

ANALYSIS OF USER SATISFACTION INFLUENCED BY STATION FACILITIES, INTERMODAL ACCESSIBILITY, AND INTERMODAL INFORMATION AT DUKUH ATAS INTEGRATED STATION

Rangga Saputra¹, Muhammad Alwi², Yosi Pahala³, Roswan Kasim⁴

^{1,2,3,4} Faculty of Transportation and Logistics Systems, Institut Transportasi dan Logistik Trisakti, Indonesia

Corresponding author: muhalwi0612@gmail.com

Abstract: This study investigates the impact of station facilities, intermodal accessibility, and intermodal information on user satisfaction at Dukuh Atas Integrated Station. A quantitative approach was employed, with data collected through observations and questionnaires from a sample of 127 station users, selected using random sampling from a total population of 3369 daily passengers. Data analysis was conducted using SmartPLS 4.0 software and multiple linear regression. The results demonstrate that station facilities, intermodal accessibility, and intermodal information all have a significant positive effect on user satisfaction. These findings highlight the importance of improving station facilities, enhancing intermodal connectivity, and providing accurate, timely information to elevate user satisfaction. The study offers valuable insights for public transport managers aiming to enhance service quality and optimize integrated transport systems.

Keywords: *Station Facilities, Intermodal Accessibility, Intermodal Information, User Satisfaction, Dukuh Atas Integrated Station, Public Transportation, Integrated Transportation System*

1. Introduction

Public transportation is vital for enhancing mobility in major cities, particularly in the context of rapid urbanization. Integrated transport systems offer solutions to alleviate traffic congestion, reduce air pollution, and meet the increasing demand for efficient mobility. Global cities such as Tokyo, London, and New York have successfully implemented integrated public transportation networks, seamlessly connecting trains, buses, and other transport modes. These systems enable passengers to switch between modes quickly, comfortably, and efficiently.

In Tokyo, the extensive network of subways, buses, and monorails is complemented by stations equipped with accessible, disability-friendly, and safe facilities. London's integrated transport system is equally renowned, providing easy access to schedules and

routes, thus minimizing wait times. New York's system benefits from real-time information services, allowing users to plan their journeys more effectively.

The success of these integrated systems hinges on three critical factors: comfortable station facilities, seamless intermodal transfers, and clear, real-time information on schedules and routes. In Jakarta, efforts to improve public transportation have taken shape with the development of integrated stations such as Dukuh Atas, which connects the Commuter Line, MRT, LRT, and TransJakarta services. Despite these advancements, challenges remain, particularly in terms of suboptimal facilities, limited accessibility, and inconsistent intermodal information.

This study aims to analyze how station facilities, intermodal accessibility, and the availability of transport information at Dukuh Atas Integrated Station influence user satisfaction. The findings are expected to provide valuable insights for the government to enhance public transportation services in Jakarta and offer a reference for other major cities in Indonesia.

2. Literature review

2.1. Station Facilities

As described by (Aras et al., 2023) facilities in the service business have a very important role. Therefore, it is important to consider the current condition of the facility, including the perfection of the interior and exterior design and cleanliness, which directly affects the consumer experience. This situation can provide the creation of a positive category experience for consumers, which in turn motivates them to continue using the services of the company in the future. (Inggrit Aulia Wati Hasanah & Sri Setyo Iriani, 2024). The facilities provided in order to support the transfer of transportation modes are a form of service to users to facilitate their activities. (Daffi & Ristianti, 2024).

According to (Aris Fatoni & Deffi Hardianti, 2020) indicators of facilities are

- passenger layouts that are easy to understand
- availability of additional facilities
- provision of areas that meet various requirements
- good lighting quality
- presence of clear and informative signage facilities, and maintenance of facilities

Based on the researcher's understanding Station facilities play a key role in shaping the user experience in public transport. The condition and quality, including design, cleanliness, and functionality, directly affect user satisfaction. Well-maintained facilities create a positive experience, encouraging continued use. Support for transfer between transport modes, good lighting, clear signage, and organized spaces enhance convenience and safety.

2.2. Accessibility

According to Black et al. (Said Muhammad Abror et al., 2016). Accessibility is an ease or convenience in which land use locations interact with each other, as well as the ease or difficulty in reaching these locations by transportation. Ease of access for public transportation passengers includes the ability to easily reach transportation routes, both from the starting and ending points of the trip, as well as the ease of obtaining transportation modes and reaching the final destination using public facilities. (Isfandiar, 2001). Accessibility is the ease of reaching a place measured by distance, travel time, vehicle capacity, service frequency, payment method, coverage, and quality. (Charel Jovansa et al., 2024)

According to (Sagita Alfira Supriyadi & Galih Wahyu Pradana, 2024) The indicators of accessibility are:

- **Access:** Ease of accessing public transportation.
- **Intermodal Connectivity:** Efficient integration between transport modes.
- **Information:** Clear and adequate route and schedule info.
- **Convenience:** Comfort and frequency of public transport use.
- **User Safety:** Ensuring safety and comfort for users.

Based on the researcher's understanding, Accessibility refers to how easily locations can be reached using transportation. In public transport, it includes the ease of reaching routes, accessing modes, and reaching destinations. Key factors include distance, travel time, vehicle capacity, service frequency, payment methods, coverage, and overall quality.

2.3. Intermodal Information

According to (Oktaviani & Made Widiarta, 2019) intermodal information is raw data that has been processed in such a way as to produce something valuable for consumers to use in making decisions. At the same time, according to (Herdiansyah, 2023) data or information provided to users to assist them in making decisions, such as information about fares, service operating times, or directions to a particular location while according to (Akbar Danindra Montana & Yenita, 2023) the definition of data is knowledge provided to users to help them make decisions, such as KRL departure schedules and other modes of transportation. This information is presented digitally and placed in strategic places to make it easier for users to access and understand departure schedules and other information relevant to their trip.

According to (Wiratama & Rahmawati, 2013) Indicators of information are

- **Accurate**
- **Timely**
- **Relevant**
- **Complete.**

Based on the researcher's understanding, Intermodal information is data that helps consumers make informed travel decisions, including fares, schedules, and directions. Its quality depends on accuracy, timeliness, relevance, and completeness, allowing users to easily access and understand key details for a better travel experience.

2.4. User satisfaction

According to Fitri Primasari et al., 2024 in Muhammad Fahri Irawan Lubis et al., 2023) Define. User satisfaction is the sensation of satisfaction experienced by consumers as a result of receiving service provider value. Timeliness is a critical factor in determining user satisfaction with public transportation services. It plays a significant role in shaping passenger satisfaction, as a substantial part of overall satisfaction is influenced by the punctuality of transport services (Venny Arianti et al., 2021). The service obtained is closely correlated with service user satisfaction. Service user satisfaction will also increase along with the improvement of services provided by service providers, this will also benefit the loyalty of these service consumers. (Puspita Sari et al., 2024). (Philip Kotler & Gary Armstrong, 2017) Defining user satisfaction is an emotional reaction that consumers feel when assessing how well a product or service performs or meets their initial expectations. It is clear from the understanding of the idea given above that satisfaction results. The quality of services provided at the station, along with the accessibility of transportation modes, exerts a significant impact on user satisfaction. Service quality and perceived value are integral components, closely intertwined with user satisfaction in every evaluation process.(Widyo Sasongko et al., 2022). (Tasya Ramadhani Adila et al., 2021) As highlighted by (Tasya Ramadhani Adila et al., 2021), passenger trust is established when users have confidence in the service provider and expect that the services rendered will not result in negative experiences or outcomes. Indicators of user satisfaction according to Widyastuti in (Hermanto & Nora Pitri Nainggolan, 2020) can be summarized as follows:

- **User Satisfaction: Ensure satisfaction for all users.**
- **User Assessment: Let users evaluate based on their own experiences.**
- **Expectation Confirmation: Reconfirm purchases for buyer comfort.**
- **Repurchase Intention: Satisfaction increases the chance of repurchase.**
- **Recommendation: Satisfied users tend to recommend products.**
- **Dissatisfaction: Users express dissatisfaction through feedback or by not repurchasing.**

Based on the researcher's understanding, User satisfaction is the positive response when a service meets or exceeds expectations. It's closely tied to service quality—better services lead to higher satisfaction and loyalty. When users' needs are met, they are more likely to continue using the service, recommend it, or feel dissatisfied if expectations aren't met.

2.5. Hypothesis

Hypotheses are temporary conclusions that have a basis in observation and available data, hypotheses are used as a basis for testing existing phenomena or ideas. In the hypothesis there are several important components, namely temporary estimates, relationships between variables and truth tests. (Jim Hoy Yam & Ruhiyat Taufik, 2021)

The following is the conceptual framework for the hypothesis

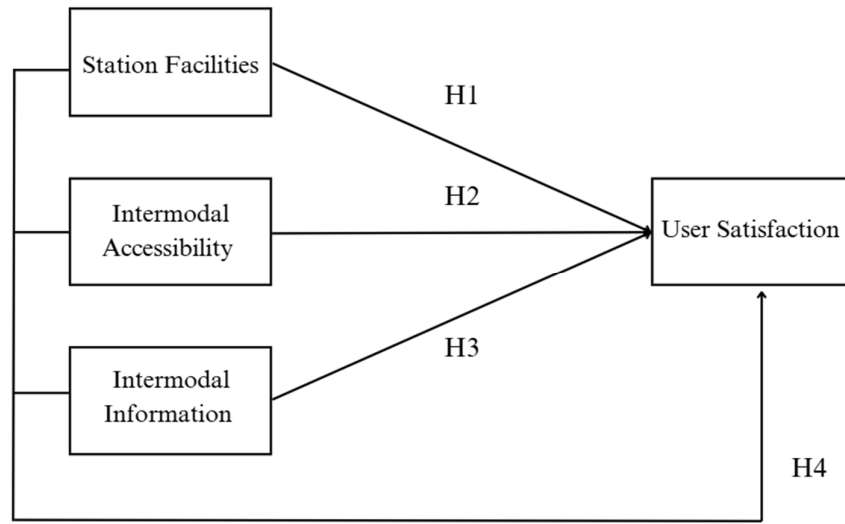


Figure 1. Conceptual Framework

So based on the conceptual framework above, it can be concluded that:

H1 : Station facilities are suspected to have a positive influence on the satisfaction of users at Dukuh Atas Station.

H2 : Intermodal accessibility is suspected to have a positive influence on the satisfaction of users at Dukuh Atas Station.

H3 : Intermodal information is suspected to have a positive influence on the satisfaction of users at Dukuh Atas Station.

H4 : Station facilities, intermodal accessibility, and intermodal information are suspected to have a positive influence on the satisfaction of users at Dukuh Atas Station.

3. Research method

3.1. Research design

This study employs a quantitative approach to identify the key concepts of the research. A combination of descriptive and quantitative methods was specifically chosen to analyze

the impact of station facilities, intermodal accessibility, and intermodal information on user satisfaction at Dukuh Atas Integrated Station. The choice of a quantitative method is based on the high volume of transportation usage at the station, which allows for the collection of data from a larger sample, yielding statistically significant insights. This approach provides a more comprehensive and objective understanding of user satisfaction.

The use of direct observation and questionnaire distribution as data collection techniques ensures systematic and measurable data, capturing both observable station conditions and user perceptions. Observation offers insights into the state of facilities and accessibility, while questionnaires provide structured feedback on user experiences. However, it is important to note that while quantitative methods provide rich numerical data, they may overlook the nuances of individual user experiences. This limitation can be addressed by incorporating qualitative methods, such as interviews or focus groups, in future studies to gain a deeper understanding of user satisfaction.

3.2.Data Collection

Data was collected using two primary techniques:

- **Observation:** This study involved direct observation of the condition of facilities, accessibility, and intermodal information available at Dukuh Atas Integrated Station during the research period. Observation was chosen to provide firsthand insights into the tangible aspects of station services, complementing the data reported by users and adding validity to the research.
- **Questionnaire Distribution:** Questionnaires were distributed via Google Forms, both online and directly to respondents. The use of a Likert scale, which ranges from strongly agree to strongly disagree, allows for the quantification of users' subjective perceptions. The decision to use questionnaires is based on their effectiveness in collecting standardized data from a large number of respondents in a short time, making them ideal for large-scale quantitative research.

•

3.3.Data Sources

- **Primary Data:** Primary data was obtained directly from respondents, who were users of Dukuh Atas Integrated Station. This data collection method was selected to ensure that the information gathered is current and directly relevant to the variables being studied.
- **Secondary Data:** Secondary data, including reports, previous studies, and relevant literature, provided context and supported the primary data. Statistical data regarding the number of station users was also obtained to validate the sample size and ensure the accuracy of the research.

3.4. Population and Sample

- Population: The population of this study includes all passengers at Dukuh Atas Integrated Station. Based on reports from jakartamrt.co.id (2023), a total of 404,320 passengers were recorded over a 4-month period, with an average of 3,369 passengers per day.
- Sample: A random sampling technique was used to ensure that the sample is representative of the population. This technique was chosen for its ability to reduce bias and provide generalizable results. The sample size was calculated to balance statistical power and resource constraints, ensuring that the data collected is both accurate and manageable.

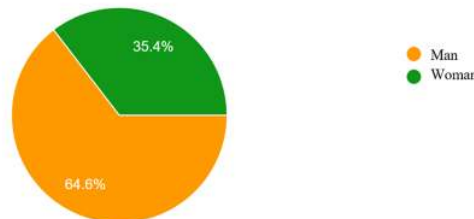
3.5. Data Analysis technique.

- Analysis Tools: The use of Smart-PLS 4.0 software was crucial in ensuring the reliability and validity of the research results. Smart-PLS is particularly suitable for the structural equation modeling (SEM) approach used in this study, as it can handle complex models with multiple variables while accounting for measurement errors. This choice ensures that the conclusions drawn from the data are robust and aligned with the research objectives.

4. Results and discussion

The researchers used the Partial Least Square (PLS) method with SmartPLS 4.0 to analyze how station facilities, intermodal accessibility, and information affect user satisfaction. Data was gathered through direct observation and questionnaires given to 127 randomly selected users of Dukuh Atas Integrated Station, from a total daily population of 3369 passengers. A diagram shows the distribution of respondents by gender and age, which forms the basis for analyzing user data. The key findings are also presented.

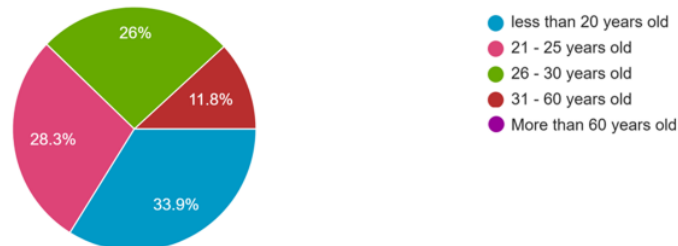
Gender
127 responses



Source: Processed by the researcher using Google Forms.

This diagram shows the gender distribution of respondents who answered the questionnaire on user satisfaction at Dukuh Atas Integrated Station. The results reveal that 64.1% of the respondents were male, and 35.9% were female.

Age range
127 responses



Source: Processed by the researcher using Google Forms.

This graph shows the age distribution of respondents who completed the user satisfaction questionnaire at Dukuh Atas Integrated Station. The findings reveal that 11.7% were under 20, 28.9% were aged 21-25, 25.8% were 26-30, and 33.6% were 31-60.

4.1. Influence between variables

According to Hafni Sahir et al In (Inggrit Aulia Wati Hasanah & Sri Setyo Iriani, 2024) The relationship between variables is characterized by three paradigms: a simple paradigm, a multiple paradigm with two dependent variables, and a multiple paradigm with more than two dependent variables. The relationship between variables in this study is as follows, in accordance with this theory.

H1: Station facilities (X1) has a positive effect on user satisfaction (Y). (Hypothesis 1)

Research conducted by Firmansyah, 2020 It concludes that the results of the analysis for facility variables have a positive and significant impact on passenger satisfaction, this can confirm that facilities affect passenger satisfaction. Anjas Riseetyawan et al., (2022) in his research shows that the results of his data analysis show that facilities have a positive and significant effect directly on user satisfaction. This means that if the facilities provided are as expected by users, they will feel satisfied and happy, and they will remain loyal.

H2: Intermodal accessibility (X2) has a positive effect on user satisfaction (Y). (Hypothesis 2)

Based on research conducted Research by (Widayanti & Supriyatno, 2020) found that accessibility is a key factor affecting passenger satisfaction, especially when poor access and limited public transportation options lower satisfaction. Similarly, (Putri Indah Yuliyana & Fitri Susilowati, 2021) showed that accessibility positively influences user satisfaction, with their multiple linear regression analysis confirming a significant relationship. (Nahda Nadia Al Aulia & A.R. Indra Tjahjani, 2022) also concluded that ease of access to stations and good facilities significantly improve passenger satisfaction. Overall, these studies agree that better accessibility leads to higher user satisfaction.

H3: intermodal information (X3) has a positive effect on user satisfaction (Y). (Hypothesis 3)

In a journal written by (Rifki Hanif et al., 2024) Researchers explore how information affects user trust and satisfaction in terms of enjoying the experience, perceived value, reducing perceived risk, so that information quality is important in increasing user satisfaction. In addition (Indra Sani et al., 2024) in his journal also discusses how service quality, which includes providing accurate and timely information, has a positive impact on user comfort. Therefore, it shows that improving service quality can increase user satisfaction. User information has a positive impact on their satisfaction.

H4: Station facilities, intermodal accessibility, and intermodal information collectively have a positive effect on user satisfaction (Y). (Hypothesis 4)

Station facilities, intermodal accessibility, and intermodal information have a positive impact on user satisfaction. Based on research that has been conducted, a combination of good station facilities, high intermodal accessibility, and accurate and timely intermodal information together have a significant positive impact on user satisfaction. (Firmansyah, 2020), (Anjas Riseetyawan et al., 2022), showed that station facilities significantly affect passenger satisfaction. Research (Widayanti & Supriyatno, 2020), (Putri Indah Yuliyana & Fitri Susilowati, 2021), and (Nahda Nadia Al Aulia & A.R. Indra Tjahjani, 2022) emphasized that intermodal accessibility has a positive impact on user satisfaction. In addition, research by (Rifki Hanif et al., 2024), (Indra Sani et al., 2024), concluded that quality intermodal information significantly affects user satisfaction. Overall, the combination of these three variables reinforces each other and creates a better experience for users, increasing their overall satisfaction.

4.2. Evaluation of the Measurement Model (Outer Model)

The structural model is made by designing a design in the form of a relationship between various latent variables. The results of the validity and reliability tests on the constructs are explained in the outer model stage in the following scope:

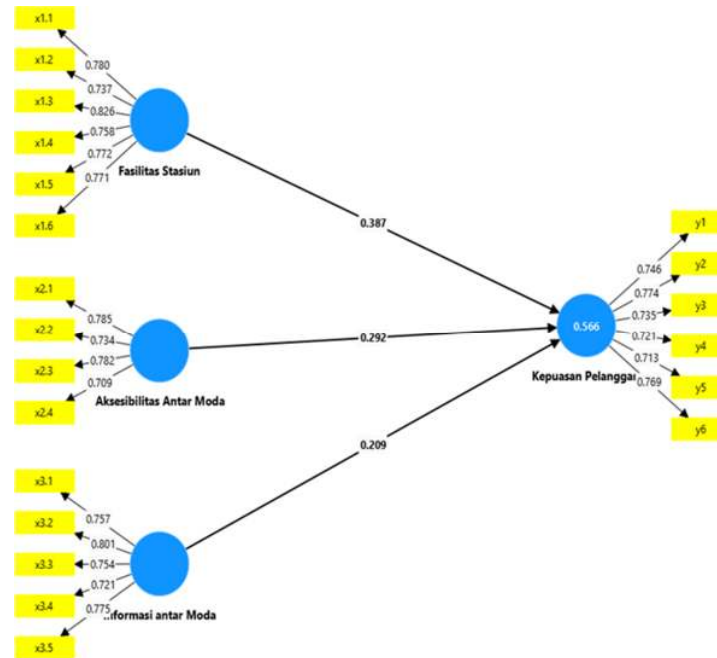


Figure 2. Outer Model

Source: Data processed by the researcher using Smart PLS 4.

4.3. Reability and Validity

4.2.1. Reliability

In the scope of SEM-PLS analysis, a construct is made a statement if it has a composite reliability value with a value in decimals > 0.6 and is reinforced by the value of Cronbach's Alpha with a value in decimals > 0.7. The results of the test in the form of composite reliability can be seen in the scope of the following table:

Variable	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)
Intermodal Accessibility	0.745	0.749	0.839

Station Facilities	0.866	0.868	0.9
Intermodal Information	0.82	0.827	0.874
User Satisfaction	0.838	0.842	0.881

Source: Data processed by the researcher using Smart PLS 4.

Based on the coverage of the table, the value of the Composite Reliability of all variables has exceeded the number with a value in decimal value of 0.6 and at the Cronbach's Alpha value above the number with a value in decimal value of 0.7 which means that it has fulfilled the reliability assumption.

4.2.2. Discriminant Validity Test

To assess discriminant validity, the heterotrait-monotrait ratio (HTMT) is used with the limit value that is accepted is a number with a decimal value of <0.9 according to Hair et al in (Deandra Michella et al., 2024)

Variable	Intermodal Accessibility	Station Facilities	Intermodal Information
Intermodal Accessibility			
Station Facilities	0.676		
Intermodal Information	0.698	0.704	
User Satisfaction	0.774	0.78	0.709

Source: Data processed by the researcher using Smart PLS 4.

The results of measuring discriminant validity with the heterotrait-monotrait ratio (HTMT) can be seen in the table above. All HTMT values show numbers with the magnitude of the value in decimals <0.9 so that all variables can be declared valid.

4.3. Hypothesis Testing

4.3.1. Partial T Test

Variable	Unstandardized Coefficients	Standardized Coefficients	SE	T value	P value
Intermodal Accessibility	0.397	0.289	0.104	3.812	0
Station Facilities	0.345	0.385	0.071	4.863	0
Intermodal Information	0.219	0.205	0.085	2.592	0.011
Intercept	4.87	0	1.235	3.944	0

Source: Data processed by the researcher using Smart PLS 4.

Based on the regression analysis results, we can delve deeper to find out if each independent variable has the effect of satisfaction with user and further statistically confirm through relevant statistics such as Degree of Freedom (df), Significance Level and t-values.

1. Degrees of Freedom (df):

For the dataset with 127 samples and 3 independent variables (Station Facilities, Intermodal Accessibility, and Intermodal Information), the degrees of freedom is calculated as:

$$df = 127 - 3 - 1 = 123.$$

2. Significance Level:

We use a significance level of 0.05, corresponding to a 95% confidence level for a two-tailed test.

3. Identifying the t-Table Value:

With the degrees of freedom ($df = 123$) and the significance level of 0.05, we consult the t-Student distribution table. The critical t-value for $df = 123$ at a two-tailed significance level of 0.05 is approximately **1.979**.

Now that we have the necessary statistical tools, we can analyze the regression results:

Based on the research's results, the first hypothesis station facilities do, in fact, affect user satisfaction. This is evidenced by an unstandardized coefficient of 0.345, which exceeds 0, and a t-statistic of 4.863, which surpasses the threshold of 1.979. The p-value of 0.000, which is less than 0.05, confirms our second hypothesis: station facilities significantly affect user satisfaction. This aligns well with the conclusions of (Firmansyah, 2020), who asserts that adequate station facilities improve user satisfaction.

Based on the research's results, second hypothesis intermodal accessibility does, in fact, affect user satisfaction. This is evidenced by an unstandardized coefficient of 0.397, which exceeds 0, and a t-statistic of 1.979. The p value of 0.000, which is less than 0.05, confirms our Second hypothesis: intermodal accessibility significantly affects urban train service consumers. This aligns well with the conclusions of (Widayanti & Supriyatno, 2020), who assert that accessibility is strongly associated with user happiness.

Similarly to the third hypothesis intermodal information does in fact affect user satisfaction. This is evidenced by an unstandardized coefficient of 0.219 and a t-statistic of 2.592, which exceeds the threshold of 1.979. The p-value of 0.011, which is less than 0.05, confirms our third hypothesis: intermodal information significantly affects user satisfaction at the Dukuh Atas Integrated Station. This aligns well with the conclusions of (Rifki Hanif et al., 2024), who assert that the quality of information plays a key role in enhancing user satisfaction.

4.3.2. F-test

According to Ghazali et al in (Arshinta Chandra Putri & Sugi Suhartono, 2023) the purpose of the F test is to provide knowledge or test whether the equation of the regression model can be used to look at the influence of the independent variable faced with the dependent variable.

variable	Sum square	df	Mean square	F	P value
Total	1326.617	127	0	0	0
Error	591.593	124	4.771	0	0
Regression	735.024	3	245.008	51.355	0

Source: Data processed by the researcher using Smart PLS 4.

From the results obtained, the calculated F value is $51.355 > 2.68 F_{table}$, and significant for station facilities and intermodal accessibility is 0.000 or less than 0.05. Thus, the regression model that includes station facilities, intermodal accessibility, and intermodal information as a whole affects user satisfaction.

4.4. Quality Evaluation and Model Fit

4.4.1. R Square Value

There are three categories in the scope of grouping the value of R-square. If the R-square value is in decimal with a magnitude of 0.75, it is included in the strong category; for the R-square value in decimal with a magnitude of 0.50, it is included in the moderate category and in decimal with a magnitude of 0.25, it is included in the weak category. (Arshinta Chandra Putri & Sugi Suhartono, 2023) The R-square value of the dependent variable obtained in this research model can be seen in Table. following:

Variable	User Satisfaction
R-square	0.554
R-square adjusted	0.543
Durbin-Watson test	1.824

Source: Data processed by the researcher using Smart PLS 4.

Based on the results of data analysis through SmartPLS, the R Square value for the User Satisfaction variable is recorded in decimal with a magnitude of 0.554. This shows that the effect of Station Facilities, Intermodal Accessibility, and Intermodal Information in

predicting User Satisfaction is in decimals with a magnitude of 0.554 or 554%, which falls into the strong category.

4.4.2. Q Square

After seeing how much the R-Square (R^2) value is, evaluation of the inner model analysis can also be done using Predictive Relevance (Q^2). The value of $Q^2 > 0$ indicates that the model has predictive relevance. According to Ghazali et al in (Arshinta Chandra Putri & Sugi Suhartono, 2023).

Variable	Q^2 Predict	RMSE	MAE
User Satisfaction	0.529	0.702	0.562

Source: Data processed by the researcher using Smart PLS 4.

Based on the table above, it is known that the result of the sum of the Q-Square values on the two endogenous variables (User Satisfaction) is in decimal with a magnitude of 0.529. By looking at this value, it can be concluded that this research has a good / good observation value because the Q square value > 0 (zero). Thus, this research model is declared to meet the requirements of goodness (model fit).

5. Conclusion

Based on the analysis and results of this study, it is concluded that station facilities, intermodal accessibility, and intermodal information have a significant impact on user satisfaction at the Dukuh Atas Integrated Station. Improvements in these areas, such as enhancing station facilities, strengthening intermodal transportation connectivity, and providing accurate and timely information, are essential for increasing user satisfaction. This underscores the importance of improving facilities, accessibility, and the quality of information to create a better transportation experience and foster user loyalty toward public transportation. The study offers valuable insights for public transportation managers and policymakers, emphasizing the need for service quality enhancements through focused improvements in facilities, accessibility, and information to provide a more seamless and satisfying user experience.

6. Implication

Based on the study conducted at Dukuh Atas Integrated Station, the following practical and theoretical implications can be drawn from the findings:

6.1 Theoretical Implications

The theoretical implications derived from this research strengthen the understanding of the relationship between station facilities, intermodal accessibility, intermodal information, and user satisfaction, as validated through SmartPLS 4 analysis:

1. **Station facilities significantly and positively influence user satisfaction**, validating the first hypothesis (H1). The condition and quality of station infrastructure, including cleanliness, interior, and exterior design, play a critical role in shaping user experience and satisfaction, as supported by previous studies such as those by (Firmansyah, 2020).
2. **Intermodal accessibility also has a significant and positive effect on user satisfaction**, supporting the second hypothesis (H2). Accessibility, defined as the ease with which users can switch between different modes of transportation, has a direct impact on how satisfied they feel with the station's services. Prior studies, including those by (Widayanti & Supriyatno, 2020), emphasize the importance of efficient intermodal connections in improving user satisfaction.
3. **Intermodal information further influences user satisfaction** positively, as confirmed by the third hypothesis (H3). The availability of timely, accurate, and relevant information helps users make better travel decisions, which in turn increases satisfaction. Studies by (Rifki Hanif et al., 2024) also highlight the importance of high-quality information for enhancing user trust and satisfaction.
4. **A combination of station facilities, intermodal accessibility, and intermodal information positively impacts user satisfaction**. This confirms the fourth hypothesis (H4) and emphasizes the interconnected role these factors play in improving the overall user experience, aligning with prior research by (Firmansyah, 2020) and others.

6.2 Practical Implications

The findings of this research present several actionable insights for enhancing user satisfaction at integrated stations such as Dukuh Atas:

1. **Station Facilities:** Station facilities (e.g., cleanliness, safety, design) directly impact user satisfaction. The station management should focus on maintaining high standards of infrastructure, particularly in providing accessible and well-maintained areas such as waiting rooms, toilets, and designated transfer points. Improvements to lighting, seating areas, and the availability of amenities like prayer rooms can significantly elevate user experience.
2. **Intermodal Accessibility:** Improving the physical and functional connectivity between different modes of transport is essential for ensuring smooth transitions for users. This includes optimizing the layout of transfer areas, shortening walking distances between platforms, and adding features like escalators and elevators to

support passenger movement, especially for people with disabilities or those carrying heavy luggage.

3. **Intermodal Information:** Clear, real-time, and accessible information on transport schedules, routes, and transfer options is critical. The station should invest in better signage, more informative electronic displays, and mobile applications that provide live updates, which will reduce user confusion and enhance the overall experience.
4. **Overall Service Quality:** To ensure continuous improvements in user satisfaction, the station management should consider implementing user feedback systems and regularly assessing the quality of the provided services. This will help in identifying areas that need further improvement and in meeting the evolving expectations of the passengers.

7. Research limitation

This study focused exclusively on Dukuh Atas Integrated Station in Jakarta, limiting the generalizability of the findings to other stations in Indonesia or abroad. Future research should include multiple locations to capture diverse contexts. Variables like fare pricing, travel times, and security awareness were not analyzed, as the primary focus was on intermodal access, station services, and intermodal information. Future studies should consider these factors to create a more comprehensive model.

Data collection occurred in June and July 2024, without accounting for seasonal changes. Extending the collection period could provide a more accurate reflection of user satisfaction across different conditions. Additionally, the online survey used may have attracted more tech-savvy respondents, potentially skewing the results. To ensure broader representation, future research should aim for a larger, more diverse sample size.

References

- Akbar Danindra Montana, & Yenita. (2023). ANALISIS TINGKAT PELAYANAN INTEGRASI ANTARMODA BERDASARKAN PERSEPSI PENGGUNA KRL DI STASIUN MANGGARAI. *AKSELERASI: Jurnal Ilmiah Nasional*, 5(1).
- Anjas Riseetyawan, Sularto, Agusti Eviana Sari, & Badrunsyah. (2022). THE EFFECT OF FACILITIES AND SERVICE QUALITY ON CUSTOMER SATISFACTION OF GAS STATION IN SETU BEKASI, WEST JAVA. *JOURNAL OF MANAGEMENT, ACCOUNTING, GENERAL FINANCE AND INTERNATIONAL ECONOMIC ISSUES*, volume 1(issue 2), 27–36.
<https://ojs.transpublika.com/index.php/MARGINAL/>
- Aras, M., Persada, I. N., & Nabella, S. D. (2023). THE INFLUENCE OF SERVICE QUALITY, TRUST, AND FACILITIES ON THE DECISION TO CHOOSE SP

- HOTEL BATAM. In *Management, Economics and Social Sciences. IJAMESC, PT. ZillZell Media Prima* (Vol. 1, Issue 4).
- Aris Fatoni, & Deffi Hardianti. (2020). PENGARUH FASILITAS DAN KUALITAS PELAYANAN TERHADAP KEPUTUSAN MENGGUNAKAN JASA TRANSPORTASI MRT ATAU MASS RAPID TRANSIT (STUDI PADA KONSUMEN PROVINSI DKI JAKARTA). *Medistama, Volume 26*(1), 117–134.
- Arshinta Chandra Putri, & Sugi Suhartono. (2023). KEMAMPUAN KUALITAS AUDIT MEMODERASI PENGARUH FRAUD HEXAGON TERHADAP FRAUDULENT FINANCIAL STATEMENTS. *Jurnal Bina Akuntansi, vol 10*(2), 732–757.
- Charel Jovansa, J., Nurcahyanto, H., & Yuniningsih, T. (2024). ANALISIS AKSESIBILITAS PELAYANAN TRANSPORTASI PUBLIK COMMUTER LINE BAGI PENYANDANG DISABILITAS DI STASIUN MANGGARAI JAKARTA SELATAN ANALYSIS OF ACCESSIBILITY OF COMMUTER LINE PUBLIC TRANSPORTATION SERVICES FOR PERSONS WITH DISABILITIES AT MANGGARAI STATION, SOUTH JAKARTA. *Journal Of Public Policy And Management Review, 13*(3), 1–22.
- Daffi, M. A., & Ristianti, N. S. (2024). Preferensi Pengguna Terhadap Rancangan Desain Fasilitas Integrasi Antarmoda yang Responsif Pandemi Covid-19 di Kawasan TOD Dukuh Atas. *Jurnal Teknik PWK, 13*(1), 49–57.
<http://ejournal3.undip.ac.id/index.php/pwk>
- Deandra Michella, Yohana F, & Cahya P. Meilani. (2024). PENGARUH HIGH PERFORMANCE WORK PRACTICE (HPWP) TERHADAP JOB SATISFACTION DI RS XYZ MAGELANG. *JURNAL ILMIAH MANAJEMEN BISNIS DAN INOVASI UNIVERSITAS SAM RATULANGI (JMBI UNSRAT), vol 10*(1), 635–643.
- Firmansyah. (2020). THE INFLUENCE OF FACILITY, TIMELINESS AND TRUST WITH SATISFACTION AS INTERVENING VARIABLES TOWARDS LOYALTY OF EXECUTIVE TRAIN PASSENGERS OF SURABAYA GUBENG STATION. *Business and Accounting Research (IJEBA) Peer Reviewed-International Journal, 4*(3), 1–7. <http://jurnal.stie-aas.ac.id/index.php/IJEBA>
- Herdiansyah, J. (2023). ANALISA PELAYANAN INTEGRASI MODA (PARK AND RIDE) DENGAN HALTE TRANSJAKARTA KORIDOR 6 (RAGUNAN-KUNINGAN). In *Jurnal Ilmu Sosial* (Vol. 6, Issue 1).
- Hermanto, & Nora Pitri Nainggolan. (2020). PENGARUH KUALITAS PELAYANAN DAN KUALITAS PRODUK TERHADAP KEPUASAN PELANGGAN PADA PT ANEKA TATA NIAGA. *Jurnal Ilmu Ekonomi Manajemen, 11*(1), 46–57.
- Indra Sani, Tin Agustina Karnawati, & Widi Dewi Ruspitasari. (2024). The Impact of Service Quality on Customer Loyalty Through Customer Satisfaction of PT

- Multicom Persada International Jakarta. *Dinasti International Journal of Management Science*, vol 5(no 3), 475–485. <https://doi.org/10.31933/dijms.v5i3>
- Inggrit Aulia Wati Hasanah, & Sri Setyo Iriani. (2024). Pengaruh harga tiket tarif khusus, kualitas layanan petugas, dan fasilitas fisik stasiun terhadap keputusan penggunaan transportasi kereta api. *Jurnal Ilmu Manajemen*, 12, 211–226.
- Jim Hoy Yam, & Ruhayat Taufik. (2021). Hipotesis Penelitian Kuantitatif. *Jurnal Ilmu Administrasi*, 3(2).
- Muhammad Fahri Irawan Lubis, Nuri Aslami, & Khairina Tambunan. (2023). PENGARUH HARGA, PELAYANAN DAN CUSTOMER EXPERIENCE TERHADAP KEPUASAN PELANGGAN PADA CAFE PASCHO PEMATANG SIANTAR. *JIMEA | Jurnal Ilmiah MEA (Manajemen, Ekonomi, Dan Akuntansi)*, 7, 1–11.
- Nahda Nadia Al Aulia, & A.R. Indra Tjahjani. (2022). PENGARUH AKSESIBILITAS TERHADAP PENGGUNA TRANSPORTASI KERETA COMMUTER LINE, STASIUN SUDIMARA (The Effect Of Accessibility On Users Of Commuter Line Train Transportation, Sudimara Station). *Jurnal Artesis. Vol. 2 (1):13-18*, 2(1), 13–18.
- Oktaviani, N., & Made Widiarta, I. (2019). SISTEM INFORMASI INVENTARIS BARANG BERBASIS WEB PADA SMP NEGERI 1 BUER. *Jurnal JINTEKS*, 1(2), 160–168.
- Philip Kotler, & Gary Armstrong. (2017). *Principles of Marketing* (Vol. 17e).
- Puspita Sari, D., Kurnia Rohman, R., Alifya, B., Damayanti, I., Rawamangun Muka, J., Gadung, P., & Jakarta Timur, K. (2024). Analisis Mutu Pelayanan PT Kereta Api Indonesia Melalui Kepuasan Pengguna Layanan Pada Stasiun Transit Kereta Rel Listrik (KRL). *Bisnis Dan Manajemen (EBISMEN)*, 3(2). <https://doi.org/10.58192/ebismen.v2i3.2147>
- Putri Indah Yuliyana, & Fitri Susilowati. (2021). Pengaruh Fasilitas, Kualitas Pelayanan, Aksesibilitas dan Citra Toko Terhadap Kepuasan Pelanggan Pada Masa New Normal (Studi Kasus pada Pelanggan Mirota Kampus Babarsari). *The Journal Of Business and Management, Volume 4* (Nomor 1), 1–14.
- Rifki Hanif, Widji Astuti, & Sunardi Sunardi. (2024). The Mediating Role of Customer Satisfaction in the Effect of Perceived Enjoyment on Customer Trust In Online Investment Application. *Innovation Business Management and Accounting Journal*, volume 3(no 1), 18–29.
- Sagita Alfira Supriyadi, & Galih Wahyu Pradana. (2024). KAJIAN KETERPADUAN ANTAR MODA: SEBUAH ANALISIS AKSESIBILITAS TRANSPORTASI PUBLIK PADA LAYANAN FEEDER WIRA-WIRI SURABAYA. *Publika*, volume 12(no 3), 793–802.

- Said Muhammad Abror, Agus Purwoko, & Wahyu Ario Pratomo. (2016). ANALISIS PENGARUH PEMBANGUNAN JARINGAN JALAN ANALISIS PENGARUH PEMBANGUNAN JARINGAN JALAN TERHADAP PERUBAHAN GUNA LAHAN TERHADAP PERUBAHAN GUNA LAHAN DI KAWASAN AEK KANOPAN DI KAWASAN AEK KANOPAN. *Jurnal Ekonom*, Vol 19(No 2), 83–89.
- Tasya Ramadhani Adila, Yola Riska Amelia, Roswan Kasim, & Muhamad Rofiq. (2021). THE ROLE OF BRAND CREDIBILITY TOWARDS PASSENGERS' TRUST THROUGH SOCIAL MEDIA PROMOTION ON CITILINK DURING THE COVID-19 PANDEMIC. *Http://Proceedings.Itltrisakti.Ac.Id/Index.Php/Altr*, 1(1), 218–227. <http://proceedings.itltrisakti.ac.id/index.php/altr>
- Venny Arianti, Yosi Pahala, Aswanti Setyawati, & Prasadja Ricardianto. (2021). Passenger satisfaction and decision of repurchasing on rail transportation services. *Management and Business Review*, 5(2), 265–278. <https://doi.org/10.21067/mbr.v5i2.5928>
- Wahyu Fitri Primasari, Muhammad Syarif Hidayatullah Elmas, & Dedi Joko Hermawan. (2024). Pengaruh Customer Experience, Harga, dan Pelayanan Prima terhadap Kepuasan Pengguna Jasa Kereta Api Ekonomi Stasiun Probolinggo (DAOP IX) Jember. *Jurnal Penelitian Dan Pengkajian Ilmiah*, 1(7), 317–334. <https://doi.org/10.62335>
- Widayanti, F. R., & Supriyatno, D. (2020). Analysis of Accessibility to City Transport Performance Based on Passenger Perception with Case Study: Tambak Osowilangun Terminal Route. *Journal of Physics: Conference Series*, 1–8.
- Widyo Sasongko, Yosi Pahala, & Adenan Suhalis. (2022). Role Perceived Value As the Mediating Variable of The Effect of Service Quality on User Satisfaction (Study on KRI Operations At the Military Seaborne Command). *International Journal on Advanced Science, Education, and Religion*, 5(3), 120–127. <https://doi.org/10.33648/ijoaser.v5i3.238>
- Wiratama, D., & Rahmawati, D. (2013). PENGARUH KUALITAS INFORMASI, PERSEPSI KEBERMANFAATAN, DAN COMPUTER SELF EFFICACY TERHADAP PENGGUNAAN INTERNET SEBAGAI SUMBER PUSTAKA. *JURNAL NOMINAL, VOLUME II(NOMOR II)*, 31–60.