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Determinants of Customer Loyalty in Internet Service Providers: The Mediating Role of Customer Satisfaction in Batam

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Abstract: The swift progression of digital technology has significantly increased public dependence on internet services, intensifying competition within the internet service provider (ISP) industry. In this context, identifying the key drivers of customer satisfaction and loyalty becomes critical, particularly in developing urban areas such as Batam City. This research seeks to analyze the influence of product quality, information quality, and experience quality on customer satisfaction, as well as their subsequent implications for customer loyalty. The theoretical foundation of this research is grounded in service quality theory, customer satisfaction theory, and customer loyalty literature within service marketing. A quantitative research approach was employed using a survey method, with data collected through online questionnaires from 322 ISP users in Batam City. The findings highlight the importance of product and experience quality in improving customer satisfaction, while information quality appears to play a limited role. Furthermore, customer satisfaction has a strong and significant effect on customer loyalty and serves as a mediating variable in the relationship between product quality and experience quality with customer loyalty. The study concludes that enhancing technical performance and customer experience is critical for fostering customer satisfaction and supporting sustained customer loyalty in the ISP industry.

Keywords: Product Quality, Experience Quality, Customer Satisfaction, Customer Loyalty, Internet Service Provider.

INTRODUCTION

The surge in information and communication technology has triggered a widespread digital transformation, making the internet a cornerstone of modern life (Bumbungan, 2025). This shift has revolutionized daily routines, from seeking knowledge and enjoying digital entertainment to maintaining personal connections online (Shaengchart et al., 2023). Internet service providers (ISPs) emerge as key players in this period of growth, particularly in Indonesia, where user penetration increased by 2.79% between 2023 and 2024, according to an APJII survey, underscoring the growing reliance on reliable connectivity amidst post-pandemic lifestyle changes (Feng et al., 2024).

Despite these opportunities, ISPs grapple with intense competition and the need to raise service standards for customer retention. High-quality service directly correlates with sustained satisfaction and loyalty, while deficiencies erode trust and profitability (Prasetyo et al., 2022). Technological evolution demands not only infrastructure improvements but also attention to user-centric elements, as noted by (Claro, Gerry Torcoroma Navarro, 2024), who emphasize ongoing analysis of behavioral changes in technology-intensive sectors.

This research focuses on three key factors influencing satisfaction and loyalty: product quality, which ensures strong performance (Kosasih et al., 2024); information quality, which is crucial for clear and timely communication (Yoo et al., 2023); and experience quality, which fosters engaging interactions (Shi et al., 2024). These factors collectively shape how users evaluate and commit to ISP offerings.

A major shortcoming of previous research lies in its neglect of small urban centers in developing countries, areas plagued by inadequate infrastructure, limited digital skills, and unequal service access. Few studies analyze the dynamics of ISP service delivery here or investigate the importance of information quality in an era that prioritizes the holistic user journey (Salameh & Zamil, 2020). This omission limits tailored strategies for these locations.

To fill this gap, our investigation in a small city in Indonesia yields new theoretical insights into the role of service quality in loyalty amidst digital immaturity. Practically, this equips ISPs with actionable tactics to prioritize user experience, sharpen retention efforts, and secure continued business vitality.

Product quality emerges as a cornerstone for boosting customer satisfaction and nurturing enduring loyalty, extending beyond financial gains to bolster corporate reputation and operational longevity (Kosasih et al., 2024); (Thanabordeekij & Syers, 2020). Superior products build trust and elevate satisfaction levels, whereas deficiencies breed dissatisfaction and erode retention (Mirza et al., 2021); (Sambo et al., 2022). When paired with strategic implementation, enhanced product quality drives market success and directly underpins hypotheses linking it to satisfaction and loyalty outcomes (Abigail et al., 2024).

H[1]: Product quality is hypothesized to positively affect customer satisfaction.

Strong product quality delivers competitive advantages by fostering customer commitment and loyalty, thereby enhancing long-term marketing sustainability (Xhema et al., 2018); (Čater & Čater, 2010). It encourages premium pricing willingness and amplifies effectiveness through targeted marketing strategies (Sun et al., 2024); (Hidayat & Idrus, 2023). Ultimately, superior quality creates differentiated experiences that significantly bolster loyalty, providing direct empirical support for hypotheses on its path to satisfaction and retention (Tunahan & Kutlu, 2022).

H[2]: Product quality is hypothesized to positively affect customer loyalty

Information quality encompassing timely, accurate, comprehensible, credible, and complete data presentation critically drives customer satisfaction by enabling seamless transactions and user comfort (Kim & Niehm, 2009); (Yoo et al., 2023); (Szymanski & Hise, 2000); (Cheng et al., 2020). These dimensions ensure reliable communication that shapes positive perceptions, providing robust support for hypotheses linking information quality to enhanced satisfaction and loyalty.

H[3]: Information quality is hypothesized to positively affect customer satisfaction

In today's fast access information landscape, reliable and credible content from services builds user trust, which in turn fosters customer loyalty (Bilgihan, 2016); (Cardoso et al., 2022). Information quality marked by capability, credibility, and integrity hinges on strategic delivery decisions that directly enhance loyalty, offering strong empirical backing for related hypotheses (Yuan et al., 2020; Purwianti et al., 2024).

H[4]: Information quality is hypothesized to positively affect customer loyalty

Service experience quality through emotional comfort, consistent interactions, and proactive delivery fundamentally shapes user behavior and satisfaction (Ferreira Barbosa et al.,

2022); (Shi et al., 2024); (Fernando et al., 2023). By cultivating positive emotional environments via reliable mechanisms, it drives higher satisfaction levels, providing direct support for hypotheses linking experience quality to loyalty outcomes.

H[5]: Experience quality is hypothesized to positively affect customer satisfaction

High quality, differentiated experiences marked by uniqueness, memorability, and multidimensional elements like word-of-mouth play a pivotal role in fostering customer loyalty and retention (Cachero-Martínez & Vázquez-Casielles, 2021); (Ertemel et al., 2021); (Manyanga et al., 2022); (Zaid & Patwayati, 2021). These proactive strategies, reinforced by customer alignments, provide empirical grounding for hypotheses positing experience quality's direct path to loyalty.

H[6]: Experience quality is hypothesized to positively affect customer loyalty

Customer satisfaction and loyalty are inextricably linked, with satisfaction stemming from positive product/service performance feelings driving loyalty through reciprocal relationships, aligning with core company goals (Pandey et al., 2020); (Nguyen et al., 2020); (Raza et al., 2020); (Zaid et al., 2021). This dynamic provides direct theoretical support for hypotheses examining satisfaction as a to loyalty.

H[7]: Customer satisfaction is hypothesized to positively affect customer loyalty

Based on the hypotheses developed from the preceding discussion, product quality, information quality, and experience quality are expected to be mediated by customer satisfaction in order to generate customer loyalty (Fan et al., 2023). This is further supported by the study conducted by (Yudistira Kawisana & Ekawati, 2024; Lady et al., 2025), which found that customer satisfaction plays a mediating role in the formation of loyalty. Accordingly, this study formulates three hypotheses as follows:

H[8]: Perceived product quality on customer loyalty is mediated by customer satisfaction.

H[9]: Perceived information quality on customer loyalty is mediated by customer satisfaction.

H[10]: Perceived experience quality on customer loyalty is mediated by customer satisfaction.

METHOD

This research employs a quantitative approach to test hypotheses derived from a conceptual framework that explains the relationships among the studied variables. Data were obtained through a structured questionnaire using a five-point Likert scale. The analysis was conducted using Partial Least Squares–Structural Equation Modeling (PLS-SEM), which allows simultaneous evaluation of the measurement and structural models, including explanatory power and overall model adequacy.

Respondents were selected using purposive sampling, as this method ensures that participants possess relevant experience with Internet Service Provider (ISP) services and are capable of providing valid information aligned with the research objectives (Makwana et al., 2023). A total of 322 active ISP users in Batam City participated in the study. The sample represents individuals from diverse demographic backgrounds, supporting reliable statistical analysis and meaningful interpretation of the results (Rahman, 2023); (Kamraju, 2023).

Several limitations should be acknowledged. The use of self-reported data may result in perceptual bias, and the cross-sectional design restricts the ability to draw causal conclusions. Furthermore, the focus on a single geographic area may limit the applicability of the findings to other regions with different industry conditions. Future research is encouraged to adopt longitudinal designs, include objective performance measures, and expand the study area to enhance generalizability.

RESULTS AND DISCUSSION

Characteristics Of Respondents

Base on Table 1, this study involved 322 respondents in Batam City who completed an online questionnaire, representing diverse demographic characteristics. The findings show that

male participants represented the majority of the respondents (56%) and predominantly within the productive age groups, particularly 31–40 years (28%) and 41–50 years (25%). In terms of occupation, most respondents were private-sector employees (51%), followed by entrepreneurs or business owners (17%) and homemakers (12%). This distribution indicates that internet usage in Batam spans a wide range of professional backgrounds.

From an income perspective, almost half of the respondents reported having a monthly income within the indicated income category Rp5.000.001 and Rp10.000.000 (46%), while 34% earned below Rp5.000.000. These figures suggest that internet services are widely adopted across middle- to lower- and middle-income groups. Regarding internet service providers, Indihome emerged as the most commonly used ISP (39%), followed by U-Net (23%) and Proxy Net (14%), reflecting both market dominance and the availability of alternative service options in Batam.

With respect to usage patterns, most respondents reported using the internet primarily for personal purposes (64%), while the remainder used it for business needs or a combination of both. In terms of subscription duration, a significant proportion of respondents had been subscribed for 1–3 years (39.89%) or more than six years (28.65%), indicating sustained and long-term use of internet services. Overall, these findings highlight the active and continuous use of internet services among the Batam population, supported by varied service preferences and diverse demographic

Table. 1 Respondent Characteristics

Demographic Characteristics	Classification	Amount	Percentage
Gender:	Male	184	57%
	Female	138	43%
Age:	<21 years	17	5%
	21-30 years	70	22%
	31-40 years	92	29%
	41-50 years	81	25%
	>51 years	62	19%
Work:	Teacher / Lecturer	3	1%
	Housewife	36	11%
	Civil Servant (PNS) / Police Officer	31	10%
	Private Employee	166	52%
	Freelance Worker	12	4%
	Student	18	6%
	Self-Employed / Business Owner	56	17%
Income:	<Rp 5.000.000	103	32%
	Rp5.000.001 - Rp10.000.000	150	47%
	Rp10.000.001 - Rp15.000.000	30	9%
	Rp15.000.001 - Rp20.000.000	19	6%
	>Rp20.000.000	20	6%
Providers:	Biznet	7	2%
	First Media	11	3%
	Indihome	128	40%
	I-Plus	11	3%
	Proxy Net	40	12%
	Solnet	13	4%
	U-Net	80	25%
	Other's	32	10%

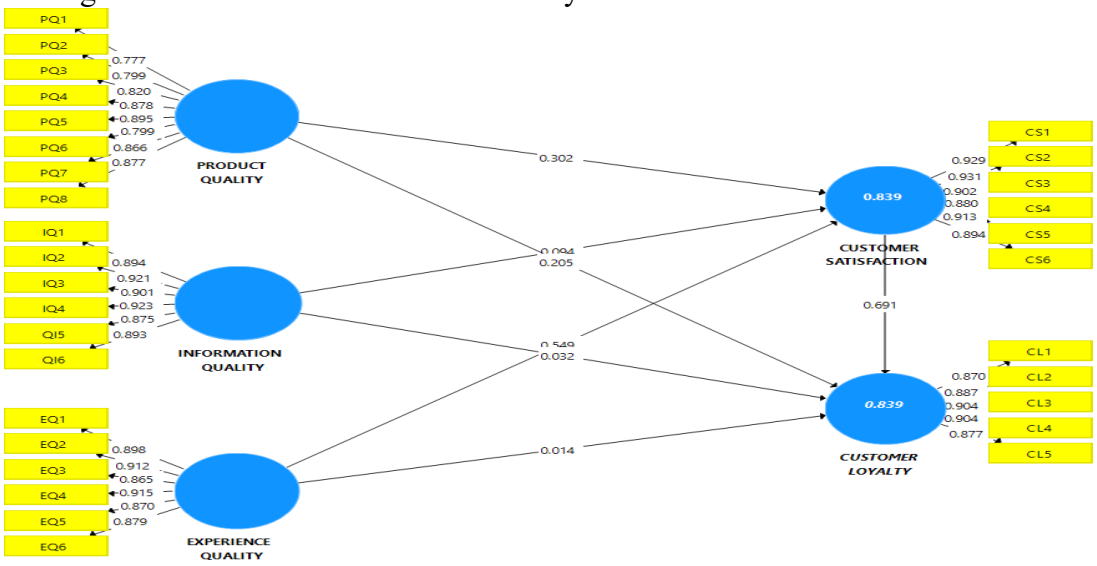
Demographic Characteristics	Classification	Amount	Percentage
Purpose of Using:	Personal	202	63%
	Business	17	5%
	Both of them	103	32%
Subscription Duration:	1-3 years	142	44%
	4-5 years	78	24%
	>6 years	102	32%

Source: Research data processing results (2025)

Evaluation Model Measurement (Outer Model)

Figure 1 displays outer loadings and cross-loadings, confirming strong measurement consistency across constructs. All indicators exceeded the 0.7 threshold for convergent validity (Edeh et al., 2023); (Hair et al., 2019), with cross-loadings supporting discriminant validity as each loaded highest on its intended construct. Product quality (0.777–0.895) and information quality (0.875–0.923 the most stable) showed exceptional consistency, aligning with descriptive user trust findings. Experience quality (0.865–0.915) reflected positive engagements, while customer satisfaction (0.880–0.931) exhibited the tightest links.

Customer loyalty displayed moderate variation (0.870–0.904), consistent with its complexity in measuring repurchase and advocacy. Table 1 summarizes these robust results, establishing a reliable outer model for inner analyses.



Source: Research data processing results (2025).

Figure. 1 Outer Model

The measurement model exhibited strong convergent validity, with all outer loadings exceeding 0.70 (Hair et al., 2019). Information quality and customer satisfaction showed the highest consistency (loadings 0.875–0.923 and 0.880–0.931, respectively), while loyalty displayed moderate variation (0.870–0.904), reflecting its complexity. All constructs met reliability thresholds: Cronbach's alpha >0.90, composite reliability (CR) >0.90, and AVE >0.50 (Edeh et al., 2023), confirming indicators robustly capture latent variables.

Table. 2 Result Validity and Reliability Test

Indicator	Loading Factor	Cronbach's Alpha	Composite Reliability	AVE	Result
PQ1	0.777	0.940	0.950	0.706	Valid & Reliabel
PQ2	0.799				
PQ3	0.820				

Indicator	Loading Factor	Cronbach's Alpha	Composite Reliability	AVE	Result
PQ4	0.878				
PQ5	0.895				
PQ6	0.799				
PQ7	0.866				
PQ8	0.877				
IQ1	0.894	0.954	0.963	0.813	Valid & Reliabel
IQ2	0.921				
IQ3	0.901				
IQ4	0.923				
IQ5	0.875				
IQ6	0.893				
EQ1	0.898	0.947	0.958	0.792	Valid & Reliabel
EQ2	0.912				
EQ3	0.865				
EQ4	0.915				
EQ5	0.870				
EQ6	0.879				
CS1	0.929	0.957	0.966	0.825	Valid & Reliabel
CS2	0.931				
CS3	0.902				
CS4	0.880				
CS5	0.913				
CS6	0.894				
CL1	0.870	0.933	0.949	0.789	Valid & Reliabel
CL2	0.887				
CL3	0.904				
CL4	0.904				
CL5	0.877				

Source: Research data processing results (2025).

R Square (R^2)

The adjusted R-square value for the customer satisfaction variable is 0.837, indicating that product quality, information quality, and experience quality jointly explain 83.7% of the variance in customer satisfaction. This result suggests that the model demonstrates strong explanatory power.

Similarly, the adjusted R-square value for the Customer Loyalty variable is also 0.837, indicating that product quality, information quality, and experience quality collectively explain 83.7% of the variance in customer loyalty. Accordingly, the structural model can be regarded as robust.

Table. 3 R Square

Variabel	R Square	R Square Adjusted	Result
Customer Satisfaction	0.839	0.837	Strong
Customer Loyalty	0.839	0.837	Strong

Source: Research data processing results (2025).

Model Fit

Based on the model fit evaluation, the Standardized Root Mean Square Residual (SRMR) value for both the saturated model and the estimated model is 0.036, which is below the recommended threshold of 0.10. This result indicates a good level of model fit, reflecting a close correspondence between the observed and predicted covariance matrices. Therefore, the model can be considered to have an acceptable fit.

Meanwhile, the Normed Fit Index (NFI) value of 0.886 for both models remains below the ideal benchmark approaching 1.00. These findings indicate that although the model shows adequate fit based on the SRMR criteria, overall assessed by the NFI it is close to the optimal level.

Table. 4 Model Fit

Variabel	Role Of Thumb	Saturated Model	Estimated Model	Information
SRMR	More small form 0.10	0.036	0.036	FIT
NFI	Approach value 1	0.886	0.886	Not FIT

Source: Research data processing results (2025).

Hypothesis Testing Result

After obtaining the results of research modeling the relationship between constructs, the next stage involves conducting a statistical evaluation using the bootstrapping technique through SmartPLS 3.0. This procedure aims to comprehensively examine both the direct and indirect effects among the research variables, as elaborated in the subsequent discussion:

Table. 5 Hypothesis Testing Result

Hyphothesis	Path Coeficient	T Statistics	P Values	Result
PQ > CS	0.302	4.136	0.000	Accept
PQ > CL	0.205	2.790	0.005	Accept
IQ > CS	0.094	1.318	0.188	Reject
IQ > CL	0.032	0.414	0.679	Reject
EQ > CS	0.549	6.127	0.000	Accept
EQ > CL	0.014	0.200	0.841	Reject
CS > CL	0.691	9.400	0.000	Accept
PQ > CS > CL	0.208	3.780	0.000	Accept
IQ > CS > CL	0.065	1.297	0.195	Reject
EQ > CS > CL	0.379	5.407	0.000	Accept

Source: Research data processing results (2025).

The path analysis results reveal that both product quality and experience quality exert a statistically significant direct influence on customer satisfaction, which in turn significantly influences customer loyalty. In contrast, information quality does not show a significant direct or indirect effect on customer loyalty. Moreover, customer satisfaction is empirically shown to act as a mediating variable in the relationship between product quality and customer loyalty, as well as between experience quality and customer loyalty, while its mediating role in the relationship between information quality and customer loyalty is not supported.

Structural Model Results and Discussion

The results indicate that product quality has a significant positive effect on both customer satisfaction and customer loyalty. Improvements in network reliability, access speed, and connection stability enhance user satisfaction and directly strengthen loyalty among ISP users in Batam. These findings align with prior studies emphasizing that superior service

performance builds trust and long-term relational value in highly competitive telecommunications markets (Abigail et al., 2024); (Kosasih et al., 2024); (Xhema et al., 2018). In this context, product quality functions as a core value driver that directly shapes customers' evaluations and behavioral intentions.

Experience quality is found to significantly influence customer satisfaction but does not directly affect customer loyalty. This suggests that positive service experiences such as ease of access, perceived security, and service responsiveness enhance satisfaction at the perceptual and emotional level, consistent with earlier studies (Agarwal et al., 2023); (Arora & Banerji, 2024). However, these experiences alone are insufficient to secure loyalty unless they are translated into sustained satisfaction. This finding highlights the indirect nature of experiential effects in ISP services, where loyalty decisions are often shaped by cumulative evaluations rather than isolated experiences.

In contrast, information quality does not have a significant effect on either customer satisfaction or customer loyalty. Although this finding contradicts several prior studies (Cheng et al., 2020); (Yuan et al., 2020); (Yoo et al., 2023), it reflects the contextual reality of the Batam ISP market. Information related to service packages, pricing, and promotions is generally perceived as standardized and sufficiently clear across providers, reducing its role as a differentiating factor. As a result, information quality functions more as a basic or hygiene factor rather than a strategic determinant of satisfaction or loyalty. In a digitally mature and performance-oriented user environment, customers prioritize tangible service outcomes such as network stability during peak hours and effective service recovery over informational attributes.

Customer satisfaction is shown to be the strongest predictor of customer loyalty, confirming its central role in the formation of long-term user relationships. Satisfied customers are more likely to continue using the service, resist competitive offers, and engage in positive word-of-mouth behavior (Zaid & Patwayati, 2021); (Manyanga et al., 2022); (Kosasih et al., 2024). The mediation analysis further reinforces this role, demonstrating that customer satisfaction significantly mediates the effects of product quality and experience quality on customer loyalty, but not the effect of information quality. These findings underscore that, within the ISP industry, loyalty is primarily built through consistent service performance and meaningful user experiences that culminate in sustained satisfaction, rather than through informational superiority alone.

CONCLUSION

This study demonstrates that service quality dimensions exert different effects on customer satisfaction and loyalty in the ISP industry in Batam City. Product quality and experience quality significantly enhance customer satisfaction, whereas information quality does not show a meaningful influence. These findings indicate that ISP users in Batam are highly performance-oriented, prioritizing tangible service outcomes such as network reliability, internet speed, and direct service interactions over informational attributes.

The results further confirm that customer satisfaction plays a central mediating role in the formation of customer loyalty. Product quality and experience quality influence loyalty primarily through customer satisfaction, reinforcing the relevance of expectation-confirmation theory while extending it to technology-based services where loyalty is driven more by actual service performance than by information quality alone. This contributes to the service marketing literature by highlighting the contextual role of information quality as a baseline requirement rather than a strategic differentiator.

From a managerial perspective, the findings suggest that ISPs should prioritize continuous investment in network infrastructure and the delivery of consistent, responsive service experiences to strengthen customer satisfaction and long-term loyalty. Although information quality is not a direct driver, maintaining transparency remains essential as a minimum operational standard. This study is limited by its geographic focus, the scope of

service quality dimensions examined, and the use of self-reported data. Future research is encouraged to expand the study context, incorporate additional variables, and apply mixed-method approaches to provide a more comprehensive understanding of ISP user behavior.

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