

Intentions to Using the Halodoc Application: Empirical Study in the COVID-19 Pandemic Era

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Abstract— The COVID-19 pandemic has changed public behavior to get health services. The fear of the public to be exposed to COVID-19 changes their behavior by switching to use online health services. The study examined the formation of intentions using the Halodoc application during the COVID-19 pandemic era. Attitudes and beliefs as mediators are the basis for evaluating individuals to intend to use the Halodoc application. Individual evaluations for using the Halodoc application are based on application vulnerabilities, perceived risks, and the application characteristics. The data were collected using an online questionnaire for the Halodoc application users as many as 200 respondents. The results of hypothesis testing using the AMOS Structural Equation Modeling analysis method showed that the application characteristics have a significant effect on the beliefs and individual's positive attitudes in forming an intention to use the Halodoc application. It was not from the vulnerability and risk factors that the results were not significant. The results indicated that the characteristics of the Halodoc application is accepted by the community to use it. During the COVID-19 pandemic era the public ignored the vulnerabilities and the risks of the Halodoc application to get health services.

Keywords— Intention to use, Attitude, Trust, Vulnerability, Risk, Application Characteristics.

INTRODUCTION

The phenomenon of the behavior of using the Halodoc application is still interesting to study. The Halodoc application basically makes it easy for the community. It users do not need a long time to consult a doctor who can then provide a first aid solution. It also supports the community to do social distancing during the COVID-19 pandemic. It is to reduce the number of additional patients and provides rapid corona virus test services as well as various articles related to COVID-19 (katadata.co.id). The users can also easily buy medicine through medicine buying feature that is connected to Go-Med on the Halodoc application. Laboratory tests can also be done with this application through the laboratory examination feature. It is to carry out health checks where the results of the examination will be sent back according to the address of the examination (www.halodoc.com, 2020).

The Halodoc application is able to provide convenience for its users. However, the Halodoc application has not been fully accepted by the Indonesian people. Based on data, the number of application downloaders and its active users is only 7 million users compared to Indonesia's population of 267.7 million or only around 2.6% (Kontan.co.id, 2019). The existence of threats to the privacy of patient personal data is the cause of the reluctance of the public to use the Halodoc online application (internetsehat.id, 2018). Therefore, this study examined the causes of the low number of individuals using the Halodoc application. The findings are expected to contribute to the company to make improvements.

Previous studies shows that online healthcare applications already existed in Indonesia. Yet, the study on it was still limited. The limitations described from the previous studies were about the forming intentions to use online health applications that were only in two perspectives, namely the technology and the service perspectives (Setyawan et al., 2019). These limitations have an impact on the lack of comprehensive explanations in influencing the intention to use health service applications. The explanation for the formation of an intention to use an online health service application should also reveal a security perspective in its use (Guo et al: 2015; Hariset al., 2016). For that, the further studies are deemed necessary to explore other variables to form an intention to use an online health service application.

Risk is an important factor in a research on the use of online applications. The high risk of using online applications can reduce individual intention to use online applications which are considered negative (Kim et al., 2008; Natarajan et al., 2018). The high risk that is perceived to have a negative effect can reduce individuals to take advantage of online applications in every online transaction in the form of psychological risks that involving disappointment, frustration and shame (Harris et al., 2016). Vulnerability is also another identified factor that can affect the use of online applications. It is related to the negative emotions of individuals who feel that the threat and insecurity of personal data recorded in the system can trigger

individual fears to use online applications (Guo et al., 2015; Zhao et al., 2017; Chen et al., 2019).

Nevertheless, it is different from the characteristics of the application which has an important role for customers to increase positive assessment and individual trust in using online health applications (Kim et al., 2007). The application that is perceived as having high characteristics on high rating from the reviews can encourage individuals to use it (Harris et al., 2016). Individuals tend to believe that positive public opinions about the online application characteristics are able to form a positive assessment of the will to use it (Flora et al., 2014). The same explanation is expressed by Jo and Kim (2003) who stated that innovative, interactive and multimedia-oriented websites tend to be positively perceived by users. The various studies described showed that the characteristics of the application will impact on individual attitudes and beliefs which can lead to the intention of using online health applications.

REVIEW LITERATURE

Intention to Use Continuance

Intention is generally defined as an individual desire to do something (Davis and Warshaw, 1992). This concept gives the meaning that individuals will make an action decision if they have the motivation to do something. Intention can be used as a prediction for individuals to behave (Lin et al., 2010). The intention of continuing to use something is defined as an individual's tendency to reuse due to trust to a site spoken (Lin et al., 2010). The application of the intention to adopt is the desire of individuals to be more involved in the use of information systems through innovations in an information system (Sawang et al., 2013). Online purchase intention is defined as an individual to make a purchase through an online application (Ye et al., 2019). Based on this explanation, the intention to use is the tendency of individuals to use applications to get online services.

It is identified the intention-forming variables using the Health Application. However, in this study the forming variables are trust (Harris et al., 2016) and attitude (Guo et al., 2015) as mediating variables. Trust and attitude as mediating variables are influenced by three other factors. Those are risk (Natarajan et al., 2018), vulnerability (Guo et al., 2015) and application characteristics (Harris et al., 2016). The explanation of each variable is explained as follows.

Attitude

The attitude definition conceptualized by Eagly et al. (1993) is defined as a psychological tendency expressed by evaluating the level of pleasure or displeasure with an object. The attitudes defined by Ajzen et al. (2008) is

the extent to which individuals have favorable or adverse evaluation of an object. The concept of attitude is also outlined as a form of individual behavior which is defined as the evaluation, feelings and values of an object in establishing behavior (Elliott and Speck, 2005; Blackwell et al., 2006).

Individual positive attitudes towards online applications have a strong influence on individual intentions to use online applications (Kim and Chung, 2011). This is because when individuals evaluate an object that is considered positive and find reasons for using a product they tend to make an intention to use an online application. The results of a study from Guo et al., (2015) also stated that attitudes have a positive effect on online health applications. Individuals who give a positive evaluation of the benefits provided by online health applications can encourage individuals to intend to use online health applications. Positive evaluation by individuals for an online application has a tendency for various information to other individuals to use it (Wagner et al., 2013). This explanation reveals that the more positive an individual's attitude towards a product, the more it can increase the intention to buy online. Then the proposed hypothesis is:

H₁ : The higher the positive attitude affects the intention to use the Halodoc application.

Trust

Trust is an individual's positive belief to make unexpected decisions (Morgan et al., 1994). The trust conceptualized by Apau and Koranteng (2019) is described as trust among parties in making transactions based on a belief in fulfilling obligations properly as expected. The trust conceptualized by Viljanen et al. (2015) is an individual assessment of an object in the context of influencing his actions to understand an object. Trust in online transactions developed by Ba et al. (2002) defines trust as an individual's belief that transactions will occur in a manner consistent with individual expectations. Meanwhile, trust in the use of applications conceptualized by Harris et al. (2016) defined consumers' positive beliefs in the online environment of application use. This study used online health service objects. Consequently, trust in the use of online health service applications is defined as an individual's positive belief in using online services that is consistently in a line with individual expectations.

Various studies showed a positive relationship between trust and intention to use online applications. The study of Harris et al. (2016) stated that there is an influence between trust and intention to use online applications. This is because the trust to the site to reduce the high risk

can increase the intention to use the application. Individuals who provide positive reviews to the application will influence the beliefs of other individuals to establish an intention to use online health applications (Wu et al., 2013). Another study conducted by Faqih et al. (2016) suggested that the intention to use the application is influenced by the high trust made. A trust empirically has a positive effect in the online environment to encourage individuals to shop online. From those various explanations, it can be interpreted that trust is a strong boost in influencing the intention to use online applications. Hence, based on the outline given, this study proposed the following hypothesis:

H₂ : The higher the trust can increase the intention to use the Halodoc application.

Vulnerability

Vulnerability is defined the extent to which a system is susceptible to damage that is sensitive and detrimental (Brook et al., 2003). Another study by Scholz et al. (2012) conceptualized vulnerability as a vulnerable system or the inability of the system to overcome the adverse effects of indirect attacks on privacy. Vulnerability to the use of applications is defined as a threat that may occur when using the application (Guo et al., 2015). The perceived vulnerability is associated to the costs that is not equivalent to the benefits obtained from the privacy of using the application. Its users trust the system used because it is likely that they get some threats for making use of decisions (Gao et al., 2015). Based on this definition, it can be concluded that vulnerability is a privacy threat that appears in the use of an online application service.

Various studies showed a negative relationship between susceptibility and attitudes. Salleh et al. (2012) revealed that high vulnerability will impact on individual negative attitudes towards personal information. Vulnerability in the application of online health services can affect individual attitudes. The effect of vulnerability can have an impact on the formation of negative attitudes in forming intentions to use online health applications on age and gender differences (Guo et al., 2015). The same point is on the negative effect of vulnerability to trust. The study from Svensson et al. (2004) stated that there is a negative relationship between vulnerability and trust in the context of supplier-customer relationships. These results indicate that high vulnerability can reduce trust which then reduces individual intentions to use the application (Nieaber et al., 2015). Vulnerability can be minimized by providing complete information about the specifications of the product offered to increase customer trust in getting the product.

H_{3a} : The higher the level of vulnerability affects the negative attitude towards the Halodoc application.

H_{3b} : The higher the level of vulnerability of online health applications, a negative effect on the trust in using the Halodoc application.

Risk

Risk is generally defined as the part that is felt and is often associated with losses (Lieberman et al., 2002). Haimes et al. (2009) in his study defined risk is the disclosure of an adverse effect. Risk is also defined as the bad consequences received by individuals (Leiva et al., 2016). It is divided into two main components on online transactions, namely product and process risks. Product risk is defined as the possibility that a product may not function as expected (Masoud et al., 2013) and process risk is defined as a review to ensure the fulfillment of project needs (Hillson et al., 2002). Therefore, risk is defined as a bad consequence that can occur during the process of using the application.

The previous studies showed that there was a consistent negative relationship between risk and attitude. Ariff et al. (2007) in their study revealed that the high progress of online shopping has a risk perceived by consumers and affects consumers' negative attitudes towards online shopping. The study of Park and Kim (2007) outlined that the results of a negative relationship between risk and attitude in influencing the decision to make transactions through online applications. This condition also occurs in the effect of risk on trust. The study by Liu et al., (2013) concluded that risk has a negative effect on attitudes in purchasing through online groups. This negative relationship is also expressed in the study of George et al., (2015) which stated that high risk can affect the individual trust which impacts to individual decisions to make online transactions. Yet, the risk on online transactions can be managed by obtaining sufficient information such as good product informations and service processes provided. It can then increase trust in conducting online transactions (Pappas, 2016).

H_{4a} : The higher the perceived risk, the lower the attitude of using the Halodoc application.

H_{4b} : The lower the perceived risk, the higher the trust in using the Halodoc application.

Application Characteristics

The characteristics of the application are the looks in the form of colors, shapes and font sizes that are displayed on the website (Cober et al., 2004; Bruno et al., 2005). Application characteristics are open access and user

participation which have an effect in accessing data and information from available sources on online networks (Witteaman and Fisher, 2012). Elliot and Speck (2005) in their study spoke that user attitudes towards website characteristics are influenced by the appearance of the site. Sites that are easily browse, having product information, entertainment, trust, consumer support and prices are more desirable than other sites. Another study was also explained by Seo et al. (2007) who stated that website influences attitude to intention. User attitudes towards the website are assessed from reviews provided by users, users' convenience in searching for information and also the satisfaction gained with the site.

Various studies also showed a significant relationship between application characteristics and trust. The study from Martin and Carmen (2008) stated that website characteristics have a major effect on user trust. Other studies on the characteristics of websites on trust indicated that sites that provide benefits and informative services to users tend to be rated positively (Seckler et al., 2015; Harris et al. 2016).

H_{5a} : Application characteristics have a positive effect on attitudes in using the Halodoc application.

H_{5b} : Application characteristics have a positive effect on trust in using the Halodoc application.

Research Model

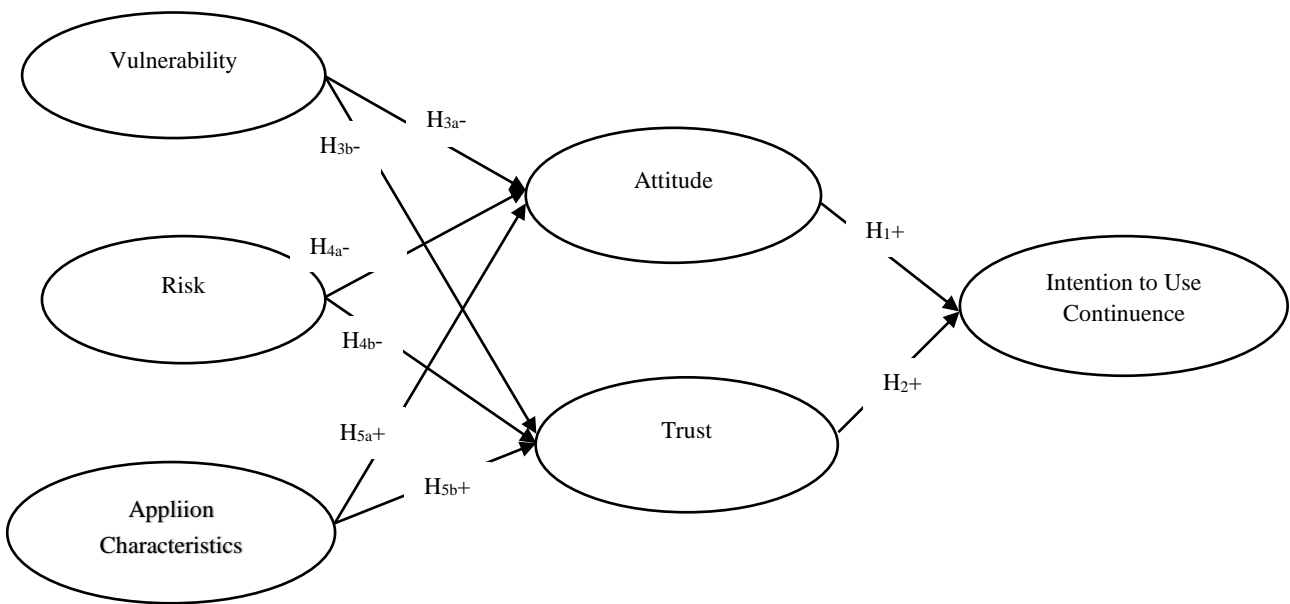


Figure 1. Research Model

RESEARCH METHODS

The research was a cross sectional. Data collection was conducted with survey techniques in the form of questionnaires. The sampling technique used a non-probability sample design with a purpose sampling method. To gain the sampling, criteria were required to determine the respondents. The first criterion was an individual who was at least 20 years old. The age limitation was based on the assumption that they were adults and understood enough to fill out the

questionnaire provided. The second criterion was individuals who had accessed the Halodoc application. Based on these criteria, 200 respondents were selected. Data collection in this study used an online survey method on individuals who had accessed the Halodoc application. Testing of measuring instruments in this study used validity and reliability tests with the SPSS program. While the hypothesis testing used the analysis of Structural Equatio Model (SEM) with the AMOS method.

RESEARCH RESULT AND ANALYSIS

Table 1. Characteristics of Respondents

Characteristics	Classification	%	Characteristics	Classification	%
Sex	Male	34	Per Month Income (Rp)	<1mil	30
	Female	66		1mil – 2mil	34,5
Age	20 – 24 years old	26,5		2mil – 3mil	22,5

	25 - 29 years old	62,5		3mil – 4mil	9,5
	30 - 34 years old	9		>4mil	3,5
	35 - 39 years old	1			
	≥40 years old	1			
Level of Educational	High School/Vocational HS	60,5	Residents (Island based)	Java	96,5
	Diploma 3	15		Kalimantan	2,5
	Bachelor/Diploma 4	23		Papua	0,5
	Magister	1,5		Nusa Tenggara	1
Occupations	Government	9,5	Frequency of Accessing Halodoc Application	Once	81
	Employees/Military/Police			Twice	6,5
	Private employees	22,5		>Twice	12,5
	College student	54			
	Etc	14			

Table 2. Validity and Reliability Test Results

Indicator	Loading factor	Cronbach Alpha Value	Minimal = 0,60	Note
INT1	0,839	0,925		Valid and Reliable
INT 2	0,842			Valid and Reliable
INT 3	0,896			Valid and Reliable
INT 4	0,893			Valid and Reliable
ATT1	0,877	0,944		Valid and Reliable
ATT2	0,867			Valid and Reliable
ATT3	0,889			Valid and Reliable
ATT4	0,820			Valid and Reliable
TR1	0,860	0,909		Valid and Reliable
TR2	0,628			Valid and Reliable
TR3	0,712			Valid and Reliable
TR4	0,883			Valid and Reliable
TR5	0,821			Valid and Reliable
AC1	0,760	0,948		Valid and Reliable
AC2	0,890			Valid and Reliable
AC3	0,839			Valid and Reliable
AC5	0,861			Valid and Reliable
R1	0,914	0,958		Valid and Reliable
R2	0,938			Valid and Reliable
R3	0,910			Valid and Reliable
R4	0,919			Valid and Reliable
R5	0,834			Valid and Reliable
VNB1	0,947	0,961		Valid and Reliable

VNB2	0,932		Valid and Reliable
VNB3	0,903		Valid and Reliabele
VNB4	0,867		Valid and Reliable

The test results of the 27 indicators tested contained 1 invalid indicator due to the factor loading value <0.04,

namely the KA4 indicator. For that, the KA4 indicator was not used for hypothesis testing.

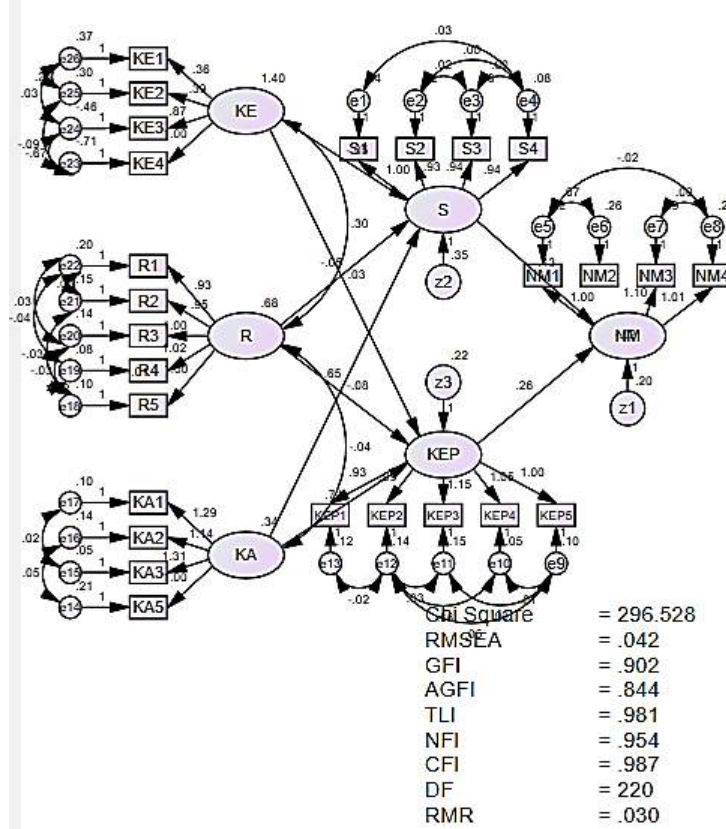


Figure 2. Hypothesis Testing Results

Table 3 Hypothesis Test Results

Hypothesis	Estimate	c.r	Probability (p)	Note
ATT → INT	0,433	6,228	***	H1 Supported
TR → INT	0,256	3,676	***	H2 Supported
VNB → ATT	-0,046	-2,165	0,03	H3a Supported
VNB → TR	0,03	1,884	0,06	H3b Not Supported
R → ATT	-0,051	-1,05	0,294	H4a Not Supported
R → TR	-0,079	-1,993	0,055	H4b Not Supported
CA → ATT	0,649	7,645	***	H5a Supported
CA → TR	0,74	9,582	***	H5b Supported

DISCUSSION

Hypothesis testing indicated that attitudes and beliefs had a positive effect on the intention to use Halodoc health application services. It was relevant to previous studies conducted. Individual positive attitudes towards an object tended to form individual intentions using online applications (Jae et al., 2007; Kim and Chung et

al., 2011). Individuals who evaluate an object and rate it positively find reasons for using a product. They think to intend to use online applications. This condition is because the evaluation of the benefits provided by online health applications that are considered positive can encourage individuals to intend to use and inform and recommend others to use them (Wagner et al., 2013;

Guo et al., 2015). At the same point, the high trust to the websites can reduce the risk of malware theft which can increase the intention to use the application (Harris et al., 2016). Reviews and positive information from an application will affect individual beliefs in forming an intention to use an online health application (Martín and Camarero, 2008; Wu et al., 2013). Various explanations can be interpreted that attitudes and trust are strong urges in influencing the intention to use the Halodoc application. In the COVID-19 epidemic, individuals carried out positive evaluations and encouraged them to increase their trust in using the Halodoc application. The use of online health applications can assist government programs to break the chain of COVID-19 transmission by staying at home and still getting health services needed.

Vulnerability, which is a privacy threat in the use of online application services, has a negative effect on attitudes and it is not a form of trust. The research result elaborated a negative relationship between vulnerability and attitudes. It means that the low vulnerability of the Halodoc health application would increase a positive attitude to using services. A good level of knowledge and the average age of the users who are relatively young were considered to have awareness of technology and made it easier to use. These results confirmed to the similarity of previous studies results which explained the high vulnerability to an application can form negative attitudes (Salleh et al., 2012; Guo et al., 2015; Zhao et al., 2017).

Nonetheless, a different result from this study indicated that vulnerability had no effect on trust. It was irrelevant to the previous studies which stated that there was a negative relationship between vulnerability and its influence to trust (Svensson et al., 2004; Lapidot et al., 2007; Nieaber et al., 2015). This results indicated that during the COVID-19 pandemic, people tended to ignore the vulnerability of the threat of loss of privacy from the Halodoc application service to evaluate positively. The Halodoc application that is perceived to provide benefits, convenience and was accessible anywhere and anytime to get online health consultation services impacted on a positive evaluation by the community.

The risk in this study was not a factor that could form a positive attitude and increase individual trust in using the Halodoc health application. Previous studies have also outlined a trend for a negative effect of risk on the attitudes of online application users (Ariff et al., 2007; Park and Kim, 2007; Real, 2008; Hansen et al., 2018). These results provided an explanation that the low risk

of online applications were reduced by the level of user knowledge and experience in a positive evaluation to continue using online applications. The same point was shown that risk has no effect on trust. The results of this study were not confirmed by the previous studies which stated that there was a negative relationship between risk and trust (Suki and Suki, 2017; Liu et al., 2013; George et al., 2015). Previous studies have explained the negative relationship between risk and trust because application developers have improved security and technology in the transaction process, which users perceived it as low risk. As the results were trust increasing. During the COVID-19 pandemic to minimize the virus transmission through human interactions people tend to continue to use online health applications to get health services regardless of the risk of the transaction process. The level of knowledge and experience of the users who are internet literated makes it easier to find information on the Halodoc application transaction process. Moreover, the information is provided from various sources and can reduce the risks that arise during the transaction process.

The Halodoc application that was characterized as having open access and participation from its users in obtaining data and information had an impact on attitudes and trust. The applications that are easily browsed, have a product information search, provide entertainment, have reliability and competitive prices tend to be in demand and result to a positive effect on attitudes (Elliot and Speck, 2005). User's positive attitude towards the website is based on the reviews given and they find it comfortable in searching for information available on the website (Seo et al., 2007; Seock and Norton, 2007). Trust is given to users if the application has characteristics that are able to provide benefits and convenience in explore it (Martin and Carmen, 2008). The effect of website characteristics on trust is that if the site provides benefits and provides informative services for its users, they tend to spend longer time browsing and updating information (Seckler et al 2015; Harris et al., 2016). In the COVID-19 pandemic which forced people to do activities at home only public need comprehensive health services in the form of an online application. The characteristics of the application required are in the form of an attractive appearance, ease of navigation, and an informative menu to always be connected with a doctor's consultation in obtaining health services. It is perceived that users of the Halodoc application have met their needs for health services so that it has an impact on positive attitudes and increase trust to continue to use the online application.

CONCLUSION

This study examined the factors that formed the intention of using the Halodoc application during the COVID-19 pandemic. The test results indicated strong factors in forming the intention to use the Halodoc application, those were the role of attitude and trust. During the COVID-19 pandemic, people tended to ignore the vulnerability to loss of privacy and the risks that might occur in the transaction process to still get health services from home. Halodoc application vendors think that service improvements need to be done to provide satisfaction and loyalty by continuing to use them by adding more partner doctors, pharmacies, and testing laboratories. It is also deemed necessary to improve transaction security in order to reduce risk and data theft as well as to increase user convenience by tightening verification and authorization.

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