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West Sumatra Tourism Transportation Integration Indicators

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ABSTRACT

Public transportation integration is essential for sustainable tourism development, so it is necessary to improve transportation services. This study aims to determine the indicators needed in designing transportation integration procedures. This study uses a decision-based Fuzzy Delphi method assessed by experts to determine the ranking of each indicator in transportation integration. The location of this study is in West Sumatra Province because it has favorite tourist attractions in 19 districts and cities that foreign and domestic tourists can visit. The findings of this study include nine indicators of physical integration, four indicators of operational integration, three indicators of ticket integration, four indicators of information integration, and one indicator of institutional integration. Thus, it can be used as a guideline in planning transportation integration to improve accessibility to tourist areas.

1. INTRODUCTION

Transportation significantly influences travelers' choice of location and the growth of tourism destinations [1]. The transportation industry is one of the key components of a tourist strategy. In tourism, transportation serves as both a way to get to and a way to move about tourist locations.

Tourists' travel habits and mode selections are influenced by how they access tourist sites. Visitors who rent a car will probably use it while they are there. However, visitors may not require a motor automobile to experience the tourist sites if they arrive at an airport and find that public transportation or taxis are convenient ways to get to their location. Therefore, by concentrating on the visitor's initial journey, transportation planners must comprehend the opportunities where visitors decide which mode to use. Integrated mobility aims to make public transit a more appealing alternative to private transportation by enhancing multimodal integration [2].

Transportation integration generally demonstrates technical, economic, organizational, policy, and information-based concepts and solutions that guarantee the continuity of travel from door to door, according to Janic [3]. According to the findings of a study by Miro and Adji [4], application-based Ticketing Integration is highly favored by residents of Padang for both domestic and interprovincial travel. The main components of tourism integration are the accessibility of road networks and transportation options, the proximity of tourist attractions (ODTW), auxiliary facilities like places to stay and eat, and government, management, investor, and community involvement organizations [5]. Uncomfortable public transportation, and uncertain schedules such as bus, train, or ship delays can make tourists feel uncertain about their travel plans. In addition, the lack of connectivity between tourist areas can make it difficult for tourists to visit more places as well as expensive transportation costs will limit the number of tourist attractions that can be visited.

Based on the findings of Nutsugbodo et al.'s study [6], it is well established that accessibility, availability, price, comfort, and safety are the main determinants of travelers' choice of public transportation. Travelers require transportation that can offer high-quality services with a focus on planning for accessibility.

One of Indonesia's tourist destinations that is highly considered both nationally and internationally is West Sumatra Province, which is also one of the provinces with the most tourist attractions. One of the most popular national tourism sites in West Sumatra. Sufficient infrastructure and transportation facilities are required to support this.

The number of visitors is still increasing, according to the West Sumatra tourism development master plan for 2014–2025, which includes summary data. West Sumatra Province's Central Statistics Agency (BPS) reports that the number of international visitors rose from 83,133 in 2018 to 95,187 in 2019, a 14.5% rise. In 2018, 8,073,070 domestic tourists traveled there; in 2019, 8,366,550 did the same, a 3.5% increase. To maintain interest and the number of domestic and international visits, the carrying capacity of transportation to tourism locations must be considered. One of the most crucial factors to examine is the degree of accessibility in tourist zones in terms of ease of reaching tourist destinations by providing better, faster, cheaper, and safer public transportation services through integrated public transportation services.

2. LITERATURE REVIEW

2.1 The role of transportation in tourism

With the potential wealth of diverse tourist destinations in West Sumatra such as island and beach destinations, geopark destinations, and old Minangkabau destinations, it can be an attraction for tourists to visit, but this needs to be supported by integrated transportation to make it easier for tourists to access the tourist destination locations that are the purpose of their trip.

Since the transportation industry is crucial to tourism's growth and has the potential to greatly boost traveler numbers, it should be a top priority on the agenda for tourism policy [7]. According to Page [8], transportation is a crucial part of tourism; as it connects travelers to their destination, they cannot be separated from it.

Tourism activities are related to travel activities using transportation because tourists will move from their place of origin to their destination using transportation facilities and infrastructure, including land transportation, sea transportation, and air transportation. Meyer [9] states that the differences between tourist trips and urban trips are as follows:

1) Peak travel times usually occur during holidays, weekly peak times, and daily peak times. Tourist destinations near urban areas may be busy on weekends, while long-distance destinations have consistent traffic on weekends and weekdays.

2) Travel time and transit frequency are considered by tourists going to tourist locations, especially tourists from urban areas who will visit tourist locations in remote areas because many tourist locations are also in remote areas. So, the transportation system needs to provide quality services for holidays. If the quality of transportation services fails to meet standards, tourists will choose other destinations for their holidays.

3) In many tourist attractions, more than half of transport system users may be visiting the area for the first time, therefore there is a particular need for effective dissemination of information about the transport services available to visitors.

4) The distribution of visitors to tourist locations varies greatly according to the type of tourism. Amusement park tourism is expected to attract families and children, resorts can attract adults, historical tourist attractions can attract the elderly as well and educational tourism, as well as transportation services for each visitor, will likely be adjusted to the characteristics of each visitor and tourist area.

2.2 Tourist transportation modes

Travel behavior and the transportation choices people make when visiting a tourist destination are influenced by the mode of transportation they use. If visitors rent a car for their visit, they will likely use that car for the duration of their stay. However, if visitors arrive at the airport and find convenient public transportation or taxis to take them to their destination, they may not need a private vehicle to get to their destination. As stated by Vanhove [10], transportation planners must understand the opportunities where visitors make decisions about which mode to use by focusing on the visitor's initial trip. Transportation is one of the 5 main sectors that shape the tourism industry in a country, for example:

1) Tour Bus
2) Rental Car
3) Taxi
4) Aircraft
5) Train
6) Ship

Meanwhile, Khan et al. [11] reported that the arrangement of the transportation system with the support of various modes of transportation, such as air and rail transportation, can also help the development of the tourism sector. In this regard, Thrane [12] also stated that the variables of distance in kilometers and time greatly influence the choice of transportation mode for tourists, for long distances tourists will use air transportation, trains, and cars. For short distances, tourists will use buses and private cars.

2.3 Factors in the selection of public transport by tourists

According to Nutsugbodo [6], tourists need transportation that can provide quality services with an emphasis on accessibility-based transportation planning. Eby and Molnar [13] related to factors related to choosing a long-distance tourist route, namely direct direction, safety, level of congestion, and distance. Factors that influence the satisfaction of tourist visitors in the city of Munich, Germany with public transportation services are travel comfort, service quality, accessibility, and additional features [14].

According to the findings of Thompson and Schofield's research [15], visitor satisfaction at Greater Manchester tourist locations is more influenced by public transportation's ease of use than by its efficiency and safety. According to Kanwal et al. [16], there are tourist destinations along the CPEC route in Pakistan, and the locals have benefited from the presence of roads and transportation facilities, which is also linked to local support for tourism. In addition, it can have a big impact on authorities' decisions to create policies that support the growth of the tourism industry.

Based on a study by Hirschhorn et al. [17] which was carried out in metropolitan areas in Europe, Australia, and Canada and used a qualitative comparative analysis method, it was stated that from the elements of transportation organization, it is very necessary to have integration between land use and transportation, as well as integration of the responsibility of the planning department within the authority level. Regional/metropolitan areas by connecting scheduled and routed public transport systems with flexible and on-demand public transport can increase the use of public transport.

In Central Kalimantan Province, specifically in the Kasongan area, the capital of Katingan Regency, an integrated transit location between river and land transportation has also been created to increase public transportation users [18].

2.4 Transportation integration concept

The proximity of tourist attractions (ODTW), accessibility through road networks and transportation options, supporting amenities like lodging, dining options, and support networks, as well as competent institutional management, investors, and local community involvement, are all important components of tourism integration, according to Ferreira and Estevão's research findings [19]. The availability of routes and connecting modalities supports geographic proximity. The availability of connected roads and transportation options is one of the key elements of tourism integration. In addition to accessibility, the cost of connecting means of transportation is another factor that needs to be taken into account while integrating tourism.

The similarity of routes is one factor that should be taken into account when it comes to the availability of public transportation modes to facilitate accessibility between ODTWs. However, accessibility must also be taken into account because transportation problems will unavoidably lead to a longer travel time to ODTW [20]. Accessibility, which gauges how easy it is for tourists to get from their starting point to ODTW using criteria like the condition of the land, sea, and air transportation systems, the number and type of transportation options available to ODTW, and the frequency of transportation to ODTW, is one of the essential components of a tourist area.

Apart from the availability of supporting facilities, integration between these facilities is needed to form tourism integration. The non-physical aspect required in tourism integration is management. Ferreira and Estevão [19] state that management takes the form of integration between ODTW managers and travel agents, where the involvement of local communities is a form of integration in the management aspect. Utama [5] also mentioned these two opinions that integration is not only between two parties, but must also involve all relevant stakeholders, namely the government, managers, investors, and local communities.

Multimodal travel involves using several modes of transportation to reach a destination. Multimodal integration brings together the physical infrastructure, payments, information, and/or institutional management of multiple modes of transportation to enhance the multimodal travel experience for users. Integrating public transportation can increase travel efficiency and provide more diverse travel options.

Enhancing accessibility, which is thought to be the primary factor for the general public or visitors to navigate a city, is the top priority when integrating the public transportation system [21]. To achieve smooth travel using public transportation, policies are required in the area of integration through the transportation system [22].

Transportation integration is focused on connecting various modes of transportation operating in a particular transportation system, providing solutions to facilitate the movement of passengers/goods between modes, and ensuring a safe, smooth, and efficient flow of passengers/goods from origin to destination. The main goal of integrating public transportation [23] is that it is faster by cutting waiting times and transfer times, easier by shortening walking distances, clarifying information and feeling comfortable in one system, and more affordable because it can save costs with integrated fares and payments.

There are five main categories as steps to integrate transportation services [24], namely:

1) Physical integration: Bus and rail systems must be an integrated network to complement each other. Physical integration is closely related to operational integration which will later contribute to infrastructure integration.

2) Operational integration: easy access over short distances when changing modes by passengers to improve public transportation services.

3) Fare integration: one fare card to facilitate intermodal transfers. This can be an attraction for passengers who want to change from one mode to another.

4) Information integration: Guides such as information boards at train stations or bus stops must be well designed to convey information to tourists, or use information technology and intelligent transportation systems.

5) Institutional integration: Cooperation and coordination between government agencies and the private sector is very important in forming a framework ranging from land use planning, and travel demand management, to integrated public transportation services.

Integration of public transportation systems influences people's attitudes and behavior [25]. Only by properly understanding people's travel habits and their wants and expectations for public transportation services can an ideal public transportation system be established [26]. According to the findings of Dwitasari's study [27], to facilitate the integration of intermodal operations, it is necessary to integrate service networks and transportation infrastructure networks. Schedule and route integration is a component of service network integration, and physical integration includes the integration of transportation infrastructure networks that are centralized nodes.

3. METHODOLOGY

The first stage in this research was to determine public transport integration indicators obtained from a literature review of research related to transport integration to tourist areas to be used in creating procedures for integrating public transport into tourist areas. Next, expert judgment is carried out to conclude by validating the indicators needed to design procedures for integrating public transport into tourist zones. The selection of experts or experts in the field of transportation is carried out using purposive sampling [28] where samples are taken according to the required requirements and not randomly. The criteria for selecting experts are having a minimum of 10 years of knowledge and experience in the field of transportation or tourism area development. The selected experts consisted of the West Sumatra tourist village development team, the West Sumatra regional development planning agency, the West Sumatra tourism destination sector, the West Sumatra research and development agency, academics, and transportation observers. The number of experts in this study was 7 people [29] in general, the ideal sample size for the Delphi method is 5-20 people.

Fuzzy Delphi was chosen as a method for analyzing expert assessments. Because this method provides flexibility in determining experts who are considered to have mastered the research topic, experts can work independently without the potential influence of other experts, data processing using relatively simple mathematical calculation methods and its implementation is effective in terms of time and cost. In its development, the classic Delphi method developed into the Fuzzy Delphi method [30]. Murray et al. [31] offer the concept of combining the Delphi method and Fuzzy theory by ranking groups. Furthermore, Kaufmann and Gupta [32] developed a Fuzzy number triangle (pessimistic, medium, and optimistic) for Delphi purposes and called it the Fuzzy Delphi method. Meanwhile, Ishikawa et al. [33] developed the algorithm function and cumulative frequency distribution of the Fuzzy Delphi method and simplified the process of iterating expert opinions into just one round [34, 35].

The Fuzzy Delphi method was chosen for data collection because this method provides flexibility in determining experts who are considered to have mastered the research topic, experts can work independently without any potential influence from other experts, data processing uses relatively simple mathematical calculation methods, and effective implementation of time and cost side.

The relationship between the Fuzzy scale and the Likert scale is shown in Table 1.

Table 1. Likert scale and Fuzzy scale rating levels

No.	Level	Likert Scale	Fuzzy Scale
1	Very unimportant	1	0.0, 0.0, 0.2
2	Not important	2	0.0, 0.2, 0.4
3	Quite important	3	0.2, 0.4, 0.6
4	Important	4	0.4, 0.6, 0.8
5	Very important	5	0.6, 0.8, 1.0

Source: [30]

4. RESULT AND DISCUSSION

Secondary data in this research are indicators for each type of transportation integration obtained through a literature review. The group of indicators assessed by experts is divided into several sub-indicators, as shown in Table 2.

Table 2. Transport integration indicators

Code	Statement
	Physical Integration
A.1	Availability of connecting roads and similarity of transportation modes
A.2	Availability of land-connecting transportation modes
A.3	Availability of sea-connecting transportation modes
A.4	Availability of air-connecting transportation modes
A.5	Availability of a mode-guided transportation route network for tourist destinations
A.6	Availability of urban public transport route networks that access tourist destination areas
A.7	Availability of taxi transportation serving tourist destination areas
A.8	Availability of foot routes for easy access (transfer) between connecting modes of transportation
A.9	Availability of bus stops/stopping places for route public transport in front of/inside the tourist destination area
	Operational Integration
B.1	Availability of various types of transportation or public transportation
B.2	Availability of public transportation
B.3	Frequency of public transport
B.4	Availability of public transport schedules
	Ticketing Integration
C.1	Availability of several ticket media
C.2	There is a location for providing tickets
C.3	Ticket availability can be used on various modes of transportation
	Information Integration
D.1	Availability of information about public transport routes to tourist destination areas
D.2	Availability of information on operational schedules of transportation modes
D.3	Availability of information search service options
D.4	Availability of real-time information
	Institutional Integration
E.1	Integration of government-managers-investors-local communities

Source: Primary data (2023)

4.1 Assessment of transport integration indicators

The response given by each expert to each statement is in the form of the highest to lowest value. The assessment response from each expert for each statement submitted is shown in Table 3.

Table 3. Expert response

Code	1	2	3	4	5	Total
			Physical Integration			
A.1	0%	0%	14.29%	14.29%	71.41%	100%
A.2	0%	0%	0%	14.29%	85.71%	100%
A.3	0%	0%	14.29%	42.86%	42.86%	100%
A.4	0%	0%	28.57%	42.86%	28.57%	100%
A.5	0%	0%	0%	42.86%	57.14%	100%
A.6	0%	0%	14.29%	14.29%	71.41%	100%
A.7	0%	0%	14.29%	85.71%	0%	100%
A.8	0%	0%	28.57%	42.86%	28.57%	100%
A.9	0%	0%	28.57%	28.57%	42.86%	100%
			Operational Integration			
B.1	0%	0%	14.29%	42.86%	42.86%	100%
B.2	0%	0%	14.29%	42.86%	42.86%	100%
B.3	0%	0%	0%	71.41%	28.57%	100%
B.4	0%	0%	14.29%	57.14%	28.57%	100%
			Ticketing Integration			
C.1	0%	0%	14.29%	57.14%	28.57%	100%
C.2	0%	14.29%	14.29%	71.41%	0%	100%
C.3	0%	0%	0%	42.86%	57.14%	100%
			Information Integration			
D.1	0%	0%	14.29%	28.57%	57.14%	100%
D.2	0%	0%	14.29%	28.57%	57.14%	100%
D.3	0%	14.29%	0%	71.42%	14.29%	100%
D.4	0%	0%	0%	42.86%	57.14%	100%
			Institutional Integration			
E.1	0%	0%	57.14%	28.57%	14.29%	100%

Source: Expert assessment analysis results (2023)

4.2 Preparation of transportation integration indicators

a) The Fuzzy average value

The next analysis is that the expert response in the form of a language expression must first be converted into a Fuzzy triangular number so that it can be processed further. Fuzzy triangular numbers consist of three numbers, namely the lowest number (m1), the most likely number (m2), and the highest number (m3). Changes in the expert's responses from language expressions to Fuzzy triangular numbers can be seen in Table 4.

Table 4. The list of accepted indicators is based on Fuzzy

Code	Statement	Average Fuzzy (m1, m2, m3)	Defuzzification
A: Physical Integration	A.1: Availability of connecting roads and similarity of transportation modes	(0.51, 0.71, 0.91)	0.714
	A.2: Availability of land-connecting transportation modes	(0.57, 0.77, 0.97)	0.771

	A.3: Availability of sea-connecting transportation modes	(0.46, 0.66, 0.86)	0.657
	A.4: Availability of air-connecting transportation modes	(0.40, 0.60, 0.80)	0.600
	A.5: Availability of a mode-guided transportation route network for tourist destinations	(0.51, 0.71, 0.91)	0.714
	A.6: Availability of urban public transport route networks that access tourist destination areas	(0.51, 0.71, 0.91)	0.714
	A.7: Availability of taxi transportation serving tourist destination areas	(0.37, 0.57, 0.77)	0.571
	A.8: Availability of foot routes for easy access (transfer) between connecting modes of transportation	(0.40, 0.60, 0.80)	0.600
	A.9: Availability of bus stops/stopping places for route public transport in front of/inside the tourist destination area	(0.51, 0.71, 0.91)	0.714
B: Operational Integration	B.1: Availability of various types of transportation or public transportation	(0.46, 0.66, 0.86)	0.657
	B.2: Availability of public transportation	(0.46, 0.66, 0.86)	0.657
	B.3: Frequency of public transport	(0.46, 0.66, 0.86)	0.657
	B.4: Availability of public transport schedules	(0.43, 0.63, 0.83)	0.629
C: Ticketing Integration	C.1: Availability of several ticket media	(0.43, 0.63, 0.83)	0.629
	C.2: There is a location for providing tickets	(0.31, 0.51, 0.71)	0.514
	C.3: Ticket availability can be used on various modes of transportation	(0.51, 0.71, 0.91)	0.714
D: Information Integration	D.1: Availability of information about public transport routes to tourist destination areas	(0.49, 0.69, 0.89)	0.686
	D.2: Availability of information on operational schedules of transportation modes	(0.49, 0.69, 0.89)	0.686
	D.3: Availability of information search service options	(0.37, 0.57, 0.77)	0.571
	D.4: Availability of real-time information	(0.51, 0.71, 0.91)	0.714
E: Institutional Integration	E.1: Integration of government-managers-investors-local communities	(0.31, 0.51, 0.71)	0.514

Source: Expert assessment analysis results (2023)

b) Value of d

The next stage is to calculate the distance (d) between the Fuzzy average value and the value of each expert for each question asked. The calculation of this d value is contained in Table 5.

Table 5. Distance (d) Fuzzy number

Code	d1	d2	d3	d4	d5	d6	d7
Physical Integration							
A.1	0,13	0.13	0.13	0.48	0.17	0.13	0.13
A.2	0.04	0.04	0.04	0.26	0.04	0.04	0.04
A.3	0.39	0.22	0.22	0.09	0.09	0.22	0.09
A.4	0.31	0.31	0.00	0.31	0.00	0.00	0.31
A.5	0.17	0.13	0.17	0.17	0.13	0.13	0.13
A.6	0.13	0.13	0.17	0.48	0.13	0.13	0.13
A.7	0.04	0.04	0.04	0.26	0.04	0.04	0.04
A.8	0.00	0.31	0.31	0.00	0.31	0.31	0.00
A.9	0.17	0.13	0.17	0.13	0.13	0.13	0.17
Operational Integration							
B.1	0.22	0.09	0.22	0.39	0.09	0.09	0.22
B.2	0.22	0.09	0.22	0.39	0.22	0.09	0.09
B.3	0.09	0.09	0.09	0.22	0.22	0.09	0.09
B.4	0.26	0.04	0.35	0.04	0.26	0.04	0.04

Ticketing Integration							
C.1	0.26	0.04	0.35	0.26	0.04	0.04	0.04
C.2	0.13	0.13	0.17	0.48	0.13	0.13	0.13
C.3	0.17	0.13	0.13	0.17	0.17	0.13	0.13
Information Integration							
D.1	0.17	0.17	0.44	0.17	0.13	0.17	0.13
D.2	0.17	0.17	0.44	0.17	0.13	0.17	0.13
D.3	0.35	0.04	0.57	0.04	0.04	0.04	0.04
D.4	0.13	0.13	0.17	0.17	0.13	0.13	0.17
Institutional Integration							
E.1	0.13	0.17	0.17	0.17	0.13	0.17	0.44

Source: Expert assessment analysis results (2023)

c) Item rank score

After the d value for each expert answer is known, the next step is to determine the average d value (d-ave). This value will determine whether the expert has reached an agreement on the matter in question or not.

A d-ave value ≤0.20 means that the experts have reached an agreement and the indicator in question is acceptable. On the other hand, if d-ave >0.20, it means that the question indicator is not agreed upon by the experts and is rejected.

The next process is defuzification to return the previously calculated average Fuzzy number (Am) into a definite value called Amax. This Amax value will determine the ranking of the indicators obtained. The higher the Amax value, the higher the ranking. The Amax and d-ave values and the assessment and ranking for each indicator can be seen in Table 6.

After obtaining a ranking, the items agreed upon by the experts for each indicator can be rearranged based on that ranking. Complete research results are shown in Table 7.

Table 6. Defuzzification

Code	Amax	d-ave	Conclusion	Ranking
Physical Integration				
A.1	0.714	0.19	Accepted	II
A.2	0.771	0.07	Accepted	I
A.3	0.657	0.19	Accepted	VI
A.4	0.600	0.17	Accepted	VII
A.5	0.714	0.15	Accepted	III
A.6	0.714	0.19	Accepted	IV
A.7	0.571	0.07	Accepted	IX
A.8	0.600	0.17	Accepted	VIII
A.9	0.714	0.15	Accepted	V
Operational Integration				
B.1	0.657	0.19	Accepted	I
B.2	0.657	0.19	Accepted	II
B.3	0.657	0.12	Accepted	III
B.4	0.629	0.15	Accepted	IV
Ticketing Integration				
C.1	0.629	0.15	Accepted	II
C.2	0.514	0.19	Accepted	III
C.3	0.714	0.15	Accepted	I
Information Integration				
D.1	0.686	0.20	Accepted	II
D.2	0.686	0.20	Accepted	III
D.3	0.571	0.16	Accepted	IV
D.4	0.714	0.15	Accepted	I
Institutional Integration				
E.1	0.514	0.20	Accepted	I

Source: Expert assessment analysis results (2023)

Based on the sequence of indicators in Table 7, it can be a guideline for compiling the stages of transportation integration towards tourist areas. The stages start from the planning stage for transportation needs according to the characteristics of the tourist area. The next stage connects various modes of transportation through supporting infrastructure such as terminals, bus stops, and special pedestrian paths. Then build an integrated information system to provide information on departure schedules, routes, and fares. And in the implementation of integrated fares, it is done by combining the fares of various modes of transportation into one ticket. At the operational integration stage, adjustments are made to the departure schedules of various modes of transportation so that they are well connected and to increase the frequency of transportation services. The results of this study can be a basis for local governments, tourism business actors, and local communities for tourism development strategies in increasing the competitiveness of tourist destinations in West Sumatra.

Table 7. Sequence of public transport integration indicators

No.		Statement
Physical Integration		
1	A.2	Availability of land-connecting transportation modes
2	A.1	Availability of connecting roads and similarity of transportation modes
3	A.5	Availability of a mode-guided transportation route network for tourist destinations
4	A.6	Availability of urban public transport route networks that access tourist destination areas
5	A.9	Availability of bus stops/stopping places for route public transport in front of/inside the tourist destination area.
6	A.3	Availability of sea-connecting transportation modes
7	A.4	Availability of air-connecting transportation modes
8	A.8	Availability of foot routes for easy access (transfer) between connecting modes of transportation
9	A.7	Availability of taxi transportation serving tourist destination areas
Operational Integration		
1	B.1	Availability of various types of transportation or public transportation
2	B.2	Availability of public transportation
3	B.3	Frequency of public transport
4	B.4	Availability of public transport schedules
Ticketing Integration		
1	C.3	Ticket availability can be used on various modes of transportation
2	C.1	There is a location for providing tickets
3	C.2	Adanya lokasi untuk penyediaan tiket
Information Integration		
1	D.4	Availability of real-time information
2	D.1	Availability of information about public transport routes to tourist destination areas
3	D.2	Availability of information on operational schedules of transportation modes
4	D.3	Availability of information search service options
Institutional Integration		
1	E.1	Integration of government-managers-investors-local communities

Source: Expert assessment analysis results (2023)

5. CONCLUSIONS

By compiling indicators of physical integration, operational integration, ticket integration, information integration, and institutional integration, it is expected to be used as a procedure for public transportation integration in implementing transportation integration in tourist areas. Through this procedure, it can provide contributions that are used as guidelines in integration planning to improve accessibility to tourist areas. The author expects other researchers who are interested in conducting research with the same theme to further refine the indicators of transportation integration for other tourism areas because the limitations of this research are carried out specifically to tourist areas in West Sumatra.

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