

THE EFFECTS OF FACILITIES, INFORMATION SYSTEMS, AND INTEGRITY ON SERVICE SATISFACTION, WITH SERVICE QUALITY AS AN INTERVENING VARIABLE, AT THE BPS – STATISTICS BATAM MUNICIPALITY

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Abstract

High-quality public services are a key factor in ensuring user satisfaction. As a provider of statistical services, the Batam City Central Statistics Agency (BPS) is required to deliver services that are fast, convenient, accurate, and conducted with integrity to meet the needs of statistical data users. However, user satisfaction with these services is influenced by various factors, including facilities, information systems, integrity, and service quality. This study aims to analyze the influence of facilities, information systems, and integrity on service satisfaction, with service quality as an intervening variable at the Batam City BPS. This study employs a quantitative approach using a survey method. The study population consists of all users of statistical data services at the Batam City BPS, including those who receive services in person and those who access services through the official Batam City BPS website. The sampling technique used purposive sampling with a sample size of 100 respondents. Data were collected through the distribution of questionnaires using a five-point Likert scale and analyzed using the Structural Equation Modeling–Partial Least Squares (SEM-PLS) method with the assistance of SmartPLS 4 software. The results of the study indicate that facilities do not have a significant effect on service satisfaction or service quality. The information system does not have a significant direct effect on service satisfaction but has a positive and significant effect on service quality. Integrity has a positive and significant effect on both service satisfaction and service quality. Additionally, service quality has a positive and significant effect on service satisfaction. The results of the indirect effect tests indicate that facilities do not have a significant effect on service satisfaction through service quality. The information system has a significant effect on service satisfaction through service quality. Integrity has a significant effect on service satisfaction through service quality. This study concludes that user satisfaction with services at the Batam City BPS is more strongly influenced by service quality, which is supported by the integrity of civil servants and an effective information system. Therefore, efforts to improve service satisfaction should focus on strengthening the integrity of civil servants, developing a more optimal information system, and continuously improving service quality.

Keywords: Facilities, Information System, Integrity, Service Quality, Service Satisfaction, SEM-PLS

1. INTRODUCTION

In the city of Batam, the services provided by the Batam Central Statistics Agency (BPS Batam) play a strategic role, given the high demand for data to support dynamic regional development. Public satisfaction with the services provided is one of the key indicators used to evaluate performance and measure public satisfaction. Based on the results of the Batam City BPS Data Needs Survey (SKD) from year to year, the Batam City BPS Public Satisfaction Index for 2024 stands at 92.61, which means that satisfaction with the services provided by the Batam City BPS falls into the “Very Good” category. However, the index showed a decline of 2.08 points—dropping from 94.69 in 2023 to 92.61 in 2024—indicating that the public was slightly less satisfied with the services provided by BPS-Statistics Batam City in 2024 compared to the previous year:

Table Batam City Public Satisfaction Index (2021–2024)

Year	Satisfaction Index
2021	91,88
2022	94,77
2023	94,69
2024	92,61

Source : BPS – Statistics Batam Municipality, 2025

Public satisfaction with BPS services depends on the importance of those services to the consumers concerned. In other words, the importance of a service to a consumer will influence that consumer's level of satisfaction with the quality of that service. Satisfaction with the services provided by the Batam City BPS is also assessed in terms of the level of importance and the level of public satisfaction with the services, using gap analysis. This analysis illustrates the disparity between public expectations and the service performance at the BPS Batam City Integrated Statistical Service. Within this framework, efforts to improve service performance are undertaken to address these discrepancies. The table above reveals that the gaps are predominantly negative, though all values are close to zero.

Analysis of the Gap in Public Satisfaction with Services at BPS Batam City

No	Types of Services	Gap
1	Service information is available	-0,19
2	Simplified Service Requirements	-0,10
3	Simplicity of Procedures	-0,23
4	Appropriateness of the Completion Timeframe	-0,26
5	Cost-Effectiveness of Services	-0,03
6	Service Product Suitability	0,07
7	Facilities and Infrastructure	-0,13
8	Easy Access to Data Through Key Facilities	-0,23
9	Customer Service Representative's Response	0,00
10	Clarity of Information Provided by Online Service Representatives	0,06
11	Convenient Complaint Submission Process	-0,19
12	Ease of the Complaint Handling Process	0,00

Source : BPS – Statistics Batam Municipality, 2025

User satisfaction with statistical services is determined not only by the availability of statistical data, but also by the perceived quality of service throughout the service process. Factors such as service facilities, the statistical service information system, and the integrity of service staff are key aspects that influence users' perceptions of PST services. Adequate facilities provide comfort for users; a well-designed information system facilitates access to and utilization of data; and the integrity of service staff builds user trust in the BPS as a data provider:

Based on the background described above, the research questions identified in this study are as follows:

- 1) The Consumer Satisfaction Index (CSI) for 2024 declined compared to 2023, from 94.77 to 92.61. Although it remains in the "very satisfactory" category, this decline indicates a decrease in service users' perceived

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satisfaction with the performance of the Batam City BPS. This decline may indicate that statistical services have not consistently maintained service quality from year to year, particularly in meeting the increasingly diverse needs of data users.

- 2) Most service indicators have a negative gap value close to 0, indicating that the service received by users is still below expectations—although it is nearly in line with expectations, users are not yet fully satisfied. The largest negative gaps were found in the areas of timeliness of service (-0.26), ease of procedures (-0.23), ease of data access (-0.23), service information (-0.19), and complaint mechanisms (-0.19). This highlights the need for evaluation to improve service satisfaction and meet expectations.
- 3) Service facilities, as indicated by the negative gaps in infrastructure (-0.13) and access to key facilities (-0.23), suggest that service facilities—both physical and digital—do not yet fully support the smooth operation of service processes. This situation may affect user satisfaction levels.
- 4) In the information system, there is a negative gap in service information (-0.19) and data access through primary facilities (-0.23), indicating a need to improve the transparency, clarity, and completeness of service information.
- 5) The negative gap score for the “ease of use of the complaint mechanism” attribute (-0.19) indicates the need to improve the complaint mechanism so that it is easier to use, responds more quickly, and is more effective.
- 6) Online service information systems need to be continuously improved; although some online attributes result in a zero or positive gap, the negative gap in online data access indicates that the use of information technology needs to be optimized to support the speed and convenience of digital services.
- 7) Although the satisfaction score falls into the “very good” category, the downward trend in the IKK and the negative gap indicate that user satisfaction is not yet stable and still requires ongoing improvement

Based on the research variables—which consist of facilities, information systems, integrity, service quality, and service satisfaction at the Batam City BPS—the research questions in this study are as follows:

- 1) Do Facilities Affect Service Satisfaction at the Batam City BPS?
- 2) Does the Information System Affect Service Satisfaction at the Batam City BPS?
- 3) Does Integrity Affect Service Satisfaction at the Batam City BPS?
- 4) Does Service Quality Affect Service Satisfaction at the Batam City BPS?
- 5) Do facilities affect service quality at the Batam City BPS?
- 6) Does the information system affect service quality at the Batam City BPS?
- 7) Does service integrity affect service quality at the Batam City BPS?
- 8) Does service quality influence service satisfaction at the Batam City BPS?
- 9) Does the information system, as a component of service quality, influence service satisfaction at the Batam City BPS?
- 10) Does integrity, as a component of service quality, influence service satisfaction at the Batam City BPS?

This study is expected to provide both theoretical and practical benefits. Theoretically, this study contributes to the development of research on public service management, particularly regarding the influence of facilities, information systems, and integrity on service satisfaction through service quality as an intervening variable. Additionally, this study is expected to serve as a reference for future research in the fields of public service and statistical services. Practically, the results of this study are expected to serve as evaluation material for the Central Statistics Agency (BPS) of Batam City in improving the quality of Integrated Statistical Services through facility improvements, information system development, and strengthening the integrity of service staff. For users of statistical services, this study is expected to encourage improvements in service quality that are more effective, convenient, fast, and tailored to user needs. Furthermore, this study can also serve as a reference for future researchers conducting studies in the field of public services.

Service Satisfaction

Service satisfaction is the level of a user's feelings after comparing their expectations with the service performance they received. According to Kotler and Keller (2016:153), satisfaction is a person's feeling of pleasure or disappointment that arises after comparing their perceived service performance with their expectations. According to Gronroos (2007:73), service satisfaction is the result of a user's evaluation of the quality of service provided, both in terms of technical quality (service outcomes) and functional quality (how the service is delivered); furthermore, Oliver (1980) explains that satisfaction is formed through a process of confirmation between expectations and perceived performance.

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Based on various expert opinions, service satisfaction can be defined as the emotional state of a service user resulting from the evaluation of the user's expectations prior to receiving the service against the perceived service performance after the service is provided. In the context of services at the Batam City BPS, service satisfaction reflects users' assessment of the service's ability to meet their statistical data needs precisely, promptly, and accurately, whether through in-person (offline) services or digital (online) services. In this study, the factors influencing service satisfaction include facilities, information systems, integrity, and service quality. Facilities encompass both the physical infrastructure and technology that support service delivery; information systems relate to ease of access and transparency of information; integrity reflects the honesty and accountability of staff; and service quality is demonstrated through prompt, accurate, courteous, and professional service. Service Satisfaction Indicators. According to Kotler and Keller (2016:153–154) and Oliver (1980), these include: 1) User satisfaction with the service as a whole; 2) The extent to which the service meets user expectations; 3) Satisfaction with the service process; 4) Satisfaction with the service outcome; and 5) Satisfaction with the service outcome.

Facilities

According to Kotler and Keller (2016:386), facilities are part of the physical evidence used by service organizations to reinforce users' perceptions of service quality. According to Laudon and Laudon (2020:16), advances in information technology have transformed the way organizations deliver services to users through the use of computer-based information systems capable of improving efficiency, accessibility, and service quality. Meanwhile, O'Brien and Marakas (2017:32) state that information technology serves as supporting infrastructure that enables organizations to provide services electronically and in an integrated manner. Therefore, in the digital age, service facilities are no longer limited to physical resources but also include technology-based facilities such as websites, service applications, information systems, the internet, online consultation services, and digital information media that make it easier for users to access services quickly and efficiently.

Based on these experts' views, service facilities can be defined as all resources and infrastructure—both physical and information technology-based—provided by service providers to support the smooth operation of service processes and ensure user convenience. In the context of statistical services at the Batam City BPS, these facilities include both in-person (offline) service spaces and digital (online) service platforms. According to Tjiptonono (2015:43) and Lupiyoadi (2018:92), facilities can be measured using several indicators that reflect the availability and quality of service support infrastructure. In this study, facility indicators include: 1) Facility Completeness; 2)

Suitability and Adequacy of Facilities (Condition and Function of Facilities); 3) Comfort of Facilities; 4) Ease of Access to Facilities; 5) Availability of service complaint mechanisms.

Service Information System

According to Laudon and Laudon (2016:15), an information system is a set of interconnected components used to collect, process, store, and distribute information to support operational activities and services within an organization. According to O'Brien and Marakas (2017:4), a service information system is an organized combination of human resources, hardware, software, communication networks, and data used to generate information in order to support service activities for users. Dwiyanto (2018:90–92) states that public service information systems can take the form of administrative service information systems, public complaint information systems, and digital-based service information systems, which aim to improve transparency, accountability, and public satisfaction with public services.

Based on these various expert opinions, it can be concluded that information systems play a crucial role as the primary means of providing and distributing technology-based information quickly, accurately, and efficiently. For users of Batam City BPS data, information systems serve as the primary medium enabling users to access statistical data independently, without limitations of time or place. The importance of this information system is reflected in its ability to provide easy access, present clear and high-quality information, respond quickly to data requests, be supported by a stable network, and ensure the security of user data. Therefore, the better the quality of the information system used, the more effective it will be in meeting users' information needs, while simultaneously increasing trust and satisfaction in the use of statistical data. Based on this view, the information system in this study was evaluated using the following indicators: 1) Ease of access for users; 2) Smooth and stable network/Internet connection; 3) Clarity of the information displayed; 4) Speed of the system's response to requests; 5) System security.

Integrity

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According to Robbins and Judge (2017:113), integrity is the alignment between ethical values, moral principles, and an individual's behavior within an organization. In the context of service, integrity is reflected in the honesty and consistency of service providers when delivering services to users. Meanwhile, Lynn S. Paine explains that integrity relates to an individual's commitment to acting ethically and upholding the principles of justice and social responsibility (Paine, 1994: 15).

Based on the opinions of these experts, it can be concluded that integrity is the attitude and behavior of public service officials that reflect honesty, consistency, responsibility, compliance with norms and rules, and freedom from practices of accepting gratuities and illegal fees in the delivery of services to the public. Based on the experts' opinions outlined above, the indicators of integrity used in this study include: 1) Honesty in service delivery; 2) Refusal to accept gratuities in any form; 3) Refraining from extortion (pungli); 4) Commitment to the public interest; 5) Being fair and non-discriminatory.

Quality of Service

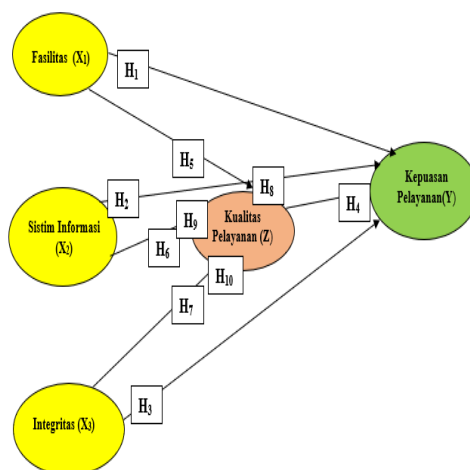
Kotler and Keller (2016:386) state that service quality is any action or performance that one party can offer to another, which is essentially intangible and does not result in ownership of anything. In line with this view, Tjiptono (2015:25) explains that service quality consists of activities, benefits, or satisfaction offered to users, the value of which is perceived by them.

The primary objective of service quality is to meet users' needs and expectations accurately, promptly, and satisfactorily.

Moenir (2015:41) notes that the purpose of service is to help the public obtain what they need in an easy manner and in accordance with applicable procedures. This is reinforced by Dwiyanto (2018:23), who states that the purpose of public service is to improve the welfare of the community through services that are effective, efficient, and responsive to the community's needs. Thus, good service is aimed at creating user satisfaction and trust. According to Parasuraman, Zeithaml & Berry (1988), indicators of service quality encompass the following five main dimensions: 1) Reliability; 2) Responsiveness; 3) Assurance; 4) Empathy; 5) Tangibles.

The relationships among the variables are illustrated in the Research Framework below

Research model diagram



2. RESEARCH METHODS

The research was conducted both offline and online. The offline portion of the study was carried out at the Batam City BPS office, specifically among service users who visited in person to obtain statistical services. Meanwhile, the online portion involved distributing questionnaires to users. The research period ran from November 2025 through April 2026.

The variables used in this study consist of three independent variables: Facilities (X1), Information Systems (X2), and Integrity (X3). Additionally, the intervening variable is Service Quality (Z), and the dependent variable is Service

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Satisfaction (Y). The population for this study consists of all users or recipients of statistical data services at the Batam City BPS, as well as those who access the services through the official Batam City BPS website. In this study, purposive sampling was employed by establishing specific criteria that the selected samples must meet; Sugiyono (2016:85). The criteria used for sampling were users of data services at the Batam City BPS.

The sample size for this study was determined using the Lemeshow formula. The use of this formula is based on the condition that the total population of digital service users—specifically users of the official Batam City BPS website—cannot be known with certainty (unknown population). Therefore, the actual number of digital service users cannot be determined precisely; consequently, the use of the Lemeshow formula is considered appropriate for determining the sample size in a study with an unknown population.

The Lemeshow formula is as follows: (Lemeshow, Hosmer, Klar & Lwanga, 1997)

$$n = \frac{Z_{1-\alpha/2}^2 P(1 - P)}{d^2}$$

Or it can be written in text format:

$$n = (Z_{1-\alpha/2}^2 \times P \times (1 - P)) / d^2$$

Description:

n = sample size

$Z_{1-\alpha/2}$ = the Z-value at a given confidence level (e.g., 1.96 for 95%)

P = estimated proportion of the population

d = margin of error

If $\alpha = 5\%$, $Z = 1.96$, $P = 0.5$, and $d = 0.1$, then:

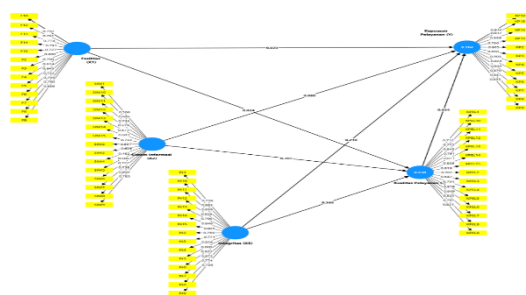
$$n = \frac{(1,96)^2 (0,5)(0,5)}{(0,1)^2} = 96,04 \approx 97$$

Therefore, the minimum sample size is 97 respondents, and in this study, it was set at 100 respondents who use data services at the Batam City BPS.

3. RESULTS AND DISCUSSION

The results of the outer model test showing the outer loading values using Smart PLS can be seen in the following figure:

Results of the Outer Model, Stage 1



Source: Smart PLS 2026,

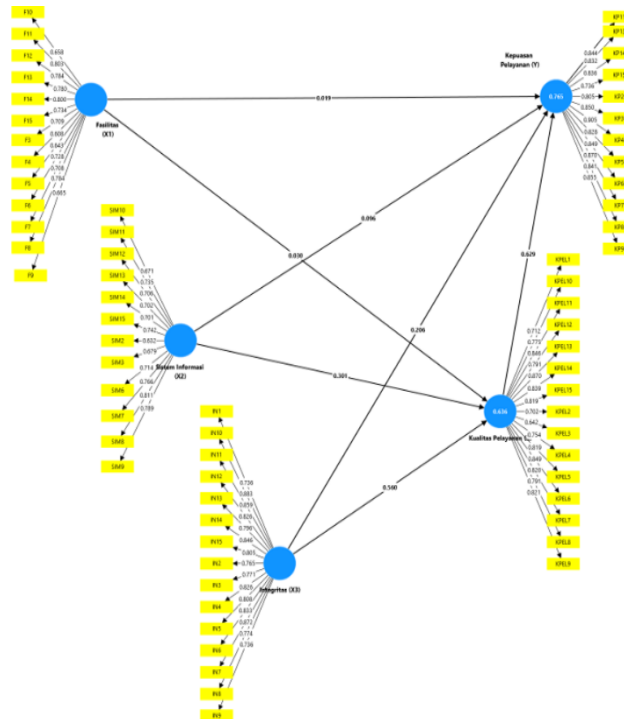
The figure above shows that not all variables have values greater than 0.7. According to Duryat (2021:109), if an outer loading value exceeds 0.7, it can be considered to meet the criteria for convergent validity. Meanwhile, outer loading values above 0.5 can still be retained because they are considered to have an adequate level of validity. Referring to these guidelines, the researcher eliminated (removed) indicators with outer loadings below 0.60 because they were deemed too low to contribute to the construct. Meanwhile, indicators in the range of 0.60 to 0.70 were retained in the model. The final results of this evaluation adjustment are presented in detail in the form of an outer model results table, in which all remaining indicators now meet the criteria for convergent validity, and the construct reliability status is deemed secure. Based on the data above, there are two items that did not demonstrate convergent

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validity: one item in the Facilities variable (X1)—specifically, F2—and three items in the Information Systems variable (X2)—namely, SIM1, SIM 4, and SIM 5.

Results of the Outer Model, Stage 2



Source: Primary data processed by the researcher using SmarPLS 4, June 2026

Table of Outer Model Results

	Fasilitas (X1)	Sistem Informasi (X2)	Integritas (X3)	Kualitas Pelayanan (Z)	Kepuasan Pelayanan (Y)
F3	0.734				
F4	0.709				
F5	0.608				
F6	0.643				
F7	0.728				
F8	0.708				
F9	0.784				
F10	0.658				
F11	0.803				
F12	0.784				
F13	0.780				
F14	0.800				
F15	0.658				
SIM2		0.632			
SIM3		0.679			
SIM6		0.714			
SIM7		0.766			
SIM8		0.811			
SIM9		0.789			
SIM10		0.671			
SIM11		0.735			

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	Fasilitas (X1)	Sistem Informasi (X2)	Integritas (X3)	Kualitas Pelayanan (Z)	Kepuasan Pelayanan (Y)
SIM12		0.706			
SIM13		0.702			
SIM14		0.701			
SIM15		0.742			
IN1			0.736		
IN2			0.765		
IN3			0.771		
IN4			0.826		
IN5			0.808		
IN6			0.833		
IN7			0.872		
IN8			0.774		
IN9			0.736		
IN10			0.883		
IN11			0.859		
IN12			0.826		
IN13			0.796		
IN14			0.846		
IN15			0.805		
KPEL1				0.712	
KPEL2				0.702	
KPEL3				0.642	
KPEL4				0.754	
KPEL5				0.819	
KPEL6				0.849	
KPEL7				0.820	
KPEL8				0.791	
KPEL9				0.821	
KPEL10				0.775	
KPEL11				0.845	
KPEL12				0.791	
KPEL13				0.871	
KPEL14				0.839	
KPEL15				0.819	
KP1					0.843
KP2					0.805
KP3					0.850
KP4					0.905
KP5					0.828
KP6					0.849
KP7					0.870
KP8					0.841
KP9					0.855
KP10					0.847
KP11					0.844
KP12					0.840
KP13					0.832
KP14					0.836
KP15					0.736

Source: Primary data processed by the researcher using SmarPLS 4, June 2026

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Average Variance Extracted (AVE) is a measure used to assess the convergent validity of a construct. According to Hair et al. (2021), a construct is considered to have convergent validity if it has an AVE value greater than 0,50.

Average Variance Extracted (AVE)Tabel

	AVE
Facilities (X1)	0.527
Integrity (X3)	0.657
Service Satisfaction (Y)	0.705
Service Quality (Z)	0.628
Information Systems (X2)	0.522

Source: Smart PLS, 2026

Based on the table above, the Average Variance Extracted (AVE) values for the variables Facilities (X1), Integrity (X3), Service Satisfaction (Y), Service Quality (Z), and Information Systems (X2) are 0.527, 0.657, 0.705, 0.628, and 0.522, respectively. All AVE values are greater than 0.50, so all constructs meet the criteria for convergent validity and are deemed valid for use in this study.

Heterotrait-Monotrait Ratio (HTMT)Tabel

	Heterotrait-monotrait ratio (HTMT)
Integrity (X3) <-> Facilities (X1)	0.604
Service Satisfaction (Y) <-> Facilities (X1)	0.567
Service Satisfaction (Y) <-> Integrity (X3)	0.769
Service Quality (Z) <-> Facilities (X1)	0.576
Service Quality (Z) <-> Integrity (X3)	0.777
Service Quality (Z) <-> Service Satisfaction (Y)	0.888
Information System (X2) <-> Facilities (X1)	0.736
Information System (X2) <-> Integrity (X3)	0.620
Information System (X2) <-> Service Satisfaction (Y)	0.668
Information System (X2) <-> Service Quality (Z)	0.690

Source: Primary data processed by the researcher using SmartPLS 4, June 2026

Based on the table above, all HTMT values are below 0.90. The highest HTMT value, 0.888, is found in the relationship between Service Quality (Z) and Service Satisfaction (Y). According to Hair et al. (2021), an HTMT value < 0.90 indicates that all constructs meet the criteria for discriminant validity. Thus, all variables in this study are deemed to have discriminant validity.

Construct ReliabilityTabel

	Cronbach's alpha	(rho_a)	(rho_c)
Facilities (X1)	0.925	0.937	0.935
Integrity (X3)	0.962	0.964	0.966
Service Satisfaction (Y)	0.970	0.971	0.973
Service Quality (Z)	0.957	0.958	0.962
Information Systems (X2)	0.916	0.921	0.929

Source: Smart PLS 2026

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Based on the table above, all variables have Cronbach's Alpha, ρ_A , and composite reliability values greater than 0.70. Thus, the variables Facilities (X1), Information Systems (X2), Integrity (X3), Service Quality (Z), and Service Satisfaction (Y) are deemed reliable and suitable for use in this study.

Iner Model Tabel

	<i>Facilities (X1)</i>	<i>Integrity (X3)</i>	<i>Service Satisfaction (Y)</i>	<i>Information Systems (X2)</i>	<i>Facilities (X1)</i>
Facilities (X1)			2.076	2.074	
Integrity (X3)			2.554	1.693	
Service Satisfaction (Y)					
Service Quality (Z)			2.745		
Information Systems (X2)			2.352	2.104	
Facilities (X1)			2.076	2.074	

Source : Smart PLS, 2026

Based on the table above, all Variance Inflation Factor (VIF) values are below 5.00, ranging from 1.693 to 2.745. According to Hair et al. (2021), VIF values less than 5.00 indicate that there are no issues of collinearity or multicollinearity among the variables in the research model. Thus, all research variables are deemed free of multicollinearity and suitable for further analysis.

R-Square (R²) Tabel

	<i>R Square</i>	<i>R Square Adjusted</i>
Service Satisfaction (Y)	0.765	0.756
Service Quality (Z)	0.636	0.624

Source: Smart PLS, 2026

Based on the table above, the R-squared value for the Service Satisfaction variable (Y) is 0.765. This indicates that 76.5% of the variation in Service Satisfaction can be explained by the variables Facilities (X1), Information System (X2), Integrity (X3), and Service Quality (Z), while the remaining 23.5% is explained by other variables outside the research model. Meanwhile, the R-Square value for the Service Quality (Z) variable is 0.636. This indicates that 63.6% of the variation in Service Quality can be explained by the variables Facilities (X1), Information Systems (X2), and Integrity (X3), while the remaining 36.4% is explained by other variables outside the research model. Thus, the R-Square values for the Service Satisfaction (Y) and Service Quality (Z) variables fall into the moderate to strong category, indicating that the research model has a good ability to explain the endogenous variables.

Direct effect Tabel

	Original Sample	Mean	STDEV	T Statistics	P Values
X1 -> Y	0.019	0.021	0.072	0.260	0.795
X2 -> Y	0.096	0.105	0.084	1.151	0.250

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X3 -> Y	0.206	0.203	0.088	2.335	0.020
Z -> Y	0.629	0.622	0.100	6.266	0.000
X1 -> Z	0.030	0.047	0.088	0.337	0.736
X2 -> Z	0.301	0.306	0.092	3.251	0.001
X3 -> Z	0.019	0.021	0.072	0.260	0.795

Source: Smart PLS, 2026

Based on the results of the direct effect test, it was found that the effect of facilities on service satisfaction had a path coefficient (original sample) of 0.019, indicating a positive relationship; the t-statistic was 0.260 and the p-value was $0.795 > 0.05$, so the relationship was not significant. The effect of the information system on service satisfaction has a path coefficient of 0.096, indicating a positive relationship; the t-statistic is 1.151 and the p-value is $0.250 > 0.05$, so it is not significant. Integrity (X3) on service satisfaction has a path coefficient of 0.206, indicating a positive relationship; the t-statistic is 2.335 and the p-value is $0.020 < 0.05$, so the relationship is significant. Furthermore, service quality's effect on service satisfaction has a path coefficient of 0.629, indicating a positive relationship; the t-statistic is 6.266 and the p-value is $0.000 < 0.05$, so service quality is significant for service satisfaction.

Regarding the relationship with the intervening variable, facilities have a path coefficient of 0.030, indicating a positive relationship; the t-statistic is 0.337 and the p-value is $0.736 > 0.05$, so facilities are not significant for service quality. The effect of the information system on service quality has a path coefficient of 0.301, indicating a positive relationship; the t-statistic is 3.251 and the p-value is $0.001 < 0.05$, so the information system has a significant effect on service quality. Furthermore, integrity has a path coefficient of 0.560, indicating a positive relationship; the t-statistic is 5.319 and the p-value is $0.000 < 0.05$, so integrity is significant for service quality.

Indirect effect Tabel

	Original	Mean	STD EV	T Statistics	P Values
X1 -> Z -> Y	0.019	0.028	0.055	0.343	0.732
X2 -> Z -> Y	0.189	0.192	0.070	2.709	0.007
X3 -> Z -> Y	0.352	0.341	0.087	4.069	0.000

Source Smart PLS, 2026

Based on the results of the indirect effect test, it was found that the effect of accessibility on service satisfaction through service quality had a path coefficient (original sample) of 0.019, indicating a positive relationship; the t-statistic was 0.343 and the p-value was $0.732 > 0.05$, making the relationship insignificant. Furthermore, the effect of the information system on service satisfaction through service quality has a path coefficient of 0.189, indicating a positive relationship; the t-statistic is 2.709 and the p-value is $0.007 < 0.05$, so it is significant. As for the effect of integrity on service satisfaction through service quality, it has a path coefficient of 0.352, indicating a positive relationship; the t-statistic is 4.069 and the p-value is $0.000 < 0.05$, so it is significant.

Facilities (X1) have an effect on Service Satisfaction (Y).

Based on the hypothesis test, the Facilities variable has a positive effect on service satisfaction with a path coefficient of 0.019. The effect of facilities on service satisfaction has a p-value of $0.795 > 0.05$. Therefore, H1 is rejected, meaning that Service Facilities (X1) do not have a significant effect on Service Satisfaction (Y). These findings indicate that when users receive data-related services at the Batam City BPS, the availability of facilities is not the primary factor determining their level of satisfaction.

Based on respondents' statements, data users tend to place greater emphasis on the quality of service provided by staff, such as speed, accuracy, and ease of obtaining data. Additionally, there are still some facilities that are perceived as not yet fully adequate in supporting the data search and access process; consequently, their contribution to enhancing service satisfaction has not yet been significantly evident. This study aligns with research by Rahmadani, Survival, and Wulandari (2025) on natural tourist destinations, which found that facilities do not have a positive or significant effect on tourist satisfaction. That study showed that user satisfaction is more influenced by the quality of service than by the available facilities.

The Information System (X2) influences Service Satisfaction (Y).

Based on the results of the hypothesis test, the information system has a positive effect on service satisfaction with a coefficient value of 0.096. The effect of the information system on service satisfaction has a p-value of $0.025 > 0.05$; therefore, H2 is rejected, meaning that the Information System (X1) does not have a significant effect on Service Satisfaction (Y). This indicates that the available information system has not yet been fully capable of satisfying service users.

Based on respondents' statements, there are still several obstacles experienced by users, such as unstable network connections, slow system access at certain times, and other technical issues that can hinder the process of searching for and downloading data. These conditions mean that the information system has not yet been able to provide an optimal service experience, so its impact on service satisfaction is not yet significantly evident. These findings are consistent with Metekohy's (2025) study, which found that system quality does not significantly affect user satisfaction with the Academic Information System (SIKAD). That study showed that user satisfaction is more influenced by the quality of information and the quality of service than by the quality of the system used.

Integrity (X3) influences Service Satisfaction (Y).

Based on the results of the hypothesis test, integrity has a positive effect on service satisfaction with a coefficient value of 0.206. Based on the hypothesis test results, a t-statistic of 2.335 and a p-value of 0.020 were obtained. The p-value is less than 0.05 ($0.020 < 0.05$), so H3 is accepted. Thus, Integrity (X3) has a positive and significant effect on Service Satisfaction (Y). The path coefficient (original sample) of 0.206 indicates that the higher the integrity of service staff, the higher the satisfaction of service users. These findings suggest that the higher the integrity of service staff, the higher the satisfaction of service users at the Batam City BPS.

Integrity is reflected in being honest, transparent, responsible, professional, and non-discriminatory when providing services to the public. These findings are consistent with the research by Wahyuni and Suryani (2023), which found that the integrity of public officials has a positive and significant effect on public satisfaction with public services. Integrity, demonstrated through honesty, transparency, responsibility, and professionalism, can increase public trust in the services provided.

Service Quality (Z) influences Service Satisfaction (Y).

The results of the study indicate that Service Quality (Z) has a positive and significant effect on Service Satisfaction (Y), with a path coefficient of 0.629, a t-statistic of 6.266, and a p-value of 0.000, which is less than 0.05 ($0.000 < 0.05$); therefore, H4 is accepted. These results indicate that every improvement in service quality increases service satisfaction by 0.629 units. The study's findings suggest that the better the service provided across these five dimensions, the higher the level of satisfaction among service users at the Batam City BPS.

These findings are consistent with the study by Siswadi, Muharam, and Hannan (2020) at the Bogor Agricultural University Library, which found that service quality has a positive and significant effect on customer satisfaction, with an effect coefficient of 0.11 and a t-statistic value of 7.45. Service quality in this study was measured across five dimensions: reliability and consistency of service (Reliability); speed and responsiveness of service (Responsiveness); trust and competence of staff (Assurance); attention and concern for users (Empathy); and facility conditions and appearance (Tangibles).

Facilities (X1) have an effect on Service Quality (Z)

Based on the results of the hypothesis testing, the path coefficient was 0.030, the t-statistic was 0.337, and the p-value was 0.736. Since the p-value is greater than 0.05, H5 is rejected. Thus, Facilities (X1) do not have a significant effect on Service Quality (Y) at the Batam City BPS. The research results indicate that Facilities do not significantly affect Service Quality. This suggests that the available facilities have not yet been able to optimally improve service

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quality. Based on respondents' feedback, one aspect that still needs improvement is the complaint handling system, where complaints or issues raised by users are not always addressed promptly. Although supporting service facilities are available, their effectiveness in helping resolve users' problems remains suboptimal. Therefore, the existence of these facilities has not yet made a significant contribution to improving service quality at the Batam City BPS. These research findings are inconsistent with the study by Suyitno (2018) titled "Analysis of the Influence of Service Quality, Pricing, and Facilities on Patient Satisfaction at the Malang Regency General Hospital." That study's results indicated that the "facilities" variable has a positive and significant influence on patient satisfaction.

The Information System (X2) influences Service Quality (Z).

The research results show that the Information System (X2) has a positive and significant effect on Service Quality (Z), with a path coefficient of 0.301, a t-statistic of 3.251, and a p-value of 0.001. A p-value less than 0.05 indicates that Hypothesis 6 is accepted. This means that the better the information system at the Batam City BPS, the higher the quality of service perceived by users of statistical services. At the Batam City BPS, the information system is implemented through the BPS website, digital statistical publications, online data request services, online statistical consultation services, and various applications supporting statistical services. The availability of an information system that is easily accessible, fast, accurate, and reliable helps users obtain statistical information more effectively, thereby improving the quality of service received by users of statistical services. Thus, the information system is a key factor in improving service quality at the BPS of Batam City. These findings align with the research by Ariani and Pambudi (2023) on public services in Sleman Regency, which found that the implementation of e-government through the Sleman Smart Apps had a positive and significant impact on the quality of public services, contributing 59.8%. Furthermore, Kosali's (2021) study in Plaju Ulu Village, Palembang City, also demonstrated that the implementation of e-government can improve the quality of public services through easier access to information, faster service delivery, and more efficient administrative processes.

Integrity (X3) influences Service Quality (Z)

Based on the results of the hypothesis testing, the path coefficient (Original Sample) was 0.560, the t-statistic was 5.319, and the p-value was 0.000. A p-value less than 0.05 indicates that H7 is accepted. Thus, Integrity (X3) has a positive and significant effect on Service Quality (Z). A coefficient value of 0.560 indicates that an increase in staff integrity will improve service quality by 56.0%. At the Batam City BPS, integrity is reflected in staff honesty when conveying statistical information, refraining from illegal fees, refusing gratuities, providing fair service without discrimination, and performing duties in accordance with applicable standard operating procedures. High integrity enhances service users' trust in staff and the services provided, thereby improving the perceived quality of service. These findings align with the study by Nurjannah and Syamsir (2022) conducted at the Population and Civil Registration Office (Disdukcapil) of Lima Puluh Kota Regency. The results of that study showed that employee integrity has a positive and significant effect on the quality of public services. Employees who demonstrate high integrity through honesty, accountability, commitment to their duties, and adherence to rules are able to provide better services to the public.

Facilities (X1) influence Service Satisfaction (Y) through Service Satisfaction (Z).

Based on the results of the indirect effect test, a coefficient of 0.019, a t-statistic of 0.343, and a p-value of 0.732 were obtained. Since the p-value is greater than 0.05, H8 is rejected. The research results indicate that facilities do not have a significant effect on service satisfaction through service quality. This suggests that service quality has not yet been able to serve as a strong mediator in explaining the relationship between facilities and service satisfaction. Based on the interview results, there are still several facilities that are not functioning optimally, particularly web-based facilities that experience disruptions at certain times, thereby hindering users from accessing information and obtaining the necessary data. Furthermore, the service area was assessed as not yet fully comfortable due to suboptimal spatial layout.

These conditions prevent the available facilities from fully supporting improvements in service quality, ultimately failing to exert a significant influence on user service satisfaction at the Batam City BPS. In line with research conducted by Muharam and Hannan (2020) at the Bogor Agricultural University (IPB) Library, which showed that service quality has a positive and significant effect on user satisfaction, the results of this study indicate that facilities do not have a significant effect on service quality at the Batam City BPS Service Center. Consequently, service quality cannot serve as a mediating factor linking facilities to service satisfaction.

The Information System (X2) influences Service Satisfaction (Y) through Service Quality

Based on the results of the indirect effect test, a coefficient of 0.189, a t-statistic of 2.709, and a p-value of 0.007 were obtained. The p-value is less than 0.05, so H9 is accepted. The results of the study indicate that the information system has a significant effect on service satisfaction through service quality. These findings indicate that service quality plays a crucial role as a link between the information system and user satisfaction. This suggests that the influence of the information system on service satisfaction occurs not only directly but also through improvements in service quality. Thus, the better the information system at the Batam City BPS, the higher the quality of service provided, leading to increased user satisfaction with the service.

The results of this study are consistent with the research by Nurwulandari (2020), which found that the quality of academic information systems and service quality have a positive effect on student satisfaction. That study showed that information systems that are easy to use, accurate, and capable of providing the information users need will improve the quality of service provided by higher education institutions. Furthermore, this improvement in service quality will lead to increased satisfaction among students as users of academic services.

Integrity (X3) influences Service Satisfaction (Y) through Service Quality (Z)

Based on the results of the indirect effect test, the coefficient was found to be 0.352, the t-statistic was 4.069, and the p-value was 0.000. Since the p-value is less than 0.05, H10 is accepted. The results of the study indicate that integrity has a significant effect on service satisfaction through service quality. Staff integrity—reflected through honesty, transparency, accountability, responsibility, and professionalism—can create service that is faster, more accurate, more responsive, and more trustworthy.

This high quality of service subsequently increases the satisfaction of users of statistical services. Thus, service quality has been proven to act as an intervening variable linking integrity to service satisfaction. The higher the integrity of the staff, the better the quality of service provided, and consequently, user satisfaction with the service will also increase. These findings indicate that service quality is a crucial pathway that mediates the influence of integrity on service satisfaction at the Batam City BPS. According to Parasuraman, Zeithaml, and Berry (1988), service quality is the primary factor determining the level of user satisfaction. Service that is reliable, responsive, provides assurance, demonstrates empathy, and is supported by adequate physical evidence will enhance user satisfaction. Therefore, service quality serves as a crucial mechanism linking staff integrity to service satisfaction.

4. CONCLUSION

Based on the results of the structural model testing that has been conducted, the following conclusions can be drawn:

- 1) Facilities have a positive but insignificant effect on service satisfaction at the Batam City BPS.
- 2) The information system has a positive but insignificant effect on service satisfaction at the Batam City BPS.
- 3) Integrity has a positive and significant effect on service satisfaction at the Batam City BPS.
- 4) Service quality has a positive and significant effect on service satisfaction at the Batam City BPS.
- 5) Facilities have a positive but insignificant effect on service quality at the Batam City BPS.
- 6) Information systems have a positive and significant effect on service quality at the Batam City BPS.
- 7) Integrity has a positive and significant effect on service quality at the Batam City BPS.
- 8) Facilities, through service quality, have a positive but insignificant effect on service satisfaction at the Batam City BPS.
- 9) Information systems, through service quality, have a positive and significant effect on service satisfaction at the Batam City BPS.
- 10) Integrity, through service quality, has a positive and significant effect on service satisfaction at the Batam City BPS.

Based on the results of this study on the Determination of Facilities, Information Systems, and Integrity on Service Satisfaction, with Service Quality as an intervening variable, at the Batam City BPS, the following recommendations can be made:

- 1) This study found that facilities have a positive but insignificant effect on service satisfaction; therefore, improvements are needed, particularly regarding information facilities—which must be adequate—and data retrieval facilities that are easier for service users at the BPS in Batam City to use.

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- 2) The results of this study indicate that, regarding the information system, facilities have a positive but non-significant effect on service satisfaction; therefore, improvements are needed in network connectivity—specifically, ensuring a stable connection and faster website response times to data requests.
- 3) The research findings indicate that facilities have a positive but not statistically significant effect on service quality; therefore, improvements are needed, particularly regarding the availability of complaint-handling facilities and the ease of access to existing complaint-handling facilities.
- 4) The research findings indicate that facilities, through service quality, have a positive but not statistically significant effect; therefore, improvements are needed, particularly to ensure that facilities function properly and that service areas are comfortable.
- 5) The research findings indicate that integrity has a positive effect on service satisfaction; therefore, service integrity must be maintained and strengthened, and the value of integrity must be upheld—specifically, by ensuring the absence of illegal fees in the service process and the absence of gratuity practices in the service process.
- 6) Based on this study, it was found that service quality has a positive and significant effect on service satisfaction; therefore, service quality must be consistently maintained—particularly staff’s ability to provide explanations when challenges arise and their attentiveness to users’ needs
- 7) The information system has a positive and significant effect on service quality; therefore, the information system must be consistently maintained and strengthened—particularly ensuring that the website safeguards user data confidentiality and instills a sense of security in the information system when users request data.
- 8) Integrity has a positive and significant effect on service quality; therefore, service integrity—specifically in terms of honesty—must be maintained and strengthened by providing clear and accurate information to service users and by refusing gratuities or rewards during the service process
- 9) Information systems, through service quality, have a positive and significant impact on service satisfaction; therefore, system security must be maintained and strengthened to minimize the risk of misuse of user data and ensure that the data request process is user-friendly.
- 10) Integrity, through service quality, has a positive and significant impact on service satisfaction; therefore, fairness and non-discrimination must be maintained and strengthened by providing equal opportunities to all service users and ensuring equal access to information regarding service procedures and requirements for all users.

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