

# Analysis of Factors Affecting E-Loyalty with E-Trust and E-Satisfaction as Mediation Variables on Halodoc Application Users in Indonesia

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## Abstract

This study aims to analyze: the influence of factors that affect e-loyalty with e-trust and e-satisfaction as mediating variables on Halodoc application users. Data collection was carried out using a questionnaire. The target population of the study is individuals aged > 17 years, who have done online teleconsultation at Halodoc at least 2 times and are willing to be respondents. Determination of the number of samples is determined by 280 samples. The sampling technique used was purposive sampling. The data was processed using Partial Least Square-Structural Equation modeling (PLS-SEM). The results show that the Technology Acceptance Model factors such as user interface quality, perceived security risk, and perceived privacy have a positive effect on e-trust and information quality, perceived security risk, perceived privacy, and e-commerce awareness have a positive effect on e-satisfaction, in This study found that information quality and e-commerce awareness do not have a positive effect on e-trust and user interface quality does not have a positive effect on e-satisfaction. Finally, e-trust has a positive effect on e-loyalty and e-satisfaction has a positive effect on e-loyalty for Halodoc application users in Indonesia. Managerial implications based on the results of data analysis, Halodoc must maintain the visual design of the application, display attractive information, the quality of the features contained in the application, update and provide up-to-date health information, maintain the security of patient's data and also providing 24-hour customer service, increasing awareness by increasing service promotions, providing public webinars or health talks, providing compensation to customers if there are problems regarding the services provided by Halodoc.

*Keywords:* Perceived Security Risk; Perceived Privacy; E-Commerce Awareness; E-Trust, E-Satisfaction; E-Loyalty

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## 1. Introduction

Health applications such as telemedicine a technology that allows consultation between patients and general practitioners and specialists without distance barriers can be done anywhere and anytime, of course, this has a positive impact on the effectiveness of health services around the world. With this telemedicine, of course, patients only need to provide electronic devices such as cell phones and by uploading telemedicine applications to make appointments with doctors online through the application without having to meet face to face.

With the increasing number of smartphone users in Indonesia accompanied by a lack of doctors in Indonesia, of course, telemedicine applications will become one of the applications that are needed. Based on data taken by Newzoo in 2020 about 10 countries with the most smartphone users, Indonesia is in the 4th position with 170.4 million smartphone users, and this illustrates that the penetration of smartphone use in Indonesia has reached 61.7 % of the total population in Indonesia.

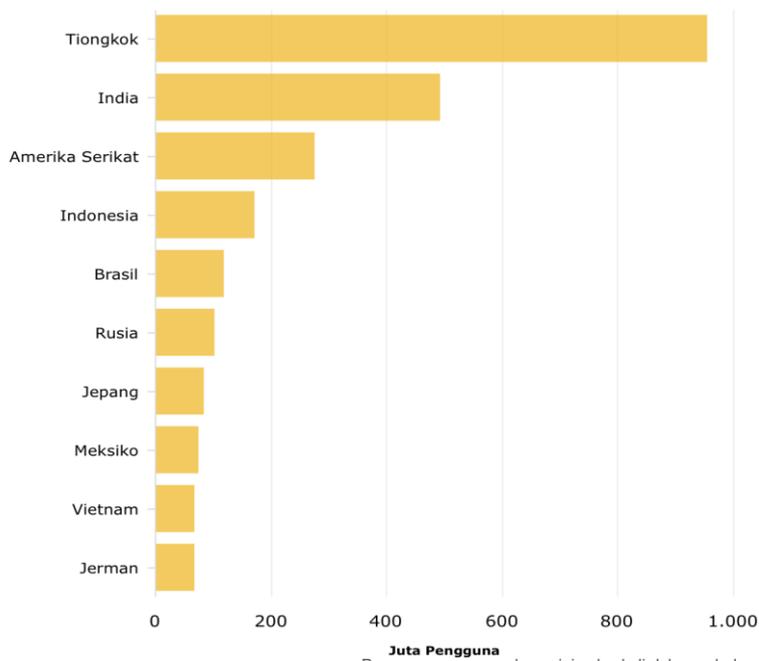
Since the beginning of 2020, Indonesia has been hit by the COVID-19 outbreak where which has certainly experienced an increase in the use of telemedicine applications. In a quote from the Ministry of Communication and Information in June 2020, the use of telemedicine applications has increased to reach 443% since the beginning of the COVID-19 pandemic in Indonesia, and the quote states that before the COVID-19 pandemic, telemedicine application users in Indonesia were only around 4 million users and Currently, telemedicine application users have reached more than 15 million users (Kominfo, 2020). With the rapid rise of telemedicine application users in Indonesia, there is still little research conducted in Indonesia regarding telemedicine applications, especially in Indonesia and one of the challenges that will be faced by large companies is to provide quality health services at affordable prices.

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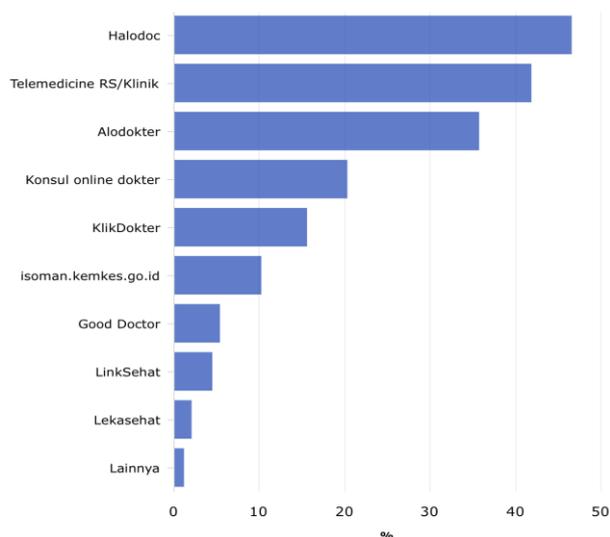
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Halodoc is a technology company that provides health teleconsultation. Halodoc company is a company founded by PT. Media Dokter Investama and has been initiated in 2016 by Jonathan Sudharta the main founder with the main goal of facilitating access to health for all Indonesian people. Halodoc has also provided health services in a network covering 52 cities in Indonesia. In 2022, Halodoc will become the most widely used telemedicine application by the people of Indonesia, based on data from a survey conducted by the Katadata Insight Center (KIC), the highest percentage of telemedicine application users is Halodoc, which is 46.5%, followed by Alodokter application users, namely as much as 35.7%.  
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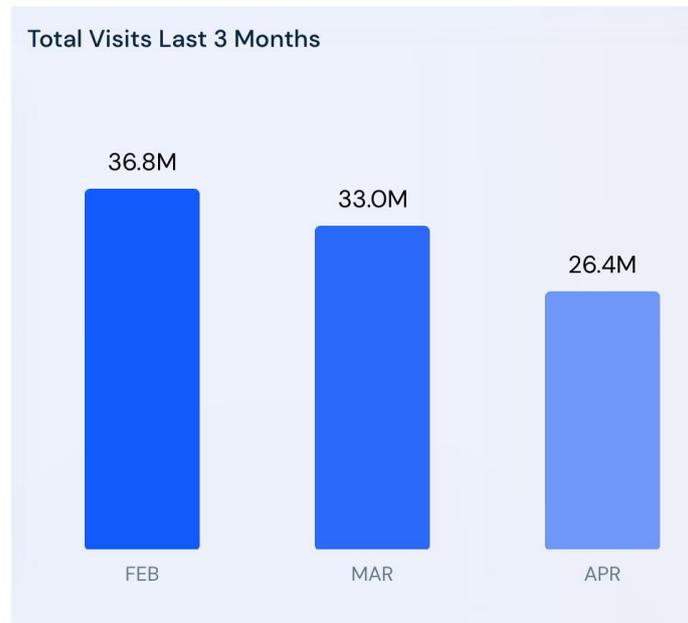


**Figure 1.** Countries with the most smartphone users (2020)  
Source: Newzoo, 2020



**Figure 2.** The Most Used Telemedicine & Health Facilities in Indonesia (2022)  
Source: Katadata Insight Center, 2022

Based on data taken from similar web related to the traffic numbers of Halodoc application users, it was found that the use of the Halodoc application has decreased in the past 3 months, namely in February - April 2022. This may have occurred due to a gap between trust, user satisfaction, and Halodoc application user loyalty.



**Figure 3.** Halodoc Application User Traffic  
Source: [www.similarweb.com](http://www.similarweb.com), 2022

Based on observations, it turns out that there are still many negative reviews given by Halodoc users, such as long service, delivery errors, errors in booking the COVID-19 rapid test or PCR examination, long drug delivery, and services provided by doctors who serve.

Based on research conducted by (Aslam et al., 2020) states that there is an influence between the Technology Acceptance Model (TAM) on user trust which affects loyalty. TAM is a model used to determine user acceptance of the system. In the modified TAM model, several elements are used by attributes in a website that can increase customer trust and also the convenience and security factors in using online-based transactions. Other research conducted by (Gotama & Indarwati, 2019), (Kasih & Moeliono, 2020), and (Juwaini et al., 2022) also states that there is an influence between trust and loyalty mediated by satisfaction.

Based on the statements collected by the researchers above, of course, the Halodoc company needs to prioritize user satisfaction to get positive ratings from users and increase user trust which leads to the loyalty of Halodoc application users. By looking at some negative reviews from Halodoc users, it can be said that there is a problem between trust and user satisfaction that can affect user loyalty. Therefore, it is important to research the factors that can affect trust in user satisfaction and loyalty of Halodoc application users.

This research is a modification of the study conducted by (Aslam et al., 2020) and Mustafa (2011). In the first study, the research model tested 3 variables, namely TAM as an independent variable, TAM is a model used to determine user acceptance of the system, in the modified TAM model there are several elements used attributes in a website that can increase customer trust and also the convenience and security factors in the use of online-based transactions. E-Loyalty was the dependent variable and e-trust was a mediating variable where in the second study, the research model tested 4 variables, namely TAM as the independent variable with e-loyalty as the dependent variable where e-trust and e-satisfaction were the mediating variables. In this study, the modification of the model based on the TAM model which was updated in the research conducted by (Aslam et al., 2020) was then supported by the research model conducted by Mustafa (2011). The modification of this study aims to determine whether the results of previous studies have a relationship with one another.

## 2. Literature Review

### 2.1. E-Loyalty

According to (Rini & Absah, 2015), brand loyalty can be interpreted as repeated purchases continuously within a certain time. With a behavioral approach, brand loyalty can be measured through:

- (1) The proportion of the frequency of buying a brand compared to the number of purchases in a certain time
- (2) Actions taken when getting the brand's product is not available at the place of purchase

According to (Ashari et al., 2013) (Rini & Absah, 2015) classifies brand loyalty based on the proportion of purchases

- (1) Undivided loyalty: within a certain period, consumers will continue to buy product A without buying another product
- (2) Loyalty sometimes switches (occasional switch): within a certain time, consumers are loyal to several brands randomly
- (3) Switch loyalty: over some time, consumers are loyal to two brands in turn
- (4) Divided loyalty: over a certain period, consumers are loyal to two brands periodically alternately
- (5) Brand indifference: over some time, consumers are not brand-oriented

In a note, (Ashari et al., 2013) states that consumers are categorized as loyal if the proportion of purchases of a product brand to total purchases within a certain period is more than 50%. According to Lawfer (2004), consumers are not always loyal or disloyal, therefore, loyalty is a consumer response to the company's actions and business. In other words, loyal customers are easier to do business with and easier to predict and companies no longer have to incur the associated costs of attracting new customers. Companies with a loyal customer base enjoy greater profitability in good economic times and rely on the financial position of loyal customers to help them stay afloat in difficult financial conditions (Lawfer, 2004).

## 2.2. *Technology Acceptance Model (TAM)*

Based on several previous studies related to e-commerce, several theories have been used such as the Technology Acceptance Model (Silva, 2015), the Theory of Reasoned Actions (Madden et al., 1992), and the Expectation Confirmation Theory (Oliver, 1980). In 1995, Davis further extended the TRA theory to support the consumer trust model. Based on the theory of TAM (Silva, 2015) and TRA (Madden et al., 1992), (McKnight et al., 2002) proposed a model of customer trust in e-commerce (Mustafa, 2011)

(Silva, 2015) extend the theory of TRA which is called TAM, this theory extension is used for information systems that explain consumer acceptance of the use of information technology. Based on this theory, there are 2 elements such as perceived ease of use and perceived usefulness to determine consumer behavior towards the practical use of technology and increase system use. Perceived usefulness explains how the system can improve worker performance while perceived ease of use explains how easy it is to use the technology (User Interface Quality), this theory also reflects consumer attitudes towards behavior that affect behavioral intentions to use the system. In this study, TAM theory (Davis, 1989) has been applied to support the relationship between User Interface Quality and e-commerce awareness with trust and loyalty. Based on the theory of TRA and TAM, (McKnight et al., 2002) proposed a research framework for e-commerce customer trust, website attributes can create customer trust and influence behavior related to consumer trust.

## 2.3. *E-Trust*

E-trust is an extension of Electronic Trust which means trust in internet-based services, besides that, E-trust can be understood as trust in service provider companies facing online risks (Nawangasari & Putri, 2020). (Al Shorman et al., 2002) in (Aslam et al., 2020) states that consumer trust is closely related to consumer confidence. E-trust is a belief formed by online consumers towards online-based businesses as well as consumer behavior towards online service providers in the future. According to Lee (2005), the trust factor will affect consumers in making online purchases and also affect consumer attitudes towards purchasing through online-based companies, if a consumer feels dissatisfied and lacks confidence in the online-based company, of course, a consumer will switch to looking for an online-based company. other online.

## 2.4. *E-Satisfaction*

According to Minta (2018), consumer satisfaction is the main factor that needs attention from managers of a company. The company's competitive advantage is it provides satisfaction to consumers than its competitors, performance exceeds consumer needs, and allows better performance than its competitors. Several statements were put forward by several researchers such as (Bloemer et al., 1998), Forner et al (1996), (Jamal & Naser, 2002) stating that consumer satisfaction is generated when the product or service options provided by the company match or exceed their expectations ((DAM & DAM, 2021).

### 2.5. *Effect of User Interface Quality on E-Trust*

According to (Ribbink et al., 2004), User Interface Quality is expressed as a tangible aspect or customer perception on e-commerce website pages. According to (Chang, 2009), the user interface acts as the face and atmosphere of e-commerce services where users can interact with e-service providers, in addition, the quality of the website interface has a positive effect on consumer intentions, which generates a lot of sales, research conducted by Chang conducted on the online shopping industry in Taiwan. Based on other researchers such as (Eid, 2011) also stated that the quality of the website interface turned out to significantly affect e-customer trust. (Eid, 2011) research is research conducted in various industries such as e-banking services, booking of airline tickets, educational resources, trading of stocks, and online shopping where Eid conducted the research in Pakistan and Mustafa conducted research in Saudi Arabia. Likewise, research conducted by (Park et al., 2019) investigated the factors that influence consumer purchases for online shopping in Korea, and in this study, it was found that there was a positive influence between User Interface Quality on website user commitment. According to (Aslam et al., 2020), User Interface Quality has a positive and significant effect on e-trust.

H<sub>1</sub>: User Interface Quality has a positive effect on e-trust

### 2.6. *Effect of Information Quality on E-Trust*

According to (Park et al., 2019), the quality of information on the website is a perception from consumers of information about products or services provided by the provider. The quality of information on the website also shows the company's ability to provide the information expected by users, the quality of this website is one of the important keys to the success of e-commerce service providers in evaluating website use. The quality of information on a website generally depends on the availability of products on the website, the quality of service from the provider, website design, ease of use, and product quality.

H<sub>2</sub>: Information Quality has a positive effect on e-trust

### 2.7. *Influence of Perceived Security Risk on E-Trust*

According to (Chang, 2009), customer perceptions of security in e-commerce activities are expressed as security in conducting transactions in buying a product or service, so if the level of security can satisfy consumer expectations, consumers may want to release their private information and try to buy with convenience, research conducted by (Park et al., 2019) was conducted on the online shopping industry with research results stating that there is a positive influence between perceived security risk on e-trust. To increase customer trust, e-commerce service providers can improve website security and reduce customer perceptions of local environmental risks (Warrington & Shim, 2000). The TRA model supports the relationship between perceived security and e-trust.

H<sub>3</sub>: Perceived Security Risk has a positive effect on e-trust

### 2.8. *Effect of Perceived Privacy on E-Trust*

According to (Glavas & Godwin, 2013), perceived privacy is conceptualized as the ability of users to control access to information from third parties in conducting transactions or providing personal information. A researcher named Sharma (2014) conducted a study on the factors that affect the trust of e-commerce users and consumer privacy, where it revealed that e-commerce ethics is positively related to privacy which helps in retaining users. (Park et al., 2019) states that privacy is the key to increasing new e-commerce users as well as retaining existing users. Based on research conducted by (Eid, 2011) stated that perceived privacy has a positive effect on e-trust. Based on research conducted by (Al-Adwan et al., 2020) also states that perceived privacy has a positive effect on e-trust. In addition, (Aslam et al., 2020) reveals that perceived privacy has a positive effect on e-trust.

H<sub>4</sub>: Perceived Privacy has a positive effect on e-trust

### 2.9. *Effect of E-Commerce Awareness on E-Trust*

According to Najafi (2012), e-commerce awareness is the user's trust or knowledge of e-commerce services about products and services. A lack of awareness can make consumers hesitant to adopt e-commerce services in developing countries (Haijli, 2014). Existing literature shows that the possibility and awareness of customers to conduct online transactions has not been studied much, which is one of the keys to success in conducting e-commerce. The research of (Lane & Jacobson, 1995) and (Ha & Perks, 2005) stated that e-commerce awareness has a significant positive effect

on e-satisfaction, however, e-commerce awareness does not have a positive effect on e-trust and according to (Ha & Perks, 2005) This is because e-commerce awareness indirectly affects e-satisfaction as a mediation, compared to a direct effect on e-trust. Research conducted by (Aslam et al., 2020) shows that e-commerce awareness has a positive effect on e-trust.

H<sub>5</sub>: E-Commerce Awareness has a positive effect on e-trust

#### 2.10. *Effect of User Interface Quality on E-Satisfaction*

Based on research conducted by (Eid, 2011), states that User Interface Quality has a positive effect on E-Satisfaction. (Subowo, 2020) also stated the same that User Interface Quality has a significant positive effect on E-satisfaction.

H<sub>6</sub>: User Interface Quality has a positive effect on E-satisfaction

#### 2.11. *Effect of Information Quality on E-satisfaction*

Based on research conducted by (Eid, 2011) stated that there is a positive influence between information quality on e-satisfaction, other research conducted by (Subowo, 2020) also states the same thing that there is a positive relationship between information quality and e-satisfaction.

H<sub>7</sub>: Information Quality has a positive effect on E-satisfaction

#### 2.12. *Influence of Perceived Security Risk on E-satisfaction*

Luqman (2018) states that the security system in transactions is credible and reliable and is equipped with several confidentiality prerequisites in the form of a password so that users are not easily disturbed or hijacked by hijackers and access data that can only be accessed by users. This proves that the security system also affects customer satisfaction, if the ability of online applications can give trust to users, then users will feel more satisfied. Based on research conducted by (Eid, 2011) states that there is no positive relationship between perceived security risk and e-satisfaction. However, another study conducted by (Subowo, 2020) stated that there was a positive relationship between perceived security risk and e-satisfaction.

H<sub>8</sub>: Perceived Security Risk has a positive effect on E-satisfaction

#### 2.13. *Effect of Perceived Privacy on E-satisfaction*

According to (Susilo, 2017), privacy is a personal service between companies and users to access users' personal information, this privacy data can be stored as evidence of the use of applications that have been. In the sensitive nature of transactions, the user data privacy system ensures that user data will not be disseminated. Based on research conducted by Mustafa (2011) states that there is no positive influence of perceived privacy on e-satisfaction, but research conducted by (Flavin et al., 2006) stated that perceived privacy is an antecedent to the formation of trust because of the nature of the internet, (Subowo, 2020) stated that there was a positive effect of perceived privacy on e-satisfaction.

H<sub>9</sub>: Perceived Privacy has a positive effect on E-satisfaction

#### 2.14. *Effect of E-commerce Awareness on E-Satisfaction*

According to (Najafi, 2012), e-commerce awareness is the user's trust or knowledge of e-commerce services about products and services. A lack of awareness can make consumers hesitant to adopt e-commerce services in developing countries (Haijli, 2014). Existing literature shows that the possibility and awareness of customers to conduct online transactions has not been studied much, which is one of the keys to success in conducting e-commerce. Based on research conducted by Sudirman Zaid (2020) states that e-commerce awareness has a positive influence on e-satisfaction.

H<sub>10</sub>: E-Commerce Awareness has a positive effect on E-Satisfaction

2.15. *Effect of E-Trust on E-Loyalty*

Based on research conducted by Aslam (2021) states that e-trust has a positive effect on e-loyalty. Other research conducted by (Hidayat et al., 2016) and Gotama (2019) also revealed that e-trust has a positive effect on e-loyalty. In addition, (Kartono & Halilah, 2019) also revealed the same thing, namely e-trust has a positive effect on e-loyalty.

H<sub>11</sub>: E-Trust has a positive effect on E-Loyalty

2.16. *Effect of E-Satisfaction on E-Loyalty*

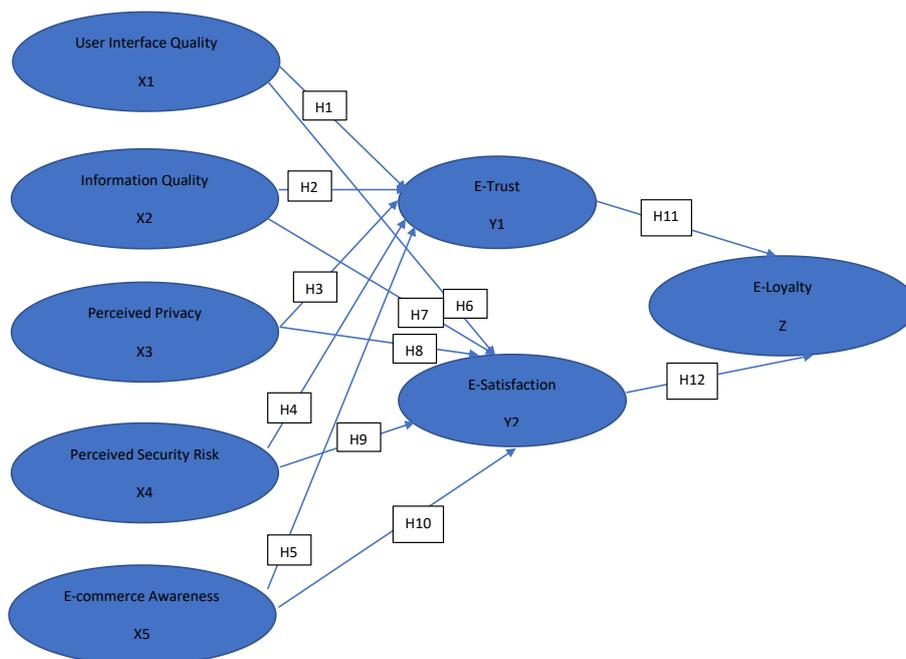
Based on research conducted by Adwan (2020) states that e-customer satisfaction has a positive effect on e-loyalty. Based on Gotama (2019) also revealed the same thing that e-satisfaction has a positive effect on e-loyalty. Therefore, based on the results of the research above, the researchers hypothesize as follows:

H<sub>12</sub>: E-Satisfaction has a positive effect on E-Loyalty

3. Method

This study analyzes the effect of the Technology Acceptance Model, e-trust, and e-satisfaction on e-loyalty. The object of research as an independent variable is the technology acceptance model (user interface quality, information quality, perceived security risk, perceived privacy, and e-commerce awareness). The object of research which is the dependent variable is e-loyalty to Halodoc application users in Indonesia. The research object as the mediator variable is e-trust and e-satisfaction. The purpose of this study was to determine whether there is an influence between the technology acceptance model on e-loyalty with e-trust and e-satisfaction as mediating variables on Halodoc application users in Indonesia. In this study, the census was used because the target population was all Halodoc application users who had met the inclusion criteria and exclusion criteria. The criteria of respondents, namely over 17 years old, have used Halodoc teleconsultation services at least 2x in the last 1 year, and are willing to be research respondents. Researchers used primary data. The primary data will be collected through an online questionnaire using Google Forms. The scale of the instrument used to measure the variables in this study is the Linkert. The primary data that has been obtained will be processed and analyzed using the Structural Equation Model (SEM) technique.

This research model is a modification of the research model conducted by Aslam W, et al (2020) and Mustafa (2011), so the models that can be proposed in this study are as follows:



**Figure 3.** Research model  
Source: Aslam W, et al (2020) and Mustafa (2011)

**4. Results**

The results showed that the profile of respondents was based on gender, where the majority of respondents were women who obtained 58.2% of the total respondents, and 41.8% of male respondents were obtained. The majority of research respondents were > 50 years old with a percentage rate of 38.1% followed by 19.7% 26-30 years old, 31-40 years old 18.4%, 17-25 years old 13.9% and 41-50 years old 9.8%. Based on the final education is dominated by the respondent group with the final education Strata-1 which is as much as 57.8%, followed by the final education of high school which is 22.1%, and so on. The majority of respondents' profiles have jobs as private employees, as many as 36.5%, followed by entrepreneurs as much as 29.1%, and so on.

*4.1. Construct Reliability*

**Table 1.** Reliability Test Results

Construct	Cronbach Alpha	Composite Reliability	Rule of Thumbs	Evaluasi Model
User Interface Quality	0.915	0.936	> 0.70	Reliabel
Information Quality	0.935	0.949		Reliabel
Perceived Security Risk	0.942	0.954		Reliabel
Perceived Privacy	0.903	0.928		Reliabel
E-Commerce Awareness	0.950	0.962		Reliabel
E-Trust	0.911	0.932		Reliabel
E-Satisfaction	0.871	0.906		Reliabel
E-Loyalty	0.895	0.922		Reliabel

The table above states that all research variables have Cronbach alpha values and composite reliability values > 0.70 so that they meet the rule of thumbs criteria, therefore, it can be concluded that all research variables are reliable and can be used to measure constructs.

*4.2. Construct Validity*

**Table 2.** Construct Validity Test Results

Construct	AVE	Rule of Thumbs	Model Evaluation
User Interface Quality	0.747	> 0.50	Valid
Information Quality	0.755		Valid
Perceived Security Risk	0.721		Valid
Perceived Privacy	0.778		Valid
E-Commerce Awareness	0.883		Valid
E-Trust	0.695		Valid
E-Satisfaction	0.659		Valid
E-Loyalty	0.704		Valid

Table 2 shows the results of 9 construct validity tests on research variables, namely User Interface Quality, Information Quality, Perceived Privacy, Perceived Security Risk, E-Commerce Awareness, E-Trust, E-Satisfaction, and E-Loyalty. The table above shows that all research constructs have an AVE value that already meets the rule of thumb criteria, namely > 0.50.

Based on the calculation of construct validity above, it can be concluded that all research variables consisting of User Interface Quality, Information Quality, Perceived Privacy, Perceived Security Risk, E-Commerce Awareness, E-Trust, E-Satisfaction, and E-Loyalty have met the rule criteria. of thumbs so that it is valid and can be used for this research.

*4.3. Hypothesis Test Results*

In this study, hypothesis testing is done by looking at the path coefficient value by looking at the parameter coefficient values, and the significance value of p-values.

**Table 3.** Hypothesis Test Results

Hypothesis	Standard Koefisien	T statistic	P values	Result
H <sub>1</sub> : User Interface Quality has a positive effect on E-Trust	0.307	4.255	0.000	Significance
H <sub>2</sub> : Information Quality has a positive effect on e-trust	<b>0.037</b>	<b>0.706</b>	<b>0.481</b>	Not significant
H <sub>3</sub> : Perceived Security Risk has a positive effect on e-trust	0.398	6.050	0.000	Significance
H <sub>4</sub> : Perceived Privacy has a positive effect on e-trust	0.173	2.324	0.021	Significance
H <sub>5</sub> : E-Commerce Awareness has a positive effect on e-trust	<b>0.065</b>	<b>1.440</b>	<b>0.151</b>	Not significant
H <sub>6</sub> : User Interface Quality has a positive effect on E-satisfaction	<b>0.033</b>	<b>0.404</b>	<b>0.687</b>	Not significant
H <sub>7</sub> : Information Quality has a positive effect on E-satisfaction	0.160	2.803	0.005	Significant
H <sub>8</sub> : Perceived Security Risk has a positive effect on E-satisfaction	0.248	4.072	0.000	Significant
H <sub>9</sub> : Perceived Privacy has a positive effect on E-satisfaction	0.162	2.158	0.031	Significant
H <sub>10</sub> : E-Commerce Awareness has a positive effect on E-Satisfaction	0.172	2.727	0.007	Significant
H <sub>11</sub> : E-Trust has a positive effect on E-Loyalty	0.357	6.064	0.000	Significant
H <sub>12</sub> : E-Satisfaction has a positive effect on E-Loyalty	0.255	3.529	0.000	Significant

Based on Ghozali (2015) states that a hypothesis is said to be significant if the p-values are  $<0.05$ . Table 4.16 shows the results of hypothesis testing in this study.

Based on the test results, it was found that 3 hypotheses are not significant, namely Information Quality does not have a positive effect on e-trust, E-Commerce Awareness does not have a positive effect on E-Trust, and User Interface Quality does not have a positive effect on E-Satisfaction where it can be concluded that the second, fifth and sixth hypotheses are not supported.

The first hypothesis is that User Interface Quality is positively related to E-Trust. The standard deviation of the test results is 0.072, where the p-values of the study are 0.000 which means that the p-values are  $<0.05$ , therefore, it can be concluded that User Interface Quality has a positive effect on E-Trust, which means the better User Interface Quality will also further enhance E-Trust. Thus, the first hypothesis which states that User Interface Quality has a positive effect on E-Trust is supported.

The third hypothesis is that Perceived Security Risk is positively related to E-Trust. The standard deviation of the test results is 0.066, where the p-values of the study are 0.000 which means that the p-values are  $<0.05$ , therefore, it can be concluded that Perceived Security Risk has a positive and significant effect on E-Trust. Thus, the fourth hypothesis which states that Perceived Security Risk has a positive effect on E-Trust is supported.

The fourth hypothesis is that Perceived Privacy is positively related to E-Trust. The standard deviation of the test results is 0.074, where the p-values of the study are 0.021 which means that the p-values are  $<0.05$ , therefore, it can be concluded that Perceived Privacy has a positive and significant effect on E-Trust. Thus, the fourth hypothesis which states that Perceived Privacy has a positive effect on E-Trust is supported.

The seventh hypothesis is that Information Quality is positively related to E-Satisfaction. The standard deviation of the test results is 0.057, where the p-values of the study are 0.005, which means that the p-values are  $<0.05$ , therefore, it can be concluded that Information Quality has a positive and significant effect on E-Satisfaction. Thus, the sixth hypothesis which states that Information Quality has a positive effect on E-Satisfaction is supported.

The eighth hypothesis is that Perceived Security Risk is positively related to E-Satisfaction. The standard deviation of the test results is 0.061, where the p-values of the study are 0.000 which means that the p-values are  $<0.05$ , therefore, it can be concluded that Perceived Security Risk has a positive and significant effect on E-Satisfaction. Thus, the sixth hypothesis which states that Perceived Security Risk has a positive effect on E-Satisfaction is supported.

The ninth hypothesis is that Perceived Privacy is positively related to E-Satisfaction. The standard deviation of the test results is 0.075, where the p-values of the study are 0.031 which means that the p-values are  $<0.05$ , therefore, it can be concluded that Perceived Privacy has a positive and significant effect on E-Satisfaction. Thus, the fourth hypothesis which states that Perceived Privacy has a positive effect on E-Satisfaction is supported.

The tenth hypothesis is that E-commerce Awareness is positively related to E-Satisfaction. The standard deviation of the test results is 0.063, where the p-values of the study are 0.007 which means that the p-values are  $<0.05$ , therefore, it can be concluded that E-Commerce Awareness has a positive and significant effect on E-Satisfaction. Thus, the sixth hypothesis which states that E-Commerce Awareness has a positive effect on E-Satisfaction is supported.

The eleventh hypothesis is that E-Trust is positively related to E-Loyalty. The standard deviation of the test results is 0.059, where the p-values of the study are 0.000 which means that the p-values are  $<0.05$ , therefore, it can be concluded that E-Trust has a positive and significant effect on E-Loyalty. This means that the better the level of E-Trust, the higher the E-Loyalty. Thus, the sixth hypothesis which states that E-Trust has a positive effect on E-Loyalty is supported.

The twelfth hypothesis is that E-Satisfaction is positively related to E-Loyalty. The standard deviation of the test results is 0.072, where the p-values of the study are 0.000 which means that the p-values are  $<0.05$ , therefore, it can be concluded that E-Satisfaction has a positive and significant effect on E-Loyalty and This means that the better the level of E-Satisfaction, the higher the E-Loyalty. Thus, the sixth hypothesis which states that E-Satisfaction has a positive effect on E-Loyalty is supported.

## 5. Discussion

This study aims to examine the factors that influence e-loyalty with e-trust and e-satisfaction as mediating variables for Halodoc application users in Indonesia. Several hypotheses proposed in this study are User Interface Quality is positively related to E-Trust, Information Quality is positively related to E-Trust, Perceived Security Risk is positively related to E-Trust, Perceived Privacy is positively related to E-Trust, E-Commerce Awareness is positively related to E-Trust, User Interface Quality was positively related to E-Satisfaction, Information Quality was positively related to E-Satisfaction, Perceived Security Risk was positively related to E-Satisfaction, Perceived Privacy was positively related to E-Satisfaction, E-Commerce Awareness was positively related to positive with E-Satisfaction, E-Trust is positively related to E-Loyalty and E-Satisfaction is positively related to E-Loyalty.

Based on the results of hypothesis testing in this study, it was found that the first hypothesis, namely User Interface Quality, had a positive effect on E-Trust, and the results were supported. The better the User Interface Quality, the higher the level of trust in the use of the Halodoc service, and vice versa, the worse the User Interface Quality, the lower the level of user trust in the Halodoc service. User Interface Quality is an important factor in E-Trust where the results of testing this hypothesis are supported by previous research that has been done by Park (2003), Chang (2009), Mustafa (2011), and Aslam (2020) where the results of previous studies also state that User Interface Quality has a positive effect on E-Trust.

According to Chang (2009), the user interface acts as the face and atmosphere of e-commerce services where users can interact with e-service providers, in addition, the quality of the website interface has a positive effect on consumer intentions, which generates a lot of sales, research conducted by Chang carried out on the online shopping industry in Taiwan, so the better the User Interface Quality, the higher the level of E-Trust for Halodoc's teleconsultation services.

The result of the second hypothesis test is that Information Quality is positively related to E-Trust. Based on the results of hypothesis testing in this study, the results are not supported, which means that the results of this hypothesis test state that Information Quality is not positively related to E-Trust, this hypothesis test do not support the results of previous studies conducted by Park (2003), Ahm (2007), Eid (2011), (Abbas et al., 2015) and Aslam (2020) which state that Information Quality is positively related to E-Trust. However, the results of this hypothesis test are in line with the results of the hypothesis test conducted by Mustafa (2011) which states that Information Quality does not have a positive effect on E-Trust. Mustafa (2011) revealed that the results of the hypothesis test conducted by him contradicted the previous researcher who became his reference, namely McKnight et al (2002) who supported a positive relationship between Information Quality and E-Trust. Therefore, based on the results of the hypothesis testing of this study, it can be concluded that Information Quality does not affect the E-Trust of Halodoc customers, so the better Information Quality provided by Halodoc will not affect the E-Trust of Halodoc customers.

The results of the third hypothesis test, namely Perceived Security Risk, have a positive effect on E-Trust. Based on the results of the hypothesis test in this study, it can be concluded that the research hypothesis is supported. The higher the

Perceived Security Risk level, the higher the E-Trust of Halodoc customers. Perceived Security Risk is an important factor in E-Trust, and the results of the hypothesis testing of this study are also in line with the results of hypothesis testing conducted by (Chellappa & Pavlou, 2002), Flavian and Guinalu (2006), Kim et al (2008), Mustafa (2011), (Hendratta & Haryanto, 2013), Adwan (2020) and (Nurjanah et al., 2022) were the results of previous studies also revealed that Information Quality had a positive effect on E-Trust.

According to Chang (2009), customer perceptions of security in e-commerce activities are expressed as security in conducting transactions in buying a product or service, so if the level of security can satisfy consumer expectations, consumers may want to release their private information and try to buy with convenience, research conducted by Park (2003) was conducted on the online shopping industry with the results of research stating that there is a positive influence between perceived security risk on e-trust, thus it can be concluded that the better the perceived security risk, the more e-trust will increase. customers to Halodoc's teleconsultation services.

The results of the fourth hypothesis test are that Perceived Privacy has a positive effect on E-Trust, and the results are supported. Based on the hypothesis test in this study, it can be stated that there is a positive relationship between perceived privacy and the e-trust of Halodoc customers. Perceived privacy is an important part of e-trust and this is also supported by several previous studies conducted by Park (2003), Mustafa (2011), Adwan (2020), and Aslam (2021) which revealed that there is a positive relationship between perceived privacy and e-trust.

According to Godwin (1991), perceived privacy is conceptualized as the ability of users to control access to information from third parties in conducting transactions or providing personal information. Park (2003) states that privacy is the key to increasing new e-commerce users as well as retaining existing users. Flavia and Guinaly (2016) state that perceived privacy is an antecedent to the formation of trust due to the nature of the internet, therefore it can be concluded that the better the perceived privacy, the higher the e-trust of Halodoc users.

The results of the fifth hypothesis test, namely E-Commerce Awareness has a positive effect on E-Trust, but the results are not supported. In this study, the results of hypothesis testing found that E-Commerce Awareness did not have a positive effect on E-Trust. Thus, this study does not support previous research conducted by Najafi (2012), Haijli (2014), and Aslam (2020), however, the results of this study are in line with research conducted by Lane and Jacobson (1995) and Hong-Youl Ha (2005) stated that e-commerce awareness does not have a positive effect on e-trust, according to Hong-Youl Ha (2005), this can occur due to e-commerce awareness indirectly having a positive effect with e-satisfaction as a mediation. In this study, it can be concluded that, the higher the e-commerce awareness of Halodoc customers, the higher the E-trust of Halodoc customers will not be.

The results of the sixth hypothesis test, namely, User Interface Quality has a positive effect on E-Satisfaction, the results are not supported, which means that User Interface Quality does not have a positive relationship with E-Satisfaction. This is also found in research conducted by (Darta et al., 2020) and (Delarosa, 2013) which states that User Interface Quality does not have a positive relationship with E-Satisfaction. Research conducted by Mustafa (2011) stated that User Interface Quality has a positive relationship with E-Satisfaction, therefore, the results of this study do not support the results of research conducted by Mustafa (2011). In other words, based on the results of this research hypothesis testing, better User Interface Quality will not affect the E-Satisfaction of Halodoc users.

The results of the seventh hypothesis test, namely Information Quality a positive effect on E-Satisfaction, the results are supported, which means that Information Quality has a positive effect on E-Satisfaction. Information Quality is an important part of E-Satisfaction, the better the Information Quality of the Halodoc application, the higher the E-Satisfaction of Halodoc users. This was also expressed by several previous researchers such as Mustafa (2011), Delarosa (2013), Hidayat (2016), Subowo (2020) who stated that Information Quality had a positive effect on E-Satisfaction.

Mustafa (2011) states that Information Quality is the customer's perception of the quality of his understanding of the products or services provided by the website, this statement suggests that if the Information Quality provided by the website is accurate and reliable, it will increase E-Satisfaction to customers. Therefore, it can be concluded that the higher the Information Quality provided by Halodoc, the more e-satisfaction of Halodoc users will increase.

The results of the eighth hypothesis test, namely Perceived Security Risk, have a positive effect on E-Satisfaction, the results are supported. In this study, it can be concluded that perceived security risk has a positive effect on e-satisfaction, thus, a perceived security risk is an important part of increasing e-satisfaction. This is supported by previous research conducted by Mustafa (2011), Delarosa (2013), Hidayat (2016), Luqman (2018), and Subowo (2020).

Luqman (2018) states that the security system in transactions is credible and reliable and is equipped with several confidentiality prerequisites in the form of a password so that users are not easily disturbed or hijacked by hijackers

and access data that can only be accessed by users. This proves that the security system also affects customer satisfaction, if the ability of online applications can give trust to users, then users will feel more satisfied, therefore it can be concluded that the higher the perceived security risk, the more e-satisfaction of Halodoc users will increase.

The results of the ninth hypothesis test, namely Perceived Privacy, have a positive effect on E-Satisfaction, and the results are supported. In this study, it can be concluded that perceived privacy has a positive effect on e-satisfaction, thus, perceived privacy is an important part of increasing e-satisfaction. This is supported by previous research conducted by Mustafa (2011), Delarosa (2013), Hidayat (2016), and Subowo (2020) which also stated that Perceived Privacy had a positive effect on E-Satisfaction.

According to Susilo (2016), privacy is a personal service between companies and users to access users' personal information, this privacy data can be stored as evidence of the use of applications that have been. In this case, there is a positive influence between Perceived Privacy on E-satisfaction meaning that the higher the perceived privacy, the higher the e-satisfaction of Halodoc users.

The results of the tenth hypothesis test, namely E-Commerce Awareness has a positive effect on E-Satisfaction, the results are supported. In this study, it can be concluded that E-Commerce Awareness has a positive effect on E-Satisfaction, which means that increasing e-commerce awareness will increase the e-satisfaction of Halodoc users. This is also supported by previous research conducted by Lane and Jacobson (1995), Hong-Youl Ha and Helen Perks (2005), Najafi (2012), Haijli (2014), (Zaid & PATWAYATI, 2021) who also stated that e-commerce awareness has a significant positive effect on e-satisfaction.

According to Najafi (2012), e-commerce awareness is the user's trust or knowledge of e-commerce services about products and services. A lack of awareness can make consumers hesitant to adopt e-commerce services in developing countries (Haijli, 2014). Therefore, the results of the hypothesis test of this study can conclude that the higher the e-commerce awareness of Halodoc customers, the higher the e-satisfaction of Halodoc customers.

The results of the eleventh hypothesis test, namely E-Trust, have a positive effect on E-Loyalty, the results are supported. In this study, it can be concluded that E-Trust has a positive effect on E-Loyalty, which means that the more e-trust of Halodoc customers increases, the E-Loyalty of Halodoc customers will increase. This is also supported by previous research conducted by Hidayat (2016), Gotama (2019), Ridwan (2020), and Aslam (2021) who also stated that e-trust has a positive effect on e-loyalty.

According to (Connolly & Bannister, 2007), states that if customers trust the online store, then they will feel comfortable and confident to make purchases at the store, and based on (Liu et al., 2005), a customer will continue to shop at the online store due to by increased loyalty. Based on previous research conducted by Yap et al (2012) and Choi et al (2015) stated that the increasing e-trust of dining customers will also increase customer e-loyalty. In this study, it can be concluded that the higher the e-trust of customers, the higher the e-loyalty of Halodoc customers.

The results of the twelfth hypothesis test, namely E-Satisfaction, have a positive effect on E-Loyalty, the results are supported. In this study, it can be concluded that E-Satisfaction has a positive effect on E-Loyalty, which means that the increasing E-Satisfaction of Halodoc customers will increase the E-Loyalty of Halodoc customers. This is also supported by previous research conducted by (Lien et al., 2015), Hendra et al (2018), Gotama (2019), Adwan (2020), Rudyanto et al (2021), (Tanuwijaya & Suharto, n.d.) which stated that there is a positive relationship between e-satisfaction and e-loyalty.

Based on (Yang & Peterson, 2004) revealed that customer loyalty can be obtained by increasing customer satisfaction and other researchers (Cyr, 2008) also stated the same thing, namely that increasing e-satisfaction will also increase e-loyalty. (Dharmesti, 2012) also stated the same thing that e-satisfaction has a significant positive effect on customer e-loyalty in Indonesian culture, therefore, it can be concluded that the increasing e-satisfaction of Halodoc customers will increase Halodoc customer e-loyalty.

## 6. Conclusion

Based on the acquisition of data analysis that has been carried out in this study, it can be concluded that the results of this study include: User Interface Quality has a positive effect on E-Trust. The better the User Interface Quality, the more E-Trust of Halodoc users will be. Information Quality does not have a positive effect on E-Trust, so better Information Quality, will not affect the E-Trust of Halodoc users. Perceived Security Risk has a positive effect on E-Trust, the better the Perceived Security Risk, the higher the E-Trust of Halodoc users. Perceived Privacy has a positive effect on E-Trust, the better Perceived Privacy, the more E-Trust of Halodoc users will increase. E-Commerce

Awareness does not have a positive effect on E-Trust, so increasing e-commerce awareness will not affect the e-trust of Halodoc users. User Interface Quality does not have a positive effect on E-Satisfaction, so better User Interface Quality will not affect the E-Satisfaction of Halodoc users. Information Quality does not have a positive effect on E-Satisfaction, so the better the Information Quality, it will not affect the E-Satisfaction of Halodoc users. Perceived Security Risk has a positive effect on E-Satisfaction, the better the Perceived Security Risk, the higher the E-Satisfaction of Halodoc users. Perceived Privacy has a positive effect on E-Satisfaction, the better the Perceived Privacy, the higher the E-Satisfaction of Halodoc users. E-Commerce Awareness has a positive effect on E-Satisfaction, so increasing E-commerce Awareness will increase the E-Satisfaction of Halodoc users. E-Trust has a positive effect on E-Loyalty, so the increasing E-Trust of Halodoc users will also increase the E-Loyalty of Halodoc users. E-Satisfaction has a positive effect on E-Loyalty, the more E-Satisfaction increases, the E-Loyalty of Halodoc users will also increase.

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