



# Building Customer Satisfaction through Trust: Service Quality, Perceived Value, and Experience at SPKLU UB Disyan PLN Batam

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## Abstract

Customer satisfaction represents a critical indicator of service performance and organizational sustainability in service-based industries. In the context of electric vehicle charging services, customer satisfaction not only reflects customers' evaluative judgments of service encounters but also determines their intention to continue usage and maintain long-term relationships with the provider. This study examines the interconnections among service quality, perceived value, customer experience, trust, and customer satisfaction at SPKLU UB Disyan PLN Batam. The population of this study consists of the people of Batam City, particularly users of the SPKLU UB Disyan PLN Batam service. The study aims to analyze the influence of service quality, perceived value, and customer experience on customer satisfaction, with trust serving as a mediating variable. Customer satisfaction is positioned as the primary outcome variable, reflecting customers' overall evaluation of service performance and determining continued usage as well as long-term relationship sustainability. This research employed a quantitative approach using survey data collected from 155 respondents selected through nonprobability purposive sampling, namely customers who had used the SPKLU service within the last six months. This sampling technique is appropriate because the study requires respondents who have direct experience with SPKLU services, ensuring that the data collected are relevant and reflective of actual service evaluations. Purposive sampling is widely used in service research where specific criteria are necessary to obtain valid and meaningful insights. Data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS 4). The results indicate that service quality, perceived value, and customer experience have positive and significant effects on customer satisfaction. Furthermore, trust significantly affects customer satisfaction and mediates the relationships between the three antecedent variables and customer satisfaction. These findings emphasize the importance of enhancing service performance and building customer trust to improve customer satisfaction in electric vehicle charging services in Batam City.

Keywords: *Customer experience, customer satisfaction, perceived value, service quality, trust.*

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## 1. INTRODUCTION

The global transition toward clean energy and the reduction of carbon emissions have accelerated the development of electric vehicle (EV) ecosystems worldwide, including in Indonesia. As part of its commitment to sustainable development, the Indonesian government has promoted the expansion of supporting infrastructure, particularly Public Electric Vehicle Charging Stations (SPKLU), to facilitate EV adoption. Batam City has emerged as one of the strategic regions in this transition due to its rapid economic growth and role as an industrial and logistics hub. The increasing number of electric vehicles and the rising utilization of SPKLU in Batam highlight the growing public acceptance of environmentally friendly transportation solutions. The availability of accessible and reliable charging infrastructure has therefore become a crucial factor in supporting EV usage and adoption (Sanguesa et al., 2021).

In the context of technology-based public services, customer satisfaction is widely recognized as a key indicator of service performance and sustainability. Prior studies indicate that customer satisfaction is shaped not only by technical service quality but also by perceived value and customer experience, which reflect customers' cognitive and emotional evaluations of the service (Uzir et al., 2021; Pei et al., 2020). These evaluations are further strengthened by customer trust, defined as the willingness of customers to rely on the competence and integrity of service providers (Kotler et al., 2022). Trust has been shown to enhance customers' positive evaluations of services and to reinforce satisfaction in various service contexts (Zhang & Chen, 2022).

While extensive research has examined consumer satisfaction in conventional service sectors like banking, retail, and hospitality, investigations focused on electric vehicle charging infrastructure are few, especially in developing countries like Indonesia. Moreover, prior studies tend to examine service quality, perceived value, and customer experience independently, with limited integration of trust as a mediating mechanism in the context of green technology-based public services. Current research has not comprehensively incorporated trust as a mediating variable connecting service quality, perceived value, and customer experience to customer satisfaction within the realm of green technology-based public services (Nugraha et al., 2022; Rahmadani et al., 2024). Therefore, this study addresses this gap by developing an integrated model that positions trust as a central mechanism linking key service determinants to customer satisfaction in SPKLU services. Consequently, the implementation of established customer satisfaction models for SPKLU services necessitates further empirical validation.

This study aims to assess the relationships among service quality, perceived value, customer experience, and customer satisfaction, with trust acting as a mediating variable, within the framework of SPKLU UB Disyan PLN Batam. This research aims to enhance the literature by expanding customer satisfaction models to the electric vehicle charging sector, while offering practical insights for service providers and policymakers to improve SPKLU service performance and bolster customer trust, thereby facilitating sustainable electric vehicle adoption.

## 2. LITERATURE REVIEW

### 2.1 Customer Satisfaction

Customer satisfaction refers to an evaluative response arising from the comparison between perceived service performance and customer expectations. Indrasari (2019) posits that satisfaction occurs when service performance meets or exceeds customer expectations, which aligns with the disconfirmation theory proposed by Kotler and Keller (2022). This theory explains that satisfaction is formed when perceived performance equals or surpasses expectations. Recent studies highlight the multidimensional nature of customer satisfaction, shaped by service quality, perceived value, and customer experience (Dewi & Praswati, 2024; Rahmadani et al., 2024).

In service industries, satisfaction is strongly associated with repeat usage intention and positive word-of-mouth behavior. This study adopts the indicators proposed by Indrasari (2019), namely: Expectation confirmation, Revisit intention, Willingness to recommend. These indicators reflect cognitive evaluation, behavioral intention, and advocacy dimensions of satisfaction.

## 2.2 Service Quality

Service quality represents customers' comprehensive assessment of service excellence, derived from the juxtaposition of anticipated and actual service performance. Wirtz and Lovelock (2021) characterise service quality as the degree to which a service regularly fulfils or surpasses consumer expectations. Uzir et al. (2021) assert that the evaluation of service quality is based on customers' views developed post-service consumption. The SERVQUAL model is a prominent paradigm for assessing service quality, comprising five dimensions: reliability, responsiveness, assurance, empathy, and tangibles (Zeithaml et al., 2019). These factors encompass both technical and interpersonal facets of service delivery and have been thoroughly validated across several service contexts. Based on expectancy-disconfirmation theory, higher perceived service quality reduces the gap between expectations and actual performance, thereby directly enhancing customer satisfaction. Furthermore, in technology-based services, reliability and responsiveness play a critical role in reducing uncertainty, which strengthens satisfaction formation.

## 2.3 Perceived Value

Perceived value denotes customers' comprehensive assessment of the advantages obtained in relation to the costs expended. Sundari and Hanafi (2023) define perceived value as the disparity between perceived advantages and sacrifices, encompassing monetary, temporal, and effort-related costs. This perspective is supported by Wulandari and Mulyanto (2024), who emphasise the significance of functional, economic, and emotional advantages in influencing value assessments. Zeithaml et al. (2019) categorise perceived worth into functional, economic, and emotional dimensions, encompassing both utilitarian and hedonic elements. Previous research indicates that an elevated perceived value enhances customer satisfaction and trust in service providers (Ikramuddin & Muriyudi, 2021). From a value-based perspective, customers evaluate services through a cognitive trade-off between benefits and sacrifices, which directly influences satisfaction and indirectly builds trust. When customers perceive high value, they are more likely to develop confidence in the service provider, reinforcing both relational and evaluative outcomes.

## 2.4 Customer Experience

Customer experience includes customers' cognitive, emotional, sensory, and behavioural reactions during the complete service journey. Sutriani et al. (2024) define customer experience as the result of interactions that encompass thoughts, emotions, and behaviours during service utilisation. Dalgic and Unal (2018) assert that customer experience encompasses not only individual service interactions but also the pre- and post-consumption phases. Moreover, Ahmed et al. (2022) emphasise that positive emotional and cognitive stimulation improves the assessment of total experience. In digital and technology-driven services, sensory and emotional factors, including the physical environment and staff interactions, are becoming increasingly significant (Silviana et al., 2022). Thus, customer experience is universally acknowledged as a pivotal factor in satisfaction and trust. According to experiential marketing theory, positive customer experiences generate emotional engagement and memorable interactions, which not only enhance satisfaction but also strengthen trust toward the service provider. This is particularly relevant in digital and green services where user experience reduces perceived complexity and risk.

## 2.5 Trust

Trust is defined as customers' willingness to rely on a service provider based on confidence in its competence, integrity, and benevolence. Kotler et al. (2022) describe trust as a fundamental element in long-term service relationships, shaped by consistent and reliable service performance. Kiliçli (2023) further positions trust as a mechanism linking service quality to customer satisfaction. Indrasari (2019) emphasizes that trust develops through repeated positive experiences and risk evaluation over time. In service research, trust is commonly conceptualized through dimensions of credibility, benevolence, and integrity (Kotler & Keller, 2021), making it a crucial construct in explaining customer satisfaction formation. Drawing from relational exchange

theory, trust functions as a mediating variable that transforms cognitive evaluations (service quality and value) and experiential responses into long-term relational outcomes such as satisfaction. Therefore, trust is theoretically positioned as a key mechanism linking antecedent variables to customer satisfaction.

### **3. RESEARCH METHOD**

#### **3.1 Research Design and Type of Research**

This study employs a quantitative research methodology with a causal research design to investigate the interrelationships among service quality, perceived value, customer experience, trust, and customer satisfaction. A causal approach is suitable for elucidating structured correlations among variables within a conceptual study framework (Hair et al., 2021).

#### **3.2 Research Location**

The study was performed at the Public Electric Vehicle Charging Station (SPKLU) UB Disyan PLN Batam, Indonesia. This site was chosen for its strategic importance in facilitating electric vehicle adoption and its growing service usage among EV customers in Batam City.

#### **3.3 Data Sources**

This research employs both primary and secondary data. Primary data were obtained directly from SPKLU participants via a standardised questionnaire. Secondary data were sourced from academic journals, books, official publications, and previous empirical studies concerning service quality, perceived value, customer experience, trust, and customer satisfaction in the contexts of service and green technology.

#### **3.4 Population and Sample**

The study's population consists of SPKLU users aged 18 years and older. The approach employed was non-probability purposive sampling, with the stipulation that participants have utilised the SPKLU UB Disyan service for at least six (6) months. Purposive sampling was selected to ensure that respondents have relevant experience with SPKLU services, thereby increasing the accuracy and relevance of the data. This technique is appropriate for studies focusing on specific user groups, particularly in emerging service contexts such as electric vehicle infrastructure where the population is still limited. The analysis included a total of 155 respondents. This sample size satisfies the recommended range for Partial Least Squares Structural Equation Modelling (PLS-SEM), which requires a minimum of 100 to 200 respondents for models with several constructs and mediation paths (Hair et al., 2021).

#### **3.5 Data Collection Technique**

Data were collected using an online self-administered questionnaire. The survey employed a 4-point Likert scale, with 1 representing "strongly disagree" and 4 indicating "strongly agree." The use of a 4-point Likert scale (without a neutral option) is intentionally applied to minimize central tendency bias and encourage respondents to provide more decisive evaluations. This approach is particularly suitable in services assessment studies where clear perceptions of satisfaction and experience are required. A four-point rating system was employed to mitigate central tendency bias and prompt respondents to provide explicit replies to each item.

All constructs were measured using reflective indicators adapted from established literature. Each variable was operationalized into several dimensions to ensure construct validity and theoretical consistency. The operational definitions of the variables are presented in Table 1.

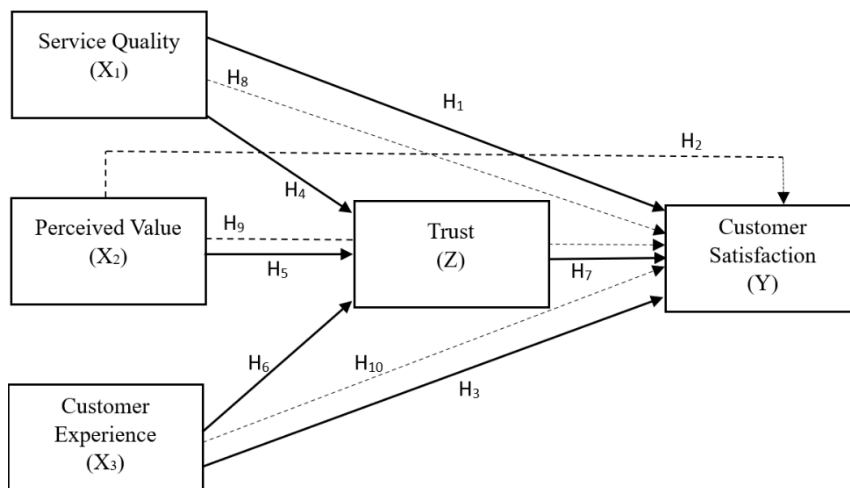
**Tabel 1 | Operational Definition of Variables**

Variable	Definition	Dimensions	Scale
Service Quality (X1)	The extent to which service performance meets or exceeds customer expectations (Wirtz & Lovelock, 2021).	Reliability, Responsiveness, Assurance, Tangibles, Empathy	4-point Likert
Perceived Value (X2)	Customer evaluation of benefits received relative to costs incurred (Wulandari & Mulyanto, 2024).	Functional Value, Economic Value, Emotional Value	4-point Likert
Customer Experience (X3)	Customers' cognitive, emotional, behavioral, sensory, and social responses during service interaction (Dalgic & Unal, 2018).	Sense, Feel, Think, Act, Relate	4-point Likert
Trust (Z)	Willingness to rely on a service provider based on perceived competence and integrity (Kotler et al., 2022).	Competence, Integrity, Honesty, Benevolence	4-point Likert
Customer Satisfaction (Y)	Overall evaluation of service performance compared to expectations (Indrasari, 2019).	Expectation Confirmation, Revisit Intention, Recommendation Intention	4-point Likert

Source: Data Processed (2025)

### 3.6 Research Model

This study's conceptual framework delineates the interconnections among service quality, perceived value, customer experience, trust, and customer satisfaction. Trust serves as a mediating variable between the three antecedent variables and consumer pleasure. Figure 1 illustrates the research model, depicting the proposed links among the constructs studied in this study.



**Figure 1. Research Model**

### 3.7 Data Analysis Technique

With the aid of SmartPLS Version 4 software, structural equation modeling (SEM) based on the partial least squares (PLS) method was used to analyze the data. Because of its predictive orientation, ability to analyze complicated models, and applicability for small to medium sample sizes, PLS-SEM was chosen (Hair et al., 2021). In addition to examining the mediating function of

trust in the links between service quality, perceived value, customer experience, and customer satisfaction, the analysis method involved evaluating the measurement model (construct reliability and validity) and the structural model.

## 4. RESULTS AND DISCUSSION

### 4.1 RESULT

#### 4.1.1. Respondent Characteristics

Based on the survey results, most respondents using SPKLU UB Disyan PLN Batam services were above 40 years old (40.6%), followed by those aged 26–40 years (36.8%) and 18–25 years (22.6%). In terms of gender, male respondents dominated with 70.3%, while female respondents accounted for 29.7%. These respondent characteristics are presented in **Table 1**, which summarizes the demographic profile of SPKLU UB Disyan PLN Batam users.

**TABLE 2.** Characteristics of Respondents of UB Disyan PLN Batam.

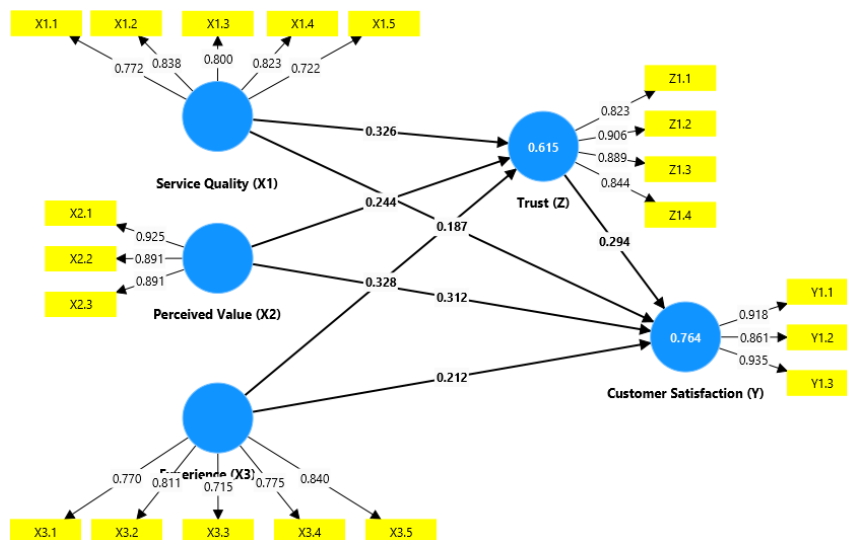
Characteristics	Category	Number	Percentage
Age	18-25	35	22.6%
	26-40	57	36.8%
	>40	63	40.6%
Gender	Male	109	70.3%
	Female	46	29.7%

Source: Primary data, processed 2025.

#### 4.1.2. Measurement Model Evaluation (Outer Model)

Partial Least Squares–Structural Equation Modeling (PLS-SEM) was used to assess the measurement model. While Composite Reliability and Cronbach's Alpha were used to assess reliability, outer loading and Average Variance Extracted (AVE) were used to establish convergent validity.

As shown in **Figure 2**, all indicators demonstrate satisfactory outer loading values.



**FIGURE 2.** Outer Loading (OL) for Convergent Validity Test

The detailed results of the outer model evaluation are presented in **Table 3**.

**TABLE 3 | Outer Model Test**

Variable and Indicator		Outer Loading	AVE	Composite Reliability	Cronbach Alpha
<b>Service Quality (X<sub>1</sub>)</b>					
(X <sub>1.1</sub> )	The charging speed consistency of the UB Disyan PLN Batam SPKLU is in line with the promised specifications, ensuring effective and efficient performance.	0.772			
(X <sub>1.2</sub> )	The staff's responsiveness to customer assistance requests and the handling of technical issues that may arise during charging.	0.838			
(X <sub>1.3</sub> )	Transaction security, quality assurance of electricity supply, availability of insurance or compensation guarantees, as well as certification and standardization of equipment at the SPKLU.	0.800	0.627	0.851	0.893
(X <sub>1.4</sub> )	The design of the UB Disyan SPKLU features an attractive visual appeal and adequate physical facilities (such as Wi-Fi internet, parking lots, restrooms, and others).	0.823			
(X <sub>1.5</sub> )	Availability of customer service that can be contacted 24 hours a day.	0.722			
<b>Perceived Value (X<sub>2</sub>)</b>					
(X <sub>2.1</sub> )	I am satisfied with the quality and reliability of the charging service at SPKLU, as this service provides convenience and efficiency in meeting the needs of my electric vehicle, including charging speed and the availability of supporting facilities.	0.925			
(X <sub>2.2</sub> )	I am satisfied with the cost comparison of charging my electric vehicle at SPKLU compared to the cost of fossil fuels, as charging provides long-term cost savings.	0.891	0.815	0.886	0.930
(X <sub>2.3</sub> )	I am satisfied with the level of satisfaction and comfort I experience during the charging process, including the atmosphere of the location, interaction with staff, and positive feelings that arise, such as satisfaction, pride, or a sense of security from using clean and environmentally friendly energy.	0.891			
<b>Experience (X<sub>3</sub>)</b>					
(X <sub>3.1</sub> )	I am satisfied with the quality of the physical environment at the UB Disyan PLN Batam SPKLU location, including cleanliness, lighting, and the comfort of the waiting area, as well as the availability of adequate parking space, which provides a pleasant sensory experience during the charging process.	0.770			
(X <sub>3.2</sub> )	I am satisfied with the emotional experience I felt during the charging process at the SPKLU UB Disyan PLN Batam, including the sense of comfort and calmness that arises from the atmosphere of the location, facilities, and positive interactions with staff.	0.811	0.614	0.842	0.888

	Variable and Indicator	Outer Loading	AVE	Composite Reliability	Cronbach Alpha
(X <sub>3.3</sub> )	I am satisfied with the technological innovations at the SPKLU UB Disyan, as they provide a modern, advanced, and up-to-date experience, thereby enhancing the positive image of this service.	0.715			
(X <sub>3.4</sub> )	I am satisfied with the ease of using the SPKLU UB Disyan service, from the payment process to the operation of the charging equipment, which encourages me to continue using this service.	0.775			
(X <sub>3.5</sub> )	I am satisfied because using the SPKLU UB Disyan service makes me feel connected to the community of electric vehicle customers who support an environmentally friendly lifestyle.	0.840			
<b>Trust (Z)</b>					
(Z <sub>1.1</sub> )	I trust that the staff at SPKLU UB Disyan have the necessary skills and knowledge to handle charging and answer my questions effectively.	0.823			
(Z <sub>1.2</sub> )	I trust that the service policies at SPKLU UB Disyan are applied consistently and fairly, reflecting integrity in every interaction I have experienced.	0.906			
(Z <sub>1.3</sub> )	I trust that the information provided by SPKLU UB Disyan regarding costs, services, and charging processes is honest and transparent, with no concealment or deception.	0.889	0.750	0.889	0.923
(Z <sub>1.4</sub> )	I trust that SPKLU UB Disyan demonstrates good faith by providing attention and support to customers, and striving to meet customer needs effectively.	0.844			
<b>Customer Satisfaction (Y)</b>					
(Y <sub>1.1</sub> )	I am satisfied because the service I received at SPKLU UB Disyan met my expectations in terms of charging speed, service quality, and facilities.	0.918			
(Y <sub>1.2</sub> )	I am satisfied and plan to use SPKLU services again in the future because of the positive experience I had while charging my vehicle.	0.861	0.819	0.889	0.931
(Y <sub>1.3</sub> )	I am satisfied with SPKLU services and am willing to recommend them to friends and family as a good option for charging electric vehicles.	0.935			

**Note:\*) indicators are considered valid if outer loadings and AVE >0,5**  
**\*\*\*) Indicators are considered reliable if composite reliability and cronbach alpha >0,70**  
 Source: Primary data, processed 2025.

All indicators met the validity and reliability criteria, indicating that the measurement model is appropriate (Hair et al., 2021). These results indicate that the measurement model is robust and consistent with established theoretical constructs, supporting the reliability of the proposed research framework. Furthermore, the significant relationships among variables confirm the theoretical assumptions derived from expectancy-disconfirmation theory and relational exchange theory.

**4.1.3. Structural Model Evaluation**

**a. Coefficient of Determination (R-Square)**

The structural model assessment reveals an R-square value of 0.764 for customer satisfaction, signifying considerable explanatory strength. The R-square score for trust is 0.615, categorising it as moderate. The results are encapsulated in Table 4.

**TABLE 4 | R-Square**

Variable	R-square	R-square adjusted
Customer Satisfaction	0.764	0.757
Trust	0.615	0.607

Source: Primary data, processed 2025.

**b. Direct Effects**

The direct relationship among variables was tested using path coefficients. The results show that all proposed direct hypotheses (H1–H7) are statistically significant. The comprehensive path coefficient data are displayed in Table 5.

**TABLE 5 | Path Coefficient Direct Effect**

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O/STDEV))	P values
Service Quality (X1) → Customer Satisfaction (Y)	0.187	0.184	0.095	1.975	0.024
Perceived Value (X2) → Customer Satisfaction (Y)	0.312	0.310	0.118	2.642	0.004
Experience (X3) → Customer Satisfaction (Y)	0.212	0.220	0.080	2.646	0.004
Trust (Z) → Customer Satisfaction (Y)	0.294	0.287	0.087	3.395	0.000
Service Quality (X1) → Trust (Z)	0.326	0.327	0.094	3.451	0.000
Perceived Value (X2) → Trust (Z)	0.244	0.243	0.103	2.362	0.009
Experience (X3) → Trust (Z)	0.328	0.328	0.092	3.568	0.000

Source: Primary data, processed 2025.

**c. 4.1.3.3 Indirect Effects (Mediation Test)**

The mediation analysis demonstrates that trust strongly mediates the relationship among service quality, perceived value, customer experience, and customer satisfaction. The results of the indirect effect are displayed in Table 6.

**TABLE 6 | Path Coefficient Indirect Effect**

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O/STDEV))	P values
Service Quality (X1) → Trust (Z) → Customer Satisfaction (Y)	0.096	0.094	0.041	2.337	0.010
Perceived Value (X2) → Trust (Z) → Customer Satisfaction (Y)	0.072	0.068	0.033	2.170	0.015

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values
(Z) → Customer Satisfaction (Y)					
Experience (X3) → Trust (Z) → Customer Satisfaction (Y)	0.096	0.095	0.042	2.289	0.011

Source: Primary data, processed 2025.

All indirect paths show positive and significant coefficients, confirming hypotheses H8, H9, and H10.

## 4.2 DISCUSSION

### 4.2.1. Effect of Service Quality on Customer Satisfaction

Service quality constitutes a fundamental foundation for building customer satisfaction, particularly in technology-based public services such as Public Electric Vehicle Charging Stations (SPKLU). The findings of this study at SPKLU UB Disyan PLN Batam reveal that service quality has a positive and statistically significant effect on customer satisfaction, with a path coefficient of 0.187, a t-statistic of 1.975, and a p-value of 0.048. These results indicate that improvements in service quality contribute meaningfully to enhancing customer satisfaction.

The five SERVQUAL dimensions reliability, responsiveness, assurance, empathy, and tangibles—collectively play a substantial role in shaping customer satisfaction. Reliable charging performance and stable operational systems foster a sense of security and trust, ensuring that customers’ mobility needs are adequately supported. Although certain challenges remain, such as longer waiting times during weekends, prompt staff responses and transparent procedures help sustain positive service perceptions. From a psychological perspective, reliability reduces perceived risk, while responsiveness and courteous interactions enhance emotional comfort during service encounters.

These findings are consistent with the SERVQUAL framework, which posits that service quality dimensions directly influence customer satisfaction (Wirtz & Lovelock, 2021). The results also align with prior empirical studies demonstrating that service quality significantly enhances customer satisfaction across various service sectors (Uzir et al., 2021; Nugraha et al., 2022; Rahmadani et al., 2023). In the context of SPKLU as a green digital public infrastructure, reliability and operational stability serve not only as performance indicators but also as mechanisms for risk mitigation, particularly for early adopters of electric vehicle technology.

Therefore, this study reinforces the relevance of the SERVQUAL framework in technology-based service environments. From a practical perspective, service providers should prioritize operational reliability, minimize service delays, and enhance responsiveness, as these factors support the hypothesized positive relationship between service quality and customer satisfaction.

### 4.2.2. Effect of Perceived Value on Customer Satisfaction

This study demonstrates that perceived value has a positive and statistically significant effect on customer satisfaction ( $\beta = 0.312$ ;  $t = 2.642$ ;  $p = 0.008$ ). This indicates that customers evaluate services through a comprehensive assessment of benefits relative to sacrifices. Higher perceived value—whether functional, economic, or emotional—leads to higher levels of customer satisfaction.

Perceived value arises from customers’ multidimensional assessment of the benefits received compared to the costs incurred. In the context of SPKLU, functional benefits include charging efficiency, operational reliability, and convenience; economic benefits relate to cost savings compared to fossil fuels; while emotional benefits involve a sense of pride and moral fulfillment derived from supporting environmentally friendly energy. These integrated benefits collectively strengthen satisfaction judgments and foster positive behavioral intentions, such as repeat usage and recommendation.

The findings are consistent with prior research indicating that perceived value significantly enhances customer satisfaction

and long-term relational outcomes (Sofyan & Praswati, 2024; Nurhaliza & Siregar, 2024). Previous studies also demonstrate that perceived value not only directly affects satisfaction but also reinforces relational constructs such as trust, which further strengthens customer relationships (Nugraha et al., 2022; Sihombing et al., 2023; Dewi & Praswati, 2023; Ikramuddin & Muriyadi, 2021).

In the context of green service infrastructure, value perception extends beyond purely monetary considerations to encompass symbolic environmental contributions, integrating utilitarian and socio-emotional dimensions. Therefore, this study reinforces the importance of perceived value in shaping customer satisfaction. From a practical perspective, service providers should focus on enhancing functional performance, ensuring cost efficiency, and strengthening emotional value, as these factors support the hypothesized positive relationship between perceived value and customer satisfaction.

#### **4.2.3. Effect of Customer Experience on Customer Satisfaction**

Customer experience has a positive and statistically significant effect on customer satisfaction ( $\beta = 0.212$ ;  $t = 2.646$ ;  $p = 0.008$ ). This indicates that holistic service experiences play an important role in shaping satisfaction levels. Customer experience encompasses the entire service journey, including service processes, physical environment, and interpersonal interactions.

Respondents reported satisfaction not only with the physical facilities but also with the professionalism and responsiveness of staff. From a psychological perspective, SPKLU users many of whom are early adopters of green technology value not only functional efficiency but also the emotional and social meaning embedded in the service experience. The sense of pride associated with participating in sustainable innovation enhances satisfaction beyond purely utilitarian considerations.

These findings are consistent with prior research demonstrating that customer experience significantly influences satisfaction outcomes (Fadhilah & Nainggolan, 2024; Rahmadani et al., 2024; Nugraha et al., 2022).

Therefore, this study highlights the importance of customer experience in shaping satisfaction. From a practical perspective, service providers should improve service processes, enhance interaction quality, and create seamless service experiences, as these aspects support the hypothesized positive effect of customer experience on customer satisfaction.

#### **4.2.4. Service Quality, Perceived Value, and Customer Experience as Antecedents of Trust**

The study reveals that service quality ( $\beta = 0.326$ ), perceived value ( $\beta = 0.244$ ), and customer experience ( $\beta = 0.328$ ) have positive and significant effects on trust, underscoring the importance of consistent performance and meaningful service interactions in fostering relational confidence.

These findings align with prior research that positions trust as a relational outcome derived from quality and value perceptions. Previous studies indicate that service quality and perceived value play critical roles in strengthening trust across both public service and brand contexts (Sirojudin et al., 2023; Wijaya et al., 2020). Furthermore, empirical evidence suggests that positive customer experiences significantly reinforce trust, particularly in digital service environments where interaction quality shapes user confidence (Silviana et al., 2022).

In service contexts characterized by uncertainty, trust becomes a critical factor in reducing perceived risk and strengthening customer confidence. Therefore, this study confirms the role of service quality, perceived value, and customer experience as key antecedents of trust. From a practical perspective, service providers should maintain service reliability, deliver consistent value, and ensure positive customer experiences, as these factors support the hypothesized relationships between these variables and trust.

#### **4.2.5. The Effect of Trust on Customer Satisfaction**

Trust has a positive and statistically significant effect on customer satisfaction ( $\beta = 0.294$ ;  $t = 3.395$ ;  $p = 0.001$ ). This result indicates that higher levels of trust are associated with higher levels of customer satisfaction, indicating that higher levels of trust are associated with more favorable service evaluations. Trust reduces perceived risk and enhances emotional comfort, allowing customers to assess services more positively.

These findings are consistent with relational exchange theory, which emphasizes trust as a key determinant of satisfaction in long-term relationships. Prior studies also confirm that trust significantly predicts customer satisfaction and strengthens relational outcomes (Dewi & Praswati, 2023; Sihombing et al., 2023).

Therefore, this study reinforces the importance of trust in shaping customer satisfaction. From a practical perspective, service providers should strengthen customer trust through consistent service performance, transparent communication, and responsive support, as this supports the hypothesized positive relationship between trust and customer satisfaction.

#### **4.2.6. The Mediating Role of Trust**

The mediation analysis confirms that trust significantly mediates the relationship between service quality, perceived value, customer experience, and customer satisfaction. All indirect effects are statistically significant ( $t > 1.96$ ;  $p < 0.05$ ) and demonstrate positive coefficients. This indicates that customer satisfaction is influenced not only by functional service performance but also by relational confidence established through trust.

Trust functions as a psychological bridge linking service perceptions to satisfaction outcomes. When customers perceive consistent service quality, meaningful value, and positive service experiences, their level of trust increases, which subsequently enhances satisfaction.

These findings are consistent with prior empirical studies confirming the mediating role of trust in service relationship models (Nugraha et al., 2022; Sihombing et al., 2023; Shefira & Mangifera, 2024). Therefore, this study highlights the strategic role of trust as a mediating variable. From a practical perspective, service providers should not only focus on improving service attributes but also on strengthening customer trust, as this mechanism supports the indirect effects proposed in the hypotheses.

## **5. CONCLUSION**

This study shows that service quality, perceived value, and customer experience are critical in influencing customer satisfaction at the UB Disyan PLN Batam Public Electric Vehicle Charging Station (SPKLU), with trust serving as a crucial mediating factor. The results demonstrate that consumer satisfaction in green and digital public infrastructure services is shaped not just by technical service performance, but also by a comprehensive assessment of value, experience, and trust in service providers. Perceived value is the primary factor, indicating that electric car consumers emphasize concrete functional, economic, and environmental advantages in relation to the costs and dangers associated with adopting new technology. Trust serves as a crucial mediator, underscoring its significance in strengthening the connection between service qualities and contentment, thus affirming trust as a psychological conduit that links service performance to enduring satisfaction and loyalty. These findings potentially enhance service marketing and green service literature by introducing a comprehensive, trust-based paradigm within the relatively unexamined environment of SPKLU services in Indonesia. Future research is encouraged to explore additional variables, such as technology acceptance, environmental awareness, and sustainable mobility behavior, to further enrich the model.

## **6. LIMITATION AND IMPLICATION**

This study possesses multiple limitations that must be acknowledged when evaluating the results and formulating future research. The research is confined to a singular site, specifically the UB Disyan PLN Batam Public Electric Vehicle Charging Station (SPKLU), thus limiting the applicability of the findings to other areas with varying demographic, cultural, and infrastructural attributes. Differences in electric car adoption rates and public service perceptions among areas may result in distinct patterns of consumer satisfaction and trust. This study utilizes a quantitative, cross-sectional methodology with self-reported questionnaires, which may be susceptible to answer biases, including social desirability and self-selection bias. Despite the administration of validity and reliability assessments, respondents' impressions may represent transient experiences rather than enduring evaluations. The model emphasises service quality, perceived value, customer experience, trust, and customer

satisfaction, omitting other possible determinants such as promotional strategies, supporting technology ecosystems, government incentives, or social and community influences that could impact SPKLU service adoption. The study's cross-sectional design precludes the detection of temporal changes in customer perceptions, especially in relation to technical advancements or regulatory actions.

Future research should aim to rectify these shortcomings using other approaches. Comparative analyses across many SPKLU sites in diverse areas or nations may yield profound insights into contextual and regulatory impacts on customer satisfaction and trust. Additionally, future studies may employ longitudinal designs to capture changes in customer perceptions over time and examine behavioral intentions related to sustainable mobility adoption. The incorporation of qualitative methods, such as comprehensive interviews or observational studies, could enhance the comprehension of customer motives, feelings, and experiences that quantitative surveys do not fully capture. Subsequent research could enhance the conceptual model by including variables associated with technology acceptability, digital literacy, user communities, environmental sustainability orientation, and the influence of government regulations on the advancement of electric vehicle infrastructure. Longitudinal study designs or experimental methodologies are advised to investigate the evolving nature of trust, satisfaction, and loyalty over time, as well as to assess the enduring impact of management and policy actions regarding SPKLU services.

## REFERENCES

- Ahmed, B., Zada, S., Zhang, L., Sidiki, S. N., Contreras-Barraza, N., Vega-Muñoz, A., & Salazar-Sepúlveda, G. (2022). The Impact of Customer Experience and Customer Engagement on Behavioral Intentions: Does Competitive Choices Matters? *Frontiers in Psychology*, 13, 864841. <https://doi.org/10.3389/FPSYG.2022.864841/XML/NLM>
- Dalgic, T., & Unal, S. (2018). Utilizing consumer psychology in business strategy. In *Utilizing Consumer Psychology in Business Strategy*. IGI Global. <https://doi.org/10.4018/978-1-5225-3448-8>
- Dewi, A. A. A. R. S., Indiani, N. L. P., & Wahyuni, N. M. (2024). The Role of Trust in Mediating the Influence of Service Quality and Customer Satisfaction on Customer Loyalty in the Money Changer Industry Badung Regency. *International Journal of Business and Management*, 12(1), 129–140. <https://doi.org/10.37641/jimkes.v12i1.2396>
- Fadhilah, R. E., & Nainggolan, B. M. (2024). Peran Kualitas Pelayanan, Kepercayaan dan Pengalaman Pelanggan terhadap Kepuasan Pelanggan. *INOVASI*, 11(1), 150–163. <https://doi.org/10.32493/INOVASI.V11I1.P150-163.40256>
- González-Viralta, D., Veas-González, I., Egaña-Bruna, F., Vidal-Silva, C., Delgado-Bello, C., & Pezoa-Fuentes, C. (2023). Positive effects of green practices on the consumers' satisfaction, loyalty, word-of-mouth, and willingness to pay. *Heliyon*, 9(10), e20353. <https://doi.org/10.1016/J.HELIYON.2023.E20353>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R. <https://doi.org/10.1007/978-3-030-80519-7>
- Halim, E., Claudia, L., & Hebrard, M. (2023). The Impact of Customer Satisfaction, Customer Experience, and E-Service Quality on Customer Trust in Purchasing Digital Products at the Marketplace. *Jurnal Aplikasi Manajemen*, 21(3), 567–577. <https://doi.org/10.21776/UB.JAM.2023.021.03.02>
- Halim, I., & Berlianto, M. P. (2024). The Effect of Service Quality Dimensions, Perceived Value, Customer Satisfaction, and Brand Love toward Customer Retention on First Media's Subscribers. *Widya Cipta: Jurnal Sekretari Dan Manajemen*, 8(2), 139–152. <https://doi.org/10.31294/WIDYACIPTA.V8I2.20052>
- Ikramuddin, & Muriyadi. (2021). The mediating role of customer satisfaction and brand trust between the relationship of perceived value and brand loyalty. *Asian Journal of Economics, Business and Accounting*, 21(19). <https://doi.org/10.9734/ajeba/2021/v21i1930503>
- Journal of Environmental, Sustainability, and Social Science, 5(3), 648–663. <https://doi.org/10.38142/IJESS.V5I3.1049>
- Kiliçli, Y. (2023). The Investigation of the Relationship Between Service Quality and Customer Satisfaction in Accommodation Businesses With a Meta-Analytical Approach. *Journal of Gastronomy, Hospitality and Travel*, 6(2), 840–855. <https://doi.org/10.33083/joghat.2023.305>
- Kotler, P., Keller, K. L., Chernev, A., Sheth, J. N., & Shainesh, G. (2022). *Marketing Management*. Pearson Education.
- Lee, J. C., Li, T., & Zhang, L. (2025). Environmental concerns and green trust in continuous green fintech use: an expectation-confirmation model with insights from Ant Forest. *Humanities and Social Sciences Communications* 2025 12:1, 12(1), 1–16. <https://doi.org/10.1057/s41599-025-04856-2>
- Nguyen, X. H., Nguyen, T. T., Anh Dang, T. H., Dat Ngo, T., Nguyen, T. M., & Anh Vu, T. K. (2024). The influence of electronic word of mouth and perceived value on green purchase intention in Vietnam. *Cogent Business and Management*, 11(1), 19–30. <https://doi.org/10.1080/23311975.2023.2292797>
- Novianto. (2024). Ratusan Mobil Listrik Telah Mengaspal di Batam, PLN Kenalkan EV Ecosystem - BatamClick.com. <https://batamclick.com/21/05/2024/ratusan-mobil-listrik-telah-mengaspal-di-batam-pln-kenalkan-ev-ecosystem/>

- Nugraha, W., Indrayanto, A., & Suwandari, L. (2022). Pengaruh Kualitas Layanan, Persepsi Nilai Yang Dirasakan Dan Pengalaman Terhadap Kepuasan Dimediasi Rasa Percaya. *Jurnal Ekonomi, Bisnis Dan Akuntansi (JEBA)*, 24(1), 47–58.
- Nurhaliza, M., & Siregar, D. (2024). Pengaruh Kepercayaan dan Persepsi Nilai terhadap Kepuasan Konsumen. *Jurnal Ilmiah Manajemen Dan Bisnis (JIMBI)*, 5(2), 292–301. <https://doi.org/10.31289/JIMBI.V5I2.5336>
- Pei, X. L., Guo, J. N., Wu, T. J., Zhou, W. X., & Yeh, S. P. (2020a). Does the Effect of Customer Experience on Customer Satisfaction Create a Sustainable Competitive Advantage? A Comparative Study of Different Shopping Situations. *Sustainability* 2020, Vol. 12, Page 7436, 12(18), 7436. <https://doi.org/10.3390/SU12187436>
- Pei, X. L., Guo, J. N., Wu, T. J., Zhou, W. X., & Yeh, S. P. (2020b). Does the Effect of Customer Experience on Customer Satisfaction Create a Sustainable Competitive Advantage? A Comparative Study of Different Shopping Situations. *Sustainability* 2020, Vol. 12, Page 7436, 12(18), 7436. <https://doi.org/10.3390/SU12187436>
- Rahmadani, N., Adiyani, R., & ... (2024). Analisis Pengaruh Kualitas Layanan, Persepsi Nilai, Pengalaman Pelanggan terhadap Niat Pembelian Ulang PT KCI Indonesia DAOP VI Yogyakarta Melalui Variabel .... *Jurnal Mirai ...*, 9(1), 597–617. <https://doi.org/10.37531/MIRAI.V9I1.6542>
- Relifra, Sakinah, Y. P., & Syafriani, O. (2024). Pengaruh Persepsi Nilai, Kualitas Pelayanan, dan Kepuasan Konsumen terhadap Minat Beli Ulang pada Distro Agung Kota Sungai Penuh. *Jurnal Media Akademik (Jma)*, 2(1), 1136–1149.
- Sanguesa, J. A., Torres-Sanz, V., Garrido, P., Martinez, F. J., & Marquez-Barja, J. M. (2021). A Review on Electric Vehicles: Technologies and Challenges. *Smart Cities* 2021, Vol. 4, Pages 372-404, 4(1), 372–404. <https://doi.org/10.3390/SMARTCITIES4010022>
- Sani, I., Karnawati, T. A., & Ruspitasari, W. D. (2024). The Impact of Service Quality on Customer Loyalty Through Customer Satisfaction of PT Multicom Persada International Jakarta. *Dinasti International Journal of Management Science*, 5(3), 475–485. <https://doi.org/10.31933/DIJMS.V5I3.2202>
- Shefira, M., & Mangifera, L. (2024). The Role of Customer Trust in Mediating Service Quality and Perceived Value of Customer Satisfaction with ShopeeFood. *Atlantis Press International BV*. <https://doi.org/10.2991/978-94-6463-204-0>
- Sihombing, M., Sari, D. K., & Games, D. (2023). Analysis of Service Quality and Customer Perceived Value on Customer Satisfaction Through Customer Trust as a Mediating Variable. *Journal Publicuho*, 6(4), 1301–1310. <https://doi.org/10.35817/PUBLICUHO.V6I4.270>
- Silitonga, V. H., & Yuliviona, R. (2022). Pengaruh Persepsi Nilai dan Harga terhadap Loyalitas Pelanggan dengan Kepuasan Pelanggan sebagai Variabel Intervening (Studi Kasus: Es Kristal Blue Mountain Padang). *Abstract of Undergraduate Research, Faculty of Economics, Bung Hatta University*, 21(2), 1–3. <https://ejournal.bunghatta.ac.id/index.php/JFEK/article/view/21088>
- Silviana, N. S., Rofiaty, & Puspaningrum, A. (2022). The effect of customer experience of trust and e-service quality on customer loyalty with customer satisfaction as a research mediation variable in Tokopedia e-commerce: A study case on new students in East Java. *International Journal of Research in Business and Social Science* (2147- 4478), 11(6), 600–608. <https://doi.org/10.20525/IJRBS.V11I6.1971>
- Sirojudin, M. T., Welsa, H., & Ningrum, N. K. (2023). Pengaruh kualitas layanan dan nilai yang dirasakan peserta terhadap kepuasan peserta dengan kepercayaan sebagai variabel mediasi pada PT Taspen (Persero) Kantor Cabang Yogyakarta. *Jurnal Riset Ekonomi dan Akuntansi*, 1(3), 277–297. <https://doi.org/10.54066/jrea-itb.v1i3.692>
- Sofyan, S. L., & Praswati, A. N. (2024). Perceived Value is Proven to Affect Repurchase Intention Mediated by Customer Engagement and Customer Satisfaction. *Atlantis Press International BV*. [https://doi.org/10.2991/978-94-6463-204-0\\_55](https://doi.org/10.2991/978-94-6463-204-0_55)
- Sutriani, S., Muslim, M., & Ramli, A. H. (2024). The Influence Of Experience, Satisfaction And Service Quality On Word Of Mouth Intentions And Customer Loyalty. *Jurnal Ilmiah Manajemen Kesatuan*, 12(4), 1037–1052. <https://doi.org/10.37641/JIMKES.V12I4.2605>
- Telagawathi, N. L. S. (2019). Nilai Yang Dipersepsikan Terhadap Kepuasan Pelanggan Serta Dampaknya pada Loyalitas Pelanggan Industri Jasa Perbankan di Kota Denpasar. *Ekuitas: Jurnal Pendidikan Ekonomi*, 7(2), 130–142. <https://doi.org/10.23887/EKUITAS.V7I2.17669>
- Uzir, M. U. H., Al Halbusi, H., Thurasamy, R., Lim Thiam Hock, R., Aljaberi, M. A., Hasan, N., & Hamid, M. (2021). The effects of service quality, perceived value and trust in home delivery service personnel on customer satisfaction: Evidence from a developing country. *Journal of Retailing and Consumer Services*, 63, 102721. <https://doi.org/10.1016/j.jretconser.2021.102721>
- Uzir, M., Uzir, H., Al Halbusi, H., Thurasamy, R., Lim, R., Hock, T., Aljaberi, M. A., Hasan, N., Hamid, M., Ekonomi, F., Pengurusan, D., Pengurusan, F., & Perniagaan, D. (2021). The effects of service quality, perceived value and trust in home delivery service personnel on customer satisfaction: Evidence from a developing country. *Journal of Retailing and Consumer Services*, 63, 102721. <https://doi.org/10.1016/j.jretconser.2021.102721>
- Vaniara, F. V., & Pramono, R. (2022). The Effect of Perceived Value, Customer Satisfaction, and Trust on Customer Loyalty at the DM Clinic in East Jakarta. *International Journal of Economics, Business and Accounting Research (IJEBAAR)*, 6(3), 2514–2519. <https://doi.org/10.29040/IJEBAAR.V6I3.6377>
- Wafa, R. S., Sujito, S., & Kuswardani, D. (2023). Persepsi Nilai Mampu Memediasi Terwujudnya Kepuasan Pelanggan. *Magisma: Jurnal Ilmiah Ekonomi Dan Bisnis*, 11(2), 181–192. <https://doi.org/10.35829/magisma.v11i2.325>
- Wijaya, A. F. B., Surachman, S., & Mugiono, M. (2020). The effect of service quality, perceived value and mediating effect of brand image on brand trust. *Jurnal Manajemen dan Kewirausahaan*, 22(1), 45–56. <https://doi.org/10.9744/jmk.22.1.45-56>
- Wilson, A., Zeithaml, V. A., Bitner, M. J., & Gremler, D. D. (2020). *Services marketing: integrating customer focus across the firm*.
- Wirtz, J., & Lovelock, C. (2021). *Services Marketing People, Technology, Strategy, Ninth Edition*. In *Services Marketing: People, Technology, Strategy, Ninth Edition (Issue January)*. <https://doi.org/10.1142/y0024>

- Wulandari, A., & Mulyanto, H. (2024). Keputusan Pembelian Konsumen (F. Rezeki (ed.)). PT Kimshafi Alung Cipta. [http://repository.ipwija.ac.id/5125/3/2024-20240530-Buku Keputusan Pembelian Konsumen-May 2024.pdf](http://repository.ipwija.ac.id/5125/3/2024-20240530-Buku%20Keputusan%20Pembelian%20Konsumen-May%202024.pdf)
- Yi, H. T., Yeo, C. K., Amenuvor, F. E., & Boateng, H. (2021). Examining the relationship between customer bonding, customer participation, and customer satisfaction. *Journal of Retailing and Consumer Services*, 62, 102598. <https://doi.org/10.1016/J.JRETCONSER.2021.102598>
- Yusria, L., Imronudin, I., & Kuswati, R. (2024). The Influence of Service Quality and Trust on Repurchase Interest in Beauty Clinic Services. *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE)*, 7(2), 3169–3194. <https://doi.org/10.31538/IIJSE.V7I2.5055>
- Zahara, R. (2024). The Effect of Service Quality on Trust and Its Implications for Patient Loyalty. *Dinasti International Journal of Economics, Finance & Accounting*, 5(2), 368–384. <https://doi.org/10.38035/dijefa.v5i2.2512>
- Zeithaml, V. A., Bitner, M. J., & Gremler, D. D. (2019). *Services Marketing: Integrating Customer Focus Across the Firm*. McGraw-Hill Education. <https://app.box.com/s/fsh1f0b6bgjsrhcp7vq189h2vrvlirrd>

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