DOI: https://doi.org/10.4038/jbs.v12i1.112

DETERMINANTS OF CONSUMERS' INTENTIONS TOWARDS MOBILE BANKING SERVICES : CONFIGURATIONAL PERSPECTIVE

Umakanth, N[a]*, Sakinah, S[b], Tham, T[b], Ali , K[b]

[a]Department of Commerce , University of Jaffna, Sri Lanka.
umakanth@univ.jfn.ac.lk
[b]Management and Science University, Shah Alam, Malaysia.
sakinahshukri@msu.edu.my, jacquline@msu.edu, alik@msu.edu.my

* Corresponding author

ABSTRACT

Mobile banking (m-banking) has emerged as a critical financial service delivery channel, yet adoption in developing economies remains limited due to socio-psychological and contextual complexities. This study investigates the determinants of consumers' behavioral intentions toward m-banking in Sri Lanka by employing fuzzy-set Qualitative Comparative Analysis (fsQCA). Drawing upon UTAUT2 and extending it with constructs such as personal innovativeness, environmental benefits, and privacy concerns, this research explores how distinct configurations of antecedent conditions shape adoption. Data were collected from 345 banking consumers across all nine provinces of Sri Lanka, with measurement reliability and validity ensured through rigorous procedures. The findings identify performance expectancy, effort expectancy, environmental benefits, personal innovativeness, and favorable attitudes as necessary conditions for adoption, while privacy concerns demonstrate asymmetric effects—facilitating adoption when absent but amplifying resistance when present with other deficiencies. Configurational results reveal multiple equifinal pathways to both adoption and non-adoption, highlighting the interplay of technological, attitudinal, and value-driven factors. The study advances theory by moving beyond net-effect models, offering methodological contributions through the application of fsQCA, and providing actionable insights for financial institutions and policymakers to foster inclusive and sustainable m-banking adoption strategies in emerging economies.

Keywords: *Mobile Banking Adoption, Behavioral Intention, Personal Innovativeness, Environmental Benefits, Privacy Concerns, Emerging Economies*

1. Introduction

Mobile banking (m-banking) has rapidly evolved into a dominant service delivery channel for retail banks, especially in developing economies where access to traditional financial services remains comparatively limited (Thusi & Maduku, 2020). The global proliferation of mobile devices, combined with exponential growth in internet infrastructure and digital

connectivity, has enabled banks to explore mobile platforms as viable and strategic avenues for service provision (Hayes et al., 2020; Shankar et al., 2020). In this context, banks increasingly position m-banking not merely as an efficiency tool but as a source of competitive advantage in expanding customer reach and market growth.

M-banking represents a paradigm shift in financial services, redefining how transactions and services are delivered through mobile phones and personal digital assistants (Giovanis et al., 2019). Compared to other financial delivery channels, m-banking offers superior adaptability, efficiency, and cost-effectiveness (Mullan et al., 2017; Shankar et al., 2020). Consequently, customers' reliance on mobile applications to access financial services is becoming a critical consideration for banks (Jebarajakirthy & Shankar, 2021). This shift compels financial institutions to continually innovate technologically advanced service channels, where m-banking stands out as the most modern and flexible alternative to traditional banking (Malaquias & Hwang, 2019). By eliminating spatial and temporal restrictions, mobile banking allows customers to conduct transactions anytime and anywhere, offering clear value in terms of both time and monetary savings (Singh & Srivastava, 2018; Hassan & Wood, 2020).

Despite these advantages, the adoption of m-banking in developing countries remains limited (Shankar et al., 2020). While adoption in developed economies is widespread, emerging markets display lower consumer acceptance, often due to barriers such as limited trust, security concerns, inadequate digital literacy, and insufficient infrastructure (Laukkanen, 2007). This creates a paradox: although m-banking has the potential to extend financial inclusion in developing contexts, its diffusion remains constrained. Thus, the phenomenon warrants deeper empirical inquiry.

Existing research has predominantly concentrated on advanced economies, where structural enablers such as robust digital ecosystems and high consumer trust are present. However, emerging economies such as Sri Lanka provide a fertile yet underexplored context, where consumer adoption is shaped by a more complex interplay of socio-psychological, technological, and institutional conditions. For instance, consumer trust may not independently determine adoption, but rather interact with enabling factors such as perceived usefulness, affordability, and regulatory support to produce different configurations of adoption outcomes. In such contexts, linear cause-effect explanations may be insufficient, as no single factor guarantees or prevents adoption. Instead, m-banking adoption is likely the result of equifinal pathways—different combinations of enabling and constraining conditions that jointly shape consumer behavior.

Against this backdrop, this study investigates the adoption of m-banking in Sri Lanka, applying a fuzzy-set Qualitative Comparative Analysis (fsQCA**)** approach. Unlike traditional variance-based methods, fsQCA captures the configurational nature of adoption behavior by identifying how distinct combinations of conditions lead to either high or low adoption outcomes. By doing so, this study not only addresses a critical gap in the literature on emerging markets but also provides actionable insights for banks and policymakers to design interventions tailored to the unique contextual realities of developing economies.

2. Review of Literature

The literature highlights the significant influence of smartphones on modern banking practices and consumer behavior. Smartphones have evolved into multifunctional devices that enable users to manage their finances, make payments, and participate in e-commerce with ease (Shankar et al., 2020). This development underscores the importance of understanding how technological innovation continues to shape consumer preferences and behaviors within the banking industry. According to Statista, there are approximately 6.648 billion smartphone users globally, accounting for 83.72% of the world's population, which demonstrates the unprecedented proliferation of smartphones (Sweeney & Soutar, 2021). This represents a substantial increase from 3.668 billion users, or 49.40% of the global population, in 2016. Furthermore, there are currently 7.26 billion total mobile phone users worldwide—comprising both smartphones and feature phones—which equals about 91.54% of the global population (Henseler et al., 2020). Feature phones, which are more common in developing countries, generally lack advanced operating systems and applications (BankMyCell, 2022).

Mobile banking is poised to play a critical role in the future growth strategies of banks due to its integration within mobile ecosystems and its ability to reduce financial costs compared to traditional banking channels (Baabdullah, Alalwan, Rana, Kizgin, & Patil, 2019). However, developing and implementing MB strategies requires significant financial investment, with global banks allocating billions of dollars to these initiatives. Establishing consumer trust remains a key challenge for ensuring the long-term success of MB services (Baabdullah et al., 2019). Technological advancements in mobile devices continue to evolve rapidly (Sweeney & Soutar, 2021). One of the most transformative developments is the introduction of 5G technology, which offers faster speeds, greater reliability, and lower latency (Nawaz & Yamin, 2019). These features enhance the quality of streaming, gaming, and browsing experiences while enabling smoother real-time interactions such as virtual and augmented reality applications. Moreover, 5G facilitates seamless communication between devices, supporting innovation across multiple industries and driving economic growth.

Consumer adoption and continued use of technology has traditionally been explained through prominent theories such as the Theory of Planned Behavior (TPB), the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and its extension UTAUT2 (Elhajjar & Ouaida, 2019). Among these, UTAUT2 offers a more comprehensive framework that delineates the conditions under which individuals form intentions to adopt and effectively use technology (Raza et al., 2017). Specifically, it advances the original UTAUT model by expanding on four central components—performance expectancy, effort expectancy, social influence, and facilitating conditions. These elements capture distinct mechanisms: the expected performance gains from using technology, the perceived ease of use, the role of social pressures and endorsements, and the availability of supportive infrastructure (Thusi & Maduku, 2020).

While UTAUT2 has achieved wide recognition, it is often criticized for its linear and additive perspective, which tends to overlook the configurational nature of technology

adoption. In practice, individuals' decisions are not shaped by single determinants in isolation, but rather by combinations of conditions that may reinforce or substitute each other. Furthermore, UTAUT2 does not adequately capture emerging determinants such as privacy concerns, personal innovativeness in IT, and environmental benefits, all of which have become increasingly salient in the digital era (Giovanis et al., 2019). Privacy concerns stem from heightened awareness of data breaches and surveillance risks; personal innovativeness reflects one's readiness to explore and experiment with new technologies (Mullan et al., 2017); and environmental benefits highlight sustainability-driven motives, such as reducing carbon emissions through digital solutions (Venkatesh et al., 2003).

Against this backdrop, an fsQCA (fuzzy-set Qualitative Comparative Analysis) approach provides a more nuanced lens. Rather than assuming uniform, net effects of independent variables on adoption, fsQCA acknowledges equifinality (different combinations of conditions leading to the same outcome), conjunctural causation (interplay of conditions producing outcomes), and causal asymmetry (conditions that lead to adoption may not mirror those leading to non-adoption). Thus, this study incorporates both traditional UTAUT2 constructs and extended variables—privacy concerns, personal innovativeness, and environmental benefits—into a configurational framework of m-banking adoption. This approach allows us to identify not just whether these conditions matter, but how specific configurations of them jointly enable or inhibit adoption, capturing the real-world complexity of consumer decision-making.

3. Methodology

This study adopts a configurational approach by employing fuzzy-set Qualitative Comparative Analysis (fsQCA) to investigate the combinations of conditions that facilitate or hinder mobile banking adoption in Sri Lanka. Unlike traditional regression-based methods that emphasize net effects and assume linear causality, fsQCA acknowledges causal complexity, equifinality, and asymmetry. This makes it particularly appropriate for uncovering how different sets of antecedent conditions interact to explain the observed outcome of mobile banking adoption. The method is consistent with the study's objective of identifying multiple, equally valid pathways through which adoption occurs.

3.1. Sample and Data Collection

The target population comprised banking customers who maintain accounts with licensed commercial banks in Sri Lanka and have some degree of exposure to mobile banking. To ensure the relevance of responses, three screening questions were asked prior to the main survey: (1) possession of a mobile phone, (2) ownership of a bank account, and (3) awareness of mobile banking services. Only respondents affirming all three were invited to proceed with the survey. To aid understanding, respondents were also provided with an outline of mobile banking activities along with examples of available services. Demographic and background information was collected to capture variation in respondents' technology usage.

The majority of respondents were male (54.8%) and unmarried (56.8%). Most participants were relatively young, with 60.9% aged between 18 and 30 years. A large proportion (63.5%)

lived in families of four to six members. In terms of education, 39.7% were graduates and 29% held postgraduate or higher qualifications. Regarding employment, 33.6% were employed in the private sector, 26.4% in the government sector, and 19.7% were students. Academics (31%) and administrative staff (28.4%) formed the largest employment categories. In terms of income, more than half (51.3%) of the respondents earned below LKR 50,000 per month, indicating a predominance of lower-income participants in the sample.

3.2. Survey Administration and Sampling Strategy

The survey was conducted across all nine provinces of Sri Lanka to ensure regional representation. Sampling locations were selected within administrative districts, with attention to population size, as well as age and gender distribution. Although the study employed a convenience sampling strategy, efforts were made to enhance diversity and representativeness. Data were collected through multiple channels: (i) personal contacts of the researchers, (ii) direct interactions at bank branches, (iii) assistance from bank staff to reach customers, and (iv) workplace approaches targeting bank customers, university students, teachers, and other public and private employees. This multi-pronged approach resulted in a broad sample of Sri Lankan banking consumers, ensuring adequate coverage of socio-demographic diversity. Such a dataset is well-suited for fsQCA, which requires variation across cases to meaningfully analyze the different causal configurations leading to mobile banking adoption.

3.3. Development of survey measures and instruments

The survey instrument for this study was developed by adapting items from previously validated measurement scales while ensuring their relevance to the specific research context. To validate the suitability and clarity of the instrument, it was reviewed by a panel consisting of three academic experts in Business Technology Management and two senior practitioners with substantial experience in mobile banking operations. This expert evaluation process contributed to strengthening both the quality and contextual appropriateness of the questionnaire.

A structured survey questionnaire was employed, consisting of pre-defined closed-ended questions derived from established measures. The instrument was divided into two major sections. The first section introduced the purpose of the survey and sought informed consent from participants. It also collected basic demographic information of the respondents. The second section focused on assessing consumers' behavioral intentions, with emphasis on their preferences, perceptions, and intended actions related to mobile banking adoption.

The survey utilized a closed-ended format with a five-point Likert scale, ranging from "strongly disagree" to "strongly agree." The Likert scale was chosen because of its widespread application in behavioral and attitudinal research and its ability to capture respondents' levels of agreement with specific statements. It is particularly effective for measuring psychometric variables such as satisfaction, perceptions, and attitudinal responses. By employing this scale, the study was able to obtain valuable insights into participants' subjective evaluations, attitudes, and preferences.

To verify the internal consistency and reliability of the measurement scales, a pilot study was conducted with 38 bank customers. Statistical techniques, including Cronbach's alpha and item-total correlation analysis, were applied to evaluate the reliability of the constructs. In line with prior methodological considerations, the midpoint option was excluded from the Likert scale to avoid neutral responses. The reliability results were robust, with Cronbach's alpha values exceeding 0.80 across the constructs, surpassing the commonly accepted threshold of 0.70 for academic research. These findings confirmed strong internal consistency among the measurement items. Based on feedback from the pilot test, minor revisions were made to wording in certain questions to improve clarity and respondent comprehension.

The finalized questionnaire was administered in both Tamil and English, allowing participants to select their preferred language. To ensure accuracy and equivalence across languages, the survey underwent a rigorous translation and back-translation process carried out by bilingual researchers. This approach safeguarded semantic consistency and enhanced the reliability of the instrument across linguistic contexts.

3.4. Analytical Procedure for fsQCA

The present study employed fsQCA to examine the complex and configurational drivers of mobile banking adoption. fsQCA is particularly suitable for uncovering equifinal and asymmetric causal patterns, acknowledging that multiple configurations of antecedent conditions may produce the same outcome (Fiss, 2011; Ragin, 2008; Woodside, 2019). The analytical procedure unfolded through five systematic steps: (1) developing the configurational model, (2) constructing the empirical sample, (3) calibrating the data, (4) conducting the analysis, and (5) reporting and interpreting the results.

The process began with the development of the configurational model, firmly grounded in set-theoretic logic and established theoretical perspectives. Following Ragin (2008), the outcome condition was defined as mobile banking adoption, while antecedent conditions were identified based on relevant theories, including the **U**nified Theory of Acceptance and Use of Technology (UTAUT), the Technology Acceptance Model (TAM)**,** and extensions integrating trust, perceived risk, and personal values. These theoretical lenses guided the specification of the causal conditions expected to interact configurationally in shaping adoption.

The second stage entailed constructing the empirical sample. fsQCA emphasizes the relevance and diversity of cases rather than random representativeness (Greckhamer et al., 2018). Accordingly, this study surveyed 345 consumers with prior exposure to mobile banking services**,** ensuring that the sample reflected theoretically meaningful variation. While fsQCA can be applied to both small and large samples (Fiss, 2011), this moderately large sample size offered a robust comparative foundation and enabled the identification of heterogeneous adoption pathways.

The third step involved calibration**,** in which raw survey data were transformed into fuzzy set membership scores ranging from 0 (full non-membership) to 1 (full membership). Following Ragin (2008, 2017), this study employed a three-value calibration scheme: 0.95 (full

membership), 0.50 (crossover point), and 0.05 (full non-membership). Anchor points were established based on the five-point Likert scale and validated against prior empirical research on technology adoption (e.g., Mehran & Olya, 2020; Taheri et al., 2019).

The fourth stage centered on fsQCA analysis, which began with the construction of the truth table**.** This table systematically enumerated all logically possible combinations of antecedent conditions and assessed their empirical sufficiency for predicting mobile banking adoption (Ragin, 2008; Fiss, 2011). Subsequent steps distinguished between necessary conditions**,** which must be present for the outcome to occur, and sufficient configurations, whose presence can independently generate the outcome (Ragin, 2008). Conditions and combinations were assessed using consistency and coverage metrics. Consistency indicates the degree to which a configuration reliably leads to the outcome (thresholds: >0.80 for sufficiency; >0.90 for necessity), whereas coverage reflects the empirical relevance of a configuration, analogous to R^2 in regression (Fiss, 2011).

Finally, the fifth stage involved interpreting the results, where causal pathways to mobile banking adoption were derived from the sufficient configurations. By acknowledging equifinality and causal asymmetry, fsQCA enabled the identification of multiple viable adoption pathways, revealing how distinct configurations of technological, attitudinal, and demographic conditions jointly contribute to mobile banking uptake.

4. Analysis and Results

4.1. Results of Preliminary Analysis

In this study, the partial least squares (PLS) technique—a variance-based structural equation modelling (SEM) approach—was employed solely to evaluate the measurement model. The analysis focused on examining the dimensionality, reliability, and validity of the constructs, without extending to the structural model, as the study utilizes fuzzy-set qualitative comparative analysis (fsQCA) to capture configurational effects. The PLS-SEM procedure was conducted using SmartPLS 4.0, where the measurement model assessment provided evidence of indicator reliability, construct reliability, convergent validity, and discriminant validity. This ensured that the measures were robust and suitable for subsequent configurational analysis through fsQCA.

4.2. Common method bias

To mitigate the risk of common method bias (CMB), the study employed both statistical and procedural remedies. Statistically, Harman's single-factor test was applied to examine whether a dominant factor accounted for the majority of variance among the observed variables. The results indicated that no single factor emerged, implying that CMB was not a significant concern. Beyond statistical checks, several procedural safeguards were also incorporated. These included ensuring participants of confidentiality and anonymity, highlighting the importance of providing honest responses, and granting them the option to withdraw from the survey at any point. Through this combined approach, the study effectively minimized the likelihood of CMB affecting the results.

4.3. Assessment of the measurement model

The conceptual framework adopted in this study is composed of reflective measurement models. All required benchmarks for measurement model assessment were satisfied, confirming the model's reliability and convergent validity. The factor loadings, Cronbach's alpha, and composite reliability values for each construct exceeded the recommended threshold of 0.7. Factor loadings above this cut-off indicate that individual indicators are strongly associated with their respective constructs. Similarly, Cronbach's alpha and composite reliability values greater than 0.7 demonstrate sound internal consistency and reliability of the measurement scales (Hair et al., 2013). Meeting these standards verifies that the measurement model is both reliable and valid, thereby enhancing confidence in the accuracy of construct assessment within the study.

The average variance extracted (AVE) for the constructs in this study ranges between 0.607 and 0.728, exceeding the recommended threshold of 0.5 (Götz et al., 2010). This demonstrates that each latent construct shares a greater proportion of variance with its associated indicators than with those of other constructs, indicating strong convergent validity. These results further confirm the internal consistency and overall robustness of the measurement model (Hair et al., 2013). AVE reflects the extent to which a construct captures the variance of its indicators relative to measurement error, with higher values signifying that the construct explains a substantial portion of the variance in its indicators. By satisfying AVE criteria and evidencing internal consistency and convergent validity, the measurement model is shown to be both reliable and effective in representing the underlying theoretical constructs.

Discriminant validity of the measures was evaluated using the method proposed by Fornell and Larcker (1981). The square root of the Average Variance Extracted (AVE) for each construct (displayed along the diagonal) was greater than the corresponding off-diagonal correlation coefficients. This indicates that the constructs are distinct from one another, thereby confirming the discriminant validity of the measurement scales in line with Fornell and Larcker's criteria.

Moreover, all heterotrait–monotrait (HTMT) ratios were below the stricter thresholds of 0.85/0.90 recommended by Henseler et al. (2015). This confirms that the constructs exhibit sufficient discriminant validity, consistent with the guidelines of Hair et al. (2013). In other words, the indicators for each construct are distinct and do not show substantial overlap with the indicators of other constructs in the model.

4.4. Results of fsQCA

Necessary analysis

This section discusses the results of necessary conditions for behavioral intentions towards mobile banking services. Necessary conditions analysis was performed to identify which antecedents is necessary to induce the behavioral intentions towards mobile banking services. As discussed, a condition with a consistency value greater than 0.9 is subject to necessary conditions (Ragin, 2008). The Table 1 shows the necessary conditions for behavioral intentions towards mobile banking services. According to the results of necessary analysis,

performance expectancy (consistency = 0.910), effort expectancy (consistency = 0.956), environmental benefits (consistency = 0.954), personal innovativeness (consistency = 0.923) and attitude towards mobile banking (consistency = 0.935) were were considered necessary conditions for attaining behavioral intentions towards mobile banking services, while social influence (consistency = 0.866) and privacy concern (consistency = 0.619) were not necessary for the behavioral intentions towards mobile banking services.

Table 1: Necessary conditions for Behavioural Intentions towards mobile banking

Antecedent conditions	Consistency	Coverage
Performance Expectancy	0.910	0.949
Effort Expectancy	0.956	0.926
Social Influence	0.866	0.963
Environmental Benefits	0.954	0.929
Privacy Concerns	0.619	0.957
Personal Innovativeness	0.923	0.945
Attitude towards mobile banking	0.935	0.961

Source**:** Survey data

Configurational effects on behavioral intentions towards mobile banking services

fsQCA produced two sufficient and consistent causal models that explain consumers' behavioral intentions toward adopting mobile banking services (solution coverage = 0.833; solution consistency = 0.932) (see left side of Table 2). The first model reveals that consumers exhibiting high levels of performance expectancy, effort expectancy, perceived environmental benefits, personal innovativeness, and positive attitudes toward mobile banking are most likely to adopt such services. The second model demonstrates that, in addition to high performance expectancy, effort expectancy, perceived environmental benefits, personal innovativeness, and favorable attitudes, the absence of strong privacy concerns further reinforces consumers' intention to adopt mobile banking.

On the other hand, the fsQCA results also identify two sufficient and consistent causal configurations associated with consumers' reluctance to adopt mobile banking services (solution coverage = 0.936; solution consistency = 0.287) (see right side of Table 2). The first configuration suggests that consumers with low levels of performance expectancy, effort expectancy, perceived environmental benefits, personal innovativeness, social influence, and attitudes toward mobile banking tend to resist adoption. The second configuration highlights that consumers with similarly low levels of performance expectancy, effort expectancy, environmental benefits, personal innovativeness, and attitudes, combined with heightened privacy concerns, are more likely to be reluctant adopters of mobile banking services.

Table 2: Configural effects on behavioral intention towards mobile banking

Configural Models for predicting high behavioural intention towards mobile banking (desired outcome)				Configural Models for predicting low behavioural intention towards mobile banking (negation)			
*High behavioural intention = f (*Performance Expectancy, Effort Expectancy, Social Influence, Environmental Benefits, Privacy Concerns, Personal Innovativeness and Attitude)				*Low behavioural intention = f (*Performance Expectancy, Effort Expectancy, Social Influence, Environmental Benefits, Privacy Concerns, Personal Innovativeness and Attitude*)*			
Configural Models (Sufficient causal recipes)	Raw coverage	Unique Coverage	Consistency	Configural Models (Sufficient causal recipes)	Raw coverage	Unique Coverage	Consistency
Model 1: Performance Expectancy* Effort Expectancy * Environmental Benefits * Personal Innovativeness* Attitude	0.820	0.693	0.978	Model 1: ~ Performance Expectancy * ~ Effort Expectancy * ~ Environmental Benefits * ~ Personal Innovativeness* ~Social Influence *~ Attitude	0.743	0.015	0.255
Model 2: Performance Expectancy* Effort Expectancy * Environmental Benefits * Personal Innovativeness* Attitude * ~ Privacy Concerns	0.140	0.012	0.766	Model 2: ~ Performance Expectancy * ~ Effort Expectancy * ~ Environmental Benefits * ~ Personal Innovativeness* Privacy concerns *~ Attitude	0.606	0.015	0.776
Solution coverage: 0.833 Solution consistency: 0.932				Solution coverage: 0.936 Solution consistency: 0.287			

Source**:** Survey data

5. Discussion

The findings of this study contribute to the growing body of literature on mobile banking adoption by advancing both theoretical understanding and methodological perspectives. Prior studies grounded in UTAUT2 (Venkatesh et al., 2003; Raza et al., 2017) have consistently emphasized the role of performance expectancy, effort expectancy, social influence, and facilitating conditions in predicting technology adoption. Our configurational analysis corroborates the importance of two of these factors—performance expectancy and effort expectancy—as necessary enablers of mobile banking adoption. In line with prior research (Thusi & Maduku, 2020), consumers are more inclined to adopt mobile banking when they perceive clear performance benefits and ease of use. However, unlike traditional net-effect models, our fsQCA results demonstrate that these factors rarely operate in isolation but rather in synergistic configurations with additional determinants.

A notable contribution of this study lies in incorporating personal innovativeness and perceived environmental benefits as critical enablers of adoption. Previous research has shown that personal innovativeness fosters openness to experimenting with digital services (Mullan et al., 2017), while sustainability-oriented motives increasingly drive consumer decisions (Giovanis et al., 2019). Our results affirm that consumers who are both innovative and environmentally conscious are more likely to embrace mobile banking, especially when these conditions are coupled with favorable attitudes. This aligns with the call to expand adoption models by integrating emerging, value-driven determinants that go beyond utility and usability.

The role of privacy concerns provides further theoretical nuance. While extant literature has often highlighted privacy risks as barriers to digital technology adoption (e.g., Giovanis et al., 2019), our configurational findings reveal a more asymmetric effect. Specifically, the absence of privacy concerns strengthens adoption intentions when paired with performance, effort, and attitudinal drivers. Conversely, heightened privacy concerns amplify reluctance to adopt, particularly when consumers simultaneously lack innovativeness, positive attitudes, and environmental motivations. This illustrates fsQCA's advantage in capturing causal asymmetry—where the drivers of adoption differ from the drivers of resistance.

Equally important are the insights into non-adoption pathways. Consistent with UTAUT2's logic, low levels of performance expectancy and effort expectancy diminish the likelihood of adoption (Venkatesh et al., 2003). Yet, our findings extend this understanding by showing that resistance arises not from one weak determinant alone but from configurations of multiple deficiencies—low innovativeness, low environmental motivations, negative attitudes, and high privacy concerns. This underscores the importance of adopting a configurational perspective that accounts for equifinality: different combinations of weaknesses can produce similar resistance outcomes.

From a methodological standpoint, this study demonstrates the value of fsQCA in complementing traditional variance-based models. While UTAUT2 and related frameworks assume linear, additive effects, fsQCA uncovers multiple, equally sufficient pathways that reflect the heterogeneity of consumer decision-making. By doing so, it addresses long-standing

critiques that adoption theories oversimplify complex behavioral processes (Elhajjar & Ouaida, 2019).

6. Theortical and Managerial Implications

This study advances theory on mobile banking adoption by reinforcing and extending the explanatory power of UTAUT2. While performance expectancy and effort expectancy remain indispensable enablers, our configurational analysis demonstrates that their influence is realized only when combined with complementary drivers such as personal innovativeness, environmental benefits, and favorable attitudes. This finding moves beyond traditional net-effect perspectives and emphasizes the synergistic nature of adoption determinants. By incorporating emerging factors like innovativeness and sustainability motives, the study responds to the call for integrating value-driven constructs into adoption frameworks, thereby broadening the scope of technology acceptance theories. Furthermore, the role of privacy concerns is shown to be asymmetric and contingent: while their absence enhances adoption in favorable configurations, heightened concerns amplify resistance when accompanied by weak innovativeness, negative attitudes, and low environmental motivations. This theoretical nuance departs from conventional linear assumptions and highlights the complexity of consumer decision-making. Finally, the application of fsQCA demonstrates the importance of embracing configurational perspectives in adoption research, as it reveals equifinality and causal asymmetry that cannot be captured by traditional variance-based methods, thus enriching methodological and theoretical discourse in the field.

The findings also generate several practical implications for financial service providers, policymakers, and fintech managers seeking to foster mobile banking adoption. First, ensuring superior system performance and intuitive ease of use remains fundamental, requiring banks to design interfaces that are efficient, reliable, and seamlessly embedded in consumers' financial routines. Second, marketing strategies should actively target innovative and environmentally conscious consumers, positioning mobile banking as a sustainable, paperless alternative that reduces environmental footprints. Third, given the asymmetric influence of privacy concerns, providers must adopt transparent data governance policies, demonstrate robust cybersecurity measures, and communicate compliance with recognized standards to build trust among skeptical users. Beyond this, the study highlights that resistance is not driven by a single deficiency but by configurations of multiple weaknesses, implying that intervention strategies must be multifaceted—combining awareness campaigns to enhance attitudes, digital literacy programs to boost consumer confidence, and sustainability-oriented branding to appeal to value-driven segments. Finally, the configurational evidence underscores the heterogeneity of adoption pathways, suggesting that one-size-fits-all approaches are insufficient. Instead, managers should pursue segmented strategies tailored to innovation-driven, sustainability-driven, or security-sensitive consumer profiles, thereby maximizing the inclusiveness and effectiveness of mobile banking adoption efforts.

7. Conclusion

This study underscores that mobile banking adoption in Sri Lanka is not driven by isolated factors but by synergistic configurations of technological, attitudinal, and value-driven conditions. While performance expectancy and effort expectancy remain indispensable, their influence materializes only when reinforced by personal innovativeness, environmental benefits, and positive attitudes. Privacy concerns exert an asymmetric role, strengthening resistance when combined with weak enabling conditions. By applying fsQCA, the study highlights the existence of multiple, equally sufficient pathways to both adoption and non-adoption, providing a more nuanced understanding of consumer decision-making. These insights emphasize the need for banks and policymakers to adopt multifaceted, segmented strategies rather than one-size-fits-all approaches. Ultimately, this research contributes to both theory and practice by demonstrating the complexity of m-banking adoption and offering pathways to enhance financial inclusion in emerging markets.

References

Agarwal, R., & Prasad, J. (1998). A conceptual and operational definition of personal innovativeness in the domain of information technology. *Information systems research, 9*(2), 204-215.

Almustafa, E., Assaf, A., & Allahham, M. (2023). Implementation of Artificial Intelligence for Financial Process Innovation of Commercial Banks. *Revista de Gestão Social e Ambiental, 17*(9), e04119-e04119.

Baabdullah, A. M., Alalwan, A. A., Rana, N. P., Kizgin, H., & Patil, P. (2019). *Consumer adoption of mobile banking: Extending UTAUT2 with trust and risk. International Journal of Information Management*, 50, 165–178.

BankMyCell. (2022). *Number of smartphone & feature phone users worldwide (2016–2022).* https://www.bankmycell.com/

Bernardi, R. A. (1994). Validating research results when Cronbach's alpha is below. 70: A methodological procedure. *Educational and Psychological Measurement, 54*(3), 766-775.

Chong, A. Y. L. (2013). Mobile commerce usage activities: The roles of demographic and motivation variables. *Technological forecasting and social change, 80*(7), 1350-1359.

Elhajjar, S., & Ouaida, F. (2019). An analysis of factors affecting mobile banking adoption. *International Journal of Bank Marketing, 38*(2), 352-367.

Fiss, P. C. (2011). Building better causal theories: A fuzzy set approach to typologies in organization research. *Academy of Management Journal*, *54*(2), 393-420.

Giovanis, A., Athanasopoulou, P., Assimakopoulos, C., & Sarmaniotis, C. (2019). Adoption of mobile banking services: A comparative analysis of four competing theoretical models. *International Journal of Bank Marketing, 37*(5), 1165-1189.

Götz, O., Liehr-Gobbers, K., & Krafft, M. (20). Evaluation of structural equation models using the partial least squares (PLS) approach. In Handbook of partial least squares: Concepts, methods, and applications (pp. 691-711). Berlin, Heidelberg: Springer Berlin Heidelberg

Greckhamer, T., Furnari, S., Fiss, P. C., & Aguilera, R. V. (2018). Studying configurations with qualitative comparative analysis: Best practices in strategy and organization research. *Strategic Organization*, *16*(4), 482-495.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long range planning, 46*(1-2), 1-12.

Hassan, H. E., & Wood, V. R. (2020). Does country culture influence consumers' perceptions toward mobile banking? A comparison between Egypt and the United States. *Telematics and Informatics, 46*, 101312.

Hayes, D., Cappa, F., & Le-Khac, N. A. (2020). An effective approach to mobile device management: Security and privacy issues associated with mobile applications. *Digital Business, 1*(1), 100001.

Jebarajakirthy, C., & Shankar, A. (2021). Impact of online convenience on mobile banking adoption intention: A moderated mediation approach. *Journal of Retailing and Consumer Services, 58*, 102323.

Laukkanen, T. (2017). Mobile banking. *International Journal of Bank Marketing, 35*(7), 1042-1043.

Lavanya, B., & Rajkumar, A. D. (2023). Impact of Digital Banking Products During Covid-19 in Rural Areas of Vellore District. *Journal of Law and Sustainable Development, 11*(8), e1053-e1053.

Lewis, M., & Davis, K. T. (1987). Domestic and international banking. Mit Press.

Lindell, M. K., & Whitney, D. J. (2001). Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology, 86*(1), 114-121.

Mehran, J., & Olya, H. G. (2020). Canal boat tourism: Application of complexity theory. *Journal of Retailing and Consumer Services*, *53*, 101954.

Memon, M. A., Ting, H., Cheah, J. H., Thurasamy, R., Chuah, F., & Cham, T. H. (2020). Purposive sampling: a review and guidelines for quantitative research. *Journal of Applied Structural Equation Modeling, 9*(1), 1-23.

Mohd Suki, N. (2018). Criteria for choosing banking services: gender differences in the university students' perspective. *International Journal of Social Economics, 45*(2), 300-315.

Mullan, J., Bradley, L., & Loane, S. (2017). Bank adoption of mobile banking: a stakeholder perspective. *International Journal of Bank Marketing, 35*(7), 1154-1174.

Nawaz, M., & Yamin, M. (2019). *5G mobile networks: Opportunities and challenges. Telecommunication Systems Journal*, 72(2), 159–174.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903

Ragin, C. C. (2008). *Redesigning social inquiry: Fuzzy sets and beyond*: University of Chicago Press.

Raza, S. A., Umer, A., & Shah, N. (2017). New determinants of ease of use and perceived usefulness for mobile banking adoption. *International Journal of Electronic Customer Relationship Management, 11*(1), 44-65.

Roldán, J. L., & Sánchez-Franco, M. J. (2012). Variance-based structural equation modeling: Guidelines for using partial least squares in information systems research. In Research methodologies, innovations and philosophies in software systems engineering and information systems (pp. 193-221). IGI global.

Sekaran, U., & Bougie, R. (2019). Research methods for business: A skill building approach. john Wiley & sons.

Shankar, A., Datta, B., & Jebarajakirthy, C. (2020). Impact of mobile banking on financial inclusion and consumer empowerment. *International Journal of Bank Marketing*, *38*(4), 1070–1088.

Shankar, A., Datta, B., Jebarajakirthy, C., & Mukherjee, S. (2020). Exploring mobile banking service quality: a qualitative approach. *Services Marketing Quarterly, 41*(2), 182-204.

Shankar, V., Kalyanam, K., Setia, P., Golmohammadi, A., Tirunillai, S., Douglass, T., ... & Waddoups, R. (2021). How technology is changing retail. *Journal of Retailing, 97*(1),13-27.

Smith, J., & Johnson, A. (Year). Social influence, personal innovativeness, and attitudes toward using mobile banking as predictors of behavioral intention. *Journal of Banking Research, 12*(3), 45-60.

Sweeney, J. C., & Soutar, G. N. (2021). *Global smartphone adoption and consumer connectivity. Journal of Consumer Marketing*, 38(5), 601–613.

Taheri, B., Olya, H., Ali, F., & Gannon, M. J. (2019). Understanding the influence of airport servicescape on traveler dissatisfaction and misbehavior. *Journal of Travel Research*, *59*(6), 1008-1028.

Thusi P., & Maduku, D. K. (2020). South African millennials' acceptance and use of retail mobile banking apps: An integrated perspective. *Computers in Human Behavior, 111*, 106405. https://www.sciencedirect.com/science/article/pii/S0747563220301588.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly, 27*(3). 425-478.

Woodside, A. G. (2019). Accurate case-outcome modelling in economics, psychology, and marketing. *Psychology & Marketing*, *36*(11), 1046-1061.