Journal of Information Systems Engineering and Management
2025, 10(60s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Developing a Theoretical Model for the Internet of Things Adoption for the Bank's Users in Jordan

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ARTICLE INFO
Received: 02 Oct 2025
Revised: 18 Sept 2025
Accepted: 28 Sept 2025

ABSTRACT
Objectives: Bank users in remote countries overcome obstacles to financial transactions and competitiveness by adopting the Internet of Things (IoT), thereby gaining benefits such as real-time capabilities, perceived ease of use, quality, security, and privacy. Despite these factors, there are significant benefits; however, it remains unknown how much value IoT adoption will provide to bank users in remote countries, and more research is needed. This study aimed to review and develop a theoretical model of factors influencing bank users' IoT adoption in Jordan.
Methods. The technique used in this study is expert opinion, involving interviews with five experts on the IoT adoption model in Jordan.
Results. The results make a significant contribution to the existing literature and provide decision-makers with valuable insights and practical ideas to enhance the effectiveness of IoT adoption in banks.
Conclusion. The conclusion emphasised the elements that affect IoT adoption among Jordanian bank users. In the end, the recommendation could examine various aspects of moderating factors within the model.

Keywords: Theoretical Model, IoT Adoption, Personal Innovativeness, Bank's Users

1. Introduction

The role of digital culture in digital banking has become critical to banks' competitiveness and success amid financial technology and the shift to digital banking. People think that internet banking is the most significant step forward in banks' digital services. Banking service apps have enabled users to access their benefits, such as sending money and using other financial services that suit users' needs. This could lead to the widespread adoption of Internet of Things (IoT) technology among banking users (Dawwas et al., 2025). The global banking industry has experienced a significant transformation due to the rapid growth of digital technology and the widespread adoption of the Internet of Things (IoT). "Internet of Things" refers to physically connected devices with internet that connect with other technologies to collect and share data with other parties (Ashton, 2009). IoT technology is increasingly used in the banking sector to improve security through biometric authentication and real-time analytics, make operations more efficient, and provide personalised service (Brous et al., 2022). Users' experiences with these technologies vary across banks, especially in remote countries like Jordan, where differences in infrastructure, user understanding, and institutional readiness make them harder to use.

Moreover, IoT user adoption has stagnated despite banks' significant investments in digital infrastructure, as Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) have remained low. Examining IoT adoption requires considering two factors that impact an individual's acceptance of

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technology. However, there is limited understanding of how individual differences, such as creativity, affect this perception, and vice versa. According to Jaradat et al. (2024), the level of creativity in an individual has an impact on their perception of the technology and thus influences their adoption of IoT technology. Aladwan and Altarawneh (2017) state that maintaining high Perceived Service Quality (PSQ) plays an important role in increasing the likelihood that individuals will use banks' evolving digital banking services. According to research, IoT integration has improved the customers' experience with financial services provided by banks in Jordan by increasing customers' perceptions of privacy and security. Studies reveal a negative influence on adoption rates due to concerns about data users and abuse of customer data (Rawash, 2021; Al-Adwan et al., 2020). This indicates that people still maintain a high degree of confidence in IoT apps; however, addressing these concerns is important to enhance the adoption of IoT technology.

The current study, therefore, requires a context-specific theoretical framework to identify the key determinants of IoT technology acceptance among Jordanian bank users. This study aims to develop a TAM and an IoTAM by examining the characteristics of the study's objective (i.e., PU, PEOU, PSQ, PS, and PP). To enhance the effectiveness of IoT adoption programmes, this study aims to design a theoretical model of Internet of Things (IoT) adoption among Jordanian bank users. Many currently extant models to explain technology adoption (e.g., the Theory of Planned Behaviour (TPB), the IoT Adoption Model (IoTAM), the Technology Acceptance Model (TAM), and the SERVQUAL Theory) provide insight into the factors contributing to technology adoption; however, they do not address the unique socio- and geo-political characteristics that exist within Jordan's banking sector that influence technology acceptance. To validate the dynamics experienced by bank users in Jordan when adopting IoT technologies, this study aims to conduct an empirical investigation of the factors that facilitate and hinder adoption among commercial banking users in Jordan.

1.1. Overview of IoT Adoption in the Banking Sector

To adopt the Internet of Things (IoT), a business needs to choose, implement, and integrate new technologies to make it more productive or help achieve its goals. The adoption of technology remains an important area of research in Information Systems (IS) because it directly affects the success of digital transformation projects. According to Hmoud et al. (2023), technology adoption involves individuals and organisations deciding to implement a specific technology based on their beliefs about the need for it and its relation to their future objectives. Banking services accessed via a computer, smartphone, tablet, or other networked digital devices, and systems developed to collect, transmit, and analyse data to meet bank customers' requirements, are examples of IoT adoption in banking. The concept of IoT adoption in banking is examined in multiple ways: as it pertains to social and psychological factors that influence the use of IoT services, and as it relates to users' needs, attitudes, and perceptions, as discussed by Davis (1989). In other cases, adopting IoT in organisational settings entails assessing, selecting, and implementing these technologies to enhance final-user service delivery, expedite processes, or increase productivity (Hameed et al., 2012). The diffusion of innovation theory considers the temporal and social dimensions of users' lives, conceptualising adoption as a process through which technological innovations disseminate over time among individuals or groups (Orr, 2003).

In the banking industry, financial services leverage the latest technologies and networked devices to enhance decision-making, improve process efficiency, and enhance the customer experience. Also, by enhancing service automation and personalisation, IoT adoption facilitates the banks meeting the needs of developing users (Allioui & Mourdi, 2023). Similarly, according to a study, banks can monitor real-time transactions, establish internal processes, and offer data-driven financial solutions by adopting

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https://www.jisem-journal.com/

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IoT (Motlagh et al., 2020). According to banking rules, bank customers who use IoT devices must also regularly use banking services. The first steps are to raise awareness and do some early tests. After that, the new idea should be used more often and incorporated into regular banking procedures. Examples of how the IoT is used in banking services include data-driven customer support, mobile notifications, smart ATMs, biometric authentication, and real-time fraud detection. To develop a strong, situation-specific model of IoT adoption in the banking sector, it is essential to understand how users interact with these services and the factors (PU, PEOU, PSQ, PS, and PP) that influence their decisions.

1.2. Technology Acceptance Model (TAM)

As IoT adoption becomes more common in both personal and work settings, it is important to consider what factors lead people to accept or reject new devices. Introduced more than 20 years ago, the TAM has become an important model for studying how people accept IoT. Based on TRA and TPB, the model has been developed to explain the factors influencing users' behaviour toward modern technology (Marangunić & Granić, 2015). The model has seen significant development since its inception. Warshaw and Davis (1985) were the first to mention that people have either a positive or negative view of a technology and use their behavioural intention to act towards it (Warshaw & Davis, 1985); therefore, when Davis added Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) as the main predictors of BI, it significantly increased the explanatory ability of the model (Davis, 1989) (see Fig. 1).

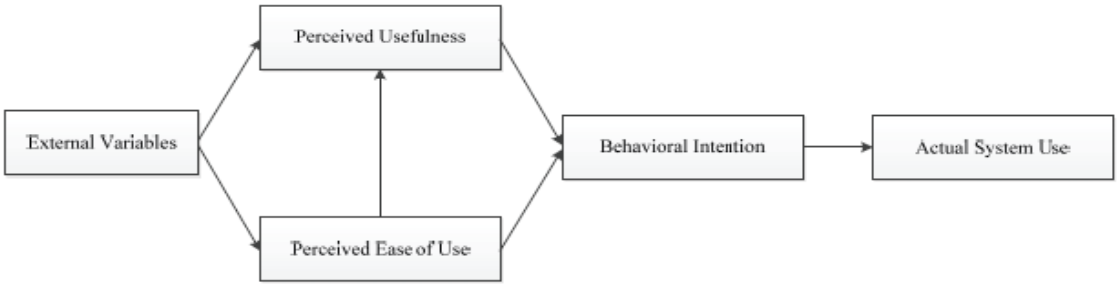

Figure 1: The final verified version of the TAM model (Warshaw & Davis,1985).

Beyond its foundational role in technology acceptance studies, the TAM has attracted significant academic interest and endorsement. TAM, first created by Davis (1989) and then expanded by Bagozzi, Davis, and Warshaw (1992), is one of the most popular models for studying how people use and adopt new technologies (Davis & Venkatesh, 2004). It consists of two fundamental constructs, PU and PEOU, which replace the more general attitudinal components of the TRA with more technology-specific elements (Bagozzi et al., 1992). In 1980, Ajzen and Fishbein first developed the TAM, which is considered a significant theoretical improvement over the TRA.

The Technology Acceptance Model (TAM) was introduced by Davis (1986) as a simpler method for examining how individuals will behave when using an information system by modifying the Theory of Reasoned Action (TRA). TRA served as a basis for the development of TAM because it has proven successful in explaining predictors of many types of human behaviour. It can be said that the user's attitude towards using the system and their perceptions of the surrounding social norms are the primary determinants of their intention to use it. TAM provides a valuable framework for understanding how

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https://www.jisem-journal.com/

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bank customers feel about and use IoT in financial services, particularly in banking. Ahmad's (2018) research shows how adaptable the idea is and how it can be changed to fit different situations and new technologies. TAM extensions continue to account for external factors that are especially important when people begin using the Internet of Things, such as service quality, security, and privacy.

1.3. IoTAM

The IoTAM extends well-known models of technology adoption, such as TAM and UTAUT. It gives us a good way to understand how people in the financial services industry use and adopt IoT. To outline the factors that affect user behaviour and satisfaction in this framework, Figure 2 integrates the influencing factors: PU, PEOU, PSQ (flexibility) (Abu-Nahel et al., 2020), PS (cyber resilience) (Riasat et al., 2025), and PP (trust) (Chellappa, 2008) (Tsourela & Nerantzaki, 2020; Yakubu et al., 2022).

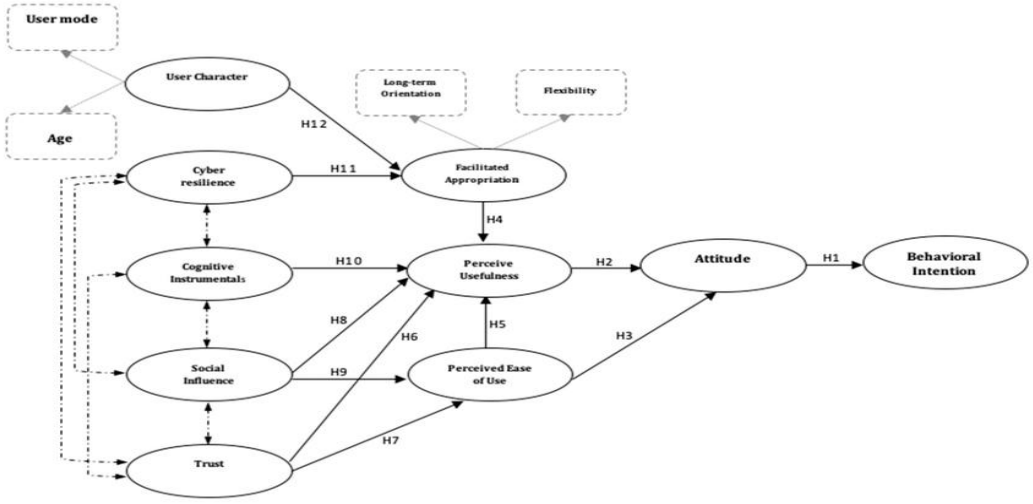

Figure 2: Internet of Things Acceptance Model (IoTAM) (Tsourela & Nerantzaki, 2020).

The IoTAM enhances knowledge on the Member Desktop and provides practitioners with access to databases on appropriate banking strategies. In addition, IoTAM enables comparison and contrast of multiple well-established modern technological theories, thereby identifying areas of overlap or discrepancy between Information and Communications Technologies (ICT) and IoTs. As a result, there is a disconnect, as banks are unable to ensure that members of society can make informed decisions about adopting iOS. Tsourela and Tsourela (2020) state that research indicates that bank customers often select banks based on their adoption of ICT or IOS when they ascertain that the adopted service provides value, ease of use, security, and privacy. Thus, IoTAM provides a robust theoretical framework for practitioners and researchers alike to assess bank customers, design banking services, and increase customer retention.

1.4. Theory of Planned Behavior (TPB)

Researchers have been interested in the biological, social, cultural, and psychological factors that shape human personality. However, they have neglected to consider an important element that significantly impacts behaviour and personality (Ajlouni et al., 2021). As an extension of the TRA, the TPB describes

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how attitudes, perceived control, and social pressure influence behavioural intention, the best indicator of actual behaviour (Ajzen, 1991; see Figure 2). Changes in these three belief sets alter intentions and, as empirical research consistently shows, observable actions. Perceived behavioural control gauges how easy or difficult an action is to complete; subjective norms capture the expectations of significant others; and attitude represents ideas about anticipated consequences (Johnson, 2017).

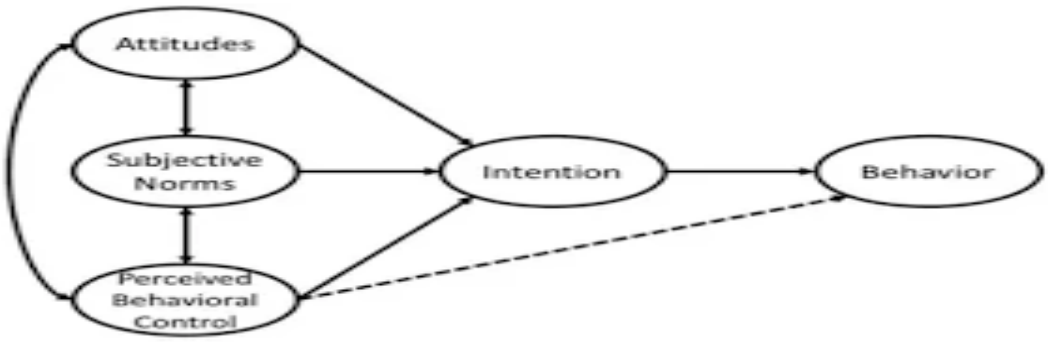

Figure 3: Theory of Planned Behavior (Ajzen, 1991).

The Theory of Planned Behaviour (TPB) offers a practical approach to understanding IoT adoption among bank users in Jordan. Previous studies have also demonstrated that the TPB can accurately predict an individual's intention to use digital banking based on their perceptions of online banking services, social norms, and their self-efficacy in using IoT technology for banking (Nasri & Charfeddine, 2012). By combining the TPB with the TAM constructs PU and PEOU, a more comprehensive theoretical framework is developed to understand IoT adoption among banking users in Jordan. This structure enables the analysis of both technology-focused assessments and broader social-psychological factors (Safeena et al., 2013). Using the TPB as an analytical framework, this research examines psychological factors that influence an individual's desire to engage with IoT technology offered by banks (i.e., "to bank with"). The TPB assumes that individuals have some control over the technology they use, as well as perceived pressures from others to use it, and personal attitudes toward using technology for banking. This research used the TPB to explore how psychological factors influence users' intentions to adopt IoT technology in the banking industry and to identify both the motivations behind and the barriers to adoption unique to the banking industry.

1.5. SERVQUAL Theory

SERVQUAL is a user-oriented tool for managing and analysing service quality. It can be used to evaluate service standards in financial services from the user's perspective (Perule et al., 2020). SERVQUAL was developed as a reliable tool for assessing service quality across a range of industries (Parasuraman et al., 1985). Ten variables, in time, produced five core constructs of Security, Competence, Access, Reliability, Courtesy, Communication, Credibility, Tangibility, Responsiveness, and User Understanding, which assures quality service to users through: i) Assurance, knowledgeable and courteous staff that create trust in users; ii) Empathy, individual care for each user; iii) Responsiveness, timely and helpful assistance; iii) Reliability, service delivered accurately and on time; and 5) Tangibles, the physical site, equipment and staff appearance (Parasuraman et al., 1988) (See Figure 4).

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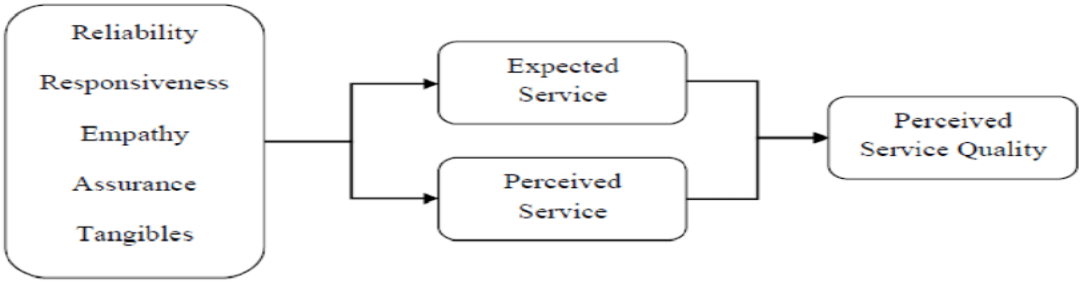

Figure 4: SERVQUAL model (Parasuraman et al., 1988).

These factors remain pertinent when evaluating bank users' adoption of IoT. According to Perule et al. (2020), the adoption of IoT improves tangibility through smart devices and modern interfaces, enhances empathy through personalised, data-driven services, tests reliability through real-time data exchange, demands higher responsiveness in issue resolution, and builds up or weakens assurance related to PS. This research explains IoT adoption in the banking industry more comprehensively by integrating SERVQUAL into a theoretical model that links technological service with users' expectations for PSQ. In addition, Susilo et al.'s study investigates the use of SERVQUAL to measure user happiness and its impact on the probability that users will continue using Internet of Things applications. To achieve this objective, the present study used an efficient multivariate technique that enables the analysis of multiple responses and explanatory variables without any assumptions. The findings indicate that improving service quality could increase user satisfaction and retention in IoT applications. By improving service quality, user satisfaction, and customer retention, the development of customised products could also be improved. This analysis provides banks with helpful information to develop strategies for user acquisition and loyalty (Susilo et al., 2025).

1.6. Theoretical Model for IoT Adoption in Bank Users

1.6.1. IoT Adoption Factors

Understanding how users view IoT applications and solutions in banking and developing ways to increase their adoption continue to be significant managerial and theoretical challenges (Tsourela & Nerantzaki, 2020). The TAM has been the primary tool used in studies of IoT adoption in financial services (Alnemer, 2022). Additionally, the TAM is a traditional theoretical framework that shows how bank users accept and use the IoT, particularly in banking services. The model shows that PU and PEOU are the two most important factors affecting bank users' adoption of IoT technology. Empirical studies have consistently shown that the TAM is better at making predictions than other theoretical frameworks (Cordoş & Fülöp, 2015). According to Hair et al. (2020), the Technology Acceptance Model (TAM) provides a framework that can assist in determining the level of Internet of Things (IoT) adoption within the banking and financial services industry and provide insight into how these factors influence banking customers' use of technology. Understanding these factors could facilitate more effective strategies for banks to enhance IoT uptake and ensure that their products meet users' needs (Hair et al., 2020).

1.6.1.1.Perceived Ease of Use (PEOU) & Perceived Usefulness (PU)

TAM is a model that describes how individuals use and accept information. Davis's TAM, developed in 1989, is an extension of TRA; therefore, behavioural intention is key to the use and acceptance of a given technology. This behavioural intention is determined by several factors, including Perceived Ease Of

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Use (PEOU), Perceived Usefulness (PU), and attitudes toward use, as well as how these three variables all strongly affect one another and ultimately impact one's view of technology adoption for IoT (Venkatesh & Davis, 2000; Davis, 1986). Therefore, IoTAM includes many new elements of research on technology adoption beyond previous models (Tsourela & Nerantzaki, 2020). While using the newer model, this study employed certain exogenous and endogenous variables from existing models and introduced additional factors unique to IoTAM.

1.6.1.2 Perceived Service Quality (SPQ)

According to Al-Nawafleh et al. (2019), theoretical models have gaps in understanding. It has been defined that PSQ has not been adequately accounted for as an independent variable, despite the TAM's thorough investigation. This discovery stems from a previous study that prioritised technology over service components. In PSQ frameworks, it is measured by comparing the services people want with the services they think they are getting. Additionally, the research conducted by Al-Nawafleh et al. (2019) revealed that it is important to incorporate subjective norms and service quality attributes into a service acceptance framework by combining the structural elements of the TAM and the TPB. This is supported by Almugari et al. (2020), who emphasise the importance of considering subjective norms in user intention studies; Chen et al. (2017); and Al-Nawafleh et al. (2019), who support the inclusion of additional factors, such as service quality, in the TAM.

1.6.1.3 Perceived Security (PS)

Ahmad (2018) and Almaiah et al. (2023) developed a new strategy based on the TAM. The main parts of this paradigm are PU, PS, PP, and PEOU. Also, the study by Siagian et al. (2022) shows that expanding the TAM model often involves introducing new constructs specific to the banking industry. Security and privacy are important for the integrity of financial services and operations. Their research develops a model to examine how the PU, PS, PP, and PEOUs of IoT adoption influence bank users' behavioural intentions toward digital banking services.

1.6.1.4 Perceived Privacy (PP)

Researchers have mainly concentrated on incorporating additional variables to enhance TAM (Hur et al., 2014; Chen et al., 2017). Legris et al. (2003) argue that adding additional components to the TAM model would improve its predictive power. However, studies of user behaviour show that people's attitudes and perceptions significantly influence how the banking industry uses technology (Chuah et al., 2016; Venkatesh et al., 2012; Ahmed, 2018). Bajaj et al. (2023) examined the determinants affecting IoT adoption without depending on a specific theoretical framework. The present study primarily concentrated on four key areas: cost, convenience, social context, and privacy. The effect of the IoT implementation on CRM services was also analysed. A literature review of these factors and their relationships was conducted to identify research gaps and formulate hypotheses. To explore the logical connection between privacy and IoT adoption in the study model, Bajaj et al. (2023) developed a conceptual framework for the hypothesis, grounded in earlier research.

1.6.1.5 Users' Satisfaction (US)

The study by Zavareh et al. (2012) identified the principal determinants of Iranian users' satisfaction with online banking services. High levels of satisfaction, Perceived Ease Of Use (PEOU), Perceived

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Fulfilment (PF), and Dependable Service (DS) were identified as the primary contributors to online banking. The data indicate that user attitudes towards Perceived Usefulness (PU) and PEOU positively influenced User Satisfaction (US). These findings showed that user attitudes towards PEOU and PU should be a key focus for banks to enhance the online banking customer experience. Islam et al. (2023) further identified several important attributes that contribute to the satisfaction of online banking users. For example, the variables PEOU, PU, and Perceived Service Quality (PSQ) are significantly correlated with overall user satisfaction. The insights derived from both Islamic et al. (2023) and Zavareh et al. (2012) help banks make sound decisions to develop policies and programmes aimed at enhancing the user experience with online banking. George and Kumar (2014) examined how Service Provider (SP) characteristics affect the way in which users in Kerala, India, utilise Internet banking. The results of their study indicate that two critical dimensions of service quality, Perceived Quality (PQ) and Perceived Satisfaction (PS), have significant effects on user satisfaction and confidence with Internet banking.

The research findings provide direction for banks to increase user confidence and broaden Internet banking usage effectively. Based on these results, the researchers have generated several recommendations for US banks, including assuring customers that their information is kept entirely private and secure, and emphasizing the importance of informing customers about banks' privacy and security policies to increase customer confidence in using Internet banking platforms. Banks should also regard privacy and security as influential factors in building relationships with customers and thus encourage their customers to use Internet banking on an ongoing basis. Additionally, Rod et al. (2009) examined how PEou, PU, PS, and PP interact to determine their effects on the quality of Internet banking services and, in turn, on user satisfaction with Internet banking in New Zealand. Their results provided evidence of a strong relationship among these four factors and the quality of Internet banking services, Internet information systems, and Internet banking user services. Moreover, the results indicated that these facets of the PSQ significantly affect users' perceptions of the overall quality of online banking, thereby significantly impacting their level of satisfaction.

1.6.1.6. Personal Innovativeness (PI)

PI in IoT adoption technology is characterised by a risk-tolerant disposition, wherein individuals are willing to explore new technologies and artefacts. This trait, defined by boldness and curiosity, drives an individual's inclination to engage with novel and untested PI (Lu et al., 2005). Such individuals tend to form positive attitudes toward emerging technologies before they are accepted and adopted. Research shows these attitudes are shaped by synthesising information from diverse sources (Agarwal & Prasad, 1998). It also indicated that people with high levels of PI achieve better adoption outcomes with IoT assistive devices (Bhadauria & Chennamaneni, 2022). Particularly in relation to PU and PEOU, PI has been studied as a moderator of the factors influencing IoT adoption. The authors of a study by Amoroso and Lim (2015) hypothesized that users' behaviours regarding mobile applications could be predicted by personal innovation, perceived ease of use, and satisfaction with mobile applications. Although the authors found that the ease of use of mobile technology could be used as a favourable measure to predict users' intention to make a repurchase, the innovative nature of individuals seems to have more of an effect on attitude toward reusing mobile applications, as well as the satisfaction experienced by users towards mobile applications. The authors concluded that, to create an environment in which users show favourable attitudes towards repeated use of mobile applications, there was a need to increase PI.

Beyond its effect on PI's impact on banks' ability to reduce risk in a highly regulated environment, PI also enables financial institutions to develop innovative solutions to meet their compliance obligations. The combination of creativity and a solid understanding of compliance standards enables this balance,

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supporting the growth and maintenance of resilience and confidence within the financial services sector (Doyle et al., 2014). For financial institutions to continue to exist and develop over the long term, a culture of supporting PI must remain integral to their organisation. As banks embrace the ever-changing needs of their users and technological advances, they will be well-positioned to address future challenges and remain competitive in a fast-changing economy (Chang et al., 2022). PI, as a moderating variable within the IoT Adoption Model, has significant theoretical and practical implications. Lu et al. (2005) assert that PI is defined by a risk-tolerant mindset, indicating that individuals are receptive to exploring and experimenting with novel technologies and artefacts. This natural boldness and curiosity encourage a proactive approach to interacting with new and untested systems. Therefore, individuals with high levels of personal innovation are inclined to develop favourable perceptions of emerging technologies before their formal adoption.

According to Agarwal and Prasad (1998), these positive attitudes towards technology stem from the cognitive blending of various sources of information or experience, thereby increasing an individual's confidence in adopting a new technological environment. In the Internet of Things (IoT) arena, users with higher PI levels are more likely to view assistive, interconnected devices as providing high utility, ease of use, and satisfaction (Bhadauria & Chennamaneni, 2022). Therefore, it is no surprise that PI strengthens the relationship between the core elements of the IoT Adoption Model, i.e., Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), and overall user enjoyment. Amoroso and Lim (2015) found in their empirical study that users who perceived mobile technology as easier to use were significantly more likely to intend to repurchase. However, the influence of PI on user satisfaction and users' willingness to continue using was much larger than that of ease of use, making PI a moderator in the adoption of new technologies. PI also assists organisations in highly regulated areas, such as banking, in striking a balance between complying with regulations and developing innovative ideas. Doyle et al. (2014) argued that encouraging creativity while following the rules makes people more resilient and builds trust in users. Chang et al. (2022) also stressed that maintaining a culture that encourages PI is important for an organisation to adapt, compete, and succeed in the long run in rapidly evolving digital ecosystems.

2. Methodology

In general, this study used a quantitative methodology to achieve its research objectives, as it assists in validating relationships among the study's variables and enhancing generalisability (Kelley et al., 2003; Lucko & Rojas, 2010). The validation methodology includes expert opinion. Sekaran and Bougie (2018) explained that content validity occurs when professionals agree that the items are designed to accurately and fully measure the variable and the study's model. In this study, content validity is based on expert opinions (industrial and academic expertise). In detail, the unstructured interviews were conducted with five experts in the Internet of Things Adoption and Banking sectors, including two individuals with industrial expertise and three with academic expertise.

3. Result and Discussion

The study identified five factors (PU, PEOU, PSQ, PS, and PP) that affect IoT adoption and bank users' satisfaction in Jordan. The model (see Fig. 4) shows how TAM, IoTAM, TPB, and SERVQUAL work together to influence the factors that bank customers should consider when using banking services.

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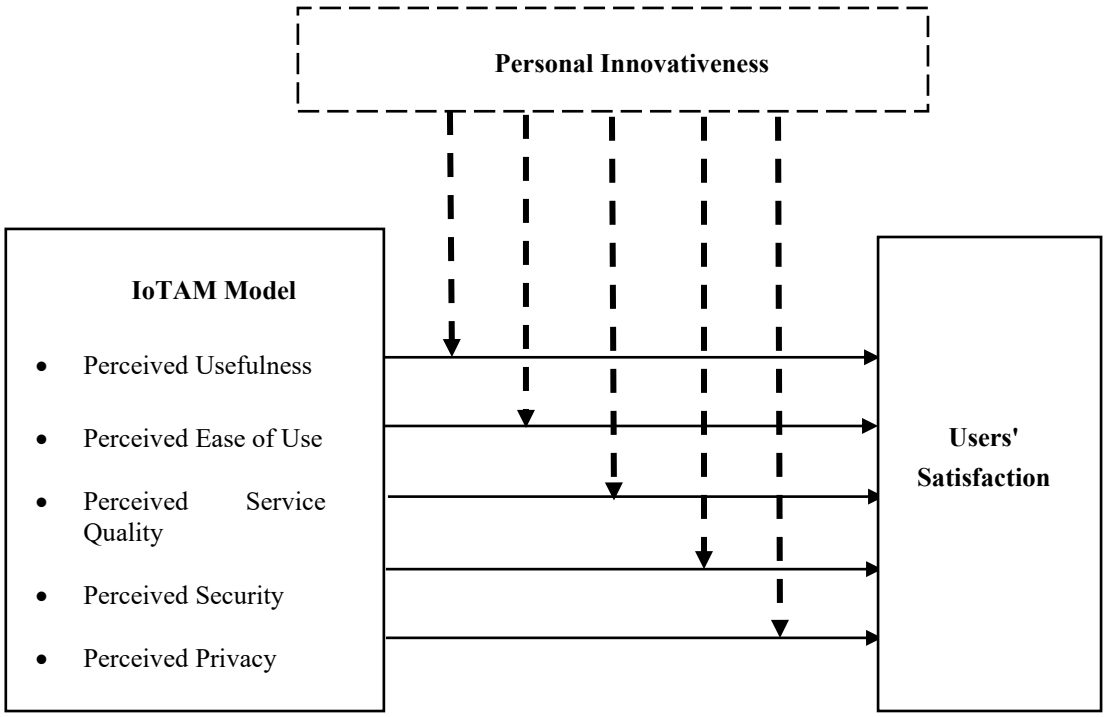

Figure 5.The Study Conceptual Framework Model (Adopted from Davis (1986); Ajzen (1991); Parasuraman et al. (1988); Siagian et al. (2022); Bajaj et al. (2023); and Tsourela & Tsourela (2020)).

In Figure 5, the relationship among the topics in this research is clear from the arrows. Based on factors that affect them, bank users are likely to be more open to using IoT in banking services. These factors include traits that give users more freedom to use IoT to meet their banking needs. PEOU, for example, makes people think more highly of banking services that are easy, simple, and clear. The PU of financial services is better and meets many users' needs, making bank users feel good about the bank. The most important qualities of PSQ are tangibility, responsiveness, assurance, empathy, and reliability. These traits could affect how likely people are to use IoT in financial services. PS and PP, on the other hand, make bank customers feel more confident, which is good for them. Therefore, these elements fostered a more positive view of banking, making individuals more likely to adopt IoT services offered by banks in Jordan. The Technology Acceptance Model (TAM) was used to predict an individual's willingness to adopt new banking and information technologies based on IoT. This predictive model posits that the attributes of systems motivate users, serving as a driving force behind both system adoption and acceptance of newly developed technological solutions. The two most significant factors identified by the TAM theory in IoT adoption in banking services are PU and PEOU.

Moreover, Venkatesh and Davis (2000) proposed that several antecedent circumstances influence banking users' desire to use IoT. According to Legris et al. (2003), adding more parameters would improve the predictive ability of the TAM model. Over time, financial services have been incorporated into the TAM model. Furthermore, previous studies have focused on adding additional influencing factors to the TAM model to increase its dimensions. On the other hand, TAM research has highlighted the importance of examining the subjective aspects of banking users' needs when implementing IoT in banking services (Almugari et al., 2020). The previous study by Al-Nawafleh et al. (2019) highlights the

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inclusion of PSQ and other components in the TAM model, which have a significant impact on bank users' intentions (Bhatti & Abareshi, 2017). The addition of the PSQ variable to the TAM model (as confirmed by both the TPB and SERVQUAL frameworks) will broaden the TAM model's applicability and increase user adoption rates for IoT banking services, as supported by Alamiah et al. (2023). In addition, according to Alamiah et al. (2023), security- and privacy-related perceptions significantly contribute to increased use of IoT banking services. These results align with Chatterjee et al. (2023) and Widagdo and Roz (2022).

Ahmad's (2018) study indicates that PS and PP have been incorporated into the TAM model as fundamental components. The IoTAM Framework combines elements of both the Technology Acceptance Model and the Unified Theory of Acceptance and Use of Technology. According to Tsourela and Nerantzaki (2020), perceived security and privacy components increased a bank customer's intention to conduct transactions through the Internet of Things (IoT). In addition, based on research by Siagian et al. (2022), a bank user's perception of the security level of that bank's digital payments application affected the user's intent to use the application. If a bank user is confident that their data is secure, they are likely to recommend using the bank's digital payment application as an IoT process to others. Since banking services handle sensitive financial information for their users, banking institutions should ensure they develop and implement robust privacy policies to protect that information. Furthermore, enhancing PP protections for bank users through IoT, such as defences against card cloning, phishing, and hacking, could increase user confidence and adoption of banking services. When banks successfully reassure users about the PS in cybersecurity and confidentiality of their data, users are more likely to accept IoT adoption in banking solutions (Yakubu et al., 2022). Additionally, Bajaj et al. (2023) found that the PP factor significantly affects bank users' adoption of IoT.

3.1. Suggestions and Conclusion

Addressing new issues facing remote countries, the adoption of IoT by bank users signifies a paradigm shift in establishing key influencing factors in the financial industry for banks in these regions (Bajaj et al., 2023). Bank users in remote countries like Jordan overcome obstacles such as financial transactions and competitiveness thanks to the special benefits of IoT adoption, including real-time capabilities, ease of use, quality, security, and privacy. While it is clear there will be significant gains for the banking industry due to the IoT's positive attributes, the extent of value for banking customers in remote countries (e.g., Jordan) remains to be determined and thus warrants further study. Therefore, this research paper could serve as a conceptual methodology to evaluate how the confirmed determinants influence the adoption of IoT in the financial services space among bank customers in Jordan. A framework for the adoption of IoT technology by bank customers has been developed for this research to provide additional insight into the factors influencing customers' decision-making. The conceptual model provides a comprehensive view of how decision-makers in Jordan can utilise data from customers' reactions to the characteristics of their financial services and the factors influencing their decision-making process regarding the adoption of IoT technology in relation to their overall banking experience.

In conclusion, personal innovativeness is an important moderator of the IoT Adoption Model's relationship with user happiness, enhancing the positive associations among perceived usefulness, perceived ease of use, and service quality among creative individuals. This implies that for an individual to accept technology, they must have mental readiness, and the technology must have certain attributes. Combining several theories, TAM, IoTAM, TPB, and SERVQUAL, the model provides a theoretical framework for evaluating the factors influencing IoT adoption among Jordanian bank users. The

primary a priori factors in the model are PU and PEOU, along with several pertinent factors identified through a literature review and features of IoT adoption technology, such as PSQ, PS, and PP. Given the country's banking sector processes, this study offers a distinctive perspective on the factors influencing IoT adoption among bank users.

The results of this research significantly advance the current literature and provide useful information and insights on what banks need to adopt IoT more effectively. The major limitation of this work is that the model presented has not yet been empirically tested or validated. As such, further qualitative and quantitative studies investigating the relationships among the model's elements will be necessary to determine the model's feasibility and practical application. Future studies could provide new information on the five critical influencing factors (PU, PEOU, PSQ, PS, and PP) for IoT adoption among bank users in remote countries, with a specific focus on Jordan. Additionally, this study used a conceptual approach to develop a conceptual model and identify influencing factors of IoT adoption among bank users; however, future research could use other techniques, such as bibliometric analysis or meta-analysis, to provide visual representations and draw different conclusions about these research trends and the field as a whole.

Acknowledgment

The authors would like to express their sincere gratitude to the experts who participated in this study for their valuable insights and time. We also extend our thanks to the University Utara Malaysia (UUM) for providing the academic environment and resources necessary to conduct this research. This study is part of the requirements for the final defense of a doctoral dissertation.

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