Analyzing the Effect of Infrastructure and Facility Quality on Customer Satisfaction

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ABSTRACT

This study aims to determine the effect of infrastructure, facilities, and services on customer satisfaction of Integrated Mass Rapid Transit users in a region. This study uses a descriptive survey method with data collection through questionnaires that have been tested for validity and reliability. The sample of this study involved 95 Integrated Mass Rapid Transit users spread across 13 Integrated Mass Rapid Transit stations, with a purposive sampling technique based on certain criteria such as frequency of use and travel purpose. Data analysis was conducted using SPSS and Structural Equation Modeling (SEM). The results of this study indicate that infrastructure and facilities have a significant effect on customer satisfaction, while services also contribute to increasing user satisfaction. Based on these findings, it is recommended that MRT managers continue to improve the quality of infrastructure, facilities, and services in order to increase customer satisfaction and loyalty. These findings provide an important contribution to the planning and management of more effective and sustainable public transportation, especially in supporting the development of a multimodal and integrated transportation system in the region.

Keywords*: Facilities and Infrastructure, Mode of Transportation, Transportation Facilities, Public Transport Satisfaction.*

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh prasarana, sarana, dan pelayanan terhadap kepuasan pelanggan pengguna Angkutan Umum Mass Rapid Transit Terpadu di suatu wilayah. Penelitian ini menggunakan metode survei deskriptif dengan pengumpulan data melalui kuesioner yang telah teruji validitas dan reliabilitasnya. Sampel penelitian ini melibatkan 95 pengguna Angkutan Umum Mass Rapid Transit Terpadu yang tersebar di 13 stasiun Angkutan Umum Mass Rapid Transit Terpadu, dengan teknik purposive sampling berdasarkan kriteria tertentu seperti frekuensi penggunaan dan tujuan perjalanan. Analisis data dilakukan dengan menggunakan SPSS dan Structural Equation Modeling (SEM). Hasil penelitian ini menunjukkan bahwa prasarana dan sarana berpengaruh signifikan terhadap kepuasan pelanggan, sedangkan pelayanan juga berkontribusi dalam meningkatkan kepuasan pengguna. Berdasarkan temuan tersebut, disarankan kepada pengelola MRT untuk terus meningkatkan kualitas prasarana, sarana, dan pelayanan guna meningkatkan kepuasan dan loyalitas pelanggan. Temuan ini memberikan kontribusi penting bagi perencanaan dan pengelolaan transportasi publik yang lebih efektif dan

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berkelanjutan, terutama dalam mendukung pengembangan sistem transportasi multimoda dan terpadu di wilayah tersebut.

***Kata kunci**: Sarana dan Prasarana, Moda Transportasi, Fasilitas Transportasi, Kepuasan Angkutan Umum*

INTRODUCTION

The Special Capital Region of Jakarta (DKI Jakarta), as the capital city of the Republic of Indonesia and the largest metropolitan area in Southeast Asia, consists of five administrative cities Central Jakarta (48.13 km²), North Jakarta (146.66 km²), West Jakarta (129.54 km²), South Jakarta (141.27 km²), and East Jakarta (188.03 km²) and one administrative regency, the Seribu Islands (8.70 km²) (Lestari et al., 2020; Firdaus et al., 2023). Jakarta is characterized by high population density and demographic diversity, including ethnic, cultural, linguistic, and religious heterogeneity, both from local residents and migrants from other provinces who seek economic opportunities in the capital. Based on the Intercensal Population Survey (*Survei Penduduk Antar Sensus*/SUPAS), Jakarta's population was projected to reach approximately 10.57 million in 2020, reflecting an increase of around 72,000 people (0.7%) from 2019. The largest age groups were those aged 25–29 (942,400 individuals) and 35–39 (927,900 individuals), while the elderly population aged 75 and above was the smallest, with only 127,600 people. The rapid urbanization and continuous population growth have placed increasing pressure on the city's transportation systems, where diverse users interact dynamically in time and space. This complexity poses significant challenges in transportation planning, infrastructure management, and service operations (Sanny et al., 2019; Kurniasari et al., 2023).

Traffic congestion remains one of Jakarta's most persistent urban issues. In response, some private vehicle users are shifting to public transportation, adjusting travel behavior in terms of routes, departure times, and transportation modes (Hamzah et al., 2021). These changes in individual decisions can alter travel demand patterns and significantly impact transportation policy, infrastructure investments, and economic activities (Hussain et al., 2019; Lestari et al., 2024). To address these issues, multimodal transportation systems which integrate walking, cycling, and public transport are promoted as sustainable urban mobility solutions (Amankwah et al., 2024). These systems aim to reduce dependence on private vehicles and support the development of mixed-use urban environments. The effectiveness of multimodal transport systems depends on several interrelated factors, including demand patterns, infrastructure design, system integration, affordability, land use dynamics, accessibility, and service quality (Sutarjo et al., 2024; Muni et al., 2024). Accessibility to transit stops is a key determinant of public transport attractiveness. Therefore, comprehensive evaluations of local connectivity and transfer efficiency are required to increase the utilization of public transportation (Dewi & Praswati, 2024). Additionally, infrastructure conditions and user facilities must be evaluated regularly using relevant data, as physical deterioration can reduce system reliability and comfort (Ghosh & Ojha, 2017; Rivai, 2022). However, such assessments often demand extensive and costly field data collection efforts (Noerhartati & Budiharseno, 2024).

Although existing studies have examined multimodal systems and urban travel behavior, limited research has specifically assessed the relationship between infrastructure, facilities, and user satisfaction within the context of mass rapid transit (MRT) in Jakarta particularly in South Jakarta, a critical area within the MRT network (Pebriana, 2024; Faeni et al., 2025). This represents a significant research gap, as user satisfaction is a crucial performance indicator that influences long-term public transport usage and policy decisions. This study aims to evaluate transportation infrastructure and facilities from the perspective of customer satisfaction among MRT users in South Jakarta. The research adopts a simulation-based approach to assess and optimize sustainable transportation systems, focusing on system efficiency, accessibility, and

service integration. By proposing a structured framework and identifying the most influential components of multimodal transport satisfaction, the study provides strategic insights for policymakers and urban planners in designing resilient and user-centered transportation systems in Jakarta's rapidly evolving urban environment.

LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

Infrastructure on Consumer satisfaction

Consumer satisfaction, a pivotal factor in determining a company's success, emerges when the performance of a product or service aligns with or surpasses consumer expectations, as outlined in the disconfirmation of expectations theory (Kamenidou et al., 2014). Key determinants of satisfaction include superior product quality, responsive customer service, and positive emotional experiences during consumer interactions with the brand (Kotler & Keller, 2016; Nor & Rahim, 2021). Research utilizing the SERVQUAL model underscores that service attributes such as reliability, responsiveness, and empathy are critical drivers of consumer satisfaction (Rivero et al., 2023). Additionally, studies confirm that high-quality products meeting consumer expectations significantly enhance satisfaction levels (Roh et al., 2025; Morales et al., 2025).

Facilities and infrastructure, encompassing operational tools and foundational systems like buildings and communication networks, are essential for organizational effectiveness and efficiency (Bertalanffy, 1996). System Theory emphasizes that well-integrated components, including quality facilities, ensure smoother operational processes (Pebriana, 2024). Research indicates that robust facilities and infrastructure minimize operational disruptions, thereby boosting organizational productivity (Das & Maitra, 2024). Furthermore, quality infrastructure supports optimal service delivery, enhancing overall operational performance (Roy & Basu, 2020). The Infrastructure Quality Theory according to research Alemu (2007) highlights that superior infrastructure fosters economic growth, improves accessibility, and elevates community welfare.

The interplay between consumer satisfaction and facilities/infrastructure is significant. High-quality facilities, such as accessible parking, comfortable waiting areas, and advanced technological amenities, directly shape consumer perceptions of service quality, thereby elevating satisfaction (Božić et al., 2024; Yulita & Hidayat, 2024; Sutarjo et al., 2024). Organizations prioritizing investments in superior facilities and infrastructure not only optimize operational efficiency but also create exceptional customer experiences, fostering greater satisfaction and loyalty. This, in turn, drives sustained business performance and profitability, underscoring the critical role of facilities and infrastructure in achieving consumer-centric outcomes.

H1: Infrastructure has a significant effect on customer satisfaction.

Facility on Consumer Satisfaction

Consumer satisfaction, a cornerstone of organizational success, arises when product or service performance aligns with or surpasses consumer expectations, as outlined in the disconfirmation of expectations theory (Kamenidou et al., 2014). Critical factors influencing satisfaction include superior product quality, responsive customer service, and positive emotional experiences during interactions with the brand (Kotler & Keller, 2016; Nor & Rahim, 2021). The SERVQUAL model underscores that service dimensions like reliability, responsiveness, and empathy are pivotal in driving consumer satisfaction (Rahman et al., 2015; Rivero et al., 2023). Additionally, high-quality products that meet consumer expectations significantly enhance satisfaction levels (Roh et al., 2025; Morales et al., 2025).

Facilities, encompassing physical and non-physical elements such as workspaces, advanced technology, tools, and infrastructure, are essential for operational efficiency. Juran (1988) Facility Theory emphasizes that well-designed, comfortable, and accessible facilities directly contribute to improved work quality and organizational productivity (Williams & J. Nadin, 2014). Bitner (1992) Service Quality Theory highlights that the

quality of physical facilities, such as clean, aesthetically pleasing waiting rooms and well-maintained public spaces, shapes customer perceptions of service quality (Roy & Basu, 2020). Research further confirms that well-managed facilities positively impact customer satisfaction and loyalty (Rustandi et al., 2024; Das & Maitra, 2024).

The relationship between consumer satisfaction and facilities is significant and direct. High-quality, well-maintained facilities, including comfortable environments and cutting-edge technological amenities, create exceptional customer experiences, thereby boosting satisfaction and fostering loyalty (Kamenidou et al., 2014; Rahman et al., 2015). Conversely, inadequate or poorly maintained facilities can diminish satisfaction, leading to negative customer perceptions. Organizations that prioritize investment in superior facilities optimize operational performance and deliver positive, memorable customer experiences, ultimately driving sustained satisfaction, loyalty, and long-term profitability.

H2: Facility has a significant effect on Customer Satisfaction

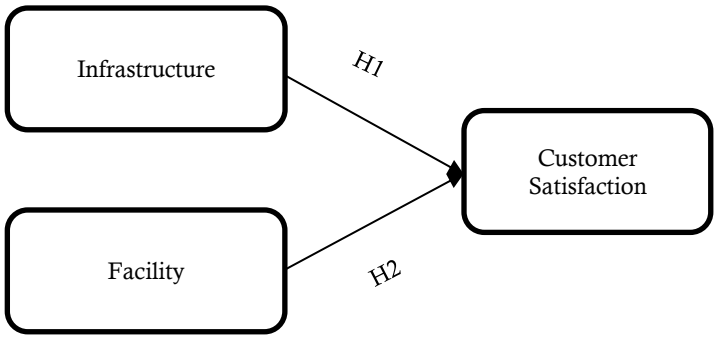

Figure 1. Conceptual Framework

Figure 1 presents a conceptual framework aligned with structural equation modeling (SEM) conventions, illustrating the hypothesized direct effects of two exogenous latent constructs Infrastructure and Facility on the endogenous latent construct, Customer Satisfaction. The diagram depicts unidirectional paths labeled H1 and H2, respectively, indicating proposed causal relationships. H1 posits that Infrastructure, encompassing elements such as physical accessibility, design, and operational efficiency of the transportation system, has a significant influence on Customer Satisfaction. H2 represents the effect of Facility, which includes amenities, comfort features, and service support elements, on Customer Satisfaction. This framework operationalizes the theoretical assumption that both Infrastructure and Facility function as key antecedents in determining perceived service quality and satisfaction levels among public transport users, particularly within urban multimodal systems such as Jakarta's MRT network.

RESEARCH METHOD

This study employs a quantitative empirical research design utilizing a combination of descriptive and verification approaches. The primary method applied is a descriptive survey, aimed at gathering factual data and insights related to user experiences, perceptions, and evaluations of transportation infrastructure and facilities within the MRT system in South Jakarta. The descriptive component enables the identification and illustration of current conditions experienced by MRT users, particularly concerning service quality, accessibility, cleanliness, comfort, and other operational features. Complementing this, the verification method is used to statistically test the relationships among variables and confirm the validity of proposed hypotheses through empirical evidence. Data were collected through a structured questionnaire that incorporated closed-ended and Likert-scale items to capture the extent of agreement or disagreement with various service-related statements. Prior to deployment, the instrument underwent

validity testing using Pearson's correlation coefficient and reliability testing using Cronbach's Alpha, ensuring that each item was both accurate and internally consistent.

The population in this study consists of users of the South Jakarta MRT system, with initial data collected from 95 respondents across 13 stations, including key locations such as Lebak Bulus, Blok M, and Bundaran HI. To enhance statistical power and representativeness, the sample was expanded to 114 respondents. A purposive sampling technique was applied, focusing on individuals who meet specific inclusion criteria such as regular MRT usage, commuting frequency, age category, and familiarity with station facilities aligned with the study's objectives. The analysis of collected data followed a two-stage process. SPSS software was utilized to perform descriptive statistical analysis, including frequency distributions and percentage calculations, providing a detailed overview of respondent profiles and general patterns in the dataset. To examine the structural relationships among the key variables Infrastructure, Facility, and Customer Satisfaction the study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS software. PLS-SEM was chosen for its suitability in handling complex models with relatively small sample sizes and for its ability to evaluate both measurement and structural models simultaneously. The research process spanned a period of six months, covering instrument development, pre-testing, field data collection, statistical processing, and interpretation of results. This comprehensive methodological framework ensures rigor and validity in addressing the research objectives.

RESULTS

This study uses qualitative data that includes observations, interviews, literature studies, and questionnaire distribution. The questionnaire is used as a data collection method by distributing a list of statements to respondents, who then provide their answers. Respondents in this study were MRT transportation users in South Jakarta. The sampling technique used was non-probability, with a random sampling method, namely the selection of samples that are in accordance with the established research criteria. This study involved 95 respondents as samples. For data analysis, two computer programs were used, namely the Statistical Package for the Social Sciences (SPSS) version 26 and Structural Equation Modeling (SEM), which is a multivariate analysis technique for building and testing statistical models, especially causal models (Oktaviani & Meidiyustiani, 2025). Partial Least Squares (PLS) is also used as an alternative in variance-based SEM analysis.

Table 1. Outer Model Results

Instrument	Type	Percentage (%)
Work	Private sector employee	38%
	Students	26%
	Government employees	14%
	State-owned/Regional-Owned Enterprises Employees	10%
	Other Jobs	7%
	Self-employed	5%
Purpose of Travel	Work	45%
	School	28%
	Shopping	13%
	Social	6%
	Recreation	4%
	Etc.	4%
MRT Usage Frequency	5-6 Times per Week	46%
	3-4 Times per Week	21%
	More than 6 Times	21%
	1-2 Times per Week	12%
Reasons to Choose MRT Mode	Fast	51%
	Cheap	30%
	Easy	12%
	Etc.	7%

The research results in Table 1 show the demographic details and preferences of Mass Rapid Transit (MRT) users in four categories. In terms of occupation, 38% of users are private sector employees, followed by 26% students, 14% government employees, 10% state-owned/regional-owned enterprise employees, 7% in other jobs, and 5% self-employed. For the purpose of travel, 45% use the MRT for work, 28% for school, 13% for shopping, 6% for social activities, 4% for recreation, and 4% for other reasons. Regarding usage frequency, 46% of users ride the MRT 5-6 times per week, 21% use it 3-4 times or more than 6 times per week, and 12% use it 1-2 times per week. The primary reasons for choosing the MRT include its speed (51%), affordability (30%), ease of use (12%), and other factors (7%), highlighting the MRT's appeal for efficient and cost-effective commuting.

Table 2. Validity test

Variables	Indicator	Validity
Infrastructure	Information media regarding passenger safety protocols (X1.1)	0.388
	Information media regarding mandatory compliance with each sign (X1.2)	0.331
	Information media regarding the mandate and importance of using MRT (X1.3)	0.238
	Queue and distance guidance signs (X1.4)	0.511
	No-sitting guide signs on platform seats (X1.5)	0.459
	Transactions via MRT-J application and Ticket Vending Machine (X1.6)	0.571
	Increase officers during rush hour (X1.7)	0.331
	Limitation of the number of service users in stairs (X1.8)	0.490
Facility	Interesting station layout (X2.1)	0.270
	The station area displays a modern impression (X2.2)	0.446
	Passenger seat (X2.3)	0.266
	Elevator (for disabled, elderly and pregnant women only) (X2.4)	0.376
	Air conditioner (X2.5)	0.311
	Passenger information display (X2.6)	0.219
	Priority seat (X2.7)	0.245
	Ticket Vending Machine (X2.8)	0.396
	Top up Machine (AVM) (X2.9)	0.341
	Sufficient lighting (X2.10)	0.495
	Nice color design of the carriage (X2.11)	0.570
	Public Announcement (X2.12)	0.409
	Free Hotspot (X2.13)	0.400
Customer Satisfaction	Consumers are highly dependent on Jakarta MRT services every day (Y.1)	0.551
	Consumers always use MRT Jakarta services in the minds of consumers (Y.2)	0.374
	Consumers are willing to recommend MRT Jakarta services to others (Y.3)	0.571
	Consumers are satisfied with the overall service of MRT Jakarta (Y.4)	0.636
	Consumers are committed to using Jakarta MRT services (Y.5)	0.611
	MRT Jakarta consumers do not switch to using similar competitor services (Y.6)	0.243
	Consumers are willing to recommend MRT Jakarta services to others (Y.7)	0.220
	Consumers feel the ease of services provided by MRT Jakarta (Y.8)	0.359
	Consumers make repeat transactions to use MRT services (Y.9)	0.636

The results of the validity test in Table 2 show that the Corrected Item-Total Correlation column is the result of calculating r from each item or statement item. From the statement items, all statement items are declared valid because they have a value > 0.2017.

Table 3 description of the correlation coefficient analysis test criteria is the Infrastructure Variable with Customer Satisfaction (r = 0.607: Sig = 0.000). Based on Table 3 shows the relationship between the Facilities and Infrastructure variables with Customer Satisfaction of 0.607, it can be concluded that the magnitude of the relationship between Facilities and Infrastructure with Customer Satisfaction shows a strong correlation relationship. The Facilities variable with Customer Satisfaction (r = -0.628: Sig = 0.000) shows the relationship between the Facilities variable with Customer

Satisfaction of 0.628, it can be concluded that the magnitude of the relationship between Facilities and Customer Satisfaction shows a strong correlation relationship.

Table 3. Correlation Coefficient Test Results

Model		Customer satisfaction	Infrastructure	Facility
Pearson Correlation	Customer satisfaction	1.000	0.607	0.628
	Infrastructure	0.607	1.000	0.416
	Facility	0.628	0.416	1.000
Sig. (1-tailed)	Customer satisfaction		0.000	0.000
	Infrastructure	0.000		0.000
	Facility	0.000	0.000	
N	Customer satisfaction	95	95	95
	Infrastructure	95	95	95
	Facility	95	95	95

Table 4. Multiple Linear Regression Test Results

Model	Unstandardized Coefficients B	Unstandardized Coefficients Std. Error
(Constant)	-3.939	3.845
Facilities and infrastructure	0.468	0.087
Facility	0.457	0.078

Data from Table 4, the following regression equation can be obtained:

$$Y = -3.939 + 0.468\ X1 + 0.457\ X2 + \varepsilon$$

Based on Table 4, the regression equation shows a constant of -3.939, indicating that Customer Satisfaction is -3.939 when Facilities and Infrastructure values are zero. The Facilities and Infrastructure coefficient of 0.468 suggests a 0.468% increase in Customer Satisfaction per unit increase, with other variables constant. The Facilities coefficient of 0.457 indicates a 0.457% rise in Customer Satisfaction per unit increase, holding other variables steady.

Table 5. Determination Test Results

Model	Value
R	0.735
R Square	0.540
Adjusted R Square	0.530
Std. Error of the Estimate	3.230

The results of the Determination Test in Table 5, the Adjusted R Square value of 0.530 indicates that 53.0% of Customer Satisfaction is explained by the Facilities and Infrastructure variable, while the remaining 47.0% is influenced by other factors. The SPSS version 26 Coefficient Table shows the significance of the t test, namely the p value is less than the 5% significance level or the calculated t value is greater than the t table value (1.662, with df = 95 - 2 - 1 = 92) which confirms the influence of the variable.

Table 6. T-Test Results

Model	Unst. Coef. B	Unst. Coef. Std. Error	Std.Coef. Beta	t	Sig
(Constant)	-3.939	3.845		-1.025	0.308
Infrastructure	0.468	0.087	0.418	5.378	0.000
Facility	0.457	0.078	0.455	5.845	0.000

Table 6 shows the regression analysis for predicting Customer Satisfaction. The constant is -3.939 (standard error 3.845, t-value -1.025, Sig. 0.308), indicating non-significance. The infrastructure variable has a coefficient of 0.468 (standard error 0.087, Beta 0.418, t-value 5.378, Sig. 0.000), and the Facility variable has a coefficient of 0.457 (standard error 0.078, Beta 0.455, t-value 5.845, Sig. 0.000), both showing highly significant positive effects on Customer Satisfaction.

Tcount of Facilities and Infrastructure (5,378) > T table (1,662), then H1 is accepted and H0 is rejected. Sig. Facilities and Infrastructure (0.000) < alpha (0.05), then H1 is accepted and H0 is rejected. This means that the Facilities and Infrastructure variable has an influence and is significant towards the Customer Satisfaction variable. Tcount Facilities (5,845) > T table (1,662), then H2 is accepted and H0 is rejected. Sig. Facilities (0.000) < alpha (0.05), then H2 is accepted and H0 is rejected. This means that the Facilities variable has an influence and is significant on the Customer Satisfaction variable.

In this study, there are 3 latent variables with a total of 30 manifest variables. The latent variables of Facilities and Infrastructure consist of 8 manifest variables, Facilities consist of 13 manifest variables and Consumer Satisfaction consists of 9 manifest variables. Using the second order estimation method from Partial Least Square, a full model path diagram is obtained as shown in the following figure:

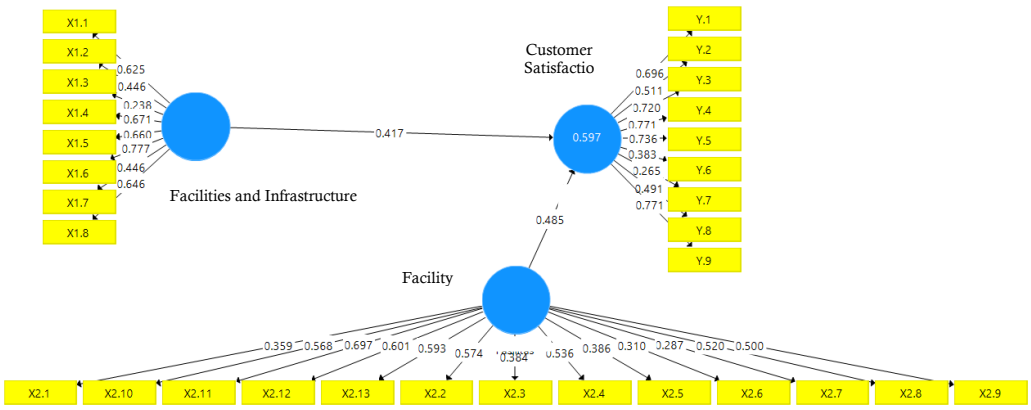

Figure 2. Result Model

Figure 2 depicts a structural equation model (SEM) diagram illustrating the relationships between variables related to facilities, infrastructure, and customer satisfaction, labeled in Indonesian. On the left, variables X1_1 to X1_8 (e.g., 0.625, 0.646) represent indicators of Facilities and Infrastructure, connected to a central blue circle. This circle links to another blue circle representing Customer Satisfaction with a path coefficient of 0.417. Customer Satisfaction is measured by indicators Y1_1 to Y1_9 (e.g., 0.996, 0.957). A third blue circle at the bottom, also labeled "Sarana dan Prasarana," connects to Customer Satisfaction with a path coefficient of 0.485 and is measured by indicators X2_1 to X2_9 (e.g., 0.359, 0.568). The diagram shows how facilities and infrastructure directly influence customer satisfaction, with varying strengths indicated by the coefficients.

DISCUSSION

The results of this study indicate that the facilities and infrastructure available at the Jakarta MRT Station, such as well-maintained tracks, security, accessibility, and efficient transportation systems, play a very important role in shaping the level of consumer satisfaction. The existence of adequate facilities and infrastructure is the foundation that supports the creation of a comfortable and smooth travel experience, which in turn is directly related to the level of satisfaction of users of this mode of transportation. The system theory proposed by Bertalanffy (1968) explains that in a system, all elements must work well and support each other so that the system functions optimally. In the context of transportation, facilities and infrastructure become fundamental elements, because if one element is disturbed, the entire system can be disturbed. For example, if the transportation route system is not well maintained, then smooth travel will be disrupted,

which has the potential to reduce user satisfaction (Pebriana, 2024; Dewi & Praswati, 2024).

Das and Maitra (2024) emphasized that robust facilities in transportation systems, such as the South Jakarta MRT, significantly enhance productivity and user satisfaction by ensuring operational efficiency and fostering a sense of comfort and appreciation among consumers through easy accessibility and punctual train schedules. Roy and Basu (2020) found that security measures like widespread CCTV coverage and trained security officers at MRT stations play a crucial role in reducing user anxiety, particularly in crowded or nighttime scenarios, directly linking a sense of safety to higher satisfaction and repeat usage. Zeleke et al. (2025) further noted that comfortable waiting rooms equipped with ergonomic chairs, air conditioning, and Wi-Fi access contribute to a positive passenger experience, significantly boosting overall satisfaction with the MRT service.

Sujana and Yusni (2024) highlighted accessibility as a key factor, noting that MRT stations with seamless connections for private vehicles, public transport, and disability-friendly features like lifts and ramps cater effectively to diverse user needs, enhancing satisfaction. Rahman et al. (2015) supported this by showing that quality infrastructure and accessibility, especially for those requiring mobility support, elevate user satisfaction levels. Venessya and Sugiyanto (2023) concluded that continuous improvement in facilities such as maintaining cleanliness, enhancing security, and upgrading waiting room comfort creates a positive user experience, driving loyalty. Therefore, Jakarta MRT must prioritize ongoing facility and infrastructure development to sustain high consumer satisfaction and encourage long-term ridership.

Bitner (1992) introduced the concept of atmospherics, which emphasizes that physical facilities such as well-designed waiting rooms, cleanliness, efficient air conditioning systems, and easily accessible information services play an important role in shaping customer perceptions and satisfaction (Agarwal & Dhingra, 2023; Noer, 2025). In the Jakarta MRT, tangible aspects such as cleanliness, reliable equipment conditions, and waiting room comfort have been shown to increase user satisfaction based on the SERVQUAL model (Rivero et al., 2023), while poor maintenance decreases loyalty and worsens perceptions (Muangpan, 2022; Muni et al., 2024). In addition, a regular air conditioning system greatly supports comfort, especially during extreme heat conditions (Pratama et al., 2024; Flores et al., 2025).

Bollenbach et al. (2024) highlight the importance of robust information services, such as real-time updates via electronic boards and user-friendly mobile applications, which enhance trip planning and elevate satisfaction through transparent communication in public services. Additionally, the integration of these elements with sturdy infrastructure creates a holistic environment that fosters trust and repeat usage among passengers. Overall, maintaining high-quality physical facilities and infrastructure is vital for MRT Jakarta to ensure sustained user satisfaction, loyalty, and operational success, necessitating ongoing commitment to facility upgrades, regular maintenance schedules, and innovative service enhancements.

CONCLUSION

The findings of this study show that the quality of facilities and infrastructure at MRT Jakarta stations, especially in South Jakarta, significantly influences user satisfaction. Well-maintained paths, strong security, good accessibility, and efficient systems enhance the overall user experience. Clean waiting areas, functional toilets, reliable air conditioning, and accessible information services are also closely tied to positive user perceptions. These findings emphasize the need for continuous improvement in facilities to maintain high consumer satisfaction. Practically, the study suggests that MRT Jakarta should focus on cleanliness, safety, information access, and comfort. Enhancing accessibility for people with disabilities and training security personnel can also foster a more inclusive and secure environment.

Theoretically, the results reinforce the importance of tangible service quality dimensions in shaping satisfaction in public transport and contribute to urban transport

evaluation literature. However, the study is limited by its small sample size (95 users) and focus solely on South Jakarta, limiting its generalizability. The use of questionnaires also restricts depth of insight, and factors like pricing or psychological satisfaction were not addressed. Future research should expand the sample, cover broader regions, and use qualitative methods to explore user experiences in depth. Additional factors such as fare pricing, staff service, and user psychology should be examined for a more comprehensive understanding of satisfaction in public transit systems.

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