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# The Quality of Information System Applications and Service Quality Increases Customer Satisfaction

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# Article

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# Abstract

This paper examines the quality of service and the quality of online motorcycle taxi system applications that can affect consumer satisfaction during the Covid-19 pandemic. This research is the development of the TAM concept that provides hope, and can help to predict user attitudes and acceptance of information system technology. The user's perception of the application system depends on the quality of the information system available, where the quality measures of the online application system are Reliability, Flexibility, Security, Easy to use, Privacy, Accessibility. This research is a survey research using a questionnaire as a source of processed data. Determination of the research sample using justment sampling. Questionnaires were distributed to respondents using the online motorcycle taxi application, in this case GOJEK, as many as 340 respondents. Research data were analyzed using multiple linear regression with SPSS tools. The results of the study explain that only flexibility has no effect on customer satisfaction, while service quality, Reliability, Security, Easy to use, Privacy, Accessibility have an effect on customer satisfaction. Using the TAM concept, online motorcycle taxi providers can retain old customers and find new customers by conducting surveys at certain periods of online motorcycle taxi users' consumers.

*Keywords:* Quality of Information System; Service Quality; Technology Acceptance Model; Motorcycle Taxi; Customer Satisfaction.

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# Introduction

The development of information technology features in the field of online application systems has created many creative industries that change consumer behavior to shop online (Sheth et. al., 2012), this is increasingly evident during the Covid-19 pandemic (Sumarni, et. al., 2020). For our information, the Covid-19 outbreak has destroyed the world economy, which has led to an increase in the cost of human life (Barai & Dhar, 2021). The development of this information technology can stimulate consumer satisfaction who routinely use online application systems (Pereira et. al., 2016). The concept expressed satisfaction Kotler & Keller (2009) is comparing the expectations of someone with the performance or perceived outcome of an existing product or service compared to expectations. In terms of the use of information systems, user satisfaction is important for the main contribution of thought to the quality of information systems (Melchor & Julian, 2008). Information systems are said to be of quality if users of information systems use available information systems and are satisfied with the information systems used (Bukhari, 2005; Situngkir & Napitupulu, 2019). Information system user satisfaction also depends on the quality or success of information systems in helping to complete user tasks and based on the intensity of use (Weber, 1999: 907; Stair & Reynolds, 2010:74). Thus, the user dissatisfaction of information systems because irregularities expectations of users of the system are available.

The emergence of online application system-based transportation in Indonesia, due to the large urban area, dense population, and transportation congestion has become a trigger for the creativity of business people. Transport by using a motorcycle using the *online* application called online motorcycle taxi into alternative transportation, both for everyday use and travel. The presence of online motorcycle taxis is a solution in delivering goods, procuring food and transportation activities. Even though during the Covid 19 pandemic around 2020 there was a decline (Yanti, 2021), *Provider* based transportation online application systems competing to provide the best service to consumers as users of online applications. The COVID-19 pandemic acts as a catalyst that accelerates the emergence of the destructive effects of the digital economy (Xiarewana & Civelek, 2020). Ease of communication, ease of transportation ordering or ordering food, as well as the accuracy and quality of information produced application systems become the first choice of consumers to choose *the provider of the online* motorcycle.

The development of information system technology is felt to be useful in accordance with the perceptions of system users, such as the TAM model developed by Davis (1989). The TAM concept was developed to explain the key factors in the adoption of information technology by users (Handayani, 2007). The TAM concept provides hope, and can help predict user attitudes and acceptance of information technology systems. Most users using or not using applications available to run them that work, and the extent of available application systems give ease to understand and use (Davis, 1989). So, the usefulness of the application system for users when the available system is of high quality so that it will produce quality information from the system itself (DeLone & McLean, 1992; Situngkir & Napitupulu, 2019). The available system can be considered gualified if it meets the criteria of reliability, flexibility, security, easy to use, privacy, accessibility (Lupiyoadi, 2001; Behjati et. al., 2012). So, for the development of this TAM concept, online motorcycle taxi providers can use it to measure the quality of the online application system, so that the system can increase customer satisfaction as an online application system user. In addition to the quality system, it is necessary also the quality of service from *the provider* application motorcycles *online*, because a service is one of the actions that should be taken to maintain consumer (Tipptono, 2008), and can increase consumer satisfaction as users of the system (DeLone & McLean, 1992). This study discusses the quality of service and quality of the system to improve customer satisfaction as the motorcycle application system *online* in the city of Medan, Indonesia. The *online* motorcycle taxi application that is the center of this research analysis is the GOJEK application.

Anticipating consumer dissatisfaction, online motorcycle taxi providers continue to improve the quality of service to consumers. Service to customers is a positive action that must be taken to retain consumers (Choi et. al., 2015). Online motorcycle taxi providers continue to compete, trying to bring in new customers and also trying to minimize the risk of old customers moving to new online motorcycle taxi providers, especially during the Covid-19 pandemic. Service quality is an expectation of the level of excellence and control of this excellence as a tangible manifestation of fulfilling consumer expectations and desires (Tjiptono, 2008:85). Service quality and service user satisfaction are measures of the success of a company in achieving competitive advantage (Sawitri, et al., 2013). The measurement of service quality in this study is to provide satisfactory service, complete service, and reliable service (Tjiptono, 2008).

In addition to service quality, the quality of the application system used by consumers can create customer satisfaction. Concept *Technology Acceptance Model (TAM)* developed by Davis in 1989, can be used as a tool by *the provider* motorcycle taxi online application system to measure the success of the company. The *TAM* concept can also provide the basic information needed regarding the factors that drive the individual's attitude. Quality of the application system can be measured with variable *reliability, flexibility, security, easy to use, privacy,* and *accessibility* (Lupiyoadi, 2001; Behjati et. al., 2012). The information system provided by online motorcycle taxi

providers will have an impact on consumer satisfaction during the COVID 19 pandemic, this is because consumers expect a system that is able to accommodate limited space for movement and limited consumer interaction. Measurement of the quality of information system applications can be seen in table 1.

	Measurement of the quality of information system applications							
No.	Variable		Indicator					
1.	<i>Reliability</i> (Behjati et. al., 2012)	1)	Be Efficient and Effective					
		2)	Response in solving problems					
		3)	Correct service					
2.	Flexibility (Anderson et. al., 2000)	1)	Easy to use anytime and anywhere					
		2)	Keep up with technological developments					
3.	Security (Bilal & Snaker , 2011)	1)	Keep data safe					
		2)	Prevent data corruption					
4.	Easy To Use (Van Riel et al., 2001)	1)	Functional look					
		2)	Language is easy to understand					
5.	Privacy (Behjati et. al., 2012)	1)	Maintain confidentiality of data					
		2)	Record and save data					
6.	Accessibility (Behjati et. al., 2012)	1)	Extensive access network					
		2)	Easy and fast access					

Table 1

Reliability can be defined as the ability of an entity to provide services to consumers according to promises or agreements accurately and reliably (Lupiyoadi, 2001:148). Reliability have an indicator You keep the promise, the response solves the problem, serve it correctly, so do not disappoint consumers even increase consumer confidence (Tjiptono, 2004: 238). Referring to this description, the online motorcycle taxi application must have the reliability of a service that can affect one's satisfaction, can reduce satisfaction or increase satisfaction depending on the services provided to consumers. Thus, reliable system can be measured from the reliability of system operation (Ong et al., 2009). System reliability is focused on consumers 'or users' assumptions that the system used is always well available (Dennis, et al., 2009:281). The reliability of this system also applies to online application systems such as *online* motorcycle taxis. If the online application system is not reliable in meeting consumer needs, especially during the COVID 19 pandemic, it will have a negative impact on the survival of businesses that use online applications.

Flexibility is a characteristic of an information application technology product that has indicators such as flexibility. Easy to use anytime and anywhere, making it easier for consumers to run applications according to their needs and easy to follow technological developments (Anderson et. al., 2000). The online motorcycle taxi application has high flexibility for use by its users because it can be used anywhere and anytime, especially when someone is traveling. High population mobility has a very positive impact on using the *online* motorcycle taxis application, because its use shortens time and is easily accessible. The increasingly fast internet support also encourages the development and utilization of the online motorcycle taxi application which is increasingly high by the community. The design of a system must be able to function and be useful for everyone, this is the result of business development (Kendall & Kendall, 2011:169).

The development of the *online* motorcycle taxis application has made the transaction process that was previously very complex and complicated to become easy because the change in manual procedures has changed to a more practical system that allows people to transact anywhere and anytime. The more flexible a system is, the more consumers will transact with the application. The flexibility of this system is as claimed by online motorcycle taxis, when you need an online motorcycle taxis *driver*, consumers can order it when they meet with the *driver* first, where so far consumers place orders with the application first, so that consumers do not know who is coming. However, This condition has a risk of abuse by online motorcycle taxi drivers, placing fictitious orders, so this should be anticipated with the control system applications, so this must be anticipated by controlling the application system, especially during the COVID 19 pandemic. During the COVID 19 pandemic, the level of dependence of consumers on the online motorcycle taxi application system was very high, because people had limited space for movement and limited interaction, thus the system built by the online motorcycle taxi provider had to be more flexible. The application control system is something that needs to be done to improve the quality of the available systems (Napitupulu, et. al., 2016).

Security and trustworthiness of service usage are the most important factors that users consider before using online applications. Bilal & Sankar (2011) and Khraim et. al. (2011) provide several indicators of security including; guarantee of convenience at the time of transactions,

transactions carried out through the application are accurate and reliable, have a guaranteed *password* and security system, applications are not easily *hacked*/hijacked, guaranteed risk is very low, the communication system at the time of the transaction is strictly confidential. All indicators of *security* put forward Bilal & Sankar (2011) and Khraim et al. (2011) has a significant effect on consumer satisfaction, thus impacting on the level of consumer confidence. Information system security is related to user information security as well, user information security is also a consideration of user satisfaction in the information system (Montesdioca, & Maçada, 2015). Thus, the security guarantees offered by online applications such as online motorcycle taxis will make users feel safe and comfortable making transactions with the available applications. Data security referred to is such as consumer name, consumer address, and consumer telephone number.

A technology or application can be used easily if it has the characteristics of having a convenience value, so that it can affect the level of use and customer satisfaction. Applications can be said to be easy to use if they have characteristics such as easy to understand navigation, attractive and not confusing appearance, functional features, simple and easy to understand language, clear information and the suitability of the size and shape of the application with *hardware* (Van Riel et al., 2001). Perceived ease of use is the extent to which system users believe when using information technology systems will be free from difficulties (Davis, 1989). Chesanti & Setyorini (2018) stated that easy to use has an effect on customer satisfaction of PLN mobile. Based on this description, it can be stated that an application that is easy to use, users will benefit and help to save money, time and effort so that users are satisfied with the ease of using the application. This view can be used by *online* motorcycle taxi *providers* to measure the success of the developed online application system.

Privacy is a situation where a person allowed to keep individual information about her. Privacy also defined as the ability of individuals to manage completeness of personal information, where the information is private it will need to be right and the other party. The results of research by Kinasih (2012) found a significant influence between security and privacy on *online* customers, besides that security and privacy also have an influence on *online* customer trust. This also means that privacy provides services to certain consumers but cannot be seen by other *users*, so that data privacy can increase consumer satisfaction by providing personal services to them (Girsang et. al., 2020; Wang et. al., 2020). Privacy is also required for hospital patients (Nayeri & Aghajani, 2010; Lin & Lin, 2010), and a worker in the use of human resource systems and space to work in companies is required (Lukaszewski, et. al., 2008; Kim & de Dear, 2013). If the privacy of a *user* is guaranteed, customer satisfaction and loyalty will be high. This means that the confidentiality of *user* data is strictly guarded by the company. The data is protected and safeguarded by the owner of the online application system, thereby minimizing the possibility of data misuse.

Accessibility is defined as the ability of customers to access information and services on the *web*, depending on the format of the content; hardware and software settings; and the internet connection used by customers (Goodwin-Jones, 2001). According to Parasuraman et. al., (1985) accessibility means short waiting times/time savings, as well as convenience for customers with flexible operational times. Research conducted by Cussoy et. al. (2013) stated that accessibility has a significant effect on customer satisfaction. Based on this description, high accessibility can be seen from the ease with which users can access the site or application quickly and does not take a long time so that it can help them complete work or order on the available online application.

# **Research Method**

This study uses an explanatory survey method, in which this research explains the causal relationship and correlation between variables through hypothesis testing (Singarimbun & Effendi, 1995:5). The survey was conducted to collect authentic evidence that is real as a fact by asking people who are intended as resource persons to help answer research questions related to the effect of service quality and the quality of the online motorcycle taxi information system application on customer satisfaction. The quality of the application of online motorcycle taxi information systems is proxied by using reliability (Lupiyoadi, 2001: 148; Behjati et al., 2012), flexibility (Anderson et al., 2000), privacy (Behjati et al., 2012), accessibility (Behjati et al., 2012), Easy to Use (Van Riel et al., 2001), security (Bilal & Snaker, 2011). The research data was tested using statistical software, namely SPSS using an alpha significance level of 5%. The research model is shown in Figure 1.

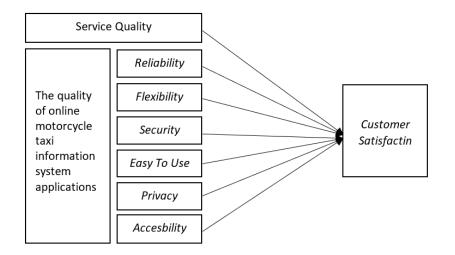


Figure 1. Research Model

Determination of the research sample using justment sampling. Justment sampling was used because it is not known with certainty the number of consumers who use the online motorcycle taxi application system, while from the results of observations made by the people of the city of Medan, Indonesia, they are very enthusiastic about using online motorcycle taxis. For information, the city of Medan is the third largest city in Indonesia after Jakarta and Surabaya. So, sampling in the city of Medan is considered representative of consumers who use online motorcycle taxi applications. Based on information from the Central Statistics Agency, the population of the city of Medan is 2,229,408 people. Assuming the existing population of Medan city, the determination of the sample is taken using the Slovin formula, namely

$$n = \frac{N}{1 + (N \ge e^2)}$$

The sample calculation results obtained were 400 samples from the assumed population in Medan city, while 340 samples could be processed for distributing questionnaires to respondents.

#### **Results & Discussion**

This study was analyzed using multiple regression analysis by examining the effect of service quality and online application information system quality on customer satisfaction. The quality of the online application information system tests all dimensions of customer satisfaction, where the quality of the online application system being tested is reliability, flexibility, security, easy to use, privacy, and accessibility. There is a significant influence on online motorcycle taxi customer satisfaction in the city of Medan. The test results can be seen in table 2.

Table 2 Statistical Test Results								
Variable	R	Coefficient	t Count	Sig.	Decision			
	Square							
Service Quality →Users Satisfaction		0,261	4,399	0,000	Take effect			
Reliability →Users Satisfaction		0,242	4,165	0,000	Take effect			
Flexibility →Users Satisfaction		0,060	1,266	0,207	No Influential			
Security $\rightarrow$ Users Satisfaction	0.627	-0,109	-2,043	0,042	Take effect			
Easy to Use →Users Satisfaction		0,110	1,993	0,047	Take effect			
Privacy →Users Satisfaction		0,096	2,019	0,044	Take effect			
Accessibility →Users Satisfaction		0,295	6,213	0,000	Take effect			

Table 2 explains that of all the independent variables used are very strong in determining the level of customer satisfaction as a user of the online application system (online motorcycle taxi), because the value of the variable square r studies show the numbers reached 62.7%. Service quality has a significant effect on customer satisfaction as an *online* motorcycle taxi application user. For the quality of the application system is measured using a variable reliability, flexibility, *security*, *easy to use*, *privacy*, and *accessibility*, found flexibility which has no effect on customer satisfaction.

# The Effect of Service Quality on Customer Satisfaction

Based on the results of the analysis, it can be seen that there is a significant influence between service quality and *online* motorcycle taxi customer satisfaction in the city of Medan. These results indicate that with the increasing quality of service, consumers in the city of Medan are satisfied with the available online motorcycle taxi application system. The service that consumers feel is that problems rarely occur when using the application, consumers feel the application provider is ready to serve the best possible, consumers feel that the online motorcycle taxi application has good service quality in serving consumers and consumers also feel the online motorcycle taxi application system has stability. This study is in line with research conducted by Dewi & Sumbogo (2018) and DeLone & McLean (1992) that quality service will affect customer satisfaction as users of application systems. Even though online motorcycle taxi users feel that the quality of service is good, there is dissatisfaction that online motorcycle taxi users feel comes from online motorcycle taxi driver services, so consumers are disappointed by the impact of disrespectful behavior, thus affecting consumer judgment on online motorcycle taxis. Excellent service during a pandemic by digital companies is highly expected by consumers, because in this condition consumers have narrow space for movement and even a lockdown occurs (Bagchi et.al, 2020).

# The Effect of Reliability on Customer Satisfaction

Based on the results of the analysis, it can be seen that there is a significant influence between *reliability* on *online* motorcycle taxi customer satisfaction in the city of Medan. These results indicate that the increasing reliability of the application system will increase customer satisfaction as a user of the *online* motorcycle taxi application system. The results of this study found an increase in consumer satisfaction because consumers feel that problems rarely occur when using the application, consumers feel that the application provider is ready to help provide solutions, consumers feel that the *online* motorcycle taxi application has reliability in serving consumers, and consumers also feel the *online* motorcycle taxi application system has stability. This study is in line with research conducted by Alvarez & Hadi (2012) which states that the reliability of a system has a significant effect on customer satisfaction. Thus, a reliable system can be measured by the reliability of system operation (Ong *et. al*, 2009). System reliability is focused on consumers 'or users' assumptions that the system used is always well available (Dennis et. al, 2009: 281).

# The Influence of Flexibility on Customer Satisfaction

The analysis showed that no significant difference between *flexibility* on customer satisfaction motorcycle *online* in Medan. Flexibility does not affect consumer satisfaction as users of the online application system because respondents still feel that the online motorcycle taxi application system is not flexible. Consumers who want to change the goal cannot be done easily when the consumer has placed an order for the destination, the consumer must cancel the original goal first and then he can change the desired destination. In addition, online motorcycle taxi applications are still minimal in the network used in certain areas in the city of Medan, it means that certain areas are still unable to access the online motorcycle taxi application, while Medan is already a Metro city. These findings are different from research conducted by Anderson (2002) that the flexibility of application information systems affects customer satisfaction as users of online application systems. A quality system must be designed to be useful for everyone who will need it as a result of business development, including customers (Kendall & Kendall, 2011:169).

# The Effect of Security on Customer Satisfaction

Based on the results of the analysis, it can be seen that *security has* a significant effect on customer satisfaction of *online* motorcycle taxis in the city of Medan. These results indicate that the increasing *security* in the *online* motorcycle taxi application system will increase customer satisfaction as a user of the application system. Customer satisfaction is obtained from the use of the *online* motorcycle taxi application system, because *online* motorcycle taxi *providers* provide *login password* facilities that are guaranteed security, consumers feel that *online* motorcycle taxi application providers guarantee the security of user data archiving, consumers feel that damage or loss of data in transactions is rare, and consumers also feel that the online motorcycle taxi application records all transaction data so that transaction security is maintained and is not lost or damaged. The results of this study are consistent with the research of Rahadi (2011) and Girsang et. al. (2020) which proves that *security* affects customer satisfaction. In addition, this study has proven all the *security* indicators proposed by Bilal & Sankar (2011) and Khraim et. al. (2011) has a

significant effect on customer satisfaction, thus impacting on the level of consumer confidence. Information system security related to user information security is also a consideration of user satisfaction in the information system (Montesdioca & Maçada, 2015).

# The Effect of Easy to Use on Customer Satisfaction

Based on the tests conducted, it was found that there is a significant influence between easy to use on customer satisfaction of online motorcycle taxis in the city of Medan. Perceived ease of use is the extent to which system users believe when using information technology systems will be free from difficulties (Davis, 1989). The impact of Easy To Use on consumer satisfaction as users of the online motorcycle taxi application system because consumers feel that the online motorcycle taxi application has technological advantages, consumers feel that the online motorcycle taxi application has access to features that users can use easily, consumers feel the language used in the online motorcycle taxi application is easy understandable , and consumers feel the features displayed in the application display information very clearly and easily understandable. Although in general Easy To Use affects consumer satisfaction, there are still responses from respondents that need to be improved, namely the ease of using the online motorcycle taxi application when ordering via promos or discounts. Too many discounts through vouchers, but a little discount when transacting cash. Our research is in line with research conducted by Chesanti & Setyorini (2018), even though they do research on different applications, ie PLN Online, but have similarities in the use of online applications. Applications can be said to be easy to use if they have characteristics such as easy to understand navigation, attractive and not confusing appearance, functional features, simple and easy to understand language, clear information and the suitability of the size and shape of the application with hardware (Van Riel et. al., 2001).

# The Influence of Privacy on Customer Satisfaction

Based on the results of the analysis, it is found that there is a significant influence on *privacy* on customer satisfaction as a user of the *online* motorcycle taxi application system in the city of Medan. Influential *privacy* on customer satisfaction, because consumer feel Applications of *online* motorcycle taxis prioritizes the confidentiality of transactions of their customers so that there is no gap in the service, consumers find the application of online motorcycle taxis has been maintaining the privacy of users' accounts so comfortable in doing any transaction, and consumers find application of online motorcycle taxis can record all confidential user transactions. Privacy in the *e-commerce* business is very necessary to create consumer satisfaction and trust in available applications (Kinasih, 2012; Girsang et. al., 2020; Wang et. al., 2020). Apart from the *e-commerce business*, privacy is also needed for hospital patients (Nayeri & Aghajani, 2010; Lin & Lin, 2010), and a worker in the use of human resource systems in companies (Lukaszewski, et. al., 2008), even the distance between employees in one room is also necessary for privacy to increase job satisfaction (Kim & de Dear, 2013).

# The influence of Accessibility on Customer Satisfaction

The results of the study found that *accessibility* has *an* effect on customer satisfaction for *online* motorcycle taxis in the city of Madan. Influential *accessibility* to the satisfaction of consumers as users of the online motorcycle taxi application system because consumers feel the system a application motorcycle *online* has a very extensive network accessibility making it easy for in use, consumers feel that the *online* motorcycle taxi application system has supporting options in accessing transactions made by users, and consumers also feel that the transaction speed of the *online* motorcycle taxi application system for access to user transaction payments is very good . The results of this study are in line with the research of Cussoy & Darmawan (2013) which found that accessibility has an effect on customer satisfaction. Accessibility is an important component of the overall level of service provided to users of the *online* application system. The indicator that must have accessibility is having a network that is widespread and can be accessed at any time (Behjati et, al., 2012).

# Conclusions

This study has examined the effect of service quality and application system quality on consumer decisions as users of the *online* motorcycle taxi application system in Medan during the COVID 19 pandemic. The quality of the application system online using perspective of principle *Technology Acceptance Model (TAM)* developed by Davis (1989) with a measurement variable *Reliability, Flexibility, Security, Easy to use, Privacy,* and Accessibility. From the test results, only *Flexibility* has no effect on customer satisfaction as a user of the *online* motorcycle taxi application

system. This affects the quality of service provided by *online* motorcycle taxi *providers* because consumers feel that problems rarely occur when using the application, and consumers also feel that the online motorcycle taxi application system provider is ready to serve the best possible when a problem occurs with the application system used. The reliability of the *online* motorcycle taxi system application, consumers feel that the application provider is ready to help provide solutions, consumers feel that the *online* motorcycle taxi application has reliability in serving consumers, and consumers also feel the *online* motorcycle taxi application system has stability.

Flexibility does not affect consumer satisfaction as users of the online application system because respondents feel the online motorcycle taxi application system is not flexible. When the consumer wants to change the goal, it cannot be done easily if the consumer has placed an order for the destination, the consumer must cancel the original destination first before changing the desired goal. For security, the effect is predictable because online motorcycle taxi providers provide login password facilities that are guaranteed security, consumers feel that online motorcycle taxi application providers guarantee the security of user data archiving, consumers feel that there is rarely damage or loss of data in transactions, and consumers also feel that the online ojek application records everything. transaction data so that transaction security is maintained and is not lost or damaged. Influential Easy to Use on customer satisfaction as the application system motorcycle online for consumer to find applications motorcycle online has the advantage of technology, consumers find the application motorcycle online access features which easy to use and easy to understand by users, and consumers feel the language used in The online motorcycle taxi application is easy to understand. Influential *privacy* on customer satisfaction, because consumers feel Applications taxi motorcycle online priority to the secrecy of consumer transactions, and also consumers find applications motorcycle online can record all user transactions in secret. Influential accessibility on customer satisfaction because consumers find the application system motorcycle online has a very extensive network accessibility so easy to use, and consumers also felt the application system motorcycle online options available boosters in accessing the transactions performed by users.

The results of this study have implications for maintaining customer satisfaction as users of *online* application systems can use the *TAM* principle. Using this principle, *online* motorcycle taxi *providers* can retain old customers and find new customers by conducting surveys at certain periods of *online* motorcycle taxi users. If online motorcycle taxi *providers* do not make improvements to customer complaints, they will be crushed by service competition provided by other *providers*.

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