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Public Perceptions of Digital Banking Service Quality and the Relationship on Customer Satisfaction in Medan City, Indonesia

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ABSTRACT

This study aims to empirically examine the effect of the quality of digital banking services on customer satisfaction in Medan City. This research employs a quantitative approach, with customer satisfaction as the dependent variable and the dimensions of service quality—namely time efficiency, convenience, high accuracy, security, and reliability—as the independent variables. The sampling method used is non-probability sampling, with the sample size determined using a quota sampling technique. Data were measured using a Likert scale and collected through the distribution of questionnaires. The analysis method used is multiple regression analysis, accompanied by classical assumption testing using SPSS version 26. The results of the analysis show that all independent variables have positive and significant regression coefficients. Therefore, it can be concluded that the independent variables—time efficiency, convenience, high accuracy, security, and reliability—positively influence customer satisfaction, with the convenience variable having the strongest effect among them.

Keywords: Service Digitization, Service Quality, Time Efficiency, Convenience, Accuracy Level, Ease, Security, Reliability.

I. Introduction

Digitalization transforms information, data, or activities that were originally analog or non-digital into digital form. In information technology, digitalization refers to using digital tools such as computers, software, and networks to collect, store, and process data electronically, allowing information or data to be accessed, stored, and shared more easily and efficiently. This transformation can enhance efficiency and productivity across various sectors. Digitalization, or digital transformation, is the adoption and application of digital technology within an organization to create or modify products, services, and operations by converting existing business processes into digital formats (Warner and Maximilian, 2019). Among the most enthusiastic adopters of service digitalization are



organizations in the banking sector. Digitalized services are expected to reduce operational costs over time while providing better service to consumers, increasing customer satisfaction.

Digitalizing banking services and products is key to moving toward a cashless society. In such a society, financial transactions for both business and personal use are conducted through the transformation of digital information, represented in the form of electronic money, rather than using physical cash (Kitamura, 2022). Globally, non-cash transactions utilizing digital transaction methods for recording, managing, and exchanging currencies—whether in international trade, investment, or daily life—have increasingly replaced traditional cash-based transactions (Kai-Lewis and Abimbola, 2016). Digitalizing banking services is a hallmark of the Industry 4.0 era, which is reshaping the banking sector. Information technology, computing, and telecommunications advancements have enabled seamless connectivity between networks, resulting in integrated banking services. This transformation minimizes physical, time, and spatial limitations, allowing banks to extend services even to remote areas, thus improving financial inclusion and customer service (Wirtz et al., 2018).

The implementation of digitalization in banking began with the concept of e-banking, also known as internet banking, which encompasses activities such as making transactions, payments, and other banking operations via the internet through the bank's official website. Banks equipped with digital platforms can typically carry out nearly all banking functions—including account opening, transfers, deposits, and account closure—via smartphones or other electronic devices, without requiring physical presence at a bank branch (Financial Services Authority Regulation No. 12 of 2021). In Indonesia, although still relatively new, the adoption of digital transactions has skyrocketed, with a reported increase of 1,556 percent between 2017 and 2020. Financial and business transactions through electronic systems reached IDR 786.35 trillion in 2021, a 55.73 percent increase from the previous year's IDR 504.96 trillion (Bank Indonesia Report, 2021). In line with advancements in computer-based information system technology, business actors, including those in the banking industry, continue to innovate by developing various applications to improve service quality and customer experience.

The Indonesian government further reinforces the role of digitalization in banking through the Financial Services Authority (OJK) Regulation No. 12/POJK.03/2018 regarding the Implementation of Digital Banking Services by Commercial Banks. The regulation defines digital banking services as electronic banking services developed by optimizing customer data to serve customers more quickly, efficiently, and according to their needs, while allowing customers to operate independently with attention to security. In the banking system, digitalization is no longer optional but has become necessary to ensure competitiveness and enhance financial performance. Despite its many advantages, digitalizing banking services and products also presents several risks (Renn, Beier, and Schweizer, 2021). These include digital literacy, data security, promotion strategies, internet infrastructure, and privacy issues. Digitalization is also considered a strategic approach to enhancing the competitiveness of banking institutions. It has had a transformative impact on economic activities, particularly in the financial and banking sectors. The digitization of financial services has disrupted conventional banking practices, driven by growing demand for fast, efficient, and secure services and the rising expectations of tech-savvy consumers. One of the notable benefits of digital banking services is improved customer satisfaction. Customer satisfaction is shaped by consumers' evaluation of their service experience. Based on the theory of expectations and experience, a study in the communication sector found that service digitalization contributes positively to customer satisfaction (Jassim Al Awadhia et al., 2021). Similarly, research employing multiple regression analysis on the impact of digital marketing on customer

satisfaction found that digitalization has a significant and positive influence on satisfaction (Awosoji, 2021).

Digitalization offers substantial benefits for organizations, management, and consumers. It helps banks reduce operational costs, enhance transaction security, and provide more personalized and responsive services (Akyuwen, 2020). However, it must be acknowledged that convenience alone is insufficient to determine customer satisfaction. Satisfaction is influenced by multiple factors, one of which is service quality. Research by Satpathy (2020), which measured six service quality dimensions, reported that accuracy and security had stronger correlations with satisfaction than other dimensions such as fiscal responsibility, reliability, responsiveness, and convenience. This study examines the effect of various quality dimensions in digitalized banking services on customer satisfaction. It focuses on how each dimension of e-service quality influences customer experience. Such topics remain underexplored, especially concerning small depositors who engage in regular transactions of relatively low nominal value. It is widely believed that improving the quality of digital services will enhance overall service quality, positively affecting customer satisfaction. This study seeks to determine the significance of these effects. To date, most research on service quality relies on the five SERVQUAL dimensions developed by Parasuraman et al. (1980) and Zeithaml et al. (1985). Barnes and Vidgen (2020) later introduced a WebQual model for measuring electronic service quality. Furthermore, Parasuraman et al. (2005) developed a more complex model known as E-S-QUAL, tailored for online marketing in the consumer goods sector. Lee and Lin (2005) proposed four dimensions—website design, reliability, responsiveness, and trustworthiness—affecting overall service quality in online marketing. Ladhari (2010) identified six dimensions in online service quality: reliability, responsiveness, web design, convenience, usability, security, and information quality. Satpathy et al. (2020) proposed six dimensions of digital banking services: ease and convenience, responsiveness, accuracy, security, reliability, and efficiency. While multiple factors may influence satisfaction, this study assumes that the quality of digitalized banking services is a primary determinant. Because service quality is a subjective and context-dependent concept, it is essential to acknowledge that the relevance of each quality dimension may vary depending on context and technical factors. In this study, the dimensions considered include time efficiency, convenience, high accuracy, security, and reliability. Additionally, internet network quality is included to evaluate the impact of these digital service dimensions on customer satisfaction among banking customers in Medan City.

II. Literature Review and Hypothesis Development

2.1. Technology Acceptance Model (TAM)

In general, the introduction of new technology brings various changes to society. It often begins with resistance and gradual adaptation, as the latest technology disrupts established routines and comfort zones. Eventually, it becomes integrated into the culture of society. The process of public or consumer acceptance of new technology has long been a subject of academic study. The Technology Acceptance Model (TAM) is a widely accepted framework used by companies that adopt new technologies and innovative solutions (Tran et al., 2023). TAM explains how the public accepts specific technologies, such as digitalization. It is generally used to predict or describe the relationship between humans and technology. According to TAM, when users are introduced to a new technology, several

factors influence their decisions regarding how, when, and why they choose to use it. According to Davis (1989), two key factors determine the acceptance of a technology:

- a. Perceived Usefulness (PU) refers to the degree to which a person believes using a particular technology will enhance their performance. This includes working faster, improving productivity, increasing effectiveness, and simplifying tasks.
- b. Perceived Ease of Use (PEOU) refers to the extent to which a person believes using the technology will require minimal effort. It includes ease of learning, clarity, simplicity, and application.

These two factors are evident in digital banking services, where digitalization aims to provide customers maximum usefulness and convenience.

2.2. Digitization of Banking Services

Digital banking integrates digital technology into all aspects of the banking sector (Vial, 2019). The digitization of banking services refers to the transformation of traditional banking services into digitally driven processes, structured within an internal and external network of an organization or company. Digitalization changes the systems that deliver services and transforms the banking products, shifting from physical cash transactions to data-driven online financial transactions. Digitization allows customers to carry out various activities such as accessing account information, transferring funds, making online purchases, and paying bills quickly and easily. According to technology adoption theory, digitalization involves the process by which individuals or organizations embrace a new technology. In banking, customers adopt software, applications, or digital platforms to conduct their transactions. The benefits of digitizing banking services are significant for both institutions and consumers. These include time efficiency, convenience, high accuracy, security, and reliability. Digital banking (electronic banking (e-banking) or internet banking) involves using electronic and telecommunication networks to provide various value-added services to bank customers. It utilizes the internet, smartphones, and other electronic devices to deliver traditional banking services, such as checking account balances, printing reports, transferring funds, and making bill payments. These services can be accessed without visiting a bank branch, thus replacing conventional or traditional banking systems (Mukherjee and Nath, 2003).

Based on TAM (Davis, 1989), users are more likely to accept and continue using digital banking platforms if they believe these systems offer flexibility, ease of access to information, and fast, customer-friendly transactions. This helps banks reduce service time, enhance convenience, and improve customer satisfaction through efficient and accessible digital platforms. Digital transformation in banking is aligned with the dynamic nature of financial services, where innovation facilitates better connectivity between banks and customers. It contributes to the value and growth of financial institutions, enabling them to extend services to geographically remote areas as long as internet access is available. Quick and effective delivery of digital banking services saves time for both customers and banks. It also allows for developing banking products that are more tailored to customers' needs, offering greater security and convenience. Digital transformation also helps banks reduce costs and simplify operational processes. The digitization of services enhances accessibility and improves the overall customer experience (Diener and Špacek, 2021). Most banking transactions can now be completed online, eliminating the need for customers to visit a bank physically. Furthermore, digital banking reduces

document management costs and allows transactions anytime and anywhere, regardless of time constraints.

2.3. Consumer Satisfaction

In the marketing management literature, consumer satisfaction has consistently been a topic of great interest. One definition describes satisfaction as a cognitive and affective response after a purchase (Oliver, 1980). In general, the study of consumer satisfaction focuses on two areas: the antecedents or causes of satisfaction, and the consequences that result from it. Research on the antecedents of consumer satisfaction has been conducted from various perspectives and approaches. There are three main perspectives in consumer satisfaction: psychological, physical, and normative. Although these perspectives differ, most literature emphasizes two primary constructs: (a) expectations before purchasing or using a product, and (b) the consumer's perception of the product's performance after consumption. Therefore, analyses of consumer satisfaction typically involve evaluating the experience before and after consumption. Customer expectations describe what consumers believe or hope a product will do. It is understood that consumers form different types of expectations when anticipating a product's performance. Researchers have identified several types of consumer expectations. Miller (1977) proposed four types: ideal expectations, expected expectations, minimum tolerable expectations, and desirable expectations.

However, some critics have questioned why consumers would expect only the minimum, and Miller did not clarify how such expectations are formed. Other perspectives suggest additional expectations, including cost, product attributes, benefits, and social value (Day, 1977). The normative perspective (Olson and Dover, 1976) assumes consumers rely on norms and values when forming expectations. Customers are thought to evaluate products based on these norms and assign specific attributes influencing their expectations. Further research shows that consumer satisfaction is influenced by both cognitive and affective components, which interact over time to shape overall satisfaction (Homburg et al., 2006). Based on these insights, satisfaction can be understood as the result of comparing perceived rewards and the costs incurred, evaluated against the consumer's initial expectations. In essence, digitizing banking services offers several benefits to the public, including time efficiency, high transaction accuracy, data and transaction security, convenience, accessibility, connectivity, and monitoring. Digital banking significantly enhances the efficiency and effectiveness of conventional banking services by offering a more straightforward yet more sophisticated level of service.

2.4. Dimensions of e-Service Quality

Banking services and products are classified as services, which are generally intangible. Unlike physical goods, services have distinct characteristics. Most services cannot be standardized, are highly variable, and cannot be stored as inventory. In addition, they are typically consumed at the time they are produced. While the quality of physical products can be assessed using defined standards, service quality is more difficult to measure. Therefore, service quality is evaluated based on perceived quality, or how consumers experience the service. Numerous experts have studied service quality in the banking sector. The prevailing idea is that service quality is closely related to customer satisfaction and overall bank performance. Studies consistently show high-quality services increase customer satisfaction (Ting, 2004). Most research on banking service quality relies on quantitative methods, particularly the

SERVQUAL model developed by Parasuraman et al. (1988). This model includes five dimensions: tangibles, reliability, responsiveness, assurance, and empathy.

These dimensions were derived through factor analysis using a 22-item multi-scale measurement instrument. However, it is essential to note that most of these studies focus on conventional banking, where customers visit the bank and interact directly with service representatives. With the development of e-service applications such as e-banking, mobile banking, and internet banking, service quality measurement has also evolved. E-service quality assessments now include the full range of systems involved in digital banking, such as internet quality, telecommunications infrastructure, and computer networks within banking organizations. Measuring the quality of digital banking services consists of evaluating the digital platforms and the physical infrastructure supporting them. Parasuraman et al. (2005) revised the SERVQUAL model and proposed four key dimensions of e-service quality: efficiency, fulfillment, system availability, and privacy. This model is known as E-S-QUAL. Today's banking products are digital, and the distinction between banking products and other digital products is becoming increasingly blurred. Financial products have become commodified due to advancements in information technology, leading to greater automation and virtual representation of banking services.

III. Research Method

3.1. Types of Research

This study is quantitative causal research aimed at determining the significance of the influence of independent and moderator variables on the dependent variable.

3.2. Place and Time of Research

The research was conducted in Medan and its surrounding areas over three to four months.

3.3. Population and Research Sample

The population of this study consists of individual banking customers (small depositors) who use one of the mobile banking applications and have had at least one account for a minimum of one year. Companies or organizations (corporate depositors) are not included in the population of this study. The sampling technique used is non-probability sampling, with a target sample size of 500 respondents determined using the target sampling method.

3.4. Types of Data and Data Collection Techniques

The primary data collected in this study is primary data. The data were obtained through the distribution of questionnaires, which were shared online using Google Forms.

3.5. Measurement Scale and Data Analysis Techniques

The measurement scale used in this study is a Likert scale with positively worded statements, scored on a scale from one to five. The data were analyzed using multiple regression through Moderated Regression Analysis (MRA), ANOVA, and correlation techniques. The analysis began with a description of the respondents.

3.6. Research Instrument Testing

The research instruments in this study were tested using several methods, including validity testing, reliability testing, classical assumption testing, normality testing, multicollinearity testing, and heteroskedasticity testing.

3.7. Research Framework



Figure 1. Research Framework

3.8. Equation Model

The regression equation used in this study is as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + e$$

Explanation:

- X_1 : Time Efficiency
- X_2 : Comfort
- X_3 : High Accuracy
- X_4 : Convenience
- X_5 : Security
- X_6 : Reliability
- Y : Consumer Satisfaction
- a : Constant
- b : Regression Coefficients
- e : Error Term

IV. Results and Discussion

4.1. Research Instrument Testing

The data collection technique used in this study was through the distribution of questionnaires. Two hundred twenty-five questionnaires were distributed, 210 were returned, and 200 were correctly filled out and could be used for analysis. The instrument tests included a validity test (to assess the accuracy of the measurement tool) and a reliability test (to determine the consistency of measurement

results). These tests were carried out for variable X (Digital Service Quality Dimensions) and variable Y (Consumer Satisfaction). The Digital Service Quality Dimensions comprised 18 statement items, while the Consumer Satisfaction dimension regarding the digitalization of banking services consisted of six statement items.

4.1.1. Validity Test

The validity test aims to determine whether the questionnaire used in this study is a valid measurement tool. The validity of each statement item was assessed by comparing the calculated r-value with the r-table value. If the r-calculated value exceeds the r-table value, the statement is considered valid; otherwise, it is considered invalid. The r-table value at $\alpha = 0.05$ (5%) with degrees of freedom (df) = $n - 2 = 200 - 2 = 198$ in a two-tailed test is 0.1388.

1) Validity Test of Time Efficiency Variable (X1)

The validity test for the Time Efficiency variable (X1) measurement instrument was conducted using three statement items and a questionnaire distributed to 200 respondents. The r-table value is 0.1388, with $\alpha = 0.05$ (5%) and degrees of freedom (df) = 198. The results of the instrument validity test for each item of the Time Efficiency variable (X1) are presented in the following table:

Table 1. Validity Test of Time Efficiency (X1)

Statement	r-count	r-table	Status
X1.1	0.163	0.1388	Valid
X1.2	0.433	0.1388	
X1.3	0.775	0.1388	

2) Validity Test of the Convenience Variable (X2)

The validity test for the Convenience variable (X2) measurement instrument was conducted using three statement items and a questionnaire distributed to 200 respondents. The r-table value is 0.1388, with $\alpha = 0.05$ (5%) and degrees of freedom (df) = 198. The results of the instrument validity test for each item of the Convenience variable (X2) are shown in the following table:

Table 2. Validity Test of Convenience (X2)

Statement	r-count	r-table	Status
X2.1	0.516	0.1388	Valid
X2.2	0.844	0.1388	
X2.3	0.573	0.1388	

3) Validity Test of the High Accuracy Variable (X3)

The validity test for the High Accuracy variable (X3) measurement instrument was conducted using four statement items and a questionnaire distributed to 200 respondents. The r-table value is 0.1388, with $\alpha = 0.05$ (5%) and degrees of freedom (df) = 198. The results of the instrument validity test for each item of the High Accuracy variable (X3) are presented in the following table:

Table 3. Validity Test of High Accuracy (X3)

Statement	r-count	r-table	Status
X3.1	0.824	0.1388	Valid
X3.2	0.641	0.1388	
X3.3	0.935	0.1388	
X3.4	0.943	0.1388	

4) Validity Test of the Ease Variable (X4)

The validity test for the Ease variable (X4) measurement instrument was conducted using three statement items and a questionnaire distributed to 200 respondents. The r-table value is 0.1388, with $\alpha = 0.05$ (5%) and degrees of freedom (df) = 198. The results of the instrument validity test for each item of the Ease variable (X4) are presented in the following table:

Table 4. Validity Test of Ease (X4)

Statement	r-count	r-table	Status
X4.1	0.990	0.1388	Valid
X4.2	0.997	0.1388	
X4.3	0.997	0.1388	

5) Validity Test of the Security Variable (X5)

The validity test for the Security variable (X5) measurement instrument was conducted using three statement items and a questionnaire distributed to 200 respondents. The r-table value is 0.1388, with $\alpha = 0.05$ (5%) and degrees of freedom (df) = 198. The results of the instrument validity test for each item of the Security variable (X5) are shown in the following table:

Table 5. Validity Test of Security (X5)

Statement	r-count	r-table	Status
X5.1	0.987	0.1388	Valid
X5.2	0.877	0.1388	
X5.3	0.897	0.1388	

6) Validity Test of the Reliability Variable (X6)

The validity test for the Reliability variable (X6) measurement instrument was conducted using two statement items and a questionnaire distributed to 200 respondents. The r-table value is 0.1388, with $\alpha = 0.05$ (5%) and degrees of freedom (df) = 198. The results of the instrument validity test for each item of the Reliability variable (X6) are presented in the following table:

Table 6. Validity Test of Reliability (X6)

Statement	r-count	r-table	Status
X6.1	0.976	0.1388	Valid
X6.2	0.976	0.1388	

7) Validity Test of the Consumer Satisfaction Variable (Y)

The validity test for the questionnaire instrument measuring the Consumer Satisfaction variable (Y) in the context of banking service digitalization was conducted using six statement items with a sample of 200 respondents. The r-table value is 0.1388, with $\alpha = 0.05$ (5%) and degrees of freedom (df) = 198. The results of the instrument validity test for each item of the Consumer Satisfaction variable (Y) are presented in the following table:

Table 7. Validity Test of Consumer Satisfaction (Y)

Statement	r-count	r-table	Status
Y1.1	0.498	0.1388	Valid
Y1.2	0.582	0.1388	
Y1.3	0.647	0.1388	
Y1.4	0.663	0.1388	
Y1.5	0.631	0.1388	
Y1.6	0.706	0.1388	

4.1.2. Reliability Test

The reliability test determines the consistency or reliability of the research instrument or questionnaire used for data collection. The method used in this study to assess reliability is the Cronbach's Alpha coefficient, with the following criteria:

- a. If the Cronbach's Alpha coefficient value is greater than the significance level of 0.60, then the instrument or questionnaire is considered reliable.
- b. If the Cronbach's Alpha coefficient value is less than the significance level of 0.60, then the instrument or questionnaire is considered unreliable.

The reliability test results for the questionnaire in this study are presented in the following tables.

1) Time Efficiency Reliability Test (X1)

Table 8. Time Efficiency Reliability Test (X1)

Reliability Statistics	
Cronbach's Alpha	N of Items
.631	3

Based on Table 8, the reliability test results on three items measuring the Time Efficiency variable (X1) show that all three items are declared reliable since the Cronbach's Alpha coefficient is 0.631, which is greater than 0.60.

2) Comfort Reliability Test (X2)

Table 9. Comfort Reliability Test (X2)

Reliability Statistics	
Cronbach's Alpha	N of Items

.793	3
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As shown in Table 9, the reliability test results for the three items measuring the Comfort variable (X2) indicate that the items are reliable because the Cronbach's Alpha coefficient is 0.793, which exceeds the threshold of 0.60.

3) High Accuracy Level Reliability Test (X3)

Table 10. High Accuracy Level Reliability Test (X3)

Reliability Statistics	
Cronbach's Alpha	N of Items
.927	4

From Table 10 above, showing the results of the reliability test on four statement items that measure the Accuracy Level variable (X3), it is decided that the three statement items of the Time Efficiency variable (X3) are declared reliable because the value of the Cronbach's Alpha coefficient obtained is 0.927. (Cronbach's Alpha: 0.927 > 0.60).

4) Ease Reliability Test (X4)

Table 11. Ease Reliability Test (x4)

Reliability Statistics	
Cronbach's Alpha	N of Items
.998	3

The explanation of Table 11 shows the results of the reliability test on three statement items that measure the Ease variable (X4), so it is known that the three statement items of the Convenience variable (X4) are declared reliable because the value of the Cronbach's Alpha coefficient obtained is 0.998. (Cronbach's Alpha: 0.998 > 0.60)

5) Security Reliability Test (X5)

Table 12. Security Reliability Test (X5)

Reliability Statistics	
Cronbach's Alpha	N of Items
.960	3

In Table 12, showing the results of the reliability test on three statement items that measure the Security variable (X5), it is known that the three statement items of the Security variable (X5) were decided to be reliable because the value of Cronbach's Alpha coefficient obtained was 0.960. (Cronbach's Alpha: 0.960 > 0.60)

6) Reliability Test (X6)

Table 13. Reliability Test (X6)

Reliability Statistics	
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Cronbach's Alpha	N of Items
.988	2

Table 13 shows the reliability test results for two statement items that measure the Reliability variable (X6). It is known that the two statement items of the Reliability variable (X6) are determined to be reliable because the value of Cronbach's Alpha coefficient obtained is 0.988. (Cronbach's Alpha: 0.988 > 0.60)

7) Consumer Satisfaction Reliability Test (Y)

Table 14. Service Quality Reliability Test (Y)

Reliability Statistics	
Cronbach's Alpha	N of Items
.841	6

Table 14 presents the results of the reliability test of six statement items that measure the Consumer Satisfaction (Y) variable, so it is known that the six statement items that measure the Consumer Satisfaction (Y) variable are declared reliable because the value of the Cronbach's Alpha coefficient obtained is 0.841. (Cronbach's Alpha: 0.841 > 0.60)

4.2. Description of Research Data

This section describes the data collected through questionnaires from 200 respondents. The collected data have been tabulated and presented as frequency and percentage tables without a narrative explanation. The Likert Scale is the measurement instrument, as explained in Chapter III. The questionnaires were distributed manually by assigning several enumerators to the most strategic locations. Respondents were selected randomly because they held a bank account at one of the banks in Medan City and were active in conducting transactions. The distribution of respondents based on bank account ownership is shown in the following table.

Table 15. Distribution of Respondents Based on Bank Account Ownership

Bank	Number	Percentage (%)
Bank BRI	58	30
Bank Mandiri	44	22
Bank BNI	36	18
BCA	30	15
BTN	20	10
Bank Sumut	12	6
Total	200	100

The tabulated results of the respondents' data based on statement items are presented in the tables below.

4.2.1. Distribution of Respondents on the Time Efficiency Dimension (X1)

The Time Efficiency dimension is measured using three statement items. Based on the data tabulation, the number and percentage of respondents' responses to each of the three statement items are as follows:

Table 16. Distribution of Respondents on the Three Time Efficiency Dimension Statements

Variable (X1)	Number of Respondents					Total	Percentage (%)
	STS (1)	D (2)	SA (3)	A (4)	S (5)		
X1.1	-	-	-	75(37,5%)	125(62,5%)	200	100%
X1.2	-	-	37(18,5%)	76(38,0%)	87(43,5%)		
X1.3	-	-	-	74(37,0%)	126(63,0%)		

Description:

- Strongly Disagree (STS)
- Disagree (D)
- Somewhat Agree (SA)
- Agree (A)
- Strongly Agree (S)

4.2.2. Distribution of Respondents on the Comfort Dimension (X2)

The Comfort dimension (X2) is measured using three statement items. Based on the data tabulation, the distribution of respondents' answers to the three statements is shown below:

Table 17. Distribution of Respondents on the Three Comfort Dimension Statements (X2)

Variable (X1)	Number of Respondents					Total	Percentage (%)
	STS (1)	D (2)	SA (3)	A (4)	S (5)		
X2.1	-	-	-	94(47,0%)	106(53,0%)	200	100%
X2.2	-	-	-	136(68,0%)	64(32,0%)		
X2.3	-	-	-	106(53,0%)	94(47,0%)		

4.2.3. Respondent Distribution for the High Accuracy Dimension (X3)

The high accuracy dimension is measured using four statement items. Based on the data tabulation, the number and percentage of respondents' answers to the statements under the High Accuracy dimension (X3) are presented in the following table 18:

Table 18. Distribution of Respondents for the High Accuracy Dimension (X3)

Variable (X1)	Number of Respondents					Total	Percentage (%)
	STS (1)	D (2)	SA (3)	A (4)	S (5)		
X3.1	-	-	5(2,5%)	104(52,0%)	91(45,5%)	200	100%
X3.2	-	-	-	80(40,0%)	120(60,0%)		
X3.3	-	-	-	116(58,0%)	84(42,0%)		

4.2.4. Respondent Distribution for the Ease Dimension (X4)

The ease dimension is measured using three statement items. Based on the data tabulation, the number and percentage of respondents' answers to the statements under the Ease dimension (X4) are presented in the table below:

Table 19. Distribution of Respondents for the Ease Dimension (X4)

Variable (X1)	Number of Respondents					Total	Percentage (%)
	STS (1)	D (2)	SA (3)	A (4)	S (5)		
X4.1	-	-	-	86(43,0%)	114(57,0%)	200	100%
X4.2	-	-	-	87(43,5%)	113(56,5%)		
X4.3	-	-	-	87(43,5%)	113(56,5%)		

4.2.5. Respondent Distribution for the Security Dimension (X5)

The security dimension is measured using three statement items. Based on the data tabulation, the number and percentage of respondents' answers to the Security dimension (X5) are shown in the following table:

Table 20. Distribution of Respondents for the Security Dimension (X5)

Variable (X1)	Number of Respondents					Total	Percentage (%)
	STS (1)	D (2)	SA (3)	A (4)	S (5)		
X5.1	-	-	-	88(44,0%)	116(56,0%)	200	100%
X5.2	-	-	-	88(44,0%)	116(56,0%)		
X5.3	-	-	-	88(44,0%)	116(56,0%)		

4.2.6. Respondent Distribution for the Reliability Dimension (X6)

The reliability dimension is measured using two statement items. The number and percentage of respondents' answers are presented in the following table:

Table 21. Distribution of Respondents for the Reliability Dimension (X6)

Variable (X1)	Number of Respondents					Total	Percentage (%)
	STS (1)	D (2)	SA (3)	A (4)	S (5)		
X6.1	-	-	-	140(70,0%)	60(30,0%)	200	100%
X6.2	-	-	-	140(70,0%)	60(30,0%)		

4.2.7. Respondent Distribution for Consumer Satisfaction (Y)

Consumer satisfaction with digital services is measured using six statement items. Based on data processing, the number and percentage of respondents' answers are presented in the table below:

Table 22. Distribution of Respondents for Consumer Satisfaction Statements (Y)

	Number of Respondents	Total	

Variable (X1)	STS (1)	D (2)	SA (3)	A (4)	S (5)		Percentage (%)
Y.1	-	-	-	98(49,0%)	102(51,0%)	200	100%
Y.2	-	-	-	123(61,5%)	77(38,5%)		
Y.3	-	-	-	111(55,5%)	89(44,5%)		
Y.4	-	-	-	49(24,5%)	151(75,5%)		
Y.5	-	-	-	68(34,0%)	132(66,0%)		
Y.6	-	-	-	113(56,5%)	87(43,5%)		

4.3. Classical Assumption Test

The classical assumptions used in this study consist of the Normality Test using the One-Sample Kolmogorov-Smirnov Test method quantitatively, the Histogram, the P-Plot Graph Normality Test, the Multicollinearity Test, and the Heteroskedasticity Test.

4.3.1. Normality Test

The first normality test uses the One-Sample Kolmogorov-Smirnov Test method. The results of the spraying are presented in the following table 23.

1) Kolmogorov Smirnov Normality Test

Table 23. Kolmogorov-Smirnov Normality Test

	Unstandardized Residual
N	200
Normal Parameters^{a,b}	
Mean	.0000000
Std. Deviation	.91963178
Most Extreme Differences	
Absolute	.150
Positive	.150
Negative	-.148
Test Statistic	.150
Asymp. Sig. (2-tailed)	.000 ^c

a. Test distribution is Normal

b. Calculated from data

c. Lilliefors Significance Correction

Table 23 shows that the data that has been collected is normally distributed because of the value of Asymp. Sig. (2-tailed)= 0.000 (<0.05)

2) Histogram Chart Normality Test

The normality test results using the histogram graph show that the collected data follows a normal distribution. The shape of the histogram is not skewed to the left or right and resembles a bell curve, indicating that the assumption of normality is met. See Figure 1.

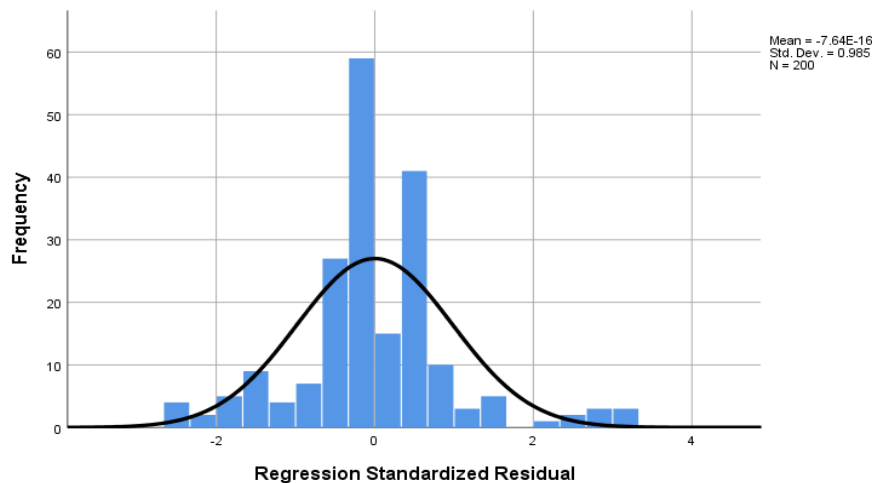


Figure 1. Normality Test Histogram Chart

3) Normality Test for P-Plot Graph

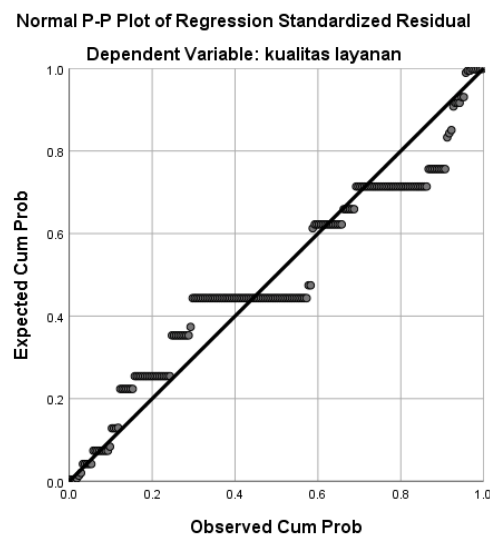


Figure 2. Normality Test for P-Plot Graph

Figure 2 describes the normality testing of data variability with the standard P-Plot test. It can be seen that the data in the form of dot-dot images are scattered near or around the diagonal lines of the linear equation. This means that the normality test has been fulfilled, or the data has been distributed normally and meets the normality assumptions.

4.3.2. Multicollinearity Test

Table 24. Multicollinearity Test

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF

1	(Constant)	.793	.281		2.824	.005		
	Time Efficiency	.443	.207	.262	2.135	.034	.062	6.077
	Comfort	1.356	.155	.775	8.775	.000	.120	9.314
	High Accuracy	.500	.064	.425	7.813	.000	.317	3.150
	Ease of Use	.366	.312	.252	1.172	.243	.020	9.141
	Security	.916	.320	.633	2.861	.005	.019	5.112
	Reliability	.524	.196	.222	2.674	.008	.137	7.321

a. Dependent Variable: Consumer Satisfaction

If the value of the Variance Inflation Factor (VIF) <10, it is considered to indicate that multicollinearity is not found among predictor variables or independent variables. Table 4.24 shows that all variable predictors have a Variance Inflation Factor (VIF) value <10. This means that in the regression equation model, there is no multicollinearity.

4.3.3. Heteroskedasticity Test

Heteroscedasticity tests were performed to determine whether there was a residual variance disparity from one observation to another in the regression model. This test is essential to ensure that the model being built is valid and accurate.

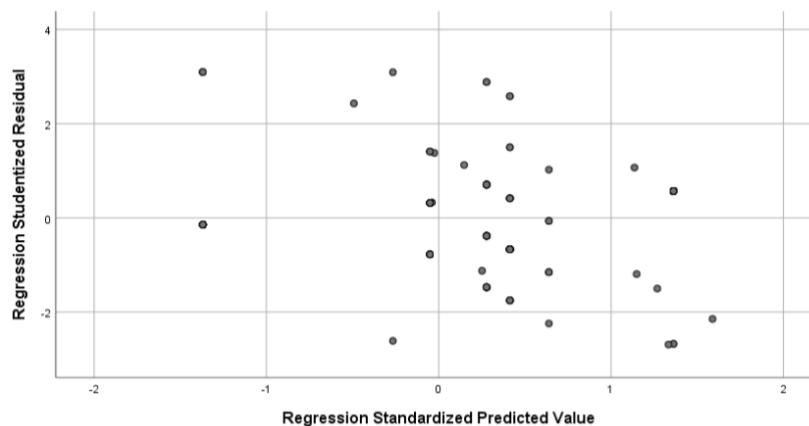


Figure 3 Heteroskedasticity Test

Based on Figure 3 above, it can be seen that the data points are scattered randomly and do not form a specific pattern. The data points are also spread above and below zero, showing no symptoms of heteroskedasticity in this study model.

4.4. Multiple Regression

4.4.1. Multiple Linear Regression Equation Model

The analysis of the influence of digital service quality dimensions on consumer satisfaction in the banking sector was conducted using multiple linear regression with the following model:

$$Y = 0.793 + 0.443X^1 + 1.356X^2 + 0.500X^3 + 0.366X^4 + 0.916X^5 + 0.524X$$

Description of Variables:

- a: Constant
- β : Regression coefficients
- e: Error term
- X_1 : Time Efficiency
- X_2 : Comfort
- X_3 : High Accuracy
- X_4 : Convenience
- X_5 : Security
- X_6 : Reliability
- Y: Consumer Satisfaction

The results of the multiple regression calculation using SPSS version 26 were obtained. The regression equation coefficient for each independent variable is listed in the following equation and table:

$$Y = 0.793 + 0.443X_1 + 1.356X_2 + 0.500X_3 + 0.366X_4 + 0.916X_5 + 0.524X_6$$

Table 25. The coefficient of the analysis of the linear equation of multiple regeneration

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.793	.281		2.824	.005
	Time Efficiency	.443	.207	-.262	-2.135	.034
	Comfort	1.356	.155	.775	8.775	.000
	High Accuracy	.500	.064	.425	7.813	.000
	Ease of Use	.366	.312	-.252	-1.172	.243
	Security	.916	.320	.633	2.861	.005
	Reliability	.524	.196	-.222	-2.674	.008

a. Dependent Variable: Consumer Satisfaction

The results of the calculation and Table 25 show that the regression coefficients of all predictor or independent variables have positive and significant effects on the dependent variable (Y).

4.4.2. Hypothesis Testing

1) T-Test (Partial Test)

The t-test, or partial test, was conducted to determine whether there was a significant difference between the means of the two research samples. This test was performed by comparing the calculated t-value with the t-table value at a significance level of <0.05. The t-test results in this study are presented in the table below.

Table 26. T-Test Results for Independent Variables

Variable	t-Value	t-Table	Sig.
Time Efficiency (X1)	10.519	1.65558	0.000
Comfort (X2)	10.823	1.65558	0.000
High Accuracy (X3)	10.232	1.65558	0.000
Convenience (X4)	10.808	1.65558	0.000
Security (X5)	10.712	1.65558	0.000
Reliability (X6)	11.202	1.65558	0.000

a. Dependent Variable: Consumer Satisfaction

2) F-Test (Simultaneous Test)

The F-test determines whether the variance ratio between variables is significantly different. The hypothesis states that no significant difference exists between the variance ratios in the sample data. This research used the Analysis of Variance (ANOVA) technique. The ANOVA results are presented in the table below. Based on the Sig. A value of 0.000, it can be concluded that there is a significant difference in the variance ratio of the sample tested. Therefore, it can be concluded that Time Efficiency (X1), Comfort (X2), High Accuracy (X3), Convenience (X4), Security (X5), and Reliability (X6) simultaneously have a positive and significant effect on consumer satisfaction.

Table 27. F-Test Results

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	760.481	6	126.747	145.349	.000 ^b
	Residual	168.299	193	.872		
	Total	928.780	198			

a. Dependent Variable: Consumer Satisfaction

b. Predictors: (Constant), Time Efficiency, Comfort, High Accuracy, Convenience, Security, Reliability

3) Coefficient of Determination (R²)

Table 28. Coefficient of Determination (R²) Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.905	0.819	0.813	0.934

a. Predictors: (Constant), Reliability, Convenience, Accuracy, Comfort, Efficiency, Security

b. Dependent Variable: Consumer Satisfaction

Based on the coefficient of determination test results, the R Square value of 0.819 indicates a strong positive relationship between the independent variables (Time Efficiency, Comfort, High Accuracy, Convenience, Security, and Reliability) and the dependent variable (Consumer Satisfaction).

This means that these independent variables can explain 81.9% of the variation in consumer satisfaction, while the remaining 18.1% is influenced by other variables not included in this study.

4.5. Discussion

4.5.1. The Effect of Time Efficiency (X1) on Consumer Satisfaction (Y)

Based on the results of multiple regression analysis, the coefficient value is positive at 0.366. The t-test results show that Time Efficiency (X1) has a significance level of 0.000, which is less than 0.05, and a t-count of 10.519, which is greater than the t-table value of 1.65558. Therefore, it can be concluded that time efficiency has a significant positive effect on consumer satisfaction. The findings indicate that time efficiency influences purchasing decisions. This supports the theory that time efficiency indicators include the speed of conducting transactions. In other words, the more time-efficient the service is, the higher its quality.

4.5.2. The Effect of Convenience (X2) on Consumer Satisfaction (Y)

The results of multiple regression analysis show that the coefficient value is positive at 0.271. The t-test results indicate that Convenience (X2) has a significance level of 0.000, which is less than 0.05, and a t-count of 10.823, which is greater than the t-table value of 1.65558. Thus, it can be concluded that convenience has a significant positive effect on consumer satisfaction. The findings show that convenience affects consumer satisfaction. The theoretical indicators of convenience include the ability to conduct transactions anytime and anywhere. This means that the more convenient the service, the higher the consumer satisfaction.

4.5.3. The Effect of High Accuracy Level (X3) on Consumer Satisfaction (Y)

The t-test results show that High Accuracy Level (X3) has a significance level of 0.000, which is less than 0.05, and a t-count of 10.232, which is greater than the t-table value of 1.65558. Therefore, it can be concluded that a high level of accuracy has a significant positive effect on consumer satisfaction. The findings show that accuracy influences purchasing decisions. The theoretical indicators of accuracy include data conformity and the fulfillment of expected transactions. The higher the level of accuracy, the greater the consumer satisfaction.

4.5.4. The Effect of Simplicity (X4) on Consumer Satisfaction (Y)

The t-test results show that Simplicity (X4) has a significance level of 0.000, which is less than 0.05, and a t-count of 10.808, which is greater than the t-table value of 1.65558. Thus, it can be concluded that simplicity has a significant positive effect on consumer satisfaction. The findings indicate

that simplicity influences consumer satisfaction. The indicators include ease of downloading the application, simplicity of transaction procedures, and ease of checking personal needs. This shows that the easier the service is to use, the higher the quality of the service.

4.5.5. The Effect of Security (X5) on Consumer Satisfaction (Y)

The t-test results show that Security (X5) has a significance level of 0.000, which is less than 0.05, and a t-count of 10.712, which is greater than the t-table value of 1.65558. It can be concluded that security has a significant positive effect on consumer satisfaction. The results show that security influences purchasing decisions. The indicators used in this study include whether data is protected and not disseminated, consumer transaction data is securely stored, and personal information is not misused by any party. The better the security measures in place, the higher the level of consumer satisfaction.

4.5.6. The Effect of Reliability (X6) on Consumer Satisfaction (Y)

The t-test results show that Reliability (X6) has a significance level of 0.000, which is less than 0.05, and a t-count of 11.202, which is greater than the t-table value of 1.65558. It can be concluded that reliability has a significant positive effect on consumer satisfaction. The results of the coefficient of determination test (R^2) show a value of 0.677. This means that all independent variables (time efficiency, convenience, high accuracy level, simplicity, security, and reliability) explain 67.7% of the variation in consumer satisfaction. The remaining 32.3% is influenced by other variables not included in this study.

V. Conclusion

Based on the research results and discussion, the following conclusions can be drawn:

- a. Time Efficiency (X1) has a positive and significant effect on consumer satisfaction ($0.000 < 0.05$), with a t-calculated value of 10.519, which is greater than the t-table value of 1.65558. Therefore, H_0 is rejected, indicating that the time efficiency variable positively affects service quality. The validity test results showed calculated values greater than the table values ($0.788 > 0.1603$; $0.750 > 0.1603$; $0.812 > 0.1603$) with a significance level of 0.05, indicating that all statements are valid. The reliability test, based on Cronbach's Alpha coefficient of $0.683 > 0.60$, confirms that the research instrument is reliable. The normality test using the Kolmogorov-Smirnov method resulted in $0.200 > 0.05$, indicating that the data are normally distributed.
- b. Convenience (X2) has a positive and significant effect on consumer satisfaction ($0.000 < 0.05$), with a t-calculated value of $10.823 > 1.65558$. Thus, H_0 is rejected, indicating that the convenience variable positively affects service quality. Validity test values were ($0.685 > 0.1603$; $0.748 > 0.1603$; $0.834 > 0.1603$) with a 0.05 significance level, confirming that all statements are valid. The reliability test shows a Cronbach's Alpha of $0.623 > 0.60$, indicating reliability. The normality test value is $0.200 > 0.05$, showing a normal data distribution.
- c. High Accuracy Level (X3) shows a positive and significant influence on consumer satisfaction ($0.000 < 0.05$) with a t-calculated value of $10.232 > 1.65558$. Therefore, H_0 is rejected, meaning this variable has a positive effect. The validity test values ($0.729 > 0.1603$; $0.789 > 0.1603$; 0.880

- > 0.1603) indicate all statements are valid. The Cronbach's Alpha is $0.716 > 0.60$, confirming reliability. The Kolmogorov-Smirnov result of $0.200 > 0.05$ shows the data are normally distributed.
- d. Ease of Use (X4) has a positive and significant effect on consumer satisfaction ($0.000 < 0.05$), with a t-value of $10.808 > 1.65558$. Thus, H_0 is rejected, indicating a positive effect. Validity results ($0.715 > 0.1603$; $0.764 > 0.1603$; $0.835 > 0.1603$) support statement validity. Cronbach's Alpha is $0.658 > 0.60$, indicating reliability. The data are normally distributed ($0.200 > 0.05$).
 - e. Security (X5) shows a positive and significant effect on consumer satisfaction ($0.000 < 0.05$), with a t-value of $10.712 > 1.65558$. Hence, H_0 is rejected, indicating a positive impact on service quality. Validity results ($0.735 > 0.1603$; $0.733 > 0.1603$; $0.836 > 0.1603$) indicate valid statements. Reliability is confirmed with Cronbach's Alpha at $0.651 > 0.60$. The data are normally distributed ($0.200 > 0.05$).
 - f. Reliability (X6) has a significant positive effect on consumer satisfaction ($0.000 < 0.05$), with a t-value of $11.202 > 1.65558$. H_0 is rejected, indicating a positive impact on service quality. Validity values ($0.852 > 0.1603$; $0.845 > 0.1603$) confirm validity. Cronbach's Alpha is $0.611 > 0.60$, confirming reliability. Data are normally distributed ($0.200 > 0.05$).
 - g. The Simultaneous Test (F-test) reveals that Time Efficiency (X1), Convenience (X2), High Accuracy Level (X3), Ease of Use (X4), Security (X5), and Reliability (X6) collectively have a positive and significant influence on consumer satisfaction ($0.000 < 0.05$), with an F-value of $49.997 > 3.06$. Thus, H_0 is rejected. The coefficient of determination (R^2) is 0.677, indicating that 67.7% of the variance in service quality is explained by these independent variables, while the remaining 32.3% is influenced by other factors not included in this study.

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