Optimizing Banking E-Service Excellence: A CSI and IPA Approach to Customer Satisfaction

Optimalisasi Keunggulan Layanan Elektronik Perbankan: Pendekatan CSI dan IPA terhadap Kepuasan Pelanggan

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ABSTRACT

This study aims to assess the level of customer satisfaction at Bank BCA Harapan Raya Branch in Pekanbaru by analyzing the gap between customer expectations and their actual experiences. It also identifies which service criteria should be prioritized for improvement. The research employs the Customer Satisfaction Index (CSI) method to measure overall customer satisfaction and the Importance Performance Analysis (IPA) method to evaluate the importance and performance of each electronic service attribute, determining priority areas for improvement. The results show that 77.71% of customers at Bank BCA Harapan Raya Branch fall into the "Satisfied" category, indicating that most customers are generally pleased with the services provided. Attributes located in Quadrant II (service speed, service reliability, transaction security, and accessibility) should be maintained, while those in Quadrant I (ease of use, transaction security, and accessibility) require immediate improvement.

Keywords: *Customer Satisfaction Index (CSI), Importance Performance Analysis (IPA), E-Service Quality, Customer Satisfaction.*

ABSTRAK

Penelitian ini bertujuan untuk mengukur tingkat kepuasan nasabah di Bank BCA Cabang Harapan Raya Pekanbaru dengan menganalisis kesenjangan antara harapan dan pengalaman aktual yang dirasakan nasabah. Selain itu, penelitian ini juga mengidentifikasi kriteria layanan yang perlu diprioritaskan untuk perbaikan. Metode yang digunakan adalah *Customer Satisfaction Index* (CSI) untuk mengukur tingkat kepuasan secara keseluruhan, serta *Importance Performance Analysis* (IPA) untuk menilai tingkat kepentingan dan kinerja setiap atribut layanan elektronik, sehingga dapat ditentukan prioritas perbaikannya. Hasil penelitian menunjukkan bahwa 77,71% nasabah Bank BCA Cabang Harapan Raya Pekanbaru berada dalam kategori "Puas", yang menandakan bahwa secara umum nasabah merasa puas terhadap layanan yang diberikan. Atribut yang berada pada Kuadran II (kecepatan layanan, keandalan layanan, keamanan transaksi, dan aksesibilitas) perlu dipertahankan, sementara atribut yang berada pada Kuadran I (kemudahan penggunaan, keamanan transaksi, dan aksesibilitas) perlu segera ditingkatkan.

Kata Kunci: *Customer Satisfaction Index* (CSI), *Importance Performance Analysis* (IPA), Kualitas Layanan Elektronik, Kepuasan Pelanggan.

1. Introduction

The influence of changing transaction patterns in society and economic developments has driven BCA to continuously develop its digital banking services (Paul et al., 2022; Vijayanand & Kumar, 2022). BCA consistently updates its service features to enhance transaction convenience, ensure security and reliability, and expand its digital and electronic banking ecosystem with a focus on mobile and internet banking development (Islam et al., 2023; Saputra & Antonio, 2021). These initiatives prepare BCA to face the ongoing digital transformation in the banking sector (Ilmudeen & Bao, 2019; Arcand & Promtep, 2016). BCA also leverages information technology innovations to provide ease, reliability, and security for customers while improving operational efficiency (Ali & Umer, 2020; Yusuf & Bala, 2021). The adoption of technology drives innovation, strengthens IT infrastructure, and enhances digital services and applications (Ighomereho et al., 2022).

BCA continues to expand the development of its myBCA platform to deliver seamless transaction experiences for customers (Beanning & Zulkarnain, 2024; Azzochrah et al., 2022). The Campaign Management Platform is also being improved to offer products and services tailored to customer needs (Tharanikaran et al., 2017). Additionally, BCA explores future technologies such as blockchain, the metaverse, facial recognition payments, robotics, and natural language processing to enhance customer experiences (Rajendran & Suresh, 2022; Raza & Umer, 2019).

In addressing various challenges, BCA has strengthened its digital banking service platform, including online account openings, which successfully facilitated over 1.6 million new accounts in 2020 (Rezeki et al., 2023; Santoso & Alawiyah, 2021). BCA's Individual Banking Division serves more than 19 million customers, contributing up to 70% of CASA (Ramadanti & Firman, 2024).

Consumer credit declined by 10.9% in 2020 due to repayments exceeding new disbursements, a trend linked to pandemic-related restrictions. Fixed assets for consumer credit were recorded at Rp24.9 trillion, or 21.1% of the total portfolio. In asset management, BCA saw a 42.5% growth in managed assets, supported by the launch of the digital investment app WELMA, which facilitates mobile investment transactions (Saputra & Gürbüz, 2021; Suharyati et al., 2023). By 2020, the app had 17,320 users.

Thus, BCA's annual reports from 2020 to 2022 demonstrate that shifts in customer needs and behaviors have driven the bank to develop relevant digital banking services (Aswarasy & Bernik, 2024). BCA has successfully introduced significant innovations, expanded its digital service offerings, and delivered superior customer experiences (Mahmudah et al., 2023). This success is reflected in positive growth across various performance indicators (Santoso & Alawiyah, 2021; Paul et al., 2022).

Between 2020 and 2022, BCA recorded strong growth in electronic banking usage and customer satisfaction. Digital services, including mobile and internet banking, saw significant increases in transaction frequency—mobile banking transactions rose by 64.3%, while internet banking transactions grew by 30.2%. Digital channels accounted for 99% of all transactions, indicating strong customer adoption of BCA's electronic banking services (Islam et al., 2023; Tharanikaran et al., 2017).

Current and savings accounts (CASA) are crucial to banking operations. A solid 21% growth in CASA in 2020 was supported by BCA's extensive online and digital services, with 77% of third-party funds sourced from these platforms. By 2022, electronic banking services continued to grow, with transaction ease through digital channels driving a 10.4% increase in CASA. Total transactions reached a record high of 22.3 billion, a 36% increase from the previous year, alongside the addition of 6.2 million new accounts (Ilmudeen & Bao, 2019; Yusuf & Bala, 2021).

BCA remains committed to providing safer, faster, and more convenient transaction experiences. Through hybrid banking, BCA serves customers both online and offline. Partnerships with strategic stakeholders and investments in digital innovation underscore BCA's dedication to strengthening its business ecosystem and improving customer service (Ighomereho et al., 2022; Rezeki et al., 2023).

Based on BCA's annual reports, electronic banking services experienced significant growth from 2020 to 2022, including increased mobile and internet banking usage, CASA growth, and high transaction volumes. This indicates strong customer satisfaction with the convenience and benefits of BCA's digital services (Arcand & Promtep, 2016; Saputra & Antonio, 2021).

As a major city in Riau Province, Pekanbaru has seen rapid advancements in technological infrastructure. In this environment, BCA Pekanbaru Branch plays an increasingly vital role in delivering services that meet customer expectations. Electronic service quality and customer satisfaction are key to maintaining loyalty and enhancing the bank's reputation (Ali & Umer, 2020; Islam et al., 2023).

The rise in electronic product usage at BCA's H. Imam Munandar Branch in Pekanbaru from 2020 to 2022 may stem from several factors, such as increased customer awareness of digital banking benefits, promotional efforts by BCA, improved service quality (e.g., speed, security, and convenience), and changing economic conditions that favor digital financial management (Ramadanti & Firman, 2024; Beanning & Zulkarnain, 2024). Survey data suggests positive customer perceptions of BCA's electronic banking services, though responses may not represent the entire customer base (Rajendran & Suresh, 2022).

To measure and understand electronic service quality and customer satisfaction, structured and quantifiable approaches are essential. The Customer Satisfaction Index (CSI) and Importance Performance Analysis (IPA) are relevant methods in this context (Azzochrah et al., 2022; Santoso & Alawiyah, 2021). CSI measures satisfaction levels by evaluating various service quality dimensions, while IPA assesses the importance and performance of service aspects. Together, these methods provide insights into areas needing improvement and those delivering optimal satisfaction (Mahmudah et al., 2023; Paul et al., 2022).

Previous research found a CSI score of 61.57%, indicating "moderate" customer satisfaction. IPA analysis revealed eight service attributes in Quadrant I, five in Quadrant II, four in Quadrant III, and four in Quadrant IV (Tharanikaran et al., 2017). Another study identified five key service attributes requiring improvement, including app usability, timely transaction notifications, full bill payment features, and security alerts (Suharyati et al., 2023; Saputra & Gürbüz, 2021).

E-banking quality analysis using IPA highlighted three features needing enhancement: accessibility, user satisfaction, and willingness to recommend the service. The top priorities for improvement were cost efficiency, transaction security, and fast payment features. However, CSI results showed 80.49% customer satisfaction, falling under the "satisfied" category (Azzochrah et al., 2022; Yusuf & Bala, 2021).

Therefore, this thesis on *Electronic Service Quality and Customer Satisfaction Analysis Using CSI and IPA at BCA Pekanbaru Branch* holds significant relevance. The findings are expected to provide valuable insights into BCA's electronic service quality and customer satisfaction levels, serving as a foundation for service improvements and better alignment with customer expectations (Rezeki et al., 2023).

2. Literature Review

Electronic Service Quality Analysis

Electronic service quality is defined as a website's ability to facilitate shopping, transactions, and delivery effectively and efficiently. This concept encompasses pre-purchase processes (ease of use, product information, order details, and data privacy) to post-purchase processes (shipping and return policies). Key indicators for measuring e-service quality include:

1. **Reliability/Fulfillment**: The ability to deliver promised services accurately and on time.
2. **Responsiveness**: Willingness to assist customers, address inquiries promptly, and provide alternative communication channels.
3. **Ease of Use/Accessibility**: Simplified access to information, critical for virtual purchasing decisions. User-friendly design is vital in e-service quality to mitigate challenges in e-business ecosystems.
4. **Privacy/Security**: Protection of customers' personal and financial data. Perceived security significantly impacts revisit intentions and purchase decisions, given the risks of financial loss and fraud in virtual transactions.
5. **Website Design**: Aesthetic features, content, and online catalog structure. Design plays a key role in attracting and retaining visitors, while content quality is equally important.
6. **Information Quality**: Availability and accuracy of information provided to customers during website visits.

The Relationship Between Electronic Service Quality and Customer Satisfaction

The link between electronic service quality and customer satisfaction is critical in modern business. Key aspects of this relationship include:

1. **Enhanced Customer Satisfaction**: High-quality e-services directly boost satisfaction by offering ease, efficiency, and value.
2. **Customer Loyalty**: Satisfied customers are more likely to remain loyal and reuse services, ensuring sustained revenue.
3. **Positive Reputation**: Superior e-service quality improves brand reputation, leading to positive reviews and referrals.
4. **Reduced Complaints and Returns**: Poor e-service quality increases complaints and product returns, raising operational costs.
5. **Higher Customer Retention**: In sectors like banking, satisfied customers are less likely to switch to competitors.
6. **Operational Efficiency**: Streamlined e-services reduce support workload and associated costs.

Overall, excellent e-service quality strengthens satisfaction, loyalty, reputation, and efficiency, motivating providers to continually improve their digital offerings.

Customer Satisfaction Index (CSI)

The Customer Satisfaction Index (CSI) measures customer satisfaction with a company's products, services, or experiences. It involves collecting and analyzing customer feedback on quality, performance, and other satisfaction-influencing factors. CSI results provide an indexed score reflecting customer perceptions, helping organizations identify strengths and areas for improvement.

Importance Performance Analysis (IPA)

Importance Performance Analysis (IPA) evaluates the performance and perceived importance of attributes affecting customer satisfaction. It helps prioritize improvements by mapping attributes into four quadrants:
1. **Quadrant I (High Importance, Low Performance)**: Critical areas needing immediate enhancement.
2. **Quadrant II (High Importance, High Performance)**: Strengths to maintain.
3. **Quadrant III (Low Importance, Low Performance)**: Low-priority areas.
4. **Quadrant IV (Low Importance, High Performance)**: Potential overinvestment.

In banking, IPA assesses how electronic services align with customer expectations, guiding strategic improvements.

Electronic Services in the Banking Sector

Electronic banking services enable customers to conduct transactions digitally without visiting physical branches. Key offerings include:
1. **Internet Banking**: Online portals for transfers, bill payments, and account management.
2. **Mobile Banking**: Apps for transactions and account monitoring via smartphones.
3. **ATMs**: Cash withdrawals, deposits, and account inquiries.
4. **SMS Banking**: Transactions via text messages.
5. **Mobile Wallets**: Digital payments linked to bank accounts.
6. **Online Payments**: Bill and product payments via websites/apps.
7. **E-Money/Prepaid Cards**: Digital payment tools.
8. **Investment/Financial Planning**: Digital portfolio management.

For instance, BCA provides services like:
1. **ATM/EDC**: Cashless transactions and deposits.
2. **Debit Cards**: Flazz and TapCash.
3. **Digital Platforms**: KlikBCA (internet banking), m-BCA (mobile banking), Sakuku (e-wallet), and VIRA (chat-based virtual assistant).

Electronic banking enhances accessibility, efficiency, and convenience while relying on security, quality, and positive customer interactions to succeed.

3. Methods

A population is a generalization area consisting of objects or subjects that have certain qualities and characteristics determined by researchers to be studied. The population used in this study is 6,502 customers of Bank BCA Harapan Raya Pekanbaru branch, focusing on 200 customers who use Bank BCA's digital electronic services. To obtain 200 customers representing a population of 6,502 customers with a 10% margin of error, you need to take a sample of approximately 98.47 customers, or start from 99 to 200 customers to be used as the research sample.

The analysis was conducted by the researcher using statistical tools, which in this case can be referred to as statistical analysis or inferential analysis. Inferential analysis, also known as deductive analysis, is performed with the aim of drawing conclusions from observed events through sample data analysis. One-way ANOVA (Analysis of Variance) is a parametric statistical method used to test differences between three or more groups of interval or ratio-scaled data from one independent variable. In this study, ANOVA was used to identify differences in respondents' perceptions of specific indicators.

The Validity Test is used to measure the extent to which a research instrument or questionnaire can measure the intended variable. The accuracy of this instrument can be measured using a correlation coefficient. An instrument is considered valid if the questions or statements in the questionnaire are capable of revealing the variable measured by the instrument.

The Reliability Test is used to measure the consistency of respondents' answers. This test uses Cronbach's alpha coefficient as its statistical tool. An instrument is considered reliable if the Cronbach's alpha coefficient is ≥ 0.70. The Wilcoxon Signed-Rank Test is a non-parametric hypothesis test used when comparing two related samples or repeated measurements on a single sample to assess whether their population means differ. This test is used to examine differences between paired data and is primarily applied when the data distribution is non-normal or the sample size is small.

4. Result and Discussion

Wilcoxon Signed-Rank Test

Table 1. Descriptive Statistics Results

Category	N	Mean	Std. Deviation	Minimum	Maximum
Satisfaction	80	3.8780	0.39765	2.50	4.75
Expectation	80	3.8785	0.40397	2.50	4.75

The table above presents the mean, standard deviation, minimum, and maximum values for each group—satisfactionand expectation. It shows that the mean expectation score (3.8785) is slightly higher than the mean satisfaction score (3.8780).

Table 2. Wilcoxon Signed-Rank Test Results

	N	Z	Asymp. Sig. (2-tailed)
Satisfaction - Expectation	80	-1.243	0.213

Based on the table above, the Asymp. Sig. (2-tailed) value is 0.213. Since this value is greater than 0.05, we can conclude that there is no significant difference between customer satisfaction and expectations with electronic service quality at Bank BCA, Harapan Raya Branch, Pekanbaru.

Data Processing Using the Customer Satisfaction Index (CSI) Method

Table 3. CSI Results

Service Attribute	CSI Score	Satisfaction Level
Service Speed	77.55%	Satisfied, but not optimal
Ease of Use	73.01%	Satisfied, but not optimal
Reliability	80.88%	Very satisfied, but improvable
Transaction Security	79.97%	Satisfied, but not optimal
Accessibility	76.13%	Satisfied, but not optimal

1. The CSI score for service speed is 77.55%, indicating customers are satisfied, though not completely. Improvements are still necessary.
2. The ease of use score is 73.01%, also showing satisfaction, but with room for enhancement.
3. The reliability score is 80.88%, reflecting very high satisfaction, yet improvements are still expected for an optimal experience.

4. The transaction security score is 79.97%, showing good satisfaction, but with potential to be improved.
5. The accessibility score is 76.13%, reflecting a positive response, though improvements are required.

Overall Customer Satisfaction (CSI Method)

Table 4. Overall CSI results

Overall CSI Score	Interpretation
77.71%	Customers are "Satisfied"

Based on the total CSI score of 77.71%, customers at Bank Central Asia, Harapan Raya Branch, Pekanbaru, fall under the "Satisfied" category. However, the remaining 22.29% indicates areas of dissatisfaction, which the company should address by improving service attributes that are still considered less than optimal.

Data Analysis Using Importance Performance Analysis (IPA)

The Importance Performance Analysis (IPA) is a descriptive qualitative-quantitative method used to assess the extent of customer satisfaction with service performance. The analysis uses a Cartesian diagram to visually identify which service attributes are most impactful.

Table 5. Importance Performance Analysis (IPA) Quadrants

Quadrant	Attributes
Quadrant I	(High Importance, Low Performance – Priority for Improvement)
	B1: Ease of access and use of digital services
	B2: Easy-to-understand digital interface
	D2: Data confidentiality is maintained
	E2: Accessible across various personal devices
Quadrant II	(High Importance, High Performance – Keep Up the Good Work)
	A2: Transaction speed
	C1: Services function properly
	D1: Security during digital transactions
	E1: Access anytime
Quadrant III	(Low Importance, Low Performance – Low Priority)
	– None
Quadrant IV	(Low Importance, High Performance – Possible Overkill)
	A1: Fast response
	C2: Disruption/errors during usage

The Importance Performance Analysis (IPA) diagram divides service attributes into four quadrants based on two key dimensions: importance and performance. Quadrant I, which includes attributes of high importance but low performance, highlights areas where improvements are most urgently needed. For BCA, these attributes include ease of accessing and using digital services, user-friendly interface, data confidentiality, and multi-device accessibility. These are crucial features for customers but are currently underperforming, and therefore, BCA should prioritize enhancing these aspects.

Quadrant II contains attributes that are both highly important and performing well, such as transaction speed, service reliability, security during transactions, and accessibility at any time. These are areas where BCA is doing well, and it is important to maintain and ensure the continued high performance of these services.

On the other hand, Quadrant III, which represents low importance and low performance, showed no attributes in the study, suggesting that most of the attributes evaluated are relevant to customer satisfaction and performance. Finally, Quadrant IV includes low importance but high performance attributes, such as response time and handling service disruptions. Although these areas are performing well, they may not be as crucial to customer satisfaction, indicating that BCA might be investing resources into features that customers deem less important.

In conclusion, the IPA diagram offers valuable insights for BCA by emphasizing that improvements should be focused on the attributes in Quadrant I, where customer expectations are high but performance is lacking. This strategic focus can help BCA improve overall customer satisfaction and enhance its digital service offerings.

Discussion

Customer Satisfaction Analysis Using the Customer Satisfaction Index (CSI)

The analysis of customer satisfaction using the CSI method revealed several key dimensions influencing users' perceptions of BCA's digital banking services. First, the speed of service was rated highly by customers, particularly in digital platforms like BCA Mobile, where transactions are executed promptly with responsive systems. This aligns with the findings of Paul et al. (2022), who emphasized that transaction efficiency and responsiveness are core components of customer satisfaction in e-banking.

In terms of ease of use, most customers found BCA's digital services simple to navigate and understand. Tools such as CRM machines allow users to conduct cash deposits without waiting in line, improving overall convenience. This is consistent with Saputra and Gürbüz (2021), who applied the Technology Acceptance Model (TAM) to show that perceived ease of use strongly impacts user satisfaction with digital financial services.

The reliability of service was also a significant factor, with customers reporting minimal disruptions when using BCA's digital platforms. Yusuf and Bala (2021) supported this view, concluding that stable, reliable digital systems are crucial in ensuring customer confidence and satisfaction in electronic banking.

Regarding transaction security, customers expressed satisfaction and trust in BCA's protection of their personal and financial data. The presence of password and PIN protection aligns with the findings of Ilmudeen and Bao (2019), who highlighted that privacy and data security are major determinants of internet banking adoption and user satisfaction.

Furthermore, accessibility—the ability to use digital banking anytime and from various devices—was praised by customers. Platforms like BCA Mobile operate 24/7, accommodating user flexibility. This supports the findings of Ighomereho et al. (2022), who emphasized accessibility and device compatibility as critical dimensions in e-service quality models.

Overall, the CSI score of 77.71% indicates that customers are generally satisfied with BCA's digital services, although there is still room for strategic improvements. Similar satisfaction ranges were observed in studies by Ramadanti and Firman (2024) and Mahmudah et al. (2023), who used the CSI method to assess mobile banking performance in Indonesia and found moderate to high satisfaction levels.

Customer Satisfaction Analysis Using Importance Performance Analysis (IPA)

Using the IPA method, this study categorized various service quality attributes based on importance and performance, providing deeper insight into which aspects of BCA's digital services require improvement or reinforcement.

Quadrant I includes critical issues with high importance but low performance. These comprise accessibility and user interface issues, data confidentiality concerns, and multi-device usability limitations—especially when accessing services like *Halo BCA* in areas with limited network coverage. Ighomereho et al. (2022) and Santoso and Alawiyah (2021) both emphasized that usability and security are foundational components of e-service quality that must be prioritized to meet customer expectations.

Quadrant II represents strong points in BCA's service, where attributes like transaction speed, service reliability, security, and round-the-clock availability received both high importance and high satisfaction scores. These findings echo Tharanikaran et al. (2017) and Vijayanand and Kumar (2022), who highlighted that fast, secure, and accessible e-banking services significantly enhance user satisfaction and loyalty.

Quadrant III had no entries in this study, suggesting that customers considered most aspects of BCA's digital services relevant, which reflects positively on the institution's alignment with customer needs.

Quadrant IV, meanwhile, included factors with lower importance but high performance, such as quick responses and minimal system errors. While these may not be top priorities for customers, their high performance still contributes positively to the overall user experience. Rajendran and Suresh (2022) pointed out that even secondary service features can enhance customer perceptions when they are executed well.

Collectively, these results underline the importance of continuous improvement in both high-priority and emerging service areas. Rezeki et al. (2023) stressed that satisfaction plays a mediating role between service quality and customer loyalty, reinforcing the need for BCA to refine key digital touchpoints. By leveraging insights from both CSI and IPA methodologies, BCA can strategically allocate resources to enhance customer experiences in an increasingly competitive digital banking environment.

5. Conclusion

Based on the analysis presented in the previous chapter, several key conclusions can be drawn. First, the overall customer satisfaction at Bank Central Asia (BCA), Harapan Raya Branch in Pekanbaru, as measured by the Customer Satisfaction Index (CSI), reached a score of 77.71%. This indicates that customers are generally satisfied with the bank's digital services, although there is still room for improvement. Second, according to the Importance Performance Analysis (IPA), the evaluated service attributes were distributed across four quadrants. Quadrant I included dimensions such as ease of use, transaction security, and accessibility—highlighting areas that are important but underperforming. Quadrant II encompassed dimensions like service speed, service reliability, transaction security, and accessibility, which are both important and well-executed. Quadrant III had no attributes, suggesting no aspects were perceived as unimportant and underperforming. Meanwhile, Quadrant IV included service speed and reliability, which, although less critical, were still delivered effectively. Finally, the remaining 22.29% reflects the level of dissatisfaction that still exists among BCA's customers at the Harapan Raya branch. Therefore, it is essential for the bank to

focus on improving the performance of specific service attributes that customers currently find less satisfactory to further enhance overall customer experience.

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