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Evaluation of Social Media Marketing and Operational as the Basis for the Wira Wiri Suroboyo Strategy Using the Race, Fishbone, Ahp, and Swot Methods

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ABSTRACT

Transportation is an essential aspect of daily life, as the entire community relies on it to meet various needs. Rapid population growth and the high mobility of residents in the city of Surabaya have created significant challenges in public transportation management. This study aims to identify the reasons behind the low usage of Wira Wiri Suroboyo and to assess the effectiveness of social media marketing for Wira Wiri Suroboyo. A quantitative approach was employed using a questionnaire as the primary data collection instrument, with purposive sampling applied to select respondents. The study utilizes the Analytic Hierarchy Process (AHP), Reach, Act, Convert, Engage (RACE), Fishbone, and Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis methods. The results of the analysis using the Fishbone diagram show that the root causes of low public interest encompass several factors, including limited public participation, routes that do not cover all densely populated areas, inadequate bus stop facilities, and dependence on the regional budget for operational funding. Based on the SWOT matrix, Wira Wiri Suroboyo is positioned in the maintain quadrant but requires significant improvement in the "Act" aspect of social media engagement. The main strategic priority is to enhance interaction with consumers and provide informative, user-friendly content to build stronger brand awareness. This study concludes that the low usage of Wira Wiri Suroboyo is not solely a transportation issue but also a result of an underdeveloped supporting ecosystem. As a strategic recommendation, the Surabaya Transportation Agency should consistently implement the RACE framework, improve infrastructure (particularly bus stops), and adjust bus schedules at each stop according to actual travel patterns (origin–destination).

Keywords: AHP, Public Transportation, RACE, Social Media, SWOT.

INTRODUCTION

The rapid growth of the urban population and the high mobility of people in Surabaya create significant challenges in public transportation management (Risal Fikri, 2024). As the second-largest city in Indonesia, Surabaya—with a population of 2,972,801 in the first semester of 2022—has approximately 70.53% of its population in the productive age group. This population growth is accompanied by an increase in the percentage of private vehicle users as a daily mode of transportation, potentially causing city traffic congestion and various negative impacts, particularly on health, economic, and social sectors. The urgency of addressing congestion is evident given its adverse effects, including increased air pollution and delays in the economic sector. Therefore, an integrated approach is essential, such as imposing restrictions on motorized vehicles and encouraging the greater use of public transportation (Alamoudi et al., 2024; Chowdhury & Ceder, 2016; Meyer & Elrahman, 2019).

Transportation is an essential part of social, governmental, and economic systems. According to Fidel Miro, transportation is the effort to move, transport, or relocate an object from one place to another, either to make it more useful or to achieve a specific purpose (Fidel Miro et al., n.d.-b, n.d.-a; Miro, 2023). Public transportation plays a crucial role in reducing congestion in large cities and supports economic activity. The smoother the city's traffic, the more it will promote economic growth and equitable distribution of resources (Su et al., 2022;

Tian & Sun, 2018; Tucho, 2022; Wan et al., 2024; Wang & Sun, 2019). Hence, an integrated and effective public transportation system is key to providing balanced services that meet community needs and remain affordable for all segments of society. In the long term, dependence on private vehicles can be significantly reduced through the provision of reliable and convenient public transportation services (Das et al., 2021; De Oña et al., 2021).

This research carries high urgency. First, it addresses the pressing need for a comprehensive evaluation of the factors contributing to the low utilization of Wira-Wiri Suroboyo, considering both social media marketing and operational aspects (Aprilina & Nafi'ah, 2026; Febrianto et al., 2025; Pamula et al., 2025; Prastyo & Irawati, 2025). Second, it offers an integrated analytical approach that combines the RACE framework (Reach, Act, Convert, Engage), Fishbone Diagram, Analytic Hierarchy Process (AHP), and SWOT analysis—methods that have rarely been applied concurrently in evaluating public transportation services in Indonesia. Third, the outcomes of this study are expected to serve as a scientific foundation for the Surabaya City Government in formulating data-driven strategic policies aimed not only at improving the digital marketing effectiveness of Wira-Wiri Suroboyo but also at building a sustainable, comfortable, and socially inclusive public transportation ecosystem that serves as a rational choice for the people of Surabaya.

The Surabaya City Government has introduced two integrated public transportation schemes designed to reduce congestion and pollution within the city—namely, the Suroboyo Bus and Wira-Wiri Suroboyo. Wira-Wiri Suroboyo is a new feeder transportation service, inaugurated on March 6, 2023, using minibuses that aim to address accessibility challenges faced by Suroboyo Bus and Trans Semanggi under the Ministry of Transportation. These minibuses help connect passengers to main routes and improve accessibility to public transit. However, challenges remain, particularly the low public utilization of Wira-Wiri Suroboyo. According to research data from Annurya and Badrudin (2023), the number of passengers was 38,584 in March 2023, 33,100 in April 2023, and 44,960 in May 2023. Meanwhile, data from the East Java BPS (2023) show that private vehicle use remains substantially high.

This study aims to identify and analyze the factors contributing to the low utilization of Wira-Wiri Suroboyo, evaluate the effectiveness of its social media marketing strategies using the RACE approach, analyze the root causes of operational and non-operational issues through Fishbone diagrams, determine priority strategies through AHP-based weighting, and formulate integrated strategic recommendations based on SWOT and TOWS analyses. These recommendations are expected to be applied by the Surabaya City Transportation Office to increase public interest, strengthen the city's public transportation ecosystem, and build a positive image of Wira-Wiri Suroboyo as a rational, comfortable, and dependable mode of transport for the people of Surabaya

METHOD

Data Collection Method

The research data to be collected is as follows:

1. Literature Study

   The purpose of conducting a literature study is to understand and develop theories and concepts related to the research problem by thoroughly studying existing references,

such as literature, scientific reports, and other supporting scientific articles that can contribute as a theoretical foundation for this research.

2. Survey Research

   Surveys are conducted in small and large populations, then data is processed from samples of these populations. The findings from these surveys can reveal the relative status, distribution, and relationships between sociological and psychological variables. The questionnaire used as the research instrument is also combined with the Reach, Act, Convert, Act approach; the Analytic Hierarchy Process; and the Fishbone Diagram.

Data Types and Sources

The type of research data used refers to the selection of data sources and the methods applied. The data collected in this study is interval-based, consisting of answers to questions about customer characteristics, preferences, and service quality.

According to Arikunto (2011), a data source is a subject, object, or person that the researcher observes, identifies, or questions about the existing data. The research data source is an important consideration when deciding which data collection method to use. In this case, the survey data source was identified through a series of survey responses from passengers and potential passengers of the Wira-Wiri Suroboyo. This study used two types of data sources:

1. Primary Data

   Primary data is data obtained directly from respondents or from authentic sources without intermediaries. Primary data is the main priority for researchers in obtaining answers to the questions posed in their research. Primary data was obtained from questionnaires sent to respondents. The primary data collection source was Wira-Wiri Suroboyo customers and potential customers in October.

2. Secondary Data

   Secondary data, in other words, external data, is processed primary data and/or data that has been modified by a third party. The external data for this study comes from responses to questions about customer preferences and service quality at Wira-Wiri Suroboyo.

Research Objects

This research requires research objects to identify the problem and develop solutions. The target audiences for this study were the Head of the Surabaya City Transportation Agency, the Head of the Public Transportation Management Technical Implementation Unit (UPTD), and Wira-Wiri Suroboyo passengers.

Population and Sample

A population is an object within a region that has characteristics that match the sample taken. The Lemeshow formula was used to determine the sample size for this study. This formula is used for unknown populations. This formula was used in Lemeshow's 1990 study (Rachman, 2017).

$$n = \frac{Z^2 \, x \, P \, (1-P)}{d^2} \qquad (1)$$

Information:

Z = Z score on trust 95% = 1,96

p = Maximum estimate = 0,5

d = Alpha (0,1)

$$n = \frac{1{,}96^2 \; x \; 0{,}5 \; (1 - 0{,}5)}{0{,}1^2}$$

$$n = \frac{3{,}8416 \; x \; 0{,}5 \; x \; 0{,}5}{0{,}1^2}$$

$$n = \frac{0{,}9604}{0{,}1^2}$$

$$n = 96{,}04 \approx 97$$

Based on the calculations above, the required sample size is 97 respondents.

Questionnaire Design

The questionnaire concept is based on service quality, which has the components Reach, Act, Convert, and Act. Each aspect will be described through several questions on Wira-Wiri Suroboyo marketing quality. The scale will be determined using a Likert scale, which can interpret user responses to the characteristics of a service's attributes. The questionnaire is listed in the appendix.

Validity and Reliability Testing

The validity test aims to determine which attributes of a question correlate highly with the total score. This indicates that these attributes are useful in determining what works. If the calculated r value is greater than or equal to the table r value, the question attribute is considered valid (Sanaky, 2021). Reliability testing functions to determine the level of consistency of a measuring instrument. A questionnaire can be considered reliable if the answers to the statements are consistent or stable over time. A high reliability value is indicated by an rxx value close to 1, and reliability is considered sufficient if the value is 0.70 or higher (Sanaky, 2021).

RESULTS AND DISCUSSION

Respondent Characteristics

The characteristics of respondents in this study were divided into four categories: gender, age, monthly income, and highest level of education. The following are the characteristics of the respondents, described in a descriptive profile analysis table:

Respondent Characteristics Based on Gender

In this study, an initial screening was conducted to determine the gender of the respondents, who were male and female. The following are the results of the screening for gender.

Table 1. Respondent Characteristics Based on Gender

Gender	Frequency	Percentage
Male	53	43,4%
Women	69	56,6%
Total	**122**	**100%**

Source: Data Processed, 2025

Based on Table 1 above, it is clear that there were more female respondents than male respondents. There were 69 female respondents, representing 56.6%, while there were 53 male respondents, representing 43.4%. Therefore, the screening results indicate that the majority of respondents were female.

Respondent Characteristics by Age

This study conducted an initial screening of respondents' ages at 10-year intervals. The following are the screening results for the age range.

Tabel 2. Karakteristik Responden Berdasarkan Usia

Age	Frequency	Presentase
<20	22	18%
21-30	64	52,5%
31-40	24	19,7%
41-50	9	7,4%
>50	3	2,5%
Total	**122**	**100%**

Sumber: Data Diolah, 2025

Based on Table 2 above, it can be seen that the total number of respondents aged 21-30 years is more dominant when compared to those aged >20, 31-40, 41-50, and >50 years, with a total of 64 people, or 52.5%. Meanwhile, for those aged >20 years, there were 22 people, or 18%, for those aged 31-40 years, there were 24 people, or 19.7%, for those aged 41-50 years, there were 9 people, or 7.4%, and for those aged >50 years, there were 3 people, or 2.5%. Therefore, it can be concluded that the majority of respondents in this study were aged 21-30 years.

Respondent Characteristics by Occupation

In this study, an initial screening was conducted based on the respondents' occupation. The following are the screening results by age range.

Table 3. Respondent Characteristics Based on Occupation

Jobs	Frequency	Presentase
ASN/TNI/Polri	16	13,1%
Housewives (IRT)	2	1,6%
Employee/Private	63	51,6%
Student/Student/Not Yet Employed	36	29,5%
Retirement	1	8%
Entrepreneur/Self-employed	4	3,3%
Total	**122**	**100%**

Source: Data Processed, 2025

Based on Table 3, it is clear that the number of respondents working as employees/private sector workers is higher than that of other workers, totaling 63 people, representing 51.6%. Meanwhile, 16 people work as civil servants (ASN), members of the Indonesian National Armed Forces (TNI), and members of the Indonesian National Police (Polri), representing 13.1%, and 2 housewives (IRT) representing 1.6%. 36 students/university students/unemployed (29.5%), 1 retired person (8%), and 4 self-employed (3.3%). Therefore,

it can be concluded that the majority of respondents in this study work as employees/private sector workers.

Respondent Characteristics Based on Income

In this study, an initial screening was conducted to determine the respondents' monthly income. The following are the screening results for respondents' income in Rp 1,250,000 intervals.

Table 4. Respondent Characteristics Based on Monthly Income

Monthly Revenue	Frequency	Presentase
0 – IDR 1,250,000	27	22,1%
IDR 1,251,000 - IDR 2,500,000	34	27,9%
IDR 2,501,000 - IDR 3,750,000	11	9%
IDR 3,751,000 – IDR 5,000,000	15	12,3%
>Rp. 5.001.000	35	28,7%
Total	**122**	**100%**

Source: Data Processed, 2025

Based on Table 4.5, it is known that the number of respondents with a monthly income of >Rp. 5,001,000 is more than those with other incomes, which is 35 people with a percentage of 28.7%. Meanwhile, those with a monthly income of 0 – Rp. 1,250,000,- are 27 people with a percentage of 22.1%, those with a monthly income of Rp. 1,251,000,- - Rp. 2,500,000,- are 34 people with a percentage of 27.9%, those with a monthly income of Rp. 2,501,000,- - Rp. 3,750,000,- are 15% with a percentage of 12.3%, and those with a monthly income of Rp. 3,751,000 – Rp. 5,000,000,- are 15 people with a percentage of 28.7%. Therefore, it can be concluded that the majority of respondents have an income of >Rp. 5,001,000.

Respondent Characteristics Based on Last Education

In this study, an initial screening was conducted to determine the respondents' educational background. The following are the screening results for respondents' last education.

Table 5. Respondent Characteristics Based on Last Education

Final Education	Frequency	Presentase
SMP	6	4,9%
SMA	43	35,2%
S1	66	54,1%
S2	7	5,7%
Total	**122**	**100%**

Source: Data Processed, 2025

Based on Table 5, it is known that the number of respondents with a bachelor's degree is greater than those with a junior high school, high school, or master's degree, with a total of 66 people (54.1%). Meanwhile, 6 respondents with a junior high school education (4.9%), 43 with a high school education (35.2%), and 7 with a master's degree (5.7%). Therefore, it can be concluded that the majority of respondents in this study had a bachelor's degree.

The Effectiveness of Social Media Marketing at Wira Wiri Suroboyo

Respondent response descriptions are the responses given by respondents to each RACE (Reach, Act, Convert, Engage) research variable. Response descriptions are based on the

number or frequency of respondents responding on a Likert scale of 1 to 5, as well as the average calculation of each variable and the average value categories, which are categorized using the following formula:

$$\text{Class interval} = \frac{nilai\ tertinggi - nilai\ terendah}{jumlah\ kelas} = \frac{5-1}{5} = 0{,}8 \quad (2)$$

Table 6. Average Category of Respondents' Answers

Interval	Category
4,20 < *mean* < 5,00	Strongly agree
3,40 < *mean* <4,20	Setuju
2,60 < *mean* < 3,40	Neutral
1,80 < *mean* < 2,60	Disagree
1,00 < *mean* < 1.80	Strongly Disagree

Source: Calculation results, 2025

Based on Tables 7 to 4.11, it can be seen that the average results of respondents' answers for each indicator are grouped according to the categories defined in Table 6. The following is a complete list of respondents:

Statistical Description of the Reach Variable

The Reach variable consists of nine indicators, each of which is assigned indicators R1 to R9. The results are as follows:

Table 7. Frequency Distribution of Reach

	Indicator	N	Min	Max	Mean	Category
R1	I found information about Wira-Wiri's operational services on Instagram social media.	122	1	5	4,16	Setuju
R2	I found information on Wira-Wiri's service routes and stops on social media instagram.	122	1	5	4,05	Setuju
R3	I found information about Wira-Wiri's service fees & payments on Instagram social media.	122	1	5	4,31	Strongly agree
R4	I found information about the new route of the Wira-Wiri service on social media Instagram.	122	1	5	4,20	Setuju
R5	I often see advertisements or suggestion posts of Wira-Wiri on social media Instagram.	122	1	5	3,53	Setuju
R6	I feel helped by the Wira-Wiri advertisement from social media (promos, latest route updates, holiday operating hours, transit scheme).	122	1	5	4,27	Strongly agree
R7	Wira-Wiri's ads that are only on Instagram social media make there is less known to the public.	122	1	5	3,76	Setuju
R8	The content information provided by the Wira-Wiri service is easy to understand.	122	1	5	4,13	Setuju

	Indicator	N	Min	Max	Mean	Category
R9	Wira-Wiri discount promo information is conveyed within a sufficient period of time and spread evenly in all circles.	122	1	5	3,55	Setuju
	Total *Mean*				3,996	Setuju

Data source: Processed Primary Data, 2025

Table 7 shows that the total mean for respondents regarding the Reach variable was 3.995, indicating a majority agreed. The highest mean score was obtained from indicator R3, which falls into the strongly agree category. This indicates that respondents felt the Wira Wiri Suroboyo Instagram account was very informative in providing information about fees and payment methods. Meanwhile, the lowest mean score was obtained from indicator R5, which falls into the agree category. This demonstrates that Wira Wiri Suroboyo's Instagram account rarely appears in the explore or suggested posts section of respondents' Instagram accounts.

Statistical Description of the Act Variable

The Act variable consists of five indicators, each question item assigned indicators A1 to A5. The results are as follows:

Table 8. Frequency Distribution of Act

	Indicator	N	Min	Max	Mean	Category
A1	I often interact with the admin of the Wira-Wiri account on *social media* Instagram.	122	1	5	2,84	Neutral
A2	I can spend quite a long time on *social media* looking for information about Wira-Wiri (promos, latest routes).	122	1	5	3,31	Neutral
A3	I always share the information I get about promos/services with relatives/friends.	122	1	5	3,87	Setuju
A4	The Wira-Wiri account admin is quite responsive to customer comments or questions.	122	1	5	3,60	Setuju
A5	I gave advice to open and follow Wira-Wiri's Instagram to my relatives/friends.	122	1	5	3,69	Setuju
	Total *Mean*				3,462	Setuju

Data source: Processed primary data, 2025

Table 8 shows that the total mean number of respondents for the Act variable was 3.462, indicating a majority of agreement. The highest mean score was obtained from indicator A3, which falls into the agree category. This indicates that respondents actively share information from Wira Wiri Suroboyo's Instagram account regarding promotions and services. Meanwhile, the lowest mean score was obtained from indicator A1, which falls into the neutral category. This indicates that respondents rarely interact with the Wira Wiri Suroboyo Instagram account.

Statistical Description of the Convert Variable

The Convert variable consists of six indicators, each question item being assigned indicators C1 to C6. The results are as follows:

Table 9. Frequency Distribution of Convert

	Indicator	N	Min	Max	Mean	Category
C5	The promo information I got from Wira-Wiri's Instagram made me want to use Wira-Wiri.	122	1	5	4,08	Setuju
C6	The passenger experience uploaded on Instagram made me want to use Wira Wiri's services.	122	1	5	3,88	Setuju
	Total *Mean*				4,140	Setuju

Data source: Processed primary data, 2025

Table 9 shows that the total mean score for the convert variable was 4.140, indicating that the majority of respondents agreed. The highest mean scores were obtained for indicators C1 and C2, with scores falling into the strongly agree category. This projected that respondents became more confident using Wira Wiri Suroboyo as a mode of transportation after learning about operational routes and hours. Meanwhile, the lowest mean score was obtained for indicator C6, which fell into the agree category. This proves that the posts on the Wira Wiri Suroboyo Instagram account were sufficiently attractive to respondents to use Wira Wiri Suroboyo.

Statistical Description of the Engage Variable

The Engage variable consists of three indicators, each item assigned indicators E1 to E3. The results are as follows:

Table 10. Frequency Distribution of Engage

	Indicator	N	Min	Max	Mean	Category
E1	The latest route info that I got from Wira-Wiri's Instagram makes me regularly use Wira-Wiri.	122	1	5	3,87	Setuju
E2	The pleasant experience of passengers uploaded on Instagram made me want to regularly use Wira Wiri's services.	122	1	5	4,00	Setuju
E3	After using Wira-Wiri, I wrote a good review of Wira-Wiri's services on Instagram.	122	1	5	3,58	Setuju
	Total *Mean*				3,817	Setuju

Data source: Processed primary data, 2025

Table 10 shows that the total mean score for the engage variable was 3.817, indicating that the majority of respondents agreed. The highest mean score was obtained for indicator E2, which falls into the agree category. This projected that respondents would be more confident in regularly using Wira Wiri Suroboyo as their mode of transportation after seeing the pleasant experiences of other passengers posted on the Wira Wiri Suroboyo Instagram account. Meanwhile, the lowest mean score was obtained for indicator E3, which falls into the agree

category. This proves that respondents frequently wrote positive reviews regarding Wira Wiri Suroboyo's services on Instagram.

Validity and Reliability of RACE Questionnaire Data

Validity test theory: The validity test used the Pearson correlation test, which correlates the indicators/question items with the total score. An indicator/question item passed the validity test if the siq/p-value was <0.05 and the correlation r value was above the table r value, where the table r value for 122 samples was 0.178.

Table 11. Validity Test Table

Item	R	P Value	Remarks	Item	R	P Value	Remarks
1	0,730	0,000	Valid	13	0,645	0,000	Valid
2	0,702	0,000	Valid	14	0,738	0,000	Valid
3	0,750	0,000	Valid	15	0,755	0,000	Valid
4	0,641	0,000	Valid	16	0,786	0,000	Valid
5	0,687	0,000	Valid	17	0,761	0,000	Valid
6	0,760	0,000	Valid	18	0,568	0,000	Valid
7	0,004	0,969	Invalid	19	0,766	0,000	Valid
8	0,734	0,000	Valid	20	0,752	0,000	Valid
9	0,761	0,000	Valid	21	0,756	0,000	Valid
10	0,634	0,000	Valid	22	0,781	0,000	Valid
11	0,479	0,000	Valid	23	0,707	0,000	Valid
12	0,648	0,000	Valid	Total	1,00	0,000	Valid

Based on the validity results in Table 11, one item/indicator was declared invalid or did not pass the validity test due to an r value <0.178 and a siq value >0.05. Therefore, item number seven will be disregarded. The validity test used the Cronbach's Alpha test, where an indicator/question item passed the reliability test if the Cronbach's Alpha value >0.700.

Table 12. Summary of Case Processing

Case Processing Summary

		N	%
Cases	Valid	122	100.0
	Excluded[a]	0	.0
	Total	122	100.0

Table 13. Reliability Statistics

Reliability Statistics

Cronbach's Alpha	N of Items
.950	22

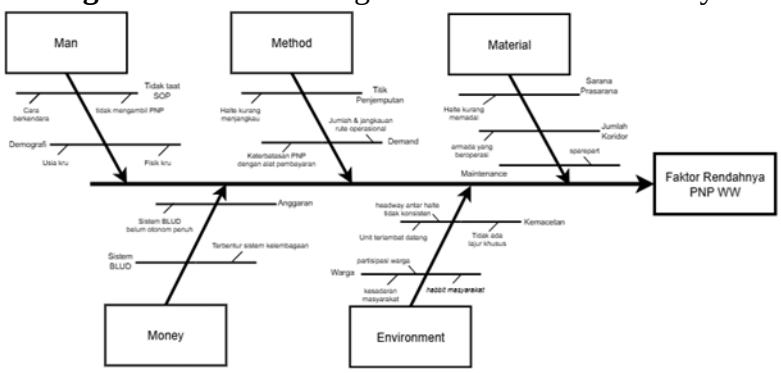
Table 14. Statistics of the Number of Goods

Item-Total Statistics				
	Scale Mean if Item Deleted	*Scale Variance if Item Deleted*	*Corrected Item-Total Correlation*	*Cronbach's Alpha if Item Deleted*
Item1	81.66	248.952	.704	.947
Item2	81.77	248.129	.673	.947
Item3	81.51	251.442	.724	.947
Item4	81.61	252.916	.597	.948
Item5	82.29	245.099	.657	.948
Item6	81.55	248.944	.740	.947
Item8	81.69	252.613	.713	.947
Item9	82.27	245.538	.742	.946
Item10	82.98	247.066	.585	.949
Item11	82.51	255.459	.414	.951
Item12	81.95	251.122	.608	.948
Item13	82.22	253.975	.607	.948
Item14	82.13	246.164	.701	.947
Item15	81.56	253.472	.733	.947
Item16	81.56	252.364	.758	.947
Item17	81.57	252.727	.737	.947
Item18	81.70	254.623	.520	.949
Item19	81.74	248.112	.738	.946
Item20	81.94	249.426	.721	.947
Item21	81.95	247.634	.723	.947
Item22	81.82	248.827	.750	.946
Item23	82.24	247.340	.673	.947

Analysis of Factors Contributing to Low Usership Using the Fishbone Method

From interviews with the Head of the Transportation Division of the Surabaya City Transportation Agency (Dishub) and the Head of the Public Transportation Management Implementation Unit (UPT PTU), a Transportation Expert Lecturer, the conclusions shown in Figure 1 were obtained.

Figure 1. Fishbone Diagram for Wira-Wiri Surabaya



Man

This point addresses human resources, particularly the crew operating within the Wira Wiri Suroboyo unit. Interviews with implementing agencies and practitioners, including the Public Transport Unit (UPT PTU) and the Transportation Division, revealed that some crew members still neglect procedures, such as driver behavior, helpers who are unfriendly to passengers, and not picking up passengers at bus stops. Furthermore, in terms of crew demographics, the crew is still quite old, considering that the crew is recruited from former public transportation drivers (lyn). According to sources, this was evident from complaints from the public or passengers, both via Instagram and the telephone complaint service, as well as from UPT PTU employee data (Interview with PTU and Transportation Division sources, May 2025).

Academics also noted that human resources (HR) are the face of a service. Currently, Wira Wiri officers, including drivers, helpers, field staff, and social media managers, are still focused on technical functions. Public transportation needs human resources who are communicative, friendly, and able to provide accurate information. They are ambassadors of public service, and that requires comprehensive training (Interview with Machsus informant, May 2025).

Method

The method here focuses on the passenger process for using Wira Wiri Surabaya. According to the Head of Transportation at the Surabaya City Transportation Agency and the Head of the Public Transportation Service Unit (UPT PTU), two factors contribute to the low public interest in Wira Wiri Surabaya: first, the availability of pick-up points and second, the payment system. Some Wira Wiri Surabaya pick-up points (bus stops) are still far from densely populated areas, and payment systems only allow for cashless payments such as QRIS (Quick Response) and Electronic Money Cards (KUE). This can be difficult for residents with limited technological knowledge or those without payment methods (Interview with sources from PTU and the Transportation Division, May 2025).

According to Mr. Machsus, route planning and service frequency still tend to be top-down and assumption-based. We need a data-driven approach, such as travel pattern analysis, origin-destination surveys, and real-time demand evaluation. A responsive and adaptive system that adapts to user dynamics will be more relevant and effective as a public service ambassador, and this requires comprehensive training (Interview with sources from Machsus, May 2025).

Material

Materials refer to the infrastructure required to operate the Wira Wiri Suroboyo bus system. Discussions with the Head of Transportation at the Surabaya City Transportation Agency and the Head of the Public Transport Technical Implementation Unit (UPT PTU) identified three key aspects that require improvement: inadequate bus stops, the number of corridors and operating vehicles, and unit maintenance. This is because many Wira Wiri bus stops still only have "Bus Stop" signs, and the number of operating vehicles affects headway and passenger waiting times. Maintenance requires the availability of spare parts to minimize unit downtime during operating hours (Interview with sources from the PTU and Transportation Division, May 2025).

Many service points still lack shelters, lack information boards, and lack bus stop signs. The fleet is not yet fully user-friendly for vulnerable groups such as the elderly and people with

disabilities. Physical comfort is essential for building user loyalty (Interview with sources from Machsus, May 2025).

Money

Money refers to the financial system at the Public Service Unit (UPT PTU), which manages Wira Wiri Suroboyo. The approved budget from total revenue is very limited, and the Regional Public Service Agency (BLUD) system has not yet been fully implemented. This challenges the organizers with the institutional system for determining the budget (Interview with sources from PTU and the Transportation Sector, May 2025).

This service remains highly dependent on local government budgets without a long-term funding scheme. Lack of promotion, operational limitations, and stagnant service development are consequences of an unsustainable financing model. Public transportation must be viewed as a social investment, not simply a burden on the regional budget (Interview with sources from Machsus, May 2025).

Environment

This is an external and difficult-to-control effect. In this aspect, the social environment plays a significant role in influencing the interest of Wira-Wiri Suroboyo users. For example, Surabaya residents' awareness of the importance of reducing pollution and alleviating congestion, which stems from the high use of private vehicles. External factors also contribute to congestion, resulting from the lack of dedicated public transportation lanes to maintain headway between units, eliminating the need for private vehicles (Interview with a Public Service Agency (PTU) and the Transportation Division, May 2025).

Currently, there are no city policies that incentivize public transportation use or significantly restrict private vehicles. In such a situation, it is difficult to expect people to voluntarily switch modes (Interview with a Machsus source, May 2025).

In conclusion, the low use of Wira-Wiri is not a single issue, but rather the result of an immature system. Therefore, our task is not simply to improve individual aspects, but to build an ecosystem that allows public transportation to thrive as a rational, comfortable, and rewarding choice for all Surabaya residents.

Operational Priority Strategy of Wira-Wiwi-Wii Suroboyo with AHP

The Analytical Hierarchy Process (AHP) method was obtained from management. In this case study, respondents came from two interrelated sectors: the Transportation Sector and the Regional Technical Implementation Unit for Public Transportation Management (UPTD PTU) of the Surabaya City Transportation Agency.

Results of AHP in the Transportation Sector

Based on the results of the Analytical Hierarchy Process (AHP) method processing of 22 alternative activities in supporting the achievement of the "Wira Wiri Strategy" objectives, it can be concluded that the main focus of this strategy is on operational aspects and service reliability. This is reflected in the high priority weights for activities such as routine checks and repairs (0.168), routine check-ups (0.151), and reallocation of crew and unit reserves (0.115). All three emphasize the importance of maintaining fleet condition and resource efficiency to ensure smooth operations. In addition, the independence of the BLUD budget (0.080), and fast-moving spare part stock (0.081) indicate attention to funding sustainability and maintaining the continuity of the operational fleet. Conversely, administrative activities and external promotions such as uploading user testimonials (0.006), imposing sanctions (0.011), and

promoting new user referral codes (0.011) received the lowest priority weights, indicating that these aspects are currently not considered crucial in driving the strategy's success. With no missing judgments, the AHP assessment process can be considered complete and consistent. These results provide clear direction for policymakers to focus resource allocation on core activities that directly impact the performance of Wira Wiri Suroboyo transportation services.

Figure 2. Analytical Hierarchy Process in the Transportation Sector

Results of AHP in the Field of Public Transportation Management

Based on the results of the Analytical Hierarchy Process (AHP) method processing of the Wira Wiri strategic priority graph, it appears that the organization's main focus is directed at strengthening operational stability. This is evident from the highest weights given to alternatives such as "Budget priority scale" (0.192) and "BLUD budget independence" (0.177), indicating that the priority scale and the need for efficiency and budget independence as the foundation for the sustainability of the overall strategy are top priorities to ensure optimal operational performance. In addition, "Routine checks and repairs" (0.121) and "Stock fast moving spare parts" (0.119) also received fairly high priority weights, indicating the importance of maintaining fleet condition and fleet continuity in maintaining the reliability of transportation services. On the other hand, strategies related to "Reallocation of crew and unit reserves" and "Transfer of crew over 58 years old" received medium-high weights, which can be optimized after the main priorities have been implemented well. Meanwhile, "Routine check-ups," "Adding new fleets," "Fines or suspensions," and also "Adding new routes" occupy medium priority positions, these can be implemented gradually after the main aspects have been strengthened. Meanwhile, promotional strategies such as cheap ticket promotions, user referrals, and increasing testimonials received the lowest weights, indicating that external marketing is considered a further supporting step after the internal system is running effectively. Overall, the AHP results indicate that Wira Wiri's strategy is focused on an internal strengthening approach, with an initial focus on materials, fleet, logistics, and budget strengthening, before moving on to service expansion and increasing user engagement.

Figure 3. Analytical Hierarchy Process of PTU Field

Combined AHP Results

Based on the results of the Analytical Hierarchy Process (AHP) method, the graph shows the priority levels of various strategies in achieving the main objective, namely the implementation of the Surabaya Wira Wiri Strategy. Strategies with the highest weights such as "Routine checks and repairs" (0.168), "Routine crew check-ups" (0.151), and "Re-allocation of crew and unit reserves" (0.115) are placed as strategies with the highest urgency and influence on achieving the objective. This illustrates that the success of the strategy is highly dependent on maintaining the reliability of operating units to remain prime and problem-free during operation, then strengthening human resources by maintaining the physical condition of the crew to remain fit, and reallocating reserve crews and units to corridors that are more popular from periodic evaluations in order to maintain a consistent headway. Strategies such as "Stock fast-moving spare parts", "Independence of the BLUD budget", and "Addition of new fleet" are at the medium priority level, which indicates that maintaining the availability of spare parts that wear out quickly in operations, efficiency and independence of the budget as the foundation for the sustainability of the overall strategy, and the addition of a fleet that is Operational factors can be important supporting factors that need to be optimized after the main strategy is running well. Meanwhile, strategies with lower weights such as "Revitalizing Bus Stops," "Budget Priority Scale," and "Adding Routes" are considered additional, more complementary strategies and can be implemented at a later stage after the main strategy's foundation is solidly established. The AHP results provide clear guidance for decision-makers to focus resources on the highest-weighted strategies first so that the implementation of the Wira Wiri Surabaya strategy can be more effective, focused, and have optimal long-term impact.

Figure 4. Analytical Hierarchy Process Combination

Operational Strategy Priorities Using SWOT

A SWOT analysis is a step in the analysis process to assess the strengths, weaknesses, opportunities, and threats faced by Wira Wiri Suroboyo's management. At this stage, a questionnaire is developed for management, containing strengths versus weaknesses, and opportunities versus threats. The importance rating will have a maximum value of 1 for both internal (strengths versus weaknesses) and external (opportunities versus threats) aspects. Performance will be measured on a scale of 1 to 4, with 1 indicating the lowest level of performance and 4 indicating the best level of performance. Management will complete the SWOT questionnaire; in this study, the Head of the UPTD PTU, as the strategic decision maker for Wira Wiri Suroboyo, will complete the questionnaire. The results of the SWOT analysis are as follows:

Internal Factors

Internal factors consist of two aspects: strengths and weaknesses. Observations were conducted to determine the strengths and weaknesses of Wira Wiri Suroboyo. The strengths and weaknesses were compiled through interviews and discussions between the researcher and the Head of the PTU Technical Implementation Unit (UPTD).

For the SWOT Internal Factor Evaluation (IFE), two factors need to be filled in: weight and rating. The weight assigned to a factor indicates how important that factor is in determining the company's success in the industry in which it operates, whether the factor is an internal strength or weakness. Factors deemed to have the greatest influence on organizational performance should be given a higher weight, and the total weights should equal 1.0. Assign a score between 1 and 4 to each factor to indicate whether the factor is a major weakness (score 1), a minor weakness (score 2), a minor strength (score 3), or a major strength (score 4). Note that strengths should be given a score of 3 or 4, while weaknesses should be given a score of 1 or 2. This assessment is based on the conditions of each company. Multiply the weight of each factor by its score to obtain a weighted score per variable. Add the weighted scores for each variable to determine the organization's total weighted score.

Table 15. IFE Factor SWOT Analysis

Internal Factors				
No	Strength	Weight	Shoes	Rating
1	Modern and integrated mass public transportation modes.	0,150	4	0,6
2	Public transportation is cheap.	0,150	4	0,6
3	Public transportation is disability-friendly.	0,125	4	0,5
4	Public transportation is convenient and safe.	0,075	4	0,3
No	Disadvantages	Weight	Shoes	Rating
1	Quality of human resources.	0,200	2	0,4
2	It still does not reach all of Surabaya.	0,100	2	0,2
3	There are still bus stops that are not proper.	0,075	1	0,075
4	There is no advertising regulation on the unit.	0,075	1	0,075
5	There is no specific path yet.	0,050	1	0,05
	Quantity	1,000		

Based on Table 15, the SWOT IFE Factor presents four strength items with a strength score of 2.00. Five weaknesses items have a weakness score of 0.80. The total SWOT IFE Factor strength and weakness score is 2.80.

External Factors

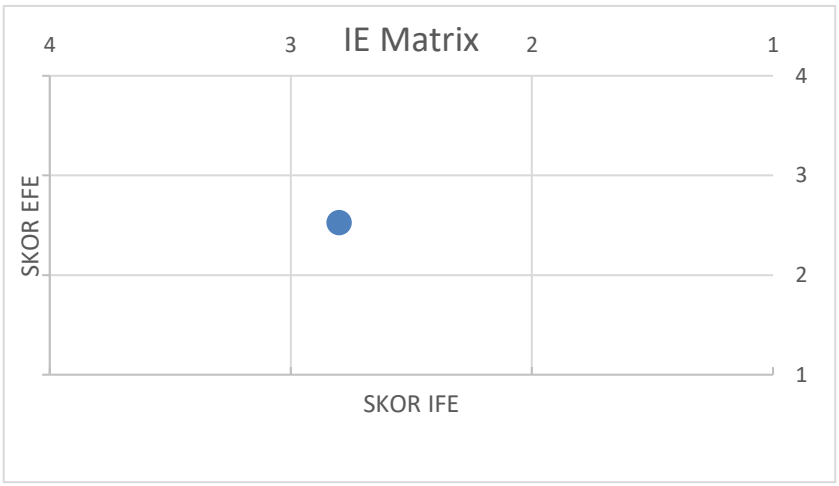
External factors consist of two aspects: opportunities and threats. Observations were conducted to determine the opportunities and threats for Wira Wiri Suroboyo. Therefore, the opportunity and threat aspects were compiled through interviews and discussions between the researcher and the Head of the PTU Technical Implementation Unit (UPTD). Following similar steps as the SWOT EFE Factor, the following results were obtained:

Table 16. EFE Factor SWOT Analysis

External Factors				
No	Opportunities	Weight	Shoes	Rating
1	Bundling ticket promo.	0,150	3	0,45
2	A free 2-hour transit scheme between modes.	0,125	4	0,5
3	Special prices for students.	0,125	4	0,5
4	Free for the elderly, disabled, veterans.	0,050	3	0,15
5	Bank/vendor cooperation price promo.	0,050	3	0,15
No	Threats	Weight	Shoes	Rating
1	The BLUD scheme is still being intervened.	0,175	2	0,35
2	Congestion points.	0,125	1	0,125
3	Timetable antar halte.	0,100	1	0,1
4	Residents' interest in transum.	0,100	2	0,2
	Quantity	1,000		

Based on Table 16. The SWOT EFE Factor presents 5 items that are opportunities and has a strength score of 1,750. Then what is an indication of the threat is 4 items with a weakness score value of 0.775. Thus, the SWOT EFE Factor has a total opportunity and threat score of 2,525.

Figure 5. Internal–External (IE) Matrix Wira Wiri Suroboyo



Based on Figure 4, Wira-Wiri Surabaya can be projected to be positioned within Region 2, namely Quadrant V. Region 2 contains Quadrants III, V, and VII, so Quadrant V is the average IFE quadrant, and the medium EFE quadrant. This quadrant is called the hold and maintain quadrant. The recommended strategies at this stage are market penetration and product development.

Threats, Opportunities, Weaknesses, Strengths (TOWS)

The Threats, Opportunities, Weaknesses, Strengths (TOWS) Matrix is a strategic analysis tool developed from the Strengths, Weaknesses, Opportunities, Threats (SWOT) analysis. The TOWS Matrix formulates practical strategies by matching internal factors (Strengths & Weaknesses) with external factors (Opportunities & Threats). The TOWS matrix produces SO (Strengths-Opportunities) strategies that utilize internal strengths to seize external opportunities, ST (Strengths-Threats) strategies that utilize internal strengths to overcome or minimize external threats, WO (Weaknesses-Opportunities) strategies that address internal weaknesses by utilizing external opportunities, and WT (Weaknesses-Threats) strategies that minimize internal weaknesses while avoiding external threats. The results of this matrix will help in making more specific and applicable business decisions.

Table 17. Threats, Opportunities, Weaknesses, Strengths Matrix

Internal/External Factors	Odds (O)	Threat (T)
Strength (S)	SO Strategy: 1. Optimizing the power of modern, cheap, safe, and disability-friendly modes to maximize free bundling & transit promos. 2. Develop the market for students, the elderly, the disabled, and veterans through special tariffs .3. Collaboration with banks/vendors for payment digitization and promo bundling.	ST Strategy: 1. Strengthen the image of comfort & safety to increase public interest. 2. Using low prices & travel efficiency to deal with congestion. 3. Highlight modern & disability-friendly services to strengthen the BLUD scheme.
Disadvantages (W)	WO Strategy: 1. Expand the route through modal integration with 2-hour free transit. 2. Improving bus stop facilities through bank/vendor cooperation. 3. Improving the quality of human resources through training of external partners. 4. Fix the timetable with real-time tracking apps.	WT Strategy: 1. Drafting advertising regulations & proposed specific paths for BLUD stability. 2. Improve stops & schedule certainty to increase passenger interest. 3. Strengthening human resources to reduce public complaints.

CONCLUSION

Based on the research results, it can be concluded that the low level of use of Wira-Wiri Suroboyo is influenced by various factors, including community mobility culture, socialization efforts that remain focused mainly on Instagram, limited routes and service integration, as well as aspects of public comfort and trust. In general, however, the social media marketing strategy implemented is considered quite effective and worth maintaining, with priority given to strengthening interaction with users and presenting informative and easy-to-understand content.

Analysis using the RACE, Fishbone Diagram, AHP, and SWOT methods indicates that the challenges in the utilization of Wira-Wiri Suroboyo are systemic, encompassing operational aspects, human resources, facilities, funding, and public perception. Therefore, an integrated managerial approach is required. The managerial implications highlight the importance of optimizing social media as a strategic instrument for public transportation policy by expanding information coverage, fostering more participatory interactions, ensuring consistent cross-channel communication, and maintaining long-term relationships with users.

The AHP results identify strategic priorities in conducting routine checks and repairs, implementing periodic crew inspections, and reallocating crew members and unit reserves. Meanwhile, the SWOT analysis positions Wira-Wiri Suroboyo in the "maintain" category, which requires continuous improvement by maximizing internal strengths and capitalizing on external opportunities. Therefore, it is recommended that the Surabaya City Transportation Office enhance its relationship with users through social media, improve infrastructure facilities and service punctuality, maintain operational comfort and safety, strengthen the publication of service information, and provide comparisons among public transportation modes to increase public interest and trust in Wira-Wiri Suroboyo.

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