The determinants of customer loyalty in the Indonesian ride-sharing services: offline vs online

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Abstract

Purpose – This study aims to analyze the effect of service quality on trust, satisfaction and loyalty by adopting two models, namely, conventional service quality model from Parasuraman and information systems (IS) success model from Delone and McLean.

Design/methodology/approach – Respondents of this study were users of shared-motorcycle services who filled out a complete questionnaire totaling 507. This research used a second-order structural equation model. All question items had quite high reliability and validity based on the result of confirmatory factor analysis with a value of average variance extracted and composite reliability which was higher than 0.70. The goodness of fit was quite good with the values x^2/df = 2.493, incremental fit index = 0.921, Tucker-Lewis index = 0.917, comparative fit index = 0.921 and root-mean-square error of approximation = 0.054.

Findings – Online and offline ride-sharing services reveal a strong and positive influence on trust and satisfaction. Trust reveals a strong and positive influence on satisfaction and loyalty. Finally, satisfaction reveals a strong and positive influence on loyalty. The research in general shows that the quality of offline service is more influential than the quality of online service in the case of ride-sharing service provided by two companies in Indonesia.

Research limitations/implications – The sampling frame of the research was diverse, including students of various collages and junior high schools, various private company workers and government employees. So, the results cannot be generalized to all populations especially to all Indonesian customers. It is recommended to increase the number of samples by focusing on the community groups of customers of public motorbikes, so that these groups can be compared. Next, the research finds that both service quality based on IS and service quality models reveal a strong and positive influence on loyalty both directly and indirectly.

Originality/value – The research uses respondents who use motorcycle services both online and offline. The findings of the research are important for online and offline ride-sharing motorbike service providers. They have to maintain their excellent services to the customers.

Keywords Sharing economy, SERVQUAL model, IS success model, Ride-sharing

Paper type Research paper

1. Introduction

Several factors have led to an increase in motorcycle production and sales with various models in Indonesia, including an increase in per capita income, the level of development of

transportation and information technology (in the form of online marketing). Increase in the number of vehicles on the highway that are not compensated by widening and increase in the number of highways causes congestion in almost all provinces on the island of Java, especially in Jakarta.

The traffic jams become a problem for the government to find a solution immediately. On the other hand, this condition becomes a business opportunity for business people. The government offers solutions to overcome congestion problems by providing mass transport services including commuter trains, rapid transit buses, light rail transit, mass rapid transit and other policies in the form of more expensive parking fees and in the long term have a policy that only new vehicles may enter downtown.

Before online motorcycle taxi services began to exist and developed, the public had many choices in using public transportation, one of which was an offline motorcycle taxi service that could deliver passengers to various destinations for short distances including remote areas that could not be served by four-wheeled vehicles. Offline motorcycle taxi service is one of the public transportation services with motorbikes owned by individuals to serve the demand for transportation on an individual basis. Assessment of customer satisfaction on offline service of motorcycle taxi services is done using service quality (SERVQUAL) dimensions used by Parasuraman, Zeithaml, and Berry (1988).

Along with the development of information and communication technology and traffic congestion on the highway, some investors, such as Grab and Gojek, have captured business opportunities by establishing online motorcycle transportation service companies. The assessment of customer satisfaction on online service is done using the information systems (IS) success dimension model used by Delone and McLean.

The popularity of sharing economy began to emerge after the financial crisis in 2008 as people experienced financial difficulties. They re-evaluated their consumption patterns and the value of motorbike ownership. They save on consumption and evaluate the use of motorcycles by considering ridesharing. Many people owned motorbikes, but lost jobs. When ride sharing company- Gojek and offered job as motorbike driver, they took it (Kathan, Matzler, & Veider, 2016).

Sharing economy is a new concept which is currently popular and the research in this topic has increased in the past few years (Nguyen & Llosa, 2018). Eleonora, Roberta, Elena, Claudio, and Giovanni (2015) state that the concept of ride-sharing is a part of sharing economy where goods, facilities, knowledge and experience are used together to obtain best results. Sharing of economic goods can increase the value of benefits. Hawlitschek et al. (2016) conclude that the rise of the sharing economy has created new opportunities for consumers and platform operators, enabling new business models. Sharing economy platforms facilitate on-demand and peer-to-peer (P2P) matching to coordinate the sharing of personal resources across a wide spectrum of application areas. Modern technology which covers mobile application and internet-based platform keeps encouraging the development of sharing economy (Grybaitė & Stankevičienė, 2016; Mittendorf, 2017). The emergence of this phenomenon has formed social, economic and cultural perspectives in modern life (Novikova, 2017).

Sharing economy is a term which describes social and economic activities which involve online transactions to allow people to rent assets owned by other people (Hamari, Sjöklint, & Ukkonen, 2016). The transaction occurs through a digital platform operated by the company which becomes the main infrastructure (Elmeguid, Ragheb, Tantawi, & Elsamadicy, 2018) such as Grab, Southeast Asia's largest mobile technology company. Sung, Kim, and Lee (2018) stated that customers who use service and service providers form the two-sided market in the platform of sharing economy, while a point where demand and supply meets are facilitated by digital technology.

The sharing economy has occurred in the transportation sector with the use of a term called ride-sharing. Ride-sharing services have had significant impact on public transport in many countries in recent years (Lee, 2017). So far, the addition of highways has always been slower and less than the increase in the number of vehicles on the highway. This causes a switch from private vehicles to public vehicles that are faster and cheaper such as GrabBike and GoRide. The ride-sharing companies apply the business model encouraged by digital technology to revolutionize ride-sharing (Watanabe, Kashif, & Neittaanmäki, 2016). This business model is very suitable for the high level of community mobility, thus the demand for this transportation service model has increased (Balachandran & Ibrahim, 2017). Services with this new business model make people have a choice of transportation modes that are faster and cheaper than former transportation models.

Economy sharing has become a global concern with increasingly popular sharing applications such as motorbikes and cars (Liu & Yang, 2018). People receive two types of services when using the ride-sharing service, namely, online service in the form of ride-sharing application and offline service in the form of driver, vehicle and other aspects of conventional service. As a new business model, digital-based service in ordering transportation service still deals with conventional service when customers are picked up by the drivers. Performance of the drivers and their vehicles still affects the perception of the ride-sharing service.

This research aims to analyze whether or not the quality of online and offline service affects trust, satisfaction and loyalty of the users of ride-sharing service in Indonesia. Another question is:

Q1. Which service is more influential to trust, satisfaction and loyalty?

2. Theoretical review

2.1 Sharing economy

The term sharing economy is often used alternately with other terms, such as the collaborative economy, collaborative consumption and P2P commerce. The main component of sharing economy is collaborative consumption, namely, a mechanism which balances individual and public needs (Berg & Fitter, 2016). The definition of sharing economy is "networks of individuals providing goods and services to each other at a lower cost than getting them through corporations" (Berg & Fitter, 2016). This definition is a paradigm of the new economy encouraged by technology (Grifoni et al., 2018). Sharing economy is a business model based on the internet which involves the exchange of resources and skills among people based on P2P (Elmeguid et al., 2018). There are some drivers that have an impact on economy, namely, changing consumer behavior, social networks and electronic markets and mobile devices and electronic services (Puschmann & Alt, 2016). Some research studies about sharing economy are shown in Table I below.

2.2 Model of information systems success and service quality

Research on service quality in the electronic environment started in 1998, and in the early 2000s, various models of website quality measurement emerged. Based on the perspective of customers, Web quality is a basis for explaining customers' evaluations of the online satisfaction they receive (Wu, Huang, Fiegantaram, & Wu, 2012). Elangovan (2013) stated that the satisfaction of customers in the information age is affected by the website quality. Thus, website quality basically measures the quality of a website based on the perception of customers. We use questionnaires to collect data from customers which some previous researchers named E-Servqual, E-SQ, Webqual, Webqual[TM] and IS success model. The last

No.	Author	Sample/country	Context of sharing economy	Variables
1.	Balachandran and Ibrahim (2017)	156 respondents in Malaysia	Uber and Grab services based on ride-sharing concept and have a major success in "shared economy." Technology development enables companies to find consumers, whereas "sharing economy" is based on the preferences for "experiences" over ownership	Tangible, reliability, price, promotion and coupon redemption and comfort (independent variables); costumers satisfaction (dependent variable)
2.	Mittendorf (2017)	221 respondents in Germany	Uber is particularly interesting as the mobile app allows complete strangers to get in contact with each other in the online world and to share a ride on short-term notice in the offline world	Familiarity, disposition to trust, trust in Uber, trust in drivers, inquiry about drivers and request a ride
3.	Lee (2017)	92 respondents in Boston	Information sharing eliminates price fluctuations by pooling information on demand. The complexity of ride-sharing implies that the impact of policy interventions cannot be known in advance in some cases	Safety, security and surcharge justification (exogenous variables); reference system and policy changes (moderators); age, gender and education (control variables); and RSS use (endogen variables)
4.	Hamari et al. (2016)	168 respondents	There are discrepancy between factors that affect attitudes and behavioral intentions: perceived sustainability is an important factor in the formation of positive attitudes toward collaborative consumption (CC), but economic benefits are a stronger motivator for intentions to participate in CC	Sustainability, enjoyment, reputation and economic benefit (exogenous variables); attitude (mediator); and behavioral intention (endogenous variables)
5.	Sung et al. (2018)	322 respondents in South Korea	Integrated model of the two-sided market of the explosive sharing economy enterprise Airbnb from the perspective of both consumers and providers	Economic benefit, sustainability, enjoyment, social relationship and the network effect (exogenous); attitude (moderator); and behavior intention (endogenous variable)
6.	Grybaitė and Stankevičienė (2016)	287 respondents in Lithuania	Leading factors of using the sharing economy platforms: an easy way to make extra money; supporting individuals and/or small/independent companies; meeting new people and having an interesting experience/doing something most people have not tried yet. Most of the respondents prefer to own things rather than share them	9 factors in sharing economy

(*continued*)

Table I.
Previous research about sharing economy

No.	Author	Sample/country	Context of sharing economy	Variables
7.	Zhang, Gu and Jahromi (2018)	985 respondents	Social and emotional values are assessed as more significant than technical and economic values in terms of customer repurchase intention with regard to services in the sharing economy. The social and emotional values play equal roles in motivating customers to revisit businesses in the sharing economy	Technical value, economic value, social values and emotional value (exogenous variables); and repurchase intention (endogenous variables)
8.	Lee et al. (2018)	296 respondents in Hong Kong	The perceived risks and perceived benefits are crucial in determining users' intention to participate in the sharing economy	Information quality and system quality (exogenous variables); trust, perceived risk, perceived benefit (mediators); and intention to participate
9.	Elmeguid et al. (2018)	502 respondents in Egypt	The current satisfaction with the ride-sharing service provided in Alexandria City. It would help to develop a regulatory approach to ridesharing and enshrines basic safety and consumer protection requirements	Cost saving, awareness/knowledge, service quality, security/reliability and technological factors (exogenous variables); customer satisfaction
10.	Liu and Yang (2018)	394 respondents in China	TAM is applicable to the sharing economy	Subjective norm and imitating others (exogenous variables); perceived usefulness, perceived ease of use and trust (mediators); behavioural intention and gender (moderator)

Table I.

model becomes a reference for our research model to measure the quality of a ride-sharing application.

IS success model was developed for the first time by Delone and McLean (1992) in which there were only two predictors in the beginning, namely, information quality and system quality. It was then developed again by Delone and McLean (2003) into three predictors, namely, information quality, system quality and service quality. The research on ride-sharing economy using predictor from IS success model was conducted by Lee, Chan, Balaji, and Chong (2018). Liu and Yang (2018) used the variables of perceived usefulness and perceived ease of use from the technology acceptance model (TAM) developed for the first time by Davis (1989). TAM is the most popular model for information technology adoption (Cataluña, Gaitán, & Correa, 2015), while several research studies have started comparing or integrating it with IS success model.

The relation between quality of service and customer satisfaction is relatively different between a traditionally managed business and e-commerce portal (Khawaja & Bokhari, 2010). Díez, Coronado and Rodrigues (2012) explain that differences in the nature of services and features require analysis of influential factors based on user opinions and then measure the service quality by using a special measurement instrument. The main challenge to manage e-commerce is to understand the requirement of customers and to develop the existence of Web and proper back-office operation (Barnes & Vidgen, 2002). Zeithaml, Parasurarnan, and Malhotra (2002) stated that the website service quality is an important strategy to support the success. This research assesses the quality of service in the ride-sharing application and conventional delivery service using motorcycle as ordered through a ride-sharing application. The quality of conventional service refers to Parasuraman et al. (1988) in which their research model is often called the SERVQUAL model. Some research studies about sharing economy which refer to the quality of conventional service were conducted by Balachandran and Ibrahim (2017) and Elmeguid et al. (2018).

3. Research methodology
The measurement of research variable used online questionnaires through Google Forms with the measurement of five-point Likert scale. Its target respondents were the customers of ride-sharing service with motorcycle as transportation mode from two largest ride-sharing companies in Indonesia, namely, Gojek and Grab. Statistical analysis is a structural equation model based on covariance which consists of two main stages, namely, measurement model and structural model. The first variable for offline motorcycle taxi service is offline service which has five dimensions (second order), namely, tangible, assurance, reliability, responsiveness and empathy as adopted from SERVQUAL model of Parasuraman et al. (1988). The first variable for online motorcycle taxi service is online service which has three dimensions (second order), namely, information quality, system quality and service quality as adopted from Delone and McLean (2003). There are 523 respondents who filled an online questionnaire and valid data received were 507.

We used Cronbach's alpha and composite reliability (CR) to test the reliability and average variance extracted (AVE) to test the validity of the research instrument.

4. Result and discussion
4.1 Measurement model analysis
The perception of respondents on online and offline service quality in general is relatively high viewed from average perception for every question item which is higher than 3.5. General description of variables and result of the analysis in measurement model are shown in Tables I and II.

Variable	Item	Mean	SD	Loading factor	Cronbach alpha	AVE	CR
Information quality (IQ)	IQ1	3.99	0.856	0.855	0.963	0.7669	0.9634
	IQ2	4.04	0.820	0.898			
	IQ3	4.05	0.857	0.916			
	IQ4	4.04	0.838	0.890			
	IQ5	3.96	0.838	0.900			
	IQ6	3.98	0.847	0.856			
	IQ7	3.88	0.815	0.865			
	IQ8	3.80	0.817	0.822			
System quality (SQ)	SQ1	3.87	0.891	0.736	0.944	0.6794	0.9441
	SQ2	4.03	0.919	0.812			
	SQ3	3.88	0.839	0.775			
	SQ4	4.20	0.916	0.888			
	SQ5	3.95	0.924	0.784			
	SQ6	4.16	0.912	0.883			
	SQ7	3.95	0.864	0.862			
	SQ8	3.95	0.857	0.841			
Service quality (EQ)	EQ1	3.83	0.813	0.859	0.903	0.6945	0.9008
	EQ2	3.76	0.803	0.839			
	EQ3	3.70	0.818	0.792			
	EQ4	3.85	0.807	0.842			
Tangible (TS)	TS1	3.56	0.758	0.833	0.920	0.6989	0.9206
	TS2	3.50	0.753	0.857			
	TS3	3.56	0.721	0.882			
	TS4	3.44	0.737	0.809			
	TS5	3.59	0.747	0.796			
Assurance (AS)	AS1	3.59	0.745	0.843	0.900	0.6475	0.9015
	AS2	3.56	0.809	0.773			
	AS3	3.64	0.763	0.840			
	AS4	3.77	0.811	0.721			
	AS5	3.57	0.775	0.839			
Reliability (RS)	RS1	3.62	0.727	0.725	0.900 (0.907)**	0.4120 (0.6240)**	0.9304 (0.9085)**
	RS2	3.25	0.945	0.585*			
	RS3	3.44	0.784	0.811			
	RS4	3.47	0.796	0.834			
	RS5	3.37	0.837	0.814			
	RS6	3.50	0.766	0.727			
	RS7	3.38	0.839	0.821			
Responsive (OS)	OS1	3.89	0.817	0.876	0.900	0.6656	0.9076
	OS2	3.88	0.815	0.880			
	OS3	3.61	0.786	0.796			
	OS4	3.80	0.777	0.868			
	OS5	3.69	0.902	0.632			
Emphaty (ES)	ES1	3.66	0.824	0.692	0.893	0.5517	0.8980
	ES2	3.71	0.788	0.867			
	ES3	3.67	0.746	0.871			
	ES4	3.75	0.784	0.877			
Trust (CT)	CT1	3.69	0.778	0.849	0.930	0.6985	0.9322
	CT2	3.75	0.780	0.874			
	CT3	3.45	0.802	0.649			
	CT4	3.79	0.775	0.891			
	CT5	3.76	0.729	0.890			
	CT6	3.75	0.786	0.836			

Table II.
Result of
measurement model
and descriptive
statistics of items

Variable	Item	Mean	SD	Loading factor	Cronbach alpha	AVE	CR
Satisfaction (CS)	CS1	3.76	0.812	0.898	0.943	0.8503	0.9578
	CS2	3.80	0.803	0.934			
	CS3	3.80	0.790	0.928			
Loyalty (CL)	CL1	3.61	0.851	0.928	0.939	0.7566	0.9393
	CL2	3.63	0.846	0.935			
	CL3	3.64	0.817	0.865			
	CL4	3.63	0.910	0.819			
	CL5	3.65	0.883	0.793			

Table II.

Notes: *Item dropped; ** after item dropped. AVE = average variance extracted; CR = composite reliability

One item (RS2) from reliability variable is omitted as the loading factor is low, as its AVE value is smaller than 0.5. After this item was omitted, the values of Cronbach α, AVE and CR increased to 0.907, 0.6240 and 0.9085, respectively. In this case, reliability variable uses six items in the analysis of a structural model for hypothesis testing.

4.2 Structural model analysis

A structural model analysis was used to test the research hypothesis using second-order for online and offline service variables. After modification, the empirical model is shown in Figure 1.

Empirical model has goodness of fit which is shown by values of x^2/df = 2.493, incremental fit index = 0.921, Tucker-Lewis index = 0.917, comparative fit index = 0.921 and root-mean-square error of approximation = 0.054. The result of hypothesis testing is shown in Table III.
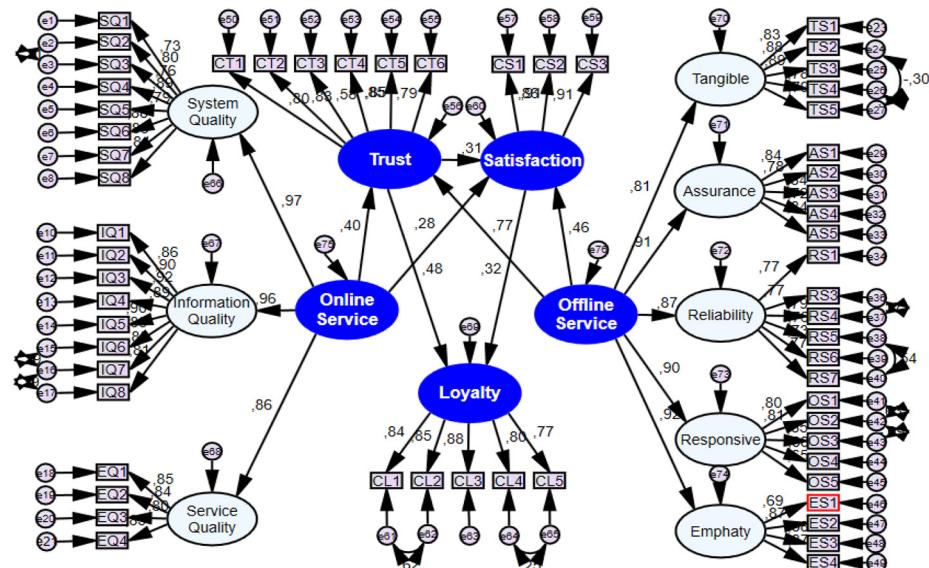

Figure 1.
Standardized model

Both online and offline services are significantly influential (α = 0.001) with positive direction on trust and satisfaction. The better physical the appearance of the motorbike, the better assurance of safety, the more reliable of the offline driver, the faster response by offline driver, and the more empathy by the offline driver, the increasing of customer satisfaction. The higher the customer satisfaction, the more loyal the customer will be.

Trust significantly affects positive direction toward satisfaction and loyalty (α = 0.001). Satisfaction significantly affects positive direction (α = 0.001) toward loyalty. The higher the quality of the system, the quality of information and the quality of services provided by online motorcycle transportation service companies lead to higher customer trust in the company and ultimately more satisfied customers. The higher the customer's trust in the motorcycle transportation service company, the higher the customer satisfaction and ultimately the higher customer loyalty.

The influence of offline service quality in general is higher compared with online service on trust and satisfaction. This research shows that application quality or information system in the ride-sharing still requires the quality conventional service which covers performance of driver and motor vehicle. This research is in accordance with a research by Heidari, Mousakhani, and Rashidi (2014) in terms of the influence of online service on satisfaction, but the influence of offline service with SERVQUAL variable is significant only for empathy and tangible dimensions. Heidari et al. (2014) used e-service quality to measure the online banking service. The effect of service quality on satisfaction is in accordance with a research by Elmeguid et al. (2018) for the ride-sharing customers in Egypt without differentiating online and offline services. The influence of information quality and system quality on trust is in accordance with a research by Lee et al. (2018) in the context of Uber service in Hong Kong.

5. Conclusion and recommendation

5.1 Conclusion
Based on the previous results and discussion, the main result of this study shows that both online and offline ride-sharing services in Indonesia affect loyalty through trust or satisfaction or trust and satisfaction. Both offline and online ride-sharing services directly influence satisfaction and indirectly influence satisfaction through trust.

The effect of indirect offline ride-sharing on loyalty through only trust, and through trust and satisfaction is greater than the indirect effect of online ride-sharing on loyalty through only trust, and through trust and satisfaction. The effect of offline ride-sharing on satisfaction is greater than effect of online ride-sharing on satisfaction. The indirect effect of offline ride-sharing on satisfaction through trust is greater than the indirect effect of online ride-sharing on satisfaction through trust.

No.	Hypothesis	Estimate	SE	CR	P	Remark
1.	Online service to trust	0.347	0.031	11.162	***	Supported
2.	Offline service to trust	0.833	0.056	14.820	***	Supported
3.	Online service to satisfaction	0.276	0.044	6.335	***	Supported
4.	Offline service to satisfaction	0.566	0.086	6.612	***	Supported
5.	Trust to satisfaction	0.352	0.084	4.205	***	Supported
6.	Satisfaction to loyalty	0.328	0.065	5.060	***	Supported
7.	Trust to loyalty	0.548	0.077	7.155	***	Supported

Table III.
Hypothesis testing

5.2 Recommendation

The results of this study indicate that offline service quality has more influential on loyalty than online service quality. Online service quality should have a greater effect than offline service as most public motorbike transportation operations currently applies information and communication technology. This technology is an advantage of online service quality to maximize the services to customers. For future research, we recommend adding competitive strategy variables to determine strategies from offline and online service quality and compare the two. In addition, it is recommended to increase the number of samples by focusing on the community groups of customers of public motorbikes, so that these groups can be compared.

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Associate Editor: Felipe Mendes Borini