

The Satisfaction Level of Local Islands Public Transportation Service: A Case Trans Batam

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ABSTRACT

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Public transport, defined in this paper as high-capacity vehicle sharing with fixed routes and schedules, is the backbone of urban transportation systems in global cities. The problems of Trans Batam are the lack of information about the availability of running buses, some inadequate bus stops, routes that are still not extensive, comfort and payment process. The purpose of this paper is to determine the level of satisfaction of Trans Batam users both for the local community and visitors who have just been to Batam. This research uses SERVQUAL method. Trans Batam city bus service providers need to improve their performance especially on indicators that have high gaps in order to continue to be the choice of users and compete with other public transportation.

1. Introduction

Public transportation, defined in this paper as high-capacity shared-use vehicles with fixed routes and schedules, is the foundation of urban transportation systems in many cities around the world, especially in metropolitan areas with high population density [1]. A city needs to have public transportation, especially a city with a dense and crowded population. Population density can have an impact on the daily mobility of residents. It is undeniable that the main traffic problem around the world is congestion [2]. One of the cases of congestion in Ho Chi Minh City, Vietnam is that people still choose private vehicles over buses due to their inconvenience [3]. This greatly influences passengers' perception; thus passengers can use better alternative vehicles.

In Indonesia, Jakarta is known for its persistent congestion problems. Reducing congestion and traffic density can be done by expanding the road system or reducing the number of vehicles traveling on the highway [4]. Currently, the development of facilities and infrastructure as well as transportation infrastructure in DKI Jakarta is much better than before. [5]. The use of public transportation can reduce the density of vehicles in a lane. In the journal [6] obtained a CSI (Customer Satisfaction Index) value of 0.7046 or 70.46% which is in the value range of 0.66 - 0.80 which means that consumers are satisfied with the performance of the services and facilities provided. Transportation in the Dukuh Atas area, Jakarta with the ability of officers to deliver passengers to their destination, easy access to public transportation, and integration of payment tools for various transportation. However, in recent years public interest in public transportation has decreased because not all areas are covered by the route, safety and comfort factors on the bus, and there is an impractical payment system. It is also still difficult to make payments using cash by preparing small denominations of money to avoid the hassle of making change [7]. The existence of public transportation also affects residents and newcomers because they need clear information on what types of transportation can be used to take them to the desired destination [7]. Small things like payment and information are very important to make it convenient and attractive for people and foreigners to use public transportation.

In the Riau Islands, namely Batam City, the last few years have focused on the tourism sector, which is supported by infrastructure improvements such as road widening and city beautification. [8]. Unlike in 2014, when public transportation still relied on *angkot*, *minibusses*, and base taxis, online transportation is now conducive for tourists who come to Batam. [8]. In addition to substandard operational feasibility standards, safety and comfort factors are the public's main concerns. Therefore, it is necessary to improve and develop the public transportation sector in Batam so that the bad stigma of public transportation is reduced, and public transportation can be used as well as possible.

One of the problematic paths is in the Bengkong area, Batam because the road body is used as a parking lot that hampers the flow of traffic [9]. Public transportation that can be used in some areas in Batam is Bimbar because of its cheap price, but because of its relatively small size, it is uncomfortable, stuffy air and narrow seats [10]. Unlike Trans Batam, which can accommodate up to 40 passengers and has good air circulation. Jalan Gajah Mada also needs help, especially for students and teachers teaching at the college, and traffic jams that cost drivers financially and time [11].

Road performance is the ability of a road to serve the needs of traffic flow under its function and can be measured and compared with the level of road service standards. Road capacity is also needed to provide the maximum number of vehicles, people, and things that can be accommodated under some conditions. Indirectly this affects public transportation, especially trans batam and bimbar, which will facilitate the schedule and comfort in driving. Public transportation is a necessity for the community for daily needs, then the services provided by public transportation must be reasonable and adequate [12].

The problems of Trans Batam are the lack of information about the availability of running buses, some inadequate bus stops, routes that are still not extensive, comfort and payment process. The purpose of this paper is to determine the level of satisfaction of Trans Batam users both for the local community and visitors who have just been to Batam. As well as route selection on good access roads to provide comfort and punctuality.

2. Literature Review

2.1 Public Transportation

One of the important elements in urban traffic is public transport as it is the cornerstone of urban mobility, representing the socially equitable, most efficient and sustainable mode of transportation [13]. Transportation also plays an important role in moving goods and people which is a lot of economic activity in metropolitan cities [14]. The increasing demand for transportation services in cities must be considered [15]. Especially nowadays where the population is increasing, public transportation services are needed.

In big cities that are certainly more densely populated, it causes several problems, one of which is the problem of the density of vehicles on the road. Because people still use private vehicles a lot. One way to reduce congestion is to use public transportation such as buses [16]. This is necessary not only to address congestion, but also to reduce vehicle pollution.

A well-functioning public transport system will bring about improvements and developments that are beneficial to the local and national economy [17]. A thriving transportation system can create jobs and increase revenue, helping to improve the country's economy. Good public transportation allows people to maximize work time because they can move places quickly and save money. So that all aspects of life run smoothly without being hampered.

Public transportation is needed in today's fast-paced world. Public transportation also plays an essential role in assisting and improving the transportation system in urban areas. Developing public

transportation infrastructure in cities can reduce pollution and congestion and people will often rely on public transport rather than using private vehicles [17]. Therefore, there is a need for government attention to implement and provide information to a broad audience about the benefits of public transportation for the community.

2.2 Public Transportation Services

Transportation is a daily necessity for people to carry out their activities, therefore the services provided must be good and adequate. [18]. Public transportation services can be seen in terms of safety, order, ease of obtaining information, and most importantly comfort. People will often use public transportation if the service is very good. So there needs to be an increase in facilities that support public transportation.

There is a need for government performance to improve services and knowledge to the community. If consumers are happy with the service received, they will be more likely to refer, utilize, or revisit the service [19]. People will slowly reduce the use of private vehicles. Not only will it reduce the pollution problem, it will also reduce the problem of overcrowded traffic flow.

Accessibility is also necessary to facilitate public transport users. The primary purpose of accessibility on public transport is to provide better connectivity between people and locations to reduce congestion on roads [20]. A well-organized transportation system will increase the mobility of a city. Therefore, public transport accessibility, connectivity of public transport modes, and system mobility should be considered to provide a user-friendly public transport system [21].

Especially in modern times, people use internet access more through smartphones. So most passengers want wifi facilities that can be accessed on public vehicles. Or information services that are easily understood via the internet and also applications that can be used to find out the schedule of public transportation. In addition, it needs to be supported by other facilities such as stops that are easy for people to reach, comfortable seating, air conditioning in public transportation, and others [18].

2.3 User Satisfaction

Consumer satisfaction is the level of consumer feelings after comparing what he receives and his expectations. A customer, if satisfied with the value provided by the product or service, is very likely to become a customer for a long time [22]. Service providers must consider the factors that make consumers satisfied with their services. Good service will be evidenced by increased users or a consistent number of users. Conversely, poor service will cause a decrease in the interest of users of these services.

One of the service sectors that has a vital role in supporting various daily activities is the transportation service sector [23]. User satisfaction is a key indicator of public service quality, especially for services considered basic needs [24]. So, the key to succeeding and maintaining this market is to understand better their needs and buying process, including by providing the best quality and service [23]. Good service quality and service will maintain user satisfaction.

Satisfaction with public transport is closely related to the level of service provided [25]. Fares are also an essential attribute in determining people's satisfaction. Users can also demand a pleasant social mobility experience [26]. This makes it possible to raise the awareness of public transport providers to provide good services. Passenger satisfaction can also be seen from how fast the travel time is. If the passenger experiences a delay, then the passenger will feel disappointed [25]. In addition, convenience is also an important factor in public transportation. Such as how the system works and how well it operates.

3. Method

Data is one of the critical factors that play an essential role in developing scientific research and modeling [27] [28] [29]. The research method used in this journal is the questionnaire method. The questionnaire distribution will use Google Forms and be done online. The questionnaire will stop being distributed after getting 50 respondents of trans Batam users. Despite huge data sets, they become meaningless if they are not interpreted accurately and translated into precise predictions. Therefore, data collection becomes essential in big data to generate significant and sustainable patterns. The data obtained from the questionnaire will be processed using descriptive analysis with the IPA (Importance Performance Analysis) method. The IPA method or service quality measurement compares passenger satisfaction with passenger importance. By processing the data, it is expected to obtain factors that need improvement and maintenance to suit the user's wishes.

John A. Martilla and John C. James established the IPA method in 1977 as a descriptive analysis technique. A Likert scale with five levels was used to assess the level of importance and satisfaction/performance of responses from respondents. According to, IPA diagrams are classified into four quadrants: A, B, C, and D. Quadrant A shows low performance but high user interest or expectations. In this quadrant, improved performance is needed by city bus service providers so that users are satisfied and feel that the service meets their expectations sufficiently. Quadrant B shows high performance and high user interest or expectations. This quadrant needs to be maintained so that its performance is consistent with service user satisfaction. Quadrant C indicates low performance and low interest or expectations. This quadrant is considered less important and can even be ignored because the expectations or interests of service users are higher [30], [31], [32]. Therefore, performance improvement on the indicators in this quadrant is optional. Finally, quadrant D shows high performance but low service user interest or expectations. This quadrant is considered less effective because user expectations are low, but the performance provided needs to be improved. Therefore, performance adjustments on indicators in this quadrant are reduced and prioritized on quadrants with a high level of importance.

4. Result and Discussion

Of the 50 respondents who filled out the questionnaire, 25 were men, and 25 were women. The age of the respondents was above 18 years with 100%. As many as 70% of the respondents were students, 20% worked in private companies, and 10% worked as civil servants. To evaluate the quality of a service, the SERVQUAL method can be used which consists of five indicators. The first is reliability, which measures the extent to which the service can be trusted. The second indicator is responsiveness, which describes how fast and responsive the service is in responding to customer needs. Third, there is assurance, which includes assurance and customer confidence in the ability of service providers. The fourth indicator is empathy, which shows the extent to which the service pays attention to and understands the needs and feelings of customers. Finally, there are tangibles, including the services' physical or material aspects. By using the SERVQUAL method and these indicators, the quality of service can be measured and evaluated [33].

Table 1. Survey analysis results

ID	Indicator	Performance	Importance	Gap
1	Availability of modes as promised	3,76	4,12	-0,36
2	Punctuality of arrival and departure times	3,72	4,88	-1,16

3	Driver readiness/concern	3,86	4,74	-0,88
4	Providing precise and quick instruction/ information	3,66	4,85	-1,19
5	User safety	3,78	4,80	-1,02
6	User safety/comfort	3,38	4,84	-1,46
7	Paying attention to users	3,80	3,84	-0,04
8	Polite/supple/friendly	3,80	4,84	-1,04
9	Cleanliness	3,86	4,94	-1,08
10	Facility availability	3,80	4,94	-1,14
Average		3,74	4,68	-0,94

Based on the data collected, it was found that the mean performance value was 3.74, while the mean significance value was 4.68. Using this calculation, we can identify that variable 6 has the highest gap value, 1.46, while variable 7 has the lowest gap value, 0.04. The total average for the gap is 0.94. Variable 6 shows a high level of a gap, signaling that performance on this variable needs to be improved to achieve the level of importance it should have. On the other hand, variable 7 has a low gap, indicating that the performance is already high. Still, the importance level is low, so this variable may not need to be over-prioritized.

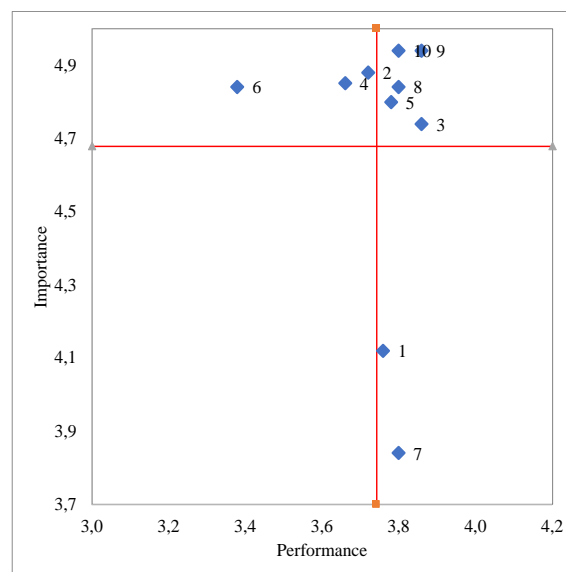


Figure 1. Importance Performance Analysis

The IPA diagram consists of four quadrants: A, B, C, and D. Quadrant A indicates low performance but high user interests or expectations. In this quadrant, performance improvement is needed by city bus service providers so that users are satisfied and have an experience that reasonably meets their expectations. The indicator included in this quadrant is Punctuality of arrival and departure times (2), Providing precise and quick instruction/information (4), and User safety/comfort (6).

Quadrant B indicates high performance and high user interests or expectations. This quadrant must be maintained to maintain consistent performance with service user satisfaction. The total 5 indicators, namely Driver readiness/concern (3), User safety (5), Polite/supple/friendly (8), Cleanliness (9), and Facility availability (10). While Quadrant C indicates high performance but low user expectations or

interests, namely the Availability of modes as promised (1) and Paying attention to users (7), quadrant D indicates low performance and low interests or expectations. No indicators fall into quadrant D. This indicates the relatively good performance of the Trans Batam bus service.

5. Conclusion

This study aims to evaluate the user satisfaction level of Trans Batam city bus service. Based on the research results, it was found that the average performance was 3.74, and the average importance was 4.68. This indicates a gap between performance and importance of 0.94. The indicator with the highest gap, which is 1.46, is User safety/comfort. Therefore, city bus service providers need to prioritize improving User safety/comfort performance because there is still room for improvement according to user ratings. Other indicators that also need to be prioritized because they have relatively high gaps are Punctuality of arrival and departure times, Providing precise and quick instruction/information, and Facility availability. Meanwhile, the indicator with the lowest gap, 0.04, is Paying attention to users. This shows that Trans Batam city bus users are satisfied with the performance of this indicator. The Driver readiness/concern indicator also falls into the lowest gap category with a value of 0.88. However, overall, Trans Batam city bus service providers need to improve their performance, especially on indicators with high gaps to continue to be the choice of users and compete with other public transportation.

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