



Research Paper

## Service Management of Bus Transjakarta DKI Jakarta Based on the Passenger Loyalty

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**Abstract:** *The sharing of views on the management of buses by Transjakarta DKI Jakarta is an interesting topic, because there is still space for improvement in the areas of management, particularly for the satisfaction and loyalty of the passengers. The purpose of this research is to elaborate on a study of the influence of service quality and sustainability on the satisfaction and loyalty of passengers, elaborate a study of the effect of satisfaction on loyalty on the service of Transjakarta, and strategies to improve Transjakarta's services. To process data from 260 respondents, Structural Equation Modeling" (SEM) is used. SEM is able to estimate the relationship between multiple variables, so that more accurate test results can be obtained on the measurements that are slightly more complicated. The Analytical Hierarchy Process (AHP) is used as a tool to complete decision making to improve the Transjakarta services obtained from the opinions of 9 experts. Based on the SEM results of this research, it can be confirmed that the effects of the service quality variable on satisfaction, sustainability on satisfaction, service quality on loyalty, sustainability on loyalty, and satisfaction on loyalty are positively significant. The AHP result indicates the main factor of the policy with the main choice strategy in the areas of safety. Therefore, support by Transjakarta management is needed as the main actor. It is very important to review several policies in the context of efforts to improve the integrated services of Transjakarta.*

**Keywords:** *Service management, strategy to increase, Transjakarta DKI Jakarta, Variable servqual, sustainability, satisfaction, loyalty*

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### I. Introduction:

Many developing countries, including Indonesia (DKI Jakarta), have faced diverse challenges in urban public transport by bus, both in the dimensions of reliability, empathy, tangibility, assurance, and responsiveness. This is in line with the statement of Ngoc, A. M., Hung, K. V., & Tuan, (2017) that in developing countries, there are several areas of concern for public transport services, especially bus services, namely safety and reliability. Therefore, it's extremely important, in addition to the motivation to reduce private car use, as stated by (Hair Jr, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, 2017). Impacts on the economy, social and environment will arise if improvements are not made because public transportation is one of the essential aspects of society in the community of a country. Well-organized and efficient transportation management is very useful for economic and industrial cycle activities as well as a means of moving between places in the community. This is reinforced by the statement from (Le-Klahn, D. T., Gerike, R.&Hall, 2014) that public transportation contributes to social, environmental, and economic benefits for the lives of all levels of society at large, especially in lower-middle-income economies. Transjakarta, which became the subject of research, was the first Bus Rapid Transit (BRT) transportation system in Southeast and South Asia and has been operating since 2004 in DKI Jakarta. Transjakarta was designed as a mode of mass transportation supporting the activities of people in the most congested capital in the world, with the longest track in the world (251.2 km) with 260 bus-shelters spread over 13 corridors. Transjakarta initially operated from 05.00 am - 22.00 pm, and now provides 24-hour service in several corridors. The BRT system is similar in design to the Trans-Mileno system in Bogota, Colombia.

Transjakarta itself has a vision of "Connecting the Life of Jakarta" and a mission of "Together we provide integrated transportation services to ease and bring happiness to the life of Jakarta". known by the slogan BISA, with the elaboration of being happy, working to improve customer satisfaction, being innovative in developing the best integration services, developing a passion for excellence, and delivering a mandate to work together to advance Jakarta. From the derivation of the spirit of Transjakarta's vision and mission above, it seems that it has not been able to work it out properly, has not been optimal in responding to complaints about servqual in line with a case study conducted by (Hasrina, P, & Sardjito (2014) in corridor I Blok M–Jakarta, wherein the number of passengers dropped by 10,559 people. In 2012, the number of passengers carried by Transjakarta was 2,196,205 people, and in 2010, the number of passengers carried was 2,206,764 people. Zahedi, Z., & Wijaya, (2011) stated from the results of their research in the corridor 3 of Transjakarta. The increasing number of road users contributes to congestion, so the government has a vital role in finding a solution, namely the operation of the busway fleet. In fact, the number of available fleets is not sufficient to serve passengers, so there is often a buildup of passengers waiting at high densities of bus stops. It contributes to low levels of customer satisfaction and causes passengers likely to shift from public transportation to private vehicles sooner or later. It will become one of the main causes of traffic congestion in DKI Jakarta. Putri Yulfa Rianti & Retnowati WD Tuti, (2017) stated that the service quality of Transjakarta is still not good. It can be seen from the five dimensions of servqual namely reliability, responsiveness, assurance, empathy, and tangibility. It has bad customer service when viewed from numerous passenger complaints, such as what happened in the most crowded corridor (Corridor 8), which is not proportional to the number of buses available, with long lines and crowded queues of passengers, often unsterile bus lanes because there are still many private vehicles crossing the Transjakarta route, where theft and sexual harassment occur the most. The driving style of the driver makes passengers concerned with the safety of passengers. Pontan, Darmawan, & Veronika, (2019) stated that several indicators still become the passenger complaints because the indicators do not meet their expectations. This is based on the results of data analysis calculated using the Index Mean of 126 respondents at 63 bus stops. In addition, phenomena in the field indicate that complaints related to the relatively long waiting times for buses in some corridors, toilet facilities are not available at several bus stops, the bus is running late or does not match the scheduled arrival time, the number of buses available is insufficient because it is not proportional to the number of corridors available, and crowded queues of passengers at some bus stops, the number of passengers carried exceeds its capacity, especially during morning and evening peak hours, TV screens in order to display departure and arrival times are often invalid (incorrect, offline), drivers have negative attitudes of talking on their phones while driving, security reasons and other factors are still common. This is what causes an indication of the level of satisfaction to lead to a slightly decreased passenger loyalty, so that there is a tendency for people to prefer travelling by private vehicles or using other modes of transport because they provide a sense of security and comfort.

## **II. Literature Review:**

The previous studies were seen as very important since it can be used as references, comparisons, and facilitating steps in completing research process. This research has similarities and differences with previous research. In previous research, both quantitative and qualitative approaches were used, while this research used a quantitative approach. The variables used in previous studies were servqual dimension, but there are several studies with more specific variables such as travel time, bus routes, ticket prices, demographic aspects, and so on, and the results of deviations from the usual practice of using servqual, namely using McKnight, Pagano dan Paaswell's (1986) service quality dimensions, namely reliability; extent of service; comfort; safety; and affordability (RECSA). Meanwhile, in this research, exogenous variables or those that explain other variables were servqual (X1) consisting of reliability, empathy, tangibility, assurance, and responsiveness, and the new variable was sustainability (X2) consisting of economic, social, and environmental variables. Intervening or mediator variables were satisfaction (Y) consisting of service quality, product quality, and price quality, and endogenous variables, or those that depend on other variables, were loyalty (Z) consisting of repeat purchase, referrals, trust, emotional bonding. Differences were also found in the research site, research period, and respondents used as research samples. In this research, there were 18 previous studies and 50 state of the art related to several variables, namely servqual, sustainability, satisfaction, and loyalty. According to Anisimova (2007), consumer loyalty is defined as consumer loyalty to a company, brand, and product. This is the same as developing trust, which is defined as a customer's being satisfied by a brand because it meets their desire. Kaynak, E, Salman, G. G, & Tatoglu, 2008 defines loyalty as a positive attitude towards a brand represented by continued purchasing of the brand over time. Evanschitzky, H, Ramaseshan, B, Woisetschlager, D. M, Richelsen, V, Blut, M, & Backhaus, 2012 explains that consumer loyalty is a customer's commitment to a brand/store or supplier based on the positive attitude of long-term purchases. Kumar, V, Batista, L, & Maull, 2011 define loyalty as " the degree to which a customer exhibits repeat purchasing behavior from a service provider, possesses a positive attitude, and considers using only the provider's product/service when the need for this service exists." As a result, the measurement of customer loyalty must involve not only to repurchase

intention, but also consumer responses. These responses are very helpful if there is a genuine intention to spread positive word of mouth (Jalilvand, M. R, & Samiei, 2012). Customer loyalty is defined as a positive experience which leads to buying products, even when that may not appear to be the most rational decision (Ganiyu, R. A, 2012). Bruhn, M. & Grund, 2000 the main output of customer satisfaction is loyalty. This means that the company can make larger profits from loyal customers, since loyal customers will continue returning for repeat purchases. Loyalty is a psychological state generated by emotional expectations and cannot be combined with the consumer's feelings about their experiences when consuming a product (Grigoroudis, E, & Siskos, 2009). If the service is bad and uncomfortable, the customers will potentially switch to other options, which leads to a lack of loyalty (Ndubusi, Nelson, Oly, 2007). Griffin, 2010 there are four dimensions of customer loyalty, namely: making to repeat purchases, repurchasing products, or purchasing additional products. (Roghianian, P, & Gheysari, 2013); (Philip and Kevin. L Keller Kotler, 2009) state that retaining existing customers is more important than attracting new ones. Hiscock, R, Macintyre, S, Kearns, A, Ellaway, 2002 states that the bus is able to provide services during the trip so as to beat boredom while traveling. Apart from not being able to serve individuals, buses are also closely related to delays, and the service may not be available when needed. Customers will be satisfied with the service if they believe that the price charged is equivalent to the service provided. This is in line with the research conducted by (Shiftan, Y, Sharaby, 2012) that showed that cheap prices will attract more customers, have a big impact on whether customers will continue to use the service so that it can increase the company's revenue and profits. Important factors needed to achieve significant service quality have a significant effect on customer trust, satisfaction, and loyalty (Cerri Shpetim, 2012). Gatersleben, B, & Uzzell, 2007 states that public transportation makes customers stressed because of uncertainty and long travel time. Something that is an effort to explore other people's feelings so that they are able to interpret what other people feel (Svenaesus, 2015), Indicating that it is a bond between feelings that is raised by both customers and service providers. The formation of satisfaction results from the customer's overall emotional response to the perception of previous expectations and the perceived performance after consumption (Chen, 2008). Bergman, B, & Klefsjo (2010) stated satisfaction is part of a marketing strategy and must play a major role in the world of marketing. It indicates that the form of satisfaction must be maintained. If the customer is satisfied with the desired service or product, then succeeded in implementing the marketing policy plan that has been set. (Philip and Kevin Lane Kelle Kotler, 2012) state that satisfaction is a collection of attributes of a product or service. (Veloutsou, 2005) explains that there is a difference between customer satisfaction provided by goods and services. Almsalam, 2014) defines service quality as a measure of the service providers ' ability to meet customer expectations. Thus, the influence of the expected and perceived service factor. In the service quality model developed by Kang, G. D, & James (2004), there are functional and technical quality dimensions. The technical quality dimension is " what " the customer gets (the output), while the functional service-related variable refers to " how " the customer gets (the process). Oliver, (2007) explains that satisfaction is a pleasant fulfillment, namely the customer's expectations fulfilled. The definition of service product quality states that it is the result of a comparison between expectations, services, and perceptions about the way services are performed (Caruana, 2002). Parasuraman, A, Zeithaml, V, & Berry, (2002) interprets Oliver's definition of satisfaction as being the customer's evaluation of a product or service in terms of whether the product or service has met the needs and expectations of customers, because the manifestation of satisfaction varies from everyone. Relationship satisfaction and repurchase intention can vary depending on the type of product purchased (Al-Alak, B. A, and Alnawas, 2010). Customer satisfaction is determined by the product quality and price desired by the customer, as stated by (Bei, L. T, & Chiao (2001), " Considering product quality and price as the foundation to build consumer satisfaction, " while (Khan, 2012) states that " Product quality is a major determinant of customer satisfaction." Furthermore, Ehsani, Z and Ehsani, (2015) conclude that " price can be used as a resource to increase profits and customer satisfaction." Ceder, (2007) stated that it is necessary to hear input from passengers about better bus arrangements, passengers are not transported beyond capacity in order to avoid accidents as well as waste time. Empathy is a separate will that comes from someone to be able to understand someone's emotions and try to solve existing problems with the actions given. Batson, C. D, & Ahmad, (2009). The definition of tangible, according to Kim, (2009) is the ability of an organization to show the existence of an appearance to outsiders and the ability to show the physical facilities and infrastructure of the organization. The personal appearance of each service provider to passengers is also a form of implementation of the tangible dimension. Olejarski, (2011) states that the facilities owned, the equipment that looks physical, and the appearance of every professional person are direct evidence of tangible. Fuller, (2005) states that in terms of safety in using transportation, it is necessary to emphasize the driver to avoid accidents where the safety level of all passengers is in the hands of one driver. Customers want the best service quality and a response to what it wants (Islam, R, Chowdhury, M. S, Sarker, M. S, & Ahmed, 2014). Kuhlman, T, & Farrington, (2010) sustainability is defined as economic development that meets the needs of the present generation without compromising the opportunities and capabilities of future generations. The term sustainable transport came into use as a logical follow-up to sustainable development, and was used to describe modes of transport, and transport planning systems, which are consistent with a broader concern for sustainability Borzacchiello, M. T,

Torrieri, V, (2009). Black, (2010) states that sustainable transportation is transportation in which the beneficiaries pay the full social costs, including those that will be paid by future generations. Gupta, J, & Vegelin (2016) stated sustainable development has the aim at improving people's welfare and meeting human needs and aspirations. Sustainable development is basically aimed at seeking an equal distribution of development between present and future generations. The concept of sustainable development (Pizzey, J. C, & Toman, 2002) includes everyone and everything consisting of various aspects of human activity and human relations with the environment, and its implementation requires collaboration between people and institutions representing various professions, starting points, and visions. Thus, a relatively clear concept when referring to environmental issues will be complex, less clear if it includes the entire complex about interrelated environmental, economic, social, and political issues. Customer satisfaction is part of a marketing strategy and, therefore, must play a crucial role in the world of marketing (Bergman, B, & Klefsjo, 2010). This means that the form of consumer satisfaction must be maintained and retained. Olsen, (2007) states that the strategic plan is a formal framework, which provides an overview of the company in carrying out the strategy that has been chosen and the direction of a company in the future. Usually, planning is done for the entire company or focuses on a major function such as a division or department. Ibarra-Rojas, O. J, Delgado, F, Giesen, R, & Munoz, (2015) states the need to prepare a transit bus strategy that is operated in parallel with the main vehicle where several stopping points can be passed so that the arrival scheduled is faster.

### **III. Research Methods:**

This research focuses on Transjakarta bus services in DKI Jakarta using 2 exogenous variables, namely servqual (X1) consisting of dimensions of reliability, empathy, tangibility, assurance & responsiveness, and sustainability variables (X2) consisting of dimensions of economic, social, and environmental. An intervening variable was satisfaction (Y) consisting of dimensions of service quality, product quality, and price quality, and an endogenous variable (output) or often called the dependent variable, was loyalty (Z) consisting of dimensions of repeat purchase, referrals, trust and emotional bonding. Data were gathered using a questionnaire comprised of statements representing a variety of research variables and administered to a predetermined number of respondents based on the methodology to ensure that the sample size was representative of the population. The object of this research was Transjakarta passengers, and the research was conducted at several Transjakarta bus stops, namely West Jakarta, East Jakarta, South Jakarta, North Jakarta, and Central Jakarta. The samples used in this research were 260 Transjakarta passengers (from 300 questionnaires distributed), and the data was analyzed using SEM. In addition, there are 9 (nine) experts in their fields who are used to analyze the results of the Analytical Hierarchy Process (AHP). The sampling technique used was convenience sampling, which is a type of non-probability sampling. Anyone who was convenient to a Transjakarta passenger waiting for the arrival of the bus at the bus stops or after arrival was considered a respondent. The sample size is very sensitive to the results of statistical tests. Roscoe in (Sugiyono, 2017) suggested that an appropriate sample size for most research is between 30 to 500 samples. Then, (Hair, J. F., Ringle, C. M., & Sarstedt, 2011) also suggested that the minimum sample size should be 5-10 times the number of parameters or indicators used. The number of indicators in this research was 39, so a minimum of  $39 \times 5 = 195$  samples up to  $39 \times 10 = 390$  samples were needed. Therefore, because there is sufficient and flexible space from the expert opinion above, 300 questionnaires were distributed to respondents, and the researcher got 260 back for processing the data.

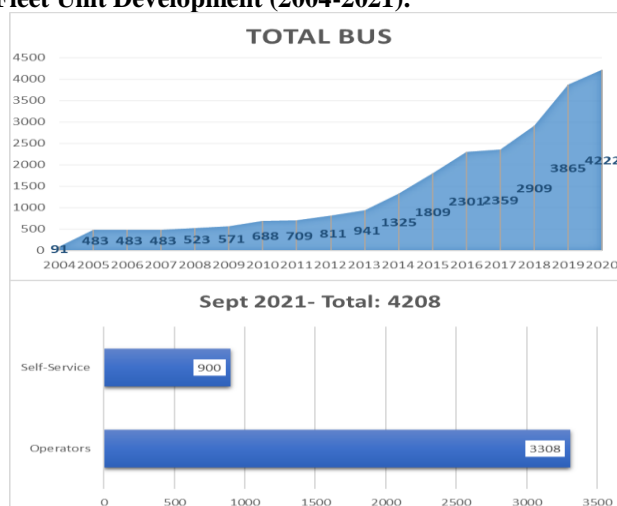
Closed statement questions in this research required respondents to select an answer by crossing or agreeing on the set of choices provided in the answer boxes with a 5-point Likert. The Analytical Hierarchy Process (AHP) was used as a tool for reviewing strategies to improve Transjakarta services. The AHP is a complex and unstructured situation into its component parts; arranging these parts into a hierarchical order, assigning numerical values to subjective judgments on the relative importance of each variable, and synthesizing the judgments to determine which variables have the highest priority and should be acted upon to influence the outcome of the situation.



#### IV. Findings and Discussion:

#### 4.1. Overview & Perspective of Transjakarta Business Strategy

#### 4.1.1. Transjakarta Bus Fleet Unit Development (2004-2021).

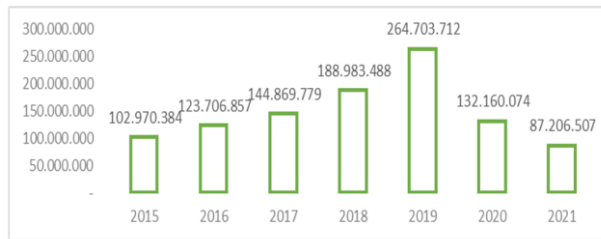


Source: Data processed (2021)

Figure 4.1 above explains that in 2004, Transjakarta had a fleet size of 91 buses, from 2005 to 2007 was 483 buses, in 2008 was 523 buses, in 2009 was 571 buses, in 2010 was 688 buses, in 2011 was 709 buses, in 2012 was 811 buses, in 2013 was 941 buses, in 2014 was 1,325 buses, in 2015 was 1,809 buses, in 2016 was 2,301 buses, in 2017 was 2,359 buses, in 2018 was 2,909 buses, in 2019 was 3,865 buses and in 2020 there were 4,222 buses. Until September 2021, Transjakarta operated 4,208 buses. The composition of self-management was 900 buses, and through partnerships with other bus operators such as Bianglala Metropolitan, PT. Eka Sari Lorena, Kopaja, Mayasari Bakti, Perum PPD, Perum Damri, PT. Trans Mega Trans. PT. Trans Mayapada Busway, PT. Primajasa Perdanaraya Utama, PT. Jakarta Mega Trans consists of 3,308 buses. From the perspective of Transjakarta's business strategy, of course there are advantages and disadvantages if Transjakarta has integrated with other operators. This is closely related to the implementation of Transjakarta operations so that the company can work with partner operators (consortium operators, auction operators, and existing operators). The basis refers to Governor Regulation No. 103 of 2007 concerning macro transportation patterns aiming towards improving services and providing safe, integrated, orderly, smooth, comfortable, economical, efficient, effective, and affordable transportation services for the wider community. In accordance with Governor Regulation No. 96 of 2018 concerning the integration of feeder transportation with the bus rapid transit system, in order to support efficient, fast, safe, comfortable, and affordable mass public transportation services, it is necessary to integrate all feeder transportation with public transportation operated by the local government through the Jakarta Transportation Limited company. Governor Regulation No. 11 of 2019 is the amendment of Governor Regulation No. 96 of 2018 concerning the integration of feeder transportation with Bus Rapid Transit system in which to regulate the driver as one of the elements supporting the integration of feeder transportation with Bus Rapid Transit system which includes partnership points for operator services at the price of Rupiah per kilometer or hereinafter referred to Rp/Km, is the cost of a transport service travelling per kilometer which is paid by the company. The output is that each operator carries out services in accordance with the company's standards (SOP) and minimum service standards (SPM) that have been set, and there will be fines for the violation. The advantages or benefits for Transjakarta, from each operator who is invited to cooperate will certainly provide the best and maximum service in accordance with the company's standards (SOP) and agreed minimum service standards (SPM), making travel a lot easier for passengers, while the drawbacks are incurred costs and transportation subsidies.

Although Transjakarta has collaborated with several other operators, self-management is still needed. This is based on Governor Regulation No. 96 of 2018 and Governor Regulation No. 11 of 2019 above, where the purpose of this self-managed service is so that Transjakarta is not held hostage by other operators if at any time there is a strike action by other operators. so that Transjakarta can assist with its self-managed fleet to continue to provide transportation services for passengers. In addition, it is also very useful as an operational vehicle assistance by bus (BKO). Needed in some crowded corridors or routes during peak hours, passengers can be diverted to perform faster services.

4.1.2. The number of passengers carried-up



Source: Data processed (2021)

According to Figure 4.2, the number of passengers carried by Transjakarta in 2015 was 102,290,384; in 2016, it was 123,706,857; in 2017, it was 144,867,779; in 2018, it was 188,983,488; and in 2019, it was 264,703,712 passengers. In 2020, there was a -50.1% or 132,160,074 drop in passengers, and the number of passengers carried from January 2021 to September 2021 was 87,206,507, meaning that there was a -34.0 % drop in passengers.

4.2. SEM Findings

4.2.1. Results of Inspection Offending Estimates.

The analytical criteria used include: 1) no negative error variances (*Heywood cases*), and 2) standardized factor loading between 0.5 and 1. All indicators have a standardized loading of 0.5-1.0, so it can be concluded that the measurement model has no offending estimate, Thus the test can be continued.

Variables	Items	Standard Error = 0.00	Loading Factor (<0.5-1)		X1.1	0.22	0.88
Loyalty	Z.1	0.32	0.82	Servqual	X1.2	0.20	0.89
	Z.2	0.31	0.83		X1.3	0.23	0.88
	Z.3	0.28	0.85		X1.4	0.20	0.89
	Z.4	0.21	0.89		X1.5	0.33	0.82
	Z.5	0.22	0.88		X1.6	0.21	0.89
	Z.6	0.33	0.82		X1.7	0.28	0.85
	Z.7	0.32	0.82		X1.8	0.24	0.87
	Z.8	0.42	0.76		X1.9	0.24	0.87
Satisfaction	Y.1	0.41	0.77	Sustainability	X1.10	0.21	0.89
	Y.2	0.40	0.78		X1.11	0.21	0.89
	Y.3	0.38	0.79		X1.12	0.24	0.87
	Y.4	0.41	0.77		X1.13	0.31	0.83
	Y.5	0.40	0.78		X2.1	0.33	0.82
	Y.6	0.40	0.77		X2.2	0.27	0.85
	Y.7	0.31	0.83		X2.3	0.35	0.81
	Y.8	0.34	0.81		X2.4	0.44	0.75
	Y.9	0.34	0.81		X2.5	0.25	0.87

Source: Data processed (2021)

Table 4.1 Results of Inspection: Offending Estimates.

4.2.2. Construct Reliability Calculation Results

From the overall reliability calculation, all CR values are above 0.70 and has good reliability.

Variables	Standard Loading	Error	Construct Reliability			Score of CR	Servqual			11.32	1.281.424	3.12	0.98
			Σ STd. Loading	Σ STd. Loading <sub>2</sub>	Σ Error		X1.1	0.88	0.22				
Loyalty						0.95	X1.2	0.89	0.20				
Z.1	0.82	0.32	6.67	444.889	2.41		X1.3	0.88	0.23				
Z.2	0.83	0.31					X1.4	0.89	0.20				
Z.3	0.85	0.28					X1.5	0.82	0.33				
Z.4	0.89	0.21					X1.6	0.89	0.21				
Z.5	0.88	0.22					X1.7	0.85	0.28				
Z.6	0.82	0.33					X1.8	0.87	0.24				
Z.7	0.82	0.32					X1.9	0.87	0.24				
Z.8	0.76	0.42				X1.10	0.89	0.21					
Satisfaction						0.94	X1.11	0.89	0.21	7.41	549.081	2.9	0.95
Y.1	0.77	0.41	7.11	505.521	3.39		X2.1	0.82	0.33				
Y.2	0.78	0.40					X2.2	0.85	0.27				
Y.3	0.79	0.38					X2.3	0.81	0.35				
Y.4	0.77	0.41					X2.4	0.75	0.44				
Y.5	0.78	0.40					X2.5	0.87	0.25				
Y.6	0.77	0.40					X2.6	0.81	0.34				
Y.7	0.83	0.31					X2.7	0.85	0.28				
Y.8	0.81	0.34					X2.8	0.82	0.33				
Y.9	0.81	0.34				X2.9	0.83	0.31					

Source: Data processed (2021)

Table 4.2: Construct Reliability Calculation Results

4.2.3. Goodness of Fit Test (GoF).

Whereas P-Values, NCP Interval, RMSEA, ECVI, NFI, NNFI, CFI, IFI, RFI, CN, SRMR, GFI, and AGFI meet the criteria of goodness of fit, namely, out of 15 GOF test criteria, the use of 4-5 GOF criteria was considered sufficient to assess the feasibility of a model (Hair, et. al., dalam Haryono, 2017, h.77). Even though the probability is not significant, this is sufficient to meet the requirements of the goodness of fit test.

Goodness of Fit Measure Critical Value	(Cut off Value)	Scores	Evaluations
Chi Square ( $\chi^2$ )	Smaller value	1714.13	Marginal Fit
P-Values	$P \geq 0,05$	0.00	
NCP Interval	Smaller value Narrow intervals	1050.13 931.62 ; 1176.29	Good Fit
RMSEA	$\leq 0,08$	0.078	Good Fit
ECVI	Smaller value closed to ECVI Saturated value	$M^* = 7.51$ $S^* = 6.02$ $I^* = 279.80$	Good Fit
NFI	$\geq 0,90$	0.98	Good Fit
NNFI	$\geq 0,90$	0.98	Good Fit
CFI	$\geq 0,90$	0.99	Good Fit
IFI	$\geq 0,90$	0.99	Good Fit
RFI	$\geq 0,90$	0.97	Good Fit
CN	$\geq 200$	116.63	Un-Fit
SRMR	$\geq 0,05$	0.060	Good Fit
GFI	Close to 1	0.75	Marginal Fit
AGFI	Close to 1	0.70	Marginal Fit

Source: Data processed (2021)  
Table 4.3: Goodness of Fit Test.

#### 4.2.4. Modeling of Structural Equations

After calculating and analyzing the confirmatory factor analysis (CFA) for each latent variable, the structural equation modeling can be conducted. From the calculation results using Lisrel 8.8, the researcher obtained a path diagram as follows:

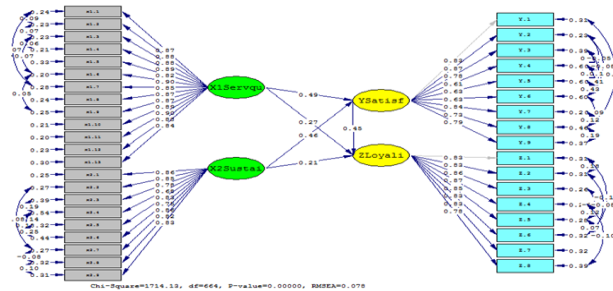
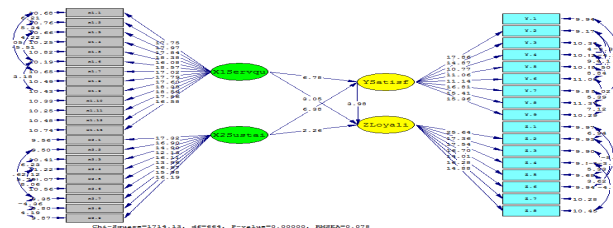


Figure 4.3: Structural Model (standardized solution).  
Source: Data processed (2021).



Source: Data processed (2021)  
Figure 4.4: Structural Model (T Values).

Source: Data processed (2021)

Based on the results of the Lisrel 8.80 output above, it can be concluded that the causal relationship equation above shows overall 5 (five) path coefficients are significant. According to (Setyo Hari Wijanto (2008), an absolute t-value  $> 1.96$  indicates a significant path coefficient. Based on the results of the SEM analysis in Figure 4.4, the causal relationship between the independent and dependent variables is as follows:

#### Equations Structural

$$Y_{Satisf} = 0.49 * X1_{Servqu} + 0.46 * X2_{Sustai}, \text{Errorvar.} = 0.16, R^2 = 0.85$$

(0.075)    (0.075)    (0.027)

6.78    6.38    6.03

$$Z_{Loyal} = 0.45 * Y_{Satisf} + 0.27 * X1_{Servqu} + 0.21 * X2_{Sustai}, \text{Errorvar.} = 0.21, R^2 = 0.79$$

(0.11)    (0.088)    (0.091)    (0.030)

3.98    3.05    2.26    6.94

Figure 4.5: Structural Equation Model Output

The coefficient of determination ( $R^2$ ) is used to measure how well the regression predictions approximate the real data points (goodness of fit). This coefficient of determination measures the percentage of

the total variation of the dependent variable. From the calculations carried out, the coefficient of determination obtained can be seen in Figure 4.4: for the dependent variable (satisfaction) is 0.85, indicating that 85% of the existing variations can be explained by the independent variables servqual and sustainability, while the remaining 0.15 or 15% is explained by external variables. Servqual and sustainability have a significant positive relationship with satisfaction (Y) with coefficient values of 0.51 and positive values of 0.48. While the dependent variable (loyalty) is 0.79, indicating that 79% of the existing variations can be explained by the independent variables servqual, sustainability, and satisfaction, while the remaining 0.21, or 21% is explained by external variables. Servqual, sustainability and satisfaction have a significant positive relationship with customer loyalty. This is indicated by the coefficient values of 0.43, 0.27, and positive values of 0.21.

### 4.3. Testing of Hypotheses

Hypothesis	Statement	T-Value	Remark
H <sub>1</sub>	Servqual has an effect on Satisfaction of transportation services.	6,78	Data supports the hypothesis.
H <sub>2</sub>	Sustainability has an effect on Satisfaction of Transjakarta bus services.	6,38	Data supports the hypothesis.
H <sub>3</sub>	Servqual has an effect on Loyalty of Transjakarta bus services.	3,05	Data supports the hypothesis.
H <sub>4</sub>	Sustainability has an effect on Loyalty of Transjakarta bus services.	2,26	Data supports the hypothesis.
H <sub>5</sub>	Satisfaction has an effect on Loyalty of Transjakarta bus services.	3,98	Data supports the hypothesis.

Source: Data processed (2021)  
Table 4.3: Testing of Hypotheses

#### 4.3.1. Discussion of Hypotheses

##### 1. Servqual's impact on customers' satisfaction with Transjakarta bus services

In the results of testing the first hypothesis (H<sub>1</sub>), it was found that the results of the analysis support H<sub>1</sub>, namely that Servqual has the impact on satisfaction of Transjakarta bus services, because the T-value is 6.78 > 1.96. From the test results, it shows that Servqual has a significant effect on the satisfaction of Transjakarta bus services. This means that Servqual could result in a significant change in the satisfaction of Transjakarta bus services. Furthermore, the path coefficient value of the Servqual on Satisfaction is 0.49, indicating that Servqual has a positive relationship with Satisfaction of Transjakarta bus services, according to data processing results obtained with Lisrel 8.8. Based on the research results, it can be concluded that servqual plays an important role in increasing passenger satisfaction. The better and the improved servqual provided by Transjakarta will automatically increase passenger satisfaction. Passengers' satisfaction and dissatisfaction are part of the passenger experience whilst using a product or service. The expected value formed will be a comparison for passengers compared to other similar products. So, this assessment may directly affect the views and ratings of passengers.

##### 2. The impact of sustainability on customers' satisfaction with Transjakarta bus services

In the results of testing the second hypothesis (H<sub>2</sub>), it was found that the results of the analysis support H<sub>2</sub>, namely that sustainability has the impact on satisfaction of Transjakarta bus services, because the T-value is 6.38 > 1.96. From the test results, it shows that sustainability has a significant effect on the satisfaction of Transjakarta bus services. This means that sustainability could result in a significant change in satisfaction of Transjakarta bus services. The path coefficient value of the sustainability on satisfaction is 0.46, indicating that sustainability has a positive relationship with satisfaction for Transjakarta bus services, according to the results of data processing using Lisrel 8.8. Based on the research results, it can be concluded that there is a sustainable transportation system which is marked by a decline in the use of private transportation, and a start to switching to public transportation. In this case, the use of Transjakarta bus services so as to reduce emissions contributed to environmental damage, including economic, social, and environmental aspects. Sustainable public transport is a mode of transportation with renewable fuels that minimizes emissions detrimental to the local and global environment and prevents unnecessary deaths, injuries, and congestion. The important points that can be underlined in this sustainability concept are resource efficiency, reducing pollution and the suitability of bus services with community expectations. An alternative that can be made is the use of more environmentally friendly alternative fuels. By using these alternative fuels, it is hoped that bus transportation will become more environmentally friendly. Regarding the efficiency and suitability of bus transportation services with community expectations, it should be based on direct surveys and research on the current situation of the service. Sustainable development is basically intended to seek an equal distribution of development between present and future generations.



### 3. The Impact of Servqual on Transjakarta Bus Service Loyalty

In the results of testing the third hypothesis ( $H_3$ ), it was found that the results of the analysis support  $H_3$ , namely that Servqual has a significant effect on the loyalty of Transjakarta bus services, because the T-value is  $3.05 > 1.96$ . From the test results, it shows that Servqual has a significant effect on the loyalty of Transjakarta bus services. This means that Servqual could result in a significant change in the loyalty of Transjakarta bus services. According to the results of data processing with Lisrel 8.8, the path coefficient value of the Servqual on Loyalty is 0.27, indicating that Servqual has a positive relationship with Loyalty for Transjakarta bus services. Based on the research results, it can be concluded that the servqual variable has a significant effect on loyalty. So far, the service quality provided by Transjakarta to passengers has been relatively good because of several research indicators such as easy access by the public, good facilities, being affordable, providing quality customer service, clean and well-maintained buses, being safe, and so on. Servqual is the quality of service used to ensure that customers will make repeat purchases; in this case, they are repeat users of Transjakarta bus services as measured by the dimensions of reliability, tangibility, empathy, responsiveness, and assurance. Although Transjakarta passengers seem to be relatively satisfied with the services provided, Transjakarta still has to improve services for passenger satisfaction and maintain loyalty and to attract more people to use Transjakarta as the main option for public transportation, with the aim of gradually switching from private vehicles to public transportation so as to reduce congestion caused by the increasing volume of both two-wheeled and four-wheeled vehicles in DKI Jakarta. There are many things that still need to be improved in the future. This is based on facts from field observations, including; there are still many discrepancies between the service provided and passenger expectations, including the bus is running late, toilet facilities are not available at several bus stops, the number of seats available is insufficient, long lines for buses, bad customer service, limited availability of information, tapping machines move too slowly; the number of passengers carried exceeds its capacity, especially during morning and evening peak hours, refilling cards are often offline, unfriendly busway crossings are for the elderly and disabled people, the number of available fleets is not sufficient to serve passengers, especially on certain routes/corridors, TV screens in order to display departure and arrival times are often error, uncomfortable because crowded corridors or routes during morning and evening peak hours, drivers have negative attitudes while driving such as violates traffic signs, the driver brakes very suddenly, the driver looks too tired, driver has bad speed control of the bus and so on.

### 4. The Impact of Sustainability on Transjakarta Bus Services' Customer Loyalty

In the results of testing the fourth hypothesis ( $H_4$ ), it was found that the results of the analysis rejected  $H_4$ , namely that sustainability has the impact on loyalty of Transjakarta bus services, because the T - value is  $2.26 > 1.96$ . From the test results, it shows that sustainability has a significant effect on loyalty of Transjakarta bus services. This means that sustainability could result in a significant change in the loyalty of Transjakarta bus services. Based on the results of data processing using Lisrel 8.8, it is found that the path coefficient value of the sustainability on loyalty is 0.21, indicating that sustainability has a positive relationship with loyalty for Transjakarta bus services. Based on the research results, it can be concluded that the sustainability variable has a significant effect on the Transjakarta bus services. A sustainable transportation system, which is marked by a decline in the use of private transportation, and a switch to public transportation, in this case, the use of Transjakarta bus services, so as to reduce emissions, contributed to environmental damage, including economic, social, and environmental aspects, so there is a need for an integrated and high quality public transportation system so that the community can be relied upon to become an environmental pillar and social sustainability. Along with the consequences of increased congestion in Jakarta and journey times that take quite a long time, it often weakens the social mentality of passengers, so it is necessary to improve the environmental efficiency of Transjakarta public transport.

### 5. The Impact of Transjakarta Bus Services Satisfaction on Loyalty

In the results of testing the fifth hypothesis ( $H_5$ ), it was found that the results of the analysis support  $H_5$ , namely that satisfaction has the impact on loyalty to Transjakarta bus services, because the T-value is  $3.98 > 1.96$ . From the test results, it shows that satisfaction has a significant effect on loyalty to Transjakarta bus services. This means that satisfaction could result in a significant change in the loyalty of the Transjakarta bus service. Based on the results of data processing using Lisrel 8.8, it is found that the path coefficient value of satisfaction on loyalty is 0.45, indicating that satisfaction has a positive relationship with loyalty for Transjakarta bus services. Based on the research results, it can be concluded that the satisfaction variable has a significant effect on the loyalty of Transjakarta bus services where customer satisfaction is a form of psychological state and passenger emotional outbursts result from the use of Transjakarta bus services. While loyalty is the loyalty of passengers which is manifested in the form of positive feelings towards a brand or product that is presented in a consistent purchase of a brand over time, in this case it is the passengers' loyalty to using Transjakarta services. Servqual has the impact on satisfaction with a T-value of  $6.78 > 1.96$  and sustainability has a strong effect on satisfaction with a T-value of  $6.38 > 1.96$ , followed by the effect of satisfaction on loyalty of Transjakarta bus services with a T-value of  $3.98 > 1.96$  and the effect of servqual on loyalty of Transjakarta bus services with a T-value of  $3.05 > 1.96$ . This is a bit weak even though it is still in t-table 1.96, namely, the effect of sustainability of

Transjakarta bus services with the T-value is  $2.26 > 1.96$  indicating a high probability that respondents see the effect of sustainability on loyalty as something that is still new and needs time to improve in the future. It can be considered as an important element that has a big impact on loyalty.

**4.4. Results of the Analytical Hierarchy Process (AHP)**

From the research design framework that has been set out, it can be determined the elements of hierarchical arrangement with a focus on "Strategies to Improve the Transjakarta Bus Service Management System", where the final goal is "To become a reliable, trustworthy, and sustainable option in connecting the lives of Jakarta." From the derivation of the hierarchy of factors, actors, and goals, it is necessary to form a strategy. A company strategy is a tool to achieve company goals in long-term terms, follow-up on a program, and prioritize the allocation of available resources. Rangkuti, (2016) argued that strategy is a tool to create competitive advantage. One focus of strategy is deciding whether the business should exist or not. According to Bergman, B., & Klefsjo, (2010), customer satisfaction is part of a marketing strategy and, therefore, it is essential in the world of marketing. The form of satisfaction must at least be maintained and can be increased. The Transjakarta strategy is the company's foundation in determining the direction and goals of a business. A strategy is set as the basis for making a plan and can determine policy making and day-to-day business management. (Olsen, 2007) stated that the strategic plan is a formal framework, providing an overview to the company in conducting the chosen strategy and an overview of the company's direction in the future. Usually, planning is done for the entire company or focuses on a major function such as a division or department. Having a plan that is outlined in a strategic concept can be useful in making plans, so that it can help Transjakarta focus on company growth, build a competitive advantage, and be a guide in determining the main priority choices to be achieved. In the end, Transjakarta has a vision of being a 'Reliable, Trustworthy, and Sustainable Connecting the Life of Jakarta' and Transjakarta's mission, namely "Together we provide integrated transportation services to ease and bring happiness in the life of Jakarta" can succeed in improving the quality of Transjakarta services, which comes from the slogan "BISA", : with the elaboration of being happy, working to improve customer satisfaction, being innovative in developing the best integration services, developing a passion for excellence, and delivering a mandate to work together to advance Jakarta.

Strategy	Operational	Safety	Finance	HR	Public Relations / Marketing
Sub Strategy	Operational SOP Compliance	Safety Training	Investor Governance	Recruitment & Selection	Continuous
	Regular Inspection Of Fleet Maintenance Fans	Alcohol/Drug Free Driver	External Internal Audit	Training 7 Development	Socialization
	Fleet Integration	Safety SOP Compliance	Better Financial Management	Orientation & Placement	
	Quality Monitor	Accident Cause Research		Values Formation	
		Safety Management System		Lean Organizational Structure	
				Rating (Promotion/Demotion)	
			HR Planning		

Source: Data processed (2021)

**Table 4.4: Strategies and sub-strategies**

From this sub-strategy then derived on the goals and sub-targets as shown in the table below:

Target	Tangible	Reliability	Responsiveness	Assurance	Empaty	Sustanainability
Sub Target	Add Route	Promised Service Compliance	Bus Rejuvenation	Driver Competency Certification	Friendliness And Courtesy Of The Staff	Investor Relations
	Facility Upgrade	Travel Itinerary	Ease Of Submitting Complaints	Safety And Security (Lockets, Bus Waiting Rooms & Bus Stops)	Cleanliness Of The Bus, Counter Area And Waiting Room	Investor Incentives/Dividend
	Bus Fleet Addition	Good Administration	Maintenance Track	The Minimum Standard Limitation Of The Number Of Passengers	Officer Readiness	Driver & Staff Remuneration
	Mobile Ambulance Provider	Waiting Time Standard				
		Schedule & Peak Hour & Low Hour Settings				

Source: Data processed (2021)

**Table 4.5: Targets and Sub-Targets**

Based on the results of the Analytical Hierarchy Process (AHP), the elements that make up the hierarchy of the formulation of the strategy to improve the management system of DKI Jakarta Public Transportation Services can be determined, consisting of factors, actors, objectives, strategies, sub strategies, targets, and sub targets. The dominant factor influencing the formulation hierarchy to improve the management system strategy is policy, and the dominant actor in improving the management system strategy is bus

management. The purpose of hierarchical organization is to improve unified services. The strategy's main option was field safety, the sub-strategy's main option was safety training, the target's main option was reliability; and the sub-target's main option was field safety and security at the counter, bus waiting area, and bus stop.

## **V. Conclusions:**

With a large increase in servqual will result in better passenger satisfaction. The better and the increased servqual provided by TransJakarta can automatically increase passenger satisfaction. Passenger satisfaction is part of the passenger experience while using TransJakarta. From the expected value formed, it can be a reference for passengers to compare it with other bus transportation, so that from a direct assessment, it will be able to influence the views and assessments of passengers. In essence, customer satisfaction is a measure of the psychological state and emotional outburst of passengers resulting from the use of TransJakarta bus services. Improving service quality is a key element to attracting passengers to use TransJakarta bus services. Passenger satisfaction and dissatisfaction are part of the passenger experience while using a service. The expected value formed will be a comparison for passengers to compare it with other similar services. Having a sustainable transportation system is expected to have an impact on passenger satisfaction. Reducing the use of private transportation and starting to switch to public transportation modes can minimize emissions that can damage economic, social, and environmental aspects. This shows as a form of indication that passengers are satisfied with TransJakarta services. An integrated public transportation plan needs to be developed as congestion increases in the city of Jakarta and the long journey duration often weakens the social mentality of passengers. Initiatives for sustainable transportation systems have long been intensified throughout the world, including Indonesia. The successful Trans-Milenio bus line in Bogota, Colombia, has proven to be able to free from traffic jams. The people of Bogota really appreciate the Trans-Milenio bus line, even though there are no officers guarding each dividing line, but there is no public transportation that crosses it. For Trans-Milenio buses, ambulances, and fire engines during emergencies, it is very different from the awareness that the people of DKI Jakarta often do not comply with the rules that have been set. This is where sustainable transportation will encourage passengers to be more satisfied with using TransJakarta bus services.

From the availability and fulfillment of the dimensions of reliability, empathy, tangible, assurance and responsiveness, which is expected to increase in the future, will directly have an impact on passenger loyalty. Generally, passenger loyalty is manifested in the form of an attitude of liking the form of service, which is presented in the form of repeated purchases and consistent all the time. Looking at the situation and condition of TransJakarta's current form of service, it seems that there is a tendency to adhere to the monopoly concept because it has its own special lane, very different from the facilities provided for other public transportation such as oplet, taxi, grab/gojek, and others. The facilities owned by TransJakarta in increasing the maximum servqual will encourage the creation of greater loyalty to passengers. One of the goals of sustainability in transportation is to find balance, equity, and resilience across generations, both now and in the future, when passengers are expected to be more loyal to using TransJakarta. If you want the form of passenger loyalty to be even greater, it is necessary to make improvements in the economic, social, and environmental dimensions. Strengthening the public transportation system by implementing effective information and communication technology-based integration in socio-economic activities will make a positive contribution to sustainable transportation. Management of city bus transportation services based on the integration of TransJakarta can really build passenger loyalty. Loyalty, which is manifested in the form of an attitude of liking TransJakarta services, is built on the satisfaction of passengers who feel that they get full service. Failure to provide customer service satisfaction will result in customers being disloyal. The mirror of satisfaction is the result of optimally provided services that will encourage the decision-making process after using the TransJakarta bus service. TransJakarta bus passengers are basically obtained without any element of coercion but arise from their own awareness and satisfaction while using TransJakarta services. To realize an increase in servqual, a strategy to improve the TransJakarta bus service management system is needed to achieve its main goal, which is to become the main choice for reliable, and sustainable connectivity for the city of Jakarta. Support from TransJakarta management as the main actor is needed, especially in operations. It is very important to review several policies on operational standards, especially on several elements such as safety, safety training, restrictions on minimum standards, travel schedule arrangements, schedule settings during peak and low hours, setting standards for busway waiting periods, and others. One of the important aspects that is a concern is that the risk of danger during the trip is very, very high. The cause of several accidents that occur is the result of the driver's negligence. Therefore, it is necessary to plan for continuous safety training and periodic alcohol/drug testing activities at every TransJakarta office/bus stop. This has a broad impact on all lines of social life, such as the death toll, injuries to other members of the community, passengers, and drivers. Loyalty, which is manifested in the form of an attitude of liking TransJakarta services, is built from the satisfaction of passengers who feel that they get full service. Failure to provide customer service satisfaction will result in customers being disloyal. The mirror of satisfaction is the result of optimally provided services that will encourage the decision-making process after using the TransJakarta bus service. TransJakarta bus passengers are basically obtained

without any element of coercion, but arise from their own awareness, obtained from passenger satisfaction while using Transjakarta services. To realize an increase in service quality, a strategy to improve the Transjakarta bus service management system is needed to achieve its main goal, which is to become the main choice for reliable, reliable, and sustainable connectivity for the city of Jakarta. Support from Transjakarta management as the main actor is needed, especially in operations. It is very important to review several policies on operational standards, especially on several elements such as safety, safety training, minimum standard restrictions, travel schedule arrangements, schedule arrangements during peak and low hours, setting standards for busway waiting periods, and others. One of the important aspects of concern is that the risk of danger during the trip is very, very high. From several accidents that occur, that the source of the accident is the negligence of the driver. Therefore, it is necessary to plan for continuous safety training and periodic alcohol/drug testing activities at every Transjakarta office/bus stop. This has a broad impact on all lines of social life, such as the death toll, injuries to other members of the community, passengers, and drivers.

### **Suggestions:**

- 1) In order to build passenger loyalty, the management of Transjakarta bus transportation services must carry out an integrated information system with e-CRM, e-satisfaction, and e-loyalty to increase customer satisfaction, which has an impact on transportation sustainability.
- 2) An approach involving representatives of community leaders, academics, and other stakeholders in research to plan and present a sustainable transportation system will provide an opportunity to educate the public so that there is a change in behavior. The framework from the results of this research can be used to help the government improve the vision and development of policies, planning procedures, and measurement and monitoring systems to achieve a sustainable transportation system. If this is carried out properly, it will have a positive impact on reducing environmental pollution caused by carbon emissions from vehicles operating on the roads in DKI Jakarta.
- 3) The risk of danger during the trip is very high, and from several accidents that occur, the source of the cause of the accident is the negligence of the driver. It is necessary to carry out a continuous safety training plan and periodic alcohol/drug testing activities at every Transjakarta office/bus stop, before the bus departs so that the driver and staff are completely free from the influence of alcohol and drugs. The correlation of an accident can have a broad impact on all lines of social life, such as the death toll, injuries to other members of the community, passengers, and drivers, and can also cause quite high social costs due to having to go to the hospital, unable to work as usual, and damage to existing facilities.

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