



DOI: <https://doi.org/10.38035/rj.v7i4>
<https://creativecommons.org/licenses/by/4.0/>

The Effect of Electric Train Tracking Using the C-Access Application Using the Routing Method on Customer Satisfaction at PT KCI 2024

Johanes Kurniawan¹, Paul S Hutaauruk², Sarinah Sihombing³, Natalia Ayu Hapsari⁴,
Sinung Tri Nugroho⁵, Gutis Syahanawa⁶

¹ Institut Transportasi dan Logistik (ITL) Trisakti, Jakarta, 3j.kurniawan@gmail.com

² Institut Transportasi dan Logistik (ITL) Trisakti, Jakarta, pshutaauruk2305@gmail.com

³ Institut Transportasi dan Logistik (ITL) Trisakti, Jakarta, sarinah.stmt@gmail.com

⁴ Institut Transportasi dan Logistik (ITL) Trisakti, Jakarta, sinungtn@gmail.com

⁵ Institut Transportasi dan Logistik (ITL) Trisakti, Jakarta, nataliaayu2812@gmail.com

⁶ Institut Transportasi dan Logistik (ITL) Trisakti, Jakarta, Gutisayah6@gmail.com

Corresponding Author: 3j.kurniawan@gmail.com ¹

Abstract: *This study aims to analyze the effect of using the C-Access application on electric train tracking and customer satisfaction at PT KCI in 2024. This study evaluates the effect of tracking, application usage, and routing methods on customer satisfaction. The research objects include online library literature, Google Scholar, Mendeley, and other online academic media. The research methodology involves a systematic literature review (SLR) using open access e-books and e-journals. Data are processed using the latest version of SEM Smart PLS software. The results of the study indicate that: 1) train tracking has a significant effect on customer satisfaction; 2) the use of the C-Access application has a positive effect on customer satisfaction; and 3) the optimized routing method also has a significant impact on customer satisfaction. The value of 0.761 or 76.1% states that the Tracking, Application and Routing Variables contribute 76.1% to the formation of the Customer Satisfaction Variable tendency, there is still 23.9% influence from other factors that are not discussed and included in this study. These findings are very important for improving service quality and customer satisfaction in the transportation management sector.*

Keyword: *Train Tracking, Application, Routing, Customer Satisfaction*

INTRODUCTION

The use of technology to improve the quality of transportation services and facilities has become one of the good steps in increasing customer satisfaction. One example of a technology application used to improve the quality of transportation services is the C-Access application developed by PT KCI (Kereta Commuter Indonesia). This C-Access application has innovative features such as ticket purchases, information on the location of the nearest station, and purchasing Airport Commuter Line tickets, which are expected to improve the

quality of service and facilities for customers. Chois, M. S., Muhamad Chois, M. S., & Johanes KurniawanL SKom, M. (2018).

However, on several occasions, the C-Access application has experienced obstacles that have caused customers to be unable to use the application properly. These obstacles include when users try to open the C-Access application, but the application cannot be accessed and displays the message "An error has occurred. Try again later". These obstacles can cause customers to be dissatisfied with the services provided by PT KCI. Therefore, this study aims to analyze the effect of electric train tracking using the C-Access application on PT KCI customer satisfaction. This study also aims to determine what factors influence customer satisfaction in using the C-Access application. (Kurniawan, J. (2020)).



Figure 1. Trend Train Tracking
Source: Google Trends (2024)



Figure 2. Trend C-Access
Source: Google Trends (2024)



Figure 3. Trend Metode Routing
Source: Google Trends (2024)

Based on empirical experience, many KRL Commuter users and researchers have difficulty tracking KRL when traveling using KRL. This article discusses the Effect of Electric Train Tracking Using the C-Access Application Using the Routing Method on Customer Satisfaction of PT KCI 2024, this study will add knowledge in the field of transportation management.

Based on the background, the purpose of writing this article is to build a hypothesis for further research, namely to formulate: 1) The Effect of Train Tracking on Customer Satisfaction; 2) The Effect of the C-Access Application on Customer Satisfaction; and 3) The Effect of Routing Methods on Customer Satisfaction.

METHOD

Writing a literature review is done by conducting library research and a Systematic Literature Review (SLR), which is analyzed quantitatively and sourced from Google Scholar, Mendeley, and other academic online resources. Data processed from respondents is supported by SEM Smart PLS.

According to Ayu & Rosli (2020), "Systematic Literature Review (SLR) is defined as the process of identifying, assessing and interpreting all available research evidence with the aim of providing answers to specific research questions".

According to Ayu & Rosli (2020), In quantitative analysis, literature reviews must also use processed data that is presented consistently with methodological assumptions and analysis. One of the reasons for conducting qualitative and qualitative analysis is that the research is exploratory, and Analysisi

This study uses PLS (Partial Least Square) software, structural equation models (SEM). According to Ghazali (2015), "SEM is a set of multi-equation models created using econometric principles together with psychological and sociological regulatory principles. These principles can be used to explain hidden variables, which are not measurable, and to measure variables indirectly, which are based on indicators (explicit variables)."

According to Evi & Rachbini (2022), "Partial Least Squares (PLS) is a multivariate statistical technique that compares multiple dependent variables and multiple independent variables. PLS is a statistical SEM technique designed to solve multiple regression when certain data problems occur, such as small sample sizes, missing data, and overlapping." According to Jogiyanto & Abdillah (2015), "The purpose of PLS is to predict how variable X will affect variable Y and explain the theoretical relationship between the two variables." The following are indicators of electronic service quality or Tracking as stated by Saha & Zhao (2005), "(1) Efficiency: refers to the ability of the website to be accessed by users or customers. 2) Reliability: refers to the capacity of the website's technical features to provide accurate information. 3) Responsiveness: refers to the ability to react quickly to user inquiries regarding the location of the information they need. 4) Fulfillment: the capacity to meet customer needs by delivering goods on schedule. 5) Privacy: the state of not knowing personal information or personal information that cannot be accessed by other users."

According to Pocatilu et al. (2015), Indicators for Application variables, especially in the context of assessing the quality of mobile applications, include several key aspects that are normalized in the interval [0; 1]. The following are some indicators identified in the uploaded documents: (1) Mode of Interaction: How the application interacts with the user, for example through button clicks or screen touches. (2) Command Speeds: The speed of the application's response to user commands. (3) Interaction Time: The time it takes for the application to interact with the user. (4) Drivability: Ease of use of the application in various conditions. (5) Volume of Provided Information: The amount of information provided by the application. (6) Error Management: The application's ability to handle errors. (7) Self-healing: The application's ability to repair itself after an error occurs. (8) Integrability: The application's ability to integrate with other systems. (9) Data Security: The level of data security provided by the application. (10) Transaction Security: The level of transaction security provided by the application. (11) Coefficients Determining Importance: Coefficients that determine the importance of each indicator in the overall assessment.

According to (Junior et al., 2019), "In general, satisfaction can be interpreted as a comparison between the services or results received by consumers with consumer expectations, the services or results received must at least be the same as consumer expectations, or even exceed them". Customer satisfaction indicators according to Fahriani & Febriyanti (2022) are products, prices, locations, promotions, employee services, facilities, and atmosphere. Indicators for routing According to Kim (2023), (1) Arrival Time, (2)

Number of Passengers, (3) Travel Cost, (4) Travel Reliability, (5) Passenger Ratio, (6) Travel Quality, (7) Travel Efficiency, (8) Travel Assurance, (9) Travel Relatedness, (10) Travel Integration. This indicator can be used to determine how effective routing is in sending passengers with high integration.

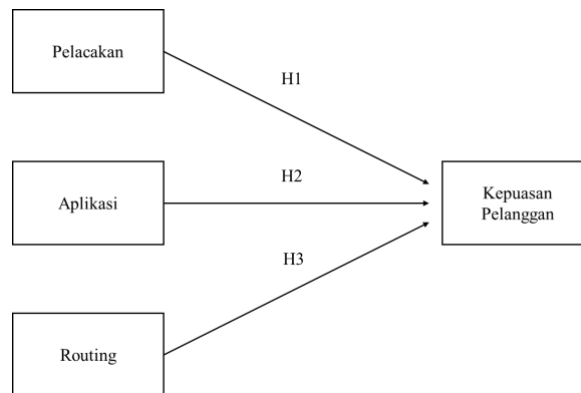


Figure 4. Conceptual Framework
Source: Processed by Researchers

RESULT AND DISCUSSION

Customer Satisfaction

According to (Sambodo Rio Sasongko, 2021), "Creating customer value involves the level of customer satisfaction. As a result, creating customer satisfaction provides benefits for the business, such as harmonious relationships with clients, a strong foundation for encouraging client satisfaction, and the formation of positive word-of-mouth recommendations that encourage clients to buy products or use business services".

According to (Junior et al., 2019), "In general, satisfaction can be interpreted as a comparison between the services or results received by consumers with consumer expectations, the services or results received must at least be the same as consumer expectations, or even exceed them"

According to the opinion of the researcher above, Customer satisfaction is the key to creating customer value and providing long-term benefits for the company. Satisfaction is achieved when the services or results received match or exceed consumer expectations. The benefits of customer satisfaction include more harmonious relationships, positive recommendations, and increased customer interest in using the company's products or services.

Tracking

According to Eviani & Hidayat (2021a), Tracking means the process of observing or following the movement of an object, individual, or object that moves continuously. Tracking is done to monitor and optimize business processes, and influence customer satisfaction. One of the most important factors in determining the success or even failure of e-commerce activities is the quality of service provided in an online or electronic environment. According to Arimbawa et al. (2019), "Vehicle tracking is a series of systems installed on vehicles so that they can be tracked by vehicle owners or other third parties".

According to the researchers above, Tracking is an important process for continuously observing the movement of objects or vehicles, which aims to monitor, optimize business processes, and increase customer satisfaction. In e-commerce, the quality of service produced through tracking can determine the success or failure of an activity.

Application

According to Klaudio et al. (2020), "An application is a software that is specifically designed to meet the needs of various activities and jobs". Meanwhile, according to Virgana et al. (2021), "An application is a translator of instructions run by the user and processed by the hardware".

According to the opinion of the researcher above, an application is software designed to meet the various needs of user activities and jobs by translating instructions run by the user and processed by the hardware".

Routing

According to Hester & Nugroho (2022), "Vehicle Routing Problem is defined as a way of finding efficient use with a number of vehicles that will travel to visit several places to pick up and deliver goods". According to Virgana et al. (2021), "Vehicle Routing Problem aims to design a series of vehicle routes that start and end".

According to the opinion of the researcher above, Vehicle Routing Problem (VRP) is a method for finding efficient vehicle use in traveling to visit several locations to pick up and deliver goods. The main purpose of VRP is to design a series of vehicle routes that start and end at the same place, so that the trip becomes more optimal and efficient.

Relevant Article Review

Table 1. Relevant Article Review

No	Author (Tahun)	Hasil Penelitian Terdahulu	Persamaan	Pembeda	H
1	Eviani & Hidayat (2021b)	"Pelacakan dan Ketepatan waktu berpengaruh positif dan signifikan terhadap Kepuasan Pelanggan"	Pelacakan berpengaruh terhadap Kepuasan Pelanggan	Ketepatan berpengaruh terhadap Kepuasan Pelanggan	H1
2	Maslikhan et al. (2020)	"Pelacakan dan Ketepatan berpengaruh positif dan signifikan terhadap Kepuasan Pelanggan"	Pelacakan berpengaruh terhadap Kepuasan Pelanggan	Ketepatan Waktu berpengaruh terhadap Kepuasan Pelanggan	H1
3	Bagus Elciano et al. (2023)	"Aplikasi dan Kualitas berpengaruh positif dan signifikan terhadap Kepuasan Pelanggan"	Aplikasi berpengaruh terhadap Kepuasan Pelanggan	Kualitas layanan berpengaruh terhadap Kepuasan Pelanggan	H2
4	Kelvin & Firmansyah (2022)	"Aplikasi berpengaruh positif dan signifikan terhadap Kepuasan Pelanggan"	Aplikasi berpengaruh terhadap Kepuasan Pelanggan	Faktor jasa Logistik terhadap Kepuasan Pelanggan	H2
5	Kim (2023)	"Routing berpengaruh positif dan signifikan terhadap Kepuasan Pelanggan"	Routing berpengaruh terhadap Kepuasan Pelanggan	<i>Fuzzy response</i> Terhadap Kepuasan Pelanggan	H3
6	Zhang et al. (2020)	"Routing berpengaruh positif dan signifikan terhadap Kepuasan Pelanggan"	Routing berpengaruh terhadap Kepuasan Pelanggan	<i>Instant Distribution Routing</i> Terhadap Kepuasan Pelanggan	

Source: Processed by Researchers

Discussion

The discussion of this literature review article is based on theoretical studies, and includes reviewing relevant articles, analyzing relationships between variables, and creating a conceptual research plan:

The Influence of Tracking on Customer Satisfaction.

According to Eviani & Hidayat (2021a), "Tracking means the process of observing or following the movement of an object, individual, or object that moves continuously. Tracking is done to monitor and optimize business processes, and influence customer satisfaction. The quality of service in an online or electronic environment is one of the most important things in determining the success or even failure of an e-commerce activity".

Tracking affects Customer Satisfaction, if Tracking is perceived well, Customer Satisfaction will also be perceived well.

Factors that influence Tracking according to Saha & Zhao (2005), : (1) Efficiency: refers to the ability of the website to be accessed by users or customers. 2) Reliability: refers to the capacity of the website's technical features to provide accurate information. 3) Responsiveness: refers to the ability to react quickly to user questions regarding the location of the information they need. 4) Fulfillment: the capacity to meet customer needs by delivering goods on schedule. 5) Privacy: the state of not knowing personal information or personal information that cannot be accessed by other users.

Tracking is a crucial process in monitoring the movement of objects that greatly contributes to business process optimization and customer satisfaction, especially in e-commerce (Eviani & Hidayat, 2021a). Factors such as access efficiency, information reliability, responsiveness to inquiries, fulfillment of delivery promises, and privacy of customer information (Saha & Zhao, 2005), greatly influence customer perceptions of tracking services. When tracking is well perceived through optimization of these factors, customer satisfaction will increase, making quality tracking services a vital element in determining business success. research conducted by: (Saha & Zhao, 2005) (Eviani & Hidayat, 2021)

The Influence of Applications on Customer Satisfaction.

According to Klaudio et al. (2020), "An application is a software that is specifically created to meet the needs of various activities and jobs". Meanwhile, according to Virgana et al. (2021), "An application is a translator of instructions run by the user and processed by the hardware".

According to Pocatilu et al. (2015), "Application indicators are Mode of Interaction, Command Speeds, Interaction Time, Drivability, Volume of Provided Information, Error Management, Self-healing, Integrability, Data Security, Transaction Security, Coefficients Determining Importance".

Applications play a role in Customer Satisfaction, this is in line with the research conducted.

According to the researcher's opinion above, an application is software designed to meet the various needs of user activities and jobs by translating instructions run by the user and processed by the hardware. by: Pocatilu et al. (2015), (Bagus Elciano et al., 2023), (Kelvin & Firmansyah, 2022).

The Influence of Routing on Customer Satisfaction.

According to Hester & Nugroho (2022), "Vehicle Routing Problem is defined as a way of finding efficient use with a number of vehicles that will travel to visit several places

to pick up and deliver goods". According to Virgana et al. (2021), "Vehicle Routing Problem aims to design a series of vehicle routes that start and end".

According to the opinion of the researcher above, Vehicle Routing Problem (VRP) is a method for finding efficient vehicle use in traveling to visit several locations to pick up and deliver goods. The main purpose of VRP is to design a series of vehicle routes that start and end at the same place, so that the trip becomes more optimal and efficient.

Routing plays a role in Customer Satisfaction, this is in line with research conducted by: (Kim, 2023).

Conceptual Framework of Research

Based on the formulation of the problem, relevant research and discussion, the conceptual framework of this article is obtained as shown in Figure 1.

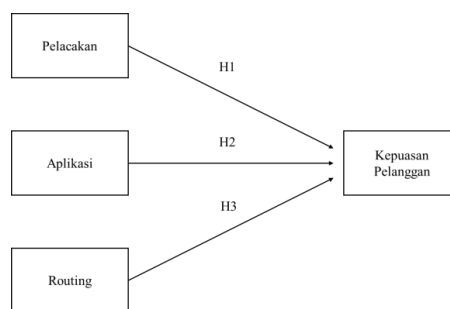


Figure 5. Conceptual Framework
Source: Processed by Researchers

Based on this conceptual framework, then: Tracking, Application, and Routing have an influence on Customer Satisfaction. Apart from the three exogenous variables that affect Customer Satisfaction, there are many other variables, including:

- 1) Punctuality: (Eviani & Hidayat, 2021b)
- 2) Punctuality: (Maslikhan et al., 2020)
- 3) Service Quality: (Bagus Elciano et al., 2023)

Measurement Model Testing (Outer Model)

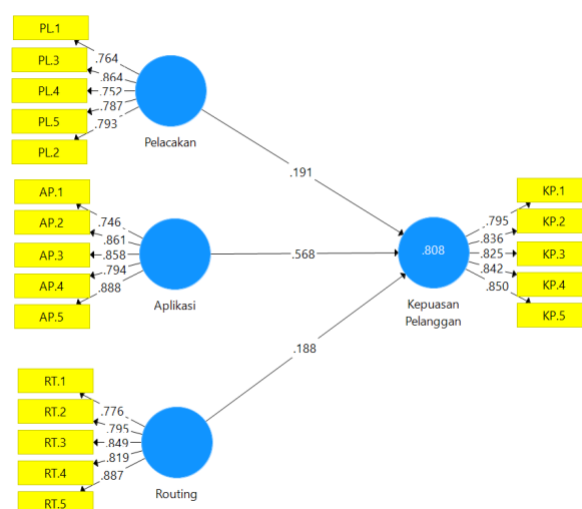


Figure 6. Measurement Model Testing (Outer Model)
Source: Processed by Researchers

AVE (Average Variance Extracted) analysis in Structural Equation Modeling (SEM) plays an important role in determining the convergent validity of the measured construct. The AVE value measures how much variation or diversity is captured by the construct relative to the variation caused by measurement error. Based on the diagram given, it can be seen that the factor loading values for all indicators (PL1, PL2, PL3, PL4, PL5, AP.1, AP.2, AP.3, AP.4, AP.5, RT.1, RT.2, RT.3, RT.4, RT.5, KP.1, KP.2, KP.3, KP.4, KP.5) are all more than 0.7. This indicates that these indicators have a strong correlation with the constructs they measure, thus meeting the requirements for convergent validity.

The constructors analyzed include Tracking (PL) with indicators PL1 to PL5 and factor loadings between .752 to .864, Application (AP) with indicators AP.1 to AP.5 and factor loadings between .746 to .888, Routing (RT) with indicators RT.1 to RT.5 and factor loadings between .776 to .887, and Customer Satisfaction (KP) with indicators KP.1 to KP.5 and factor loadings between .795 to .850. AVE is calculated as the average of the squared factor loadings of each indicator in the constructor, and to meet the convergent validity criteria, the AVE value must be greater than 0.5, which means that more than 50% of the indicator variance can be explained by the constructor.

The diagram also shows the relationship between constructors with values of .191, .568, and .188, indicating the connection between constructors. The value of .808 on "Customer Satisfaction" shows a high level of variability that can be explained by other constructors. Overall, this diagram indicates that all indicators have factor loadings above 0.7, indicating that the constructors are valid in measuring what they are supposed to measure. This strengthens the convergent validity of the constructors used in this study.

Discriminant Validity Test Results

To ensure that each concept of the latent variable is clearly different from other latent variables, discriminant validity is used. If the AVE squared value of each exogenous construct (diagonal value) is greater than the correlation between the construct and other constructs (values below the diagonal), then the model is considered to have good discriminant validity. The results of the discriminant validity test are obtained as follows:

Table 2. Discriminant Validation

	Application	Service Satisfaction	Tracking	Routing
Application	0.831			
Service Satisfaction	0.879	0.830		
Tracking	0.780	0.792	0.793	
Routing	0.862	0.838	0.840	0.826

Source: Processed by Researchers Using SmartPLS

The correlation value of each construct is quite large, therefore it can be concluded that the latent constructs predict the size of their blocks (measurement dimensions) better.

Composite Reliability Test Results

Table 3. Composite Reliability

	Cronbach's Alpha	ρ_A	Composite Reliability	Average Variance Extracted (AVE)
Application	0.887	0.893	0.917	0.690
Customer satisfaction	0.887	0.888	0.917	0.689
Tracking	0.852	0.853	0.894	0.629
Routing	0.884	0.892	0.915	0.683

Source: Processed by Researchers Using SmartPLS

Reliability Composite data is considered highly reliable if its composite reliability is greater than 0.6.

Table 4. Crossloading

	APP (X2)	KPL (Y)	PEL (X1)	RUT (X3)
AP.1	,746	,666	,720	,759
AP.2	,861	,761	,667	,696
AP.3	,858	,764	,678	,752
AP.4	,794	,654	,540	,651
AP.5	,888	,795	,638	,730
KP.1	,665	,795	,656	,706
KP.2	,782	,836	,584	,626
KP.3	,702	,825	,661	,616
KP.4	,756	,842	,682	,741
KP.5	,738	,850	,701	,783
PL.2	,544	,633	,793	,622
PL.3	,696	,645	,864	,748
PL.4	,654	,579	,752	,539
PL.5	,640	,644	,787	,692
RT.1	,666	,579	,683	,776
RT.2	,748	,619	,691	,795
RT.3	,679	,712	,775	,849
RT.4	,715	,765	,611	,819
RT.5	,759	,759	,722	,887
PL.1	,558	,634	,764	,716

Source: Processed by Researchers Using SmartPLS

Cronbach Alpha

Table 5. Cronbach Alpha

	<i>Cronbach's Alpha</i>
Tracking	0.852
Application	0.887
Routing	0.884
Customer satisfaction	0.887

Source: Processed by Researchers Using SmartPLS

According to Ayu & Rosli (2020)), "States that the value of the Tracking Variable alpha (α) 0.884 or falls into the high reliability category, the Application Variable with a value of (α) 0.887 falls into the high reliability category, the Routing Variable with a value of (α) 884 falls into the high reliability category, the Customer Satisfaction Variable with a value of (α) 0.887 and falls into the category of having high reliability".

Structural Model Evaluation (Inner Model)

Table 6. R-Square

	<i>R-Square</i>	<i>R-Square Adjusted</i>
Customer satisfaction	0.808	0.792

Source: Processed by Researchers Using SmartPLS

Table 7. T-Count

		<i>Original Sample (O)</i>	<i>Sample Mean (M)</i>	<i>Standard Deviation (STDEV)</i>	<i>T Statistics (O/STDEV)</i>	<i>P Values</i>
Tracking Customer satisfaction	->	0,191	0,221	0,143	1,333	0,183
Application Customer satisfaction	->	0,568	0,565	0,159	3,580	0,000
Routing Customer satisfaction	->	0,188	0,165	0,199	0,945	0,345

Source: Processed by Researchers Using SmartPLS

Table 8: Q-Predict

	<i>RMSE</i>	<i>MAE</i>	<i>Q²-predict</i>
Customer satisfaction	0,532	0,427	0,761

Source: Processed by Researchers Using SmartPLS

The value of 0.761 in the table above states that the model has a good correlation. The value of 0.761 or 76.1% states that the Tracking, Application and Routing Variables contribute 76.1% to the formation of the Customer Satisfaction Variable tendency, there is still 23.9% influence from other factors that are not discussed and included in this study. (Aziz et al., 2021).

1. It can be seen that the three measurement variables are significant and the significant values are:
2. 1. The Tracking Variable has a significant effect on 0.0 Customer Satisfaction Variable 00 <0.05 and has a positive effect with a Tcount value of 1.333 <1.677 (Ttable) with a small standard deviation of 0.143
3. 2. The Application Variable has a significant effect on 0.0 Customer Satisfaction Variable 00 <0.05 and has a positive effect with a Tcount value of 3.580 > 1.677 (Ttable) with a small standard deviation of 0.159
4. 3. The Routing Variable has a significant effect on the Customer Satisfaction Variable 0.000 <0.05 and a positive effect with a Tcount value of 0.945 <1.677 (Ttable) with a small standard deviation of 0.143 0.199 (Chelviani et al., 2018).

At a Q-square value > 0 or 0.761, this shows that the structural model has accurate predictive relevance, namely the relevance or suitability between dependent variables. By looking at this value, it can be concluded that this study has a good or excellent observation value.(Aziz et al., 2021)

CONCLUSION

This study examines the effect of electric train tracking, use of the C-Access application, and routing methods on customer satisfaction of PT Kereta Commuter Indonesia (KCI) in 2024. Based on the analysis of literature and empirical data obtained, the following are the conclusions of this study:

1. The Effect of Tracking on Customer Satisfaction

Train tracking has a positive and significant effect on customer satisfaction. An effective and efficient tracking process allows customers to monitor train movements in real-time, which ultimately increases customer trust and satisfaction with KCI services. Factors such as access efficiency, information reliability, responsiveness to inquiries, fulfillment of delivery promises, and privacy of customer information greatly influence customer perceptions of tracking services.

2. The Effect of C-Access Application on Customer Satisfaction

The C-Access application has been proven to contribute significantly to customer satisfaction. This application is designed to meet user needs by providing the information needed quickly and accurately. Indicators such as mode of interaction, response speed, interaction time, ease of use, volume of information provided, error management, self-healing capabilities, integrability, data security, and transaction security are determining factors in application quality that contribute to increasing customer satisfaction.

3. The Effect of Routing Method on Customer Satisfaction

Efficient and optimal routing methods have a significant effect on customer satisfaction. Vehicle Routing Problem (VRP) helps in designing efficient travel routes, which start and end at the same place. Travel efficiency, arrival time, travel cost, travel quality, and travel integration are some of the indicators that influence customer perceptions of routing services. Route optimization can improve customer comfort and satisfaction.

Overall, this study shows that train tracking, use of the C-Access application, and efficient routing methods have a positive effect on PT KCI customer satisfaction. These results provide important contributions to the field of transportation management, especially in the context of electric train services. PT KCI is expected to continue optimizing tracking technology, mobile applications, and routing methods to improve service quality and customer satisfaction in the future.

This study also opens up opportunities for further research by examining other variables that may affect customer satisfaction, such as punctuality, service quality, and other external factors. Thus, PT KCI can develop a more comprehensive and effective strategy in improving customer satisfaction.

REFERENCES

- Arimbawa, I. W. A., Rahman, A. C., & Jatmika, A. H. (2019). Implementasi Internet of Things pada Sistem Informasi Pelacakan Kendaraan Bermotor Menggunakan GPS Berbasis Web. *Jurnal Teknologi Informasi, Komputer, Dan Aplikasinya (JTika)*, 1(1), 121–130. <https://doi.org/10.29303/jtika.v1i1.10>
- Ayu, S., & Rosli, M. S. Bin. (2020). Uji reliabilitas instrumen penggunaan SPADA (Sistem Pembelajaran dalam Jaringan). *Biomatika*, 6(1), 145–155.
- Aziz, F., Setyorini, R., & Hasanah, Y. N. (2021). Analisis Halal Supply Chain pada Usaha Mikro Kecil Menengah (UMKM) Makanan di Kota Bandung. *Jurnal Ilmiah Ekonomi Islam*, 7(1), 293. <https://doi.org/10.29040/jiei.v7i1.1936>
- Bagus Elciano, A., Atmaja, D. R., Rojuaniah, R., Hafidz, I. L. H., & Trianda, F. (2023). Pengaruh Faktor Kualitas Layanan Aplikasi J&T Express terhadap Kepuasan Pelanggan, Niat Beli, dan Pembelian Aktual. *Jurnal Informatika Ekonomi Bisnis*. <https://doi.org/10.37034/infeb.v5i4.673>
- Chelviani, K. M., Meitriana, M. A., & Haris, I. A. (2018). *Analisis Faktor-Faktor Yang Mempengaruhi Pemilihan*. 9(2), 257–266.
- Chois, M. S., Muhamad Choisi, M. S., & Johaness Kurniawan, L. S. Kom, M. (2018). *MANAJEMEN MANAJEMEN LOGISTIK DAN LOGISTIK DAN TRANSPORTASI (SHARING BEST PRACTICE SHARING BEST PRACTICE)*.
- Evi, T., & Rachbini, W. (2022). *PARTIAL LEAST SQUARES (TEORI DAN PRAKTEK)*.
- Eviani, I., & Hidayat, Y. R. (2021a). Pengaruh Sistem Pelacakan Online dan Ketepatan Waktu Pengiriman Terhadap Kepuasan Pelanggan (Studi Kasus J&T Express Kota Baru Bekasi). *Manajemen Logistik*, 1, 11–19.

- Eviani, I., & Hidayat, Y. R. (2021b). Pengaruh Sistem Pelacakan Online dan Ketepatan Waktu Pengiriman Terhadap Kepuasan Pelanggan (Studi Kasus J&T Express Kota Baru Bekasi). *Manajemen Logistik*, 1(1), 11–19.
- Fahriani, N. S., & Febriyanti, I. R. (2022). Analisis Kepuasan Pelanggan di Apotek Bunda Cikembar. *OPTIMAL : Jurnal Ekonomi Dan Manajemen*, 2(3).
- Ghozali, I. (2015). *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 23*. Universitas Diponegoro.
- Hester, P., & Nugroho, Y. A. (2022). OPTIMALISASI RUTE DISTRIBUSI MATRAS PADA PENYELESAIAN CAPA CITED VEHICLE ROUTING PROBLEM DENGAN METODE ALGORITMA GENETIKA. In *JCI Jurnal Cakrawala Ilmiah* (Vol. 1, Issue 11). <http://bajangjournal.com/index.php/JCI>
- Jogiyanto, H., & Abdillah, W. (2015). *Partial Least Square (PLS): Alternatif Structural Equation Modeling (SEM) Dalam Penelitian Bisnis*. Penerbit Andi.
- Junior, O. M. S., Areros, W. A., & Pio, R. J. (2019). Pengaruh Brand Image dan Persepsi Harga Terhadap Kualitas Pelayanan dan Kepuasan Pelanggan (Studi pada Pelanggan Datsun Nissan Martadinata). *Jurnal Administrasi Bisnis*, 8(2), 1. <https://doi.org/10.35797/jab.8.2.2019.23508.1-9>
- Kelvin, K., & Firmansyah, M. D. (2022). Analisis Faktor Pengaruh Terhadap Kepuasan Penggunaan Jasa Logistik Online: Studi Kasus Maxim di Kota Batam. *Jurnal Sisfokom (Sistem Informasi Dan Komputer)*, 11(3), 357–366. <https://doi.org/10.32736/sisfokom.v11i3.1506>
- Kim, G. (2023). Dynamic Vehicle Routing Problem with Fuzzy Customer Response. *Sustainability (Switzerland)*, 15(5). <https://doi.org/10.3390/su15054376>
- Klaudio, K., Sompie, S. R. U. A., & Paturusi, S. D. E. (2020). Rancang Bangun Aplikasi Fitness Berbasis Android (Studi Kasus : Popeye Gym Suwaan). *Teknik Informatika*.
- Kurniawan, J. (2020). Pengaruh Efektivitas Implementasi Dan Layanan Digital Pelni Mobile Terhadap Perspektif Pelanggan Selama New Normal Pandemic Covid-19. *Jurnal Teknologi Industri Dan Rekayasa (JTIR)*, 1, 34–42.
- Maslikhan, M., Basamalah, M. R., & Athia, I. (2020). Pengaruh Sistem Pelacakan Online Dan Ketepatan Waktu Pengiriman Terhadap Kepuasan Pelanggan (Studi Kasus JNE Cabang Utama Malang). *PRODI MANAJEMEN*. www.fe.unisma.ac.id
- Pocatilu, P., Ivan, I., Zamfiroiu, A., & Boja, C. (2015). An aggregate indicator for mobile application quality assessment. *Turkish Journal of Electrical Engineering and Computer Sciences*, 23(4), 956–973. <https://doi.org/10.3906/elk-1304-147>
- Saha, P., & Zhao, Y. (2005). Relationship between online service quality and customer satisfaction: a study in Internet banking. In *Business, Computer Science*. <http://www.diva-portal.org/smash/get/diva2:1030797/FULLTEXT01.pdf>
- Sambodo Rio Sasongko. (2021). Faktor-Faktor Kepuasan Pelanggan Dan Loyalitas Pelanggan (Literature Review Manajemen Pemasaran). *Jurnal Ilmu Manajemen Terapan*, 3(1), 104–114. <https://doi.org/10.31933/jimt.v3i1.707>
- Virgana, W., Informasi, T., Teknik Universitas Muhammadiyah Palembang, F., Jend Yani, J. A., Palembang, U., Selatan, S., Komputer, T., Sigma, A., & Perintis Kemerdekaan Palembang, J. (2021). PENGEMBANGAN APLIKASI MOBILE MENGGUNAKAN TEKNOLOGI WEB STUDI KASUS LAYANAN KONSULTASI DOKTER MOBILE APPLICATION DEVELOPMENT USING WEB TECHNOLOGY CASE STUDIES FOR DOCTOR CONSULTATION SERVICES. *Jurnal Digital Teknologi Informasi*, 4.
- Zhang, Y., Yuan, C., & Wu, J. (2020). Vehicle routing optimization of instant distribution routing based on customer satisfaction. *Information (Switzerland)*, 11(1). <https://doi.org/10.3390/info11010036>