E-BANKING SERVICE QUALITY IMPROVEMENT SOLUTIONS FOR INDIVIDUAL CUSTOMERS AT BANQUE POUR LE COMMERCE EXTESRIEUR LAO

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ABSTRACT

In the digital transformation era, electronic banking (e-banking) services have become a key channel enhancing banks' competitiveness. At Banque Pour Le Commerce Exterieur Lao (BCEL), however, service quality remains limited, especially in responsiveness and customer support. Based on a survey of 250 customers, this study applied SERVQUAL, Cronbach's Alpha, and Exploratory Factor Analysis (EFA) to assess e-banking service quality. The results indicate that customers value tangibles, assurance, and empathy, while responsiveness is the weakest factor due to delays in technical support. Accordingly, four solutions are proposed: improving responsiveness, strengthening security and reliability, enhancing staff competence, and upgrading IT infrastructure. These solutions are expected to enhance customer satisfaction and loyalty, thereby improving BCEL's service quality and competitiveness.

***Keywords:** E-banking, service quality, individual customers, BCEL, Laos.*

1. Introduction

In the context of a strong global digital transformation, electronic banking (e-banking) services have increasingly become an essential transaction channel, contributing to enhancing competitiveness and expanding customer access for commercial banks. In Laos, Banque Pour Le Commerce Extérieur Lao (BCEL) is one of the pioneering banks in implementing e-banking. However, service quality still has certain limitations, particularly in responsiveness and customer support. This poses significant challenges in meeting the increasingly high expectations of individual customers while maintaining competitive advantages in the context of international financial integration.

Given this demand, researching and proposing solutions to improve the quality of e-banking services at BCEL is not only urgent but also holds important theoretical and practical significance. From a theoretical perspective, the study contributes empirical evidence for the application of the SERVQUAL model under the specific conditions of the Laotian banking system, thereby enriching the scientific foundation for measuring and managing e-banking service quality. From a practical perspective, the research results help BCEL clearly identify strengths and weaknesses in service delivery,

providing a basis for developing appropriate solutions to enhance customer satisfaction and loyalty. At the same time, improving e-banking service quality will also contribute to advancing digital transformation in the financial and banking sector, supporting national goals of expanding financial inclusion, promoting cashless payments, and enhancing economic efficiency.

Based on the issues outlined above, "Improving the Quality of E-Banking Services for Individual Customers at Banque Pour Le Commerce Extérieur Lao" is an urgent task that requires focused research.

2. Theoretical Background and Research Methods

2.1 Theoretical Background

Service quality (SQ) is a core factor determining customer satisfaction and loyalty, especially in the field of electronic banking (e-banking), which is closely associated with digital technology and customer experience. Numerous models have been developed to measure service quality, among which SERVQUAL, proposed by Parasuraman, Zeithaml & Berry (1988), is widely used and applied. This model identifies five fundamental components:

Reliability: The ability to deliver services accurately, consistently, and dependably. In e-banking, this is reflected in system stability, minimizing transaction errors, and the accuracy of account information.

Responsiveness: The willingness and promptness to assist customers. For e-banking services, this is demonstrated through transaction processing speed, rapid response to technical issues, and efficient handling of complaints.

Assurance: The degree to which service instills trust and confidence in customers through professional competence, expertise, and service security.

Empathy: The attention and understanding of individual customer needs. In e-banking, empathy is reflected in user-friendly interfaces, personalized services, and flexible support for different customer groups.

Tangibles: Physical and technological aspects related to the service, including technical infrastructure, mobile applications, websites, ATMs/POS systems, as well as the bank's brand image.

The SERVQUAL model has been widely applied in banking research and has proven suitable for measuring e-banking service quality. In Laos, recent studies (Doungpanya, 2023; Nalathip, 2024) indicate that responsiveness and technological infrastructure are key factors influencing customer satisfaction. This reflects the reality that, although banks have implemented many e-banking services, transaction processing speed and customer support capabilities have not yet fully met customer expectations.

In Vietnam, research (Le Bao Toan 2018; Phan Hoai Duc, 2022) also emphasizes the role of technology and responsiveness, alongside traditional factors such as reliability and assurance. Customers increasingly value convenience, processing speed, and safety/security in online transactions.

The theoretical basis shows that while all factors in the SERVQUAL model are important, responsiveness and technology are two critical factors that directly affect customer satisfaction and engagement with e-banking services in both the Laotian and Vietnamese contexts.

2.2 Research Methods

2.2.1 Data Collection Methods

The study focuses on individual customers (ICs) who use electronic banking (e-banking) services at Banque Pour Le Commerce Extérieur Lao (BCEL), employing a convenience sampling method. To ensure

representativeness, the survey was conducted at BCEL branches and transaction offices in the capital city, Vientiane, as well as in several major economic centers.

Primary data were collected through a structured questionnaire using a 5-point Likert scale (ranging from "strongly disagree" to "strongly agree") to assess customers' perceptions of e-banking service quality based on the SERVQUAL model. In addition, in-depth interviews with selected experts and bank staff were conducted to supplement qualitative insights.

Secondary data were sourced from BCEL's annual reports, business operation reports, and internal statistics for the period 2020-2024, as well as from academic literature, reports of the Bank of the Lao PDR, and international organizations (World Bank, ADB).

A total of 250 valid survey responses were used for analysis.

2.2.2 Data Analysis Methods

The collected data were processed using SPSS statistical software following these steps:

1. Descriptive statistics: To analyze customers' demographic characteristics and trends in e-banking service usage.

2. Reliability testing (Cronbach's Alpha): Variables with item-total correlation coefficients below 0.3 were removed. A measurement scale was considered acceptable if Cronbach's Alpha > 0.7**.**

3. Exploratory Factor Analysis (EFA): To identify groups of factors affecting service quality. Factor selection criteria included Kaiser-Meyer-Olkin (KMO) > 0.5**, a** statistically significant Bartlett's Test (Sig. < 0.05)**,** factor loadings ≥ 0.5, and extracted variance ≥ 50%**.**

The combination of qualitative methods (expert interviews) and quantitative methods (survey and statistical analysis) enhanced the reliability and comprehensiveness of the research results.

3. Research Results and Discussion

3.1 Analysis Results

3.1.1 Survey Sample Characteristics

The survey was conducted with 250 individual customers currently using e-banking services at BCEL. The sample composition relatively reflects the characteristics of the bank's customer base, as shown in Table 1:

Table 1: Survey Sample Information

Characteristic	Percentage (%)
Gender: Male	55
Gender: Female	45
Age 18-24	20
Age 25-40	60
Age >40	20
University degree or higher	70
Other education levels	30

Source: Analysis based on individual customer survey data, 2025

Table 1 shows that the survey sample is gender-balanced, with the 25-40 age group accounting for the majority (60%), indicating a young, educated customer segment that frequently uses digital services.

3.1.2 Scale Analysis Results

Reliability test (Cronbach's Alpha): All measurement scales reached an acceptable level ($\alpha > 0.7$), indicating high data reliability.

Exploratory Factor Analysis (EFA): The results identified five main factors, which fully correspond to the SERVQUAL model.

Table 2. Summary of EFA Results

Factor	Observed Variables (after removal)	Factor Loadings (≥ 0.5)	Extracted Variance (%)
Reliability	5	0.62 - 0.78	21.3
Responsiveness	4	0.60 - 0.81	18.7
Assurance	4	0.65 - 0.83	16.2
Empathy	3	0.58 - 0.80	15.6
Tangibles	4	0.63 - 0.85	14.9

Source: Analysis based on individual customer survey data, 2025

The total extracted variance reached 86.7%, indicating that the five factors well explain the variance in the data.

3.1.3 Customer Evaluations

Based on the SERVQUAL measurement scale, the mean scores of the factors are presented in Table 3 as follows:

Table 3. Mean Scores of E-Banking Service Quality Factors at BCEL

Factor	Mean Score (1-5)	Rank
Tangibles	4.12	1
Assurance	3.98	2
Empathy	3.85	3
Reliability	3.72	4
Responsiveness	3.20	5

Source: Analysis based on individual customer survey results, 2025

The analysis in Table 3 shows:

- Strengths: Customers highly appreciate tangibles (user-friendly applications and interfaces, modern ATMs/POS), as well as assurance (security, safety) and empathy (service attitude).

- Weaknesses: Responsiveness is the lowest-rated factor (3.20), reflecting delays in transaction processing and untimely technical support.

- Reliability: Rated fairly well (3.72), but regression results indicate it does not strongly impact overall satisfaction, possibly because customers consider it a minimum mandatory requirement.

3.2 Discussion of Research Results

Survey results and SERVQUAL scale analysis indicate that, overall, individual customers are satisfied with e-banking service quality at Banque Pour Le Commerce Extérieur Lao (BCEL). However, satisfaction levels vary significantly across different factors, highlighting both strengths to be

maintained and limitations to be addressed.

First, tangibles received the highest rating (mean score 4.12). This shows that BCEL's application interface, website, ATM/POS systems, and brand image meet users' expectations. Visual and functional elements provide a friendly and easy-to-use experience, particularly for the young customer segment, which constitutes a large portion of the sample. This result aligns with Le (2018) in Vietnam, who argued that modern and user-friendly e-banking systems positively influence perceived service quality and long-term usage. However, to maintain this advantage, BCEL needs to continue investing in and upgrading technology infrastructure to ensure speed and system stability amid growing online transaction demand.

Second, assurance ranked second (3.98), reflecting customer trust in professional competence, service attitude, and service security. This indicates that BCEL's multi-layer transaction authentication, cybersecurity measures, and professional image have established initial customer trust. This aligns with Zeithaml et al. (2018), who emphasized that safety and reliability are prerequisites for customers to engage in online financial transactions. Nevertheless, given the rise of high-tech crime, BCEL must continuously strengthen risk prevention, enhance staff skills, and communicate security measures more clearly to ensure customers feel safe using the service.

Third, empathy was also rated positively (3.85), demonstrated by attentive support, attention to individual needs, and user-friendly interfaces for diverse customer groups. This shows that BCEL has begun focusing on personalized experiences, consistent with modern trends in banking services. However, the score is not outstanding, indicating gaps in providing flexible services for different customer segments. Adopting a customer-centric service model, as used by regional banks, could further enhance this factor.

Fourth, reliability achieved a score of 3.72, fairly good but below expectations. Customers acknowledge BCEL services as relatively stable, with generally accurate transaction processing, though some technical issues and slower processing during peak hours remain. Therefore, reliability, while important, does not significantly differentiate overall customer perception. As Doungpanya (2023) noted, customers often regard accuracy and stability as default requirements in e-banking, showing dissatisfaction mainly when service interruptions occur. BCEL should thus strengthen system backup capabilities and reduce downtime to maintain sustainable reliability.

Finally, responsiveness is the weakest factor (3.20), reflecting delays in responding to requests, handling technical issues, and assisting customers. This is the main reason for the relatively low overall satisfaction and negatively affects customer loyalty. These findings align with previous studies in Laos and Vietnam (Doungpanya, 2023; Phan, 2022), where responsiveness is considered a decisive factor in e-banking service quality. In practice, customers increasingly expect instant processing, especially when dealing with account or transaction issues. Delays risk customer attrition to competitors.

In summary, while BCEL has made significant progress in providing e-banking services, limitations in responsiveness remain the biggest barrier. Therefore, along with maintaining strengths such as tangibles, assurance, and empathy, the bank must prioritize improving response speed and customer support. This will be key to enhancing satisfaction and loyalty, while strengthening BCEL's competitive advantage amid digital transformation in the banking sector.

4. Conclusions and Recommendations

4.1 Conclusions

This study systematized the theoretical basis and applied the SERVQUAL model to assess the e-banking service quality at Banque Pour Le Commerce Extérieur Lao (BCEL). Through a survey of 250 individual customers and analysis using Cronbach's Alpha and EFA, the results show that overall customer satisfaction with e-banking services is fairly high. Tangibles, assurance, and empathy were highly rated, reflecting the bank's efforts in providing modern infrastructure, ensuring transaction security, and focusing on customer experience.

However, responsiveness was identified as the weakest factor, indicating delays in feedback and technical support. Meanwhile, reliability, although rated reasonably well, does not strongly influence overall satisfaction, as customers consider it a minimum requirement. These findings confirm that to enhance customer satisfaction and loyalty, BCEL should prioritize improving responsiveness, while continuing to strengthen reliability and security.

The study contributes in two aspects:

1. Theoretical contribution: Provides additional empirical evidence on the applicability of the SERVQUAL model in measuring e-banking service quality in Laos.

2. Practical contribution: Identifies specific strengths and weaknesses in BCEL's services, forming the basis for developing solutions to improve digital service quality.

In conclusion, improving e-banking service quality for individual customers at BCEL is an urgent requirement in the context of intensifying competition and digital transformation. The proposed solutions, if implemented comprehensively, will not only enhance customer satisfaction and loyalty but also promote inclusive financial development and modernize the banking system in Laos.

4.2 Recommendations for Enhancing E-Banking Service Quality for Individual Customers at BCEL

(1) Improve Responsiveness

Establish a 24/7 customer support center using a modern Call Center model, integrating multiple channels (phone, email, live chat, social media).

Implement AI Chatbots and virtual assistants to instantly respond to common queries, reducing staff workload and increasing service speed.

Streamline issue resolution processes and prioritize requests to ensure timely responses.

(2) Strengthen Security and Reliability

Apply multi-layer authentication (OTP, Smart OTP, biometrics: fingerprint, facial recognition) to secure transactions.

Invest in backup systems (backup servers, cloud computing) to maintain stable operations and minimize service interruptions.

Conduct regular system testing and develop a Disaster Recovery Plan.

(3) Develop Human Resources and Customer Service

Train and upskill staff in digital skills, cybersecurity, and customer service excellence.

Foster a customer-centric culture, enhancing empathy and personalized support.

Establish a rapid response process with clear Service Level Agreements (SLAs) for each type of customer request.

(4) Invest in Technology and Infrastructure

Upgrade IT infrastructure, including

servers, network lines, and data storage systems, to ensure speed and stability of e-banking services.

Optimize application interfaces (mobile banking, internet banking) for user-friendliness and simplicity, including for less tech-savvy customers.

Integrate additional utilities (QR payments, e-wallets, e-commerce, public services) to expand the service ecosystem.

4.3 Expected Impact of the Solutions

Implementing the four groups of solutions in a coordinated manner is expected to bring the following benefits:

• For customers: Increased satisfaction, trust, and loyalty.

• For the bank: Enhanced competitive advantage, expanded market share, and improved operational efficiency.

• For the economy: Promotion of inclusive finance and support for national goals on cashless payments.

REFERENCES

Asian Development Bank (ADB). (2023). *Promoting digital banking transformation in Southeast Asia: Lessons for Lao PDR*. Manila: ADB Publications;

Doungpanya, S. (2023). Assessing service quality of e-banking in Lao commercial banks using SERVQUAL model. *Lao Journal of Economics and Business, 5(2)*, 45-60;

Le, B. T. (2018). Service quality and customer satisfaction in internet banking in Vietnam. *Journal of Asian Finance, Economics and Business, 5(2)*, 113-119. https://doi.org/10.13106/jafeb.2018.vol5.no2.113;

Nalathip, K. (2024). Customer satisfaction towards e-banking services: Evidence from Lao PDR. *International Journal of Banking and Finance, 46(3)*, 115-132;

Nguyen, P. T., & Simkin, L. (2017). The dark side of digital personalization: An agenda for research and practice. *Journal of Business Research, 80*, 1-11. https://doi.org/10.1016/j.jbusres.2017.07.009;