

# Development of Customer Loyalty Model on Online Transportation Service: A Case Study in Indonesia

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## ARTICLE INFO

### Article history

Received, September 7, 2022

Revised, March 17, 2023

Accepted, March 27, 2023

Available Online, March 27, 2023

### Keywords

Customer loyalty

Customer satisfaction

Service factors

Online transportation

Multigroup SEM

## ABSTRACT

The impact of technology on public transport has led to a new online transportation service. Its emergence makes the competition increasingly competitive. Therefore, customer loyalty becomes an important aspect of winning the competition. This research analyzed the effect of customer service, service delivery, onboard experience, public image, service value, and customer satisfaction on customer loyalty to online transportation. 517 respondents were obtained and divided into two groups: captive rider and choice rider. Data processing is carried out using a multigroup SEM technique. The results showed that there was a significant moderation effect of the different characteristics of users. In the captive rider group, onboard experience and service value did not affect customer satisfaction, and service value did not affect customer loyalty. Customer satisfaction influenced customer loyalty, and the effect was more robust than the choice rider group. In the choice rider group, the public image did not affect customer satisfaction, but service value influenced customer loyalty. Factors proven to influence customer loyalty significantly can be developed by companies to improve their competitive advantage in an increasingly competitive market of online transportation services.



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## 1. Introduction

Association of Indonesian Internet Service Providers (APJII) in 2022 estimated the internet penetration of Indonesia reach 77.02%, comprising 210 million people in the first quartile of 2022 [1]. Following the rapid development of the internet, several services have shifted from offline to online, including the transportation service market, which utilized the principle of sharing economy [2]. The concept of online transportation services, which has been shown to increase efficiency and accessibility, has resulted in an increase in online transportation companies in Indonesia [3, 4]. To survive in an increasingly competitive market, customer loyalty is regarded as one of the keys to company success. It is a foundation for companies when assessing marketing strategies [5, 6].

The development of offline transportation became online, triggering the emergence of new studies in the context of online transportation. However, most recent studies tend



<https://doi.org/10.22219/JTIUMM.Vol24.No1.1-16>



<http://ejournal.umm.ac.id/index.php/industri>



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Please cite this article as: Prihartono, B., Ismantia, K. R., & Fahlevi, F. (2023). Development of Customer Loyalty Model on Online Transportation Service: A Case Study in Indonesia. *Jurnal Teknik Industri*, 24(1), 1–16. <https://doi.org/10.22219/JTIUMM.Vol24.No1.1-16>

to focus on the context of service quality in mobile applications [7-9]. In comparison, the core of online transportation services is supposed to be the service passengers feel during the trip. The mobile application is only a medium to capture passenger demand more efficiently and effectively as a form of technology utilization. To build a customer loyalty model that focuses on service aspects during the trip, constructs used in research models related to public transportation were considered. Based on a literature review conducted by Lierop, et al. [10], dimensions that make up the service factors of public transport are onboard experience, service delivery, customer service, waiting conditions, cost, quality of transfers, and image. One of the research papers reviewed by the study is a customer loyalty model by Minser and Webb [11]. Based on the constructs provided by the model, it is considered to capture the general service factors of public transportation, with factors such as service quality, service value, public image, customer satisfaction, and customer loyalty. Other studies that can complement the service factors in this research are Jen and Hu [12] and Lai and Chen [13], which determine factors that influence service value and the effect of service value on customer loyalty in public transportation services.

Moreover, a study by Bakti and Sumaedi [14] proposed a service quality model for public land transport services that includes factors like comfort, personnel, tangible, and reliability. These factors are also considered to complement the model in this research. Furthermore, online transportation passengers have different characteristics based on their needs. This is also consistent with the research conducted by Zhao, et al. [15], which uses two characteristics of passengers, captive rider and choice rider. The study produced a different loyalty model for the two groups. Other research also shows captive riders tend to be more loyal than choice riders because of needs. Both studies show customer loyalty models differ in captive and choice riders [16]. Relevant studies are further explained in Table 1.

Moreover, a bibliometric analysis was conducted to explore the field's impact and highlight the novelty of the research. The analysis was performed using network visualization software with bibliographic citation files obtained from Google Scholar, which contained 500 results of the latest publication related to the relevant keywords: online, transportation, customer, and experience. A term co-occurrence map based on text data is shown in Fig. 1. It shows a network visualization map that highlights relevant texts based on the keywords from the latest publication. According to the map, online transportation is seen as related to customer loyalty and effect analysis, and interestingly, the term Indonesia with several companies like Gojek and Grab are shown. The map also shows several words that can refer to the construct used by the journal, namely intention, loyalty, service quality, e-service quality, price, trust, and user experience. This result shows several models have done the topic of customer loyalty in online transportation in Indonesia with several constructs. However, the constructs shown from the map still mainly refer to the context of service quality in its mobile application. No item is related to the core of transportation service or the passenger's experience, which is the trip experience from the pick-up location to the destination location.

Based on several previous studies and the bibliometric analysis result, no research in the context of online transportation services examines the core of transportation services that influence customer loyalty, which is the transportation service passengers feel during the trip. Furthermore, in the context of motorbike online transportation services in Indonesia, studies examining differences in the characteristics of passengers on the loyalty model have not yet been considered. For that reason, by considering the factors that influence customer satisfaction, customer loyalty, and passenger characteristics in previous studies, the researcher intends to develop a conceptual model

to measure the significance of each of these factors in an online transportation service. Factors proven to influence customer loyalty significantly can be developed by companies to improve their competitive advantage in an increasingly competitive market of online transportation services.

Table 1. Summaries of Relevant Empirical Studies on Public Transportation

| Study                         | Context                                       | Analysis          | Constructs  | Main Finding   |
|-------------------------------|---|-------------------|---|--|
| Jen and Hu [12] (2003)        | City bus passengers in Taipei (N = 750)       | SEM*              | Service quality; perceived benefits; perceived non-monetary price; perceived monetary price; perceived costs; perceived value; attractiveness of alternative modes; repurchase intention. | Perceived value affects repurchase intention positively and negatively affects alternative modes' attractiveness. Perceived benefit positively and directly affects perceived value and affects perceived costs negatively. Perceived non-monetary and monetary prices positively and directly affect perceived costs. |
| Minser and Webb [11] (2010)   | Bus and train passengers in Chicago (N = 264) | SEM*              | Problem experience; public image; service quality; service value; customer satisfaction; customer loyalty   | All significant factors affected customer satisfaction and loyalty except for service value.   |
| Lai and Chen [13] (2011)      | Railway passengers in Kaohsiung (N = 763)     | SEM*              | Service quality; perceived value; involvement; satisfaction; behavioral intention   | All factors significantly influence behavioural intention either directly or indirectly.   |
| Zhao, et al. [15] (2014)      | Bus and train passengers in Chicago (N = 264) | SEM*              | Problem experience; public image; perception of service quality; service value; customer satisfaction; customer loyalty   | The results differ between the two groups (captive and choice riders). Captive riders tend to be more loyal than choice riders because they have no other alternative mode of transportation.  |
| Bakti and Sumaedi [14] (2015) | Paratransit passengers in Indonesia (N = 880) | EFA & CFA**       | Comfort; tangible; personnel; reliability   | The model (P-TRANSQUAL) has been proven to have good validity, reliability, and stability for measuring service quality.   |
| Lierop, et al. [10] (2017)    | Journal Articles on Public Transport          | Literature Review | On-board Experience; Service Delivery; Customer Service; Waiting Condition; Cost; Quality of Transfers; Image   | Service factors influencing customer satisfaction: cleanliness, comfort, operator behaviour, safety, punctuality, and frequency. Service factors influencing customer loyalty: the value of money, safety, cleanliness, interaction with personnel, and image.   |

**Note.** \* = Structural Equation Modeling  
\*\* = Exploratory Factor Analysis & Confirmatory Factor Analysis



study are explained by service reliability comprised of three indicators: punctuality, travel time, and waiting time.

### 2.1.3 Onboard Experience

Onboard experience is defined as a driving experience based on the overall level of comfort experienced by passengers while riding public transportation [10]. Aside from reflecting driving comfort, onboard experience factors are also assessed in physical aspects such as vehicle quality. Some service variables of onboard experience that dominantly influence CS and CL are cleanliness, comfort, and safety. Based on the previous research conducted by [Minser and Webb \[11\]](#), accessibility variables became one of the variables that explained service quality and proved to have a significant effect on CS and CL. Accessibility is the convenience of passengers to get transportation services. Therefore, it was considered to measure the onboard experience factor. In addition to the research conducted by [Bakti and Sumaedi \[14\]](#), other physical aspects that need to be considered are tangible variables that reflect the physical condition of facilities and vehicles. Therefore, in this research, the onboard experience factor is explained by the variables of cleanliness, comfort, accessibility, tangible, information provision, and safety.

### 2.1.4 Customer Service

Customer service is the interaction passengers perceive with drivers and public transportation service personnel [10]. Some service variables affecting customer service factors that dominantly influence CS and CL are drivers' and personnel's behaviour and attitudes [10]. However, according to [Minser and Webb \[11\]](#) and [Bakti and Sumaedi \[14\]](#), the more dominant customer service factors explained in terms of personnel focus on the drivers' hard skills and soft skills because they interact directly with passengers. The hard skill of the companies' service drivers has been stated in the operator attributes indicator [11]. The actual soft skill variables are included in the personnel variables [14]. Therefore, in this study, the customer service factor is explained by the operator attributes and personnel of the driver.

### 2.1.5 Service Value

Service value is defined by a consumer's assessment of the usefulness of a product (or service) based on a perception of what is received and what is given [21]. Furthermore, this understanding was clarified by several researchers who explained that service value captures the difference between the benefits received and the fees paid by a person for a service; services that have high-value benefits and low costs will have high value, while services that have low-value benefits and high costs will be considered to have low value [11, 13]. Based on the definition framework previously explained, the core of the service value factor is benefit and cost. Other research only focuses on variable costs that influence service value factors, namely paid and fair fare prices [11]. In contrast, the research conducted by [Jen and Hu \[12\]](#) considers the benefit variable to observe the effect on perceived value factors. Therefore, the service value factors in this study are explained by the fair price and benefits variables.

### 2.1.6 Public Image

Consumers' image toward service providers can have long-term effects on how they perceive service performance. Media and other external communications can influence customer perception to form an impression of the brand [22]. This definition was also made by [Minser and Webb \[11\]](#). They said that a consumer's public image of a service provider is an input that can affect how they measure service delivery, value, and outcomes. In their research, public image is divided into three themes of measurement components: management quality image, service quality image, and customer centricity. Quality management image is the customer's perception of the organization's policies and goals and their ability to operate effectively. Service quality image is the customer's view of the level of service provided by the service provider. Customer centricity is the customer's perception of transportation service providers that consumers are the top priority of any decision or policy.

### 2.1.7 Customer Satisfaction

Customer satisfaction is the level of satisfaction that results after comparing the actual performance against the expected performance [23]. Customer satisfaction is also described as an overall product or service assessment [24]. [Minser and Webb \[11\]](#) believe that satisfaction results from service quality and value that influence the likelihood that customers will continue to use and willingness to recommend services to others. Satisfaction then functions independently as a measure of service outcomes that affect the ability of service providers to maintain various customer bases.

### 2.1.8 Customer Loyalty

Two aspects can determine loyalty. Previous studies state that customer loyalty is based on (1) future use and (2) willingness to recommend [11, 13, 15]. These two parts of the customer loyalty definition are generally used because intentions to use are often regarded as actual future uses that reflect loyalty behaviour and passengers willing to recommend services to others. These passengers, commonly called loyal consumers, reflect an attitude of loyalty. According to other studies, customer loyalty is significantly influenced by customer satisfaction [25].

## 2.2 Model and Hypothesis

This study develops a structural model to understand the factors that influence customer loyalty of online transportation services. Then, it analyzes the model using the Multigroup SEM method. The structural model is shown in Fig. 2 based on the literature study.

The model uses the customer loyalty model by [Minser and Webb \[11\]](#) as a base model that includes the variables of customer loyalty, customer satisfaction, service value, and public image. The model is then improved by incorporating onboard experience, customer service, and service delivery, which are variables related to service quality in public transportation [10], benefit variable from [Jen and Hu \[12\]](#), information provision variable from [Lai and Chen \[13\]](#), and tangible, personnel, & reliability from [Bakti and Sumaedi \[14\]](#). The hypotheses and the supporting research are presented in Table 2.

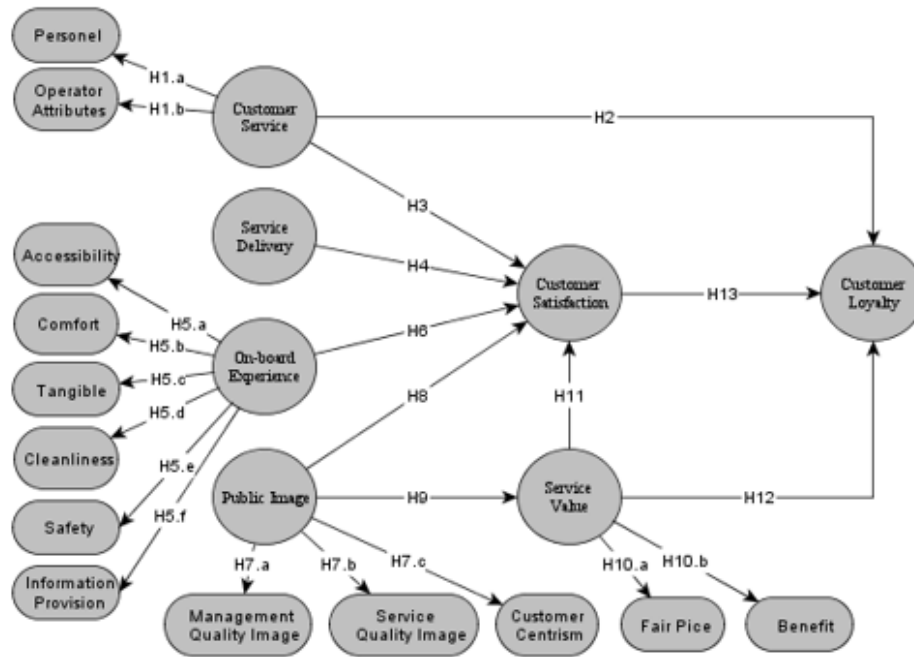


Fig. 2. Structural Model

Table 2. Hypothesis and Reference

| Hypothesis  | Reference    |
|---|--------------|
| H1 Customer service is reflected by operator attributes and personnel.                                      | [10, 11, 14] |
| H2 Customer service positively affects customer loyalty.  | [10]         |
| H3 Customer service positively affects customer satisfaction.   | [10]         |
| H4 Service delivery positively affects customer satisfaction.   | [10, 11, 14] |
| H5 Onboard experience is reflected by cleanliness, comfort, accessibility, tangible, Provision, and safety. | [11, 13, 14] |
| H6 Onboard experience positively affects customer satisfaction.   | [10]         |
| H7 Public image is reflected by quality image, service quality image, and customer centricity.              | [11]         |
| H8 Public image positively affects customer satisfaction.   | [11, 13, 15] |
| H9 Public image positively affects service value.   | [11]         |
| H10 Service value is reflected by fair price and benefits.  | [11, 12]     |
| H11 Service value positively affects customer satisfaction.   | [11, 13]     |
| H12 Service value positively affects customer loyalty.  | [12]         |
| H13 Customer satisfaction positively affects customer loyalty.  | [11]         |

A multigroup SEM analysis is conducted between the captive rider and choice rider groups to determine how customer characteristics affect customer loyalty to an online transportation service [15].

## 2.3 Data Collection Method

The data of this research was collected using a questionnaire. There are two parts to the questionnaire: the first part is the respondent's general data, and the second part contains statements that represent the research construct. In the second part, respondents were asked to provide opinions on the suitability of the statement submitted in the questionnaire with the respondent's perception. The number of item statements submitted in the second part of the questionnaire is 50 items, presented in Appendix A. Online questionnaires were made using Google Forms and distributed through social media and group chat in April 2018. The collected data can be used if the respondent has used the online transportation service in the past 12 months. The amount of data obtained was 517.

## 2.4 Data Analysis Technique

There are two stages in data analysis: initial and main data analysis. The initial data analysis aims to test the measurement instrument's validity and reliability with a minimum sample size. The criteria are Pearson correlation for the validity test and Cronbach Alpha for the reliability test. The main collection period began once the instrument was proven valid and reliable. The obtained primary data will then be analyzed to answer research questions.

The Multigroup SEM analysis method uses Mplus Software to conduct the principal data analysis. The Multigroup SEM analysis is conducted by evaluating the goodness of fit of the measurement and structural model after the data from the captive rider (group 1) and choice rider (group 2) is separated. The goodness of fit will be assessed by the basic, incremental, and absolute fit approach that uses several criteria consisting of Chi-Square, p-value, comparative fit index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). Then, a measurement invariance test is also conducted to evaluate the difference between the groups. If the model meets the criteria, the hypothesis can be tested, and the groups' differences can be compared.

## 3. Results and Discussion

### 3.1 Evaluation of Measurement Models

The initial test of the measurement model is done using the CFA method for each group. A baseline model is created in each group to represent the data well. In groups 1 and 2, the chi-square value is quite large, and the p-value is significant. However, this cannot be used as a reference for testing the model because the chi-square value will increase as the number of samples increases [26]. In absolute fit testing, group 1 and group 2 show good results. Hair Jr, et al. [26] explained that a model is an absolute fit if the RMSEA value is below 0.08. RMSEA values for groups 1 and 2 are 0.044 and 0.032. This indicates that the basic model for each group meets the absolute fit criteria. The following basic model testing is seen from the CFI and TLI values. The model is said to be incrementally fit if the CFI and TLI values are more than 0.9 [26]. The CFI and TLI values for group 1 and group 2 are more than 0.9, i.e., 0.954 and 0.956, so it can be concluded that the fit model is incrementally fit. After testing the measurement model for both groups, each basic model is combined into a multigroup model.

The invariance test of the measurement model was carried out through 4 stages: configural invariance, weak measurement invariance, strong measurement invariance, and strict measurement invariance. This invariance test is carried out for comparison



between groups; if it is not done, the study results will be meaningless, and the findings about differences in behaviour between groups cannot be interpreted clearly. Based on the results in Table 3, it can be said that there is no difference in the measurement model between the captive rider group and the choice rider group, so the data processing continues to the testing phase of the multigroup SEM structural model.

Table 3. Summary Result of the Invariance of the Measurement Model

| Model             | $\chi^2$  | DoF  | P-Value | RMSEA | 90% CI      | CFI   | TLI   | $\Delta$ CFI |
|-------------------|-----------|------|---------|-------|-------------|-------|-------|--------------|
| Base Model Group  | 11,696.9  | 1141 | < 0,001 | 0.044 | 0.039-0.048 | 0.954 | 0.951 |              |
| Base Model Group  | 21,368.47 | 1141 | < 0,001 | 0.032 | 0.027-0.037 | 0.956 | 0.954 |              |
| Conf. Invariance  | 3,065.38  | 2282 | <0,001  | 0.036 | 0.033-0.040 | 0.953 | 0.941 |              |
| Weak Invariance   | 3,048.13  | 2245 | <0,001  | 0.037 | 0.034-0.040 | 0.951 | 0.940 | 0.002        |
| Strong Invariance | 3,319.29  | 2294 | <0,001  | 0.042 | 0.038-0.045 | 0.944 | 0.943 | 0.009        |

### 3.2 Evaluation of Structural Models

The structural model for each group is tested to observe the model's goodness of fit based on the goodness of fit, absolute fit and incremental fit. The basic goodness of fit results found that the chi-square value was significant for each group, and the p-value was smaller than 0.05. The RMSEA value representing absolute fit in the structural model is smaller than 0.08, which is 0.048 for Group 1 and 0.046 for Group 2. The model is also assessed based on the incremental index fit. The CFI and TLI indicate this index. The values for Group 1 are 0.958 and 0.955, and for Group 2 are 0.955 and 0.954. The CFI and TLI values for both groups are more than 0.9. Hence, it can be said that the models assessed are both incrementally fit. Therefore, the relationship between variables and constructs specified in this structural model makes the model relatively better than the model, which assumes that all variables are unrelated.

Based on this explanation, it can be concluded that the structural model is considered good, and the estimation results of the model can be accepted for each group. This structural model also tests the relationships between constructs for each group. There were 22 hypotheses tested in this study, and 9 hypotheses were tested in Group 1 (captive riders) and Group 2 (choice riders). Three hypotheses are rejected in group 1, namely H6, H11 and H12. H6 refers to the relationship of onboard experience to customer satisfaction. H11 refers to the relationship between service value and customer satisfaction, while H12 refers to the service value relationship to customer loyalty. In group 2, there is 1 hypothesis with a p-value of more than 0.05; in other words, there is 1 rejected hypothesis, H8, while 21 other hypotheses are accepted. H8 refers to the relationship between public image and customer satisfaction. The differences in captive and choice rider customer loyalty models can be seen in Fig. 3.

### 3.3 Discussion

Based on the results, several important factors influencing online transportation customers' loyalty are obtained. Most hypotheses are proven to be following the theory from the reference models, with several exceptions. On the captive rider group, onboard experience does not significantly affect customer satisfaction (H6), and service value does not significantly affect customer satisfaction (H11) and customer loyalty (H12). However, the rejected H6 is supported by [Ngaliman, et al. \[27\]](#), who found that tangible aspects of

services did not significantly affect satisfaction. It is explained by the fact that captive riders with no other transportation choice have lower quality criteria than choice riders.

Moreover, the rejected H11 is supported by Zhao, et al. [15], and the rejected H12 is supported by Minser and Webb [11]. It can happen because captive riders dependent on the service do not necessarily consider the cost and benefit. Therefore, the monetary aspect of the service is not the significant aspect that determines their loyalty toward the service.

Meanwhile, in the choice rider group, the public image does not significantly affect customer satisfaction (H8). The result is supported by Zhao, et al. [15], which state that customer perception of public transportation service providers does not significantly affect satisfaction. This result can occur in the choice rider group because the low intensity of using the services causes a lack of perceived experience with a service provider. Therefore, the information obtained to shape their perceptions is limited.

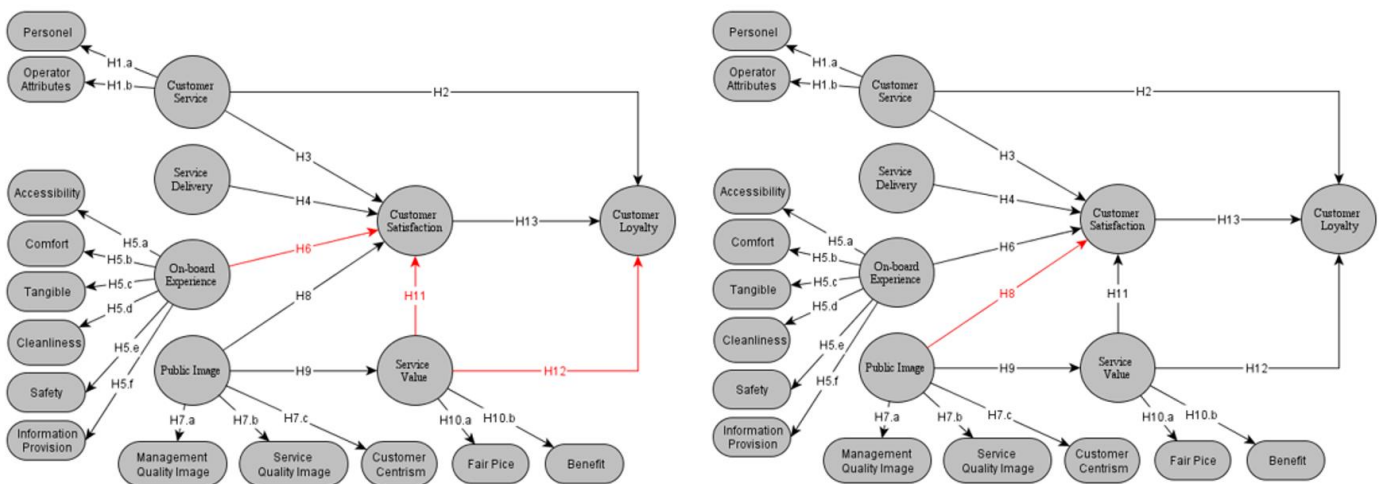


Fig. 3 Hypothesis Test Results of Group 1 (left) and Group 2 (right)

### 3.4 Managerial Implications

Managing the significant factors can establish, improve, and maintain Online transportation customer loyalty. These factors are customer service, service delivery, onboard experience, public image, customer satisfaction, service value and public image. Companies must always consider customer service, service delivery, and onboard experience because they will affect customer satisfaction. For aspects of onboard experience, more attention is needed in the customer service process, especially for customer choice riders. Based on this research, the company must pay attention to the driver's attitude toward the customer, the condition of the clean and comfortable motorbike, and the punctuality of service. It can be done through training to all personnel and providing Standard Operating Procedure (SOP) to maintain the quality of service and equalize the ability of all personnel. Besides that, the punctuality of either pick-up or travel time must be adjusted between the application and the reality so that the customer believes more in the promised time. Continuous improvement and development of service quality must always be done to maintain customer satisfaction. The perception of public image is proven empirically to affect customer satisfaction in captive riders. Therefore, companies must pay special attention to forming public image perceptions for captive riders by building and strengthening the public image in customers' minds. It can be done

by increasing advertising or improving sales promotions [28]. Based on this study, service value also affects customer satisfaction in choice rider customers. If rising prices seem unfair when compared to the services they receive, these customers will be more likely to choose other modes. It means that price determination is also a compassionate thing to compare with the benefits received by customers through the company [29].

In addition, this study also proved the effects of differences in the characteristics of online transportation users on customer loyalty models. Captive riders (group 1) generally use online transportation services more often than choice riders (group 2). Based on the results, in Group 1, the estimation coefficient of customer satisfaction towards loyalty was more significant than in Group 2. So, the service factors in group 1 must be considered more. Companies must be able to provide good services so that customer satisfaction can strongly drive loyalty. Whereas in Group 2, service value is more likely to influence customer satisfaction and loyalty than in Group 1. Group 2 tends to pay more attention to comparing costs and benefits received from the company to determine satisfaction and loyalty. Therefore, companies must ensure that cost adjustments are expected, and the company must also demonstrate that they have been trying to provide the best benefit for their customers. It can be done by conducting periodic evaluations in the customer comments column provided after using the service and adjusting the reasonable costs according to location.

Based on the explanation, these findings support several theories of customer loyalty model in the context of online transportation services and show factors that significantly influence customer loyalty. These findings also clarified the effects of differences in the characteristics of online transportation passengers. Furthermore, companies can use the research findings to improve their competitive advantage by enhancing factors that were proven to influence customer loyalty significantly.

#### 4. Conclusion

Factors proven to affect customer loyalty in online transportation services are customer service, service delivery, onboard experience, customer satisfaction, service value and public image. For this reason, online transportation service companies need to pay attention to these factors to increase customer loyalty. The effect of differences in characteristics of online transportation users influences the relationship between onboard experience and service value to customer satisfaction and service value to customer loyalty. For further research, the data collection can include samples from all over Indonesia to get an overview of user characteristics for a broader customer loyalty model. Furthermore, the grouping of respondents can be done in other segments, such as income or age groups. The research may consider the factor in the initial process when the customer orders the service to enrich the loyalty model into a more complete customer journey.

#### Declarations

**Author contribution:** We declare that both authors contributed equally to this paper and approved the final paper.

**Funding statement:** No funding was received for this work.

**Conflict of interest:** The authors declare no conflict of interest.

**Additional information:** No additional information is available for this paper.

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## Appendix A

|   |  |
|---|--|
| Personnel: 6-point Likert scale of strongly disagree to agree strongly.           |  |
| PER1  | Helpful attitude from the driver   |
| PER2  | Speed of response from the driver  |
| PER3  | Drivers understand consumer desires.   |
| PER4  | Courtesy of online transportation drivers  |
| Operator Attributes: 6-point Likert scale of strongly disagree to agree strongly. |  |
| OPE1  | The driver operates the vehicle in a safe and competent manner                     |
| OPE2  | The ability of the driver to deal with problems or emergencies on the vehicle      |
| OPE3  | Driver knowledge about traffic systems and travel routes is good                   |
| Fair Price: 6-point Likert scale of strongly disagree to agree strongly.          |  |
| FAI1  | Online transportation provides quality services at reasonable and reasonable rates |
| FAI2  | Services received from online transportation are good services in terms of tariffs |
| FAI3  | Online transportation travel rates are more expensive than expected                |
| Benefit: 6-point Likert scale of strongly disagree to agree strongly.             |  |
| BEN1  | Driving by online transportation is better than other transportation               |
| BEN2  | Passengers are served well   |
| BEN3  | Services provided by online transportation exceed expectations                     |
| Accessibility: 6-point Likert scale of strongly disagree to agree strongly.       |  |
| ACC1  | Online transportation services are available near the house                        |
| ACC2  | Online transportation services are available near the workplace                    |
| ACC3  | Online transportation services are available wherever passengers want to go        |
| ACC4  | Online transportation services are available when passengers need                  |
| Cleanliness: 6-point Likert scale of strongly disagree to agree strongly.         |  |
| CLE1  | Facility cleanliness   |
| CLE2  | Vehicle cleanliness  |
| Comfort: 6-point Likert scale of strongly disagree to agree strongly.             |  |
| COM1  | Smooth driving from online transportation drivers                                  |
| COM2  | Compliance with traffic  |
| Tangible: 6-point Likert scale of strongly disagree to agree strongly.            |  |
| TAN1  | Physical condition of seating for online transportation                            |
| TAN2  | Online transportation engine conditions  |
| Safety: 6-point Likert scale of strongly disagree to agree strongly.              |  |

|   |   |
|---|---|
| SAF1  | Security when using online transportation services  |
| SAF2  | Safety from crime when using Online Transportation services                                     |
| Information Provision: 6-point Likert scale of strongly disagree to agree strongly. |   |
| INF1  | Passengers are notified by the driver if there is a travel delay                                |
| INF2  | Passengers are notified by the driver if there is a change in travel schedule                   |
| INF3  | Drivers have sufficient knowledge to answer passenger questions                                 |
| Management Quality: 6-point Likert scale of strongly disagree to agree strongly.    |   |
| MAN1  | Online transportation has efficient and cost-effective management                               |
| MAN2  | Online transportation will be a good company for work   |
| MAN3  | Online transportation can effectively manage large transportation systems                       |
| MAN4  | Online transportation responds to issues and problems quickly                                   |
| MAN5  | Online transportation does an excellent job in improving the system.                            |
| Service Quality: 6-point Likert scale of strongly disagree to agree strongly.       |   |
| SER1  | Online transportation provides reliable transportation services                                 |
| SER2  | Online transport vehicles are clean and well maintained   |
| SER3  | Online Transportation has improved its services for the past 2 years                            |
| SER4  | Online Transportation responds effectively to emergencies                                       |
| SER5  | Online transportation uses technology to meet the needs and demands of passengers               |
| Customer Centricity: 6-point Likert scale of strongly disagree to agree strongly.   |   |
| CUS1  | Online transportation considers the needs of passengers in each policy                          |
| CUS2  | Online transportation does a good job by notifying passengers when there is a change in service |
| CUS3  | An online transportation company is a friendly organization                                     |
| Cost Fairness: 6-point Likert scale of strongly disagree to agree strongly.         |   |
| COS1  | Online transportation provides quality services at reasonable rates                             |
| COS2  | Services received from online transportation are considered good in terms of tariffs            |
| COS3  | Online transportation travel rates are more expensive than expected                             |
| Benefit: 6-point Likert scale of strongly disagree to agree strongly.               |   |
| BEN1  | Driving by online transportation is better than other transport mode.                           |
| BEN2  | Passengers are served well  |
| BEN3  | Services provided by online transportation exceed expectations                                  |
| Service Delivery: 6-point Likert scale of strongly disagree to agree strongly.      |   |
| DEL1  | Timeliness of pick-up   |
| DEL2  | Online transportation takes passengers to their destination on time                             |
| DEL3  | Travel time by online transportation compared to private vehicles                               |
| DEL4  | Pick-up time from online transportation   |
| Customer Satisfaction: 6-point Likert scale of strongly disagree to agree strongly. |   |



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|--|--|
| SAT1   | How satisfied are you when driving with online transportation?                                   |
| SAT2   | Satisfaction with the initial stage of the trip (e.g. booking stage)                             |
| SAT3   | Satisfaction with the previous travel experience as a whole                                      |
| Customer Loyalty: 6-point Likert scale of strongly disagree to agree strongly. |  |
| LOY1   | How likely are you to continue to use online transportation in the future?                       |
| LOY2   | How likely are you to recommend online transportation to family members, friends, or colleagues? |

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