

## TRANSJAKARTA BUS RAPID TRANSIT DEVELOPMENT STRATEGY IN SUPPORTING INTERMODAL INTEGRATION

Nabila Mutiara Haviz<sup>1\*</sup>, Gunawan Bakti Utama<sup>2</sup>, Abdullah Ade Suryobuwono, S.Si, MT<sup>3</sup>, Prima Widiyanto, SE, MM<sup>4</sup>

<sup>1,2,3,4</sup>Institut Transportasi dan Logistik Trisakti, Jakarta, Indonesia

\*Corresponding author: [nabilamutiara17@gmail.com](mailto:nabilamutiara17@gmail.com)

**Abstract.** BRT is an integrated system of bus facilities, services, and comfort that can collectively increase speed and reliability and are integrated with a strong transit identity through high-quality service. TransJakarta is an example of a BRT operating in Indonesia, specifically in the DKI Jakarta area. Public transport infrastructure development that is happening requires good integration to facilitate passengers to move between modes. Therefore, it is important to apply integration design principles to prevent poor intermodal connectivity. Data collection method used in this study was by conducting interviews and distributing questionnaires using Google forms with a total of 201 respondents. The result is to revise the National Transportation System managed by BPTJ and make a new law that includes intermodal integration planning in terms of spatial planning,

**Keywords:** Strategy For Implementing The Intermodal Integration Policy, Factors To Support Intermodal Integration

### 1. Introduction

Transportation is defined as the movement or transportation of people/goods from one place to another using means of transportation (Kadir, 2006). Transportation can also open and connect areas both between villages, cities, provinces, islands, and countries so that people who live in isolated areas can move easily and catch up with the development of transportation. At present, there are many types of public transportation in Indonesia. Public transportation has been expanded to reduce congestion caused by many people using private transportation. Public transportation providers now enhance their facilities and integrate intermodal so that they attract people to use public transportation. BRT (Bus Rapid Transit) is an integrated

system of facilities, services, comfort, and security that can increase its reliability and speed of integration with other modes of public transportation due to high quality of service, scheduled headways and separate lanes.

An example of BRT system applied in Indonesia is TransJakarta. TransJakarta, which is managed by the DKI Jakarta regional government, implements an integrated service system. Timeliness of departure and arrival time is a priority of TransJakarta to make Jakarta people comfortable and satisfied with its services, thus attracting Jakarta people to switch to using public transportation. TransJakarta has 278 BRT stations spread across 13 corridors and operates 24 hours.

Intermodal integration is underway to make it easier for passengers to switch to other modes of public transportation. But in reality, the transportation system that can expand the transportation network and facilitate transportation activities itself has not been fully implemented throughout the corridor. Therefore, it is important to apply integration design principles to improve intermodal connectivity by adding adequate supporting facilities such as the construction of a crossing bridge (JPO) or direct crossing from both aspects of safety, security, and environmental sustainability. This study aims to find out what strategies should TransJakarta improve to support intermodal integration

## 2. Literature Review

### 2.1 Bus Rapid Transit

Because of the similarities, people have often assume Bus Rapid Transit is TransJakarta, and vice versa. According to the Decree of the Governor of DKI Jakarta Province Number 110, it states that TransJakarta is a mass transportation mode using buses with special lanes (Herbowo, 2012) Correspondingly Bus Rapid Transit is an urban public transportation system that provides high quality, comfort, low cost and energy that allows for effective travel. Some important components of the BRT are bus-specific lanes, bus priorities at intersections, integrated fares, and also strong and controlled technology components (Rizvi, 2014)

The the main reason of using Bus Rapid Transit (BRT) is for reducing pollution. The high gas emissions of private vehicles can be overcome by choosing public transportation. In addition to reducing carbon emissions, public transportation selection can reduce congestion. This is the main reason for other countries to use the Bus Rapid Transit (BRT) system. The Bus Rapid Transit (BRT) system also features adequate services and infrastructure (Transportation et al., 2010).

### 2.2 Multimodal / Intermodal Transportation

Multimodal transportation here combines loads for long-distance travel. Multimodal transportation is the use of one or more different modes of transportation in a journey that carries passengers or goods (Priyanto, 2017). In its application, this type of transportation provides many benefits such as faster transportation and reducing costs to create effective, efficient, and barrier-free transportation. (Yessi Gusleni, 2016)

The advantages of multimodal transportation are having reasonable costs, minimizing travel time, changing modes comfort, and reducing energy use. Intermodal or multimodal transportation service networks are realized through integration between routes by looking at the superiority of modes based on technology and regional characteristics, as well as transportation routes both Sistranas at Tatanas (National Transportation Level), Sistranas at Tatrakil (Regional Transportation Level), and Sistranas at Tatalok (Transportation Level Local).

### 2.3 Urban Transportation

Transportation is the movement from origin to destination. According to Kanafani (1983), transportation needs to support the interaction of social and economic activities (Silaningsih et al., 2015). The city transportation system is a unity of elements and components that support each other and work together in the procurement of transportation that serves urban areas. The demand for transportation services is determined by the factors that influence it. These determinants have their own characteristics that are directed towards two sides, namely: Users of Transportation Services and Transportation Services Systems Things that affect the side (Abidin, 2016) Urban Transport is a complex of various forms of transportation that move people and goods within the city and suburban zones directly and that carry out work related to planning and providing public services and facilities. When there are satellite city systems and mass recreation zones that are far from residential and industrial areas, urban transportation connects all these different entities. Urban transportation is an important sector of city services.

## 3. Research Methodology

This research was conducted with a qualitative approach. Qualitative research is descriptive research that uses analysis. Qualitative research emphasizes the deepening of data from the results of data that have been studied by researchers. Methods of data collection used were by

conducting interviews and distributing questionnaires using Google Form. The research period was two weeks (starting from June 19 to June 2, 2020).

Interview is a data collection technique by conducting conversations with two or more people that take place between the interviewee and the interviewer. The purpose of conducting interviews is to obtain accurate and reliable data information from experts. In this research, the interview was done to some transportation experts as the resource persons

Questionnaires are data collection techniques that analyze people's attitudes and behavior by spreading questions to respondents directly or using an existing system such as Google Form.

existing system such as Google Form.

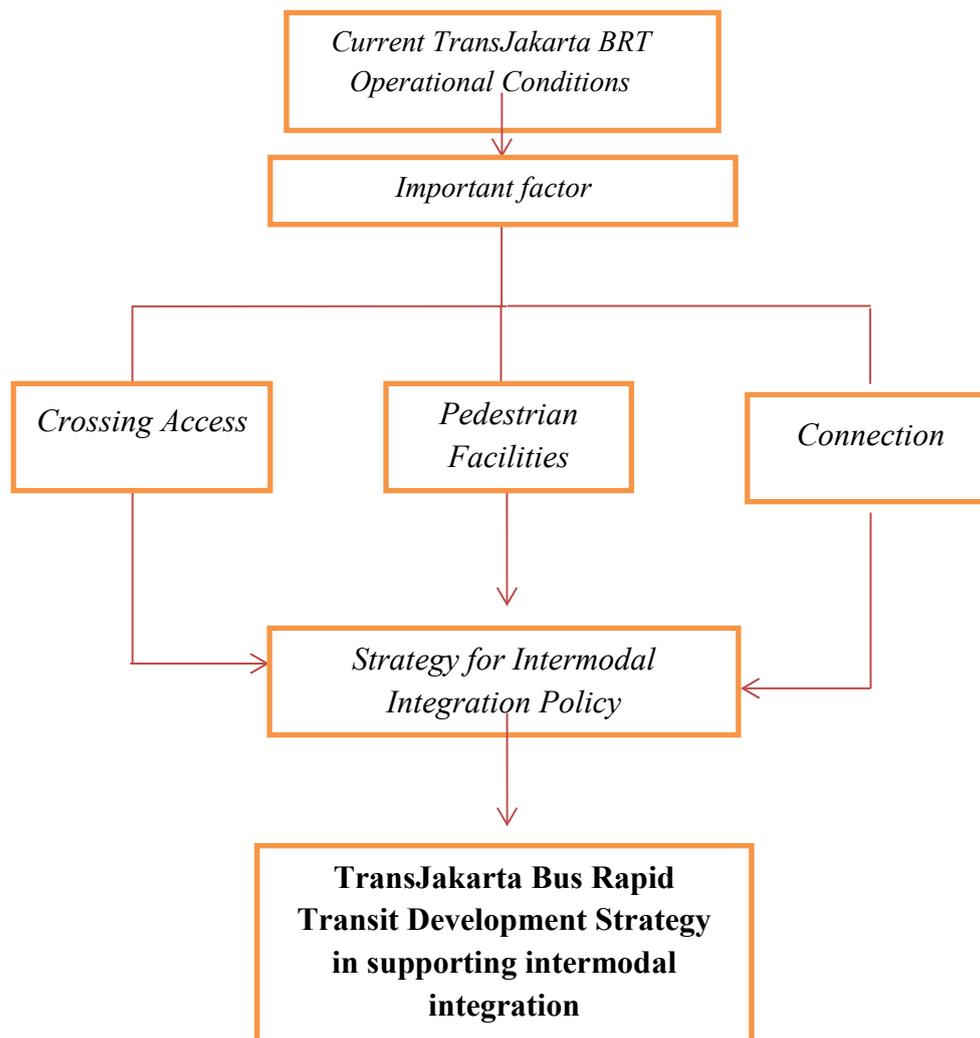


Figure 1

#### 4. Discussion and Result

According to presidential regulation number 55 of 2018 regarding JABODETABEK transportation master plan (55/2018, 2018) integrated urban transportation system development policies implemented with the program include:

- Development of integrated urban transportation nodes
- Development of modal transfer facilities/transfer modes /intra and intermodal integration facilities
- Development/improvement of supporting facilities for mass transportation (shelters, traffic signs, road markings, electronic information displays, and pedestrian bridges)
- Provision of bus rapid transit (BRT) integration facilities
- Mode integration from/to the train station
- Development of integrated air transportation systems and nodes
- Development of integrated water transportation systems and nodes

##### 4.1. Characteristics of Respondents

In table 1 can be seen the recapitulation of the characteristics of respondents. The results state that TransJakarta bus users are female by 54%, ages ranging from 16 years - 25 years by 82%, work as a student by 68%, using TransJakarta in 7 days as much as 1 time by 43%.

**Table 1**

No	aracteristics of Respondents	Criteria for Respondents	total	%
1	Gender	Girl	109	54%
2	Age	16-25	165	82%
3	Profession	Student / Student	138	68%
4	ransJakarta in 7 Days	1 time	87	43%

**4.2. Assessment of Passenger Attitudes towards the TransJakarta BRT Development Strategy in Supporting Intermodal Integration**

The attitude of the passengers towards the TransJakarta BRT development strategy in supporting intermodal integration can be determined by analyzing the results of the questionnaire distributed to the JABODETABEK community by using the Google form. The results of the questionnaire distributed can be seen in Table 2. The contents of table 2 explain that the TransJakarta integration system is good, but it must be improved. One of them is increasing access to modal shifts for people with special needs/disabilities to make it easier to access modal transfers

**Table 2.**

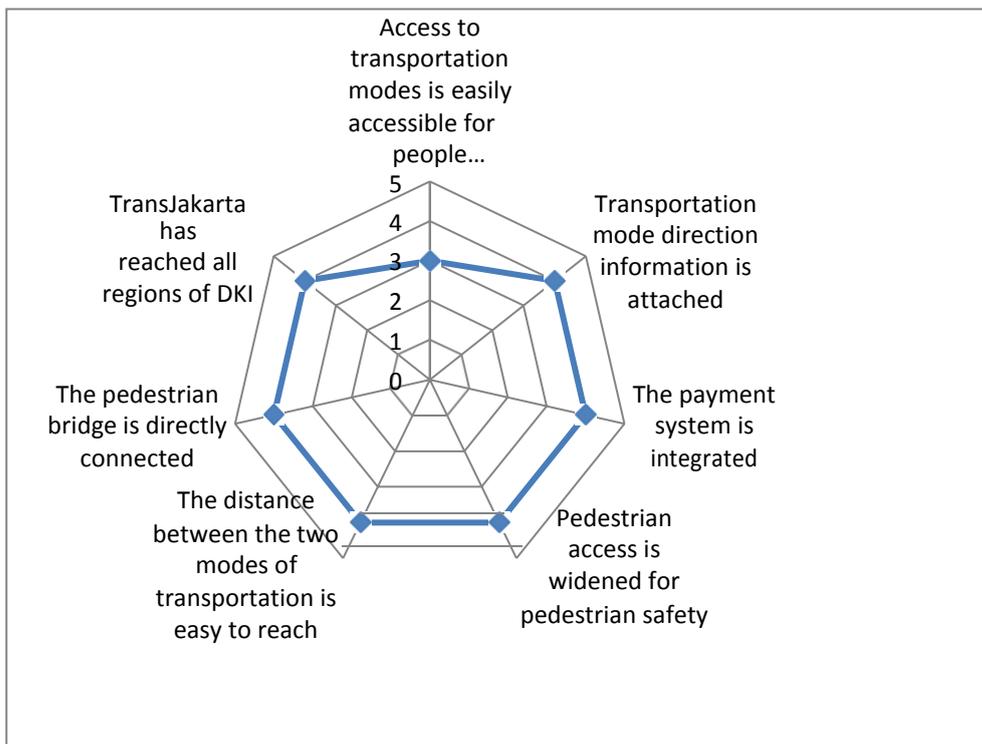
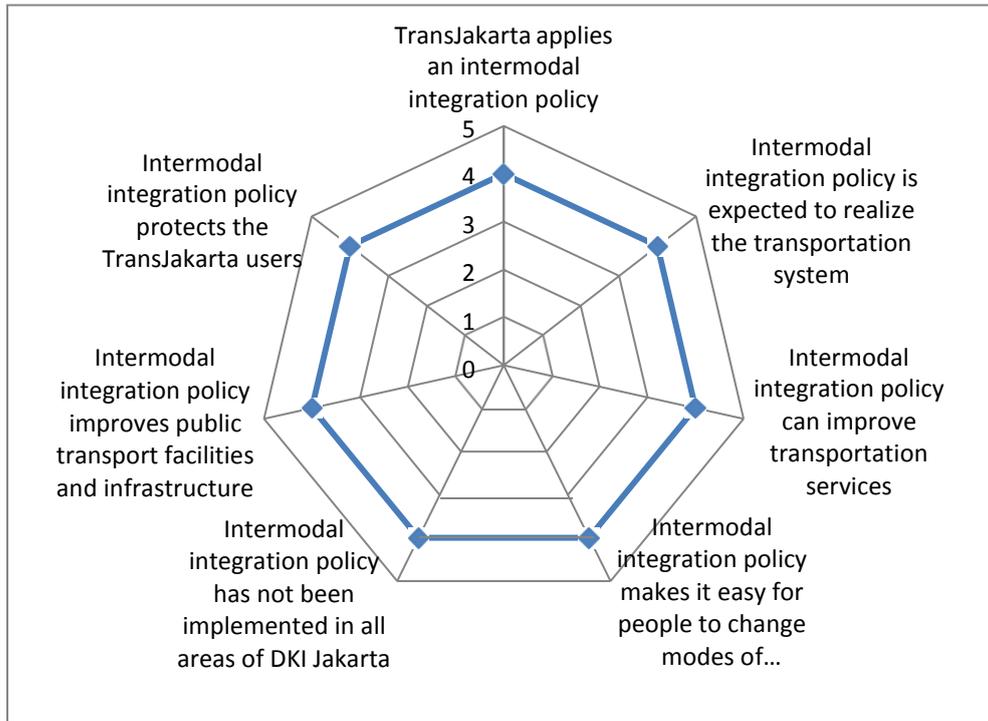


Table 3 explains the results of the questionnaire from the implementation strategy of the intermodal integration policy. The contents of table 3 explain that many respondents agreed with the intermodal integration policy that made it easy for passengers to switch to other modes of public transportation.

**Table 3**



The contents of table 3 explain that intermodal integration policy implementation strategies are needed in providing services and to change people's behavior. This policy is expected to be more emphasized so that intermodal integration can be evenly distributed in DKI Jakarta.

**Table 4**

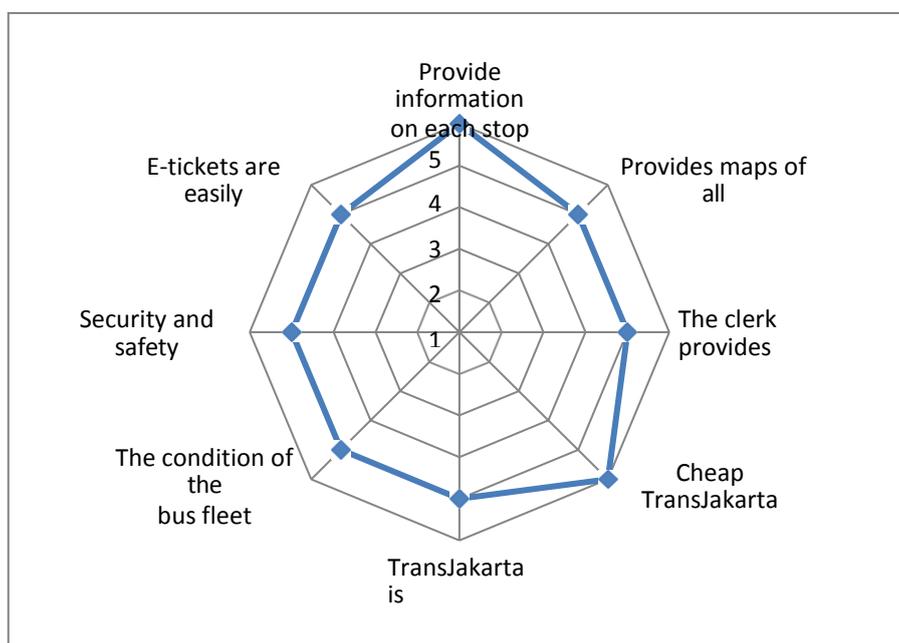


Table 4 illustrates that the current operating conditions of TransJakarta are operating properly. However, several indicators are improved and refined so that TransJakarta operations can operate optimally.

#### **4.3. Future solutions for the implementation policy and TransJakarta Strategy to support intermodal integration**

Integrated and modern transportation is a necessity throughout the world, especially for Jakarta as an economic center. With the integrated transportation system, it is expected to reduce traffic problems supported by the policy.

In making policy, several factors determine the success of policy implementation: a) the initial objective is needed as a reference in implementing the policy to fit the planned program. b) the success of the policy implementation process with the use of people, costs, and time as the initial mover in stakeholders. c) the implementation of public policies is influenced by the appropriate and suitable characteristics of the stakeholders. d) Support of political elites for successful policy implementation. e) The characteristics of stakeholders can influence the successful implementation of policies based on predetermined plans. f) The important role of communication to coordinate the ongoing implementation of policies so that the implementation of public services can be measured. (Sinaga et al., 2019). Careful planning is needed in its management so that it can be implemented well.

To find out the solution to the strategy that was improved by TransJakarta to support intermodal integration, the researchers conducted interviews with expert speakers in their fields. Based on the results of interviews with informants, the current weakness in intermodal integration in the DKI Jakarta area is that there is no legislation on the master plan of transport and road traffic that is binding between the central government and regional governments so that intermodal integration has not been implemented in the DKI Jakarta area. Furthermore, the national transportation system bill (SISTRANAS) has not yet made a policy on intermodal integration.

The solution to this problem is by revising the National Transportation System Bill (SISTRANAS), which is managed by the Transportation Management Agency JABODETABEK (BPTJ), and made a new law regulation on the Master Plan for Traffic and Transportation which includes intermodal integration planning seen from:

1. Layout
2. Route Networks and Road Nodes
3. Regionalism

Therefore, TransJakarta operations can be integrated with other modes of transportation evenly in the DKI Jakarta area.

## **5. Conclusion**

The strategy to support intermodal integration is supported by several factors where most of these factors are considered good in supporting intermodal integration. The existence of effective intermodal integration policy is important to facilitate passengers to switch modes of public transportation. Policy plays a role as a concept that becomes a reference for the program made by the government / implementing agency. Success in the implementation process is influenced by its users. Therefore, the understanding of transportation users for policies must be

developed. The result of the interview for TransJakarta's strategy in supporting intermodal integration is the drafting of a new law on the Transit and Road Traffic Master Plan which includes intermodal integration planning.

Good service is supported by the positive response of the people in Jakarta to the mode of transportation. Based on the results of the discussion regarding the operational conditions of TransJakarta in supporting intermodal integration, it was considered to be good, including the condition of the fleet, ticketing system, tariffs, map information. But the desire to improve one factor is still high. The recommendations proposed to improve these factors are access to modal transfers for people with special needs/disabilities. It is appropriate to apply the principle of integrated design to improve intermodal connectivity by adding adequate supporting facilities such as the construction of a crossing bridge (JPO) or direct crossing to facilitate people with special needs and also pedestrians.

## 6. References

- 55/2018, PPRIN (2018). Jakarta, Bogor, Depok, Tangerang and Bekasi Transportation Master Plans.
- Abidin, Z. (2016). River Transportation Revitalization Study as a Mode of Urban Transportation in the City of Banjarmasin. *Aggregate*, 1 (2), 23– 32.
- Herbowo, N. (2012). Study of TransJakarta User Perception in Corridor II (Pulogadung-Harmoni). *Journal of Regional and City Planning*, 23 (1), 37. <https://doi.org/10.5614/jpwk.2012.23.1.3>
- Kadir, A. (2006). Transportation: Role and Impacts in National Economic Growth. *Journal of Planning and Development in the Wahana Hijau Region*, 1 (3), 121–131.
- Priyanto, S. (2017). Integration of transportation information systems to improve the accessibility of tourist destinations in the city of Sabang. November 2016, 245–252.
- Rizvi, A. (2014). How Planning Process Impacts Bus Rapid Transit Outcomes: A Comparison of Experiences in Delhi and Ahmedabad, India. 165.
- Silaningsih, E., Gemina, D., & Yuningsih, E. (2015). TransJakarta Company's Strategy and Minimum Service Standard to Raise Passengers' Satisfaction. *Journal of Management and Entrepreneurship (Journal of Management and Entrepreneurship)*, 17 (1), 1–10. <https://doi.org/10.9744/jmk.17.1.1-10>
- Sinaga, SM, Hamdi, M., Wasistiono, S., & Lukman, S. (2019). Model of Implementing Bus Rapid Transit (BRT) Mass Public Transport Policy in DKI Jakarta Province, Indonesia. 1 (3), 261-2271.
- Transportation, S., Ke, P., & Transpori, P. (2010). PRIVATE TRANSPORTATION MEANS TO PUBLIC TRANSPORT '(TRANSJAKARTA) Noviyanti \*). 22, 1042-1052.
- Yessi Gusleni. (2016). Passenger services at the attack station from the perspective of intermodal transportation. 55–66.