unaware that their data are being collected and stolen (Alhelaly et al., 2021). Hence, there is a necessity for a secure and privacy-oriented alternative to current physical and digital identity management systems (Sedlmeir et al., 2021). Bélanger and Crossler (2011) mentioned, "research on information privacy tools and technologies typically presents and/or evaluates artifacts or technological solutions for dealing with information privacy protection" (p. 1022). For example, Bosk et al. (2022) introduced a technical solution for depreciating shared data

and maintaining control over shared data through identity management systems.

Privacy is regarded as a fundamental human right and a crucial component of modern society (Lee et al., 2020). The lack of control over personal information gives rise to significant privacy concerns. However, specific circumstances, such as gaining meaningful benefits, are often associated with a greater likelihood of individuals sharing personal information (Cheng et al., 2021; Albashrawi and Motiwalla, 2019). According to the privacy calculus theory, people weigh the risks and benefits of providing their data, which is associated with their adoption intention and subsequent actions related to disclosing information (Culnan and Armstrong, 1999; Dinev and Hart, 2006; Adjerid et al., 2018). Previous research has provided insights into the diverse perceptions of privacy risks and benefits in various contexts (e.g., Wu et al., 2023; Fox et al., 2022; Cheng et al., 2021). However, there is limited research examining the association of cultural factors with privacy calculus behavior at the individual level. Zhang et al. (2018) emphasize the importance of examining the relationship between cultural factors and privacy concerns within health communities. Yang et al. (2020) analyzed self-disclosure in mobile payment applications, emphasizing that cultural differences may be associated with individuals' privacy behaviors.

According to the literature, individuals' perceptions of information privacy and privacy-related behaviors can be shaped by various cultural backgrounds and value systems (Bélanger and Crossler, 2011; Dinev,

\* Corresponding author.

E-mail addresses: [vkeba@novaims.unl.pt](mailto:vkeba@novaims.unl.pt) (V. Keba), [toliveira@novaims.unl.pt](mailto:toliveira@novaims.unl.pt) (T. Oliveira), [mtrabant@audencia.com](mailto:mtrabant@audencia.com) (M. Trabant).

2014). Culture has been primarily studied at the national level to examine differences in privacy concerns across various contexts, including e-commerce use (Dinev et al., 2006), self-disclosure technologies (Lowry et al., 2011), and government surveillance (Thompson et al., 2020). Despite being a macro-level phenomenon, national culture cannot entirely explain individual behavior (Srite and Karahanna, 2006). Recent studies adopted Hofstede's cultural values at the individual level to examine different individual behaviors (Hoehle et al., 2015; Ali et al., 2018; Tam and Oliveira, 2019).

In line with recent studies, we conceptualized cultural values at the individual level using Hofstede's cultural values (Hofstede and Bond, 1988). These dimensions have been frequently used in previous studies. Specifically, the study aims to explore the associations between Hofstede's cultural values and privacy calculus behavior, examining the direct and moderating relationships of cultural values with the intention to use digital data wallets. The study's primary research objectives are to explore the association between privacy calculus and the intention to use digital data wallets, as well as the associations of cultural values with privacy calculus and the intention to use digital data wallets. We developed and tested a model to examine the intention to use digital data wallets based on the privacy calculus theory (Laufer and Wolfe, 1977; Dinev and Hart, 2006) and Hofstede's cultural dimensions.

The study contributes to cross-cultural research in information systems (IS) by examining the association between cultural values and privacy calculus behavior at the individual level. Specifically, by taking a behavioral perspective, we complement prior works that have predominantly focused on technological solutions for privacy (Bélanger and Crossler, 2011). Our findings can help service providers and organizations understand the association between individuals' privacy calculus behavior and cultural values and their intention to use digital data wallets. These can, in turn, help to create several consumer-targeted strategies to improve digital data wallet adoption.

## 2. Literature review

### 2.1. Digital data wallet adoption

Digital data wallets are advanced personal data management platforms that enable users to securely and conveniently store and share their personal data (European Commission, 2023; SOTERIA, 2023). The primary objective of digital data wallets is to provide secure access to online services and inform users about the risks associated with information sharing, empowering them to become active participants in their online privacy. This technology is designed to reduce unnecessary processing of personal information by giving users the choice to limit the information they disclose, which aligns with the core principles of privacy-enhancing technologies outlined by Fischer-Hbner and Berthold (2017). Privacy-enhancing technologies are designed to minimize the processing of personal information by restricting the amount of information shared or exposed (Fischer-Hbner and Berthold, 2017). Hence, digital data wallets can be considered advanced privacy-enhancing technologies. In IS literature, few studies have examined the adoption of privacy-enhancing technologies at the individual level. Most research has evaluated a technical solution for handling information privacy protection (Bélanger and Crossler, 2011). Consequently, while most privacy-enhancing technologies are effective, users often consider them inconvenient, which leads to a lower adoption (Ashuri, 2024; Zou et al., 2020).

Most studies on privacy technology underlined that user-friendliness is one of the key factors for adoption, highlighting the importance of including users' needs and requirements (Ashuri, 2024; Kaaniche et al., 2020). While analyzing the usage of privacy-enhancing technologies, Coopamootoo, (2020) found that users do not understand the benefits of using advanced privacy-enhancing technologies. Zou et al. (2020) identified low perceived value as a common reason for rejecting privacy and security protection practices. Hence, users often overlook the

benefits of adopting these practices. In high-risk situations, individuals primarily adopt privacy-enhancing technologies (Zou et al., 2020). For instance, Lucier et al. (2023) found that using privacy-enhancing technology together with mobile identification reduced perceived risks. However, potential users could perceive various risks associated with using privacy-enhancing technologies, such as digital data wallets. Digital data wallets are designed to involve users in active privacy management. While assessing the benefits and risks of this technology, potential users should weigh the perceived benefits of data control against potential risks, such as data loss. In comparison to other contexts, a user should make more privacy-related decisions. This aspect underscores the need to examine users' perceptions of both benefits and risks to better understand their intention to use digital data wallets.

### 2.1. Privacy calculus theory

Privacy is a core principle in modern society and a fundamental individual right (Lee et al., 2020). In the IS literature, privacy is often related to information privacy. Bélanger and Crossler (2011) found several definitions of information privacy. Stone et al. (1983), for example, defined information privacy as the ability of the individual to control personal information about themselves. Culnan and Bies (2003) referred to information privacy as the ability of individuals to control the terms under which their personal information is acquired and used. Dinev et al. (2013) defined information privacy as the state where external parties have limited access to personal information. Most definitions include a form of control over the use of personal information (Bélanger and Crossler, 2011).

Individual privacy is becoming increasingly crucial, yet individuals may share some personal information under certain circumstances, such as gaining meaningful benefits (Cheng et al., 2021). Albashrawi and Motiwalla (2019) pointed out that the lack of control over personal information results in high privacy risks. Privacy calculus theory explain individuals' privacy risks and their behavior regarding the adoption of specific technologies.

Laufer and Wolfe (1977) established the concept of privacy calculus, which holds that privacy can be exchanged for other goods or specific advantages as an economic good or service. According to the privacy calculus perspective, users' privacy decisions are driven by a systematic weighing of the advantages of information disclosures against the perceived privacy risks of such disclosures (Culnan and Armstrong, 1999; Dinev and Hart, 2006; Adjerid et al., 2018). Thus, the potential gain of information disclosure and the expected loss from a potential privacy breach can influence individuals' adoption intentions and actions (Zhang et al., 2018). Individuals do not seek ultimate privacy but are willing to give up some of it in exchange for benefits that come with information sharing (Cichy et al., 2021).

The privacy calculus theory is currently frequently used to examine individuals' behavior in a variety of contexts, including the sharing economy (Teubner and Flath, 2019; Cheng et al., 2021), social networking sites (Choi et al., 2018; Tang and Ning, 2023), and e-commerce (Gutierrez et al., 2019; Gouthier et al., 2022). Table 1 summarizes recent studies from 2019 to 2023 that adopted the privacy calculus theory.

Individuals commonly prioritized benefits over perceived risks or privacy concerns, confirming calculus behavior. Hence, perceived benefits have a more decisive influence on adoption behavior in comparison to perceived risks. However, perceived risks or privacy concerns are still negatively associated with the adoption intention, even though to a lesser degree. Most studies focus on identifying antecedents of privacy calculus and adoption intention (Li, 2012; Seo et al., 2022). The literature provides rich insight into different perceptions of privacy risks and benefits in various online contexts. However, most of the studies are focused on certain nations and cultures, which is a limitation of research on this topic. Different cultures and values are associated with variations in individuals' perceptions of information privacy and related concerns

**Table 1**  
Recent studies adopting privacy calculus theory.

Source	Theory	Main findings	Country	Research context
Wu et al. (2023)	Privacy calculus theory, systematic-heuristic model	Previous privacy disclosures and invasions can be directly linked to information disclosure intentions or through the lens of the privacy calculus.	China	Mobile news app, online video platform
Yin and Hsu (2023)	Privacy calculus theory, appraisal tendency framework	Consumers' decisions to continue using services are significantly associated with privacy and emotions.	China	Augmented reality-based services
Duan and Deng (2022)	Privacy calculus theory, APCO	Perceived benefit, perceived risk, and trust are key determinants of adoption intention.	Australia	Contact tracing app
Fox et al. (2022)	Privacy calculus theory, social contract theory	Perceived privacy and reciprocal benefits are essential drivers influencing adoption and information disclosure among users and non-users.	Brazil	Mobile contact tracing applications
Karwatzki et al. (2022)	Privacy calculus theory	The study conceptualized privacy risks on physical, social, resource-related, psychological, prosecution-related, career-related, and freedom-related risk levels.	United States	Digital services
Lavado-Nalvaiz et al. (2022)	Privacy calculus theory, humanization	The results confirmed the personalization-privacy paradox and found a positive association with humanization on benefits.	United States	Smart home speakers
Lee et al. (2022)	Privacy calculus theory, institutional theory	Perceived benefits and government pressure are the strongest predictors of personal information disclosure behavior. Differences between countries were not significant.	South Korea, United States, United Kingdom	Contact tracing in restaurants
Shin et al. (2022)	Privacy calculus theory	Algorithm awareness is associated with individuals' trust in algorithmic processes and how users assess privacy and self-disclosures.	South Korea	Algorithmic platforms
Tronnier et al. (2022)	Privacy calculus, ACPO	Multiple antecedents are associated with privacy concerns. Soft trust factors and self-efficacy are negatively associated with privacy concerns.	Germany	Digital euro
Chatterjee et al. (2021)	Privacy calculus theory, motivational theory	Privacy and security concerns are negatively associated with attitude. It was also found that few people are aware of the legal implications.	India	Domestic robots
Cheng et al. (2021)	Privacy calculus theory, coping theory	Perceived benefits (convenience, safety) were considered a priority by individuals.	China	Ridesharing platform
Cheng, Hou, et al. (2021)	Privacy calculus theory, gratification	Immediate gratification significantly predicts perceived benefits and personal information privacy disclosure.	Not indicated	IT-enabled ridesharing
Fox et al. (2021)	Privacy calculus theory, social exchange theory	Perceived benefits and social aspects are associated with initial acceptance of contact tracing mobile applications. Privacy concerns are weakly but negatively associated with the willingness to rely on applications.	Ireland	Contact tracing mobile applications
Vimalkumar et al. (2021)	Privacy calculus theory, UTAUT 2	Perceived privacy risk was not directly associated with adoption intention, unlike perceived trust and technology acceptance factors.	India	Location-based services
Fox (2020)	Privacy calculus	Individuals prioritized benefits over privacy concerns, yet expressed a strong desire for privacy.	United States, Ireland	Health technologies
Yang et al. (2020)	Privacy calculus theory, control agency theory	Consumers build a sense of value and psychological comfort if they believe that disclosing personal information results in receiving benefits, which facilitates self-disclosure. Thus, potential privacy risks will be negatively associated with self-disclosure.	China	Mobile payment application
Esmailzadeh (2019)	Privacy calculus theory	Consumers are more likely to approve using health information exchanges for research if there is a reasonable amount of risk in exchange for the benefits of electronic data sharing (both personal and societal).	United States	Health Information Exchanges
Gutierrez et al. (2019)	Privacy calculus theory	The findings supported the significance of internet privacy concerns as an essential factor. It is also indicated that monetary rewards and intrusiveness are strongly associated with acceptance intention.	United Kingdom	Mobile location-based advertising
Kim et al. (2019)	Privacy calculus theory	When providing information for a personalized service, individuals often overlook the perceived privacy risks. However, only in healthcare services is the perceived privacy risk high.	United States	Internet of Things
Shaw and Sergueeva (2019)	Privacy calculus theory, UTAUT 2	Both perceived privacy concerns and performance expectancy are significantly associated with perceived value.	Canada	Mobile commerce

Notes: APCO - Antecedent-privacy concern-outcome framework, UTAUT 2 - Unified theory of acceptance and use of technology 2

(Bélanger and Crossler, 2011; Pavlou, 2011; Dinev, 2014). There is, though, a need to explore the association of cultural factors with privacy calculus behavior further (Zhang et al., 2018; Yuan et al., 2023; Karwatzki et al., 2017).

## 2.2. Culture

People's beliefs about how individuals behave and how they relate to reality are shaped by culture (Aparicio et al., 2016). Hofstede (1984) defined culture as the collective programming of the mind that distinguishes the members of one human group from another. Regardless of the diversity of the definitions, all the concepts have a central idea; specifically, culture is the total amount of values, beliefs, perceptions, and customs shared by a society (Tam and Oliveira, 2019). Although culture is considered a macro-level phenomenon, it cannot fully explain individual behavior (Srite and Karahanna, 2006) since other factors, for example, ethnic, religious, and various other social groups, also influence individuals' values and beliefs (Straub et al., 2002). Hence, the analysis of culture can be thought of as an individual difference variable

at the individual level.

We adopted Hofstede's cultural values, considered one of the most significant and influential theories of national culture in the literature in this study (Baptista and Oliveira, 2015; Khan et al., 2020). Table 2 presents the description of five of Hofstede's cultural values.

Previous IS research has examined the association of one or more of Hofstede's cultural values and technology usage at the individual level. For example, Tam and Oliveira (2019) examined the involvement of cultural values in m-banking use and individual performance. Their findings highlighted that individualism and uncertainty avoidance are significantly associated with users' beliefs and behaviors. Baptista and Oliveira (2015) combined the unified theory of acceptance and use of technology 2 (Venkatesh et al., 2012) with cultural values to understand mobile banking adoption. Ali et al. (2018) adopted Hofstede's cultural values to investigate the relationship between e-government development and the digital economy. The results indicate that long-term orientation is a significant factor in explaining e-government. Hence, cultural values are personally embraced, and the difference between values can be noticed within a country. Based on the results of previous

**Table 2**  
Description of Hofstede’s Cultural Values.

Values	Description	Source
Power distance	The degree to which inequality of power is accepted.	Chen and Zahedi (2016); Hofstede et al. (2005)
Collectivism/ Individualism	The degree to which an individual belongs to and expects care from groups that require their loyalty in return, as compared to an individual taking care of themselves.	Chen and Zahedi (2016); Hofstede et al. (2005)
Masculinity/ Femininity	The degree to which an individual’s values align with traditional masculine or feminine traits. An individual with masculine-oriented values emphasizes competitiveness, performance, and assertiveness. In contrast, an individual with feminine-oriented values prioritizes a friendly atmosphere, a comfortable work environment, and quality of life.	Srite and Karahanna, (2006); Hofstede et al. (2005)
Uncertainty avoidance	The degree to which people feel threatened by uncertainty and ambiguous situations.	Chen and Zahedi (2016); Hofstede et al. (2005)
Long-/Short-term orientation	The degree to which society prioritizes future-oriented values and deals with its past and present values.	Baptista and Oliveira (2015); Hofstede and Bond (1988)

studies, we expect that individuals’ cultural values can significantly associate with the adoption of digital data wallets.

### 3. Research model

Building our research on the well-established privacy calculus theory, we expect that perceived risks and perceived benefits are expected to be associated with the intention to use digital data wallets. Previous studies found that potential users do not fully understand the benefits of using technologies such as digital data wallets (Coopamootoo, 2020). Hence, in the context of digital data wallet adoption, it is likely that potential users consider both tangible benefits, for example, enhanced control over shared data and access to services, against risks, for instance, concerns about system reliability and data misuse. Thus, privacy calculus is well-suited to examine the adoption choice, because it reflects the nuanced cost-benefit evaluation users undertake, even when their privacy is protected rather than compromised.

We also suggest that cultural values are associated with the intention to use and expected to moderate the relationship between privacy calculus and the intention to use digital data wallets. Specifically, power distance, collectivism, masculinity, uncertainty avoidance, and long-term orientation are associated with the intention to use digital data wallets, and their relationship with perceived risks and benefits is moderated. Fig. 1 presents the research model.

The perception of risks is the possibility that the actions of another party will have unfavorable results and cause losses (Fox and James, 2021). Digital data wallets are tools that protect users’ privacy online. However, to use the tool, individuals must provide personal data. While providing personal information, users will assess the potential risks and their ability to address them. Thus, users’ perception of risks appears to

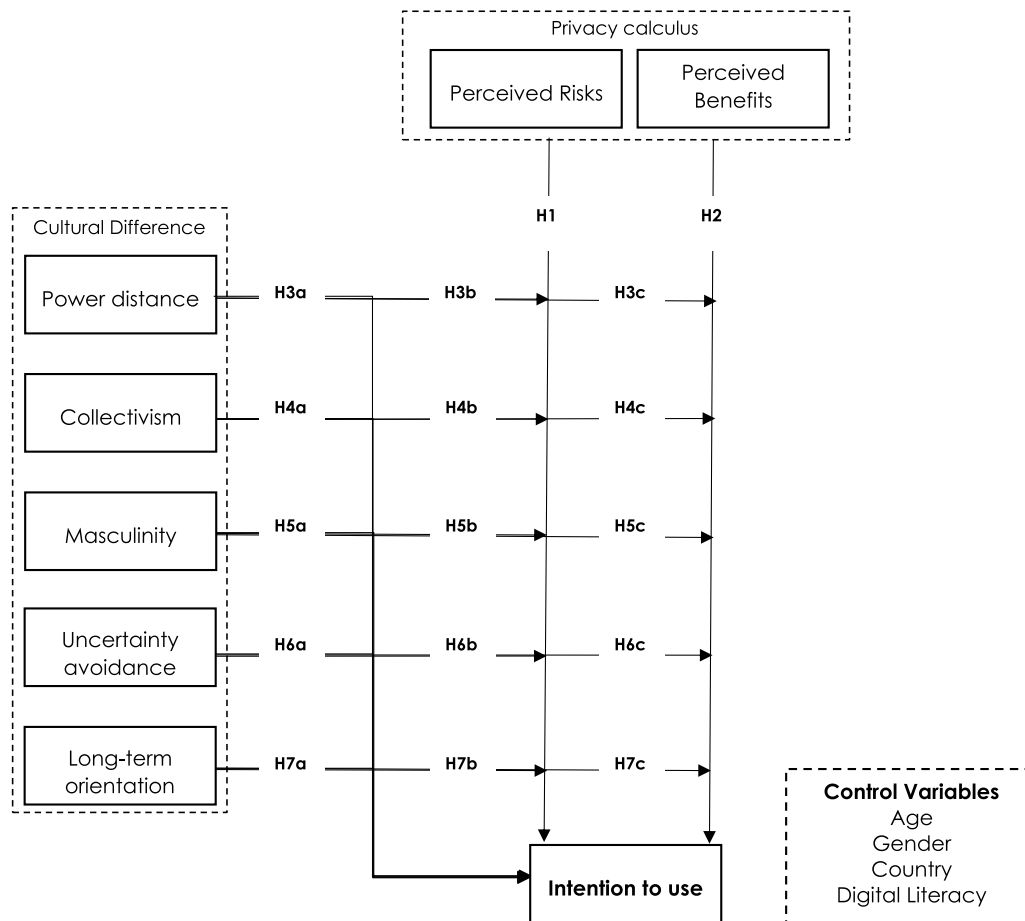


Fig. 1. Research model.

be linked to a lower intention to use digital data wallets. Hence, we hypothesize:

**H1:** Perceived risks will be negatively associated with the intention to use digital data wallets.

Perceived benefits are the notion that using technology would positively correlate with users' performance (Duan and Deng, 2022). According to the privacy calculus theory, perceived benefits are positively associated with the outcome behavior (Laufer and Wolfe, 1977). The advantages of using a tool should be substantial and applicable to users (Fox, 2020). The main benefit of using digital data wallets is the ability to control digital privacy while sharing personal information online. Therefore, we suggest that if individuals understand the benefits of using digital data wallets, they are more likely to report an intention to use the platforms. Hence, we hypothesize:

**H2:** Perceived benefits will be positively associated with the intention to use digital data wallets.

Power distance is the extent to which less powerful individuals accept unequal power distribution in a society (Chen and Zahedi, 2016; Hofstede et al., 2005). It implies that both the leaders and followers support a society's level of inequality (Hofstede, 2011). While individuals with high power distance values generally trust hierarchical systems, they also have a more pronounced need for security and privacy (Schumacher et al., 2023). Digital data wallets are tools that enable individuals to control their privacy online. These platforms may align with individuals' privacy needs, especially those who prioritize power distance values. We suggest that higher power distance values are associated with greater intention to adopt digital data wallets. Moreover, digital data wallets may align with individuals' needs for privacy, particularly when such tools are endorsed by trusted authorities, especially in cultures with high power distance values. Therefore, we suggest that individuals with high power distance values may place greater emphasis on the benefits of privacy protection provided by digital data wallets. Hence, the association between perceived risks and the intention to use digital data wallets is expected to be weaker among individuals with higher power distance values. Moreover, to use digital data wallets, potential users should upload their personal data. Individuals with high power distance values tend to report fewer concerns about the distribution of sensitive information (Lowry et al., 2011). Therefore, they are more likely to emphasize the perceived benefits of digital data wallets rather than the risks. Hence, we hypothesize:

**H3a:** Power distance will be positively associated with the intention to use digital data wallets.

**H3b:** Power distance is expected to moderate the relationship between perceived risks and the intention to use digital data wallets such that the association is weaker amongst people with higher power distance cultural values.

**H3c:** Power distance is expected to moderate the relationship between perceived benefits and the intention to use digital data wallets such that the association is stronger amongst people with higher power distance cultural values.

Collectivism is a cultural value that expresses a tendency towards a close-knit social structure in which people view the group as the central unit (Tam and Oliveira, 2017). People in collectivistic cultures prioritize the goals of the collective, whereas people in individualistic cultures are primarily guided by personal goals (Srite and Karahanna, 2006). Therefore, individualists may be more inclined to use digital data wallets to focus on personalized objectives. Nevertheless, digital data wallets may fit with a shared norm of privacy protection because members are particularly concerned about potential privacy threats to their collective (Thompson et al., 2020). We suggest that collectivism is associated with a greater intention to use digital data wallets. Moreover, collectivistic beliefs are associated with the perception that activities benefiting society are justified. These individuals may accept personal risk if the group benefits align with shared values, such as collective privacy protection. Hence, individuals with strong collectivistic values tend to report lower attention to risks. Therefore, if digital data wallets

are perceived as new privacy-enhancing tools that promote privacy protection for society, the association between perceived risks and the intention to use is expected to be weaker among individuals with higher collectivism. Moreover, digital data wallets are a new approach to privacy protection. Therefore, if digital data wallets comply with a common standard of privacy protection, the association between perceived benefits and the intention to use them is expected to be stronger among individuals with collectivist cultural values. Hence, we hypothesize:

**H4a:** Collectivism will be positively associated with the intention to use digital data wallets.

**H4b:** Collectivism is expected to moderate the relationship between perceived risks and the intention to use digital data wallets such that the association is weaker among people with collectivist cultural values.

**H4c:** Collectivism is expected to moderate the relationship between perceived benefits and the intention to use digital data wallets such that the association is stronger among people with collectivist cultural values.

Masculinity/Femininity refers to psychological gender expressed by a society or an individual rather than physical characteristics (Srite and Karahanna, 2006). Masculine values are espoused by assertiveness, competitiveness, and maximality (Hofstede, 2011). Modesty and caring are considered feminine values. Perceived benefits of digital data wallets are related to the system's performance, which is more connected to goal achievement and advancement. Such characteristics are highly related to masculine values (Srite and Karahanna, 2006). Individuals with masculine values tend to place greater emphasis on system performance and achievements. Therefore, they may be motivated to use digital data wallets with the aim of increasing their profit. We suggest that higher masculinity values are associated with a greater intention to adopt digital data wallets. Additionally, individuals with masculine values tend to focus more on the benefits of the platforms. Perceived benefits are the extent to which using technology will be positively associated with users' performance (Duan and Deng, 2022). Individuals with masculine values tend to focus more on the potential benefits of using a platform. Therefore, potential risks may be less strongly associated with their decision to use digital data wallets less. Perceived risks are the potential losses caused by using digital data wallets. Individuals with masculine values tend to focus more on the potential gain of using digital data wallets, which is associated with a stronger relationship between perceived benefits and the intention to use digital data wallets. Hence, we hypothesize:

**H5a:** Masculinity will be positively associated with the intention to use digital data wallets.

**H5b:** Masculinity is expected to moderate the relationship between perceived risks and the intention to use digital data wallets such that the association is weaker amongst people with masculine cultural values.

**H5c:** Masculinity is expected to moderate the relationship between perceived benefits and the intention to use digital data wallets such that the association is stronger amongst people with masculine cultural values.

Uncertainty avoidance is the degree to which people within a culture perceive that they are threatened by ambiguous or unknown circumstances (Chen and Zahedi, 2016; Hofstede et al., 2005). Hence, individuals with high uncertainty avoidance tend to report lower intentions to adopt new technologies because they perceive novel phenomena as a threat. They may avoid adopting new technology, such as digital data wallets, due to concerns about making mistakes or difficulties in using them (Tam and Oliveira, 2019). On the contrary, individuals with low uncertainty avoidance tend to report a greater willingness to try something new and adopt technologies. Digital data wallets are an innovation. Hence, we suggest that uncertainty avoidance will be negatively associated with the intention to use digital data wallets. Moreover, individuals with high uncertainty avoidance values tend to avoid risk and rely on regulations (Schumacher et al., 2023; Hoehle et al., 2015). Before using digital data wallets, individuals must register and provide personal information, which can introduce

additional risks. For these individuals, providing personal information seems risky in the context of digital data wallets because the outcomes are uncertain. Hence, the association between perceived risks and the intention to use digital data wallets is expected to be stronger among individuals with high uncertainty avoidance values. Additionally, the perceived benefits may look less attractive and less relevant for users with high uncertainty avoidance. We suggest that their uncertainty regarding the tools is associated with a weaker relationship between perceived benefits and the intention to use digital data wallets. Hence, we hypothesize:

**H6a:** Uncertainty avoidance will be negatively associated with the intention to use digital data wallets.

**H6b:** Uncertainty avoidance is expected to moderate the relationship between perceived risks and the intention to use digital data wallets such that the association is stronger among people with higher levels of uncertainty avoidance.

**H6c:** Uncertainty avoidance is expected to moderate the relationship between perceived benefits and the intention to use digital data wallets such that the association is weaker among people with higher levels of uncertainty avoidance.

Long-term orientation highlights how societies preserve ties to the past while thinking about the future (Schumacher et al., 2023). This concept encourages behaviors such as thrift or perseverance, intending to secure rewards in the future (Yoon, 2009). On the contrary, short-term orientation emphasizes behavior, such as focusing on achieving quick results and a slight tendency to save for the future (Baptista and Oliveira, 2015). Individuals with high long-term goals often stick to traditions and are skeptical of societal change. In the case of digital data wallets, these individuals can mistrust the new technology because it is a novel method to protect privacy, and the future consequences are unclear to them. We suggest that long-term reasoning is associated with a lower intention to use digital data wallets. Moreover, individuals with long-term orientation are focused on future consequences (Schumacher et al., 2023). They are more prevention-focused and tend to make less risky choices. Therefore, these individuals tend to focus more on potential risks before using digital data wallets. They could consider physical forms of sharing documents a less risky choice, or they may not view mobile phones as the most convenient tool for accessing e-services. Hence, the association between perceived risks and the intention to use digital data wallets is expected to be stronger among individuals with high long-term values. As a result, the benefits offered by digital data wallets cannot be considered. These perceptions may be associated with a weaker relationship between perceived benefits and the intention to use digital data wallets. Hence, we hypothesize:

**H7a:** Long-term orientation will be negatively associated with the intention to use digital data wallets.

**H7b:** Long-term orientation is expected to moderate the relationship between perceived risks and the intention to use digital data wallets such that the association is stronger amongst people with long-term cultural values.

**H7c:** Long-term orientation is expected to moderate the relationship between perceived benefits and the intention to use digital data wallets such that the association is weaker amongst people with long-term cultural values.

Socio-demographic factors are frequently used as the control variables in the research of users' behavior (e.g., Cichy et al., 2021; Zhang et al., 2018; Cloarec et al., 2022). Age, gender, digital literacy, and country were used as the control variables in the model. Therefore, these attributes helped to maintain the associations between the explanatory variables and the outcome.

#### 4. Methodology

An online questionnaire was built to collect the data. The data were collected in three European countries: Austria, Romania, and Spain. Each construct was composed of items modified to fit the study's needs

(Appendix A). Most items were measured using a numerical scale ranging from strongly disagree (1) to strongly agree (7). The questionnaire was developed in English and additionally checked by academic researchers. Then, the English questionnaire was translated into German, Romanian, and Spanish. A pilot test was conducted to assess if all of the items were perceptible and if any of them needed to be rewritten. The concept of digital data wallets was presented to participants before the questionnaire to ensure their understanding (Appendix B).

The data were collected for one month (July 2022). The sample consisted of randomly selected individuals aged 18 years or older at the moment of data collection. The sampling design for each country was based on proportional stratified sampling to ensure that the sample had a distribution similar to the population structure. Three aspects were used as stratification criteria: gender, age, class, and region. In total, 1800 valid responses were obtained (600 per country). Harman's one-factor test was applied to examine the common method bias (Podsakoff et al., 2003). The result showed that none of the indicators individually explained more than 50 % of the variance, confirming no significant common-method bias.

Table 3 presents sample characteristics (Appendix C presents descriptive statistics per country). Quotas were established to have similar proportions between each county sample and the respective populations. Out of 1800 respondents, 51 % are females, 42.1 % are aged between 25 and 47, 55.1 % are employed workers, and 32.9 % have bachelor's degrees.

#### 5. Data analysis and results

The partial least squares structural equation modeling method (PLS-SEM) was used to estimate the model, supported by SmartPLS 4 software (Ringle et al., 2022). PLS-SEM is a variance-based technique that allows for testing complex models and does not require strong distribution assumptions (Fornell and Bookstein, 1982). Firstly, the measurement model was analyzed, and then the structural model was examined.

##### 5.1. Measurement model

Several measures were utilized to assess the measurement model. Table 4 presents the mean, standard deviation (Std), Cronbach's alpha (CA), composite reliability (CR), and the average variance extracted (AVE). The diagonal elements in bold are the square root of AVE. All constructs showed CR higher than 0.7 and AVE higher than 0.5, confirming the reliability of the scale and coverage validity (Hair et al., 2011). To assess discriminant validity, firstly, the Fornell-Larcker criterion was verified (Fornell and Larcker, 1981). Table 4 shows that the squared root of AVE is higher than the correlation with other constructs. Secondly, the Heterotrait-Monotrait ratio (HTMT) criterion is assessed.

**Table 3**  
Sample characteristics.

Sample characteristics	Descriptive statistics	
Gender	Male	49.0 %
	Female	51.0 %
Age	18–24	9.0 %
	25–47	42.1 %
	48–64	29.1 %
	≥65	19.8 %
Occupation	Student	4.9 %
	Employed worker	55.1 %
	Self-employed	8.2 %
	Unemployed / Retired	31.8 %
Education	School degree	28.6 %
	Apprenticeship	23.6 %
	Bachelor's degree	32.9 %
	Master's degree	13.2 %
	Doctoral degree	1.7 %

**Table 4**  
Mean, standard deviation, CA, CR, and Fornell-Lacker table.

	Mean	Std	CR	CA	PR	PB	PD	Col	M	UA	LT	IU
PR	4.74	1.68	0.962	0.962	<b>0.948</b>							
PB	4.40	1.71	0.938	0.938	-0.427***	<b>0.943</b>						
PD	3.59	1.84	0.918	0.915	-0.066**	0.278***	<b>0.893</b>					
Col	4.77	1.37	0.916	0.916	-0.120***	0.456***	0.284***	<b>0.865</b>				
M	2.82	1.55	0.898	0.882	0.093***	0.094***	0.358***	0.094***	<b>0.822</b>			
UA	4.98	1.34	0.892	0.891	-0.031	0.377***	0.285***	0.541***	0.121***	<b>0.869</b>		
LT	5.00	1.29	0.843	0.797	-0.024	0.287***	0.229***	0.426***	0.140***	0.470***	<b>0.777</b>	
IU	4.62	1.98	0.977	0.977	-0.449***	0.759***	0.289***	0.479***	0.080**	0.382***	0.300***	<b>0.977</b>

Notes: \*p<0.05; \*\*p<0.01; \*\*\*p<0.001, PR – perceived risk, PB – perceived benefits, PD – power distance, Col – collectivism, M – Masculinity, UA – uncertainty avoidance, LT – long-term orientation, IU – intention to use.

Appendix D shows that the values are lower than 0.9 (Henseler et al., 2015). Finally, the loadings were analyzed (Chin, 1998), being greater than the respective cross-loadings (Appendix E). Therefore, discriminant validity was established.

5.2. Structural model

Firstly, the multicollinearity between all constructs was tested using the variance inflation factor (VIF), with all values below 3.3, indicating no multicollinearity issues (Lee and Xia, 2010). The structural model was tested with the whole sample through bootstrapping with 5000 resampling iterations (Hair et al., 2011). Table 5 presents the model’s results. The full model explains 67 % of the variation in the intention to use digital data wallets. The results showed that the full model increases the adjusted R<sup>2</sup> by 3 pp compared with the privacy calculus alone, thereby suggesting the relevance of the direct and moderating associations of cultural dimensions with the intention to use digital data wallets.

Considering the number of hypotheses, we applied a Bonferroni correction to control the risk of Type I error from multiple comparisons

**Table 5**  
Structural model results.

	Privacy calculus	Main relationships	Full model
Intention to use			
R <sup>2</sup>	0.63	0.65	0.67
Adj R <sup>2</sup>	0.63	0.65	0.66
Age	-0.00	0.00	0.01
Gender (Male:1)	-0.06	-0.05	-0.06
Country (Austria:1)	-0.13***	-0.08	-0.06
Country (Romania:1)	0.01	-0.04	-0.03
Technology literacy	0.17***	0.15***	0.15***
Perceived risks	-0.16***	-0.18***	-0.19***
Perceived benefits	0.61***	0.53***	0.53***
Power distance		0.05**	0.05
Collectivism		0.12***	0.11***
Masculinity		0.00	-0.01
Uncertainty avoidance		0.04	0.04
Long-term orientation		0.01	0.02
Perceived risks × Power distance			0.06**
Perceived risks × Collectivism			0.11***
Perceived risks × Masculinity			-0.01
Perceived risks × Uncertainty avoidance			-0.06
Perceived risks × Long-term orientation			-0.03
Perceived benefits × Power distance			0.00
Perceived benefits × Collectivism			0.04
Perceived benefits × Masculinity			0.01
Perceived benefits × Uncertainty avoidance			-0.08**
Perceived benefits × Long-term orientation			-0.03

Notes: \*\*p<0.00588; \*\*\*p<0.001

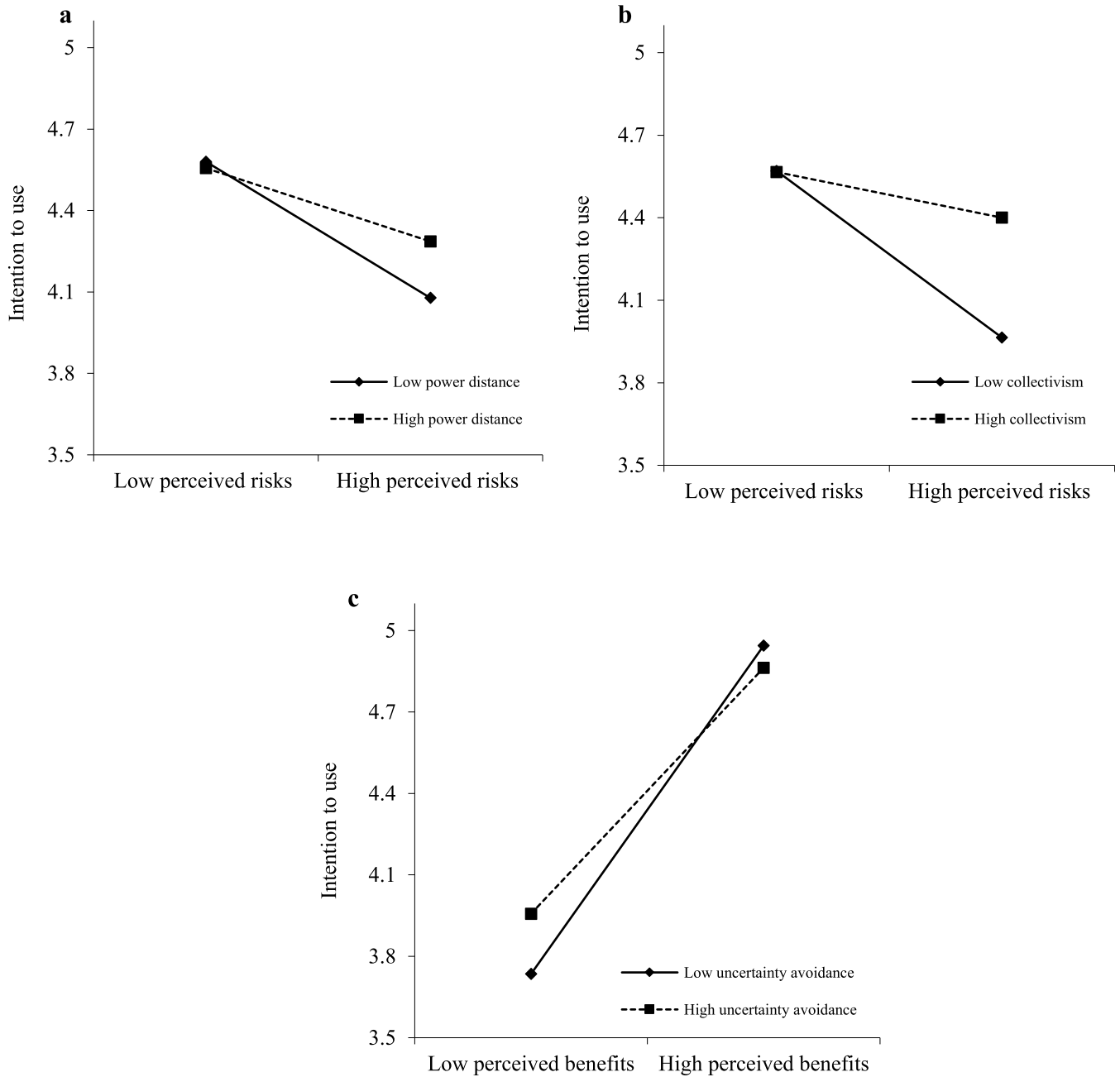
(Shaffer, 1995; Abdi, 2007). We maintained an overall significance level of 0.10, considering that the model was not tested before, to ensure the need to detect nuanced and meaningful relationships in technology adoption research (Marikyan et al., 2023; Mudge et al., 2012). The Bonferroni-adjusted threshold was set at 0.00588 for the full model.

Perceived risks are negatively associated with the intention to use digital data wallets [H1 ( $\hat{\beta}$ =-0.19, p<0.001)]. Perceived benefits are positively associated with the intention to use digital data wallets [H2 ( $\hat{\beta}$ =0.53, p<0.001)], supporting H1 and H2.

As for cultural dimensions, power distance positively moderates the relationship between perceived risks and the intention to use [H3b ( $\hat{\beta}$ =0.06, p<0.00588)], supporting H3b. Power distance is not directly associated with the intention to use digital data wallets [H3a ( $\hat{\beta}$ =0.05, p>0.00588)] and does not moderate the relationship between perceived benefits and the intention to use [H3c ( $\hat{\beta}$ =0.00, p>0.000588)], not supporting H3a and H3c. Collectivism is positively associated with the intention to use digital data wallets [H4a ( $\hat{\beta}$ =0.11, p<0.001)] and positively moderates the relationship between perceived risks and intention to use [H4b ( $\hat{\beta}$ =0.11, p<0.001)], supporting the H4a and H4b. Collectivism does not moderate the relationship between perceived benefits and the intention to use [H4c ( $\hat{\beta}$ =0.04, p>0.00588)], not supporting H4c. Uncertainty avoidance moderates the relationship between perceived benefits and the intention to use [H6c ( $\hat{\beta}$ =-0.08, p<0.00588)], supporting H6c. Uncertainty avoidance is not directly associated with the intention to use digital data wallets [H6a ( $\hat{\beta}$ =0.04, p>0.00588)], and does not moderate the relationship of perceived risks and the intention to use [H6b ( $\hat{\beta}$ =-0.06, p>0.00588)], not supporting H6a and H6b. Masculinity [H5a ( $\hat{\beta}$ =-0.01, p>0.00588)] and long-term orientation [H7a ( $\hat{\beta}$ =0.02, p>0.00588)] do not associate with intention to use and do not moderate both relationships between perceived risks and intention to use [H5b ( $\hat{\beta}$ =-0.01, p>0.00588)], [H7b ( $\hat{\beta}$ =-0.03, p>0.00588)], and perceived benefits and intention to use [H5c ( $\hat{\beta}$ =0.01, p>0.00588)], [H7c ( $\hat{\beta}$ =-0.03, p>0.00588)]. Thus, hypotheses H5a, H5b, H5c, H7a, H7b and H7c are not supported.

All statistically significant moderations were plotted at one standard deviation above and one standard deviation below the mean, based on (Aiken & West, 1991), to enhance our understanding of the moderating relationships. Fig. 2 presents the plots. The slopes of high and low levels of cultural values were calculated. It was found that slopes for high and low cultural values presented statistically significant differences from zero when predicting the dependent variable.

Fig. 2a illustrates the moderating relationships of power distance on perceived risks and intention to use. The plot confirms that the association between perceived risks and intention to use is stronger among users with low power distance orientation compared to users with high power distance orientation. Fig. 2b shows the moderating relationships of collectivism on perceived risks and intention to use. The plot confirms that the association between perceived risk and intention to use is stronger among users with low collectivism compared to users with high



**Fig. 2.** (a) Moderating relationships of power distance on perceived risks and intention to use; (b) Moderating relationships of collectivism on perceived risks and intention to use; (c) Moderating relationships of uncertainty avoidance on perceived benefits and intention to use.

collectivism. Fig. 2c illustrates the moderating relationships of uncertainty avoidance on perceived benefits and the intention to use. The plot confirms that the association between perceived benefits and intention to use is stronger among users with low uncertainty avoidance.

We tested the main relationships in Austria, Romania, and Spain separately to examine the differences between countries. We first validated the measurement model and then proceeded to the structural model (Appendix F). Multicollinearity was tested using VIF, with all values below 3.3 indicating no issues (Lee and Xia, 2010). As previously, we also applied a Bonferroni correction (Shaffer, 1995; Abdi, 2007). Table 6 presents the results per country. We observed minor differences between the countries.

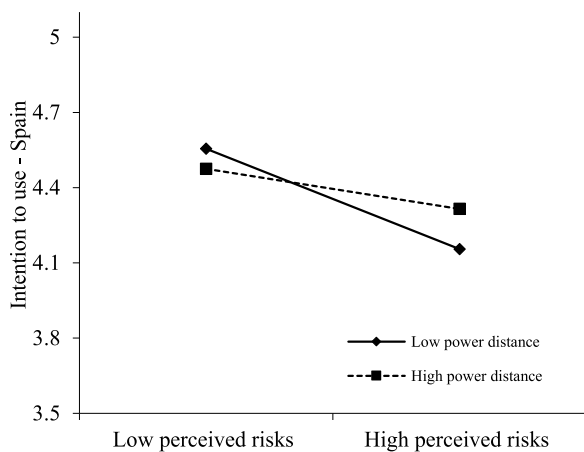
Perceived risks are negatively associated with the intention to use digital data wallets in all countries. Perceived benefits are positively associated with the intention to use digital data wallets in all countries.

Collectivism is positively associated with the intention to use digital data wallets in Austria and Spain. Additionally, collectivism is associated with a stronger relationship between perceived risks and the intention to use digital data wallets in Spain. Hence, in Spain, individuals with higher collectivist values tend to report a stronger association between perceived risks and their intention to adopt digital data wallets. Power distance, masculinity, uncertainty avoidance, and long-term orientation are not significant factors in all countries. Across the full sample, collectivism, power distance, and uncertainty avoidance are associated with digital data wallet adoption. However, in the country analysis, only collectivism remains statistically significant—particularly in Austria and Spain—highlighting that the role of cultural values is nuanced and context-dependent. These patterns suggest that cultural values relate to how users assess the benefits and risks of digital data wallets at a broader level but are less consistently linked in individual national contexts.

**Table 6**  
Results per country.

	Austria	Romania	Spain
Intention to use			
R <sup>2</sup>	0.65	0.62	0.69
Adj R <sup>2</sup>	0.63	0.61	0.68
Age	0.02	-0.00	0.00
Gender (Male:1)	-0.04	-0.08	-0.06
Technology literacy	0.15***	0.11	0.19***
Perceived risks	-0.26***	-0.20***	-0.14***
Perceived benefits	0.52***	0.53***	0.50***
Power distance	0.07	0.06	0.02
Collectivism	0.10**	0.09	0.13***
Masculinity	-0.02	0.00	0.00
Uncertainty avoidance	0.01	0.07	0.04
Long-term orientation	0.03	-0.02	0.06
Perceived risks × Power distance	0.07	0.06	0.06
Perceived risks × Collectivism	0.11	0.07	0.17**
Perceived risks × Masculinity	-0.00	0.00	0.01
Perceived risks × Uncertainty avoidance	-0.06	-0.04	-0.07
Perceived risks × Long-term orientation	-0.07	-0.01	-0.04
Perceived benefits × Power distance	0.01	0.02	-0.01
Perceived benefits × Collectivism	0.07	0.06	0.02
Perceived benefits × Masculinity	0.02	0.02	-0.05
Perceived benefits × Uncertainty avoidance	-0.08	-0.07	-0.10
Perceived benefits × Long-term orientation	-0.05	-0.03	-0.01

Notes: \*\*p<0.00588; \*\*\*p<0.001



**Fig. 3.** Moderating relationships of power distance on perceived risks and intention to use in Spain.

As done previously, we plotted significant moderations at one standard deviation above and one standard deviation below the mean (Aiken & West, 1991). Fig. 3 shows the moderating relationships of power distance on perceived risks and intention to use in Spain. The plot confirms that the association between perceived risks and intention to use is stronger among users with low power distance orientation.

**6. Discussion**

Despite all the advantages of the ongoing digital transformation, individuals’ privacy concerns and a need for privacy-oriented alternatives have increased. Digital data wallet solutions enable individuals to control their privacy online. Hence, it is necessary to analyze their association with individuals’ behavior. Based on the privacy calculus theory and Hofstede’s cultural values, this study develops a model and examines the association of cultural values at the individual level with the intention to use digital data wallets. To the best of our knowledge, this is one of the first empirical investigations that examines the associations within privacy calculus, considering the direct and moderating associations of power distance, collectivism, masculinity, uncertainty

avoidance, and long-term orientation in relation to the intention to use digital data wallets at the individual level.

The results indicate that perceived risks are negatively associated, and perceived benefits are positively associated with the intention to use digital data wallets. This finding is consistent with earlier findings (Duan and Deng, 2022; Karwatzki et al., 2022). Between the two, we can observe that perceived benefits show a stronger association with the intention to use digital data wallets compared to perceived risks. Digital data wallets are tools used to protect personal data online. Simultaneously, the tools are supposed to contain sensitive information, which can lead to privacy calculus behavior. Nevertheless, potential users who report a clearer understanding of the potential benefits of digital data wallets tend to express a stronger intention to use them. Perceived benefits are more of a priority for users than perceived risks. We also found that perceived risks are negatively associated and perceived benefits are positively associated with the intention to use digital data wallets in all countries.

As for cultural values, it was found that three out of five cultural values are associated with the intention to use digital data wallets, specifically power distance, collectivism, and uncertainty avoidance. Power distance is the extent to which less powerful individuals in organizations or institutions accept that power is unequally distributed (Hofstede and Bond, 1988). In cultures with a high power distance, formality and structure are highly valued, which leads to limited information sharing and a heightened demand for privacy and security (Lowry et al., 2011; Schumacher et al., 2023). We found that the moderation relationship of power distance on perceived risks and the intention to use digital data wallets. The association between perceived risks and intention to use is stronger among users with a low power distance orientation. This aspect suggests that individuals with a high power distance orientation tend to focus less on perceived risks when deciding to use digital data wallets. Nevertheless, power distance is not directly associated with the intention to use, nor does it significantly moderate the relationship between perceived benefits and intention. This aspect suggests that acceptance of authority plays a limited role in shaping users’ intention to use digital data wallets. Also, individuals with high power distance do not place greater emphasis on benefits when forming their intention to use digital data wallets.

Collectivism refers to the extent to which individuals belong to strong in-groups, which serve as a form of protection in return for unwavering allegiance (Hofstede and Bond, 1988). Group members can be concerned about potential privacy threats to their collective. We found that collectivism is positively associated with the intention to use digital data wallets. Thus, digital data wallets fit with a shared norm of privacy protection. We also found a moderating relationship between collectivism and the intention to use digital data wallets, specifically in terms of perceived risks. The relationship between perceived risks and the intention to use digital data wallets is stronger among users with low collectivism. Hence, individuals with collectivistic values tend to consider digital data wallets as a favorable activity for the group members and pay less attention to risks. Additionally, collectivism does not moderate the relationship between perceived benefits and intention to use, suggesting that collectivists may be more driven by risk mitigation for the collective than by individual benefit maximization. Collectivism is positively associated with the intention to use digital data wallets in Austria and Spain. Hence, in Austria and Spain, collectivism aligns with a greater intention to use digital data wallets, while in Romania, such values do not show a clear association with adoption intentions. Collectivism also moderated the relationship between perceived risks and the intention to use digital data wallets in Spain. Hence, Spanish individuals with collectivistic values tend to be less concerned about risks using digital data wallets. While in Romania and Austria, collectivism did not strengthen the relationship between perceived risks and intention to use. Hence, collectivism is generally associated with a higher intention to use digital wallets; however, its relationship with risk sensitivity appears to vary across cultural

contexts.

Uncertainty avoidance is the extent to which individuals feel in an unstructured situation (Hofstede and Bond, 1988). The adoption of digital data wallets is considered an unstructured situation. Uncertainty avoidance is not directly associated with the intention to use digital data wallets. However, uncertainty avoidance moderates the relationship between perceived benefits and the intention to use digital data wallets. Among users with low uncertainty avoidance, the relationship between perceived benefits and intention to use digital data wallets is stronger. Hence, for individuals with a high uncertainty avoidance orientation, the perceived benefits of using digital data wallets are considered less attractive and less relevant than perceived risks. It is crucial to explain the benefits and necessity of using digital data wallets to users. Also, uncertainty does not moderate the relationship between perceived risks and the intention to use digital data wallets.

Long-term orientation is not a significant factor in explaining intention to use digital data wallets. Hence, potential users may be more focused on the short-term usability of digital data wallets and immediate benefits. We also found that masculinity is not a significant factor in explaining privacy calculus behavior. As for masculinity, the adoption of digital data wallets can be associated with factors such as security and privacy, which do not directly align with traditionally masculine traits, specifically assertiveness, competitiveness, and focus on performance (Hofstede, 2011).

### 6.1. Theoretical contributions

This research makes several important theoretical contributions. Firstly, the research contributes to cross-cultural research in IS by examining the association between cultural values and privacy calculus behavior at the individual level. Previous research that focused on the role of culture in privacy concerns considered culture on a macro level and treated cultural differences as a monolithic construct (e.g., Dinev et al., 2006; Lowry et al., 2011; Thompson et al., 2020). However, our findings indicate that cultural values analyzed at the individual level are significantly associated with the intention to use digital data wallets. Power distance, collectivism, and uncertainty avoidance are significantly associated with the intention to use digital data wallets. The results indicate that the combined association of privacy calculus and cultural dimensions with the intention to use digital data wallets is stronger than the association of privacy calculus alone. These findings highlight the significant association and moderating associations of cultural dimensions in relation to the intention to use digital data wallets.

Secondly, to the best of our knowledge, this study is among the first to examine digital data wallets from a behavioral perspective. Most research about information privacy technologies evaluates technological solutions or artifacts to improve privacy protection (Bélanger and Crossler, 2011). Digital data wallets are advanced privacy-enhancing technologies. A lack of studies has considered privacy-enhancing technologies from a behavioral perspective. Previous literature suggests that users do not understand the benefits of using technologies like digital data wallets (Coopamootoo, 2020; Zou et al., 2020). Moreover, the association between perceived risks and the intention to use digital data wallets has not yet been explored. The current research examines the relationship between privacy calculus, cultural values, and the intention to use digital data wallets, contributing to information privacy technology literature. Additionally, to highlight the cultural nuance in the intention to use digital data wallets, we performed a country analysis that indicates some differences between countries. We found collectivism to be a significant factor in Austria and Spain. Hence, the results suggest that while cultural values are less consistently associated in specific national contexts, they are related to consumers' evaluations of the benefits and risks of digital data wallets on a broader basis.

Thirdly, we extended the application of privacy calculus theory to the adoption of privacy-enhancing tools, specifically digital data wallets.

Previous recent studies that adopted privacy calculus theory focus on the context of contact tracing applications primarily (Duan and Deng, 2022; Fox et al., 2022; Lee et al., 2022), electronic health services (Fox, 2020; Esmailzadeh, 2019; Zhang et al., 2018), and location-based services (Vimalkumar et al., 2021; Gutierrez et al., 2019). The present study is focused on the adoption of digital data wallets. As a new privacy-enhancing technology, digital data wallets require an analysis of users' perceptions of both benefits and risks to better understand their intention to use digital data wallets. Consistent with previous studies, the results showed that users perform a cost-benefit analysis of the potential perceived benefits and risks to determine whether they will use the technology. The results indicate that perceived benefits are strongly associated with the intention to use digital data wallets. This relationship is also observed in the country analysis. Perceived risks are negatively associated with intention to use across all countries.

### 6.2. Practical contributions

This study provides practical implications that are key for building solid relationships with digital data wallet users and service providers. Firstly, this study examined the association between perceived risks, benefits, and the intention to use digital data wallets. Hence, the results are particularly useful as the basis for organizations and service providers to create several consumer-targeted strategies to improve digital data wallet adoption. Based on the findings, strategies should be promoted to encourage the use of digital data wallets, highlighting the benefits of digital privacy protection. For example, it is essential to define a set of measures for the potential effectiveness of these technologies in privacy-disrupting situations while using digital services. Consumers who understand how digital data wallets function and perceive their benefits show a stronger association with the intention to use the tool. Additionally, it is crucial to consider and take measures to alleviate individuals' perceived risks, as their perception of risks is negatively associated with the intention to use. Hence, marketing and product strategies should always include both benefits and risk mitigation in all countries.

Secondly, understanding cultural characteristics could be significant in developing and managing digital data wallet solutions and aligning functionalities with real customers' needs and cultural differences. We found that collectivism is positively associated with the intention to use digital data wallets. Hence, for users with collectivistic cultural values, service providers should comply with a common standard of privacy protection to fulfill society's needs for privacy protection. Our findings also reveal that individuals with low perceptions of power distance and collectivism focus on perceived risks. Therefore, practitioners could identify these individuals and develop strategies to effectively address and mitigate their risk perceptions. Additionally, the findings suggest that for users with low uncertainty avoidance, the association between perceived benefits and the intention to use digital data wallets is stronger, highlighting the need to emphasize clear, immediate benefits to encourage adoption among such users. As for country differences, we found that collectivism is a significant factor in Austria and Spain. It is not significant in Romania, suggesting the need for country-specific strategies.

## 7. Limitations and future research directions

This research has several limitations that may provide directions for future research. Firstly, digital data wallets are an innovative technology. Hence, users' behavior can change over time. Future research can conduct a longitudinal study to understand the direction of change over time. Secondly, we considered only perceived benefits and risks while examining privacy calculus behavior. Thus, future research can explore the antecedents of perceived benefits and risks to identify solutions that strengthen the benefits and mitigate the risks. Fourthly, data were collected via self-reported questionnaires, which may limit the findings

despite efforts to reduce bias (e.g., anonymity, common method controls). Future research could strengthen the results by employing mixed methods. Finally, the data were collected in three European countries, specifically Austria, Romania, and Spain. We believe that the sample is representative. Nevertheless, future research can investigate the adoption of digital data wallets in other cultural settings.

**8. Conclusion**

This study adopts the privacy calculus theory and Hofstede’s cultural values to examine the intention to use digital data wallets. One thousand eight hundred responses were received from individuals in Austria, Romania, and Spain. The model was tested using PLS-SEM. The model explains 67 % of the variation in the intention to use digital data wallets. The main findings indicate that perceived benefits and risks are associated with the intention to use digital data wallets. As for cultural values, power distance, collectivism, and uncertainty avoidance are significantly associated with the intention to use digital data wallets. Collectivism shows a direct association with the intention to use digital data wallets. Additionally, power distance, collectivism, and uncertainty avoidance significantly moderate relationships in this context. Based on the obtained results, this study provides practical recommendations that are key to building solid relationships with digital data wallet users and service providers, as well as aligning functionalities with real customers’ needs and cultural differences. Finally, this model provides a good basic framework for future research on the adoption of digital data wallets.

**Appendix A**

Table 7

**Table 7**  
Survey items.

Constructs	Items	Source
Perceived risks	PR1. It would be risky to give personal information to a digital data wallet.	(Kehr et al., 2015)
	PR2. There would be a high potential for privacy loss associated with giving personal information to digital data wallets.	
	PR3. Personal information could be inappropriately used by using a digital data wallet.	
	PR4. Providing the digital data wallet with my personal information could involve many unexpected problems.	
Perceived benefits	PB1. Providing my personal information to a digital data wallet would entail benefits for me.	(Chen and Zahedi, 2016)
	PB2. Revealing my personal information to a digital data wallet would help me obtain the services I want.	
	PB3. I believe that as a result of my personal information disclosure, I would benefit from saving time.	
Power distance	When it comes to my views on power distribution, i.e., society, or me, having people in higher positions	(Chen and Zahedi, 2016)
	PD1. Making all decisions on their own is (not acceptable at all/highly acceptable for sure)	
	PD2. Not consulting those below them is (not acceptable at all/highly acceptable for sure)	
	PD3. Having all decision-making power is (not acceptable at all/highly acceptable for sure)	
	PD4. Not allowing those below them to question their decisions is (not acceptable at all/highly acceptable for sure)	
Collectivism	When it comes to my relationship with the groups I belong to, for me	(Srite and Karahanna, 2006)
	Col1. Compared to having autonomy, being accepted as a member of a group is (not important at all/very important for sure)	
	Col2. Compared to individual success, group success is (not important at all/ very important for sure)	
	Col3. Compared to individual freedom, belonging to a group is (not important at all/very important for sure)	
	Col4. Compared to receiving personal rewards, taking care of group welfare is (not important at all/very important for sure)	
Masculinity	Col5. Compared to personal gain, being loyal to a group is (not important at all/very important for sure)	(Srite and Karahanna, 2006)
	M1. It is preferable to have a man in a high-level position rather than a woman.	
	M2. There are some jobs in which a man can always do better than a woman.	
	M3. It is more important for men to have a professional career than it is for women to have a professional career.	
	M4. Solving organizational problems requires an active, forcible approach, which is typical of men.	
Uncertainty avoidance	M5. Women do not value recognition and promotion in their work as much as men do.	(Chen and Zahedi, 2016)
	When it comes to my tolerance of uncertainty and ambiguity in my workplace, for me	

(continued on next page)

**CRedit authorship contribution statement**

**Varvara Keba:** Writing – original draft, Software, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Tiago Oliveira:** Writing – review & editing, Validation, Supervision, Conceptualization. **Melanie Trabant:** Writing – review & editing, Validation.

**Declaration of competing interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

The author is an Guest Editor for *Internet Research* and was not involved in the editorial review or the decision to publish this article.

**Acknowledgements**

This work was supported by the European Union’s Horizon 2020 innovation action program, project: SOTERIA, Grant agreement ID: 101018342, Audencia Business School is a partner in SOTERIA Consortium. This work was supported by national funds through FCT (Fundação para a Ciência e a Tecnologia), under the project - UIDB/04152 - Centro de Investigação em Gestão de Informação (MagIC)/NOVA IMS.

**Table 7** (continued)

Constructs	Items	Source
Long-term	UA1. Having rules and regulations telling me exactly what is expected from me is (not important at all/very important for sure)	(Baptista and Oliveira, 2015)
	UA2. Compared to having less structure that allows for flexibility, having a highly structured work environment with clarity of job description is (not important at all/very important for sure)	
	UA3. Compared to having general directions, having detailed instructions on how to do my job is (not important at all/very important for sure)	
	UA4. Compared to an ambiguous environment that allows for personal innovation, having a standardized job description is (not important at all/very important for sure)	
Intention to use	LT1. Respect for tradition is important to me.	(Söllner et al., 2016)
	LT2. I work hard for success in the future.	
	LT3. Traditional values are important to me.	
	LT4. I plan for the long term.	
Intention to use	IU1. Assuming I had access to a digital data wallet, I intend to use it.	(Söllner et al., 2016)
	IU2. Assuming I had access to a digital data wallet, I plan to use the system.	
	IU3. Assuming I had access to a digital data wallet, I would use it to organize and manage my personal data.	

**Appendix B**

To ensure understanding, the concept of digital data wallets was explained at the start of the questionnaire:

“Digital data wallet is the equivalent to a physical wallet on the web which allows storing and sharing all the identity related personal data in a secure and convenient manner, which is owned and controlled by a user. With this tool, the user is able to identify themselves in a secure way, connect to different online services, and to control the type and amount of data they want to share with different institutions.

For example, you can store all of your personal information in a digital data wallet, including your passport, identification cards, driver’s licenses, health records, graduate certificates, and more. If you apply to a study program in one of the European countries, you can use a digital wallet to produce an authorized graduation certificate for the school to which you are applying. Another example is when you travel around Europe and you have some health problem, you can share your medical exams with the doctor from the country you travel to.”

After that, participants were requested to watch a video about digital data wallets. The video included subtitles in German, Romanian, and Spanish to ensure comprehension. For questions, they could contact the first author via the email provided.

**Appendix C**

**Table 8**

**Table 8**  
Descriptive statistics per country.

Sample characteristics		Austria	Romania	Spain
Gender	Male	49.0 %	48.8 %	49.2 %
	Female	51.0 %	51.2 %	50.8 %
Age	18–24	9.5 %	9.0 %	8.5 %
	25–47	40.8 %	43.2 %	42.3 %
	48–64	31.2 %	30.5 %	25.5 %
	≥65	18.5 %	17.3 %	23.7 %
Occupation	Student	5.2 %	4.2 %	5.5 %
	Employed worker	52.5 %	60.0 %	52.7 %
	Self-employed	7.7 %	9.2 %	7.8 %
Education	Unemployed / Retired	34.6 %	26.6 %	34.0 %
	School degree	35.7 %	26.0 %	24.2 %
	Apprenticeship	39.0 %	5.3 %	26.3 %
	Bachelor’s degree	10.3 %	50.3 %	38.2 %
	Master’s degree	13.7 %	16.7 %	9.2 %
	Doctoral degree	1.3 %	1.7 %	2.1 %

Notes: [https://ec.europa.eu/eurostat/databrowser/view/demo\\_pjan/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/demo_pjan/default/table?lang=en) (EUROSTAT: Population on 1 January by age and sex. Extracted on 04.04.22. Latest update on 03.07.23).

**Appendix D**

**Table 9**

**Table 9**  
HTMT.

	PR	PB	PD	Col	M	UA	LT	IU
Perceived risks (PR)								
Perceived benefits (PB)	0.449							
Power distance (PD)	0.070	0.299						
Collectivism (Col)	0.127	0.491	0.309					
Masculinity (M)	0.104	0.094	0.395	0.100				
Uncertainty avoidance (UA)	0.034	0.413	0.315	0.599	0.122			
Long-term (LT)	0.055	0.305	0.276	0.489	0.189	0.550		
Intention to use (IU)	0.463	0.793	0.305	0.506	0.079	0.409	0.310	

Appendix E  
Table 10

**Table 10**  
Loadings and cross-loadings.

	Perceived risks (PR)	Perceived benefits (PB)	Power distance (PD)	Collectivism (Col)	Masculinity (M)	Uncertainty avoidance (UA)	Long-term (LT)	Intention to use (IU)
PR1	<b>0.939</b>	-0.401	-0.050	-0.105	0.089	-0.021	-0.018	-0.417
PR2	<b>0.955</b>	-0.398	-0.076	-0.115	0.068	-0.014	-0.014	-0.423
PR3	<b>0.950</b>	-0.408	-0.070	-0.120	0.094	-0.039	-0.038	-0.425
PR4	<b>0.946</b>	-0.411	-0.056	-0.113	0.102	-0.044	-0.020	-0.437
PB1	-0.418	<b>0.938</b>	0.298	0.434	0.090	0.351	0.290	0.730
PB2	-0.397	<b>0.954</b>	0.259	0.440	0.094	0.369	0.283	0.717
PB3	-0.393	<b>0.938</b>	0.229	0.415	0.081	0.347	0.237	0.700
PD1	-0.072	0.255	<b>0.879</b>	0.253	0.288	0.282	0.235	0.273
PD2	-0.043	0.238	<b>0.884</b>	0.234	0.329	0.225	0.173	0.240
PD3	-0.070	0.260	<b>0.923</b>	0.252	0.331	0.258	0.209	0.267
PD4	-0.049	0.239	<b>0.886</b>	0.274	0.333	0.250	0.196	0.250
Col1	-0.089	0.373	0.279	<b>0.832</b>	0.124	0.500	0.410	0.395
Col2	-0.091	0.397	0.215	<b>0.878</b>	0.046	0.470	0.369	0.413
Col3	-0.136	0.411	0.316	<b>0.868</b>	0.140	0.497	0.382	0.435
Col4	-0.110	0.398	0.221	<b>0.885</b>	0.054	0.438	0.331	0.418
Col5	-0.088	0.392	0.193	<b>0.861</b>	0.043	0.433	0.352	0.408
M1	0.094	0.052	0.289	0.059	<b>0.858</b>	0.064	0.084	0.046
M2	0.077	0.077	0.218	0.098	<b>0.729</b>	0.157	0.163	0.073
M3	0.089	0.039	0.285	0.042	<b>0.817</b>	0.033	0.064	0.036
M4	0.055	0.083	0.365	0.085	<b>0.892</b>	0.096	0.120	0.072
M5	0.079	0.102	0.300	0.078	<b>0.806</b>	0.097	0.106	0.077
UA1	-0.017	0.318	0.251	0.434	0.096	<b>0.834</b>	0.392	0.321
UA2	-0.021	0.338	0.247	0.491	0.108	<b>0.889</b>	0.428	0.342
UA3	-0.027	0.329	0.223	0.473	0.089	<b>0.883</b>	0.410	0.334
UA4	-0.044	0.325	0.270	0.480	0.125	<b>0.868</b>	0.403	0.330
LT1	0.039	0.135	0.218	0.303	0.214	0.343	<b>0.721</b>	0.138
LT2	-0.041	0.281	0.180	0.378	0.047	0.394	<b>0.834</b>	0.310
LT3	0.021	0.167	0.206	0.333	0.181	0.362	<b>0.755</b>	0.169
LT4	-0.050	0.249	0.142	0.302	0.083	0.363	<b>0.792</b>	0.246
IU1	-0.442	0.739	0.289	0.460	0.086	0.368	0.290	<b>0.980</b>
IU2	-0.436	0.741	0.273	0.465	0.070	0.371	0.291	<b>0.978</b>
IU3	-0.439	0.746	0.286	0.478	0.079	0.381	0.299	<b>0.974</b>

Appendix F

Several measures were used to assess the model, including the mean, standard deviation (Std), Cronbach’s alpha (CA), composite reliability (CR), and average variance extracted (AVE). Table 11 presents the results for Austria, Table 12 presents the results for Romania, and Table 13 presents the results for Spain. All constructs showed CR higher than 0.7 and AVE higher than 0.5, confirming the reliability and coverage validity (Hair et al., 2011). To assess discriminant validity, firstly, the Fornell-Larcker criterion was verified (Fornell and Larcker, 1981). Tables 11–13 show that the square root of AVE is higher than the correlation with other constructs. The Heterotrait-Monotrait ratio (HTMT) is presented in Tables 14 and 15, indicating that all values are lower than 0.9 in all countries (Henseler et al., 2015). Finally, the loadings and cross-loadings were analyzed (Chin, 1998). Tables 17 and 18 present the results for Austria and Spain, showing that all loadings exceed the respective cross-loadings. In the case of Romania, items M2 and M3 were lower than their cross-loadings; hence, they were eliminated. After recalculation, all loadings exceed the respective cross-loadings. Therefore, discriminant validity was established.

Table 16  
Table 19

**Table 11**  
Mean, Std, CA, CR, and Fornell-Lacker table - Austria.

	Mean	Std	CR	CA	PR	PB	PD	Col	M	UA	LT	IU
PR	5.018	1.628	0.963	0.964	<b>0.948</b>							
PB	3.820	1.686	0.929	0.930	-0.433***	<b>0.936</b>						
PD	3.060	1.728	0.905	0.910	-0.164***	0.237***	<b>0.882</b>					
Col	4.228	1.310	0.881	0.886	-0.099**	0.397***	0.272***	<b>0.823</b>				
M	2.722	1.516	0.873	0.918	-0.027	0.199***	0.389***	0.209***	<b>0.813</b>			
UA	4.459	1.352	0.880	0.880	0.053	0.290***	0.264***	0.461***	0.226***	<b>0.857</b>		
LT	4.658	1.287	0.750	0.854	0.053	0.199***	0.199***	0.301***	0.211***	0.363***	<b>0.737</b>	
IU	3.905	2.032	0.971	0.971	-0.498***	0.732***	0.295***	0.402***	0.178***	0.238***	0.196***	<b>0.972</b>

Notes: \*p<0.05; \*\*p<0.01; \*\*\*p<0.001, PR – perceived risk, PB – perceived benefits, PD – power distance, Col – collectivism, M – Masculinity, UA – uncertainty avoidance, LT – long-term orientation, IU – intention to use.

**Table 12**  
Mean, standard deviation, CA, CR, and Fornell-Lacker table - Romania.

	Mean	Std	CR	CA	PR	PB	PD	Col	M	UA	LT	IU
PR	4.479	1.763	0.965	0.963	<b>0.949</b>							
PB	4.764	1.716	0.940	0.940	-0.428***	<b>0.945</b>						
PD	4.585	1.616	0.886	0.858	0.078	0.272***	<b>0.836</b>					
Col	5.085	1.391	0.931	0.929	-0.139**	0.439***	0.282***	<b>0.882</b>				
M	2.799	1.690	0.888	0.847	0.213***	0.002	0.215***	0.028	<b>0.875</b>			
UA	5.464	1.221	0.882	0.880	-0.058	0.324***	0.250***	0.511***	0.007	<b>0.858</b>		
LT	5.369	1.249	0.847	0.815	-0.052	0.256***	0.212***	0.433***	0.016	0.457***	<b>0.790</b>	
IU	5.126	1.906	0.979	0.979	-0.433***	0.744***	0.252***	0.452***	-0.008	0.359***	0.245***	<b>0.979</b>

Notes: \*p<0.05; \*\*p<0.01; \*\*\*p<0.001, PR – perceived risk, PB – perceived benefits, PD – power distance, Col – collectivism, M – Masculinity, UA – uncertainty avoidance, LT – long-term orientation, IU – intention to use.

**Table 13**  
Mean, Std, CA, CR, and Fornell-Lacker table - Spain.

	Mean	Std	CR	CA	PR	PB	PD	Col	M	UA	LT	IU
PR	4.735	1.600	0.961	0.959	<b>0.944</b>							
PB	4.604	1.570	0.937	0.936	-0.376***	<b>0.942</b>						
PD	3.217	1.835	0.997	0.945	-0.014	0.239***	<b>0.925</b>					
Col	4.977	1.260	0.920	0.918	-0.027	0.421***	0.200***	<b>0.868</b>				
M	2.630	1.548	0.949	0.899	0.076	0.094*	0.415***	0.043	<b>0.835</b>			
UA	5.025	1.263	0.897	0.888	0.027	0.398***	0.158**	0.554***	0.051	<b>0.866</b>		
LT	4.982	1.241	0.867	0.804	0.009	0.323***	0.138**	0.458***	0.126**	0.49	<b>0.780</b>	
IU	4.829	1.788	0.976	0.976	-0.370***	0.76***	0.207***	0.476***	0.069	0.425	0.371	<b>0.977</b>

Notes: \*p<0.05; \*\*p<0.01; \*\*\*p<0.001, PR – perceived risk, PB – perceived benefits, PD – power distance, Col – collectivism, M – Masculinity, UA – uncertainty avoidance, LT – long-term orientation, IU – intention to use.

**Table 14**  
HTMT - Austria.

	PR	PB	PD	Col	M	UA	LT	IU
Perceived risks (PR)								
Perceived benefits (PB)	0.455							
Power distance (PD)	0.175	0.256						
Collectivism (Col)	0.103	0.437	0.300					
Masculinity (M)	0.059	0.208	0.425	0.223				
Uncertainty avoidance (UA)	0.059	0.322	0.296	0.520	0.253			
Long-term (LT)	0.077	0.209	0.238	0.380	0.315	0.472		
Intention to use (IU)	0.514	0.770	0.314	0.431	0.179	0.257	0.199	

**Table 15**  
HTMT - Romania.

	PR	PB	PD	Col	M	UA	LT	IU
Perceived risks (PR)								
Perceived benefits (PB)	0.450							
Power distance (PD)	0.092	0.300						
Collectivism (Col)	0.146	0.47	0.315					
Masculinity (M)	0.241	0.018	0.259	0.036				
Uncertainty avoidance (UA)	0.063	0.355	0.282	0.568	0.035			
Long-term (LT)	0.051	0.264	0.247	0.496	0.07	0.523		
Intention to use (IU)	0.445	0.776	0.268	0.473	0.009	0.386	0.247	

**Table 16**  
HTMT - Spain.

	PR	PB	PD	Col	M	UA	LT	IU
Perceived risks (PR)								
Perceived benefits (PB)	0.396							
Power distance (PD)	0.043	0.242						
Collectivism (Col)	0.031	0.452	0.206					
Masculinity (M)	0.084	0.095	0.469	0.068				
Uncertainty avoidance (UA)	0.032	0.435	0.168	0.614	0.059			
Long-term (LT)	0.077	0.340	0.163	0.511	0.205	0.563		
Intention to use (IU)	0.381	0.794	0.204	0.501	0.063	0.454	0.377	

**Table 17**  
Loadings and cross-loadings - Austria.

	Perceived risks (PR)	Perceived benefits (PB)	Power distance (PD)	Collectivism (Col)	Masculinity (M)	Uncertainty avoidance (UA)	Long-term (LT)	Intention to use (IU)
PR1	<b>0.939</b>	-0.401	-0.050	-0.105	0.089	-0.021	-0.018	-0.417
PR2	<b>0.955</b>	-0.398	-0.076	-0.115	0.068	-0.014	-0.014	-0.423
PR3	<b>0.950</b>	-0.408	-0.070	-0.120	0.094	-0.039	-0.038	-0.425
PR4	<b>0.946</b>	-0.411	-0.056	-0.113	0.102	-0.044	-0.020	-0.437
PB1	-0.418	<b>0.938</b>	0.298	0.434	0.090	0.351	0.290	0.730
PB2	-0.397	<b>0.954</b>	0.259	0.440	0.094	0.369	0.283	0.717
PB3	-0.393	<b>0.938</b>	0.229	0.415	0.081	0.347	0.237	0.700
PD1	-0.072	0.255	<b>0.879</b>	0.253	0.288	0.282	0.235	0.273
PD2	-0.043	0.238	<b>0.884</b>	0.234	0.329	0.225	0.173	0.240
PD3	-0.070	0.260	<b>0.923</b>	0.252	0.331	0.258	0.209	0.267
PD4	-0.049	0.239	<b>0.886</b>	0.274	0.333	0.250	0.196	0.250
Col1	-0.089	0.373	0.279	<b>0.832</b>	0.124	0.500	0.410	0.395
Col2	-0.091	0.397	0.215	<b>0.878</b>	0.046	0.470	0.369	0.413
Col3	-0.136	0.411	0.316	<b>0.868</b>	0.140	0.497	0.382	0.435
Col4	-0.110	0.398	0.221	<b>0.885</b>	0.054	0.438	0.331	0.418
Col5	-0.088	0.392	0.193	<b>0.861</b>	0.043	0.433	0.352	0.408
M1	0.094	0.052	0.289	0.059	<b>0.858</b>	0.064	0.084	0.046
M2	0.077	0.077	0.218	0.098	<b>0.729</b>	0.157	0.163	0.073
M3	0.089	0.039	0.285	0.042	<b>0.817</b>	0.033	0.064	0.036
M4	0.055	0.083	0.365	0.085	<b>0.892</b>	0.096	0.120	0.072
M5	0.079	0.102	0.300	0.078	<b>0.806</b>	0.097	0.106	0.077
UA1	-0.017	0.318	0.251	0.434	0.096	<b>0.834</b>	0.392	0.321
UA2	-0.021	0.338	0.247	0.491	0.108	<b>0.889</b>	0.428	0.342
UA3	-0.027	0.329	0.223	0.473	0.089	<b>0.883</b>	0.410	0.334
UA4	-0.044	0.325	0.270	0.480	0.125	<b>0.868</b>	0.403	0.330
LT1	0.039	0.135	0.218	0.303	0.214	0.343	<b>0.721</b>	0.138
LT2	-0.041	0.281	0.180	0.378	0.047	0.394	<b>0.834</b>	0.310
LT3	0.021	0.167	0.206	0.333	0.181	0.362	<b>0.755</b>	0.169
LT4	-0.050	0.249	0.142	0.302	0.083	0.363	<b>0.792</b>	0.246
IU1	-0.442	0.739	0.289	0.460	0.086	0.368	0.290	<b>0.980</b>
IU2	-0.436	0.741	0.273	0.465	0.070	0.371	0.291	<b>0.978</b>
IU3	-0.439	0.746	0.286	0.478	0.079	0.381	0.299	<b>0.974</b>

**Table 18**  
Loadings and cross-loadings - Spain.

	Perceived risks (PR)	Perceived benefits (PB)	Power distance (PD)	Collectivism (Col)	Masculinity (M)	Uncertainty avoidance (UA)	Long-term (LT)	Intention to use (IU)
PR1	<b>0.930</b>	-0.335	-0.010	-0.023	0.053	0.032	0.018	-0.332
PR2	<b>0.950</b>	-0.356	-0.046	-0.027	0.053	0.031	0.003	-0.352
PR3	<b>0.949</b>	-0.365	-0.001	-0.022	0.086	0.018	-0.002	-0.344
PR4	<b>0.947</b>	-0.361	0.003	-0.028	0.095	0.020	0.016	-0.366
PB1	-0.350	<b>0.942</b>	0.256	0.386	0.094	0.360	0.301	0.713
PB2	-0.350	<b>0.950</b>	0.214	0.426	0.085	0.391	0.327	0.733
PB3	-0.362	<b>0.933</b>	0.206	0.377	0.087	0.374	0.283	0.699
PD1	-0.060	0.283	<b>0.925</b>	0.245	0.356	0.191	0.181	0.248
PD2	0.047	0.157	<b>0.916</b>	0.135	0.391	0.120	0.108	0.132
PD3	-0.012	0.218	<b>0.945</b>	0.164	0.399	0.133	0.100	0.181
PD4	0.007	0.185	<b>0.914</b>	0.159	0.407	0.114	0.093	0.166
Col1	0.003	0.308	0.205	<b>0.843</b>	0.073	0.501	0.436	0.399
Col2	-0.026	0.368	0.111	<b>0.884</b>	0.001	0.487	0.409	0.398
Col3	-0.040	0.368	0.284	<b>0.853</b>	0.104	0.492	0.417	0.392
Col4	-0.038	0.367	0.173	<b>0.874</b>	0.032	0.447	0.354	0.417
Col5	-0.017	0.410	0.106	<b>0.885</b>	-0.013	0.482	0.379	0.454
M1	0.091	0.051	0.380	0.021	<b>0.846</b>	0.043	0.053	0.019
M2	0.064	0.090	0.194	0.040	<b>0.779</b>	0.072	0.122	0.071
M3	0.062	0.078	0.400	0.052	<b>0.885</b>	0.022	0.104	0.070
M4	0.062	0.080	0.482	0.027	<b>0.895</b>	0.036	0.111	0.052
M5	0.051	0.069	0.354	0.007	<b>0.760</b>	0.024	0.088	0.020
UA1	0.026	0.296	0.193	0.442	0.039	<b>0.797</b>	0.373	0.319
UA2	0.008	0.376	0.112	0.518	0.027	<b>0.902</b>	0.439	0.412
UA3	0.036	0.346	0.070	0.480	0.019	<b>0.882</b>	0.411	0.361
UA4	0.025	0.354	0.182	0.476	0.092	<b>0.879</b>	0.470	0.370
LT1	0.098	0.157	0.149	0.276	0.264	0.331	<b>0.704</b>	0.167
LT2	-0.040	0.332	0.100	0.416	-0.009	0.442	<b>0.850</b>	0.391
LT3	0.061	0.187	0.143	0.321	0.198	0.358	<b>0.738</b>	0.190
LT4	-0.015	0.262	0.080	0.378	0.089	0.379	<b>0.819</b>	0.311
IU1	-0.361	0.740	0.221	0.462	0.088	0.408	0.358	<b>0.980</b>
IU2	-0.372	0.742	0.180	0.464	0.041	0.418	0.360	<b>0.977</b>
IU3	-0.350	0.744	0.205	0.468	0.072	0.419	0.370	<b>0.973</b>

**Table 19**  
Loadings and cross-loadings - Romania.

	Perceived risks (PR)	Perceived benefits (PB)	Power distance (PD)	Collectivism (Col)	Masculinity (M)	Uncertainty avoidance (UA)	Long-term (LT)	Intention to use (IU)
PR1	<b>0.941</b>	-0.398	0.096	-0.128	0.229	-0.045	-0.045	-0.388
PR2	<b>0.957</b>	-0.396	0.067	-0.148	0.174	-0.039	-0.039	-0.403
PR3	<b>0.954</b>	-0.417	0.063	-0.140	0.201	-0.064	-0.063	-0.435
PR4	<b>0.942</b>	-0.413	0.069	-0.111	0.208	-0.070	-0.049	-0.414
PB1	-0.391	<b>0.939</b>	0.271	0.410	-0.007	0.305	0.267	0.708
PB2	-0.418	<b>0.960</b>	0.264	0.423	0.020	0.317	0.240	0.706
PB3	-0.406	<b>0.936</b>	0.234	0.411	-0.008	0.297	0.219	0.697
PD1	0.087	0.202	<b>0.826</b>	0.203	0.106	0.217	0.191	0.227
PD2	0.101	0.210	<b>0.770</b>	0.196	0.234	0.137	0.087	0.151
PD3	0.026	0.272	<b>0.911</b>	0.265	0.196	0.244	0.220	0.254
PD4	0.063	0.220	<b>0.832</b>	0.275	0.211	0.217	0.182	0.190
Col1	-0.104	0.376	0.262	<b>0.847</b>	0.036	0.465	0.433	0.360
Col2	-0.100	0.388	0.247	<b>0.890</b>	0.005	0.479	0.407	0.388
Col3	-0.122	0.384	0.260	<b>0.896</b>	0.060	0.444	0.364	0.399
Col4	-0.137	0.395	0.252	<b>0.908</b>	0.020	0.440	0.351	0.425
Col5	-0.145	0.393	0.224	<b>0.867</b>	0.002	0.430	0.366	0.417
M1	0.179	-0.013	0.189	0.029	<b>0.879</b>	0.003	-0.022	-0.006
M4	0.164	0.009	0.211	0.024	<b>0.928</b>	0.010	0.012	-0.008
M5	0.228	0.005	0.161	0.020	<b>0.814</b>	0.003	0.050	-0.006
UA1	-0.048	0.284	0.145	0.377	-0.024	<b>0.832</b>	0.359	0.329
UA2	-0.039	0.275	0.253	0.475	0.029	<b>0.887</b>	0.419	0.309
UA3	-0.053	0.295	0.248	0.463	-0.015	<b>0.876</b>	0.439	0.312
UA4	-0.060	0.254	0.215	0.441	0.038	<b>0.834</b>	0.348	0.278
LT1	0.000	0.108	0.167	0.318	0.061	0.304	<b>0.744</b>	0.096
LT2	-0.023	0.194	0.179	0.384	0.003	0.406	<b>0.813</b>	0.212
LT3	-0.011	0.159	0.201	0.357	0.067	0.347	<b>0.786</b>	0.153
LT4	-0.093	0.280	0.142	0.317	-0.032	0.364	<b>0.815</b>	0.247
IU1	-0.430	0.722	0.245	0.431	-0.005	0.355	0.237	<b>0.982</b>
IU2	-0.434	0.735	0.249	0.445	-0.011	0.352	0.249	<b>0.985</b>
IU3	-0.409	0.731	0.247	0.452	-0.006	0.348	0.235	<b>0.971</b>

**References**

Abdi, H. (2007). Bonferroni and Sidák corrections for multiple comparisons. *Encyclopedia of Measurement and Statistics*, 3(01), 2007.

Adjerid, I., Peer, E., & Acquisti, A. (2018). Beyond the privacy paradox: Objective versus relative risk in privacy decision making. *MIS Quarterly*, 42(2), 465–488. <https://doi.org/10.25300/MISQ/2018/14316>

Aiken, L. S., & West, S. G. (1991). *Multiple regression: testing and interpreting interactions*. Sage.

Albashrawi, M., & Motiwalla, L. (2019). Privacy and personalization in continued usage intention of mobile banking: An integrative perspective. *Information Systems Frontiers*, 21(5), 1031–1043. <https://doi.org/10.1007/s10796-017-9814-7>

Alhelaly, Y., Dhillon, G., & Oliveira, T. (2021). Using the expectancy-value theory of motivation to understand the gaps in mobile identity protection. ICIS 2021 Proceedings, 3.

Ali, M. A., Hoque, M. R., & Alam, K. (2018). An empirical investigation of the relationship between e-government development and the digital economy: The case of Asian countries. *Journal of Knowledge Management*, 22(5), 1176–1200. <https://doi.org/10.1108/JKM-10-2017-0477>

Aparicio, M., Bacao, F., & Oliveira, T. (2016). Cultural impacts on e-learning systems' success. *The Internet and Higher Education*, 31, 58–70. <https://doi.org/10.1016/j.iheduc.2016.06.003>

Ashuri, T. (2024). Data management as a promise: The case of 'L'. *Computers in Human Behavior Reports*, 15, Article 100462. <https://doi.org/10.1016/j.chbr.2024.100462>

Baptista, G., & Oliveira, T. (2015). Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators. *Computers in Human Behavior*, 50, 418–430. <https://doi.org/10.1016/j.chb.2015.04.024>

Bélanger, F., & Crossler, R. E. (2011). Privacy in the digital age: A review of information privacy research in information systems. *MIS Quarterly*, 35, 1017–1041. <https://doi.org/10.2307/41409971>

Bosk, D., Frey, D., Gestin, M., & Piolle, G. (2022). Hidden issuer anonymous credential. Proceedings on Privacy Enhancing Technologies, 2022, 571–607. <https://doi.org/10.56553/popets-2022-0123>

Chatterjee, S., Chaudhuri, R., & Vrontis, D. (2021). Usage intention of social robots for domestic purpose: From security, privacy, and legal perspectives. *Information Systems Frontiers*, 1–16. <https://doi.org/10.1007/s10796-021-10197-7>

Chen, Y., & Zahedi, F. M. (2016). Individuals' internet security perceptions and behaviors. *MIS Quarterly*, 40(1), 205–222.

Cheng, X., Hou, T., & Mou, J. (2021). Investigating perceived risks and benefits of information privacy disclosure in IT-enabled ride-sharing. *Information & Management*, 58(6), Article 103450. <https://doi.org/10.1016/j.im.2021.103450>

Cheng, X., Su, L., Luo, X., Benitez, J., & Cai, S. (2021). The good, the bad, and the ugly: Impact of analytics and artificial intelligence-enabled personal information

collection on privacy and participation in ridesharing. *European Journal of Information Systems*, 31(3), 1–25. <https://doi.org/10.1080/0960085X.2020.1869508>

Chin, W. W. (1998). Commentary: Issues and opinion on structural equation modeling. *MIS Quarterly*, 22(1), vii–xvi.

Choi, B., Wu, Y., Yu, J., & Land, L. P. W. (2018). Love at first sight: The interplay between privacy dispositions and privacy calculus in online social connectivity management. *Journal of the Association for Information Systems*, 19(3), 124–151.

Cichy, P., Salge, T. O., & Kohli, R. (2021). Privacy concerns and data sharing in the internet of things: Mixed methods evidence from connected cars. *MIS Quarterly*, 45(4), 1863–1892. <https://doi.org/10.25300/MISQ/2021/14165>

Cloarec, J., Meyer-Waarden, L., & Munzel, A. (2022). The personalization–privacy paradox at the nexus of social exchange and construal level theories. *Psychology & Marketing*, 39(3), 647–661. <https://doi.org/10.1002/mar.21587>

Coopamootoo, K.P.L. (2020). Usage patterns of privacy-enhancing technologies. Proceedings of the 2020 ACM SIGSAC Conference on Computer and Communications Security, 1371–1390. <https://doi.org/10.1145/3372297.3423347>.

Culnan, M. J., & Armstrong, P. K. (1999). Information privacy concerns, procedural fairness, and impersonal trust: An empirical investigation. *Organization Science*, 10(1), 104–115. <https://doi.org/10.1287/orsc.10.1.104>

Culnan, M. J., & Bies, R. J. (2003). Consumer privacy: Balancing economic and justice considerations. *Journal of Social Issues*, 59(2), 323–342. <https://doi.org/10.1111/1540-4560.00067>

Dinev, T. (2014). Why would we care about privacy? *European Journal of Information Systems*, 23(2), 97–102. <https://doi.org/10.1057/ejis.2014.1>

Dinev, T., Bellotto, M., Hart, P., Russo, V., Serra, I., & Colautti, C. (2006). Privacy calculus model in e-commerce—a study of Italy and the United States. *European Journal of Information Systems*, 15(4), 389–402. <https://doi.org/10.1057/palgrave.ejis.3000590>

Dinev, T., & Hart, P. (2006). An extended privacy calculus model for e-commerce transactions. *Information Systems Research*, 17(1), 61–80. <https://doi.org/10.1287/isre.1060.0080>

Dinev, T., Xu, H., Smith, J. H., & Hart, P. (2013). Information privacy and correlates: An empirical attempt to bridge and distinguish privacy-related concepts. *European Journal of Information Systems*, 22(3), 295–316. <https://doi.org/10.1057/ejis.2012.23>

Duan, S. X., & Deng, H. (2022). Exploring privacy paradox in contact tracing apps adoption. *Internet Research*, 32(5), 1725–1750. <https://doi.org/10.1108/INTR-03-2021-0160>

Esmailzadeh, P. (2019). Consumers' perceptions of using health information exchanges (HIEs) for research purposes. *Information Systems Management*, 36(1), 57–77. <https://doi.org/10.1080/10580530.2018.1553649>

- European Commission. (2023). European Digital Identity. [https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-digital-identity\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-digital-identity_en).
- European Union agency for cybersecurity. (2019). ENISA's PETs Maturity Assessment Repository Title.
- Fischer-Höbner, S., & Berthold, S. (2017). Privacy-enhancing technologies. In *Computer and information security handbook* (pp. 759–778). Elsevier. <https://doi.org/10.1016/B978-0-12-803843-7.00053-3>.
- Fornell, C., & Bookstein, F. L. (1982). Two structural equation models: LISREL and PLS applied to consumer exit-voice theory. *Journal of Marketing Research*, 19(4), 440–452. <https://doi.org/10.1177/002224378201900406>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.1177/002224378101800104>
- Fox, G. (2020). “To protect my health or to protect my health privacy?” A mixed-methods investigation of the privacy paradox. *Journal of the Association for Information Science and Technology*, 71(9), 1015–1029. <https://doi.org/10.1002/asi.24369>
- Fox, G., Clohessy, T., van der Werff, L., Rosati, P., & Lynn, T. (2021). Exploring the competing influences of privacy concerns and positive beliefs on citizen acceptance of contact tracing mobile applications. *Computers in Human Behavior*, 121, Article 106806. <https://doi.org/10.1016/j.chb.2021.106806>
- Fox, G., & James, T. L. (2021). Toward an understanding of the antecedents to health information privacy concern: A mixed methods study. *Information Systems Frontiers*, 23(6), 1537–1562. <https://doi.org/10.1007/s10796-020-10053-0>
- Fox, G., van der Werff, L., Rosati, P., Takako Endo, P., & Lynn, T. (2022). Examining the determinants of acceptance and use of mobile contact tracing applications in Brazil: An extended privacy calculus perspective. *Journal of the Association for Information Science and Technology*, 73(7), 944–967. <https://doi.org/10.1002/asi.24602>
- Gauthier, M. H. J., Nennstiel, C., Kern, N., & Wendel, L. (2022). The more the better? Data disclosure between the conflicting priorities of privacy concerns, information sensitivity and personalization in e-commerce. *Journal of Business Research*, 148, 174–189. <https://doi.org/10.1016/j.jbusres.2022.04.034>
- Gutiérrez, A., O’Leary, S., Rana, N. P., Dwivedi, Y. K., & Calle, T. (2019). Using privacy calculus theory to explore entrepreneurial directions in mobile location-based advertising: Identifying intrusiveness as the critical risk factor. *Computers in Human Behavior*, 95, 295–306. <https://doi.org/10.1016/j.chb.2018.09.015>
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–152. <https://doi.org/10.2753/MTP1069-6679190202>
- Hansen, M., Hoepman, J.H., & Jensen, M. (2016). Readiness Analysis for the Adoption and Evolution of Privacy Enhancing Technologies.
- Henseler, A., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Hoehle, H., Zhang, X., & Venkatesh, V. (2015). An espoused cultural perspective to understand continued intention to use mobile applications: A four-country study of mobile social media application usability. *European Journal of Information Systems*, 24(3), 337–359. <https://doi.org/10.1057/ejis.2014.43>
- Hofstede, G. (1984). Culture’s consequences: International differences in work-related values (Vol. 5). sage.
- Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture*, 2(1), 919–2307. <https://doi.org/10.9707/2307-0919.1014>
- Hofstede, G., & Bond, M. H. (1988). The confucius connection: From cultural roots to economic growth. *Organizational Dynamics*, 16(4), 5–21. [https://doi.org/10.1016/0090-2616\(88\)90009-5](https://doi.org/10.1016/0090-2616(88)90009-5)
- Hofstede, G., Hofstede, G. J., & Minkov, M. (2005). *Cultures and organizations: software of the mind*. New York: McGraw-Hill (Vol. 2).
- Kaaniche, N., Laurent, M., & Belguith, S. (2020). Privacy enhancing technologies for solving the privacy-personalization paradox: Taxonomy and survey. *Journal of Network and Computer Applications*, 171, Article 102807. <https://doi.org/10.1016/j.jnca.2020.102807>
- Karwatzki, S., Dytynko, O., Trenz, M., & Veit, D. (2017). Beyond the personalization–privacy paradox: Privacy valuation, transparency features, and service personalization. *Journal of Management Information Systems*, 34(2), 369–400. <https://doi.org/10.1080/07421222.2017.1334467>
- Karwatzki, S., Trenz, M., & Veit, D. (2022). The multidimensional nature of privacy risks: Conceptualisation, measurement and implications for digital services. *Information Systems Journal*, 32(6), 1126–1157. <https://doi.org/10.1111/isj.12386>
- Kehr, F., Kowatsch, T., Wentzel, D., & Fleisch, E. (2015). Blissfully ignorant: The effects of general privacy concerns, general institutional trust, and affect in the privacy calculus. *Information Systems Journal*, 25(6), 607–635. <https://doi.org/10.1111/isj.12062>
- Khan, A., Krishnan, S., & Arayankalam, J. (2020). The role of ICT laws and national culture in determining ICT diffusion and well-being: A cross-country examination. *Information Systems Frontiers*, 24, 415–440. <https://doi.org/10.1007/s10796-020-10039-y>
- Kim, D., Park, K., Park, Y., & Ahn, J. H. (2019). Willingness to provide personal information: Perspective of privacy calculus in IoT services. *Computers in Human Behavior*, 92, 273–281. <https://doi.org/10.1016/j.chb.2018.11.022>
- Laufer, R. S., & Wolfe, M. (1977). Privacy as a concept and a social issue: A multidimensional developmental theory. *Journal of Social Issues*, 33(3), 22–42. <https://doi.org/10.1111/j.1540-4560.1977.tb01880.x>
- Lavado-Nalvaiz, N., Lucia-Palacios, L., & Pérez-López, R. (2022). The role of the humanisation of smart home speakers in the personalisation–privacy paradox. *Electronic Commerce Research and Applications*, 53, Article 101146. <https://doi.org/10.1016/j.elerap.2022.101146>
- Lee, E., Kim, J., Kim, J., & Koo, C. (2022). Information privacy behaviors during the covid-19 pandemic: Focusing on the restaurant context. *Information Systems Frontiers*, 1–17. <https://doi.org/10.1007/s10796-022-10321-1>
- Lee, G., & Xia, W. (2010). Toward agile: An integrated analysis of quantitative and qualitative field data on software development agility. *MIS Quarterly*, 34(1), 87–114.
- Lee, J. K., Chang, Y., Kwon, H. Y., & Kim, B. (2020). Reconciliation of privacy with preventive cybersecurity: The bright internet approach. *Information Systems Frontiers*, 22(1), 45–57. <https://doi.org/10.1007/s10796-020-09984-5>
- Li, Y. (2012). Theories in online information privacy research: A critical review and an integrated framework. *Decision Support Systems*, 54(1), 471–481. <https://doi.org/10.1016/j.dss.2012.06.010>
- Li, Y., Yazdanmehr, A., Wang, J., & Rao, H. R. (2019). Responding to identity theft: A victimization perspective. *Decision Support Systems*, 121, 13–24. <https://doi.org/10.1016/j.dss.2019.04.002>
- Lowry, P. B., Cao, J., & Everard, A. (2011). Privacy concerns versus desire for interpersonal awareness in driving the use of self-disclosure technologies: The case of instant messaging in two cultures. *Journal of Management Information Systems*, 27(4), 163–200. <https://doi.org/10.2753/MIS0742-1222270406>
- Lucier, D. M., Howell, R. T., Okabe-Miyamoto, K., Durnell, E., & Zizi, M. (2023). We make a nice pair: Pairing the mID with a NeuroTechnology privacy enhancing technology improves mID download intentions. *Computers in Human Behavior Reports*, 11, Article 100321. <https://doi.org/10.1016/j.chbr.2023.100321>
- Marikyan, D., Papagiannidis, S., & Stewart, G. (2023). Technology acceptance research: Meta-analysis. *Journal of Information Science*. <https://doi.org/10.1177/01655515231191177>
- Mudge, J. F., Baker, L. F., Edge, C. B., & Houlihan, J. E. (2012). Setting an optimal  $\alpha$  that minimizes errors in null hypothesis significance tests. *PLoS One*, 7(2), Article e32734. <https://doi.org/10.1371/journal.pone.0032734>
- Pavlou, P. A. (2011). State of the information privacy literature: Where are we now and where should we go? *MIS Quarterly*, 35, 977–988.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879. <https://doi.org/10.1037/0021-9010.88.5.879>
- Ringle, C.M., Wende, S., & Becker, J.M. (2022). SmartPLS 4. Oststeinbek. SmartPLS.
- Roundy, K. (2022). 2022 Norton cyber safety insights report: Special release – online creeping. <https://www.nortonlifelock.com/us/en/newsroom/press-kits/2022-norton-cyber-safety-insights-report-special-release-online-creeping/>.
- Schumacher, C., Eggers, F., Verhoef, P. C., & Maas, P. (2023). The effects of cultural differences on consumers’ willingness to share personal information. *Journal of Interactive Marketing*, 58(1), 72–89. <https://doi.org/10.1177/10949968221136555>
- Sedlmeir, J., Smethurst, R., Rieger, A., & Fridgen, G. (2021). Digital identities and verifiable credentials. *Business & Information Systems Engineering*, 63(5), 603–613. <https://doi.org/10.1007/s12599-021-00722-y>
- Seo, D., Gharibodoust, S., & Mandl, T. (2022). Comparing factors affecting self-disclosure behavior between German and South Korean SNS users. *Telematics and Informatics*, 75, Article 101904. <https://doi.org/10.1016/j.tele.2022.101904>
- Shaffer, J. P. (1995). Multiple hypothesis testing. *Annual Review of Psychology*, 46, 561–584. <https://www.annualreviews.org/aronline>.
- Shaw, N., & Sergueeva, K. (2019). The non-monetary benefits of mobile commerce: Extending UTAUT2 with perceived value. *International Journal of Information Management*, 45, 44–55. <https://doi.org/10.1016/j.ijinfomgt.2018.10.024>
- Shin, D., Kee, K. F., & Shin, E. Y. (2022). Algorithm awareness: Why user awareness is critical for personal privacy in the adoption of algorithmic platforms? *International Journal of Information Management*, 65, Article 102494. <https://doi.org/10.1016/j.ijinfomgt.2022.102494>
- Söllner, M., Hoffmann, A., & Leimeister, J. M. (2016). Why different trust relationships matter for information systems users. *European Journal of Information Systems*, 25(3), 274–287. <https://doi.org/10.1057/ejis.2015.17>
- SOTERIA. (2023). SOTERIA a user-friendly, secure personal data management platform. <https://www.soteria-h2020.eu>.
- Srite, M., & Karahanna, E. (2006). The role of espoused national cultural values in technology acceptance. *MIS Quarterly*, 30, 679–704.
- Stone, E. F., Gueutal, H. G., Gardner, D. G., & McClure, S. (1983). A field experiment comparing information-privacy values, beliefs, and attitudes across several types of organizations. *Journal of Applied Psychology*, 68(3), 459. <https://doi.org/10.1037/0021-9010.68.3.459>
- Straub, D., Loch, K., Evaristo, R., Karahanna, E., & Srite, M. (2002). Toward a theory-based measurement of culture. *Journal of Global Information Management (JGIM)*, 10(1), 13–23.
- Tam, C., & Oliveira, T. (2017). Understanding mobile banking individual performance: The DeLone & McLean model and the moderating effects of individual culture. *Internet Research*, 27(3), 538–562.
- Tam, C., & Oliveira, T. (2019). Does culture influence m-banking use and individual performance? *Information & Management*, 56(3), 356–363. <https://doi.org/10.1016/j.im.2018.07.009>
- Tang, Y., & Ning, X. (2023). Understanding user misrepresentation behavior on social apps: The perspective of privacy calculus theory. *Decision Support Systems*, 165, Article 113881. <https://doi.org/10.1016/j.dss.2022.113881>
- Teubner, T., & Flath, C. M. (2019). Privacy in the sharing economy. *Journal of the Association for Information Systems*, 20(3), 2. <https://doi.org/10.17705/1jais.00534>

- Thompson, N., McGill, T., Bunn, A., & Alexander, R. (2020). Cultural factors and the role of privacy concerns in acceptance of government surveillance. *Journal of the Association for Information Science and Technology*, 71(9), 1129–1142. <https://doi.org/10.1002/asi.24372>
- Tronnier, F., Harborth, D., & Hamm, P. (2022). Investigating privacy concerns and trust in the digital. *Euro in Germany. Electronic Commerce Research and Applications*, 53, Article 101158. <https://doi.org/10.1016/j.eierap.2022.101158>
- Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36, 157–178. <https://doi.org/10.2307/41410412>
- Vimalkumar, M., Sharma, S. K., Singh, J. B., & Dwivedi, Y. K. (2021). ‘Okay google, what about my privacy?’: User’s privacy perceptions and acceptance of voice based digital assistants. *Computers in Human Behavior*, 120, Article 106763. <https://doi.org/10.1016/j.chb.2021.106763>
- Wu, D., Min, C., Li, Z., & Wang, Y. (2023). Vigilance and habituation: Polymorphic experience effects in internet users’ privacy disclosure decisions. *Decision Support Systems*, 170, Article 113961. <https://doi.org/10.1016/j.dss.2023.113961>
- Yang, Q., Gong, X., Zhang, K. Z. K., Liu, H., & Lee, M. K. O. (2020). Self-disclosure in mobile payment applications: Common and differential effects of personal and proxy control enhancing mechanisms. *International Journal of Information Management*, 52, Article 102065. <https://doi.org/10.1016/j.ijinfomgt.2019.102065>
- Yin, Y., & Hsu, C. (2023). The role of privacy and emotion in ARBS continuing use intention. *Internet Research*, 33(1), 219–241. <https://doi.org/10.1108/INTR-08-2021-0571>
- Yoon, C. (2009). The effects of national culture values on consumer acceptance of e-commerce: Online shoppers in China. *Information & Management*, 46(5), 294–301. <https://doi.org/10.1016/j.im.2009.06.001>
- Yuan, Y. P., Dwivedi, Y. K., Tan, G. W. H., Cham, T. H., Ooi, K. B., Aw, E. C. X., & Currie, W. (2023). Government digital transformation: Understanding the role of government social media. *Government Information Quarterly*, 40(1), Article 101775. <https://doi.org/10.1016/j.giq.2022.101775>
- Zhang, X., Liu, S., Chen, X., Wang, L., Gao, B., & Zhu, Q. (2018). Health information privacy concerns, antecedents, and information disclosure intention in online health communities. *Information & Management*, 55(4), 482–493. <https://doi.org/10.1016/j.im.2017.11.003>
- Zou, Y., Roundy, K., Tamersoy, A., Shintre, S., Roturier, J., & Schaub, F. (2020). Examining the adoption and abandonment of security, privacy, and identity theft protection practices. Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems, 1–15. <https://doi.org/10.1145/3313831.3376570>