ADOPTION OF MOBILE PAYMENT SYSTEM SERVICES
MY PERTAMINA

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Abstract: My Pertamina application has been downloaded by many smartphone owners, but when compared with motor vehicle owners and smartphone owners, this number is relatively low. Research on the adoption of mobile financial service systems has been researched since these payment systems were introduced. This research was designed using a causal descriptive approach through surveys and the use of analysis partial least square to test the proposed research hypothesis. The research results show that technological factors, organizational factors, and behavioral factors determine the level of public trust in mobile payment system My Pertamina. Meanwhile, personal and government factors have no influence on creating trust in mobile payment system My Pertamina. Just as the influence of technological factors, organizational factors and behavioral factors influence trust, these factors also have a positive influence on the adoption of My Pertamina services.

Keywords: My Pertamina, Adoption, Mobile Payment System, Trust

1. Introduction

The development of digital business in Indonesia has increased rapidly in the last decade. This development was made possible by the increasing coverage of broadband internet services and wireless internet through 4G technology mobile services. It is becoming commonplace nowadays that more people access the internet via smartphone whatever the device mobile wireless other. Internet users in Indonesia are currently the third largest in Asia behind China and India with a total of 212,354,070 as of 30 June 2021 [1]. Furthermore, of the number of users who access the internet via mobile amounting to 96.4% or more than 204 million users [2].

This very figure is of course very promising for many companies to take part in working on the digital market which has great potential. Many digital companies are entering digital business, especially the car commerce market. Many companies have entered this business by providing mobile applications both on the App Store for iPhone users and the Play Store for Android users. Many companies use mobile applications for their business purposes, one of which is PT. Pertamina (Persero) with its application called My Pertamina.

The My Pertamina application was originally a loyalty program and Bright Package application and was first launched on the occasion of PT's anniversary celebration. Pertamina (Persero) on December 20 2017 [3]. This application isa loyalty program initiated by PT. Pertamina to digitize marketing which is expected to improve customer service [3]. This effort was made to further embrace Pertamina's loyal consumers so that transactions are easier, more comfortable
and safer. Since its launch until December 2021 the MyPertamina application has been accused 19 million times [4]. The majority (90%) of MyPertamina transactions carried out are for Pertamax and Dexlite purchases.

Like other smartphone applications, smartphone users can easily download and install an application but then delete it as easily as installing it. Likewise, with the My Pertamina application, of the 19 million downloads mentioned, there may not be as many active users as there are downloads. In other words, there are smartphone owners who adopt the My Pertamina application and use it actively, on the other hand, there are non-adopters who, after making complaints, then delete it again for various reasons.

Research conducted by Mondego & Gide [5], [6] revealed several factors that encourage smartphone users to adopt mobile payment system (mobile payment system). These factors are personal factors (personal factors), behavioral factors (behavioral factors), technological factors (technological factor), organizational factors (organizational factors), and government factors (government factor). Furthermore, research by Mondego & Gide [6] of the five factors, only two factors have a significant influence on trust (trust) is a factor behavioral factor and organizational factors.

Other studies related to the adoption of mobile payment systems have been carried out in various countries with various results [7]– [12], among others [13]. Based on various previous studies which provided different results, it is important to carry out research on the adoption of the mobile payment system offered by My Pertamina.

**Problem**

There is also a problem in this research, namely how the people of Palu City adopt the My Pertamina application. Based on this problem, this research question is:

1. Do personal factors influence trust in the My Pertamina mobile payment system?
2. Do behavioral factors influence trust in the My Pertamina mobile payment system?
3. Do technological factors influence the trustworthiness of the My Pertamina mobile payment system?
4. Do organizational factors influence the trustworthiness of the My Pertamina mobile payment system?
5. Do government factors influence trust in the My Pertamina mobile payment system?

**2. Literature Review**

**Personal factors and beliefs**

Mondego & Gide [6] found no evidence that personal factors have an influence on trust. So, it can be said that this factor is a factor that hinders the adoption of mobile payment services. However, previous research has found evidence that personal factors such as age, gender, income, etc. have an influence on trust which in turn influences the adoption of mobile payment services [14].

**Behavioral factors and beliefs**

*Behavioral factors* or behavioral factors closely related to the user's perception of the benefits and risks of using a new gadget or service (e.g. perceived risk, perceived benefit, perceived security, perceived uncertainty, and so on) [6]. The relationship between behavioral factors and trust has been widely studied by many researchers [6], [15], [16], among others [17].

The results of research on the role of these behavioral factors are mixed, one study found that adoption by users of mobile/electronic payment tools is largely determined by perceived benefits and trust, but the role of perceived risk is very low [18], however, many researchers
emphasize that several behavioral factors have an impact on trust. Yan and Yang (2015, p.117) confirmed in their study that trust significantly influenced by perceived ease of use, structural assurance and perceived usefulness. These behavioral factors have a strong influence on users' desire to use MPS. Apart from that, Shuhaiber (2016) stated that trust strongly influenced by customer uncertainty avoidance, uncertainty and privacy risks are factors that negatively influence mobile payment adoption. These findings are strengthened by the findings of Mondego & Gide [6] which prove that behavioral factors have a real influence on the adoption of mobile payment system services.

Technology factors and trust
Technological factors include various technologies that are directly related to the mobile payment process, such as mobile devices such as the latest generation smartphones, 3G, 4G or even 5G wireless technology, mobile point-of-sale and others [6]. This technology has an influence on people's decisions in adopting or not adopting a mobile payment system. Abrahão et al. [19] confirmed that online payment knowledge, as a moderating factor, influences users' trust and this, as a result, produces relevant effects on users' behavioral intentions to adopt mobile payments.

Organizational factors and trust
The organizational factors in question are all service providers, financial institutions and vendors in the country who have invested in and provided an electronic payment ecosystem to their customers [6]. The existence of this institution can replace the need for cash. This organization also includes cellular provider companies as telecommunications service providers. Research conducted by Xin et al. [20] proves that risk perception, structural guarantees, and the reputation of vendors and service providers have an influence on consumer trust. This is confirmed by other research findings [21]–[23].

Governance and Trust Factor
The government is a state institution that has the authority to make policies and regulations that bind citizens both individually and in organizations, both family households and corporate/business households. This government authority makes the government one of the factors that influences the trust or confidence of smartphone users which then determines whether they will adopt mobile payment system services. Mondego & Gide [6] found that government factors did not have a strong influence on the level of trust in mobile payment systems. The government's benevolence through its policies can have an impact on people's intentions to use electronic payments in various forms, whether in the form of mobile, credit cards, debit cards, internet or mobile banking. Electronic payments in Indonesia increased from 5.28 trillion rupiah in 2015 to 305.43 trillion rupiah in 2021[24]. This increase occurred due to the role of the government through Bank Indonesia which issued Bank Indonesia Regulations No, 11/12/PBI/2009 dated 13 April 2009 concerning Electronic Money. A similar thing happened in India where there was an increase in public trust in electronic payment systems when the Indian government issued regulations regarding demonetization [25].

Trust and service adoption
The Oxford English Dictionary defines trust or belief as (1) relying on or having confidence about the qualities or attributes of a person or object (2) to accept or agree to something without investigation, or evidence, (3) expectations about something, (4) reliable value attributes; honesty; credibility, loyalty.
Trust is defined as the willingness to depend on an exchange partner in which one has self-confidence (Moorman, et al., 1992). Furthermore, they highlight that trust can be viewed based on two general approaches [26]. First, trust is seen as a belief, sentiment, or expectation about the trustworthiness of an exchange partner resulting from the partner's expertise, reliability, or intentionality [26]. Second, trust can be seen as an intention or behavior that reflects dependence on a partner that involves vulnerability and uncertainty on the part of the trusted person [26]. Trust is also defined as the belief that one party can rely on the words or promises given by another party and can help to develop or maintain a relationship between two parties [27].

Trust is believed to be an important factor in moving people to use mobile payment system. Various studies have proven that the higher a person's level of trust, the higher the person's intention or intention to use a smartphone to make payments using a mobile payment system [6], [7], [9]–[13].

3. Method

Types of Research

This research is survey research on motor vehicle and smartphone owners in Palu City, both those who have adopted the My Pertamina service and those who have not yet adopted it. Considering that for the population in this study there is no official data on the number of motor vehicle owners who also have smartphones published by the relevant institutions, it is concluded that the population is infinite or infinite. Furthermore, this research sample was taken using techniques purposive sampling with a sample size of 100 people.

Research Variables

This research will use variables and indicators developed by previous studies.

Data analysis

Data will be analyzed using Partial Least Square (PLS) with help of the SmartPLS application [30]. The steps for processing data using PLS are as follows.

1. Outer model analysis,
2. Inner model analysis, and
3. Hypothesis test

4. Result and Discussion

In this section, various results from the research that has been carried out will be discussed. The description will begin by discussing the research results and continue with a discussion of the research results.

Demographics of Research Respondents

The description begins by discussing the demographics of the research respondents. This research involved 100 respondents spread across Palu City and samples were taken in July and August 2022.
Table 1. Demographics of research respondents

<table>
<thead>
<tr>
<th>Description</th>
<th>Freq</th>
<th>%</th>
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<tbody>
<tr>
<td>Gender</td>
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<td></td>
</tr>
<tr>
<td>Man</td>
<td>55</td>
<td>55.0</td>
</tr>
<tr>
<td>Women</td>
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<td>45.0</td>
</tr>
<tr>
<td>Education</td>
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<tr>
<td>High school/equivalent</td>
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<tr>
<td>Diploma</td>
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<tr>
<td>Bachelor (S1)</td>
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<td>54.0</td>
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<tr>
<td>Postgraduate (S2)</td>
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<td>6.0</td>
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<tr>
<td>Work</td>
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<tr>
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<td>8.0</td>
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<tr>
<td>PNS/TNI/Polri</td>
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</tr>
<tr>
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<tr>
<td>IRT</td>
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<td>6.0</td>
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<tr>
<td>Still looking for work</td>
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<tr>
<td>Education</td>
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<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>Age Group</td>
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<tr>
<td>24 – 29</td>
<td>19</td>
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<tr>
<td>30 – 34</td>
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<tr>
<td>35 – 41</td>
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<tr>
<td>42 – 46</td>
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<tr>
<td>52 – 56</td>
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</tr>
<tr>
<td>57 – 63</td>
<td>2</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Model Validity & Reliability Testing
Proving the research hypothesis was carried out using Partial Least Square with the help of the SmartPLS application [31]. Before analyzing the test results, it is necessary to carry out a top check goodness of fit model through validity using values outer loading and reliability testing through Chronbach’s Alpha.

All variables used are reflective variables except the personal variable which is a formative variable. The outer loading value for each reflective variable indicator shows an acceptable value, namely ranging from 0.710 to 0.934. Considering that all indicators have an outer loading > 0.7, it can be concluded that all indicators in the model are valid.

The next test is to measure the reliability of the construct, which is carried out by checking the reliability values, the test results can be seen in the following table.

The construct reliability table shows that all reflective variables have a Cronbach’s Alpha value above 0.7, so it can be concluded that all variables are reliable. Specifically for the Personal variable, there is no Cronbach’s Alpha value because this variable is a formative variable. Construct reliability can also be tested using composite reliability with value terms composite reliability greater than 0.7. The measurement results show that all variables meet the requirements because they have values composite reliability above 0.7.
To find out how much each adoption and trust variable is influenced by the independent variable or precursor variable, the value of the coefficient of determination or $R$ is used.\(^2\) as well as adjusted $R^2$

<table>
<thead>
<tr>
<th>Tabel 2. Coefficient of Determination Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>R Square</strong></td>
</tr>
<tr>
<td>Adoption</td>
</tr>
<tr>
<td>TRUST</td>
</tr>
</tbody>
</table>

The table above shows the value of $R^2$ for the adoption variable it is 0.582, meanwhile Adjusted $R^2$ of 0.577. In the trust variable, the $R$ value and Adjusted $R^2$ respectively are 0.592 and 0.571. If you use a benchmark value Adjusted $R^2$, it can be concluded that trust influences the adoption of My Pertamina services by 57.1 percent, while the other 42.9 percent is influenced by variables outside the model. Meanwhile, changes that occur in trust are influenced by organizational, government, behavioral, personal and technological variables amounting to 57.7 percent, while the remaining 42.3 percent is the influence of variables outside the model.

**Hypothesis Testing**

Research hypothesis testing is carried out by conducting bootstrapping PLS model. The results of bootstrapping the My Pertamina service adoption model are presented in the following table.
Discussion
My Pertamina is an application that is expected to make it easier for motorists to carry out oil and gas purchase transactions. This application has various main features, namely payment (can be linked to a bank account, Link Aja, and OVO) using QRIS, vouchers, exchange points, and transaction lists. As a new application, of course it faces various problems of acceptance or adoption by the community. The research results showed that of the six hypotheses proposed, four were accepted and two hypotheses were not accepted or rejected. The four hypotheses are the influence of behavioral factors on trust, the influence of technological factors on trust, organizational factors on trust, and the influence of trust on service adoption. Meanwhile, the two hypotheses that were rejected were the influence of personal factors on trust and the influence of government factors on trust. Personal factors in this research only leave two indicators out of the five indicators proposed. The two remaining indicators for measuring personal factors are education and age. Meanwhile the other three indicators fell because they had loading factors below 0.4 [6], [32] namely gender, occupation and income. The research results show that personal factors have no influence on trust in using mobile payment applications. User trends in this study show that increasing age does not guarantee increased trust in payments via smartphone. This research shows that young people tend to make more shopping transactions and of course make mobile payments too. As age increases, the trend decreases.
Likewise with education level, where the higher a person's education does not affect their level of trust in mobile payments. Along with the finding that younger respondents carry out more mobile financial transactions, so does the level of education. However, it is not yet known whether there is a correlation between age and education level.
Behavioral factors are one of the factors that have a positive influence on trust in mobile payments. Smartphone users consider that the risk of using a mobile device for transactions is no higher than making payments in cash. So payment transactions via mobile, whether using a digital wallet or similar, have become a common habit. The use of smartphones to make payments is also supported by habits carried out by close friends or trusted people who also do it. In other words, this behavior gets legitimacy from close friends or people who are trusted because they have done it. Respondents tend to consider the costs to be paid more than system security when making mobile payment transactions. They are more worried about having to pay high fees for the transactions they make.
Mastery of technology is one of the factors that has a positive influence on trust in the My Pertamina mobile payment system. Mastery of technology, especially in the use of smartphones, especially in making payments via mobile phone. The more accustomed someone is to making payment transactions, the more confident they are in making payments via mobile. Technological capabilities are also reflected in the user's habit of always updating applications installed on smartphones. Application updates are the most appropriate way to ensure smartphone security, with applications that are always updated will increase trust in payment transactions. Activeness in using a smartphone is also an indication of mastery of smartphone technology. Users who actively use their gadgets tend to be more confident in making payments via smartphone.
Organizational factors have a positive influence on respondents' trust in My Pertamina. These organizations are not limited to payment service providers but also organizations that provide cellular services or telco providers. The reputation of the telco service provider shapes this organizational factor. In other words, the better the reputation of the telco service provider, the higher the respondents' trust. Organizational factors also concern how big the benefits of the packages offered by My Pertamina are compared to the risks that users might suffer. If the
package offered is greater than the risk, of course people will believe it. The big name of the organization also determines whether someone will trust the mobile payments offered. As is known, My Pertamina is owned by PT. Pertamina is a large company in Indonesia.

Government factors apparently do not have a role in creating respondents' trust in My Pertamina. The government as the authorized party makes and promulgates regulations regarding mobile transactions. However, if the rules for mobile transactions are frequently changed, it will not create public trust. The government currently does not guarantee protection against dangers or financial threats from using My Pertamina, even though PT. Pertamina is a state-owned company. This is different from banking which is protected through LPS. The government’s lack of seriousness in monitoring transactions via smartphone is closely related to the lack of financial protection that may occur when people use My Pertamina. So government factors have no influence on trust in using My Pertamina.

Adoption of My Pertamina services is largely determined by the level of public trust, as this is obtained from the results of measurements used partial least square. The higher the trust in My Pertamina services, the higher the adoption of My Pertamina.

As personal factors do not have an influence on trust in My Pertamina, the role of this factor in the adoption of My Pertamina services. Research findings show that there is no influence of personal factors on service adoption which is mediated by trust. The same thing also happened to government factors, there was no indirect influence of government factors on the adoption of My Pertamina services which was mediated by trust.

Behavioral factors are known to have a positive influence on trust, then this factor also indirectly has a positive influence on adoption of My Pertamina services. In other words, trust mediates the positive relationship between behavioral factors and service adoption.

A person's mastery of technology has an indirect influence on adoption of the My Pertamina service, along with increasing trust in the service. In other words, trust becomes a mediator in the relationship between technological factors and service adoption.

The better the organization is in the public's perception, the greater their trust in a service. So that service provider organizations, both telco and PT. Pertamina should always do everything to ensure its services are always good to ensure its users are protected. Apart from increasing trust, organizational factors also smooth the process of adopting My Pertamina services.

5. Conclusions
This research draws several conclusions, namely: The factors that determine the adoption of My Pertamina services are technological factors, organizational factors, and behavioral factors that determine trust. Trust in My Pertamina services mediates the relationship between technological factors, organizational factors and behavioral factors with My Pertamina adoption. Government and personal factors have no influence on trust in services. Considering that government and personal factors do not have an influence on trust, these factors also indirectly have no influence on the adoption of My Pertamina.

References


