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Acceptance Analysis of Insurance E-Receipt Information System Using Technology Acceptance Model

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Abstract

At this time information systems have been widely used by various companies. With the information system, it is hoped that all existing business processes in the company can be helped. However, every newly implemented information system needs an attitude of acceptance from the users in the company, so that the implementation can be successful. As is happening to the government insurance company in Purwasuka (Purwakarta, Subang, Karawang) District. Where the company implements an e-receipt information system that will be used by its employees to record insurance sales. Based on these problems, this paper will analyze the attitudes of application users in the insurance company using TAM. The aspects to be studied are based on perceived usefulness, perceived ease of use, and attitude toward using. The results of this study show that users give a positive attitude of acceptance.

Keywords
vehicle insurance; information system; technology acceptance models; e-receipt; insurance.

I. Introduction

Information systems have been widely implemented in various businesses such as companies as well as public and government services. With the information system business processes can be easily done. So that productivity and also the time used to carry out business processes within an organization become more effective. One company that implements an information system is an insurance company owned by the government in Indonesia. This insurance serves various types of guarantees, namely vehicles, property, guarantees, and also life insurance.

In this insurance company, one of the business processes that have implemented an information system is the vehicle insurance business. This business process in vehicle insurance requires an information system to record sales of insurance receipts. Where the information system is used to record various types of vehicle insurance sales. Then to form an insurance sales report and also to make it easier to check insurance customer data. The information system e-receipt is made web-based. So, it can be accessed anywhere.

The E-receipt information system is still newly implemented in the company. Where every information system that is implemented needs to be accompanied by acceptance from users. Because the acceptance and also knowledge of technology, it can affect the success of the application of the information system.

Based on these problems, it is necessary to carry out an analysis of the use of the system, for the development of information systems in the future. To carry out this analysis this study will use Technology Acceptance Models or TAM. TAM itself is a suitable model to be used in determining user attitudes towards technology.

TAM method (Technology Acceptance Model) is used to find out how much impact Perceived ease of use and perceived usefulness Implementation Process of Vehicle Insurance Receipt Information System.

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TAM with Rational Action (TRA) is expressed by Ajzen and Fiespin (1980). TRA explained their response and Information Technology Users Perspectives (IT), which in turn affects its Embrace of these techniques. Main The goal of TAM is to explain the Determination of Computer Acceptance Generally, explains the behavior or Attitudes of users in a population (Davis et al., 1989).

The data collected is processed using the smartPLS tool. Partial Least Squares (PLS) is a statistical method based on a variant of Structural Equation Modeling (SEM) that enables both measurement model testing and structural model testing [6].

PLS focuses on maximizing the variance of the dependent variable described by the independent variables, rather than reproducing the empirical covariance matrix. Measurement models are used to test validity and reliability, while structural models are used to test casualties (hypothesis testing using predictive models).

PLS is useful if used for forecasting series Dependent variables from different sets of independent variables. PLS-SEM modeling is widely used in the field of information systems and many other fields that use multivariate statistical methods. One of the most fundamental problems in PLS-SEM is the estimation of the minimum sample size.

II. Review of Literature

TAM is a model used to analyze the use and acceptance of information systems and technologies used by users. TAM itself has been widely used in various studies to study how the attitudes or behavior of individuals in using information systems [9],. TAM can help explain how the assessment of an information system accepted and can also explain how users' attitudes towards technology in a population [3]. The TAM model can also be used to predict the possible deployment of new technologies within an organization or business. In the TAM model, 4 factors can be used to indicate that an information system is accepted by the user, namely: Perceived Usefulness (also called PU), Perceived Ease of Use (also called PEOU), Attitude Towards Usage (also called ATU) and Behavioral Intention to Use (also called BIU)

PU in TAM explains that the use of the information system can help improve their performance, then PEOU shows that the information system created can be used easily to carry out activities in business processes [10]. PU and PEOU have a role that affects ATU which later will also affect ATU.

The research case that uses TAM in analyzing the attitude of using information systems is in the process of recording report cards, where this study evaluates teachers who use an electronic report card recording system. The results of this study explain that the implementation of the electronic report recording system can be very useful for teachers.

Then the TAM Health sector is also used to determine the use of the e-health information system, where patients can check their health independently. The results of this study indicate that the use of the information system applied is acceptable to the patient.

For data Processing, Partial Least Squares (PLS) as a general method of estimating the path model uses the potential Structure with multiple metrics, presenting two iterative processes, using the least-squares estimation method for one component and multi-component models. PLS is used to test weak theories and problems by assuming the normality of the data distribution. PLS aims to predict the effect of variable X on Y and explain the theoretical relationship between the two variables. PLS is a regression method that identifies combinations of variables X as Explanatory variables and variable Y as responses.

III. Research Method

In this study, the TAM model will be used to determine the attitude of user acceptance of the information system in the vehicle insurance company. 2 factors become the main focus in predicting the acceptance of the use of information systems, namely Perceived Usefulness (also known as PU) and Perceived Ease of Use (also called PEOU).

The methodology used in conducting this research is shown in the diagram below.

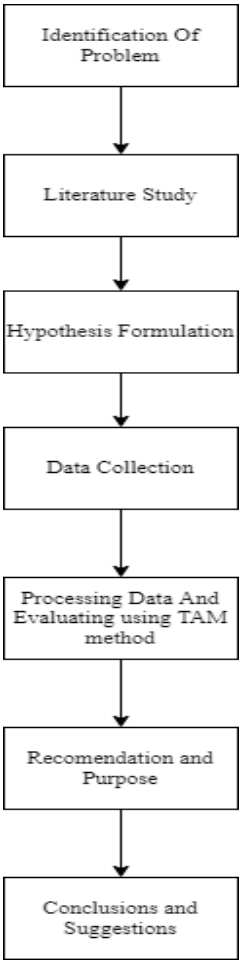

Figure 1. *Research Methodology Framework*

For the first methodology, namely identifying problems, identification of this problem is one of the reasons why this research is important.

Next, do a library study, namely, in conducting the problem analysis process, it is necessary to study literature and previous research. As for what is done at this stage, namely finding and conducting library studies from relevant books, journals, and papers as library references that will be studied as the basis for research theory so that research can proceed as planned. After that prepare hypotheses related to the problems in this study. The developed hypothesis is a temporary answer that can be proposed in testing the relations of the framework used in the study. The results of the hypothesis can be accepted and rejected as evidence of whether or not there is a relationship between the variables used in this study. After that perform data collection. And then draw conclusions and recommendations.

In this research, the TAM model that will be used is as follows:

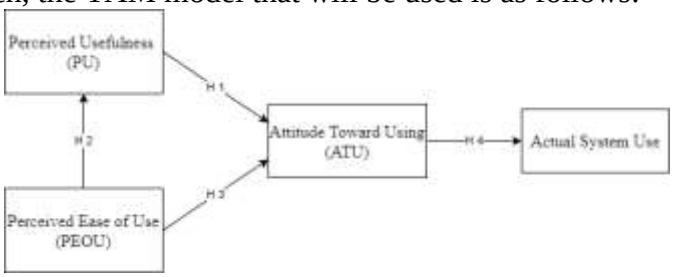

***Figure 2**. TAM model used in this research*

Based on the model above, several factors influence perceived ease of use (PEOU), perceived usefulness (PU), attitude toward using (ATU) towards actual system use (AU) indirectly (H1, H2, H3, H4)

Thus, the hypothesis in this study is obtained, namely:

H1: There is a positive influence between PEOU and PU.
H2: There is a positive influence between PEOU and ATU.
H3: There is a positive influence between PU and ATU.
H4: There is a positive influence between ATU and AU.

IV. Result and Discussion

4.1 Demographics of respondents

Respondents in this study were all employees of insurance companies in Purwasuka District in Indonesia with a total sample of 97 people, the results were obtained based on the calculation of the Solvin method from a total population of 120 people.

a. Demographics by Age

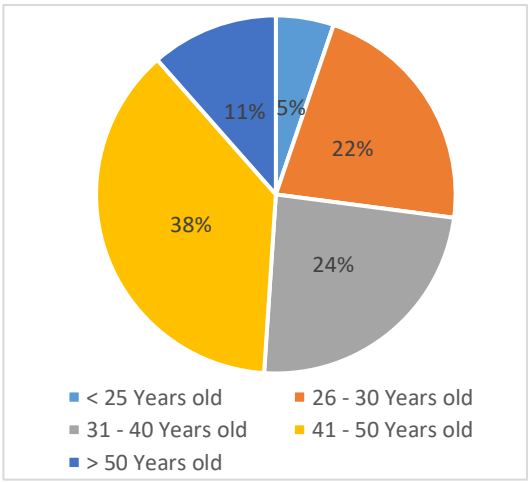

***Figure 3**. Descriptive Statistics by Age*

From the graph above, it can be explained that the average age of the respondents is between 26-50 years. And some respondents are more than 50 years old.

b. Demographics by Gender

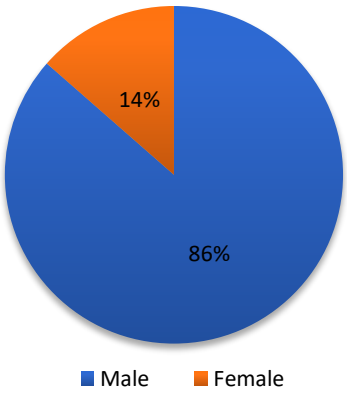

***Figure 4**. Descriptive Statistics by Sex*

Based on the graph, it can be seen that there are 86% male respondents and 14% female respondents.

c. Demographics by Intensity of computer use

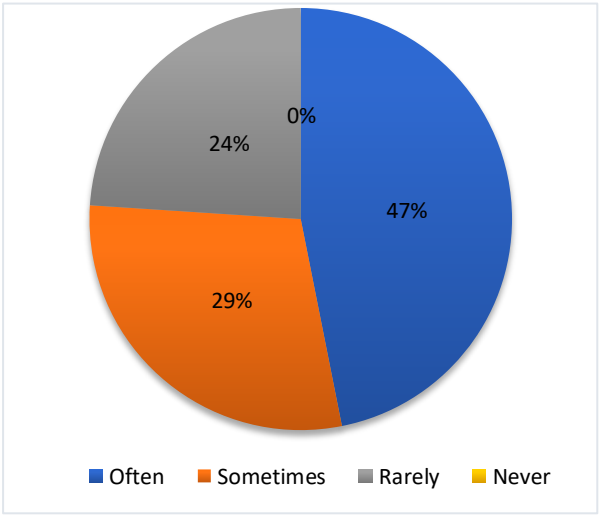

***Figure 5**. Descriptive By Intensity of computer use*

Based on the graph above, it can be said that the respondents in this study often have experience in operating computers.

4.2 Descriptive Statistical Analysis

Descriptive statistics are for describing or providing an overview of object research is being conducted with sample or population data without analysis and generalization in conclusion. The results obtained from processing the data are in the following table:

Table 1. Descriptive statistical analysis

Indicator	Mean	Std. Deviation	Kurtosis	Skewness
PEOU 1	4.30	0.815	-1.135	-0.473
PEOU 2	3.98	0.854	-1.649	0.040
PEOU 3	4.34	0.517	-0.970	0.202

PEOU 4	4.22	0.739	-1.095	-0.378
PEOU 5	4.24	0.760	-1.157	-0.438
PEOU 6	3.94	0.801	-1.446	0.115
PU 1	4.14	0.964	-1.904	-0.277
PU 2	4.20	0.731	-1.076	-0.330
PU 3	4.21	0.957	-1.802	-0.432
PU 4	4.10	0.653	-0.652	-0.110
PU 5	4.15	0.777	-1.309	-0.263
ATU 1	4.34	0.530	-1.113	0.002
ATU 2	4.14	0.671	-0.780	-0.168
ATU 3	3.90	0.770	-1.301	0.183
ATU 4	4.26	0.753	-1.105	-0.477
ATU 5	4.19	0.726	-1.062	-0.307
ATU 6	4.01	0.872	-1.710	-0.020
AU 1	4.39	0.528	-1.095	0.042
AU 2	4.28	0.921	-1.548	-0.594
AU 3	3.46	0.720	0.075	1.252
AU 4	3.98	0.854	-1.649	0.040

4.3 Estimate Model

The parameter estimation method (estimation) in this study uses the PLS Algorithm on the smartPLS software [13]. This model estimation aims to find out which variables are correlated with the latent indicator. The loading factor shows the large correlation between the indicator and its latent variable, the loading factor is also a value generated from each indicator to measure the variable. An indicator is stated to be correlated with its latent variable if the loading factor value is greater than 0.7. However, the loading factor of 0.50 to 0.60 can still be maintained for the development stage model. The results of the first model execution (first estimate) with the PLS Algorithm are as follows:

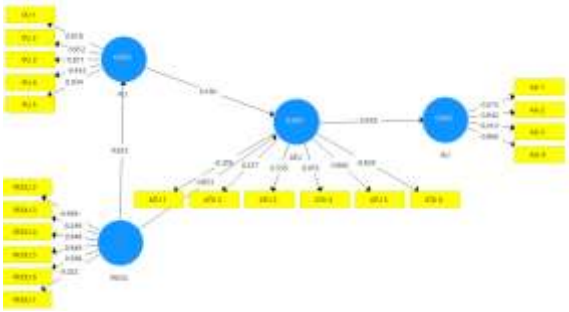

Figure 6*. First Estimate Model*

There are 8 indicators, namely PEOU 1, PEOU 2, PEOU 3, PU 4, ATU 1, ATU, 2, ATU 6, and AU 3 which are invalid because they do not meet the loading factor criteria (values below 0.5). So it is necessary to estimate the next model by eliminating these invalid indicators.

The results of the second model estimation execution with the PLS Algorithm are as follows:

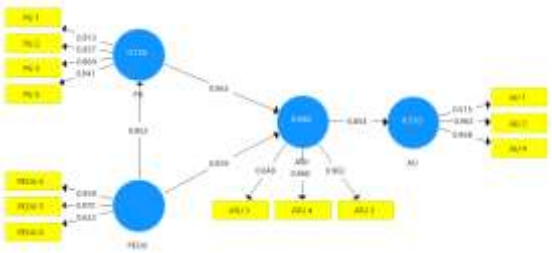

Figure 7*.Second Estimate Model*

4.4 Measurement Model (Outer Model)

Measurement Model is done to explain the relationship between latent variables and indicators. For the evaluation of the outer model, there are 3 criteria used, namely convergent validity, discriminant validity, and composite reliability for reliability rest.

The following are the results of the evaluation of the variables that meet the loading factor criteria

a. Convergent validity)

Table 2. Data output convergent validity

	ATU	AU	PEOU	PU
ATU 3	0.694			
ATU 4	0.960			
ATU 5	0.962			
AU 1		0.515		
AU 2		0.963		
AU 4		0.968		
PEOU 4			0.959	
PEOU 5			0.970	
PEOU 6			0.622	
PU 1				0.913
PU 2				0.957
PU 3				0.864

The table above is the result of the loading factor of all indicators for each construct that meets convergent validity because all the loading factor values of each indicator are already above 0.50. There are 8 indicators, namely PEOU 1, PEOU 2, PEOU 3, PU 4, ATU 1, ATU, 2, ATU 6, AU 3 which are invalid because they do not meet the loading factor criteria (values below 0.5) so that these variables are not included in the next data processing

b. Discriminant Validity

Discriminant validity of the reflexive indicators can be seen in the cross-loading between the indicators and their constructs.

Table 3. Data output Output Cross Loading

	ATU	AU	PEOU	PU
ATU 3	**0.694**	-0.420	0.616	0.234
ATU 4	**0.960**	-0.829	0.973	0.883

ATU 5	**0.962**	-0.888	0.952	0.957
AU 1	-0.107	**0.515**	-0.080	-0.213
AU 2	-0.748	**0.963**	-0.752	-0.812
AU 4	-0.925	**0.968**	-0.911	-0.770
PEOU 4	0.960	-0.870	**0.961**	0.935
PEOU 5	0.942	-0.830	**0.970**	0.865
PEOU 6	0.622	-0.381	**0.629**	0.194
PU 1	0.598	-0.580	0.600	**0.913**
PU 2	0.961	-0.878	0.943	**0.967**
PU 3	0.629	-0.550	0.658	**0.864**

The output cross-loading in the table above is a variable that meets the criteria, it can be seen that the correlation of each indicator with its construct is higher than the other constructs. This proves that the latent construct that predicts indicators in its block is better than indicators in other blocks.

c. Reliability Test

To perform the reliability test, two criteria will be used, namely composite reliability and Cronbach alpha

Table 4. Composite Reliability and Cronbach's

	Composite Reliability	**Cronbach Alpha**
AU	0.87	0.82
ATU	0.90	0.83
PEOU	0.90	0.83
PU	0.96	0.94

It can be seen that the output of composite reliability and Cronbach in the table above shows that the value of each construct is already above 0.70. So it can be concluded that each construct in the estimated model has good reliability.

4.5 Structural Model (Inner Model)

Testing of the structural model (inner model) is carried out by looking at the value of R-square() on endogenous constructs. The structural model that has an R-square () of 0.67 has a "good" model, an R-square () of 0.33 that is a "moderate" model, and an R-square () of 0.19 that develops a "weak" model. "[15].

	R-Square	**Effect Size**
AU	0.73	good
ATU	0.98	good
PU	0.72	good

4.6 Bootstrappinging

The bootstrap process will generate the path Hypothesized coefficient values and t-statistics test. Bootstrapping with 500 Subsample and two-tailed test at a significance level of 0.05. The results of bootstrapping are as follows:

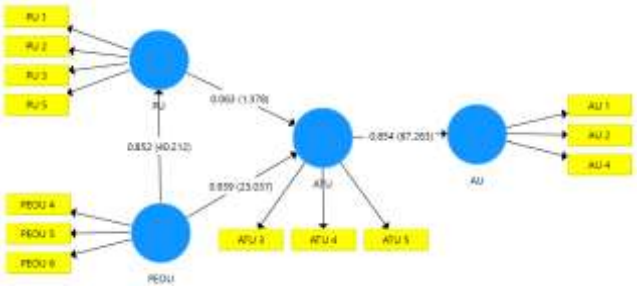

***Figure 8**. Bootstrapping result*

4.7 Hypothesis Test

Hypothesis testing was carried out by looking at the direction of the relationship of exogenous constructs to endogenous constructs (γ) and endogenous constructs to endogenous constructs (β) using the bootstrap resampling method. The test statistic used is the t statistic or t-test. The comparison t value in this study was obtained from the t table. For the 95% confidence level, the T-table is used as a reference of 1.96.

Table 5. Hypothesis test

Hypothesis	Construct	Coefficient Path	T Statistics
H1	PEOU → PU	0.85	40.86
H2	PEOU → ATU	0.94	23.15
H3	PU → ATU	0.06	1.38
H4	ATU → AU	0.85	63.54

The following is an explanation of the results of the test based on the table above.

H1: There is a positive influence between PEOU on PU

Table 5 above shows that there is a positive influence between the PEOU construct on the PU construct with a coefficient value of 0.85 and significant at the 5% level, which means that there is a positive effect of 85% on the PU construct.

Then the value of the t statistic for the PEOU construct for the PU construct is above 1.96, which is 40.86. So it can be concluded that H1 is accepted.

H2: There is a positive influence between PEOU and ATU

Table 5 above shows that there is a positive effect between the PEOU construct on the ATU construct with a coefficient value of 0.94 and significant at the 5% level, which means that there is a positive effect of 94% on the ATU construct.

Then the value of the t statistic for the PEOU construct for the PU construct is above 1.96, which is 23.15. So it can be concluded that H2 is accepted.

H3: There is a positive effect between PU on ATU

Table 5 above shows a positive influence between the PU construct on the ATU construct with a coefficient value of 0.06 and significant at the 5% level, which means that there is a positive effect of 6% on the ATU construct.

Then the value of the t statistic for the PU construct to the ATU construct is below 1.96, which is 1.38 which is not significant. So it can be concluded that H3 is not accepted.

H4: there is a positive effect between ATU on AU

The table above shows that there is the positive effect between the ATU construct on

the AU construct with a coefficient value of 0.85.

Then the value of the t statistic for the ATU construct to the AU construct is 1.96, which is 63.54. So it can be concluded that Ha is accepted.

4.8 Discussion

Based on research using the TAM model, it can be seen that hypothesis 1 (H1), namely Perceived Ease Of Use has a positive effect on Perceived Usefulness. This is evidenced by the output path coefficient value of 0.85, then the statistical t value for the Perceived Ease Of Use construct on the Perceived Usefulness construct is above 1.96, which is 40.86, which means the effect is significant.

This proves that the higher the perception of the ease of use of the information system, the higher the perception of the benefits of the system. It can also be concluded that the receipt recording information system that has been implemented can provide benefits for its users with the ease of using the system for users or employees in the company.

Then it can be known based on testing the second hypothesis (H2), namely Perceived Ease Of Use has a positive effect on Attitude Toward Using. This is evidenced by the output path coefficient value of 0.94, then the statistical t value for the Perceived Ease Of Use construct on the Attitude Toward Using construct is above 1.96, which is 23.15, which means the effect is significant.

This proves that the higher the ease of use of the receipt recording information system, the higher the user's attitude to using the information system. That way, with the easier use of the insurance receipt recording information system, users and employees will have the attitude to use the receipt recording information system.

Then it can be known based on testing the third hypothesis (H3), namely Perceived Usefulness has a positive effect on Attitude Toward Using but is not significant. This is evidenced by the output path coefficient value of 0.06, then the statistical t value for the Perceived Usefulness construct on the Attitude Toward Using construct is below 1.96, which is 1.38, which means the effect is not significant.

This means that a useful information system can affect attitudes toward to use the information system. Thus, users of the insurance receipt information system have the attitude to use the information system on an ongoing basis with the benefits resulting from the information system.

Then it can be seen based on the test of the fourth hypothesis (H4), namely Attitude Toward Using have a positive effect on Actual System Usage. This is evidenced by the output path coefficient value of 0.85, then the statistical t value for the Attitude Toward Using construct on the Actual System Usage construct is above 1.96, which is 63.54, which means the effect is significant. This means that acceptance of the use of information systems can guarantee that users will use the information system continuously.

V. Conclusion

This study describes the attitude of acceptance of the information system to record sales receipts reporting in the government environment using the TAM model. The results of this study prove the ease and usefulness of the information system has a positive effect on the attitude of using the information system which can then be able to show user acceptance of the information system. So to further encourage acceptance, the company needs to carry out several additional activities such as training and also motivation to use information systems in doing work. In addition, the company can also carry out some

developments on the information system, such as providing features or displays that can make it easier for employees to use the information system, considering the average age of the users who are already intermediate.

For further research, it can be done by adding external variables to look for other factors that might be caused for the acceptance of the information system at the government insurance company.

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