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*Research Article*

# FACTORS DETERMINING INTENTION TO USE OF MOBILE APPLICATION USING THE MODEL OF UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY

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ABSTRACT
Companies need mobile-based applications to carry out their business processes. This study aimed to measure the acceptance level of a mobile application. The model of Unified Theory of Acceptance and Use of Technology (UTAUT) were used in this research. The study investigated several independent variables: performance expectancy, effort expectancy, social influence, facilitating conditions, age, gender, and experience. The dependent variables used are behavior intention and use behavior. The sample of this research were the employees of the mining contractor company. This study established the linearity test to test the hypotheses. The purpose of the linearity test is to determine whether the variable data has a linear or not significant relationship. This study's results indicated what factors can influence the use of mobile applications in the mining industry. Mining contractor companies have become pioneers in the mining contracting world with the largest market share in Indonesia, covering the entire archipelago. The mining industry has competencies, safety, health, and environmental systems recognized by the mining world nationally and internationally.

*Keywords:* Mobile application, UTAUT, User behaviour

## INTRODUCTION

The rapid development of information and communication technology has made the mining business process so fast and easy. The mining world, which previously used manual processes, is now starting to use digital technology in every business process. By utilizing internet and cellphone facilities to obtain convenience in every business process, the Corporate Information System (CIS) division created an android-based mobile application called 1PAMA. In this mobile application, some features facilitated the employees, aiming to make it easier for employees to do work and administration.

There are various features available on the 1PAMA application. The first is the Attendance Logging feature. This menu is designed to make it easier for employees to do attendance every working day. Employees can do attendance without having to queue at the attendance machine, 1PAMA validates whether the employee's location is included in the office area to do attendance using a smartphone. The next feature is the Approval Letter of Assignment. This menu aims to make it easier for superiors to approve team assignments. This menu can also reduce the use of paper in creating letter assignments. Then there is the Create leave feature. This menu aims to make it easier for employees to apply for leave from their superiors. The proposed leave can be in the form of annual leave or rest leave at the site. The next feature is History Training. This menu can display information about each training's history that has been carried out by the employee.

1PAMA is also equipped with a Monitoring Dashboard that monitors a set of menus containing a dashboard that displays conditions in the field/site. Some examples are the mine water condition dashboard, pump condition dashboard, mine water-acidity level dashboard, and mine fatigue prediction dashboard. Apart from the five features above, there is also a Business Update News feature. This menu contains the latest information related to developments in the mining world.

However, the number of mobile application users were not maximized. This research focused on measuring the level of acceptance of the use of mobile applications. In measuring the acceptance of the information system, the analysis model needed is The Unified Theory of Acceptance and Use of Technology (UTAUT). This model is a model of technology acceptance and proposed by (Venkatesh V. M., 2003).

## 2. LITERATURE REVIEW

### 2.1 Mobile Application

According to Pressman and Bruce (2014: 9), a mobile application is an application that has been specially designed for mobile platforms (for example, iOS, Android, or Windows Mobile). A mobile application has a user interface with a mobile platform's unique interaction mechanism in many cases. It also has interoperability with web-based resources that provide access to various information relevant to the application and local processing capabilities for collecting, analyzing, and formatting

information utilizing most suitable for mobile platforms. Additionally, the mobile application provides persistent storage capabilities within the platform.

**2.2 Unified Theory of Acceptance and Use of Technology (UTAUT)**

UTAUT is a model that describes technology acceptance with eight theories. According to (Venkatesh VM, 2003) the eight theoretical models include Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivational Model, Theory of Planned Behavioral (TPB), Combine TAM and TPB (TAM-TPB), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), and Social Cognitive Theory (SCT).

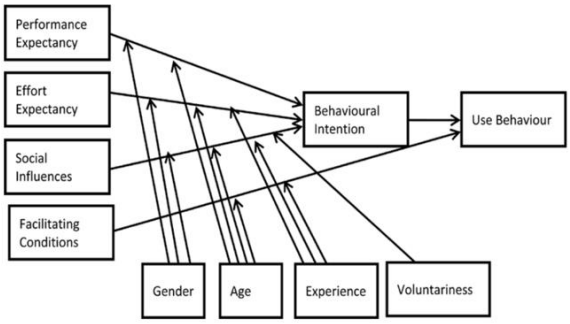


**Figure 1:** Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT model in Figure 1 had important constructs, namely performance expectancy effort expectancy, social influence, and facilitating conditions. Performance expectations or performance expectations, effort expectancy or effort expectations, and social influence can directly affect user behavioral intention. The three constructs in Figure 2.1 can affect the use or use behavior through mediating behavioral intention. The last one is facilitating conditions where this condition becomes a facilitator, directly affecting the user's behavioral intention. Of the four variables, there are moderating variables in the UTAUT, including gender, age, experience, and voluntary use.

**2.3 UTAUT Model Analysis with PLS-SEM**

Analysis of research data will use the PLS-SEM analysis technique. The reason for using this method is due to the use of indicators to measure each latent variable. The measurement model is structural and aims at the predictive orientation of the relationship between variables. The tools used are SmartPLS 3.

**3. METHODOLOGY**

**3.1 Research Model**

The UTAUT method aims to explain the intention to use the information system and its subsequent usage behavior. This theory argues that four key factors (performance expectancy, effort expectancy, social influence, facilitating conditions) are direct determinants of intention to use (behavioral intention) and (use behavior) behavior). In this study, three key moderators were used for the UTAUT method: gender, age, and experience. Performance expectancy, effort expectancy, social influence, and facilitating conditions are related to intention behavior, ultimately resulting in behavior use. Behavior use is a measurement of user acceptance of a system (Table 1).

| Variable | Indicator | Source |
|---|---|---|
| *Performance Expectancy* | *Perceived Usefulness* | Davis et al, 1989; Imam Ghozali, 2018; Fridayani, Helen, 2019 |
| | *Extrinsic Motivation* | Davis, 1992; Imam Ghozali, 2018; Fridayani, Helen, 2019 |

| Variable | Indicator | Source |
|---|---|---|
| | *Relative Advantage* | Moore & Benbasat, 1991; Imam Ghozali, 2018; Fridayani, Helen, 2019 |
| *Effort Expectancy* | *Perceived ease of use* | Davis et al., 1989; Imam Ghozali, 2018; Fridayani, Helen, 2019 |
| | *Complexity* | Davis et al., 1989; Imam Ghozali, 2018; Fridayani, Helen, 2019 |
| | *Ease of Use* | Moore & Benbasat, 1991; Imam Ghozali, 2018; Fridayani, Helen, 2019 |
| *Social Influence* | *Subjective Norm* | Davis et al., 1989; Imam Ghozali, 2018; Fridayani, Helen, 2019 |
| | *Influential people* | Thompson et al., 1991; Imam Ghozali, 2018; Fridayani, Helen, 2019 |
| | *Social Factor* | Venkatesh, et al., 2003; Imam Ghozali, 2018; Fridayani, Helen, 2019 |
| *Facilitating Condition* | *Perceived Behavioral* | Ajzen, 1991; Imam Ghozali, 2018; Fridayani, Helen, 2019 |
| | *Facilitating Condition* | Thompson et al., 1991; Imam Ghozali, 2018; Fridayani, Helen, 2019 |
| | *Compatibility* | Moore & Benbasat, 1991; Imam Ghozali, 2018; Fridayani, Helen, 2019 |
| *Behavior intention* | User Intention in using the System | Venkatesh, et al., 2003; Imam Ghozali, 2018; Fridayani, Helen, 2019 |
| | Prediction of User Intention in using the system | Venkatesh, et al., 2003; Imam Ghozali, 2018; Fridayani, Helen, 2019 |
| | Plan Using the System | Venkatesh, et al., 2003; Imam Ghozali, 2018; Fridayani, Helen, 2019 |
| | User Intention in using the System | Davis et al, 1989; Imam Ghozali, 2018; Fridayani, Helen, 2019 |

**Table 1:** Variable and Indicators

### 3.2 Data Sources and Data Collection

This research was conducted at a big mining contractor company in Indonesia. Data collection in this study will be carried out by distributing questionnaires to employees. The population of employees is about 2,000 people.

### 3.3 Data analysis

Based on Ghozali (2012), there are generally two types of SEM methods, namely covariance-based SEM or covariance-based equation modeling (CB-SEM) and variance or component-based SEM (variance or component-based SEM). Variance SEM included Partial Least Square (PLS) and Generalized Structural Component Analysis (GSCA). This study used a variance-based SEM method with Partial Least Square (PLS).

According to Santosa (2018), the purpose of data analysis using SEM-PLS is to maximize the explained variance or R2 of all endogenous latent variables in the path diagram. The first stage to perform data analysis using SEM is to test reliability and validity. Reliability and validity tests used about 333 respondents' data using the Cronbach's Alpha method. The first stage in SEM is also called a measurement model or outer model. Measurement models focus on combined reliability or internal consistency, convergent validity, and determinant validity. The second stage of data analysis using SEM is testing the structural model, also known as the inner model. The structural model measures the path coefficient and its significance level.

## 4. RESULT

### 4.1 Evaluation of Measurement Model (Outer Model)

#### 4.1.1 Convergent Validity Test

An indicator is declared valid if it is able to have a loading factor of 0.5 on the intended construct. The following is the result of Outer loading on each indicator that is owned by each latent variable using smartPLS.

| No | Variabel | Indikator | AVE | Outer Loading |
|---|---|---|---|---|
| 1 | Performance Expectancy [PE] | PE1 | 0,835 | 0,914 |
| | | PE2 | | 0,905 |
| | | PE3 | | 0,922 |
| 2 | Effort Expectancy [EE] | EE1 | 0,810 | 0,890 |
| | | EE2 | | 0,922 |
| | | EE3 | | 0,887 |
| 3 | Social Influence [SI] | SI1 | 0,830 | 0,867 |
| | | SI2 | | 0,979 |
| | | SI3 | | 0,882 |
| 4 | Facilitating Condition [FC] | FC1 | 0,820 | 0,878 |
| | | FC2 | | 0,908 |
| | | FC3 | | 0,929 |
| 5 | Behavioral Intention [BI] | BI1 | 0,772 | 0,933 |
| | | BI2 | | 0,854 |
| | | BI3 | | 0,846 |

**Table 2**: Outer Loading Result

In the table above, it is known that the Outer Loading and AVE values in this study. All outer loading values have a value above 0.7 for each indicator and an AVE value that is greater than 0.5. There are no indicators that produce a value less than 0.7 so that not one indicator is declared invalid or all indicators have been declared to meet the convergent validity test and all indicators can be carried out to the next stage test, namely the reliability test. The following is a diagram of the loading factor for each indicator in the research model.

**4.1.2 Reliability Test**

Reliability test can be done by looking at the results of the value of cronbanch's alpha. The results of Crobanch's alpha value will show reliable results if the value of each variable is above 0.6 (> 0.6). It will be more reliable if the value is greater than the minimum limit. The following is the result value of cronbanch's alpha using SmartPLS.

| | Cronbach's Alpha | Composite Reliability |
|---|---|---|
| Behavior Intention | 0,852 | 0,910 |
| Effort Expectancy | 0,882 | 0,927 |
| Facilitating Condition | 0,890 | 0,932 |
| Performance Expectancy | 0,901 | 0,938 |
| Social Influence | 0,913 | 0,936 |

**Table 3:** Reliability Test

The table above shows that the value of cronbanch's alpha in each variable has a value above 0.6, which means it proves that all variables in the model can be said to be reliable, with the variable that has the greatest value is Performance Expectancy which has a value of 0.913 and the variable with the result value. The smallest is Behavioral Intention with a result value of 0.852. This shows that the two results of composite reliability and cronbanch's alpha have a high level of reliability with the smallest variable value above 0.9.

**4.2 Evaluation of the Structural Model (Inner Model)**

After the model meets the criteria of the Outer Model, then an evaluation test will be carried out for the structural model or commonly known as the Inner Model. The results of the RSquare value can be seen in Table 4.

| | R Square | R Square Adjusted |
|---|---|---|
| Behavioral Intention | 0,709 | 0,705 |

**Table 4:** R-Square Value

From the table value, it is known that the variation in Behavioral Intention is explained by the variation on the independent variable of 0.709 (70.9%). The remaining 29.1% is explained by independent variables that are not included in the model.

Apart from R-Square testing, assessing the inner model can be done by looking at the T-statistic and the original sample (O). The value of the path coefficient and T-statistics from this study obtained from the smartPLS output can be seen in Table 5.

| | O | M | STDEV | O/STDEV | P Values |
|---|---|---|---|---|---|
| Effort Expectancy -> Behavior Intention | 0,181 | 0,178 | 0,057 | 3,143 | 0.002 |
| Facilitating Condition -> Behavior Intention | 0,682 | 0,684 | 0,053 | 12,884 | 0,000 |
| Performance Expectancy -> | 0,039 | 0,043 | 0,057 | 0,694 | 0,488 |

| | | | | | |
|---|---|---|---|---|---|
| Behavior Intention | | | | | |
| Social Influence -> Behavior Intention | -0.062 | -0,061 | 0,047 | 1,303 | 0,193 |

**Table 5:** Path Coefficients and T-Statistics

Here is the output from bootstrapping using smartPLS:

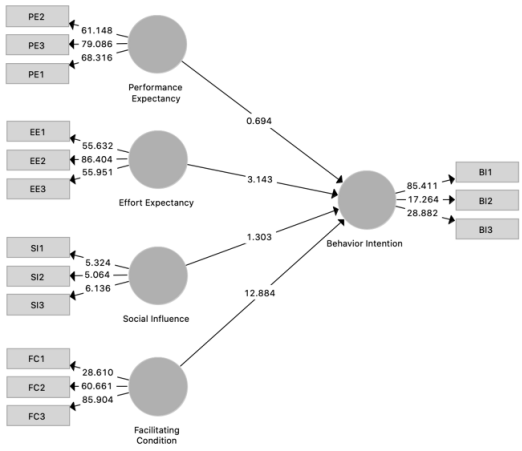


**Figure 2:** Output Bootsrapping

### 4.3 Hypothesis Test

1. H1 = There is an effect of Performance Expectancy on Behavior Intention

From the results of data processing using smartPLS, it is known that the original sample value (O) which is an estimator of beta is in accordance with the regression model and the T-statistic value shows its significance. as well as known p values that are greater than the tolerated limit.

From Table 4.4, it is known that Performance Expectacy on Behavioral Intention provides a path coefficient value of 0.039 which indicates the direction of the relationship in a positive direction, with a T-statistics value of 0.694, greater than the T-table 1.96. However, the p value of 0.488 or 48.8%, is greater than the tolerated limit of 5%. This means that the relationship between Performance Expectancy and Behavioral Intention has no effect. These results indicate that H1 can be declared unacceptable.

2. H2 = There is an effect of Effort Expectancy on Behavior Intention.

From the results of data processing using smartPLS, it is known that the original sample value (O) which is the path coefficient value and the T-statistic value shows its significance. and the p value is known to be smaller than the tolerable limit.

From Table 4.4, it is known that Effort Expectacy on Behavioral Intention provides a path coefficient value of 0.181 which indicates the direction of the relationship in a positive direction, with a T-statistic value of 3.143, greater than T-table 1.96. And the p value is 0.002 or 0%, less than the tolerance limit of 5%. This means that it shows a positive relationship between Effort Expectancy and Behavior Intention. From these results indicate that $\beta 2 > 0$. Thus H0 is rejected, and Ha can be accepted. Or in other words H2 can be said to be accepted.

3. H3 = There is the influence of Social Influence on Behavior Intention.

From the results of data processing using smartPLS, it is known that the original sample value (O) which is an estimator of beta is in accordance with the regression model and the T-statistic value shows its significance. as well as known p values that are greater than the tolerated limit.

From Table 4.4 it is known that Social Influence on Behavioral Intention provides a path coefficient value of -0.062 which indicates the direction of the relationship is negative, with a T-statistic value of 1.303, smaller than the T-table 1.96. Then the p value is 0.193 or 19.3%, which is greater than the tolerated limit of 5%. This means that it shows the relationship between Social Influence and Behavioral Intention has no effect. These results indicate that H3 can be declared unacceptable.

4. H4 = There is an influence of facilitating conditions (Facilitating Condition) on Behavior Intention

From the results of data processing using smartPLS, it is known that the original sample value (O) which is the path coefficient value and the T-statistic value shows its significance. as well as known p values that are smaller than the tolerable limit.

From Table 4.4 it is known that Facilitating Condition to Behavioral Intention provides a path coefficient value of 0.682 which indicates the direction of the relationship in a positive direction, with a T-statistic value of 12.884, greater than the T-table 1.96. And a p value of 0,000 or 0%, is smaller than the tolerated limit of 5%. This means that it shows a positive relationship between Facilitating Condition and Behavioral Intention. From these results indicate that $\beta 2 > 0$. Thus H0 is rejected, and Ha can be accepted. Or in other words H4 can be stated as accepted.

## 5. Summary

Based on the results of the analysis and discussion of the research, the following conclusions were obtained:

1. The results of this study conclude that business expectations and facilitating conditions have a positive and significant effect on the intention to use 1PAMA Mobile Application. Meanwhile, performance expectations and Social Influence do not significantly influence the intention to use 1PAMA Mobile Application
2. The most influential factors are business expectations and facilitating conditions. This means that with good infrastructure and the higher one's confidence by using 1PAMA Mobile Application, it will increase one's confidence that the system has great benefits in the future.

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