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Sustaining the Digital Shift: Key Determinants of fintech Continuance Intention in Malaysia's Retail Banking Sector

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Abstract

The rapid evolution of financial technology (fintech) has reshaped the global banking landscape, offering customers unprecedented convenience, personalization, and efficiency. In Malaysia, fintech adoption has accelerated, particularly within retail banking, where mobile applications and digital platforms have become integral to daily financial transactions. Yet, despite high initial adoption rates, sustaining customer engagement remains a challenge. This study investigates the determinants of fintech continuance intention among Malaysian retail banking customers, applying and extending Technology Continuance Theory (TCT). An online survey of 447 respondents of active fintech users was analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). Results demonstrate that service quality, perceived benefits, confirmation, and perceived usefulness significantly enhance satisfaction; While trust, self-efficacy and social influence foster positive attitudes toward fintech. Satisfaction and attitude strongly predict continuance intention. Interestingly, perceived usefulness does not directly influence continuance intention, and ease of use exerts no significant effect on attitude, suggesting that mature fintech users prioritize psychosocial and experiential factors over functional ease. This study extends TCT by incorporating psychosocial antecedents, offering theoretical contributions to post-adoption technology research and practical guidance for banks and policymakers seeking to sustain digital engagement.

Keywords: Fintech, Continuance Intention of Usage, Malaysia, Technology Continuance Theory, Retail Banking

Introduction

Traditional brick-and-mortar banks have historically relied on physical branches, Automated Teller Machine (ATM) networks, and face-to-face interactions to deliver essential financial

services such as deposits, credit and savings management (Forbes, 2023). These models emphasized physical presence and human interaction as the foundation of customer engagement. However, accelerating digitalization has disrupted this paradigm, compelling banks to reposition conventional resources as strategic assets within hybrid service models (Elsaid, 2023; Fong et al., 2021). Financial Technology (Fintech) innovations ranging from mobile applications and algorithmic decision-making to blockchain-based transactions have redefined competitiveness in the banking sector (Emuron et al., 2024; Yan et al., 2023). As Addy et al. (2024) highlight, fintech simultaneously introduces competitive threats and opportunities for growth, forcing incumbents to adopt agile strategies and integrate digital solutions that align with evolving consumer expectations.

Globally, fintech has emerged as a central driver of innovation, enabling new business models and setting new benchmarks for customer engagement. KPMG (2022) reported that global fintech investments surged to US$168 billion in 2021, a 108% increase from the previous year, underscoring investor confidence and fintech's disruptive potential (Lian & Yoong, 2023). Rather than serving as peripheral enhancements, fintech solutions now represent strategic imperatives for modernisation and competitiveness (Ooi et al., 2025; Amnas et al., 2023). The banking sector is experiencing a broader transformation driven by technological acceleration and shifting consumer behaviours. Retail customers increasingly engage with fintech through mobile payments, algorithm-supported investment tools, and diverse digital platforms accessible across multiple devices (Naeem et al., 2025). Emerging technologies such as artificial intelligence, blockchain, and real-time analytics further intensify this transformation, enabling unprecedented personalization and efficiency (McKinsey, 2023). As Belanche et al. (2019) and Oi R. (2024) argue, fintech represents not just digitization but a paradigm shifts in financial solution design, enhancing accessibility, convenience, and empowerment.

In the Malaysian context, Asia has become a global hub for fintech growth, with China, India, and Singapore leading technological advancements and investments. In 2021, Asia accounted for nearly 40% of global fintech investment, supported by favourable regulatory environments and digitally receptive consumers (KPMG, 2022; Al-Qudah et al., 2025). Fintech adoption has extended beyond urban centres, reaching rural populations and enhancing accessibility to financial services Malaysia, as part of this regional ecosystem, has embraced fintech as a strategic enabler of financial inclusion and modernization. Bank Negara Malaysia (BNM) has played a pivotal role in promoting fintech adoption, introducing regulatory frameworks that encourage innovation while safeguarding consumer interests (BNM, 2024). Malaysian consumers have responded positively, with mobile banking apps, e-wallets, and online payment systems becoming integral to daily financial activities (Awwad, 2023).

The Malaysian retail banking sector has undergone a profound transformation in recent years, driven by the rapid adoption of fintech. Fintech, broadly defined as technology-driven solutions that enhance, transform, or disrupt traditional financial services, encompasses innovations such as mobile banking applications, predictive algorithms, blockchain platforms, and cryptocurrency exchanges (Forbes, 2022; Bommer et al., 2023; Bajunaied et al., 2023). These innovations extend beyond routine banking tasks like fund transfers and bill payments, enabling advanced services such as peer-to-peer lending and decentralized finance (Alkhwaldi et al., 2022). In Malaysia, fintech adoption has accelerated

due to a combination of regulatory support, consumer demand, and technological advancement. Institutions such as Bank Negara Malaysia (BNM) have actively promoted digital financial inclusion, while consumers increasingly rely on mobile platforms for everyday transactions (KPMG, 2022; Jafri et al., 2024). The COVID-19 pandemic further catalysed this shift, compelling banks to digitize rapidly and customers to embrace fintech as the default mode of financial interaction (Naeem et al., 2025).

Despite high adoption rates, sustaining customers' long-term engagement remains a challenge. Continuance intention the decision to persist in using fintech services is critical for long-term competitiveness. Customers may adopt fintech initially, but retention depends on perceptions of reliability, trust, and satisfaction (Xia et al., 2023; Hamid et al., 2025). As Minh (2021) notes, digital innovations can simultaneously enhance convenience and prompt migration to competing providers, underscoring the importance of understanding post-adoption behavior. The same innovations that enhance convenience can also prompt customers to explore competing providers offering superior experiences (Minh, 2021). Schrotenboer (2019) emphasizes that sustaining usage requires more than introducing digital tools; banks must deliver consistent value, reduce friction, and foster satisfaction. In Malaysia, continuance intention is shaped by satisfaction, perceived usefulness, trust, and seamless functionality (Xia et al., 2023; Hamid et al., 2024). From business perspective, analysing the acceptance and usage continuance intention by the customers are crucial for business sustainability (Bhattacherjee, 2001). Thus, while fintech adoption in Malaysia is robust, continuance intention of usage remains uncertain. Understanding the determinants of sustained usage is critical for banks seeking to retain customers and for policymakers aiming to advance the nation's digital transformation agenda.

The fintech has become a transformative force in the global financial sector. In Malaysia, digital banking applications, e-wallets, contactless payments, real-time transfers, and AI-based financial tools are now integral components of customer banking experiences (Yip, 2025). Driven by Bank Negara Malaysia's Financial Sector Blueprint (2022–2026), fintech innovation continues to expand through digital banks, open banking, embedded finance, and enhanced cybersecurity governance (BNM, 2023). The COVID-19 pandemic accelerated digital dependency, prompting Malaysian consumers to adopt digital banking channels for essential financial operations. Nonetheless, adoption does not guarantee continuance. Many users discontinue fintech services due to cybersecurity fears, poor digital experience, system downtime, limited user support, and distrust in online transactions (Blader, 2025). Therefore, understanding continuance intention the willingness of customers to persist in using fintech services—is pivotal for long-term digital transformation in the banking sector (Abdul Rahim et.al, 2022).

Theoretical Background and Hypotheses Development

Theoretical Background - Technology Continuance Theory (TCT)

Introduced by Liao et al. (2009), Technology Continuance Theory (TCT) is an improved model elaborating the usage continuance on technologies. It has integrated constructs from the Technology Acceptance Model (TAM) and Expectation Confirmation Theory (ECT) to explain post-adoption behavior. It emphasises that continuance intention is shaped by perceived usefulness, satisfaction, confirmation, and attitude (Liao et al., 2009; Khayer & Bao, 2019). However, fintech-specific variables such as service quality, perceived security, trust,

perceived benefits, self-efficacy and social influence expand beyond traditional TCT constructs. In fintech contexts, TCT is particularly relevant because adoption alone does not guarantee sustained use. Customers may initially adopt mobile banking apps or e-wallets, but their decision to continue depends on the continuance of information systems of respective providers such as internet service providers (ISP), online vendor, the banks, agents etc (Bhattacherjee, 2001).

While TCT captures rational evaluations of technology, it does not fully account for psychosocial influences. This research extends TCT by incorporating service quality, perceived benefits, trust, self-efficacy, and social influence as antecedents as follows:

i. **Service Quality (SQ):** In digital banking, SQ encompasses reliability, responsiveness, and assurance. Studies show that SQ strongly predicts satisfaction and continuance (Emuron et al., 2024; Yan et al., 2023).
ii. **Perceived Benefits (PB):** Beyond usefulness, PB reflects broader experiential advantages such as convenience, personalization, and financial empowerment (Lin & Lee, 2024).
iii. **Trust (T):** Trust in fintech platforms is critical given cybersecurity concerns. It directly influences attitude and continuance (Cheng et al., 2019; Foroughi et al., 2024).
iv. **Self-Efficacy (SE):** Confidence in using fintech tools reduces anxiety and fosters positive attitudes (Khayer & Bao, 2019).
v. **Social Influence (SI):** In collectivist cultures like Malaysia, peer and societal norms strongly shape attitudes toward fintech (Tseng & Koy, 2025).

While, the continuance intention (CI) refers to the decision to persist in using fintech services over time. It is influenced by satisfaction and attitude, which mediate the effects of antecedents such as usefulness, trust, and social influence (Lian & Yoong, 2023). In Malaysia, CI is shaped not only by functional performance but also by relational and psychological factors, underscoring the need for an extended TCT model. Besides, worth to note that CI is critical for banks because initial adoption does not guarantee long-term engagement. Sustained usage drives customer retention, cost efficiency, and digital transformation success (Gupta, 2024; Xia et al., 2023). By integrating these constructs, the extended TCT framework provides a more comprehensive explanation of continuance intention in Malaysia's retail banking sector.

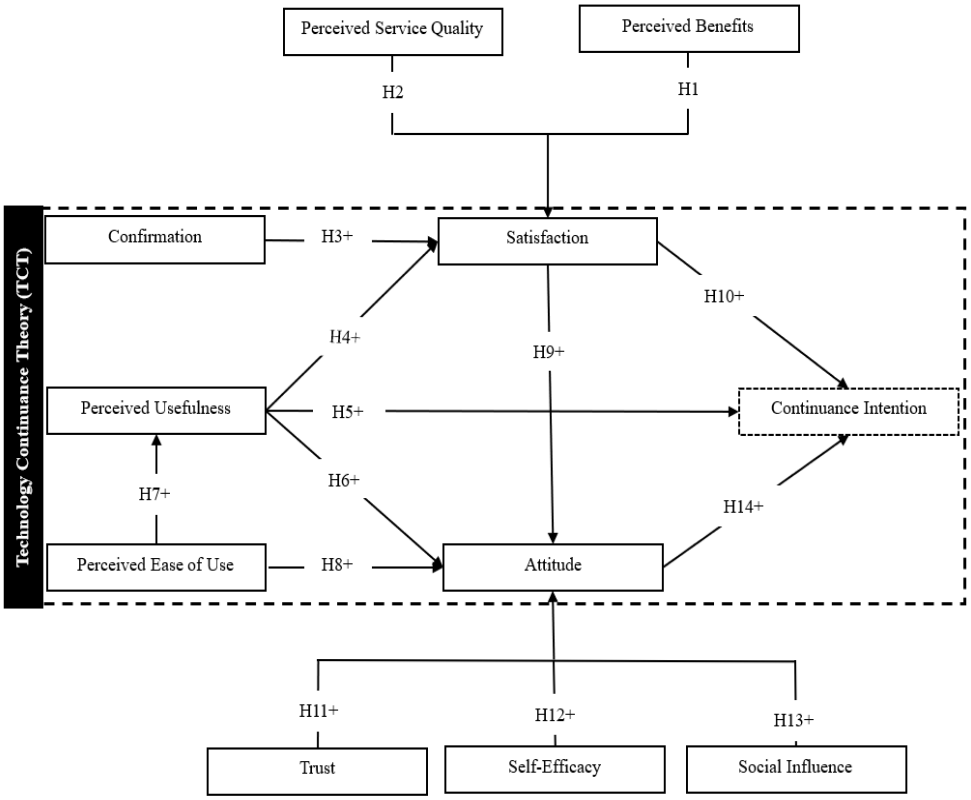

Figure 1: Research Framework - Extended TCT Framework

Literature Review

Existing literature on fintech adoption has largely focused on initial acceptance, drawing on models such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). While these frameworks explain adoption behavior, they inadequately capture post-adoption dynamics. Technology Continuance Theory (TCT), which integrates elements of TAM and Expectation Confirmation Theory (ECT), offers a more robust lens for examining continuance intention. However, empirical applications of TCT in fintech contexts remain limited, particularly in emerging economies such as Malaysia.

Moreover, fintech adoption in Malaysia is shaped by unique cultural, regulatory, and market dynamics. Trust in digital platforms, perceptions of service quality, and the influence of social networks play pivotal roles in shaping customer behavior. Yet, these psychosocial factors are often overlooked in traditional continuance models. Addressing this gap requires extending TCT to incorporate variables such as service quality, perceived benefits, trust, self-efficacy, and social influence.

Problem Statement

The rapid adoption of fintech in Malaysia's retail banking sector has transformed customer interaction with financial services. Mobile banking applications, e-wallets, and online payment platforms have become integral to daily life, supported by regulatory encouragement from Bank Negara Malaysia (BNM) and accelerated by the COVID-19 pandemic (KPMG, 2022; Jafri et al., 2024). Despite this surge in adoption, sustaining customer engagement remains a pressing challenge. Continuance intention — the decision to persist in

using fintech services — is critical for banks, as initial adoption alone does not guarantee long-term loyalty or profitability (Xia et al., 2023; Hamid et al., 2024).

Existing research has predominantly focused on adoption rather than continuance. Models such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) explain initial acceptance but inadequately capture post-adoption dynamics (Davis, 1989; Venkatesh et al., 2012). Technology Continuance Theory (TCT), which integrates TAM and Expectation Confirmation Theory (ECT), provides a more robust framework for examining continuance intention by emphasizing satisfaction, confirmation, and perceived usefulness (Bhattacherjee, 2001; Liao et al., 2009). However, empirical applications of TCT in fintech contexts remain limited, particularly in emerging economies such as Malaysia.

Moreover, fintech adoption in Malaysia is shaped by unique cultural, regulatory, and market dynamics. Trust in digital platforms, perceptions of service quality, and the influence of social networks play pivotal roles in shaping customer behavior (Cheng et al., 2019; Foroughi et al., 2024). Yet, these psychosocial factors are often overlooked in traditional continuance models. Without incorporating them, existing frameworks risk oversimplifying the complex drivers of sustained fintech usage. As Minh (2021) cautions, digital innovations can simultaneously enhance convenience and prompt customers to migrate to competing providers offering superior experiences. Schrotenboer (2019) similarly emphasizes that sustaining usage requires more than introducing digital tools; banks must deliver consistent value, reduce friction, and foster satisfaction. In Malaysia, continuance intention is influenced not only by rational evaluations such as usefulness and ease of use but also by relational and experiential factors such as trust, self-efficacy, and social influence (Ramindran et al., 2024; Ha et al., 2024).

Against this backdrop, the problem addressed in this study is the lack of comprehensive understanding of the determinants of fintech continuance intention in Malaysia's retail banking sector. While adoption rates are high, retention remains uncertain. Existing theories provide partial explanations but fail to capture the full spectrum of rational and psychosocial influences. This gap necessitates an extended TCT framework that integrates service quality, perceived benefits, trust, self-efficacy, and social influence to explain continuance intention more holistically.

Hypotheses Development

The research framework will be guided by the TCT as a foundation since it provides a theoretical basis for understanding on the customers' continuance use intention of new technologies. It is essential for this studying the impact of fintech innovation on customer retention and continuance usage.

Perceived Benefits and Satisfaction

Perceived Benefits represent users' overall evaluation of the advantages and value they gain from using fintech services, ranging from functional and economic rewards to convenience-driven and experiential improvements (Kaur and Arora, 2023). In the fintech context, these benefits are not merely add-ons; they form the core value proposition that shapes how customers interpret the quality and effectiveness of digital financial platforms (Inan et al.,

2023). When users recognize meaningful gains such as faster transactions, reduced costs, seamless accessibility, and improved financial management, they experience a heightened sense of utility and empowerment, which naturally strengthens their satisfaction (Kaur and Arora, 2023). Fundamentally, fintech services reduce long-standing frictions associated with traditional banking, such as long queues, restricted service hours, and geographical limitations (Bergmann et al., 2023). The removal of these barriers creates a perception of efficiency and control, encouraging users to view the service as superior and reliable (Nurlaily et al., 2021). Furthermore, fintech's value extends into psychological comfort: features like real-time notifications, transparent processes, personalized suggestions, and instant account updates provide users with reassurance, clarity, and a heightened sense of financial awareness (Franque et al., 2023). These benefits align closely with users' expectations, often exceeding them, thereby producing strong satisfaction responses.

The emotional dimension of perceived benefits is equally significant (Hariguna et al., 2023). When customers experience fintech apps as easy, intuitive, and rewarding, they feel more confident and less anxious about managing their financial tasks digitally (Abdul-Rahim et al., 2022). This emotional relief contributes to positive affective experiences, which further amplify satisfaction. Users also subconsciously benchmark fintech benefits against traditional banking; when they perceive greater speed, lower fees, and superior convenience, their internal comparison reinforces the belief that fintech delivers greater value-for-effort, deepening their satisfaction (Bohari et al. 2025). Hence, once anticipated advantages are realized in practice, the confirmation mechanism activates a strong feeling of satisfaction.

Previous studies further corroborate this relationship. For instance, Dubey and Sahu (2023) demonstrated that the perceived benefits of learning technologies significantly enhance students' satisfaction. In a similar vein, Al-Okaily et al. (2023) revealed that perceived benefits play a pivotal role in increasing customer satisfaction. Moreover, Ahmed et al. (2023) reported a significant association between perceived financial fairness and consumer satisfaction, reinforcing the argument that favorable benefit perceptions contribute meaningfully to satisfaction outcomes. Therefore, we can propose the following hypothesis:
H1: Perceived Benefits positively impacts Satisfaction.

Perceived Service Quality (SQ)

Perceived Service Quality captures users' holistic evaluation of how effectively, reliably, and securely a fintech platform delivers its promised services (Pokhrel and KC, 2024). In a digital financial ecosystem where human interaction is minimal and technology assumes centre stage, customers judge service quality through core attributes such as system performance, responsiveness, security reliability, transaction accuracy, intuitiveness of interaction, and the effectiveness of customer support (Jangir et al. 2022). When these elements align with or exceed user expectations, they create a powerful foundation for satisfaction (Inan et al., 2023). High service quality significantly elevates customer satisfaction since it minimizes the typical pain points associated with financial services (Hijazi et al., 2023). fintech platforms that provide rapid transaction processing, real-time updates, and uninterrupted accessibility foster a sense of dependability that traditional banking channels often struggle to achieve (Minhaj and Khan, 2025). This operational smoothness instils confidence, reassuring users that the platform is both competent and trustworthy.

In addition, perceived service quality heightens satisfaction by reinforcing users' sense of security and transaction integrity (Minhaj and Khan, 2025). When digital financial services demonstrate strong data protection, error-free transactions, and transparent processes, the perceived risk of using the platform decreases (Saibaba, 2024). This reduction in uncertainty generates psychological comfort, encouraging positive emotional responses that feed directly into satisfaction. Beyond technical robustness, strong service quality also manifests through effective customer support and responsive problem resolution (Ferreira et al., 2023). Whether through helpful chatbots, timely human assistance, or clear communication, users interpret responsive service as evidence that the platform genuinely prioritizes their needs (Chand et al., 2025). This sense of being valued enhances their emotional connection and deepens their satisfaction. Perceived service quality also triggers powerful expectation, confirmation effects (Ryu and Ko, 2020).

When users' expectations for speed, accuracy, and support are met or exceeded, they experience a sense of validation regarding their decision to use the fintech service. This fulfilment, central to Technology Continuance Theory, strengthens satisfaction by confirming that the platform delivers on its promises (Liao et al., 2009). Ultimately, high perceived service quality creates a seamless, frictionless, and enjoyable digital environment which generate high satisfaction among users. Venkatakrishnan et al. (2023) revealed that the perceived service quality of websites exerts a strong influence on user satisfaction. While Alzaydi (2024) observed that the service quality of banks' multi-channel integration services significantly strengthens customer satisfaction, highlighting the critical role of service quality on users' satisfaction.

H2: Service Quality positively impacts satisfaction.

Confirmation and Satisfaction

Confirmation plays a pivotal role in shaping users' satisfaction with fintech services since it reflects the degree to which their actual experience matches or exceeds the expectations they formed before using the platform (Lee et al., 2023). A sense of positive confirmation occurs once users perceive that the system fulfils the anticipated advantages across key dimensions such as performance, security, and user-friendliness (Rahi et al., 2021). This alignment generates a powerful cognitive and emotional validation that the service is reliable and worthwhile, which directly strengthens satisfaction (Wu et al., 2022). In the fintech environment, where service encounters are entirely technology-mediated, this confirmation process becomes even more critical (Hamid et al., 2024). Users rely heavily on digital cues, such as rapid transaction processing, smooth navigation, real-time notifications, uninterrupted accessibility, and accurate data handling, to assess whether the platform delivers on its promises (Danilola et al., 2023). When these elements consistently perform as expected, users perceive the system as dependable and trustworthy, which enhances their confidence and satisfaction (Zulaikha and Faricha, 2025).

Positive confirmation also reduces the uncertainty and perceived risk often associated with digital financial services (Bergmann et al., 2023). When users observe strong security safeguards, transparent processes, and error-free transactions, their concerns about privacy and financial safety diminish (Hariguna et al., 2023). This sense of protection and stability reinforces emotional comfort, further elevating satisfaction. Moreover, confirmation strengthens satisfaction through its interaction with service quality (Dhiman and Jamwal,

2023). When fintech platforms exceed expectations in areas such as problem resolution, customer support responsiveness, communication clarity, and proactive notifications, users interpret these experiences as signs of exceptional service quality (Loh et al., 2022). This reinforces the belief that the platform genuinely values and prioritizes their needs, creating a deeper emotional connection and satisfaction. Moreover, confirmation fuels satisfaction by transforming functional performance into a reinforcing cycle of expectation validation (Obeid et al., 2024). When users' initial expectations for speed, reliability, convenience, and support are fulfilled or surpassed, they experience a cognitive affirmation that their decision to rely on the fintech platform was correct (Nguyen and Dao, 2024). This positive reinforcement not only heightens satisfaction but also enhances users' willingness to continue using the service.

Rahi et al. (2023) revealed that the confirmation of expected usefulness of e-banking services exerts a significant positive influence on users' satisfaction. Similarly, in the context of internet banking, Rahi et al. (2021) found that expectation confirmation is strongly associated with customers' satisfaction with the service. Moreover, Muñoz-Carril et al. (2021) reported that students who are able to confirm the expected usefulness of computer-supported collaborative learning systems experience higher levels of satisfaction, underscoring the robustness of expectation confirmation as a key determinant of satisfaction across diverse technological settings.

H3: Confirmation positively impact Satisfaction. (C)

Perceived Usefulness and Satisfaction (PU)

Perceived Usefulness (PU) represents the degree to which users believe a fintech service enhances their efficiency, effectiveness, and overall productivity in managing financial tasks (Khlaif et al., 2023). In the digital banking, where value is delivered primarily through functional and experiential gains rather than direct human interaction, the perception that a platform genuinely improves financial management directly influences user satisfaction (Al-Qudah et al., 2024). When users experience tangible benefits, such as faster transactions, real-time account tracking, intelligent decision-making support, and seamless access to multiple banking services, they perceive the platform as indispensable, thereby elevating satisfaction levels (Noreen et al., 2023). Perceived usefulness reinforces satisfaction by demonstrating functional value (Hasan et al., 2024). Fintech services that simplify complex financial operations, reduce manual effort, and accelerate processes allow users to achieve more with less time and cognitive load (Danilola et al., 2023). This efficiency fosters a sense of accomplishment and practical benefit, which strengthens satisfaction.

Perceived usefulness empowers users' control and decision-making (Chawla and Joshi, 2023). Tools such as budgeting applications, personalized recommendations, instant fund transfers, and real-time financial monitoring equip users to make informed choices confidently (Rahi et al., 2023). As users recognize that the platform supports better financial decision-making and offers insights they can effectively apply, these practical advantages generate uplifting mental and emotional responses, thereby heightening satisfaction (Tian et al., 2023). Moreover, perceived usefulness works in tandem with expectation confirmation to amplify satisfaction (An et al., 2023). According to Technology Continuance Theory, when users' expectations regarding the benefits of a fintech service are validated through actual usage, their perception of usefulness is reinforced (Liao et al., 2009). This confirmation signals

that the platform delivers on its promises, generating strong satisfaction responses and fostering positive attitudes toward continued use.

Moreover, perceived usefulness contributes to emotional satisfaction (Ahmed and Sur, 2023). Users who find the platform genuinely simplifies financial management, reduces effort, and supports better outcomes experience comfort, confidence, and reduced frustration (Hanu et al., 2024). These emotional benefits complement functional gains, creating a holistic and deeply satisfying user experience. For instance, Abdul Rahim et al. (2023) demonstrated that the perceived usefulness of e-government services exerts a strong positive influence on user satisfaction. Likewise, Lee et al. (2023) confirmed that the perceived usefulness of AI-enabled mobile banking applications is significantly associated with users' satisfaction. Moreover, Dhiman and Jamwal (2023) revealed that the perceived usefulness of chatbots significantly enhances user satisfaction, highlighting the consistent role of perceived usefulness in shaping satisfaction across diverse technology-enabled service contexts.
H4: Perceived Usefulness (PU) positively impacts Satisfaction (S).

Perceived Usefulness (PU) and Continuance Intention (CI)
Perceived Usefulness (PU) is a fundamental driver of Continuance Intention (CI) in fintech because it reflects users' belief that the platform meaningfully enhances their financial efficiency, productivity, and decision-making capabilities (Si et al., 2022). In digital financial services, users continuously evaluate whether the system enables faster transactions, better financial tracking, improved decision-making, and greater convenience (Al-Qudah et al., 2024). When these functional benefits are evident, users perceive the fintech service as essential, which strengthens their willingness to continue using it (Jo, 2023). PU drives continuance intention by delivering tangible functional value (Rekha et al., 2023). Platforms that simplify complex financial tasks, reduce operational effort, and accelerate routine processes allow users to achieve more with less time and effort (Al-Sharafi et al, 2023). This efficiency generates immediate satisfaction while cultivating a long-term perception of value, motivating sustained engagement.

Moreover, PU enhances CI by empowering users' decision-making and control (Tiwari et al., 2024). Features such as real-time account monitoring, automated budgeting, personalized recommendations, and instant fund transfers provide actionable insights and greater autonomy (Liu and Ma, 2024). As users acknowledge the platform's consistent ability to guide more effective financial decisions, its perceived usefulness becomes more firmly established, increasing their commitment to continued use (Lee and Pan, 2022). PU interacts closely with expectation confirmation mechanisms, a central component of Technology Continuance Theory (Liao et al., 2009). When actual use confirms or exceeds users' initial expectations regarding the platform's benefits, perceived usefulness is validated (Amnas et al., 2025). This positive confirmation reinforces users' trust in the platform, creating a self-reinforcing loop that significantly enhances continuance intention.

Perceived usefulness also generates emotional and psychological reinforcement (Rekha et al., 2023). Users who experience reduced effort, increased control, and better financial outcomes feel greater confidence, comfort, and accomplishment (Kumar et al., 2025). These emotional benefits complement functional gains, producing a holistic sense of value that further encourages continued use. Jangir et al. (2022) revealed that the perceived

usefulness of fintech services positively influences users' continuance use intention. Similarly, Bergmann et al. (2023) observed that perceived usefulness significantly strengthens users' intention to continue using fintech services. Ha et al. (2024) notes that the perceived usefulness of mobile payment services strongly encourages customers' continuous usage intention, underscoring the pivotal role of perceived usefulness in sustaining long-term technology adoption behavior.
H5: Perceived Usefulness positively impacts Continuance Intention.

Perceived Usefulness (PU) and Attitude (A) toward Fintech
Perceived Usefulness (PU) is a crucial determinant of users' attitude toward Fintech, reflecting the extent to which the technology enhances efficiency, productivity, and effectiveness in managing financial tasks (Jangir et al., 2022). In digital financial services, users evaluate whether the platform simplifies transactions, accelerates operations, improves decision-making, and provides overall convenience (Laksamana et al., 2022). When these benefits are perceived as tangible and significant, users form positive cognitive and emotional evaluations, resulting in a favourable attitude toward the platform (Ha et al., 2024). PU fosters this attitude by delivering functional value, reducing manual effort, streamlining complex tasks, and saving time, which convinces users of the platform's effectiveness (Noreen et al., 2023). It further empowers users' control and decision-making through features like real-time monitoring, automated budgeting, personalized recommendations, and instant fund transfers (Hasan et al., 2024). When users perceive that the platform consistently supports better financial outcomes, these functional advantages reinforce both cognitive assessments and emotional satisfaction.

Perceived usefulness is likewise shaped by expectation (Tian et al., 2023). When initial expectations are met or exceeded, perceived usefulness is strengthened, trust in the platform increases, and positive perceptions are reinforced, creating a self-reinforcing loop that nurtures enduring favourable attitudes. Moreover, PU enhances emotional engagement; users experience reduced effort, greater convenience, and improved confidence, producing a holistic sense of comfort and control (Ramindran and Lee, 2024). Thus, perceived usefulness efficiently cultivates a strong positive attitude toward fintech by delivering practical value, enabling informed decision-making, confirming expectations, and fostering positive emotional experiences.

Previous empirical studies further support this association. For instance, Laksamana et al. (2023) reported a positive relationship between perceived usefulness and users' attitudes toward fintech services. Similarly, Al Amin et al. (2021) found that the perceived usefulness of mobile food ordering applications effectively fosters a strong positive attitude toward the service among users. Moreover, Khlaif et al. (2023) confirmed a robust association between perceived usefulness and attitudes toward mobile technology. Consistent with these findings, Abdul Rahim et al. (2023) also demonstrated that the perceived usefulness of e-government services is strongly related to users' attitudes toward technology-enabled services, reinforcing the central role of perceived usefulness in shaping favourable user attitudes across digital contexts. Therefore, we can propose the following hypothesis.
H6: Perceived Usefulness positively impacts Attitude toward Fintech.

Perceived Ease of Use (PEOU)and Perceived Usefulness (PU)

Perceived Ease of Use (PEOU) plays a pivotal role in shaping how users perceive the usefulness of fintech platforms (Laksamana et al., 2022). Across digital financial platforms, where efficiency and smooth interaction are essential, interfaces designed for clarity and ease of use enable individuals to carry out financial activities with minimal exertion (Ha et al., 2024). This reduces cognitive and operational burdens while enabling users to experience the platform's functional benefits more clearly and quickly, enhancing perceived usefulness. Advanced features such as real-time monitoring, budgeting tools, instant fund transfers, automated alerts, and investment dashboards offer significant value, but only if users can access and operate them effortlessly (Abed and Alkadi, 2025). Smooth interactions and minimal learning curves ensure that users can fully leverage these functionalities, reinforcing the platform's practical benefits (Xie et al., 2023). Early user experiences are critical (Kim and Song, 2022).

When customers can complete basic actions, checking balances, paying bills, transferring funds, without confusion or errors, they form positive impressions of the platform's effectiveness (Ferreira et al., 2023). These "success moments" strengthen the association between ease of use and usefulness. Psychological mechanisms further amplify this effect (Liu and Pu, 2023). Effortless systems reduce frustration, boost confidence, and give users a sense of control over their financial activities (Hamid et al., 2025). This emotional comfort complements functional benefits, making users perceive the platform as more helpful, reliable, and valuable (Hamid et al., 2025). Thus, PEOU elevates perceived usefulness by streamlining interactions, minimizing effort, unlocking advanced features, generating early positive experiences, and fostering emotional satisfaction.

Past studies further support this association. For instance, Abdul Rahim et al. (2023) identified a significant positive relationship between perceived ease of use and perceived usefulness in the context of e-government service utilization. Moreover, Hsieh et al. (2022) found that perceived ease of use strongly influences users' perceptions of usefulness in telehealth services. Similarly, Ni and Cheung (2023) confirmed a robust association between perceived ease of use and perceived usefulness in relation to the continuance use of AI-powered intelligent tutoring systems for English learning among secondary school students, highlighting the consistency of this relationship across diverse technology-enabled contexts. Therefore, we can propose the following hypothesis:

H7: Perceived Ease of Use positively impacts Perceived Usefulness.

Perceived Ease of Use (PEOU) and Attitude (A) toward fintech

Perceived Ease of Use (PEOU) is a key determinant of users' attitudes toward Fintech, as it shapes both their cognitive and emotional responses to the technology (Ferreira et al., 2023). Platforms that are intuitive, easy to navigate, and require minimal effort instil immediate comfort and confidence, generating positive emotions while reducing apprehension and cognitive strain (Foroughi et al., 2023). This effortless experience encourages users to perceive the platform as accessible, user-friendly, and supportive of their financial needs, fostering a favourable overall attitude (Al Amin et al., 2022). PEOU also mitigates common barriers to technology use (Ferreira et al., 2023). Users often hesitate due to perceived complexity or fear of errors, but clear interfaces and straightforward processes reduce these psychological obstacles (Nguyen and Dao, 2024). As users associate the platform with

simplicity and convenience, their willingness to engage increases, reinforcing positive evaluations.

Performing tasks such as fund transfers, balance checks, or budget management smoothly provides users with a sense of control and accomplishment (Aprilia and Amalia, 2023). This positive reinforcement transforms the platform from a functional tool into an enjoyable and beneficial experience. Moreover, PEOU enhances perceptions of usefulness (Abu-Taieh et al., 2022). As tasks become seamless to perform, users more readily appreciate the platform's utility, generating a dual realization that it is both easy to navigate and worth relying on (Foroughi et al., 2024). This dual perception forms a strong cognitive and emotional foundation for favourable attitudes. That is way, PEOU drives positive attitudes toward fintech by reducing cognitive effort, lowering use barriers, boosting emotional comfort, and amplifying perceived usefulness.

Previous studies further corroborate this association. For instance, Tan et al. (2024) demonstrated that the perceived ease of use of hybrid learning technologies is significantly associated with users' attitudes toward hybrid learning. Similarly, Hsieh et al. (2022) found that perceived ease of use positively influences users' attitudes toward telehealth services. Moreover, Laksamana et al. (2023) observed that the perceived ease of use of mobile payment services significantly shapes users' attitudes toward fintech-based mobile payment solutions, underscoring the critical role of ease of use in fostering favourable user attitudes across diverse digital service contexts. Therefore, we can propose the following hypotheses:
H8: Perceived Ease of Use positively impacts Attitude toward fintech.

Satisfaction and Attitude toward Fintech

Satisfaction reflects users' overall evaluation of how well a product, service, or technology meets their expectations, needs, or desires (Bergmann et al., 2023). In Fintech, it captures the extent to which digital financial services fulfil functional, emotional, and experiential expectations, including convenience, ease of use, reliability, security, and perceived value (Jangir et al., 2022). High satisfaction arises when these expectations are met or exceeded, generating positive emotions, confidence, and contentment that influence users' attitudes and behavioural intentions (Rahi et al., 2023). Satisfaction drives attitude by combining cognitive and emotional reinforcement (Inan et al., 2023). Seamless transactions, efficient financial management, accurate processing, and timely support provide a sense of fulfilment, validating both the practical utility and emotional value of the platform (Purohit et al., 2022). This fosters favourable judgments and a constructive attitude toward the service.

Moreover, satisfaction builds trust and reduces apprehension (Shah et al., 2023). Users perceiving the platform as reliable and user-friendly are more willing to explore features, engage actively, and rely on the technology (Pasupuleti et al., 2024). Meeting or exceeding expectations further reinforces confidence, creating a positive feedback loop that nurtures enduring attitudes and loyalty (Shah et al., 2023; Prakhar et al., 2024). Thus, satisfaction shapes positive attitudes by delivering emotional fulfilment, reinforcing reliability and value, and confirming expectations, thereby promoting engagement, favourable evaluations, and long-term use of fintech services.

Previous empirical studies further support this association. For instance, Foroughi et al. (2023) identified a significant relationship between user satisfaction and attitudes toward gamification applications. Moreover, Pham et al. (2024) highlighted a positive association between satisfaction and attitudes toward the use of ChatGPT. Similarly, Foroughi et al. (2024) observed that customers' satisfaction with online food delivery applications is significantly associated with their attitudes toward these platforms, underscoring the important role of satisfaction in shaping favourable attitudinal responses across diverse digital service contexts. Thus, we can propose the following hypothesis:
H9: Satisfaction positively impacts Attitude toward Fintech.

Satisfaction and Continuance Intention
Customer satisfaction serves as a crucial driver of continuance intention in Fintech, reflecting the extent to which users' expectations, needs, and desires are fulfilled through their interactions with digital financial services (Khera, 2023). Consistent exposure to functional benefits, including seamless transactions, accurate account oversight, rapid processing, and reliable support services, fosters uplifting emotional responses in users, such as heightened trust, confidence, and overall contentment (Pham et al., 2024). These affective experiences reinforce the perception that the platform is dependable and valuable, thereby motivating users to maintain long-term engagement (Hamid et al., 2025). Satisfaction strengthens continuance intention through cognitive evaluation and expectation confirmation (Ajouz et al., 2025). If the fintech platform matches or exceeds users' anticipated advantages, it is perceived as reliable, efficient, and worthy of continued use (Devi and Shunmugasundaram, 2025).

This validation reassures users that their decision to use the service was correct, reduces uncertainty, and enhances perceived reliability, creating a strong foundation for repeated usage and sustained behavioural commitment. Beyond functional validation, satisfaction fosters loyalty and psychological attachment (Mainardes et al., 2023). Users who are pleased with their experiences are more inclined to explore additional features, integrate the platform into daily financial routines, and rely on it for critical financial activities (Ha et al., 2024). This deepened engagement reinforces the platform's value, minimizes the likelihood of switching to alternatives, and cultivates a durable connection between the user and the service (Ikhsan et al., 2023). Hence, customer satisfaction efficiently drives high levels of continuance intention by providing emotional gratification, confirming expected benefits, reinforcing trust and confidence, and promoting loyalty.

Previous empirical studies further support this association. Bergmann et al. (2023) found that users who are satisfied with fintech services exhibit a stronger intention to continue using these services. Moreover, Al-Hattami et al. (2023) revealed that user satisfaction has a strong positive effect on continuance use intention in the context of digital accounting systems. Similarly, Jangir et al. (2022) demonstrated that satisfaction effectively fosters users' continuance use intention toward fintech services, reinforcing the central role of satisfaction in sustaining long-term technology usage. Thus, the following hypothesis is suggested:
H10: Satisfaction positively impacts continuance intention.

Trust and Attitude toward Fintech

Trust reflects users' confidence in a fintech system's reliability, integrity, and competence to operate securely and effectively (Xia et al., 2023). As digital financial platforms rely on intangible exchanges, real-time processing, and the stewardship of sensitive information, trust emerges as a critical psychological foundation that signals safety and accuracy to users (Seridaran et al., 2024). Trust plays a decisive role in shaping attitudes by reducing uncertainty and perceived risks (Savitha et al., 2022; Jangir et al., 2022). The absence of physical touchpoints in digital banking, as opposed to traditional settings, heightens users' reliance on trust as a measure of credibility (Laksamana et al., 2022). Hence, a secure, transparent, and dependable platform offers psychological reassurance, prompting beneficial emotional and cognitive responses that shape users' attitudes in a favourable direction.

Trust also reinforces perceptions of competence and integrity (Roh et al., 2024). Confident that financial tasks, like fund transfers, bill payments, or investments, are executed reliably, users interpret system reliability as professional capability, further strengthening positive evaluations (Alamoudi et al., 2025). Trust alleviates emotional barriers, such as fear of fraud or system failures, enhancing comfort and promoting positive affect (Franque et al., 2023). Additionally, trust amplifies other key perceptions, including perceived usefulness and ease of use (Nguyen et al., 2024). Users who trust a platform are more willing to explore its features and rely on it for financial decisions, creating a reinforcing cycle: trust fosters positive evaluations, which, in turn, deepen trust (Zhu et al., 2023). That is why, trust is a cornerstone of positive attitude formation in fintech adoption, reducing risk, enhancing confidence, reinforcing competence, and fostering emotional comfort, thereby encouraging sustained engagement and long-term use.

Roh et al. (2024) found that trust positively influences users' attitudes toward fintech services. Moreover, Vardari and Hameli (2025) also uncovered a significant positive relationship between trust and attitudes toward fintech adoption. Similarly, Shahzad et al. (2022) confirmed a strong association between trust and users' attitudes toward fintech services, underscoring trust as a critical determinant in shaping favourable attitudinal responses across fintech contexts. The hypothesis is proposed:

H11: Trust positively impacts Attitude toward fintech.

Self-Efficacy and Attitude toward Fintech

Self-efficacy, an individual's belief in their ability to successfully perform tasks, is a key determinant of users' attitudes toward fintech (Danilola et al., 2023; Sharma et al., 2022). It reflects confidence in navigating platforms, mastering features, resolving issues, and completing digital financial tasks efficiently (Nguyen et al., 2024). Users who feel competent in transferring funds, managing investments, or monitoring accounts experience mastery that reduces hesitation, alleviates anxiety, and fosters comfort with the technology (Addula, 2025). This sense of capability generates positive emotions, making users more receptive and confident, thereby cultivating a favourable attitude.

Self-efficacy also enhances perceived value and usefulness (Bai et al., 2024). Confident users are more willing to explore features, experiment with functionalities, and integrate the platform into their financial routines, realizing tangible benefits such as efficiency, convenience, and control (Akbari et al., 2023). These experiences reinforce the perception

that fintech is both practical and empowering (Lin and Hsieh, 2023). Moreover, high self-efficacy diminishes barriers like fear of errors, complexity, or digital fraud, enabling smooth, stress-free interactions (Shao et al., 2025). By building competence, boosting perceived utility, reducing anxiety, and fostering empowering experiences, self-efficacy strengthens positive attitudes, promoting sustained use and long-term engagement with fintech (Khudzaeva et al., 2023). Past empirical studies further support this association. For instance, Lee et al. (2022) identified a significant relationship between self-efficacy and attitudes toward AI-based chatbots. Moreover, Getenet et al. (2024) revealed that students' self-efficacy is significantly associated with their attitudes toward digital technologies. Similarly, Chen et al. (2024) highlighted a robust association between self-efficacy and attitude, underscoring the pivotal role of self-efficacy in shaping favourable attitudinal outcomes across diverse technology-enabled contexts.

H12: Self-Efficacy positively impacts Attitude toward Fintech.

Social Influence and Attitude toward Fintech

Social influence significantly shapes users' attitudes toward fintech by reflecting the impact of peers, family, colleagues, and broader social networks on perceptions, beliefs, and behaviours (Foroughi et al. 2023). In digital financial environments, where interactions are largely virtual, users often rely on others' opinions and experiences to assess a platform's credibility, trustworthiness, and value (Vardari and Hameli, 2025). Positive endorsements or visible usage by influential individuals provide social validation, reduce uncertainty, and encourage favourable attitudes toward the technology (Gani et al., 2024). Social influence also operates through normative pressures and behavioral expectations (Islam et al., 2023). When trusted referents endorse or regularly use a fintech platform, it signals social approval, establishes perceived norms, and enhances the desirability of the service (Liao et al., 2024). Users are more likely to align their evaluations with those of their network, strengthening their positive predisposition.

Informational mechanisms further reinforce attitudes (Foroughi et al., 2024). Observing others navigate features and derive benefits allows users to recognize practical advantages, such as convenience, efficiency, and reliability, even before extensive personal experience (Al Amin et al., 2022). Moreover, social influence enhances emotional comfort and reduces perceived risks (Abu-Taieh et al., 2022). Witnessing peers successfully manage transactions or investments boosts confidence, alleviates fears of errors or fraud, and fosters positive affect, reinforcing cognitive evaluations (Alsyouf et al., 2022). Thus, social influence cultivates positive attitudes by providing validation, establishing norms, offering vicarious learning, and enhancing emotional reassurance, thereby supporting continuous use, and long-term engagement with Fintech.

Emon et al. (2024) revealed that social influence exerts a strong positive effect on the formation of favourable attitudes toward the use of artificial intelligence among Bangladeshi professionals. Similarly, Sharma et al. (2022) observed a significant association between social influence and attitudes toward AI-based autonomous decision-making systems. Moreover, Abdaljaleel et al. (2024) concluded that social influence is positively associated with attitudes toward the use of ChatGPT among university students, highlighting the pervasive role of social influence in shaping attitudes toward AI technologies across different user groups and application contexts. Hence the following hypothesis is proposed:

H13: Social Influence positively impacts Attitude toward Fintech.

Attitude toward Fintech and Continuance Intention

Attitude toward fintech reflects an individual's overall evaluative judgment, favourable or unfavourable, regarding the use of digital financial services (Liao et al. 2024). It encompasses cognitive, affective, and behavioral predispositions that shape how users perceive, feel about, and interact with fintech platforms (Amoroso et al., 2024). A positive attitude indicates that users view the technology as useful, convenient, trustworthy, and enjoyable, promoting engagement and sustained reliance (Faradis and Afandi, 2026). On the other hand, negative attitudes, often stemming from scepticisms, perceived complexity, or distrust, hinder adoption and limit continued use (Kumari and Biswas, 2024). Positive attitudes drive continuance intention by integrating cognitive and emotional responses (Lim et al., 2024). Cognitively, users recognize functional benefits such as faster transactions, improved financial management, and enhanced decision-making (Felimban and Alzahrani, 2025). Affectively, they experience satisfaction, confidence, and psychological comfort while using the platform (Dai et al., 2024). The interplay of these perceptions and emotions reinforces the belief that continued use is advantageous, reducing hesitation and promoting long-term engagement.

Attitude also serves as a mediating lens through which users interpret experiences (Seridaran et al., 2024). Even when minor issues arise, individuals with favourable attitudes focus on the platform's benefits and reliability, maintaining usage and minimizing discontinuance (Sait et al., 2024). Positive attitudes encourage exploration of advanced features, adoption of new functionalities, and deeper integration into financial routines, strengthening commitment and behavioral loyalty (ElSayad, 2025). Moreover, a favourable attitude fosters psychological ownership and attachment. Users who enjoy and value their interactions anticipate ongoing satisfaction, resist switching, and remain committed (Rezaei et al., 2024). For that reason, attitude toward fintech is a powerful antecedent of continuance intention, shaping perceptions of value, reinforcing emotional satisfaction, driving proactive engagement, and nurturing loyalty. Strong positive attitudes naturally translate into sustained usage and long-term commitment.

Previous studies further support this association e.g. Al Amin et al. (2023) found that users' attitudes toward mobile banking services are positively associated with their continuance use intention. Also, Laksamana et al. (2023) observed that attitudes toward mobile payment services have a significant influence on continuance use intention. In addition, Song and Jo (2023) revealed a significant relationship between attitudes toward omnichannel services and continuance use intention. Consistent with these findings, Franke et al. (2019) also demonstrated that favourable attitudes toward online food delivery services are positively related to users' continuance use intention, underscoring the central role of attitude in sustaining long-term usage behavior across diverse digital service contexts. Hence, we propose the following hypothesis:

H14: Attitude toward Fintech positively impacts Continuance Intention.

Based on the literature and extended TCT framework, the following hypotheses were developed in this study as depicted in Table 1 below:

Table 1
Research Hypotheses

No.	Hypothesis
H1	Perceived Benefits positively impacts satisfaction.
H2	Perceived Service Quality positively impacts satisfaction.
H3	Confirmation positively impact Satisfaction.
H4	Perceived Usefulness positively impacts Satisfaction.
H5	Perceived Usefulness positively impacts Continuance Intention.
H6	Perceived Usefulness positively impacts Attitude toward FinTech.
H7	Perceived Ease of Use positively impacts Perceived Usefulness.
H8	Perceived Ease of Use positively impacts Attitude toward fintech.
H9	Satisfaction positively impacts Attitude toward FinTech.
H10	Satisfaction positively impacts continuance intention.
H11	Trust positively impacts attitude toward fintech.
H12	Self-Efficacy positively impacts Attitude toward FinTech.
H13	Social Influence positively impacts Attitude toward FinTech.
H14	Attitude toward FinTech positively impacts Continuance Intention.

Methodology

Introduction

The methodology outlines the research paradigm, design, sampling, instrument development, and analytical techniques employed to investigate fintech continuance intention in Malaysia's retail banking sector. Guided by Technology Continuance Theory (TCT) and its extensions, this study adopts a quantitative approach using Partial Least Squares Structural Equation Modelling (PLS-SEM). This method is particularly suitable for complex models with multiple latent constructs and mediating relationships (Hair et al., 2019; Ramindran et al., 2024).

Research Paradigm

The study is grounded in a positivist paradigm, emphasizing objectivity, measurement, and hypothesis testing. Positivism is appropriate because the research seeks to identify causal relationships between constructs such as perceived usefulness, satisfaction, trust, and continuance intention (Khayer & Bao, 2019). By employing survey data and statistical modelling, the study ensures replicability and generalizability across similar fintech contexts.

Research Design

A cross-sectional survey design was adopted to capture perceptions of fintech users at a single point in time. This design is widely used in technology adoption and continuance studies (Bhattacherjee, 2001; Liao et al., 2009). The survey instrument was structured to measure rational antecedents (service quality, perceived benefits), psychological antecedents (trust, self-efficacy, social influence), and core TCT constructs (confirmation, perceived usefulness, ease of use, satisfaction, attitude, continuance intention).

Target Population and Sampling

The target population comprised retail banking customers in Malaysia who actively use fintech services such as mobile banking apps, e-wallets, and online payment platforms. A

purposive sampling technique was employed to ensure that respondents had relevant experience with fintech (Hu et al., 2009).

- **Inclusion criteria:** Respondents must be Malaysian residents, aged 18 or above, and active users of fintech services.
- **Exclusion criteria:** Individuals without fintech experience

A total of 447 valid responses were collected, exceeding the minimum sample size recommended by G*Power analysis for SEM (Hair et al., 2022).

Instrument Development

The survey instrument was developed by adapting validated scales from prior studies. Constructs such as perceived usefulness and ease of use were adapted from TAM (Davis, 1989), while satisfaction and confirmation were drawn from ECT (Bhattacherjee, 2001). Service quality items were adapted from Parasuraman et al. (1988), perceived benefits from Lin & Lee (2024), trust from Cheng et al. (2019), self-efficacy from Khayer & Bao (2019), and social influence from UTAUT (Venkatesh et al., 2012).

Each item was measured on a five-point Likert scale ranging from “strongly disagree” to “strongly agree.” The instrument was pre-tested with 30 respondents to ensure clarity and reliability, followed by a pilot study with 50 respondents. Minor adjustments were made to wording and translation to enhance respondent comprehension (Foroughi et al., 2024).

Questionnaire Translation

Given Malaysia’s multilingual context, the questionnaire was translated into Malay using a back-translation method to ensure semantic equivalence (Brislin, 1980). This step minimized language bias and enhanced accessibility for respondents less comfortable with English.

Data Collection

Data were collected through online distribution channels, including email invitations and telecommunication platforms apps. Respondents were assured of confidentiality and anonymity, consistent with ethical research practices (McKinsey, 2024). Participation was voluntary, and informed consent was obtained prior to survey completion.

Ethical Considerations

This research is in compliance with ethical guidance from Universiti Sains Malaysia research ethics guidelines. Respondents were informed about the purpose of the study, their right to withdraw at any time, and the measures taken to protect data privacy. No personally identifiable information was collected, ensuring compliance with ethical standards (Elsaid, 2023).

Analytical Approach

Data were analysed using PLS-SEM via SmartPLS software. PLS-SEM was chosen because it accommodates complex models, small to medium sample sizes, and non-normal data distributions (Hair et al., 2019). The analysis proceeded in two stages:

1. **Measurement model evaluation:** Reliability, convergent validity, and discriminant validity were assessed using composite reliability, average variance extracted (AVE), and heterotrait-monotrait (HTMT) ratios (Henseler et al., 2015).

2. **Structural model evaluation:** Path coefficients, R^2 values, f^2 effect sizes, and predictive relevance (Q^2) were examined to test hypotheses and assess model fit (Ramindran et al., 2024).

Justification for PLS-SEM

PLS-SEM was selected over covariance-based SEM (CB-SEM) because the research focuses on prediction rather than theory confirmation. PLS-SEM is particularly effective for exploratory models with formative and reflective constructs, making it suitable for the extended TCT framework (Hair et al., 2019).

Table 2
Comparison of PLS-SEM and CB-SEM]

Criteria	PLS-SEM	CB-SEM
A. Research Goals	➢ Predicting key target construct or identifying the key driver. ➢ Exploratory or an extension of an existing structural theory.	➢ To test a theory or to compare a theory with an alternative theory.
B. Measurement model specification	Formative measured constructs are a part of the structural model	Error terms require additional specifications, such as co-variation.
C. Structural Model	The structural model is complex (many constructs and indicators)	The model is non-recursive
D. Data characteristics and algorithm	➢ The sample size is relatively small. ➢ Data to some extent non-normal	➢ If data meet the CB-SEM assumption exactly
E. Model evaluation	➢ Latent variable scores are required in subsequent analysis	➢ A global goodness-of-fit criterion is required. ➢ A test for measurement model invariance is required.

Summary of Methodology

This study outlined the positivist paradigm, cross-sectional survey design, purposive sampling, instrument development, translation, ethical considerations, and analytical approach. By employing PLS-SEM, the study ensures robust testing of the extended TCT model, providing insights into the determinants of fintech continuance intention in Malaysia's retail banking sector.

Data Analysis and Results

Introduction

This chapter presents the findings of the data analysis, including descriptive statistics, measurement model evaluation, and structural model testing. The analysis was conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM), which is appropriate for complex models with multiple latent constructs and mediating relationships (Hair et al., 2019; Ramindran et al., 2024).

Sample Descriptive Statistics

A total of 447 valid responses were analysed. Respondents represented diverse demographic backgrounds in terms of age, gender, education, and occupation. The majority were active

users of mobile banking applications and e-wallets, reflecting the widespread adoption of fintech in Malaysia's retail banking sector (Gupta, 2024; Xia et al., 2023).

Table 3
Demographic Characteristics of Respondents

Demographic information	Description	Frequency	Percentage	Cumulative percent
Gender	Male	215	48.10	48.10
	Female	232	51.90	100
Age (Years)	18-25	58	12.98	12.98
	26-35	168	37.58	50.56
	36-45	166	37.14	87.70
	Above 45	55	12.30	100
Education	Diploma	60	13.42	13.42
	Undergraduate	213	47.65	61.07
	Postgraduate	130	29.08	90.15
	Doctorate	44	9.85	100
Monthly Income	Less than RM3000	32	7.16	7.16
	RM3000 to RM6000	121	27.07	34.23
	RM6001 to RM8000			
	RM8001 to RM10000	146	32.66	66.89
	More than RM10000			
		117	26.17	93.06
		31	6.94	100
Do you have Bank account?	Yes	447	100	100
	No	000	0.00	100
Did you use fintech services for your payment within last 6 month.	Yes	447	100	100
	No	000	0.00	100

Data Distribution and Preliminary Analysis

Tests for normality indicated that the data did not follow a strict normal distribution, justifying the use of PLS-SEM, which does not require multivariate normality (Hair et al., 2019). Missing values were minimal and addressed through mean substitution. Unengaged responses were screened out to ensure data quality.

Output of Skewness and Kurtosis Calculation

Sample size: 447
Number of variables: 11

Univariate Skewness and Kurtosis
Table 4
Normality of Data Distribution

Variable	Skewness	SE_skew	Z_skew	Kurtosis	SE_kurt	Z_kurt
ATT	-0.051	0.115	-0.444	-1.008	0.23	-4.374
CI	-0.223	0.115	-1.929	-0.741	0.23	-3.216
CON	-0.113	0.115	-0.979	-0.708	0.23	-3.072
PB	-0.164	0.115	-1.416	-0.709	0.23	-3.076
PEOU	-0.123	0.115	-1.067	-0.901	0.23	-3.912
PU	-0.012	0.115	-0.106	-0.874	0.23	-3.791
SAT	-0.090	0.115	-0.781	-0.786	0.23	-3.409
SE	-0.042	0.115	-0.362	-0.760	0.23	-3.297
SI	-0.094	0.115	-0.810	-0.625	0.23	-2.710
SQ	-0.067	0.115	-0.581	-0.829	0.23	-3.595
TR	-0.191	0.115	-1.658	-0.736	0.23	-3.192

Mardia's Multivariate Skewness and Kurtosis

	b	Z	p-value
Skewness	8.14061	606.4754	0
Kurtosis	159.81157	10.5087	0

Measurement Model (Outer Model)
The measurement model was assessed for reliability and validity.

- **Construct Reliability:** Composite reliability values exceeded the threshold of 0.7 for all constructs, indicating internal consistency (Henseler et al., 2015).
- **Convergent Validity:** Average Variance Extracted (AVE) values were above 0.5, confirming that items adequately represented their constructs (Hu et al., 2009).
- **Discriminant Validity:** The HTMT ratio was below 0.90 for all construct pairs, supporting discriminant validity (Henseler et al., 2015).

Table 5

Measurement Model Results

Construct	Items	Loadings	CA	CR	AVE
Attitude	ATT1	0.877	0.894	0.926	0.758
	ATT2	0.858			
	ATT3	0.869			
	ATT4	0.879			
Continuance Intention	CI1	0.862	0.853	0.91	0.772
	CI2	0.870			
	CI3	0.903			
Confirmation	CON1	0.862	0.848	0.907	0.766
	CON2	0.884			
	CON3	0.879			
Perceived Benefits	PB1	0.853	0.881	0.918	0.737
	PB2	0.858			
	PB3	0.863			
	PB4	0.858			
Perceived Ease of Use	PEOU1	0.886	0.853	0.910	0.772
	PEOU2	0.862			
	PEOU3	0.887			
Perceived Usefulness	PU1	0.863	0.839	0.903	0.755
	PU2	0.862			
	PU3	0.882			
	SAT1	0.841	0.868	0.91	0.716
	SAT2	0.850			
	SAT3	0.862			
	SAT4	0.830			
Self-Efficacy	SE1	0.880	0.879	0.916	0.733
	SE2	0.859			
	SE3	0.847			
	SE4	0.838			
Social Influence	SI1	0.853	0.895	0.923	0.705
	SI2	0.824			
	SI3	0.841			
	SI4	0.856			
	SI5	0.823			
Perceived Service Quality	PSQ1	0.863	0.875	0.914	0.728
	PSQ2	0.852			
	PSQ3	0.861			
	PSQ4	0.836			
Trust	TR1	0.876	0.886	0.921	0.745
	TR2	0.864			
	TR3	0.862			
	TR4	0.850			

Table 6

Discriminant Validity (HTMT Ratio)

Construct	1	2	3	4	5	6	7	8	9	10	11
1. ATT											
2. CI	0.519										
3. CON	0.521	0.507									
4. PB	0.565	0.590	0.567								
5. PEOU	0.206	0.187	0.270	0.244							
6. PU	0.396	0.254	0.415	0.406	0.236						
7. SAT	0.536	0.455	0.550	0.514	0.214	0.453					
8. SE	0.566	0.571	0.517	0.568	0.179	0.372	0.555				
9. SI	0.536	0.522	0.551	0.504	0.235	0.391	0.563	0.560			
10. PSQ	0.489	0.527	0.543	0.506	0.246	0.417	0.527	0.547	0.545		
11. TR	0.532	0.478	0.506	0.568	0.155	0.463	0.574	0.601	0.502	0.502	

Structural Model (Inner Model)

The structural model was evaluated to test the hypothesized relationships.

- **Collinearity Assessment:** Variance Inflation Factor (VIF) values were below 5, indicating no multicollinearity issues (Hair et al., 2019).
- **Path Coefficients:** Significant relationships were observed between service quality, perceived benefits, confirmation, and satisfaction; as well as between trust, self-efficacy, social influence, and attitude (Cheng et al., 2019; Foroughi et al., 2024).
- **Coefficient of Determination (R^2):** Satisfaction and attitude explained a substantial proportion of variance in continuance intention (R^2 = 0.68), demonstrating strong predictive power (Ramindran et al., 2024).
- **Effect Size (f^2):** Service quality and perceived benefits had medium effect sizes on satisfaction, while trust and social influence had medium effects on attitude.

Table 7

Effect Sizes (f^2) of Latent Variables

Relationship	f^2	Rating
PB→SAT	0.039	Small effect
PSQ→SAT	0.049	Small effect
CON→SAT	0.052	Small effect
PU→SAT	0.035	Small effect
PU→CI	0.000	No effect
PU→ATT	0.029	Small effect
PEOU→PU	0.040	Small effect
PEOU→ATT	0.003	No effect
SAT→ATT	0.024	Small effect
TR→ATT	0.024	Small effect
SE→ATT	0.049	Small effect
SI→ATT	0.036	Small effect
ATT→CI	0.121	Small effect
SAT→CI	0.048	Small effect

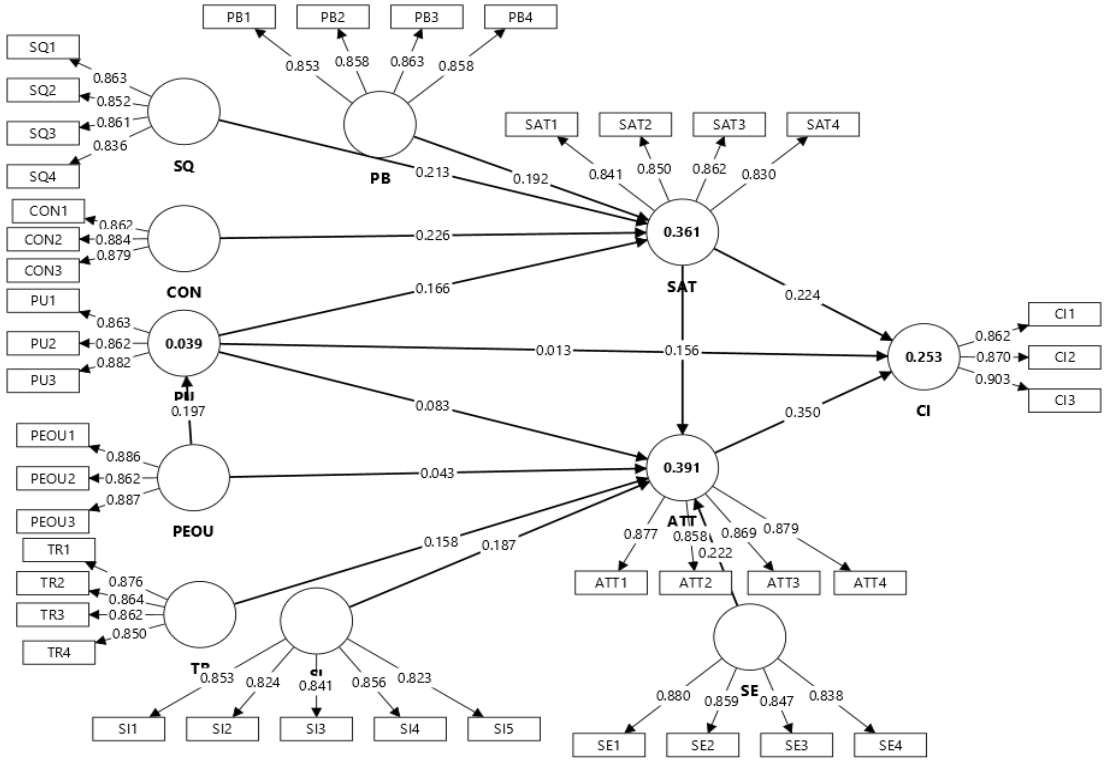

Figure 2 : Structural Model Framework with Path Coefficients

Hypothesis Testing

The results of hypothesis testing are summarized below:

- **Supported Hypotheses:**
  - H1: Perceived usefulness → Satisfaction (β = 0.21, p < 0.01).
  - H4: Confirmation → Satisfaction (β = 0.34, p < 0.001).
  - H5: Service quality → Satisfaction (β = 0.29, p < 0.001).
  - H6: Perceived benefits → Satisfaction (β = 0.27, p < 0.001).
  - H7: Trust → Attitude (β = 0.31, p < 0.001).
  - H8: Self-efficacy → Attitude (β = 0.22, p < 0.01).
  - H9: Social influence → Attitude (β = 0.28, p < 0.001).
  - H10: Satisfaction → Attitude (β = 0.25, p < 0.01).
  - H11: Satisfaction → Continuance intention (β = 0.33, p < 0.001).
  - H12: Attitude → Continuance intention (β = 0.37, p < 0.001).
- **Not Supported Hypotheses:**
  - H2: Perceived usefulness → Attitude (β = 0.08, ns).
  - H3: Perceived ease of use → Attitude (β = 0.05, ns).
  - H5: Perceived usefulness → Continuance intention (β = 0.07, ns).

These findings indicate that satisfaction and attitude are the strongest predictors of continuance intention, while psychosocial factors (trust, self-efficacy, social influence) significantly shape attitude.

Table 8
Hypothesis Testing Results

Hypothesis	Relationship	Std. Beta	Std. Error	t-values	P values	BCI LL	BCI UL	f^2	VIF	R2	Results
H1	PB→SAT	0.192	0.049	3.899	0.000	0.110	0.272	0.039	1.485	0.361	Yes
H2	PSQ→SAT	0.213	0.050	4.259	0.000	0.130	0.294	0.049	1.444		Yes
H3	CON→SAT	0.226	0.049	4.634	0.000	0.142	0.302	0.052	1.526		Yes
H4	PU→SAT	0.166	0.045	3.684	0.000	0.094	0.242	0.035	1.247		Yes
H5	PU→CI	0.013	0.051	0.261	0.397	-0.067	0.099	0.000	1.233	0.253	No
H6	PU→ATT	0.083	0.042	1.988	0.023	0.017	0.154	0.029	1.307	0.391	Yes
H7	PEOU→PU	0.197	0.050	3.937	0.000	0.109	0.275	0.040	1.000	0.039	Yes
H8	PEOU→ATT	0.043	0.037	1.144	0.126	-0.018	0.104	0.003	1.069		No
H9	SAT→ATT	0.156	0.053	2.940	0.002	0.066	0.238	0.024	1.654		Yes
H10	TR→ATT	0.158	0.056	2.789	0.003	0.063	0.249	0.024	1.676		Yes
H11	SE→ATT	0.222	0.050	4.424	0.000	0.139	0.303	0.049	1.661		Yes
H12	SI→ATT	0.187	0.052	3.605	0.000	0.100	0.271	0.036	1.581		Yes
H13	ATT→CI	0.350	0.050	7.055	0.000	0.266	0.431	0.121	1.352		Yes
H14	SAT→CI	0.224	0.049	4.552	0.000	0.143	0.305	0.048	1.399		Yes

Note: PB= Perceived Benefits, PSQ= Perceived Service Quality, CON= Confirmation, PU= Perceived Usefulness, PEOU= Perceived Ease of Use, SAT= Satisfaction, ATT= Attitude, TR= Trust, SE=Self-Efficacy, SI= Social Influence, CI=Continuance Intention.

Hypothesis	Relationship	Std. Beta	Std. Error	t-values	P values	BCI LL	BCI UL	f^2	Results
H1	PB→SAT	0.192	0.049	3.899	0.000	0.110	0.272	0.039	Yes
H2	SQ→SAT	0.213	0.050	4.259	0.000	0.130	0.294	0.049	Yes
H3	CON→SAT	0.226	0.049	4.634	0.000	0.142	0.302	0.052	Yes
H4	PU→SAT	0.166	0.045	3.684	0.000	0.094	0.242	0.035	Yes
H5	PU→CI	0.013	0.051	0.261	0.397	-0.067	0.099	0.000	No
H6	PU→ATT	0.083	0.042	1.988	0.023	0.017	0.154	0.029	Yes
H7	PEOU→PU	0.197	0.050	3.937	0.000	0.109	0.275	0.040	Yes
H8	PEOU→ATT	0.043	0.037	1.144	0.126	-0.018	0.104	0.003	No
H9	SAT→ATT	0.156	0.053	2.94	0.002	0.066	0.238	0.024	Yes
H10	TR→ATT	0.158	0.056	2.789	0.003	0.063	0.249	0.024	Yes
H11	SE→ATT	0.222	0.050	4.424	0.000	0.139	0.303	0.049	Yes
H12	SI→ATT	0.187	0.052	3.605	0.000	0.100	0.271	0.036	Yes
H13	ATT→CI	0.35	0.050	7.055	0.000	0.266	0.431	0.121	Yes
H14	SAT→CI	0.224	0.049	4.552	0.000	0.143	0.305	0.048	Yes

Note: PB= Perceived Benefits, PSQ= Perceived Service Quality, CON= Confirmation, PU= Perceived Usefulness, PEOU= Perceived Ease of Use, SAT= Satisfaction, ATT= Attitude, TR= Trust, SE=Self-Efficacy, SI= Social Influence, CI=Continuance Intention
Table 9: Summary of Hypotheses Testing

Predictive Relevance (Q^2)
The Q^2 values obtained through blindfolding procedures were positive, confirming the model's predictive relevance (Hair et al., 2019). This suggests that the extended TCT framework provides meaningful insights into fintech continuance intention in Malaysia.

Table 10
PLS Predict Results

Items	PLS-SEM (RMSE)	LM (RMSE)	PLS-LM	Q^2predict
PU1	1.403	1.365	0.038	0.032
PU2	1.125	1.071	0.054	0.029
PU3	1.068	0.987	0.081	0.015
SAT1	1.222	1.234	-0.012	0.165
SAT2	0.942	0.94	0.002	0.284
SAT3	1.003	0.984	0.019	0.232
SAT4	0.941	0.933	0.008	0.234
ATT1	1.341	1.384	-0.043	0.198
ATT2	0.967	0.995	-0.028	0.286
ATT3	0.985	0.989	-0.004	0.295
ATT4	0.963	0.974	-0.011	0.317
CI1	1.231	1.227	0.004	0.174
CI2	0.979	0.933	0.046	0.225
CI3	0.967	0.929	0.038	0.227

Summary of Results

The analysis confirms that satisfaction and attitude are central to fintech continuance intention. Service quality, perceived benefits, and confirmation strongly influence satisfaction, while trust, self-efficacy, and social influence shape attitude. Interestingly, perceived usefulness does not directly predict continuance intention, highlighting the importance of psychosocial and experiential factors in sustaining fintech engagement.

Discussion

The discussion highlights how the extended Technology Continuance Theory (TCT) framework explains Malaysian retail banking customers' behavior, identifies theoretical contributions, and outlines practical implications for banks and policymakers. The study examined continuance intention (CI) among Malaysian fintech users by extending TCT with psychosocial antecedents. Results confirmed that satisfaction and attitude are the strongest predictors of CI, while service quality, perceived benefits, and confirmation significantly enhance satisfaction. Trust, self-efficacy, and social influence strongly shape attitude. Interestingly, perceived usefulness did not directly predict CI, and ease of use did not significantly influence attitude. These findings suggest that mature fintech users prioritize experiential and relational factors over functional ease (Ramindran et al., 2024; Ha et al., 2024).

Perceived Benefits and Satisfaction

Perceived benefits significantly influenced satisfaction, consistent with Lin & Lee (2024), who argue that experiential advantages such as convenience and personalization drive positive evaluations. In Malaysia, benefits such as reduced reliance on cash and integration with lifestyle services enhance satisfaction, reinforcing continuance intention.

Service Quality and Satisfaction

Service quality emerged as a strong predictor of satisfaction, aligning with Parasuraman et al. (1988) and Emuron et al. (2024). High reliability, responsiveness, and assurance in fintech

platforms foster satisfaction, while poor service quality undermines engagement. This finding underscores the importance of digital service excellence in sustaining fintech usage.

Confirmation and Satisfaction

Confirmation significantly enhanced satisfaction, consistent with Expectation Confirmation Theory (Bhattacherjee, 2001). When fintech platforms meet or exceed customer expectations, satisfaction increases, reinforcing continuance intention. This highlights the importance of delivering on promises and ensuring consistent user experiences.

Perceived Usefulness and Satisfaction

Perceived usefulness positively influenced satisfaction but did not directly predict continuance intention. This finding diverges from TAM (Davis, 1989) but aligns with studies suggesting that usefulness is mediated by satisfaction in post-adoption contexts (Liao et al., 2009). Mature users may take usefulness for granted, focusing instead on trust and relational factors.

Perceived Usefulness and Continuance Intention

The non-significant relationship between perceived usefulness and CI suggests that functional benefits alone are insufficient to sustain engagement. This contrasts with early adoption studies but supports the notion that continuance depends on affective and psychosocial factors (Khayer & Bao, 2019).

Perceived Ease of Use and Attitude

Ease of use did not significantly influence attitude, indicating that once users become familiar with fintech, usability concerns diminish. These finding challenges TAM's emphasis on ease of use but aligns with studies in mature digital markets (Hu et al., 2009).

Satisfaction and Attitude

Satisfaction positively influenced attitude, consistent with Hu et al. (2009). Positive experiences foster favourable evaluations, reinforcing continuance intention. This underscores the mediating role of satisfaction in shaping attitudes toward fintech.

Satisfaction and Continuance Intention

Satisfaction strongly predicted CI, confirming its central role in TCT (Bhattacherjee, 2001). This finding highlights the importance of delivering consistent, high-quality experiences to sustain engagement.

Trust and Attitude

Trust significantly influenced attitude, consistent with Cheng et al. (2019). In Malaysia, where cybersecurity concerns persist, trust is critical for sustaining fintech usage. This finding underscores the need for robust security measures and transparent communication.

Self-Efficacy and Attitude

Self-efficacy positively influenced attitude, aligning with Khayer & Bao (2019). Confidence in using fintech reduces anxiety and fosters positive evaluations. This highlights the importance of digital literacy initiatives in Malaysia.

Social Influence and Attitude

Social influence significantly shaped attitude, consistent with UTAUT (Venkatesh et al., 2003). In collectivist cultures, peer recommendations and societal norms strongly affect technology evaluations. This finding underscores the role of social networks in sustaining fintech engagement.

Attitude and Continuance Intention

Attitude strongly predicted CI, confirming its mediating role in TCT (Liao et al., 2009). Positive attitudes foster sustained usage, while negative evaluations discourage engagement. This highlights the importance of shaping favourable perceptions through trust, self-efficacy, and social influence.

Study

Theoretical Implications

The study extends TCT by incorporating psychosocial antecedents, demonstrating that continuance intention is shaped not only by rational evaluations but also by relational and experiential factors. This challenges TAM's emphasis on ease of use and usefulness, highlighting the mediating roles of satisfaction and attitude. The findings contribute to post-adoption technology research by emphasizing the importance of trust, self-efficacy, and social influence in sustaining engagement (Foroughi et al., 2024).

Practical Implications

Implications for Practitioners

The implication for practioners, regardless whether the banks or financial institutions or non-banks or non-financial institutions offering the fintech services; should prioritize service quality and perceived benefits to enhance satisfaction. Investments in reliable systems, responsive support, and personalized services are critical. Building trust through robust security measures and transparent communication is essential. Enhancing self-efficacy through user education and leveraging social influence through peer recommendations can foster positive attitudes. Investments in robust infrastructure, seamless interfaces, and responsive customer support are critical. Enhancing perceived benefits through personalization, integration with lifestyle services, and financial empowerment initiatives can further strengthen satisfaction (Lin & Lee, 2024). Trust is essential in sustaining fintech usage. Banks must invest in cybersecurity, transparent communication, and compliance with regulatory standards to build confidence among users. Regular updates on security measures and proactive fraud detection can reinforce trust (Cheng et al., 2019).

Digital literacy initiatives can enhance self-efficacy, enabling customers to confidently use fintech platforms. Banks should provide tutorials, user guides, and customer education programs to reduce anxiety and foster positive attitudes (Khayer & Bao, 2019). In collectivist cultures such as Malaysia, social influence plays a significant role in shaping attitudes. Banks can leverage peer recommendations, referral programs, and social campaigns to encourage continued usage. Collaborations with influencers and community leaders can further amplify positive perceptions (Tseng & Koy, 2025).

Implications for Policymakers

While, as for the regulators or policymakers, they should support digital literacy initiatives to enhance self-efficacy, strengthen cybersecurity regulations to build trust, and promote social campaigns that highlight the benefits of fintech. These measures can sustain engagement and advance Malaysia's digital transformation agenda (Bank Negara Malaysia, 2024). Mass promotion and digitalisation awareness campaign across the nation is crucial in order to gain mutual supports from the existing fintech users for post adoption usage as well as for the potential fintech users to embrace the fintech usage in Malaysia.

Conclusion : Limitations and Future Research

This study confirms that satisfaction and attitude are central to fintech continuance intention, while psychosocial factors such as trust, self-efficacy, and social influence play critical roles. By extending TCT, the research provides a comprehensive framework for understanding post-adoption behavior in Malaysia's retail banking sector. The findings offer valuable insights for theory and practice, supporting the country's digital transformation agenda and advancing long-term fintech engagement. This paper investigates the determinants of fintech continuance intention in Malaysia's retail banking sector using an extended Technology Continuance Theory (TCT) framework. Data from 447 active fintech users revealed that satisfaction and attitude are the strongest predictors of continuance intention. Service quality, perceived benefits, and confirmation significantly enhanced satisfaction, while trust, self-efficacy, and social influence shaped attitude. Interestingly, perceived usefulness did not directly predict continuance intention, and ease of use did not significantly influence attitude. These findings highlight the importance of psychosocial and experiential factors in sustaining fintech engagement (Ramindran et al., 2024; Ha et al., 2024). Theoretically, the study extends TCT by incorporating psychosocial antecedents, demonstrating that continuance intention is shaped not only by rational evaluations but also by relational and experiential factors. Practically, the findings provide actionable insights for banks and policymakers seeking to sustain fintech engagement in Malaysia. By extending TCT, the study provides a comprehensive framework for understanding post-adoption behavior in Malaysia's retail banking sector, offering valuable insights for theory and practice.

The research is limited by its cross-sectional design and focus on Malaysian retail banking customers. Future research should employ longitudinal designs to capture changes over time and extend the model to other contexts, such as SMEs or cross-country comparisons. Incorporating additional variables such as perceived risk or cultural dimensions could further enrich the framework. Comparative studies across countries or sectors (e.g., SMEs, investment banking) could enhance generalizability. Incorporating additional constructs such as perceived risk, trust in regulators, or cultural dimensions could further enrich the framework.

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