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Do E-Service Machines Enhance Digital Customer Service in Banking?

Siti Nur Fikriyyatul Azizah[1*], Tri Mega Asri[2], Rachma Bhakti Utami[3]

Fikriyyaizzah19@gmail.com

Universitas Terbuka[1*], Mayjen Sungkono Street, Malang, East Java, Indonesia
Universitas Brawijaya[2], Veteran Street, Malang, East Java, Indonesia
Politeknik Negeri Malang[3], Soekarno-Hatta Street, Malang, East Java, Indonesia

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ABSTRACT

The purpose of this research is to assess the quality of customer service through digital channels using e-service machines so that BCA can understand the quality of banking services from the customers' perspective and use it as a reference for improving digital service quality as well as educating customers about digital services via e-service machines. The focus of this research is to analyze the quality of digital customer service through BCA's e-service machines. The research method used is descriptive quantitative. This method identifies and describes the quality of BCA KCP Dinoyo's e-service machines. Data was collected through questionnaires and literature studies. Based on the results and discussion in this paper, it can be concluded that the majority of respondents indicate that the quality of customer service through BCA KCP Dinoyo's digital e-service machines is highly satisfying for customers in meeting their transactional needs. The indicators of the quality of BCA KCP Dinoyo's e-service machines include reliability, responsiveness, privacy, information quality, ease of use, and web design.

Keywords : E-Service; Digital Customer; Banking Service; BCA; Service Quality

ABSTRAK

Penelitian ini bertujuan untuk mengetahui kualitas layanan customer service digital dengan media mesin e-service agar BCA dapat mengetahui kualitas layanan perbankan menurut nasabah dan dapat menjadi acuan dalam pengembangan kualitas layanan digital serta sebagai edukasi nasabah terkait layanan digital mesin e-service. Fokus dari penelitian yaitu menganalisis kualitas layanan customer service digital dengan media mesin e-service BCA. Metode penelitian yang digunakan yaitu kuantitatif deskriptif. Metode ini mengidentifikasi dan mendeskripsikan kualitas layanan digital mesin e-service BCA KCP Dinoyo. Proses pengambilan data melalui kuesioner dan studi literatur. Berdasarkan hasil dan pembahasan dalam karya ilmiah ini, maka dapat disimpulkan bahwa mayoritas tanggapan responden menunjukkan kualitas layanan customer service digital dengan media mesin e-service BCA KCP Dinoyo sangat memuaskan nasabah dalam pemenuhan kebutuhan transaksi. Adapun indikator pada kualitas layanan mesin e-service BCA KCP Dinoyo adalah keandalan (reliability), daya tanggap (responsiveness), keamanan (privacy), kualitas informasi (information quality), kemudahan (easy of use), dan tampilan web (web design).

Kata Kunci : ***E-Service; Pelanggan Digital; Layanan Perbankan; BCA; Kualitas Layanan***

INTRODUCTION

The development of information technology is the process of starting to fulfill individual needs, which can be done quickly. Individuals can exchange the data and information they need via gadgets or smartphones supported by features and expert systems with various functions and advantages. Each individual's work becomes more accessible and faster, and of course, can increase effectiveness and efficiency through developments in information technology (Haleem et al., 2022). Changes in individual activities also influence information technology development, called digital transformation (Verhoef et al., 2021). All corporate sectors, including banking, are carrying out various digital transformation developments.

The bank has developed a 24-hour service that customers can use, namely Automated Teller Machines (ATMs). Currently, banks are installing more ATMs in several places, such as shopping centers, universities, schools, and strategic places that are easily accessible to customers (Prawira et al., 2023). Digital technology is increasingly expanding into banking by changing ordinary transaction models into digital transactions with the emergence of systems such as mobile banking and digital customer service. This service makes it easier for customers to make transactions only via smartphone or by coming directly to the bank to take photos and fill in data sent to the website (Windasari et al., 2022).

Several previous studies examined how developments in information technology can improve the quality of banking services. Research by Dewi and Zulkifli (2024) examines how mobile banking applications can improve the quality of banking services. Meanwhile, Zawiyah's research (2019) examined the effect of Bank Syariah Mandiri digitalization in improving service on customer satisfaction. Furthermore, Pramesti et al. (2023) analyzed the influence of mobile banking service quality on customer satisfaction at Bank Syariah Indonesia Jember Branch. Unlike prior studies focusing primarily on adoption and satisfaction, this research investigates the perceived quality of BCA's e-service machines specifically, filling a gap in assessing direct customer interaction metrics within a banking context. This research uniquely combines customer service quality analysis with customer education efforts, leveraging e-service machines as a dual-purpose tool for service delivery and knowledge dissemination.

PT Bank Central Asia (BCA) also implements technology. BCA's revolution in developing digital technology has become a strategy and step in maintaining the quality of banking services. BCA prioritizes Customer Experience (CE) and Branch Service Quality (BSQ) so that they can become opportunities that can support company growth and optimize the quality of banking services (BCA, 2019).

Customer experience includes all interactions between customers and banks, whether through physical channels (e.g., bank branches) or digital channels (e.g., banking applications, websites or online customer service). According to Keiningham et al. (2020), Customer experience can drive profits and growth. A good customer experience can help build customer loyalty. When customers are happy with the bank's services and feel

valued, they are likelier to continue using its products and services. Long-term customer loyalty is essential because it can help maintain the existing customer base.

Meanwhile, Brand Service quality is widely acknowledged as an antecedent of customer satisfaction and behavioral intention, leading to an organization's profitability (Prentice et al., 2019). Brand service quality reflects the reputation and customer perception of a bank's services (Uzir et al., 2021).

To improve brand service quality and customer experience, in the last three years, BCA has developed the concept of digital transactions through digital machines such as digital CS, e-service machines, and star tellers, which customers can use independently (BCA, 2021). BCA KCU Malang also did this. BCA KCU Malang is the main branch office of BCA, located in the regional office section VII at Jl. Gen. Basuki Rachmat No. 70-64, Malang City, East Java. BCA KCU Malang houses several sub-branch offices, one of which is BCA KCP Dinoyo, which is the object of this research. Most customers are employees and students who are aware of technological developments, which is one of the reasons for using BCA KCP Dinoyo as the object of this research. Apart from that, BCA KCP Dinoyo's strategic location is in the middle of the city, school or campus area, and shopping area, thus showing that customers often visit BCA KCP Dinoyo for transactions.

E-service quality measures how well a website provides adequate and appropriate services to present products and services (Pangestika, 2024). Measuring service quality using the e-service quality method is designed to measure service performance and customer expectations based on a multi-item scale in the service quality dimension (Pranitasari & Sidqi, 2021).

According to Juwaini et al. (2022), there are six indicators of e-service quality. The six dimensions are Reliability, Responsiveness, Privacy, Information Quality, ease of Use, and Web Design. Previous research written by Zulkifly et al. (2022) received good perceptions and higher expectations from customers. However, control was needed, especially regarding e-service quality security performance and mobile banking feature innovation development. This unique control acts as an effort to improve e-service quality, which is a factor in customer trust and good relations between the bank and customers (customer relationship).

Meanwhile, Zawiyah et al. (2019) revealed that reliability indicators negatively influence customer satisfaction. Using testing through the effective contribution formula, the contact indicator obtained dominant results.

In the banking industry, E-service quality is a concept related to measuring and assessing service quality in banking services delivered through electronic platforms, such as Internet banking or mobile banking applications. E-service quality involves aspects that are specific to electronic services, including ease of use, speed of access, security, availability of information, and intuitive interfaces (Juwaini et al., 2022; Shankar & Datta, 2020).

Service quality in banking refers to the extent to which banks meet customers' expectations and needs by providing adequate and satisfying services. Good service quality means banks can provide a positive experience and build customer trust (Venkatesh et al., 2022).

To enhance digital service quality at BCA KCP Dinoyo, the integration of research-backed e-service quality indicators is crucial. Optimizing e-service machines with user-friendly interfaces and accessibility features aligns with Karenzi (2022), who highlighted usability as a critical determinant of service success in digital banking. Incorporating real-

time feedback mechanisms, as suggested by (Amiri et al., 2023), ensures continuous service improvement by addressing customer concerns promptly. Leveraging AI-powered chatbots to provide human-like interactivity, as (Lin, 2024) demonstrated, can significantly enhance customer engagement and satisfaction. Furthermore, embedding customer education into e-service machines—through tutorials and guided demos—responds to (Jussupova, 2020) findings on the importance of reducing user uncertainty in digital services. Ensuring system reliability through robust cybersecurity and regular updates, as emphasized by Hakizimana & Muhe, 2019), will fortify customer trust. These targeted improvements address specific service gaps at BCA KCP Dinoyo, driving customer satisfaction and operational excellence.

Based on the description above, the problem formulation in this research is how to analyze the quality of digital customer service using the BCA e-service machine. The goal of this research is to assess the quality of digital customer service provided by the BCA e-service machine at BCA KCP Dinoyo. By analyzing these services, BCA can identify areas for improvement and develop strategies to enhance digital service quality further, ensuring it meets customer expectations and supports the continued growth of the bank.

This research will focus on e-service quality in digital machines (e-service machines) that assist in customer transaction services at BCA KCP Dinoyo. What differentiates this research from previous research is that this paper is focused on digital service machines available at the company's branch offices. In contrast, previous studies focused on digital service applications that customers can easily use through smartphones.

The research method will use descriptive quantitative data analysis, which is an approach used to describe, present, or summarize data systematically. It refers to statistical representations that help in understanding the details of data through simplification and pattern identification from a specific data sample. Data collection will be carried out through a questionnaire provided to BCA Bank KCP Dinoyo customers via a Google Form link, which will be distributed through WhatsApp, or customers will fill out the link directly during their transaction at BCA Bank KCP Dinoyo.

RESEARCH METHOD

This research uses descriptive quantitative methods. A descriptive quantitative method is an approach used to describe or explain a phenomenon or condition based on data that can be measured and analyzed statistically. This approach aims to provide a clear and objective depiction of the characteristics of a specific variable or group without manipulating or testing hypotheses. This method identifies and describes the digital service quality of the BCA KCP Dinoyo e-service machine. Data collection process through questionnaires and literature study.

The data collection was carried out at BCA KCP Dinoyo, which is located in Jl. Major General Haryono 160, Dinoyo, Lowokwaru, Malang City, East Java 65114. The population in this scientific work is all BCA KCP Dinoyo customers spread across Malang City, totaling 25,478 customers (Sobakh, 2008). The sampling technique used was purposive sampling with the following criteria: This study involves BCA Bank customers in Malang City as the primary subjects. Participants in this research are customers aged 17 years or older, ensuring they have reached the minimum age to use banking services independently.

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Additionally, all participants involved have used the BCA e-service machine at KCP Dinoyo at least once.

The Slovin formula, with a standard error of 10%, was used to determine the sample size, which was 99.1. This study collected 154 respondents. The author distributed the questionnaires using a Google form.

$$n = \frac{N}{1 + Ne^2} \quad (1)$$

The respondent data that has been collected is then processed according to the assessment weight of each question based on a Likert scale, with a score of 5 strongly agree and one strongly disagree. This research uses descriptive analysis techniques, namely analytical techniques, by describing the data collected in tables, graphs, or diagrams without conducting significance tests and making general conclusions (Mbanaso et al., 2023). The author prepared the questionnaire questions based on e-service quality indicators, according to (Ladhari, 2010) and (Juwaini et al., 2022). Question items per indicator are listed in Table 1 below.

Table 1. Question Items

Question Items of Indicators
Reliability of e-service machines
The BCA KCP Dinoyo e-service machine provides multiple essential services for customers. It facilitates the printing or replacement of account books as needed. Customers can also go through the guided stages of opening a new account directly on the machine. Additionally, the e-service machine enables users to activate or update their mobile banking numbers, making it easier for them to manage their banking needs independently.
Responsiveness of e-service engines
The BCA KCP Dinoyo e-service machine offers customers several time-efficient services. It allows users to quickly print or replace their account books and complete the staged process of opening a new account. Additionally, customers can easily activate or change their mobile banking numbers through the machine. For further assistance, the machine is equipped with a "Call an Officer" feature, enabling customers to connect with a bank officer when needed.
Privacy of e-service machines
The BCA KCP Dinoyo e-service machine is designed with various features to enhance security and protect customer information. It ensures the confidentiality of personal data, safeguarding sensitive customer information. A CCTV camera is installed to monitor and secure the area around the machine, providing an additional layer of security. The machine also includes a KTP (ID card) scanning feature, allowing users to verify their identity, as well as a fingerprint scanning feature for secure access and authentication, further enhancing the safety of transactions and personal data protection.
Information Quality of e-service machines
The BCA KCP Dinoyo e-service machine is designed to provide customers with secure and efficient banking services. It offers real-time transaction data, ensuring that customers have access to the most recent information regarding their accounts. The service procedures are user-friendly, guiding customers through various banking operations with clear instructions. To maintain data integrity, the machine ensures that all transaction data is accurate and consistent with the bank's records. Additionally, BCA employs robust security measures to protect customer information, ensuring that all transaction data processed through the e-service machine is reliable and trustworthy.
Easy of use of e-service machines
The BCA KCP Dinoyo e-service machine operates on a user-friendly system designed for customers to use independently. The interface is primarily in Indonesian, catering to the local clientele. The machine utilizes clear and legible fonts, ensuring that text is easily readable for all users. This design facilitates straightforward navigation and operation, allowing customers to perform various banking transactions without assistance.
Web design of e-service machine

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The BCA KCP Dinoyo e-service machine features a user-friendly menu display designed to facilitate seamless navigation for customers. Each transaction type is accompanied by clear and relevant illustrations or images, ensuring that users can easily identify and select the desired service. These visuals are crafted in a straightforward style, utilizing a color scheme that aligns with BCA's branding, thereby enhancing the overall user experience and maintaining consistency with the bank's visual identity.

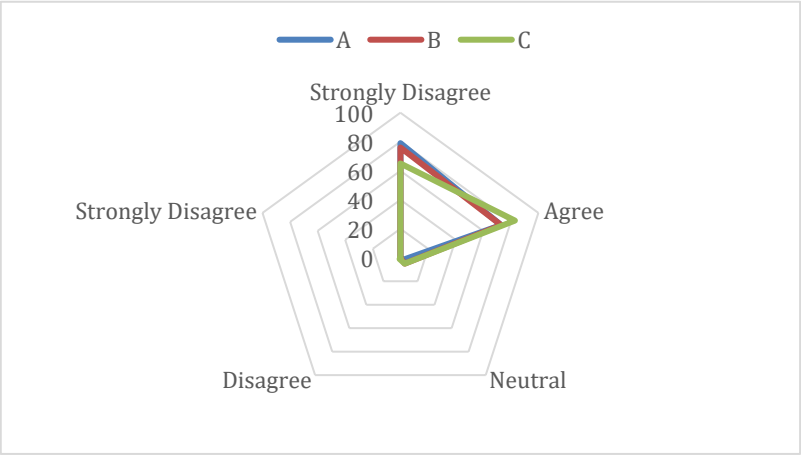
Source: Rahayu (2018)

RESULTS AND DISCUSSION

Based on the questionnaire results distributed to 154 respondents, 102 people, or 66.2% of the customers in this study, were women, with 131 respondents, or 85.1%, aged between 17-24 years. As many as 79.9% of respondents were students, with 94 people, or 61%, having used a BCA account for over a year. The results of the respondents' questionnaire are contained in the picture, which is discussed per the indicator below.

Reliability of E-Service Machines

According to Ladhari (2010), reliability is one indicator of e-service quality. In this research, the reliability indicator is measured through three question items: (A) Print or replace the account book on the BCA KCP Dinoyo e-service machine, (B) Stages of account opening on the BCA KCP Dinoyo e-service machine, and (C) Activate or change the mobile banking number on the BCA KCP Dinoyo e-service machine. Figure 1 below shows the results of the questionnaire on the Reliability indicator.



Source: Authors (2024)

Figure 1. Reliability E-Service Machine

The questionnaire results in Figure 1 regarding the reliability of the e-service machine showed that 79 people, or 51.3%, strongly agreed that the BCA KCP Dinoyo e-service machine helped print or change account books.

Printing or replacing account books on e-service machines can indicate the reliability of the quality of digital banking services because it shows that the banking system can provide consistent and reliable services in managing customer financial information. If the e-service machine can quickly and efficiently print or replace account books, then this shows that there is a sound system and reliable service. Customers do not

have to wait long or experience difficulties obtaining a new account book or the required printouts. From the results of this questionnaire form, it can be concluded that most respondents strongly agree that e-service machines help print transactions or change account books.

The results of the questionnaire showed that 76 people, or 49.4%, strongly agreed that the BCA KCP Dinoyo e-service machine helped open a BCA savings account. Opening a savings account on an e-service machine can be considered a reliable indicator of the quality of digital banking services. It shows that the account opening process can be done efficiently, quickly, and without errors through a reliable electronic system. The e-service machine that can open savings accounts online allows customers to open an account at any time during bank operational hours with the reasonably easy requirement of bringing an original KTP. This provides efficiency and convenience for customers who visit branch offices to open new accounts. From the results of this research, it can be concluded that the majority of respondents strongly agree that e-service machines help open accounts.

Regarding the activation of changing mobile banking numbers via the BCA KCP Dinoyo e-service machine, the questionnaire results showed that 83 people, or 53.9%, strongly agreed that the BCA KCP Dinoyo e-service machine helped activate or change mobile banking numbers. Activation or replacement of a mobile banking number via an e-service machine can be considered an indicator of the reliability of the quality of digital banking services because it shows that the banking system can provide reliable and effective services in managing user information and facilitating changes to customer contact data. If the e-service machine can provide an easy and fast process for activating or changing mobile banking numbers, this shows the system's reliability. Customers can make changes quickly and efficiently. From the results of this questionnaire distribution, it can be concluded that most respondents strongly agree that the e-service machine helps open account stages.

Reliability indicators in e-service quality, especially in banking services, are critical because they reflect how consistent and reliable the banking platform or system is in providing services to its customers online. This indicator shows how often the e-banking system is available and accessible to customers. The platform must be accessible without significant disruption during scheduled operational times. It is essential to ensure that transactions made by customers via the e-banking system are processed correctly and that the information is accurate. Measuring this reliability indicator is important because customer trust in e-banking services depends on system reliability. Disruptions or errors in e-banking services can reduce customer satisfaction and disrupt overall banking operations. Therefore, banks must continue monitoring and improving reliability indicators to maintain optimal e-banking service quality.

Responsiveness of E-Service Machines

The next indicator of e-service quality is responsiveness. Four items are used to measure responsiveness: (A) Time to print or change the account book on the e-service machine, (B) Time to open a staged account on the e-service machine, (C) Time to activate or change the mobile banking number on the e-service machine, and (D) time to use the Call an officer feature on the e-service machine. (See Figure 2)

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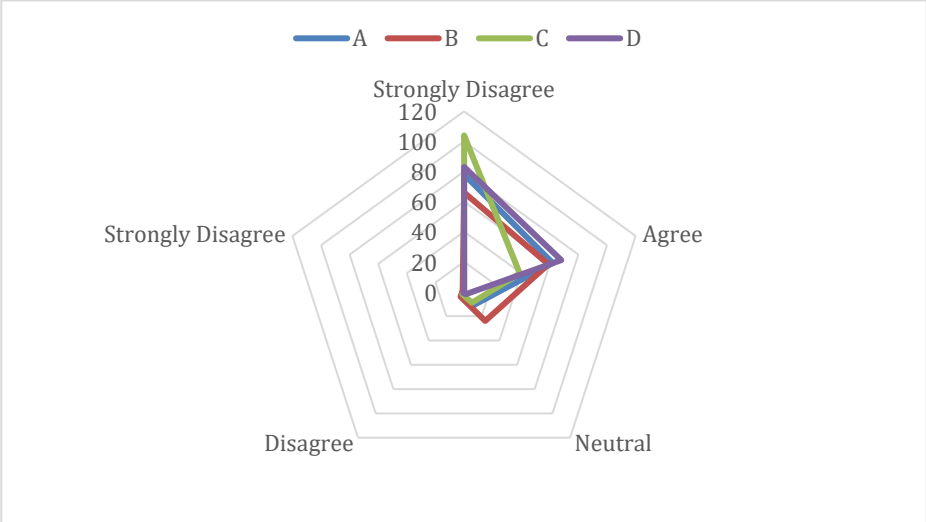

Source: Authors (2024)

Figure 2. Responsiveness E-Service Machine

The questionnaire results in Figure 2 regarding the responsiveness of the e-service machine showed that 78 people, or 50.6%, needed less than 10 minutes to print or replace an account book on the BCA KCP Dinoyo e-service machine. The duration of time to print or change account books on an e-service machine indicates the responsiveness of the quality of digital banking services because it shows that the transaction process for printing or changing account books can be carried out quickly, easily, and efficiently. The e-service machine can provide transaction services that are faster than standard customer service at BCA branch offices, namely, 10 minutes. This gives customers an efficient and flexible time because it does not take a very long time to make transactions at branch offices. From the results of this questionnaire, it can be concluded that most respondents' responses require less than 10 minutes to print or replace an account book on an e-service machine.

Regarding the time to open an account on the e-service machine, the results of the questionnaire showed that 66 people, or 42.9%, needed less than 10 minutes to open a staged account on the BCA KCP Dinoyo e-service machine. The time required to open a staged account on an e-service machine indicates the responsiveness of the quality of digital banking services. This is because the account opening process can be done quickly and easily; that is, just bring the customer's original KTP, and the transaction process can be carried out. The e-service machine can serve staged account openings with fast, responsive service duration, providing efficiency, convenience, and flexibility for customers. This service is an effort by BCA KCP Dinoyo to provide customers with transaction convenience. It can be concluded from the questionnaire that most respondents' responses take less than 10 minutes to open a staged account on the e-service machine.

Meanwhile, regarding the time to activate or change the mobile banking number on the e-service machine, the results of the questionnaire showed that 104 people, or 67.5%, needed less than 10 minutes to activate or change the mobile banking number on the BCA

KCP Dinoyo e-service machine. The next part that is considered an indicator of responsiveness of the quality of digital banking services is the time to activate or change the mobile banking number on the e-service machine. This is because of the speed and convenience provided by the e-service machine when activating or changing mobile banking numbers.

E-service machines provide time efficiency and ease of transaction processing to customers. Transaction speed is simply by filling in the cellphone number used for mobile banking on the e-service machine monitor screen. The activation process or changing the mobile banking number has been successfully carried out.

The results of the questionnaire show that most respondents require less than 10 minutes to activate or change their mobile banking number on the e-service machine.

For the call-an-officer feature on the e-service machine, the results of the questionnaire showed that 83 people, or 53.9%, strongly agreed with the call-an-officer feature on the BCA KCP Dinoyo e-service machine. The call officer feature on the e-service machine is considered an indicator of responsiveness in the quality of digital banking services. This feature is a form of responsive response from the e-service machine when customers experience transaction problems. The working system of the e-service machine is carried out independently by the customer, allowing for problems during use. Therefore, the call-an-officer feature provides convenience and comfort for customers if they experience difficulties using the e-service machine at the branch office. Suppose the call officer feature is selected on the e-service machine monitor screen. In that case, it will be connected to the tablet carried by the CXO (Customer Service Digital Experience) officer so that the officer will come to help the customer. The results of the questionnaire show that most respondents strongly agree with the call officer feature on the e-service machine.

Responsiveness indicators are critical in measuring the quality of e-banking services in the banking sector. Responsiveness refers to the system's speed in responding to customer interactions and requests. Customers expect fast and responsive service from e-banking platforms. The system's ability to respond quickly to transactions or requests for information improves the overall user experience. In a competitive market, speed in responding is a factor that can differentiate a bank from others. Banks that provide responsive e-banking services tend to be more popular with customers.

Privacy of E-Service Machine

The Privacy indicator is the next indicator used to measure e-service quality. The four question items asked were related to (A) Confidentiality of data from other parties on e-service machines, (B) CCTV camera features on e-service machines, (C) KTP scan features on e-service machines, and (D) Features scan fingerprints on the e-service machine.

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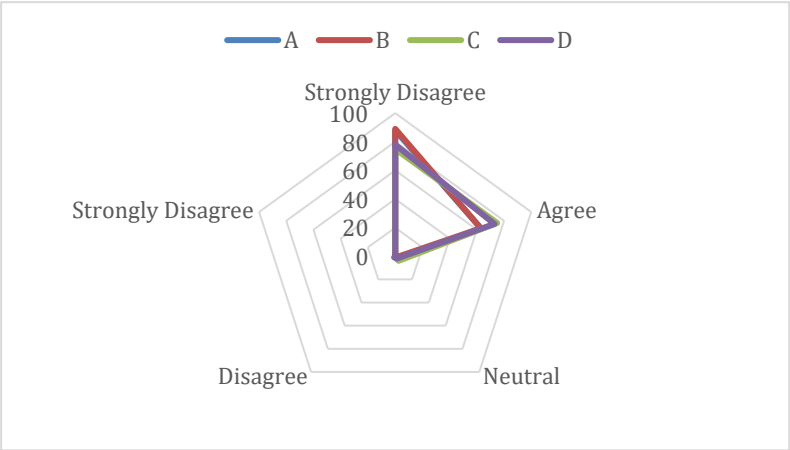

Source: Authors (2024)

Figure 3. Privacy E-Service Machine

The questionnaire results in Figure 3 regarding the privacy e-service machine showed that 88 people, or 57.1%, strongly agreed with the confidentiality of customer data from other parties on the BCA KCP Dinoyo e-service machine. Data confidentiality can be an indicator of security in the quality of digital banking services because e-service machines guarantee that the confidentiality of customer data will not be known and given to other people without the knowledge of the customer concerned. The working system of the e-service machine ensures that other parties cannot make transactions using the customer's account because, in each transaction process, data verification is carried out to ensure the suitability of the account owner so that customers feel safe and comfortable using the e-service machine. It can be concluded from the questionnaire results that most respondents strongly agree with the confidentiality of customer data from other parties on e-service machines.

Meanwhile, the questionnaire results showed that 89 people, or 57.8%, strongly agreed with the CCTV camera feature on the BCA KCP Dinoyo e-service machine.

The CCTV camera feature is considered one of the security indicators of the quality of digital banking services. This shows that e-service machines provide security and comfort for customers when making transactions at branch offices.

Each e-service machine has a CCTV camera installed to monitor the transaction process. CCTV cameras can also be accessed anytime and used as evidence to protect customers when making transactions on e-service machines. From the results of the questionnaire distributed, it can be concluded that most respondents strongly agree with the CCTV camera feature on e-service machines.

Regarding the KTP scan feature on the BCA KCP Dinoyo e-service machine, the questionnaire results showed that 75 people, or 48.7%, strongly agreed with the KTP scan feature on the BCA KCP Dinoyo e-service machine. Customers carrying out transactions will go through the personal data verification stage by placing their KTP in the KTP reader section. The system will continue the transaction if the data verification is appropriate and reject the transaction if the customer data and KTP do not match. This feature was created to increase customer security and trust in e-service machines. It can be concluded from

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the questionnaire results that most respondents strongly agree with the KTP scan feature on the e-service machine.

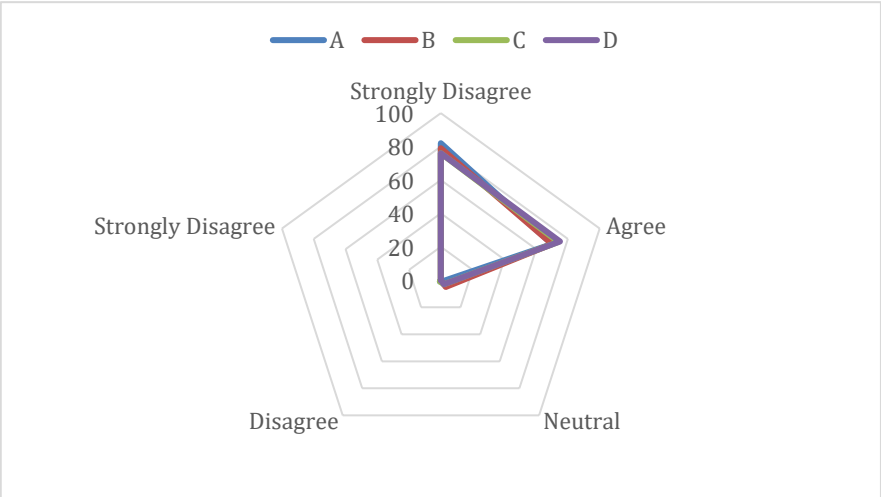
The questionnaire results for the fingerprint scan feature on the BCA KCP Dinoyo e-service machine showed that 78 people, or 50.6%, strongly agreed with it. The fingerprint scan feature is considered an indicator of the quality of digital banking services because this security feature makes customers feel protected during the transaction process. An operational system with customer fingerprint verification shows adequate service quality in the security department. This creates customer trust and loyalty in using BCA products and e-service machines.

According to the questionnaire, most respondents strongly agree with the fingerprint feature on e-service machines.

Privacy indicators are essential to measuring the quality of e-banking services in the banking sector. Privacy refers to the security and confidentiality of customers' personal information stored and processed by the e-banking system. As financial institutions that handle sensitive information such as customer data, banks must ensure that their e-banking systems are equipped with solid security technology. This includes data encryption, protection against cyber attacks, and compliance with applicable data security standards.

Information Quality of E-Service Machines

This research further measures Information Quality as an indicator for analyzing e-service quality. The four question items asked are: (A) Latest transaction data on e-service machines, (B) Transaction service procedures on e-service machines, (C) Transaction data is as needed on the e-service machine, and (D) Transaction data can be trusted on the e-service machine. The image below shows respondents' results on information quality indicators.



Source: Authors (2024)

Figure 4. Information Quality E-Service Machine

The questionnaire results in Figure 4 regarding the information quality e-service machine showed that 82 people, or 53.2%, strongly agreed with the BCA KCP Dinoyo e-service machine displaying the latest transaction data according to account mutations. The

latest transaction data is considered an indicator of the quality of information on the quality of digital banking services. This indicator helps customers accurately find account mutations in all transactions carried out. The e-service machine can provide the latest information regarding transactions that customers have carried out; this shows the excellent quality of information provided by BCA. Customers can find out precise and accurate information regarding their account mutation data. It can be concluded through the questionnaire that the majority of respondents strongly agree with the e-service machine displaying the latest transaction data.

Regarding transaction service procedures on e-service machines, the questionnaire results showed that 79 people, or 51.3%, strongly agreed with service procedures in the transaction process on BCA KCP Dinoyo e-service machines. Service procedures are one indicator of service quality in digital banking services because they show that the banking service system provides efficient and effective services in its operational system. Service procedure indicators make it easier for customers to carry out transactions on e-service machines with the concept of independent transactions (self-service) so that customers will not experience problems with the procedures for using e-service machines. This shows that BCA KCP Dinoyo can provide good-quality information. Based on the questionnaire, most respondents strongly agreed with the service procedures for e-service machines.

The results of the questionnaire regarding transaction data according to needs on the e-service machine showed that 76 people, or 49.4%, strongly agreed with the BCA KCP Dinoyo e-service machine displaying transaction data according to customer needs. Transaction data according to needs indicates the quality of information from the quality of digital banking services. This is because the data displayed on the e-service machine matches the data required by the customer so that it can be helped in fulfilling customer transactions. On the e-service machine, customers can select the required transactions and fill in the data accordingly. The system on the e-service machine will automatically display the transaction data they are looking for. This shows the effectiveness and efficiency of the e-service machine. Based on the questionnaire, most respondents strongly agreed that the e-service machine should display data as needed.

Meanwhile, the results of the questionnaire regarding trustworthy transaction data on e-service machines showed that 76 people, or 49.4%, strongly agreed that the BCA KCP Dinoyo e-service machine displayed trustworthy transaction data. Reliable transaction data indicates the quality of information from the quality of digital banking services. This shows the truth and accuracy of the data on the e-service machine. The e-service machine displays data on account transfer transactions carried out by customers via the account book print menu, showing suitability and accuracy. This shows that the e-service machine's working system is accurate and efficient. From the questionnaire results, it can be concluded that most respondents strongly agree that transaction data can be trusted on e-service machines.

Information quality indicators are crucial in measuring the quality of e-banking services in the banking sector. Information quality refers to the accuracy, timeliness, relevance, and clarity of information provided to customers via e-banking platforms. Customers rely on accurate information to make the right financial decisions. For example, account balances that are updated in real-time, complete and correct transaction information, and transparent rates or fees. The information provided must be updated promptly. Customers want instant access to the latest information about their

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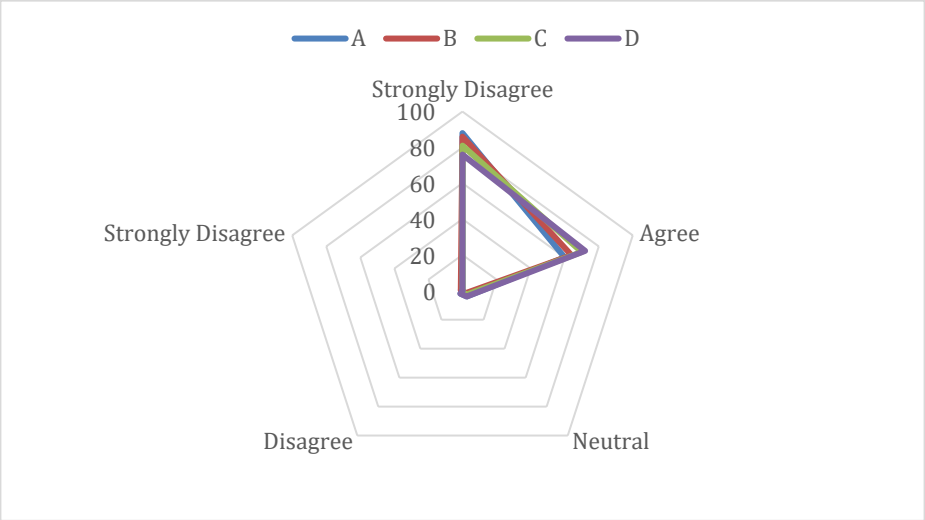
transactions, changes in account conditions, or information on new products and services that may be relevant to them.

Easy of Use of E-Service Machine

Ease of Use is the next indicator to measure e-service quality. The four questions asked were (A) the Operational system on the e-service machine, (B) the Language of instruction on the e-service machine, (C) the Type and size of letters on the e-service machine, and (D) the Independent use of the e-service machine.



Source: Authors (2024)

Figure 5. Ease of Use E-Service Machine

The questionnaire results in Figure 5 regarding the ease of use of the e-service machine showed that 88 people, or 57.1%, very easily understood the operational system of the BCA KCP Dinoyo e-service machine. The operational system of e-service machines indicates the convenience and quality of digital banking services. This allows customers to carry out transactions easily because of the simple operational system of the e-service machine. Customers carry out transactions on e-service machines independently. Therefore, BCA designed a simple operational system with service procedures so customers can easily understand them. Most respondents' responses to the e-service machine operational system are straightforward to understand from the questionnaire.

Regarding the language of instruction on the BCA KCP Dinoyo e-service machine, the questionnaire results showed that 86 people, or 55.8%, very easily understood the language of instruction in Indonesian on the e-service machine. The language of instruction is considered an indicator of the convenience and quality of digital banking services. This is because the e-service machine uses standard Indonesian as the language of instruction so that customers can understand every meaning of the transaction process. The use of Indonesian is intended so customers can easily use the e-service machine and understand the transaction methods carried out so that the transaction process runs efficiently. The questionnaire results show that most respondents' responses to the language of instruction on e-service machines are straightforward to understand.

The next question item is the type and size of letters on the BCA KCP Dinoyo e-service machine. The questionnaire results showed that 81 people, or 52.6% of the type and size of letters on the BCA KCP Dinoyo e-service machine were very clearly legible. The type and size of letters indicate convenience in the quality of digital banking services. This allows customers to read each transaction stage on the e-service machine. The e-service machine is designed to suit the customer. This is a concern for the e-service machine so that customers can use it clearly by paying attention to the size and type of letters to be read clearly and easily understood. From the questionnaire, it can be concluded that most respondents' responses regarding the type and size of e-service machine letters are very clearly legible.

Furthermore, regarding the independent use of the BCA KCP Dinoyo e-service machine, the questionnaire results showed that 76 people, or 49.4%, strongly agreed with the independent use of the BCA KCP Dinoyo e-service machine. Independent use is considered an indicator of the convenience and quality of digital banking services. This makes it easy for customers to access transactions according to their wishes and needs. Machines used independently by customers in branch office services are the latest innovation in the digital transformation carried out by BCA, which shows that BCA can provide customer needs with current technological developments. From the results of the questionnaire, it can be concluded that most respondents strongly agree with using e-service machines independently.

The ease-of-use indicator is one of the critical factors in measuring the quality of e-banking services in the banking sector. Ease of use refers to how easily and intuitively customers can use an e-banking platform to carry out transactions, access information, and take advantage of other features. Ease of use improves the overall customer experience. Customers will not feel frustrated or have difficulty using the e-banking platform, increasing their satisfaction with bank services. Thus, focusing on ease-of-use indicators as part of an e-service quality strategy is very important for banks to ensure that their e-banking services are safe and reliable, easy to use, and enjoyable for customers. Investments in developing intuitive user interfaces and seamless processes can help banks attract new customers, retain existing customers, and increase overall customer satisfaction.

Web Design of E-Service Machine

The final indicator used to measure e-service quality is web design. The four question items in this indicator are (A) the Transaction menu on the e-service machine, (B) Illustrations or pictures according to the type of transaction on the e-service machine, (C) animation-type illustrations or pictures on the e-service machine, and (D) a Color illustration or image on the e-service machine.

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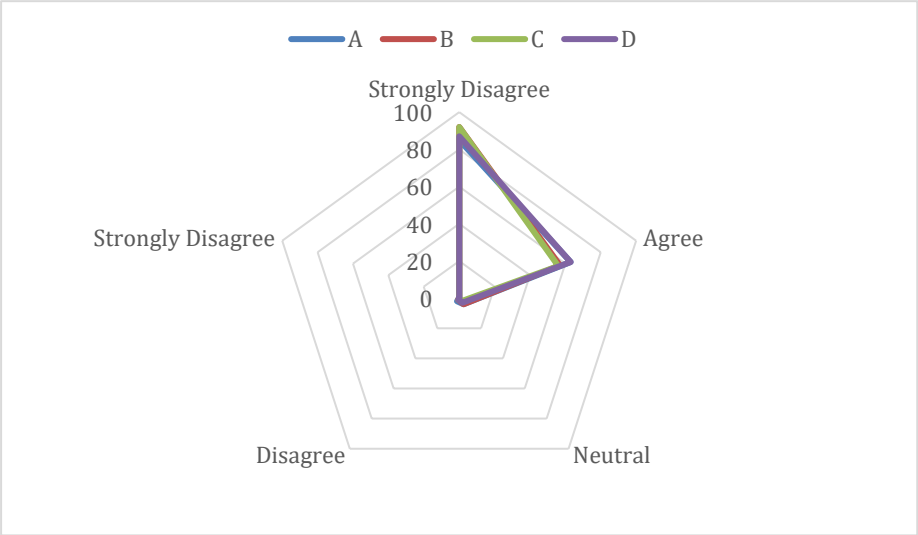

Source: Authors (2024)

Figure 6. Web Design E-Service Machine

The questionnaire results in Figure 6 regarding the web design e-service machine for the first question item showed that 85 people, or 55.2% of the BCA KCP Dinoyo e-service machines, had a beautiful transaction menu. The transaction menu is a display indicator of the quality of digital banking services. This is because the menu display influences customers' understanding of transactions. A beautiful transaction menu display will make customers comfortable in transactions and create convenience due to the appropriate placement of the transaction menu and an attractive menu design. The questionnaire results show that most respondents' responses to the e-service machine transaction menu were exciting.

Regarding illustrations or pictures according to the type of transaction on the BCA KCP Dinoyo e-service machine, the results of the questionnaire showed that 85 people, or 55.2%, strongly agreed with the illustration or picture according to the type of transaction on the BCA KCP Dinoyo e-service machine. Illustrations or images according to the type of transaction are considered to be an indicator of the quality of digital banking services. This is because the suitability of the icon with the transaction menu is an essential factor so that customers do not make mistakes when carrying out their transactions. The images on the e-service machine menu are adjusted to the type of transaction to facilitate and understand customers when using the e-service machine. Each picture is also equipped with information below it so that customers understand better and can operate the machine. The questionnaire results concluded that most respondents strongly agreed with illustrations or pictures according to the type of transaction on the e-service machine.

For illustrations or animation-type images on the BCA KCP Dinoyo e-service machine, the questionnaire results showed that 92 people, or 59.7% of the illustrations or images on the BCA KCP e-service machine, were animation-type. Illustrations or animated images are indicators of the quality of digital banking services. This is related to the beauty and aesthetic elements of the e-service machine menu so that it can provide customers

with pleasure and comfort when making transactions. The animation is made simple and ensures that customers understand the meaning of the images on the menu to make the transaction process more efficient. It can be concluded through the questionnaire that most respondents' responses to illustrations or animation-type images on e-service machines are fascinating.

Regarding the color of the illustrations or images on the e-service machine, the questionnaire results showed that 87 people, or 56.5% of the colors of the illustrations or images on the BCA KCP Dinoyo e-service machine, were beautiful. The illustration's color or image is considered an indicator of the quality of digital banking services. Adjusting the color of the writing must be considered so that customers do not have difficulty reading and understanding the transaction process. The e-service machine menu is dominated by blue, a characteristic of BCA. The coloring matches the white writing on the menu, creating a color balance that is pleasing to the eye and makes the transaction process more accessible. It can be concluded from the questionnaire that most respondents' responses to the color of the illustrations or images on the e-service machine are beautiful.

Web design indicators are essential in measuring the quality of e-banking services in the banking sector. Web design includes layout, navigation, visual aesthetics, and overall user experience when interacting with an e-banking platform. An attractive and professional web design makes an excellent first impression on potential customers. An aesthetic and easy-to-navigate appearance can increase the bank's attractiveness and trust. Consistency in visual design creates a unified and recognizable experience for users. This includes consistently using colors, fonts, and graphic elements across e-banking platforms.

CONCLUSION

The conclusion of the study indicates that most respondents are highly satisfied with the quality of digital customer service provided by the BCA KCP Dinoyo e-service machine. Key service quality indicators include reliability, responsiveness, security, privacy, information quality, ease of use, and web design. Customers agreed that the machine provided reliable transaction services, fast processing times, robust security features, accurate and up-to-date information, ease of use, and an attractive web design. All these factors contribute to fulfilling customer transaction needs and ensuring a satisfying service experience.

RECOMMENDATION

This research shows that the quality of digital customer service at BCA KCP Dinoyo is very satisfactory. To maintain this service, BCA KCP Dinoyo needs to provide regular training for customer service staff on using the latest digital tools and communication skills. BCA KCP Dinoyo needs to ensure that staff deeply understand the digital systems and banking products they handle. Apart from that, there is a need to evaluate and develop the quality of the service to reach customers who are not yet satisfied with the quality of the service. Evaluation can be carried out by establishing more intense communication with customers who feel they have problems with the transaction process on the e-service machine and providing more assistance and services so that customers feel helped that a

sense of trust grows in BCA KCP Dinoyo because it has responded quickly to customer dissatisfaction.

To improve digital service quality, BCA should optimize its e-service machines by implementing intuitive user interfaces with multilingual support, enhancing accessibility, and integrating real-time feedback systems to identify customer pain points. Deploying AI-powered chatbots with interactive designs can address customer queries effectively, while proactive educational initiatives such as tutorials and workshops can enhance customer understanding of digital services. Ensuring system reliability through regular updates, robust security protocols, and data-driven personalization will improve the user experience and protect sensitive data. Expanding the availability of e-service machines to underserved areas can promote financial inclusion and customer satisfaction. These measures, grounded in recent research, will strengthen customer trust, enhance operational efficiency, and position BCA as a leader in digital banking innovation.

The results of this research can be further developed for further research. Future researchers can use the same research framework but conduct research studies in different locations. Future research could also examine how the personalization of digital customer service contributes to customer satisfaction and loyalty. Also included is research related to personalization techniques, their impact on customer satisfaction, and the relationship between personalization and customer retention.

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