

## IMPROVING PASSENGERS SATISFACTION OF “TRAVEL” CORRIDOR PADANG-PESISIR SELATAN USING IMPORTANCE - SATISFACTION ANALYSIS (ISA)

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**Abstract** -- *This study was motivated by the case of the disappearance of legal bus services due to their loss in competition with a kind of car services called “Travel” for the corridor of Padang - Pesisir Selatan, West Sumatera, Indonesia. Travel might not legal public transport services, and therefore, in this study is also called un-official public transportation. This study aims to determine the driving attributes for passenger’s satisfaction of un-official public transportation services and to figure out the service attributes that need to be improved according to passengers’ perceptions. Data was collected using random sampling with a total sample of 160 respondents and was analyzed using the Importance Satisfaction Analysis (ISA) method. Quadrant analysis of ISA revealed that the availability of music and air conditioner on-board is not so essential but resulting a higher satisfaction to passengers. Passengers are calling for an improvement of the services by consistently implementing the law against a driver who uses a mobile phone while driving or driving inconsiderately, and improving the courtesy and friendliness of the driver.*

**Keywords:** *Un-official public transport service; Passenger perception; Importance-satisfaction Analysis (ISA)*

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### INTRODUCTION

Padang City is the capital of West Sumatera Province, and Pesisir Selatan Regency is one of a regency which shares a border with Padang City, and most of the regency areas are rural. Quantitatively, the potential of the population in these two regions experiences growth each year. The rapid growth and development of cities will require the people to interact with many parties and many places. This condition has an impact on the number of population movements between the two regions, namely urban and rural areas.

Preliminary observations in the field found that at this time un-official public transportations have been becoming a backbone of public transportation for the corridor of Padang City - Pesisir Selatan Regency. This situation is happened because of the low competitiveness of official public transportation, namely the Intercity in the Province Bus (AKDP) so that the buses lost in the competition and disappeared from the corridor. The un-official public transportation is more favorable as it offers a shorter travel time and delivers passengers to the nearest destination location faster.

The un-official public transportation in this study refers to a group of private cars but functioned as public transportation available for the public with a particular payable cost. People in the region call it "Travel." Fig. 1 shows two examples of the un-official public transportation observed in this study. Compared to AKDP Bus, the un-official public transportation is more favorable as it offers a shorter travel time and delivers passengers to the nearest destination location faster.

The increasing number of un-official public transportation serving the corridor of Padang City - Pesisir Selatan Regency and the varying rates and diversity of services have resulted in a gap between the performance of un-official public transport services and passenger satisfaction. In terms of management functions, the certainty of information about the priority attributes to keep at a reasonable level is very important. Therefore, the method of determining these priorities must produce factors that have a significant influence on customer satisfaction (Yosritzal et al., 2014a). One of the techniques often used for determining the priority of transportation services is the Importance Satisfaction Analysis (ISA) method.



Figure 1. Example of Un-official public transportation

The objectives of this study are to figure out the service attributes of un-official public transport services that should be enhanced as they are at a satisfactory level according to passenger perceptions and the service attributes that need to be improved. The ISA was used to achieve the objectives. The study is expected to reveal the essential qualities and the level of attributes that considered as of importance by passengers, not only for the "Travel" but also for the public legal transport elsewhere to enhance their existence and win the competition.

## MATERIAL AND METHOD

### Public Transport Service

According to Law Number 14 of 1992 Article 1 and Government Regulation Number 41 of 1993 Article 1 ([Government Regulation, 1993](#); [Indonesian Road Traffic Law Number, 1992](#)) public vehicles are any motorized vehicles that are provided for public use with a fee. The Law also states that transportation is the transfer of people and/or goods from one place to another using a vehicle. Where transportation or transfer of people by motorized vehicles is done by using motorbikes, passenger cars, bus cars, and public transportation. According to [Warpani \(1990\)](#), public transportation is passenger transportation that is carried out with a rent or payment system. Included in the sense of passenger public transportation are official public transportation (buses, minibusses, etc.), trains, water

transportation, and air transportation, as well as Travel or un-official public transportation.

Law No. 14 of 1992 concerning Road Traffic and Transportation states that public transportation services by public vehicles consist of: (1) Inter-city transportation which transfers people from one city to another, (2) City transportation which is the transfer of people within a city, (3) Rural transportation which is the transfer of people in and or between rural areas, and (4) Trans-boundary transportation which is the transportation of people who cross the borders of other countries.

Users of public transport require a sufficient level of service, both travel time, waiting time, and guaranteed safety and comfort during the trip. If services provided by public transportation for the community are not excellent and the facilities offered are inadequate in providing services to users, it can lead to a tendency to leave the mode. This condition is likely to increase the level of ownership of private vehicles, which will lead to many traffic problems such as congestion, parking problems, increased pollution, increased accident rates, and so on.

Some of the ideal criteria for public transport, according to [Harries \(1976\)](#) consist of reliability, comfort, safety, cheap, and travel time. The requirements for un-official public transportation are:

1. Reliability that has criteria, namely: a) available at any time, b) depart at the origin and arrive at the destination on time, c) short total trip time: walking time from home, waiting time, in the vehicle time, walking time to the destination, d) short waiting time, e) a little walk to the bus stop, and f) no need to change vehicles
2. Convenience has criteria, namely: a) polite service, b) protected from bad weather on the bus stop, c) easy vehicle ride, d) available seating at any time, e) not crowded, f) attractive interior, and g) proper seating
3. Security has criteria, namely: a) avoid accidents, b) the body is protected from impact injuries, and c) free from crime
4. Cheap has criteria, namely: a) Affordable, relatively inexpensive costs
5. Travel time has criteria, namely: a) Shorter in-vehicle time.

Based on the condition of the study object, the authors decided to express the criteria in 19 statements as listed in [Table 1](#), to be asked to respondents.

### Importance-Satisfaction Analysis Method

The Importance-Satisfaction Analysis (ISA) is a tool to evaluate the priority among several issues based on respondents' point of view. It is

an extension of the Importance-Performance Analysis, which was introduced by [Martilla and James](#) (1977). Initially, the IPA was used mainly in market research, but later on, it also been used in many studies such as [Sorensson and Friedrichs](#) (2013); [Coghlan](#) (2012); [Tonge and Moore](#) (2007); [Arabatzis and Grigoroudis](#) (2010), [Lo et al.](#) (2012); [Matzler et al.](#) (2004); [Wang and Tseng](#) (2011), [Yosritzal et al.](#) (2014b), [Yahya and Bell](#) (2010), [Freitas](#) (2013). In Indonesia, several studies have been used the ISA such as [Kesumajayansyah and Yuwono](#) (2014), [Yosritzal et al.](#) (2017), [Yosritzal et al.](#) (2018), and [Astuti et al.](#) (2017).

The data used in the ISA analysis is data from customer satisfaction surveys. In the study, service attributes were conveyed to respondents and respondents were asked to express the level of importance of them, and the level of satisfaction of respondents to the service attributes on a Likert scale ([Yosritzal et al., 2014b](#)). Likert scale is a scale used to express respondents' opinions such as agreement or disagreement with regard to something that is expressed in several levels, generally a Likert scale consists of 5 points rating scale where the scale point 1 shows the lowest degree of agreement (or equal to disagreement) while the 5 pointS scale shows the highest agreement ([Likert, 1932](#)). There are two types of analysis in the ISA method, namely the quadrant method, also known as the standard method and the gap method (gap analysis).

### 1. Quadrant Method

In principle, the quadrant method is conducted by plotting the size of the concentration (e.g., median) of the Interest and Satisfaction Levels in four quadrants separated by lines representing the average Interest and Satisfaction Levels. The horizontal axis is a rating for the Satisfaction Level while the vertical axis is a rating for Interest. [Fig. 2](#) shows an application of this method in a study on rail passengers' perception of the service of train service ([Yosritzal et al., 2016](#)).

As shown in [Fig. 2](#), the attribute number 14, 13, 16 and 7 are falling in quadrant 1 which considered as a relatively more important for passengers and passengers perceived the services of the train on the attributes are satisfy their need. Attributes which fall in the area or quadrant 2 are the attributes that considered as relatively more important for passengers, but the service of the bus on the attributes are relatively lower than their expectation. These attributes should be improved to increase the passenger's satisfaction level.

Similarly, attributes in quadrant 3 are relatively less, but the satisfaction level is relatively lower. As these attributes are relatively less important, no action is needed. Finally, the attributes in quadrant 4 are less significant for passengers, but the service of the train on these attributes are relatively higher than attributes in quadrant 2 and 3.

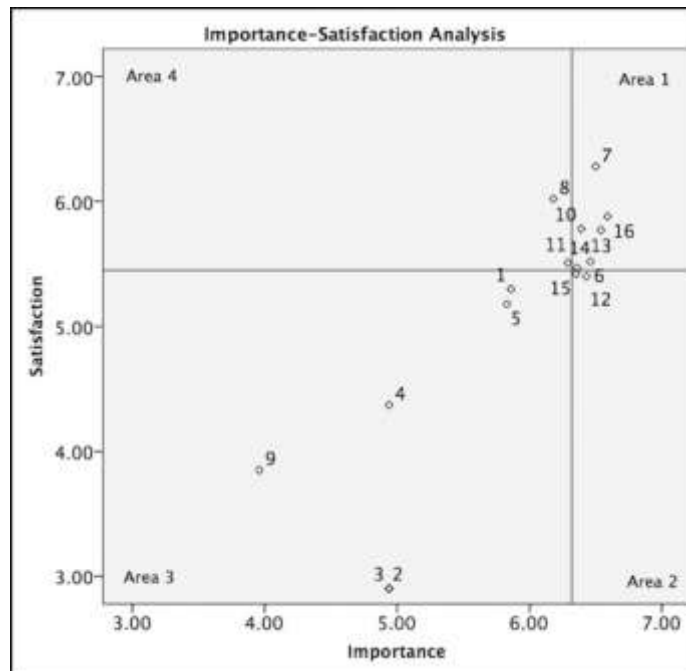


Figure 2. Example of Importance-Satisfaction Analysis Result ([Yosritzal et al., 2016](#))

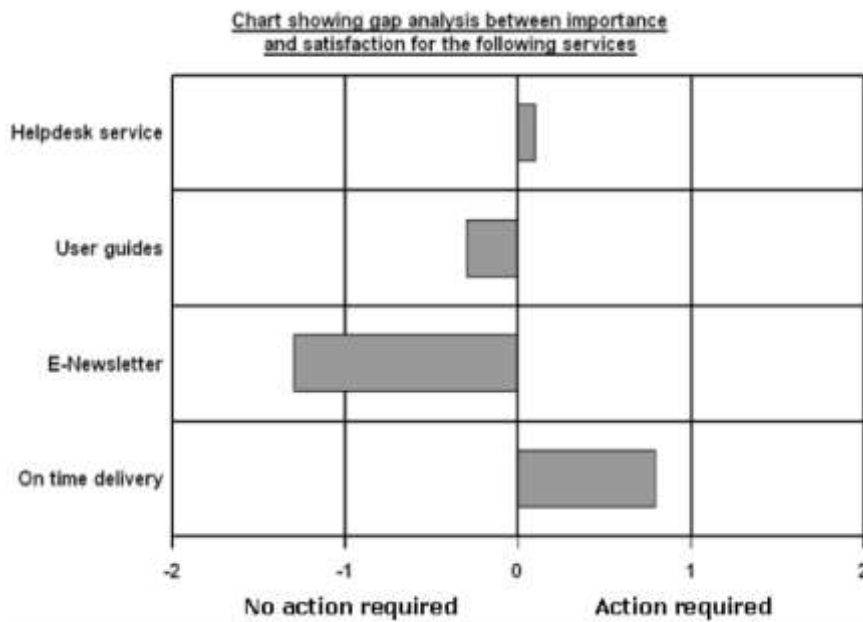


Figure 3. A typical bar chart for the gap analysis method (Yosritzal et al., 2014b)

## 2. Gap Analysis

In the gap analysis method, the average Interest Rate of each item is reduced by the average Satisfaction Level. If the result is positive, the satisfaction level is lower than the level of importance and vice versa.

In Fig. 3 it can be seen that delivery is a factor that needs to be repaired by the operator because the gap between the expectations and satisfaction obtained by the customer is huge. On the other hand, E-newsletter items have been very satisfying to customers so that no action is needed (Yosritzal et al., 2014b).

These items are prioritized for improvement. The difference value (gap) is then plotted into the bar chart so that it can easily be seen which items need priority handling. The typical form of this method is shown in Fig. 3 (Yosritzal et al., 2014a).

The positive value of an item indicates that the expectation is greater than the satisfaction and the higher the gap, the more necessary the thing to be improved. In contrast, the negative values of an item indicate that the expectation is lower than the satisfaction so that no need to invest in this item as it does not need improvement at the moment.

## RESULTS AND DISCUSSION

Surveyor approached as much as possible passengers when they were waiting for their departure time, but only 160 passengers wished to fill the questionnaire. Before analyzing further,

the data was first to check using validity and reliability test. Validity test on the responses on both passenger satisfaction questions and the attributes importance rate shows that all attributes are valid. Similarly, reliability test shows that the Cronbach's Alpha is 0.847 or 84.7% and 0.884 or 88.4% respectively suggesting that all of the questions are reliable. The data were analyzed further using the ISA method.

## Characteristics of Respondents

Characteristics of the correspondents are shown in Table 1, consisting of gender, age, income, education level, nature of living in the Pesisir Selatan, employment, frequency of use of un-official public transportation, travel destination, waiting time, reasons for using un-official public transportation, travel costs, and agreement on the existence of un-official public transportation. Women dominated respondents at 53% with age range between 21-25 years at 34%. Majority of respondents (29%) have income less than Rp. 2,000,000, while in terms of education, the majority of respondents are university students and alumni (41%).

## Quadrant Analysis of Importance Satisfaction Analysis (ISA)

Table 2 shows the mean of Importance and Satisfaction and the gap between the Importance and Satisfaction.

Table 1. Respondents' Characteristics

No	Items	Total	Percentage
1	<b>Gender</b>		
	Women	85	53%
	Man	75	47%
2	<b>Age</b>		
	16-20 Years	32	20%
	21-25 Years	54	34%
	26-35 Years	41	26%
	36-45 Years	20	13%
	46-60 Years	10	6%
	> 60 Years	3	2%
3	<b>Income</b>		
	< Rp. 2.000.000	46	29%
	Rp. 2.000.000 - 4.000.000	37	23%
	Rp. 4.000.000 - 6.000.000	3	2%
	Rp. 6.000.000 - 8.000.000	1	1%
	> Rp. 8.000.000	0	0%
4	<b>Nature of Staying in The South Coast</b>		
	Stay	141	88%
	For a While	12	8%
	Brief Visit	7	4%
5	<b>Job Status</b>		
	Government Employee	8	5%
	Private Employee	14	9%
	Retired	0	0%
	Entrepreneur	35	22%
	Student	66	41%
	Housewife	12	8%
	Other	25	16%
6	<b>Frequency of Use of un-official public transport in a month</b>		
	1-5 Times	135	84%
	5-10 Times	16	10%
	10-15 Times	5	3%
	15-20 Times	2	1%
	> 20 Times	2	1%
7	<b>Travel Origin and Destination</b>		
	Padang - Koto Xi Tarusan	17	11%
	Padang – Bayang	26	16%
	Padang - Iv Jurai	14	9%
	Padang - Batang Kapas	28	18%
	Padang – Sutura	10	6%
	Padang – Lengayang	9	6%
	Padang - Ranah Pesisir	35	22%
	Padang - Linggo Sari Baganti	21	13%
8	<b>Waiting Time</b>		
	0-10 Minutes	14	9%
	10-20 Minutes	38	24%
	20-30 Minutes	38	24%
	30-40 Minutes	40	25%
	40-50 Minutes	15	9%
	50-60 Minutes	10	6%
	> 60 Minutes	5	3%
9	<b>Reason for Using Un-Official Public Transport</b>		
	Time and Speed Considerations	26	16%
	Convenience	43	27%
	Easy	24	15%
	Safety and Safety	15	9%
	The Location That was Tested	24	15%
	Cost	23	14%
	Other	5	3%
10	<b>Travel Expense</b>		
	< Rp 20.000	7	4%
	Rp 20.000 - 40.000	75	47%
	Rp 40.000 - 60.000	48	30%
	> Rp 60.000	30	19%
11	<b>Agreement for the operation of un-official public transport</b>		
	Very Agree Once	8	5%
	Strongly Agree	27	17%
	Agree	81	51%
	Never Agree	8	5%
	Neutral	33	21%
	I Do Not Agree	1	1%
	Disagree	1	1%
	Very Not Agree	1	1%
		Always Do Not Agree	0



Table 2. Value of the *Importance* and the *Satisfaction*

Code	Question	Mean		GAP
		Importance	Satisfaction	
P1	Clarity of the tariff of the Padang-Pesisir Selatan un-official public transportation	4.263	3.719	0,544
P2	Strict sanctions against drivers who use a mobile phone while driving	3.969	3.294	0,675
P3	Strict sanctions against reckless drivers	4.106	3.406	0,700
P4	Courtesy and friendliness of drivers of un-official public transport	4.044	3.650	0,394
P5	Availability of Air Conditioner on board	3.831	3.769	0,063
P6	The availability of music on board	3.850	3.894	-0,044
P7	The number of passengers in accordance with the car capacity	3.925	3.444	0,481
P8	Time to depart according to schedule (on time)	3.825	3.300	0,525
P9	Regulations concerning the prohibition of smoking during the Padang-Pesisir Selatan trip	3.750	3.263	0,488
P10	Clear rules between drivers and passengers about the door to door service	3.975	3.681	0,294
P11	The physical condition of the car	4.219	3.769	0,450
P12	Cleanliness of the car	4.188	3.825	0,363
P13	The neatness of un-official public transport drivers in dressing	3.725	3.513	0,213
P14	The driver's ability to communicate well and effectively with passengers	3.963	3.731	0,231
P15	Attention from the driver regardless of passenger social status	3.988	3.788	0,200
P16	Security of passengers and luggage during the trip	4.200	3.938	0,263
P17	Honesty of drivers	4.100	3.738	0,363
P18	Availability of insurance for passengers in the event of an accident	3.938	3.375	0,563
P19	Un-official public transportation has legality	3.800	3.369	0,431
	<b>Mean</b>	<b>3.982</b>	<b>3.603</b>	<b>0.379</b>

Table 2 shows that the average value of the *Important* is 3.982, and the average value of the *Satisfaction* is 3.603. The average of both important and satisfaction are higher than 3.000 therefore, by definition on the Likert-scale used in the questionnaire, all of the attributes examined in this study are important for passengers, and they perceived the service related to the attributes are satisfied. However, to improve the quality of service of the car, a relative measurement should be conducted.

The relative measurement, in this case, was conducted by pushing the hairline from (3.000; 3.000) to the average of important and average of satisfaction. The average value of *Important* was used for the Y-axis, and the average value of *Satisfaction* was used for the X-axis. The Importance Performance Analysis (IPA) diagram can be seen in Fig. 4.

Based on the Cartesian diagram of the ISA above, it can be seen that Quadrant IV shows factors or attributes that considered as important factors by passengers, but the current perception conditions are not satisfactory so un-official public transportation needs to improve performance on these factors. Factors or attributes that are located in this quadrant are priorities for improvement. The factors included: strict sanctions against drivers who use a mobile phone while driving, strict sanctions against reckless drivers, and courtesy

and hospitality of drivers of un-official public transport. Thus, these items become the top priority scale for un-official public transport to be improved.

The gap is calculated by subtracting the average of *Importance* and average *satisfaction*. The magnitude of the difference between the value of the two variables shows the order of priority in handling that must be done. The result of Gap analysis is shown in Fig. 5.

Fig. 5 shows that the biggest gap value is in the attribute (P3) strict sanctions against reckless drivers when driving un-official public transport, followed by attributes (P2) strict sanctions against drivers who use mobile phone whilst driving, (P18) availability of insurance for passengers in the event of an accident, (P1) clarity on the tariff of the Padang-Pesisir Selatan un-official public transport and (P8) Departure time according to the schedule (on time). While the lowest gap value is an attribute (P6), the availability of music on-board of the un-official public transportation of Padang-Pesisir Selatan and the availability of Air (P5) which indicates that the passenger is satisfied with these attributes.

The split between respondents might provide useful insight to explore further the data. However, in this paper, as the sample size was low, the ISA was conducted only for all data.

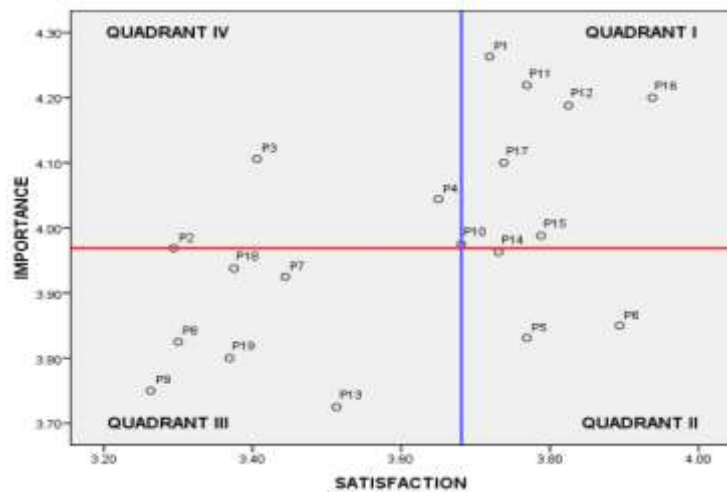


Figure 4. Importance Satisfaction Analysis (ISA) Diagram

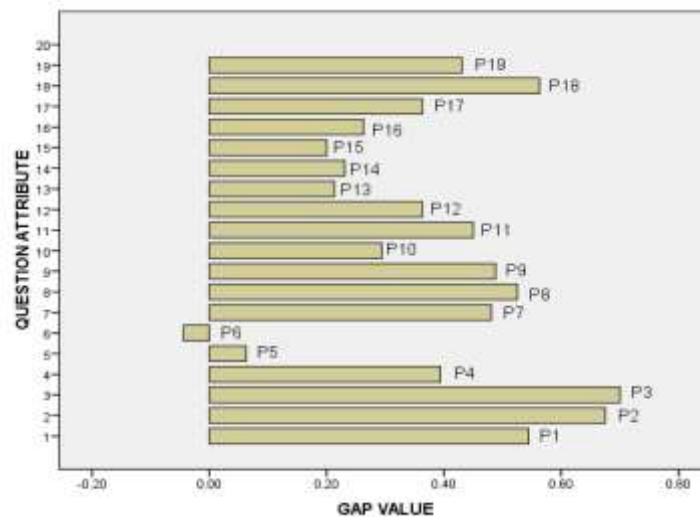


Figure 5. Gap Value Interest with Satisfaction

## CONCLUSION

A study on the importance and satisfaction level of attributes of un-official public transport services on corridor Padang-Pesisir Selatan called "Travel" in the perception of passengers using the Importance Satisfaction Analysis (ISA) method and Gap Analysis method has been conducted. The study found that the Importance Satisfaction Analysis (ISA) shows that in general, all offered attributes are considered necessary by respondents and generally respondents feel quite satisfied with the un-official public transport services on these attributes. Besides, gap analysis shows that 18 out of 19 pair of responses are positive, and one pair is negative. This situation means that the 18 attributes have a value of importance more significant than the value of user satisfaction so that to increase passenger satisfaction, these attributes must be improved,

while 1 attribute has a level of satisfaction higher than the value of importance.

These findings may be also apply to other public transportations with similar services elsewhere. Therefore, we recommend all of the public transport operators either the legal one or considered as un-official one to find and improve the 18 attributes mentioned in the point b of the finding to increase the satisfaction level of passengers.

## REFERENCES

- Arabatzi, G. & Grigoroudis, E. (2010). Visitors' satisfaction, perceptions and gap analysis: The case of Dadia-Lefkimi-Soufliou National Park, *Forest Policy and Economics*, 12(3), 163-172. <http://doi.org/10.1016/j.forpol.2009.09.008>
- Astuti, P., Yosritzal, & Adji., B.M. (2017) Recommended Policy for Improvement of

- Infrastructure and Services of Sultan Thaha Airport based on Customer Satisfaction Analysis. In *Proceeding 4<sup>th</sup> Andalas Civil Engineering Conference 2017 (ACE 2017)*, Padang, Indonesia. (pp 515-526).
- Coghlan, A. (2012). Facilitating reef tourism management through an innovative importance-performance analysis method. *Tourism Management*, 33(4), 767-775. <http://doi.org/10.1016/j.tourman.2011.08.010>
- Freitas, A.L.P. (2013). Assessing the Quality of Intercity Road Transportation of Passengers: An Exploratory Study in Brazil. *Transportation Research Part A: Policy*, 49, 379-392. <http://doi.org/10.1016/j.ttra.2013.01.042>
- Harries S., (1976). State-of-the-art review of Urban Transportation Concepts and Public Attitudes. *US Department of Transportation*, Washington, 1976
- Kesumajansyah, H. & Yuwono, MAB. (2014) Analisa Kepuasan Pelanggan Sebagai Upaya Peningkatan Kualitas Pelayanan di SF Digital Photo Service. *SINERGI*, 18(1), 39-46.
- Likert, R. (1932). A technique for the measurement of attitudes. *Archives of psychology*, 22(140), 55.
- Lo, C. C., Wang, C. H., Chien, P. Y. & Hung, C. W. (2012). An empirical study of commercialization performance on nano products. *Technovation*, 32(3-4), 168-178. <http://doi.org/10.1016/j.technovation.2011.08.005>
- Martilla, J. A. & James, J. C. (1977). Importance-Performance Analysis. *The Journal of Marketing*, 41(1), 77-79. <http://doi.org/10.2307/1250495>
- Matzler, K., Bailom, F. & Hinterhuber, H. H. (2004). The asymmetric relationship between attribute-level performance and overall customer satisfaction: a reconsideration of the importance-performance analysis. *Industrial Marketing Management*, 33(4), 271-277. [http://doi.org/10.1016/S0019-8501\(03\)00055-5](http://doi.org/10.1016/S0019-8501(03)00055-5)
- Peraturan Pemerintah Nomor 41 Tahun 1993 tentang Angkutan Jalan. *Direktorat Jenderal Perhubungan Darat*, Jakarta. 45 hlm. (In Eng: Government Regulation Number 41 of 1993 Article 1 about Road Transportation).
- Sorensson, A. & Friedrichs, Y. V. (2013). An importance-performance analysis of sustainable tourism: A comparison between international and national tourists. *Journal of Destination Marketing and Management*, 2(1), 14-21. <http://doi.org/10.1016/j.jdmm.2012.11.002>
- Tonge, J. & Moore, S. A. (2007). Importance-satisfaction analysis for marine-park hinterlands: A Western Australian case study. *Tourism Management*, 28(3), 768-776. <http://doi.org/10.1016/j.tourman.2006.05.007>
- Undang-Undang Nomor 14 Tahun 1992 tentang Lalu Lintas dan Angkutan Jalan. *Direktorat Jenderal Perhubungan Darat*, Jakarta. pp.16. (In Eng: Indonesian Road Traffic Law Number 14 of 1992 Article 1).
- Wang, R. & Tseng, M. L. (2011). Evaluation of international student satisfaction using fuzzy importance-performance analysis. *Procedia: Social and Behavioural Sciences*, 25, 438-446. <http://doi.org/10.1016/j.sbspro.2012.02.055>
- Warpani, S, (1990). *Merencanakan Sistem Perangkutan*. Penerbit ITB, Bandung
- Yosritzal, Adji, B.M., & Dissanayake, D. (2016). Indonesian experience on travel time use on-board of commuter rail services. *Transportation Research Procedia*. 25, 2705-2716. <http://doi.org/10.1016/j.trpro.2017.05.205>
- Yosritzal, Adji B.M., Nofrizal, F., & Andika, R. (2014a). Aplikasi Metode *Importance-Satisfaction Analysis* (ISA) pada Penentuan Prioritas Penanganan Pelayanan Kereta Api Padang-Pariaman. In *Proceeding of the 1st Andalas Civil (ACE) Conference 2014*, Padang, Indonesia. (pp. 1-10)
- Yosritzal, Purnawan, & Asmery, V. (2017). Competency of West Sumatera Provincial Road Construction Project Supervising Consultants in Owner Perception. *International Journal of Civil Engineering and Technology IJCIET*, 8(10), 743-752.
- Yosritzal, Dissanayake, D., & Bell, M.C. (2014b). Importance-Satisfaction Analysis of Rail Services on the UK with Respect to Travel Time Use. In *Proceeding of the 17<sup>th</sup> FSTPT International Symposium*, Jember, Indonesia. 2(1).
- Yosritzal, Purnawan, Putri, E.E., & Ratu, E.K. (2018). Priority Setting for Competency Development Training Topics for Road Construction Site Managers to Reduce the Risk of Construction Failure. *MATEC Web of Conference*, 229, 01003. <http://doi.org/10.1051/matecconf/201822901003>
- Yahya, N. and Bell, M. C. (2010). Assessment of service quality and satisfaction from passengers' perspective to inform bus operator decision making. *UTSG 42nd Annual Conference*. University of Plymouth, January 5-7, 2010.