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MEASURING DIGITAL COMMITMENT: THE IMPACT OF MOBILE BANKING INTERFACE DESIGN AND USER EXPERIENCE ON CUSTOMER LOYALTY USING *SERVQUAL* AND *IPA*

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Abstract: *This study explores how the interface design of mobile banking applications influences consumer loyalty in Romania. By applying the SERVQUAL model, Importance–Performance Analysis (IPA), and Pearson correlation analysis, the research investigates which interface elements most strongly shape users' perceptions and long-term commitment to a banking institution. The results reveal that intuitive navigation, timely security notifications, reliable error-free functioning, and continuous system availability are among the most critical drivers of loyalty. Beyond the statistical findings, the study underscores the growing role of digital experiences in building trust and satisfaction. The insights provide valuable guidance for banks seeking to refine their mobile platforms, enhance user experience, and strengthen enduring customer relationships.*

Key words: *mobile banking, customer loyalty, user interface, SERVQUAL*

1. Introduction

Mobile banking has become a central channel for retail financial services. Rapid smartphone adoption increased consumer expectations for digital convenience. Moreover, the expansion among fintech challengers have led banks to invest heavily in mobile apps (Wewege and Tomset, 2020). However, technology alone cannot guarantee customer loyalty: the user interface (UI) and user experience (UX) ultimately shape users' perceptions of service quality and their willingness to continue using and recommend the service (Runsewe et al., 2024; Zhou et al., 2021).

In Romania, mobile banking penetration has increased in recent years (ZF, 2025). Nevertheless, anecdotal evidence and firm-level data have shown that many users encounter problems like intermittent outages, slow performance, and confusing navigation (Bui et al., 2022). These operational issues can affect trust rapidly, particularly

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in the financial sector where security and reliability are one of the most important aspects (Jun and Cai, 2001; Bisht and Kesharwani, 2020). Despite this, there is still limited empirical evidence linking specific interface features to loyalty outcomes in Romanian banking contexts (Alonso-Dos-Santos et al., 2020; Ayinaddis et al., 2022).

The present study addresses this gap by examining the link between interface elements - ranging from visual design and navigation to security notifications and error-free functioning - and consumer loyalty. Grounded in SERVQUAL and complemented by IPA and Pearson correlation analysis, the research aims to provide both theoretical insight and practical guidance for managers responsible for digital channels.

Service quality has been a central topic in services research since the SERVQUAL model of Parasuraman, Zeithaml, and Berry (1988). While originally developed for traditional services, it has been adapted to digital contexts, where usability, security, and reliability emerge as key drivers of satisfaction and loyalty (Jun ans Cai, 2001; Zeithaml et al., 2002; Zhou et al., 2021). The SERVQUAL model measures service quality as the gap between customers' expectations and their perceived performance of a service. Respondents first assess what they expect from a service and then evaluate the actual performance of a specific organization. Service quality is calculated as the difference between these two scores: the larger the gap in favour of perceptions, the higher the service quality (Prybutok and Zhang, 2009). The scale is widely used to assess service quality and is structured around five dimensions: Responsiveness, Tangibles, Assurance, Reliability, and Empathy (Parasuraman, Berry, and Zeithaml, 2002). In mobile banking, intuitive navigation, secure transactions, and error-free functioning are consistently found to outweigh visual design when trust is at stake.

To guide resource allocation, Importance–Performance Analysis (IPA) has been used to highlight attributes that matter most to consumers but underperform in practice (Martilla and James, 1977). Drawing upon prior literature, this chart's primary function is to classify the attributes, such as the interface elements, into four managerial categories, each suggesting a distinct strategic approach:

a. The first quadrant, "Keep up with the good work!", contains strengths that can be maintained through continuous investment.
b. The second quadrant, "Possible overkill!", includes attributes that, although performing well, have low importance and may therefore represent a waste of resources.
c. The third quadrant, "Low priority!", refers to attributes that do not require immediate attention.
d. The fourth quadrant, "Concentrate/Focus here!", contains important attributes with low performance, representing weaknesses that require priority investments (Sever, 2014).

Therefore, this study applies SERVQUAL, IPA, and Pearson correlations to the Romanian mobile banking context, with the objectives of:

1) evaluating interface quality from the consumer perspective;

2) identifying the interface attributes that most strongly influence loyalty;

3) proposing managerial strategies to optimize user experience and long-term relationships.

2. Method

The study investigates consumer perceptions of mobile banking apps and their influence on loyalty. A quantitative, survey-based approach was employed, using a structured questionnaire distributed online between November 2024 and January 2025. Respondents were Romanian residents over the age of 18 who reported active use of at least one mobile banking application. A non-probability sampling method was used, specifically snowball sampling through social networks and university channels. Out of 270 initial responses, 235 valid questionnaires remained after data cleaning, ensuring consistency and completeness.

The questionnaire was divided into four sections. Section I included two screening questions to verify age eligibility and active use of mobile banking applications, followed by demographic questions on gender, age, education level, and income. Section II measured respondents' expectations regarding interface quality. These items covered attributes such as error-free functioning, correct payment processing, intuitive navigation, attractive design, security notifications, secure login, periodic updates, and access to customer support. Section III captured respondents' perceptions of the same attributes, enabling a direct comparison between expected and perceived performance. Both sections used a five-point Likert scale, where 1 indicated the lowest level of agreement or quality and 5 the highest. Section IV measured loyalty indicators, including intention to continue using the application and willingness to recommend it to others.

The SERVQUAL method was applied by calculating the difference between expectations (E) and perceptions (P), where negative scores indicated underperformance. Importance–Performance Analysis (IPA) was then conducted by mapping attributes according to their average importance and performance values. Finally, Pearson correlation coefficients were used to explore the relationship between specific interface features and loyalty outcomes.

Data analysis was performed using IBM SPSS Statistics, employing descriptive statistics, gap analysis, correlation matrices, and IPA plots to summarize and interpret the findings.

3. Result analysis

3.1. SERVQUAL analysis

The SERVQUAL model revealed substantial differences between expectations and perceptions regarding the interface of mobile banking applications. Respondents expressed consistently higher expectations compared to their actual experiences with the applications. The most critical negative gaps were recorded for the error-free functioning of the application (–0.59), the notification of suspicious activities (–0.56), the permanent availability of functionalities (–0.43), and the accessibility of customer support (–0.40). These results underline the fact that reliability and security remain decisive elements in shaping trust in mobile financial services.

Interestingly, the only attribute that performed slightly above expectations was the attractiveness of the application's design. This suggests that aesthetic qualities are generally appreciated by users, but they are not sufficient to offset shortcomings in functionality or security. The gap between expectations and perceptions is illustrated in Figure 1, which shows the mean differences across all evaluated attributes.

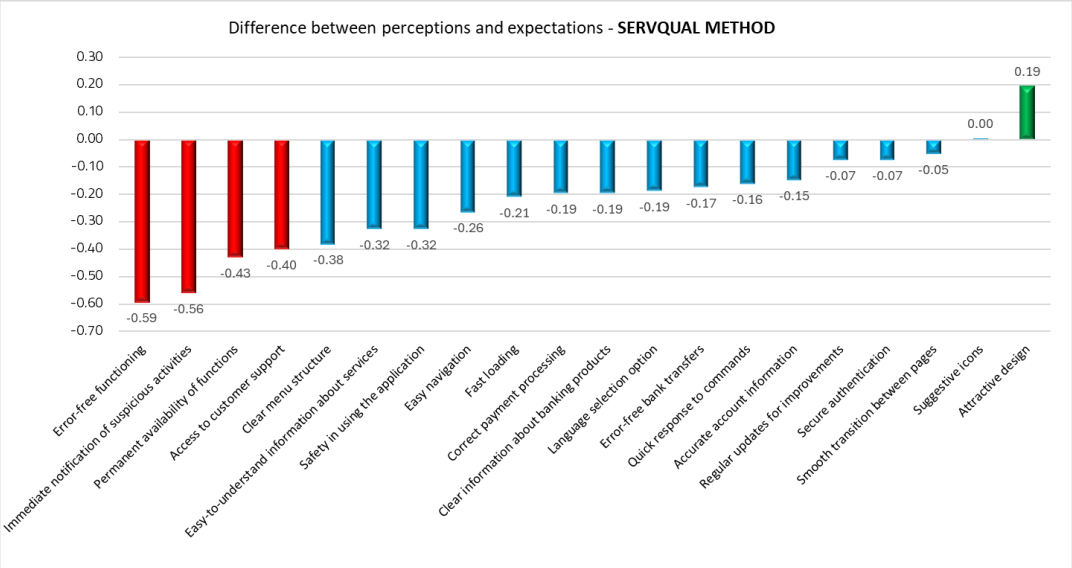

Fig. 1. *The SERVQUAL Method*

3.2. Importance-Performance Analysis

To provide a more nuanced understanding of these discrepancies, an Importance–Performance Analysis was carried out. The results positioned attributes across four quadrants of the IPA matrix. Attributes such as ease of use and clarity of information were placed in the “Keep up with the good work” quadrant, indicating that these elements meet users’ expectations and should be maintained. By contrast, features related to system security and error-free functioning were situated in the “Concentrate/Focus here” quadrant, signalling areas of high importance but low perceived performance. This quadrant is particularly relevant for managerial action, as it highlights aspects that, if improved, could significantly strengthen customer loyalty.

Other attributes, such as aesthetic elements, were categorized as “Possible overkill,” reflecting relatively strong performance in areas that users do not perceive as critical. Finally, less essential features, which were rated lower in both importance and performance, fell into the “Low priority” quadrant. Figure 2 presents the distribution of attributes within the IPA matrix.

Overall, the IPA analysis confirms the SERVQUAL findings by demonstrating that users place greater weight on functional and security-related aspects than on purely aesthetic ones, suggesting that banks should focus their investments on improving reliability, error management, and data protection.

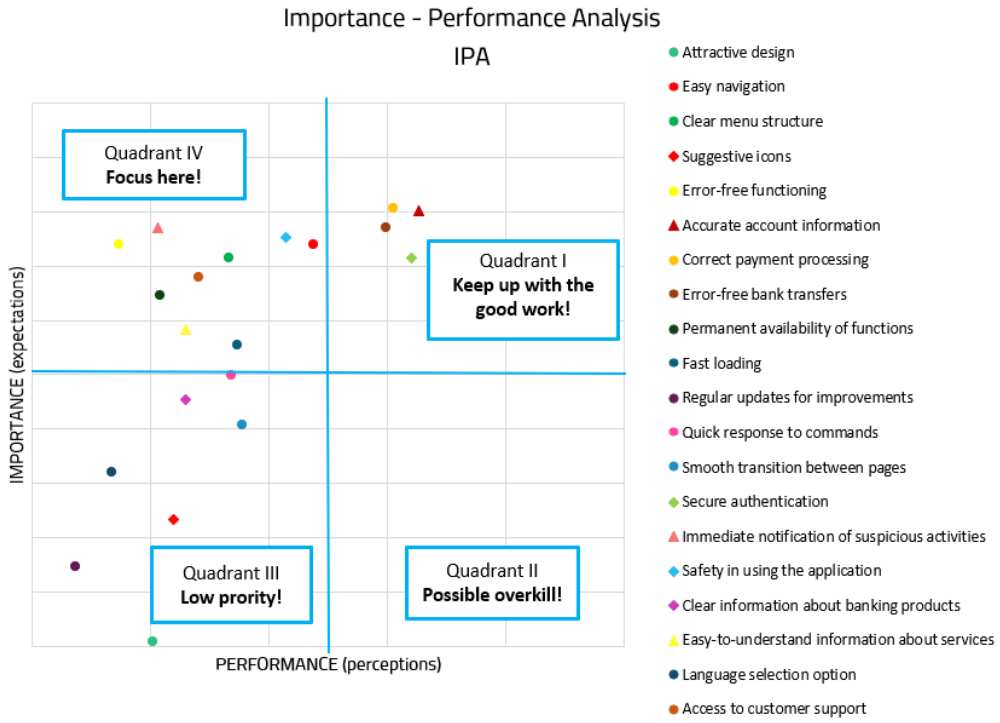

Fig. 2. *Importance-Performance Analysis*

3.3. Pearson Correlations

The relationship between interface attributes and customer loyalty was further examined using Pearson correlation coefficients. Loyalty was measured through three items: the decision to remain a client of the bank, the perception that the application improves the long-term relationship with the institution, and the willingness to recommend the bank based on its application.

The results demonstrate a consistent positive association between interface quality and loyalty. For the first item, "The mobile application influences the decision to remain a client," significant correlations were found with attributes such as attractive design ($r = 0.207$, $p = 0.002$), ease of navigation ($r = 0.175$, $p = 0.008$), correct payment processing ($r = 0.154$, $p = 0.019$), and fast loading speed ($r = 0.155$, $p = 0.018$). These findings indicate that both usability and functional reliability contribute directly to clients' willingness to maintain their relationship with a bank.

The second item, "The mobile application improves the long-term relationship with the bank," yielded significant correlations for 17 out of the 20 attributes, suggesting that most aspects of interface quality have a direct role in building sustained trust. Notably, the structure of the menu, error-free functioning, and the constant availability of functionalities did not reach statistical significance, which is somewhat surprising given their apparent practical relevance.

Pearsons Correlations Table 1

		Loialty		Recommendation
Percepții	**Index statistic**	Q.11. How much does the mobile application influence your decision to remain a client of this bank?	Q.12. To what extent do you consider that the mobile application improves the long-term relationship with the bank?	Q.13. How likely are you to recommend the bank based on your experience with the mobile application?
The application should have an attractive design	Pearson coefficients	0.207	0.239	0.286
	p value	0.002	0.000	0.000
The application should be easy to navigate.	Pearson coefficients	0.175	0.198	0.247
	p value	0.008	0.003	0.000
The menu structure should be clear.	Pearson coefficients	0.093	0.129	0.225
	p value	0.158	0.051	0.001
The icons used in the application should be suggestive.	Pearson coefficients	0.102	0.225	0.196
	p value	0.123	0.001	0.003
The application should function without errors.	Pearson coefficients	0.104	0.126	0.291
	p value	0.114	0.056	0.000
The application should provide accurate information about my accounts.	Pearson coefficients	0.095	0.215	0.240
	p value	0.152	0.001	0.000
The application should process correctly all payments made.	Pearson coefficients	0.154	0.221	0.307
	p value	0.019	0.001	0.000
The application should process bank transfers without errors.	Pearson coefficients	0.083	0.165	0.278
	p value	0.209	0.003	0.000
The application's functions should be available at all times.	Pearson coefficients	0.013	0.096	0.221
	p value	0.839	0.147	0.001
The application should load quickly.	Pearson coefficients	0.155	0.203	0.290
	p value	0.018	0.002	0.000
The application should be updated periodically in order to improve its functionality.	Pearson coefficients	0.191	0.158	0.175
	p value	0.004	0.016	0.008
The application should respond quickly to all my commands.	Pearson coefficients	0.169	0.154	0.329
	p value	0.01	0.019	0.000
The transition between pages should be smooth.	Pearson coefficients	0.125	0.178	0.229
	p value	0.058	0.007	0.000
The application should offer secure authentication (passwords, biometric or facial	Pearson coefficients	0.104	0.168	0.158
	p value	0.113	0.011	0.016
The application should notify me immediately in case of suspicious activities.	Pearson coefficients	0.189	0.165	0.322
	p value	0.004	0.012	0.000
I should feel safe when using the mobile banking application.	Pearson coefficients	0.097	0.184	0.241
	p value	0.144	0.005	0.000
The application should provide clear information about banking products.	Pearson coefficients	0.173	0.180	0.323
	p value	0.008	0.006	0.000
The application should provide easy-to-understand information about banking services.	Pearson coefficients	0.111	0.176	0.260
	p value	0.093	0.007	0.000
There should be an option to select the language in which I want to use the application.	Pearson coefficients	0.086	0.141	0.131
	p value	0.195	0.032	0.000
The application should offer (quick) access to customer support in case of a problem.	Pearson coefficients	0.167	0.180	0.269
	p value	0.011	0.006	0.000

Finally, the third item, "I would recommend the bank based on its application," was positively and significantly correlated with all 20 attributes. The strongest relationship was observed with correct payment processing ($r = 0.307$, $p = 0.000$), confirming that reliability and transaction accuracy remain the cornerstones of customer satisfaction and loyalty in mobile banking.

Taken together, these results suggest that while design and ease of use positively influence loyalty, it is the reliability, security, and operational stability of mobile applications that exert the strongest and most consistent effect on consumer behaviour.

4. Discussion and Managerial Implications

The results of this research confirm that the interface of mobile banking applications plays a decisive role in shaping consumer loyalty. The SERVQUAL analysis highlighted persistent gaps between expectations and perceptions, particularly in relation to system stability, security, and functional availability. These findings align with previous studies (Zhou et al., 2021; Bisht and Kesharwani, 2020), which suggest that reliability and protection against errors or fraud are critical dimensions of digital financial services. In the Romanian context, where adoption rates are increasingly rapidly, such shortcomings can undermine trust and slow down the digital transformation of the sector.

The Importance–Performance Analysis further demonstrated that banks must prioritize the functional backbone of their applications. While aesthetic features and visual design are appreciated, they were found to be less influential in sustaining long-term loyalty compared to performance and security. This echoes Alonso-Dos-Santos et al. (2020), who observed that service quality drives satisfaction and, loyalty in digital banking. Romanian banks, therefore, should focus their digital investments less on "cosmetic" updates and more on back-end improvements that guarantee error-free, efficient, and secure transactions.

The Pearson correlation analysis strengthens this perspective by showing that correct payment processing, fast loading, and secure navigation are the strongest predictors of loyalty outcomes. The fact that all interface attributes correlated significantly with the willingness to recommend the bank underscores the integrative nature of user experience: even seemingly minor elements of design and usability can reinforce consumers' advocacy. In practice, this suggests that loyalty in mobile banking is not created by a single feature but by the coherence of the entire digital experience.

From a managerial perspective, several implications emerge. First, banks should allocate resources toward minimizing technical errors and ensuring constant availability of functionalities, as these factors were most strongly associated with loyalty. Second, security features such as real-time notifications of suspicious activity must be strengthened, since they directly influence users' trust in the application. Third, while design should not be neglected, it should be strategically balanced with functional upgrades. The Romanian banking sector has witnessed significant digital investments in recent years, yet this study indicates that consumers value operational excellence above aesthetic improvements.

Finally, these results highlight the importance of a customer-centered approach to

application development. Regular feedback collection, usability testing, and continuous monitoring of system performance should be embedded into the digital strategies of financial institutions. In a competitive environment shaped by fintech challengers and rising consumer expectations, the banks that succeed will be those able to deliver seamless, reliable, and trustworthy digital experiences.

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