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Digital Banking Transformation in a Developing Economy: Bridging Employee Engagement and Customer Acceptance in Laos

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Abstract: *Lao PDR's digital transformation demands a dual-front strategy, requiring synchronized success in both employee engagement and customer acceptance. Analyzing 354 bank employees and 128 customers, this study confirms that transformation is a "dual-front" challenge. Employee adoption is primarily driven by their belief in a tool's Performance Expectancy (PE), shaped by organizational culture, management support, and regulatory influence. Customer adoption, meanwhile, hinges on Seamless Experience (SE), a new construct where users perceive application smoothness (Effort Expectancy) and infrastructure reliability (Facilitating Conditions) as a single, indivisible service. Our holistic model demonstrates a critical causal chain: a bank's internal capacity, fostered through employee engagement, is the essential prerequisite for delivering the external seamless experience that drives market adoption. Success is achieved by addressing both human and technical challenges through this synchronized approach.*

Keywords: Digital Banking Transformation, Employee Engagement, Seamless Experience, UTAUT, Customer Acceptance

1. Introduction

The financial services industry is undergoing a profound digital transformation, propelled by technological advancements and evolving consumer demands (Apau et al., 2025; Farzin et al., 2021). In developing economies, this transformation is not merely an operational upgrade but a critical engine for financial inclusion and economic growth (Amnas et al., 2023). The Lao People's Democratic Republic (Lao PDR) is at a pivotal moment, with an ambitious national vision to expand its digital economy from 3% to 10% of GDP by 2040 (Beschorner et al., 2022). However, this path is fraught with systemic challenges. Laos grapples with some of the most expensive and slowest internet connectivity in its region, coupled with low digital skill levels and an underdeveloped regulatory framework for data protection and cybersecurity (Beschorner et al., 2022). These issues create a complex environment for digital banking, affecting both the institutions trying to implement change and the customers they aim to serve.

The academic literature on technology adoption, while vast, often suffers from a siloed perspective. Studies typically focus on either customer acceptance in a voluntary context (e.g., why a consumer chooses to use a mobile banking app) or employee adoption in a mandatory context (e.g., how bank staff adapt to new internal systems). This bifurcation overlooks a

fundamental truth: successful digital transformation is not a single problem but a dual-front challenge. A bank may build a world-class internal system, but it will fail if customers find the external-facing app unusable. Conversely, a brilliant customer-facing app will falter without engaged and proficient employees to support internal processes and guide clients through the digital transition.

This study addresses this critical gap by uniquely integrating two complementary investigations within the Laotian banking sector. We develop a holistic model by analyzing the factors influencing employee engagement with internal digital transformation initiatives and investigating the key determinants of customer acceptance and use of digital banking services. By bridging the internal (employee) and external (customer) perspectives, this paper provides a comprehensive, systemic understanding of the dynamics at play, offering a more robust and actionable roadmap for stakeholders aiming to realize the promise of digital finance in a developing economy.

2. Theoretical Framework: A Dual Application of Technology Acceptance Models

The rapid digital transformation of the financial sector in a developing economy is a complex, multifaceted phenomenon that demands a nuanced theoretical lens. While a vast body of literature on technology adoption exists, a critical review reveals several key limitations that guided our research approach and the selection of our analytical frameworks.

A major limitation of current research is its tendency to adopt a siloed perspective, focusing exclusively on either the customer or the employee experience in isolation. This unilateral approach fails to capture the interdependent nature of the transformation process. Furthermore, traditional models often lack sufficient contextual adaptation for developing economies. In such environments, digital transformation is shaped by challenges like underdeveloped digital infrastructure, low digital literacy, and a nascent regulatory framework. Applying these models without adaptation can also lead to validity and practical issues, such as multicollinearity and poor discriminant validity. For instance, in our initial analysis, we found that constructs like ease of use (Effort Expectancy) and infrastructure support (Facilitating Conditions) were statistically indistinguishable in the minds of our respondents.

To overcome these limitations, our study utilizes the Unified Theory of Acceptance and Use of Technology (UTAUT) and its extension, UTAUT2, as foundational frameworks for an integrated approach. These models were selected for their proven predictive power and their adaptability to different contexts. By adapting these frameworks, our study provides a unified approach that effectively analyses both the internal and external forces of digital transformation. This approach allows us to establish a clear causal link between a bank's internal readiness and its ability to deliver a superior customer experience, ultimately offering a more comprehensive and actionable blueprint for success.

Figure 1 provides a visual summary of our conceptual framework, illustrating how our research directly addresses the identified limitations to create a more holistic model. The diagram shows our integrated approach, which simultaneously analyses the two distinct but interdependent "fronts" of digital transformation: the employee side and the customer side. It highlights how the limitations of siloed and unadopted models are overcome by our approach, which extends UTAUT and UTAUT2 with context-specific constructs and analytical tools. This blueprint serves as a guide for the detailed empirical models that will be presented in the following sections.

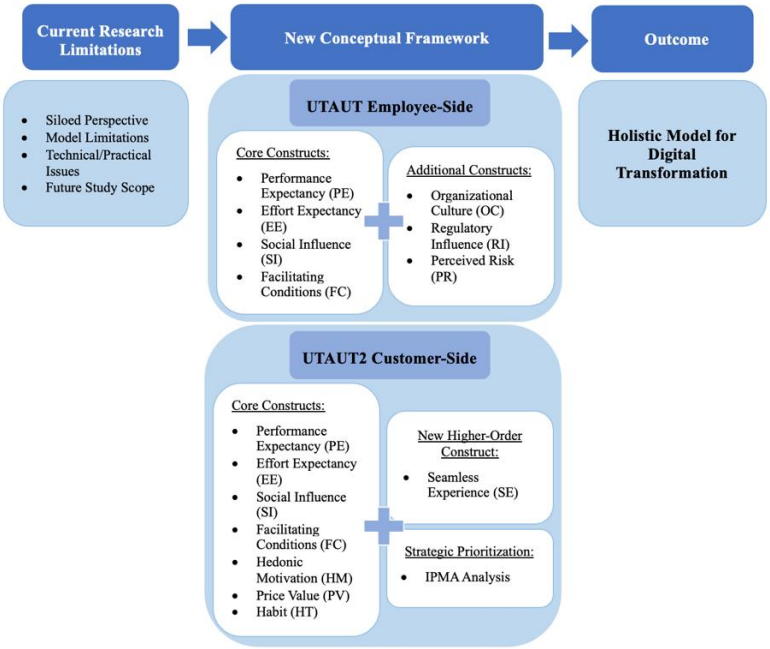

Figure 1: A Visual Blueprint of the Dual-Front Model

2.1. The Employee Perspective: An adapted UTAUT model

For the employees-side analysis, which operates in a mandatory-use context, the original UTAUT model was adapted (Venkatesh et al., 2003). The core constructs—Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC)—are key predictors of users' Behavioural Intention (BI) to use a technology, which in turn influences their actual usage behaviour. However, since technology use is often a job requirement, the concept of behavioural intention is less relevant than the psychological and motivational state of buy-in. To reflect this reality, our model adapts the original framework by replacing Behavioural Intention (BI) with Digital Engagement (DE), a construct that captures an employee's proactive alignment, comfort, and psychological involvement with digital tools (Kahn, 1990).

To provide a more holistic view of the employee experience in the unique context of the digital transformation, we extended the core UTAUT model with the following three context-specific constructs:

- Organizational Culture (OC): This construct was added to capture the critical internal environment and the shared values and norms that either support or resist digital change.
- Regulatory Influence (RI): This construct reflects the powerful role of external institutional pressures in the highly regulated banking industry. It is defined as the degree to which employees perceive that external mandates from the central bank or internal compliance requirements shape their use of digital systems.
- Perceived Risk (PR): This construct was included to capture employee concerns regarding the potential negative outcomes of using digital tools, such as data breaches and fraud.

This revised framework models adoption as a two-stage process: first, these antecedent factors collectively influence employee DE, and second, this engagement level determines the ultimate Digital Transformation Adoption (DA) within the organization.

2.2. The Customer Perspective: Adapting UTAUT2 for a Voluntary Context

For understanding customer behaviour, the UTAUT2 model is the ideal starting point (Venkatesh et al., 2012). This model extends the original UTAUT framework to a customer

context and posits that Behavioural Intention (BI) to use a technology is influenced by a range of factors including Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Hedonic Motivation (HM), Price Value (PV), and Habit (HT).

While this full model serves as a robust theoretical starting point, it was anticipated that the unique empirical context - characterized by its specific infrastructural challenges and user demographics - would necessitate a data-driven refinement. Accordingly, following the initial test of the comprehensive model, a systematic process of model evaluation and refinement was undertaken. This process, which included assessing discriminant validity, multicollinearity, and model stability, aimed to derive a final, more parsimonious model that offers the most robust and meaningful explanation of user behaviour within the Laotian context.

2.3. Advanced Analytical Techniques: The Importance-Performance Map Analysis (IPMA)

To provide a more granular and actionable understanding of our findings, this study employs the Importance-Performance Map Analysis (IPMA). IPMA is an advanced analytical technique often used in Partial Least Squares Structural Equation Modelling (PLS-SEM) to translate empirical findings into strategic recommendations (Hair et al., 2022).

While traditional path coefficients reveal the strength of a relationship between constructs, IPMA offers a more nuanced view by simultaneously considering two critical dimensions:

- **Importance (x-axis):** This dimension represents the total effect of a predictor construct on an outcome or target construct. It indicates how crucial a factor is in driving the results, taking into account direct and indirect effects through mediating variables.
- **Performance (y-axis):** This dimension is based on the average latent variable scores, which represent the overall performance or perceived state of the construct's indicators.

By looking at where each factor falls on this map, we can clearly identify what banks should focus on. The chart helps to clarify which areas are "quick wins" and which require significant strategic effort. A factor with high importance but low performance represents a critical area for strategic investment and intervention, as improving it would yield the most significant benefits. Conversely, a factor with high importance and high performance should be maintained as a core strength. This methodological choice ensures that the study's conclusions are not merely descriptive but are directly translatable into actionable insights and data-driven recommendations.

3. Methodology

This paper synthesizes the findings from two distinct but complementary quantitative studies conducted in Lao PDR. Both analyses used Partial Least Squares Structural Equation Modelling (PLS-SEM), implemented in Smart PLS 4. This method well-suited for predictive, theory-building research in complex models.

3.1. The Employee Perspective

A mixed-methods approach was used to collect data from employees. A structured questionnaire was distributed to employees across 27 banks in Laos, yielding 354 valid responses. The sample was predominantly young (66% under 36) and educated (80.5% holding bachelor's degrees), representing a workforce receptive to digital tools. To enrich the quantitative data, semi-structured interviews were conducted with five senior managers and IT

specialists. The extended UTAUT model was tested, evaluating the direct paths from antecedents to Digital Engagement (DE) and the subsequent paths from DE to final Digital Transformation Adoption (DA).

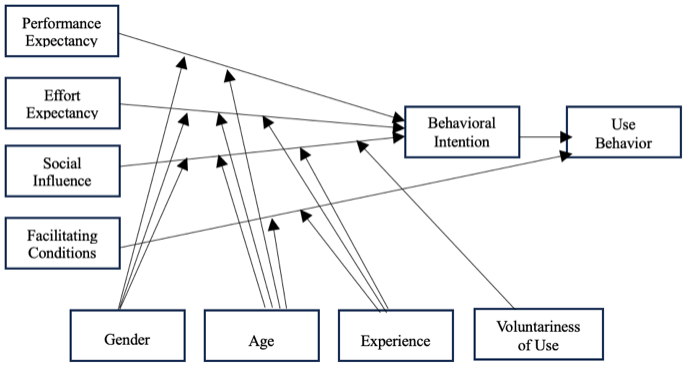

Figure 2: The Unified theory of acceptance and use of technology (UTAUT)

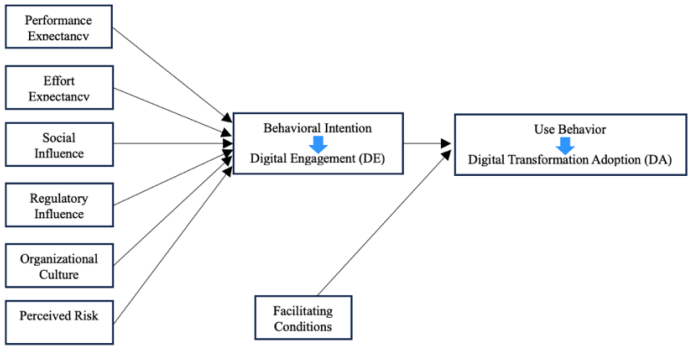

Figure 3: UTAUT modified model showing replacement of Behavioural Intention (BI) with Digital Engagement (DE) and Use Behaviour with Digital Transformation Adoption (DA)

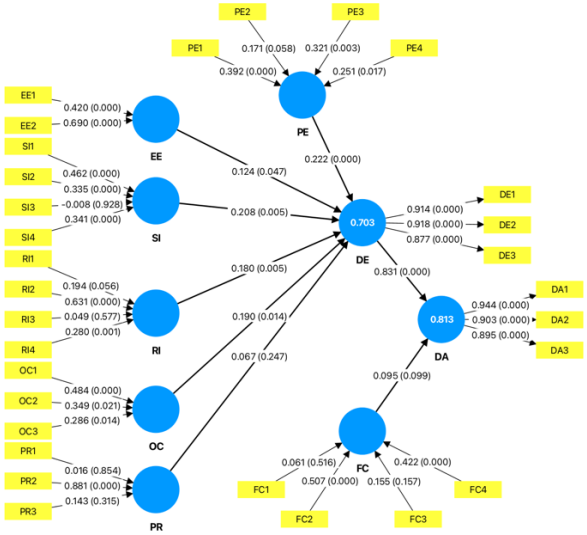

Figure 4: UTAUT model from PLS-SEM

The constructs within this model were evaluated based on their nature as either reflective or formative.

- **Reflective Constructs, including Digital Engagement (DE) and Digital** Transformation **Adoption (DA):** These constructs represent an underlying latent concept that is reflected by its indicators. We evaluated indicator reliability and convergent validity by ensuring outer loadings were above 0.70 and t-values exceeded 1.96 ($p<0.05$). All items in the final

models met these benchmarks, with loadings ranging from 0.876 to 0.944 and t-values well above 23, confirming their reliability.

- **Formative Constructs consisted of Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Regulatory Influence (RI), Organizational Culture (OC), and Perceived Risk (PR):** These constructs are formed by their indicators, which are considered distinct causes that collectively define the construct. We followed a three-step evaluation process for formative constructs.
  1. **Collinearity (VIF):** We assessed for multicollinearity to ensure indicators were not statistically redundant. All indicators had VIF values well below the critical threshold of 5, with, for example, VIFs for OC ranging from 2.976 to 3.475, indicating that multicollinearity was not a concern.
  2. **Outer Weights:** While some indicators had non-significant weights ($p>0.05$), their relevance was confirmed through their outer **loadings**, as indicators with non-significant weights are not automatically removed.
  3. **Outer Loadings:** All indicators with non-significant weights had statistically significant loadings (≥ 0.50), justifying their retention. For **instance**, the PR1 item had a non-significant weight ($t=0.184$, $p=0.854$) but a significant loading of 0.554 ($t=6.035$, $p<0.001$), confirming its valid contribution to the construct.

This rigorous approach ensures the robustness and appropriateness of our measurement model for studying digital transformation adoption in the Lao banking sector

Antecedents of Digital Engagement

- **H1**: Performance Expectancy (PE) positively influences Digital Engagement (DE).
- **H2**: Effort Expectancy (EE) positively influences Digital Engagement (DE).
- **H3**: Social Influence (SI) positively influences Digital Engagement (DE).
- **H4**: Regulatory Influence (RI) positively influences Digital Engagement (DE).
- **H5**: Organizational Culture (OC) positively influences Digital Engagement (DE).
- **H6**: Perceived Risk (PR) negatively influences Digital Engagement (DE).

Drivers of Digital Transformation Adoption

- **H7:** Facilitating Conditions (FC) positively influence Digital Transformation Adoption (DA).
- **H8:** Digital Engagement (DE) positively influences Digital Transformation Adoption (DA).

The analysis of employee adoption revealed a different set of drivers, reflecting the mandatory work context. The model explained 70.3% of the variance in Digital Engagement (DE) and an impressive 81.3% in Digital Transformation Adoption (DA).

- Digital Engagement (DE) was the most powerful predictor of Digital Transformation Adoption (DA) ($\beta=0.831$, $p<0.001$).
- DE was significantly influenced by five key antecedents:
  - Performance Expectancy (PE) ($\beta=0.222$, $p<0.001$) - The strongest predictor.
  - Social Influence (SI) ($\beta=0.208$, $p=0.005$)
  - Organizational Culture (OC) ($\beta=0.190$, $p=0.014$)
  - Regulatory Influence (RI) ($\beta=0.180$, $p=0.005$)
  - Effort Expectancy (EE) ($\beta = 0.124$, $p = 0.047$)
- Critically, Facilitating Conditions (FC) did not have a significant direct effect on final adoption ($p=0.099$), and Perceived Risk (PR) had no significant effect on engagement ($p=0.247$).

Table 2: Research Hypothesis Testing Results

Hypothesis	Path	P value	Results
PE ➔ DE	0.222	0.000	Supported
EE ➔ DE	0.124	0.047	Supported
SI ➔ DE	0.208	0.005	Supported
RI ➔ DE	0.18	0.005	Supported
OC ➔ DE	0.19	0.014	Supported
PR ➔ DE	0.067	0.247	Not supported
FC ➔ DA	0.095	0.099	Not supported
DE ➔ DA	0.831	0.000	Supported

These results show that employee buy-in is driven foremost by a pragmatic question: "Will this help me do my job better?" (PE). However, this individual motivation is heavily shaped by the surrounding ecosystem of peer and management expectations (SI), a supportive company culture (OC), and top-down regulatory pressures (RI). While also a significant factor, the influence of Effort Expectancy (EE) is notably weaker, suggesting that in a mandatory work environment, employees are willing to put in the effort to learn a complex system if they perceive a clear performance benefit from its use.

3.2. The Customer Perspective

A structured survey was administered to 128 bank users. The sample represented a young, digitally-native demographic, with 75% aged 18-27 and 62.5% using digital banking "almost every day", making them a key user base for the future of digital banking. The survey instrument measured the constructs of the extended UTAUT2 model.

A key refinement was the development of the Seamless Experience (SE) construct. Although the original UTAUT2 model treats Effort Expectancy (EE) and Facilitating Conditions (FC) as separate constructs, our preliminary analysis revealed a significant correlation and multicollinearity between them. To address this statistical issue and align with user perception, we re-conceptualized these two variables as first-order indicators of a new, second-order reflective construct: Seamless Experience (SE). This re-conceptualization reflects the idea that users perceive ease of use (EE) and environmental support (FC) not as distinct factors, but as integral components of a single, holistic user experience. This statistical finding is strongly supported by our qualitative data, where participants did not differentiate between platform-specific issues (e.g., an app crash) and broader infrastructural challenges (e.g., slow internet). This finding is particularly salient in the context of our study, which is underscored by the Beschorner et al. (2022) report highlighting the connectivity challenges in Lao PDR. To ensure a valid and reliable estimate for this higher-order construct, a two-stage analytical approach was utilized (Hair et al., 2022), as detailed in the data analysis section (3.2.2.).

Use Behaviour: The final outcome variable, initially conceptualized as "Digital transformation Adoption (DA)," underwent revision during pre-analysis. The items initially developed for this concept showed potential validity concerns and lacked the necessary precision for robust empirical testing. Consequently, we refined the construct to Use Behavior to provide a clearer, more objective, and precise measure of actual usage. This revised construct was operationalized using a single, concrete item that measured the frequency of use: "Q6_Usage_per_week." This approach ensures a direct and unambiguous measure of the user behavior being investigated within the model.

3.2.1. Model 1: The Initial Full UTAUT2 Model

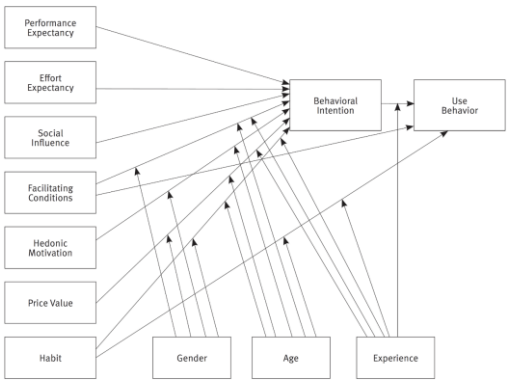

Figure 5: The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2)

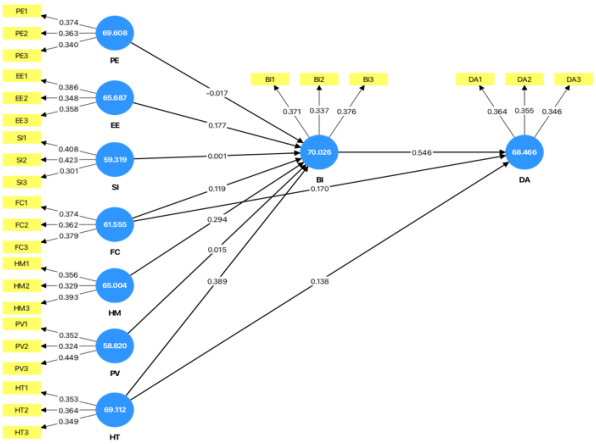

Figure 6: (Model 1) The Initial Full UTAUT2 Model

In an initial effort to test the hypotheses outlined in section 2.2, a comprehensive model incorporating all proposed UTAUT2 antecedents was specified. However, preliminary diagnostic analyses quickly revealed significant statistical problems, indicating the model was a poor fit for the data.

Key Statistical Issues

The analysis uncovered three critical issues that made the model's results unreliable:

- **Model Instability**: The model proved critically unstable, as evidenced by a low percentage of admissible bootstrap runs. This instability made it impossible to obtain reliable parameter estimates, a fundamental requirement for valid hypothesis testing.
- **Severe Multicollinearity**: The model suffered from pervasive multicollinearity, particularly between the constructs of Effort Expectancy (EE) and Facilitating Conditions (FC). This was confirmed by Variance Inflation Factor (VIF) scores that exceeded the critical threshold of 5, indicating that these two variables were statistically redundant within the dataset.
- **Poor Discriminant Validity**: Widespread issues with discriminant validity were also observed. For example, the Heterotrait-Monotrait Ratio (HTMT) between Habit and Behavioral Intention was greater than 0.9. This high value suggests that, in the minds of the survey respondents, the measures for these two constructs were not distinct concepts, but rather were empirically indistinguishable.

These pervasive issues rendered the initial path coefficients unreliable and hindered any meaningful interpretation, making it clear that the standard UTAUT2 model was not a suitable fit for this specific research context.

3.2.2. Model 2: Construct Re-conceptualization for Conceptual and Empirical Clarity

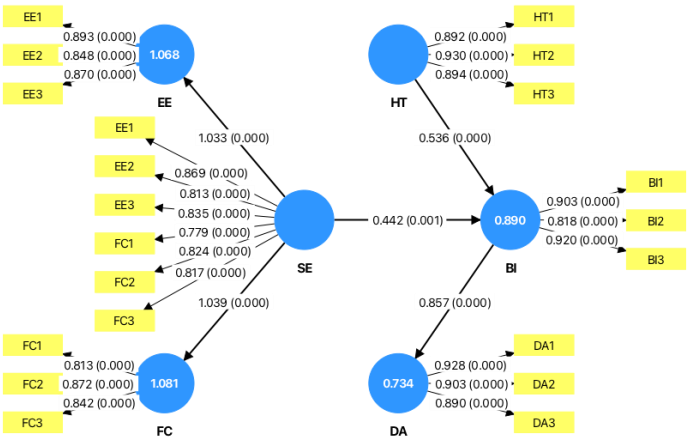

Figure 7: (Model 2) Construct Re-conceptualization for Conceptual and Empirical Clarity

Based on the statistical issues found in the initial model, a systematic model refinement process was undertaken. The first step was to address the severe multicollinearity between Effort Expectancy (EE) and Facilitating Conditions (FC).

Forming the "Seamless Experience" Construct

Given their strong statistical overlap and theoretical synergy, we re-conceptualized Effort Expectancy (EE) and Facilitating Conditions (FC) as first-order indicators of a new, second-order reflective construct: Seamless Experience (SE). This decision was more than just a statistical fix. It was a theoretical enhancement, validated by our qualitative data, which showed that users didn't distinguish between problems with the app itself (EE) and issues with the internet (FC). Instead, they perceived them as a single, holistic experience. This re-conceptualization immediately resolved the multicollinearity issue and improved the overall model clarity and fit.

To ensure accurate and unbiased estimation of path coefficients involving this new higher-order construct, we employed a two-stage analytical approach (Hair et al., 2022). In the first stage, we used Smart-PLS to calculate the latent variable scores for the first-order constructs, Effort Expectancy (EE) and Facilitating Conditions (FC). These scores then served as the observed indicators for the Seamless Experience (SE) construct in the second stage of the structural model estimation. This approach is recommended to avoid the potential overestimation of effects that can occur with repeated indicator methods, thus yielding more robust and reliable results.

3.2.3. Model 3: Structural Path Optimization for Parsimony and Robustness

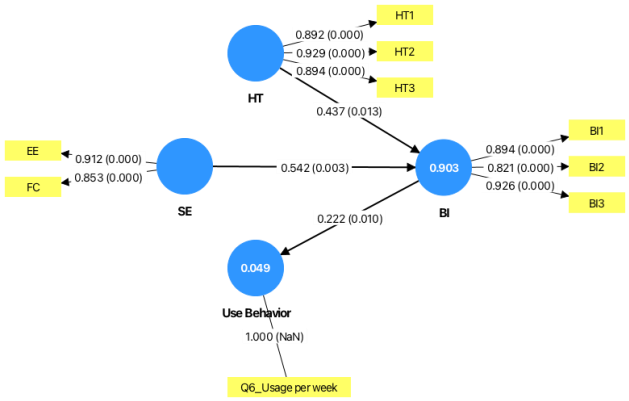

Figure 8: (Model 3) Structural Model showing Refinement and Final Use Behaviour Outcome

Even after creating the Seamless Experience (SE) construct, the model still showed some ambiguity and weak paths. The next step was an evidence-driven simplification to identify only the most robust and distinct predictors. Through a process of systematic path removal, we observed that predictors like Performance Expectancy (PE), Social Influence (SI), and Hedonic Motivation (HM) had non-significant or unstable paths, likely due to the experienced nature of the user base in our study.

This iterative process led to our final parsimonious model (Model 3). This refined model predicts Behavioral Intention (BI) using only the two strongest, most empirically distinct, and theoretically sound predictors: Seamless Experience (SE) and Habit (HT). Furthermore, the path to Use Behavior was simplified to a pure mediation chain through BI, which best captured the relationships in our data.

The final refined model, designated as Model 3, demonstrated exceptional statistical integrity. It showed excellent stability with a high rate of 89.8% admissible runs, ensuring the reliability of its parameter estimations. The issue of multicollinearity was successfully resolved, as all Variance Inflation Factors (VIFs) were below the critical threshold of 5. Furthermore, the model exhibited robust overall model fit, confirmed by key indices such as SRMR=0.032, CFI=0.956, and NFI=0.955. These strong fit statistics indicate that the model's structure accurately reflects the relationships within the dataset. The resultant model provides clear, significant, and interpretable paths, allowing for robust and meaningful conclusions to be drawn from the analysis.

Research Hypothesis:

- **H1**: Seamless Experience (SE) positively influences Behavioural Intention (BI).
- **H2**: Habit (HT) positively influences Behavioural Intention (BI).
- **H3**: Behavioural Intention (BI) positively influences Use Behaviour.

Table 3: Research Hypothesis Testing Results

Hypothesis	Path	p value	Results
SE ➔ BI	0.542	0.003	Supported
HT ➔ BI	0.437	0.013	Supported
BI ➔ Use Behaviour	0.222	0.010	Supported

The final parsimonious model (Model 3) for customer acceptance revealed a powerful and clear causal chain.

- Users' Behavioural Intention (BI) was significantly predicted by two factors: Seamless Experience (SE) (β=0.542, $p<0.01$) and Habit (HT) (β=0.437, $p=0.013$).
- Behavioural Intention in turn was a significant predictor of actual Use Behaviour (β=0.222, $p<0.01$).

The most crucial finding is the emergence of Seamless Experience (SE) as the dominant driver. This empirically-derived construct confirms that from a customer's viewpoint, the quality of the application and the reliability of the supporting infrastructure (like the internet) are not separate issues; they are integral parts of a single, indivisible service experience. Habit's strong influence indicates that for engaged users, digital banking is already an ingrained routine.

4. Further insights from interview and questionnaire

To provide a richer, evidence-based foundation for our discussion, this section synthesizes the key qualitative findings from interviews and open-ended survey questions with the descriptive statistics from the quantitative data.

4.1. The Internal Environment: Drivers and Barriers for Employees

The data reveals that employees' primary motivation is rooted in tangible performance gains.

- **Performance Expectancy:** Employees overwhelmingly cited "speed, time-saving, and convenience" as the most valuable features of new digital systems. This was unanimously supported by all five key informants, who spoke of the need to "modernize processes, enabling faster, more convenient, and more responsive banking services".
- **Organizational Culture:** A significant 35% of survey respondents cited organizational culture as a major barrier to digital transformation. Interviewees confirmed this, describing a "traditional organizational culture" as a primary obstacle, and highlighting the need for leadership with a "clear vision and understanding of digital processes".
- **Facilitating Conditions:** Employees identified a severe lack of proper training and support. A large portion of the surveyed workforce (32%) reported a lack of proper training or support, and all five interviewees cited a "lack of human capital and expertise". These insights underscore that the necessary support structures are not yet sufficiently in place to facilitate adoption.
- **Perceived Risk:** Despite 69% of employees expressing concerns about data privacy and security risks, Perceived Risk did not show a significant effect on their engagement in the model. This is consistent with interview findings, where employees framed security not as a personal deterrent but as a "critical" institutional issue for the bank to solve.

4.2. The External Environment: The Challenge of Customer Acceptance

The qualitative data from the customer study provides important context for the quantitative model.

- **Seamless Experience:** Customers' open-ended feedback did not differentiate between app-specific issues and infrastructural problems. They repeatedly cited platform instability and infrastructural deficits, such as "App crash" and "The Internet is slow". These insights underscore that customers perceive the quality of a digital banking service as one holistic experience, regardless of whether the issue is the app or the network. This qualitative finding directly supports the creation of the Seamless Experience (SE) construct in the customer model.
- **Security and Trust:** While not a direct predictor in the final model, "Security and fraud concerns" were ranked as the top barrier to digital transformation by 26.56% of customers. Qualitative comments further supported this, with users expressing fears of being "hacked"

and "falling victim to scammers". This highlights that a baseline of trust is a foundational "hygiene factor" that must be met before adoption can occur.

4.3. Importance-Performance Map Analysis (IPMA)

To translate the study's findings into clear, actionable insights, an Importance-Performance Map Analysis (IPMA) was conducted to identify strategic priorities. By plotting the total effects of each predictor on Behavioural Intention against its performance, we can pinpoint areas where a bank should focus its efforts for the greatest impact. The IPMA for the customer model reveals three distinct strategic zones offering a clear roadmap for stakeholders as follow:

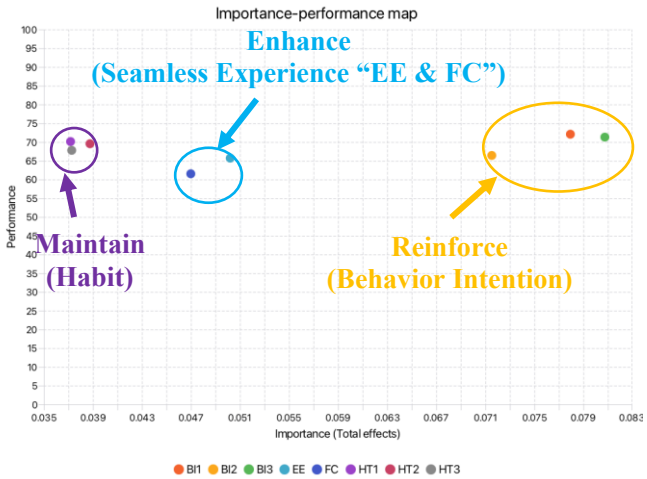

Figure 9: (Model 3) Importance-Performance Map Analysis (IPMA)

- **Reinforce:** Factors in this zone, such as Behavioural Intention (BI), are both highly important and high-performing. This is a critical strength, indicating that users' intention to use digital banking is already a very strong and well-established driver of their actual usage. The strategy here is to reinforce this positive momentum, ensuring these key drivers are maintained and leveraged.
- **Maintain:** The construct of Habit falls into this zone. While it has a lower relative importance, its performance is exceptionally high. This finding is particularly interesting because it suggests that for the current user base of young "digital natives," using digital banking has become a well-established strength and an ingrained, high-performing routine. This is a powerful asset that requires continued focus to maintain its strength, but not a significant new strategic push.
- **Enhance:** This is the most critical area for improvement, where the construct Seamless Experience (SE) is located. Seamless Experience was identified as having the highest importance in driving Behavioural Intention, but its performance was only moderate. This reveals a significant gap between the importance of a smooth digital experience and its current execution. Its underlying components, Effort Expectancy (ease of use) and Facilitating Conditions (infrastructure reliability), are critical but are not yet meeting user expectations. This gap is further corroborated by qualitative data, where users cited "App crash" and "the internet is slow" as major challenges. By focusing on these improvements, we can significantly increase the performance of this crucial factor, thereby unlocking its full potential to drive user engagement.

5. Discussion: A Synthesized, Holistic Model of Digital Transformation

This study advances a holistic understanding of digital banking transformation by integrating employee engagement and customer acceptance into a unified dual-front framework. The findings demonstrate that successful transformation is not driven by technology alone but by the alignment between internal organizational capacity and external service delivery.

From the employee perspective, the results confirm that digital transformation is fundamentally an inside-out process. Digital Engagement (DE) emerged as the dominant driver of Digital Transformation Adoption (DA), highlighting that meaningful adoption depends on employees' psychological buy-in rather than mere system availability. Performance Expectancy (PE) was the strongest antecedent of engagement, indicating that employees are primarily motivated by tangible improvements in efficiency and task performance. Social Influence (SI), Organizational Culture (OC), and Regulatory Influence (RI) further shaped engagement, underscoring the importance of a supportive institutional environment. In contrast, Effort Expectancy (EE) played a secondary role, suggesting that employees in mandatory-use contexts are willing to accept complexity when clear performance benefits are evident.

Crucially, the employee model revealed that Facilitating Conditions did not directly predict final adoption, indicating the presence of unresolved internal bottlenecks in training and resource support. This internal constraint directly manifests in the external customer experience.

From the customer perspective, the refined UTAUT2 model revealed Seamless Experience (SE) as the most influential determinant of Behavioural Intention (BI). This higher-order construct captures customers' holistic evaluation of both application usability and infrastructural reliability, reflecting the reality that users do not distinguish between platform-related and network-related failures. Habit further strengthened behavioural intention, indicating that once a reliable and intuitive experience is established, digital banking becomes an ingrained routine.

Integrating these findings reveals a clear causal chain linking internal capability to external adoption. Internal limitations in human capital and support structures restrict banks' ability to deliver the seamless digital experience required for customer acceptance. Conversely, strengthening employee engagement and organizational readiness enables the delivery of stable, user-centric services that foster customer trust, intention, and habitual use.

Finally, the findings clarify the role of perceived risk and security. While security concerns were prominent in qualitative responses from both employees and customers, perceived risk did not directly influence behavioural outcomes once a basic level of institutional trust was assumed. This suggests that security functions as a foundational hygiene factor - essential for participation but insufficient on its own to drive adoption.

Overall, the discussion reinforces the central contribution of this study: digital banking transformation in developing economies requires a synchronized dual-front strategy in which internal engagement enables external seamlessness, ultimately driving sustainable adoption.

6. Implications and Recommendations

This study provides clear, actionable implications for accelerating digital banking transformation through a synchronized, dual-front strategy addressing both internal capability and external user experience.

6.1. Implications for Banking Institutions

The findings demonstrate that the customer's Seamless Experience (SE) is a direct outcome of a bank's internal capacity. While SE is the most critical driver of customer adoption, its moderate performance reflects unresolved internal bottlenecks, particularly in Facilitating Conditions (FC).

First, banks should prioritize continuous and specialized employee training rather than one-off programs. Strengthening human capital directly addresses the internal FC bottleneck identified in the employee model and enables employees to deliver reliable and responsive digital services. Second, digital initiatives should be framed around clear performance gains. Performance Expectancy (PE) was the strongest predictor of employee engagement, indicating that staff are most motivated when digital tools demonstrably improve efficiency, accuracy, and service speed. Finally, banks must treat security and trust as foundational prerequisites. Although perceived risk did not directly affect employee engagement, qualitative findings show that both employees and customers expect institutions to proactively address cybersecurity and fraud risks. Transparent communication of security measures is therefore essential for sustaining trust.

6.2. Implications for Policymakers and Regulators

Policymakers play a critical enabling role in digital banking transformation. Clear and consistent regulatory frameworks for data protection, cybersecurity, and consumer rights are necessary to reduce uncertainty and strengthen trust across the ecosystem.

In parallel, national investment in digital infrastructure and human capital development is essential. Improvements in internet reliability and coordinated efforts with educational institutions to build digital skills will directly enhance both internal banking capacity and customers' Seamless Experience.

7. Conclusion

This study advances understanding of digital banking transformation in developing economies by integrating employee engagement and customer acceptance into a unified, dual-front model. The findings show that digital transformation is fundamentally a human-centred process. Internally, employee engagement acts as the critical mechanism translating institutional digital initiatives into effective adoption. Externally, customer acceptance is primarily driven by the Seamless Experience, reflecting users' holistic evaluation of application usability and infrastructural reliability.

By linking internal capacity to external outcomes, the study demonstrates a clear causal chain: investments in employee engagement and organizational readiness enable the delivery of seamless digital services, which in turn foster customer adoption and habitual use. For Lao PDR and similar contexts, a synchronized internal "push" and external "pull" strategy is essential for building sustainable and inclusive digital banking ecosystems.

8. Limitations and Future Research

Despite its contributions, this study has several limitations that suggest directions for future research. First, the samples were predominantly young, urban, and digitally literate, which may limit generalizability to older and rural populations. Future studies should validate the model across more diverse demographic and geographic groups. Second, the cross-sectional design restricts causal inference and does not capture changes over time. Longitudinal research could provide deeper insights into how employee engagement and customer behaviour evolve throughout different stages of digital transformation. Finally, future research could extend the dual-front framework by incorporating objective performance indicators or cross-country comparisons to further test its robustness in different institutional contexts.

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Conflict of Interest Statement
The authors declare that there is no conflict of interest regarding the publication of this study.

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