



Regular article

The Influence of Service Quality, Brand Image and Technology Usage on Customer Loyalty through Customer Satisfaction as a Mediating Variable in PT. Pos Indonesia Medan Branch

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ABSTRACT

The delivery service industry in Indonesia is experiencing increasingly fierce competition along with the growth of e-commerce. PT Pos Indonesia as a state-owned enterprise faces challenges in maintaining customer loyalty amid the dominance of private competitors such as J&T Express and JNE. This study aims to analyze the influence of service quality, brand image, and technology usage on customer loyalty with customer satisfaction as a mediating variable in PT. Pos Indonesia Medan Branch. Using a quantitative method with PLS-SEM analysis on 185 customer respondents selected through purposive sampling, data was collected through a structured questionnaire using Google Form. The results showed that service quality had a positive and significant effect on customer satisfaction ($\beta=0.405$, $p=0.000$) and customer loyalty ($\beta=0.524$, $p=0.000$). Brand image has a positive and significant effect on customer satisfaction ($\beta=0.240$, $p=0.016$) and customer loyalty ($\beta=0.302$, $p=0.002$). Technology usage had a positive and significant effect on customer satisfaction ($\beta=0.504$, $p=0.000$) and customer loyalty ($\beta=0.294$, $p=0.008$). Customer satisfaction was proven to have a positive and significant effect on customer loyalty ($\beta=0.289$, $p=0.009$). Customer satisfaction was able to mediate the influence of service quality ($\beta=0.117$, $p=0.014$), brand image ($\beta=0.112$, $p=0.019$), and technology usage ($\beta=0.146$, $p=0.025$) on customer loyalty. The research model explains 79% of variance in customer loyalty. These findings confirm the importance of a holistic marketing management strategy in the delivery service industry, especially in improving service quality, strengthening brand image, optimizing the use of digital technology, and building customer satisfaction to create long-term loyalty.

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Introduction

The emergence of e-commerce platforms that are increasingly used by the public is the main factor that drives the high demand for goods delivery services. This change is not only happening in big cities, but also penetrating into remote areas that were previously difficult to reach by conventional delivery services. With the increasing need for fast and reliable delivery of goods, delivery service providers must adapt to

various innovations to meet customer expectations.

Katadata data (2025) shows that J&T Express dominates the online shipping market with a market share of 42% and personal shipping of 13% in 2024. Meanwhile, Pos Indonesia experienced a decrease in the online shipping market share from 3% to 2%, although it experienced an increase in personal shipping from 26% to 29%. This performance imbalance indicates that there are challenges in maintaining customer

loyalty in the e-commerce segment.

The results of the pre-survey on 30 customers of Pos Indonesia Medan Branch showed several indications of problems: (1) Customer loyalty: only 30% of customers were loyal, with 60% not considering Pos Indonesia as the first choice; (2) Customer satisfaction: only 40% of customers are satisfied, especially regarding complaint handling (30%) and delivery certainty (30%); (3) Service quality: only 40% of customers rated the service quality as good, with 70% complaining about the slow response of complaints; (4) Brand image: although 100% know the Pos Indonesia brand, only 45% consider its reputation good and 30% consider it innovative; (5) Technology usage: only 40% feel that technology helps, with 70% experiencing problems with digital services.

North Sumatra BPS data (2025) shows an increase in customer complaints from 0.81% (2023) to 2.19% (2024) out of a total of 162,750 transactions. This indicates a decrease in service quality which has the potential to reduce customer satisfaction and loyalty.

Previous research has shown mixed results. Larasati & Suryoko (2020) found that service quality and brand image have a positive effect on customer satisfaction and loyalty. Asawawibul et al. (2025) and Nanta et al. (2025) found that technology usage has a positive effect on customer satisfaction. However, Djan & Adawiyah (2021) stated that customer satisfaction does not mediate the relationship between service quality and loyalty.

This research contributes by integrating service quality, brand image, and technology usage in one model with customer satisfaction as a mediator in the context of the SOE delivery service industry after digital transformation. Thus, this study aims to analyze the influence of service quality, brand image, and technology usage on customer loyalty with customer satisfaction as a mediating variable in PT. Pos Indonesia Medan Branch.

Method

Research Design

The study uses a quantitative approach with an associative research type to identify causal relationships between variables. The location of the research at PT. Pos Indonesia Medan Branch, held from October to November 2025.

Population and Sample

The research population is all consumers who have made goods delivery transactions at the Medan Branch Post Office whose number is unknown. The sampling technique uses purposive sampling with the following criteria: (1) at least 17 years old; (2) at least make 2 transactions. The number of samples was determined based on the formula of Hair et al. (2021), which is 37 indicators × 5 = 185 respondents.

Variables and Measurements

The research variables include:

1. Independent variables: Service Quality (8 indicators based on Parasuraman et al., 2019), Brand Image (8 indicators based on Aaker & Biel, 2017), and Technology Usage (9 indicators based on Yen & Lu, 2008)
2. Dependent variables: Customer Loyalty (6 indicators based on Kotler & Keller, 2016)
3. Mediation variables: Customer Satisfaction (6 indicators based on Akroush et al., 2012)

All variables were measured using a Likert scale of 1-5. The validity test showed all items were valid (loading factor >0.7) and reliable (Cronbach's Alpha 0.837-0.914, Composite Reliability 0.880-0.930).

Data Analysis

The analysis used Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4.0, including the evaluation of the outer model (convergent validity, discriminant validity, composite reliability) and the inner model (R-square, path coefficient, and mediation effect).

Conceptual Framework

The research model examines the direct influence of service quality, brand image, and technology usage on customer loyalty, as well as the indirect influence through customer satisfaction as a mediator.

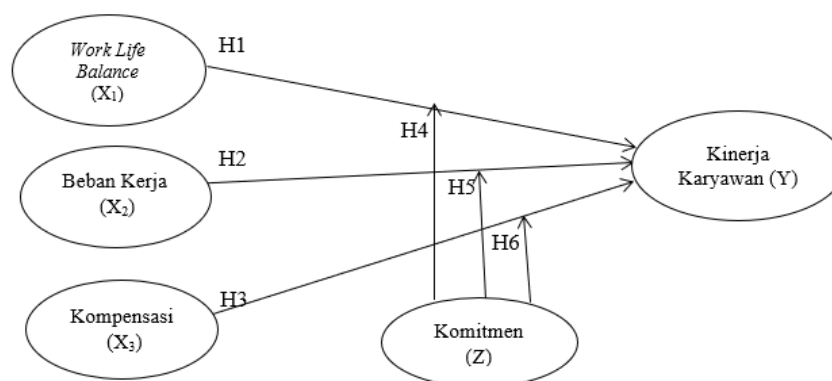


Figure 1 Conceptual framework

Results

Respondent Characteristics

The majority of respondents were men (53%), private employees (30.3%), and used Pos Indonesia services more than 2 times (90.8%). This characteristic reflects the target market of delivery services which is dominated by active users with an adequate transaction experience.

Descriptive Analysis

The results of the descriptive analysis show:

- Customer Loyalty: Mean 4.12 (Good category), the highest indicator of "Talking about positives" (4.20)
- Customer Satisfaction: Mean 3.98 (Good category), the highest indicator "Pleased with the ease of service and Same Day Service feature" (4.05)
- Service Quality: Mean 3.99 (Good category), the highest indicator of "Understanding customer needs" (4.21)
- Brand Image: Mean 4.16 (Good category), the highest indicator of "Employees serve wholeheartedly" (4.21)
- Technology Usage: Mean 4.20 (Excellent category), the highest indicator "Accelerating the delivery process" (4.25)

Evaluation of Measurement Models (Outer Model)

The measurement model shows good validity and reliability:

- Convergent Validity: All loading factors >0.7 (0.705-0.875), AVE >0.5 (0.549-0.682)
- Discriminant Validity: HTMT Value <0.90 (0.514-0.826)
- Reliability: Composite Reliability >0.7 (0.880-0.930), Cronbach's Alpha >0.7 (0.837-0.914)

Evaluation of Structural Models (Inner Model)

The structural model shows R² Customer Satisfaction = 0.639 (strong category) and R² Customer Loyalty = 0.790 (strong category). Q² values = 0.376 and 0.393 (>0) confirm the predictive relevance of a good model. The value of f² indicates a moderate to strong effect size across the entire path.

Hypothesis Testing

Table 1. Hypothesis Testing Results

Hypothesis	Relationships	Coefficient (β)	p-value	Verdict
H1	Service Quality → Customer Satisfaction	0,405	0,000	Accepted
H2	Brand Image → Customer Satisfaction	0,240	0,016	Accepted
H3	Technology Usage → Customer Satisfaction	0,504	0,000	Accepted
H4	Customer Satisfaction →	0,289	0,009	Accepted

H5	Customer Loyalty → Service Quality → Customer Loyalty	0,524	0,000	Accepted
H6	Brand Image → Customer Loyalty	0,302	0,002	Accepted
H7	Technology Usage → Customer Loyalty	0,294	0,008	Accepted
H8	Service Quality → Customer Satisfaction → Customer Loyalty	0,117	0,014	Accepted
H9	Brand Image → Customer Satisfaction → Customer Loyalty	0,112	0,019	Accepted
H10	Technology Usage → Customer Satisfaction → Customer Loyalty	0,146	0,025	Accepted

Discussion

The Effect of Service Quality on Customer Satisfaction

Service quality had a significant positive effect on customer satisfaction (β=0.405, p=0.000), supporting the findings of Larasati & Suryoko (2020), Sobaih (2023), and Le et al. (2020). Employees who are able to provide service on time, are responsive, and understand customer needs show better satisfaction. However, handling complaints is still a challenge with 70% of respondents complaining about slow responses.

The Influence of Brand Image on Customer Satisfaction

Brand image has a significant positive effect on customer satisfaction (β=0.240, p=0.016), in line with Nastiti (2023) and Damanik et al. (2023). The positive image of Pos Indonesia as a trusted SOE increases satisfaction. However, the perception of innovation still needs to be improved with only 30% considering Pos Indonesia innovative.

The Influence of Technology Usage on Customer Satisfaction

Technology usage showed the strongest significant positive influence on customer satisfaction (β=0.504, p=0.000), confirming Asawawibul et al. (2025) and Nanta et al. (2025). QPosinAja's adequate tracking technology and app increase satisfaction. However, system stability still needs to be improved with 70% experiencing problems with digital services.

The Effect of Customer Satisfaction on Customer Loyalty

Customer satisfaction has a significant positive effect on customer loyalty ($\beta=0.289$, $p=0.009$), supporting Do & Ta (2023) and Restuputri et al. (2021). Satisfied customers tend to reuse and recommend Pos Indonesia.

The Influence of Service Quality on Customer Loyalty

Service quality has a significant positive effect on customer loyalty ($\beta=0.524$, $p=0.000$), in line with Widodo (2024) and Agiesta et al. (2021). Service quality is a key factor in building long-term loyalty.

The Influence of Brand Image on Customer Loyalty

Brand image has a significant positive effect on customer loyalty ($\beta=0.302$, $p=0.002$), confirming Nastiti (2023) and Damanik et al. (2023). The image as a trusted state-owned company strengthens customer loyalty.

The Influence of Technology Usage on Customer Loyalty

Technology usage has a significant positive effect on customer loyalty ($\beta=0.294$, $p=0.008$), in line with Fauzi (2025) and Tasrif et al. (2023). The ease of digital technology encourages repeat use.

The Role of Customer Satisfaction Mediation

Customer satisfaction mediates the influence of service quality ($\beta=0.117$, $p=0.014$), brand image ($\beta=0.112$, $p=0.019$), and technology usage ($\beta=0.146$, $p=0.025$) on customer loyalty, supporting Larasati & Suryoko (2020) and Agritika & Suharjo (2024). Satisfaction is an important bridge between service experience and long-term loyalty.

Conclusion

This research proves that service quality, brand image, and technology usage significantly affect customer loyalty of PT. Pos Indonesia Medan Branch, with technology usage as the strongest predictor of customer satisfaction and service quality as the strongest predictor of customer loyalty. Customer satisfaction acts as a mediator that strengthens the influence of these three variables on loyalty. The research model that explains 79% loyalty variance shows the importance of a holistic approach in the marketing management of delivery services.

Managerial Implications

1. **Service Quality:** Increased responsiveness in handling complaints through officer training, digital ticketing system, and a maximum response time standard of 24 hours.
2. **Brand Image:** Strengthening the image of innovation through digital campaigns, modernizing visual identity, and collaborating with e-commerce to increase visibility.
3. **Technology Usage:** Optimizing the stability of the QPosinAja application, integrating a real-time tracking system, and developing AI chatbot features for customer service.
4. **Customer Satisfaction:** Implementation of a real-time feedback system, Voice of Customer program, and rewards

for loyal customers.

Limitations and Suggestions for Future Research

The research was limited to one branch in Medan, so generalizations were limited. Future research can expand the geographic scope of multi-branches, add trust, perceived value, and switching cost variables, and use longitudinal methods to measure changes in loyalty over time. A mixed-method approach with in-depth interviews can also provide richer qualitative insights.

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