

# The Acceptance Model for Adoption of Hospital's Information and Communication Technology in RSUD. dr. M. Soewandhi Surabaya

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**Abstract**— Information and Communication Technology Hospital (ICT hospital) is an accurate presentation of information, as support the process of management and decision-making functions in providing health services in the hospital. aim of this study was to determine the role of the medical hospital in the use of technology with TAM (technology acceptance model). Determine the adoption of ICT by the medical hospitals such as the Nurse, the laboratories, pharmacists and others who use ICT hospital named *Sistem Informasi Soewandhi* in RSUD. dr. M. Soewandhi Surabaya. The data used in this study is the medical as responden in this study is that totaled 135 people. Data processing using Structural Equation Modeling (SEM). From the test results it can be concluded that the medical easily using ICT hospitals owned by the RSUD. dr. M. Soewandhi Surabaya in a relatively fast time, because the use of ICT this hospital has been used not until 1 (one) year.

**Keywords**- TAM; Technology Information; Hospital; SEM;

## I. INTRODUCTION

Implementation of Art Indonesian (UU) No.14/2008 on Public Information and the Regulation of the Minister of Health No. 1691/Menkes/Per/VIII/2011 on the safety of hospital patients, the role of important in the successful implementation and use of information technology is the medical factor. Preparation level users to receive information technology will ber major influence in determining whether or not to early success in the these technologies.

This research is motivated to analyze the acceptance of ICT hospital in RSUD. M. dr. Soewandhi Surabaya using TAM. TAM usage based on the opinions Venkatesh and Davis (2000) in Pramanda (2016) states that TAM is a concept that is considered the most good in explaining the behavior penggunaa technology. Pramanda (2016) TAM is a method which describes the behavior of users of the technology which is based on usefulness, simplicity, attitude, the actual use in the use of technology. The purpose of this model is to be able to explain the factors of user behavior towards the use of ICTs hospital. This research aims to identify the factors that may affect users in using ICT hospitals and determine which variable most affect the use of ICTs hospital admission.

## II. LITERATURE REVIEW

### 2.1 TECHNOLOGY ACCEPTANCE MODEL (TAM)

Technology Acceptance Model (TAM) developed by Davis in 1989, as a model of user acceptance in an information system.

#### a. Perceived Usefulnes (PU)

Perceived Usefulnes is extent to which users believe that using technology can help improve the performance of their duties. Davis (1989) and Gardner and Amoroso (2004) in Pramanda (2016) defines the perception of expediency as the extent to which one believes that using a system will improve its performance. H1: Perceived Usefulnes has a positive relationship with attitudes in the use of ICT

#### b. Perceived of ease of use (PEU)

Perceived ease of use Gardner and Amoroso (2004) in Pramanda (2016) is as a level of confidence of users that use technology will bring them free from physical and mental effort. H2: Perceived ease of use have a positive relationship with attitude in use of ICT  
H3: Perceived ease of use has a positive relationship with Perceived Usefulnes in use of ICTs

#### c. Attitude (ATT)

Attitude that isi TAM conceptualized by Davis (1993) as a gesture to the use of system in form of acceptance or rejection as a result when someone uses a technology in its work. Pramanda (2016) attitude is a critical determinant of human behavior since the formation of attitudes does not happen by itself or in vain, but its formation always took place in human interaction and respect to the alternative that is happy or not happy, supportive or not support, stay away from or not.  
H4: Attitude has a positive relationship with actual use of ICT

#### d. Actual Usage (AU)

Actual Usage is the actual condition of the use of technology. Concentrated in the form of measurements of the frequency and duration of the use of technology. Pramanda (2016) someone will be happy to use the system if they believe that the system is easy to use and will increase their productivity, which is reflected in the real conditions of use.

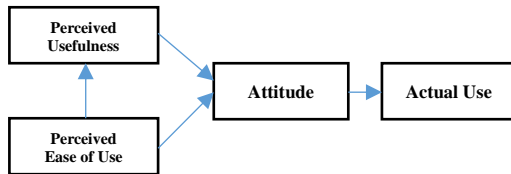


Figure 1. TAM by Davis (1989)

## 2.2 STRUCTURAL EQUATION MODELING (SEM)

Data were analyzed using Structural Equation Modeling (SEM), performed to elucidate more thoroughly the relationship between variables that exist in the study. SEM is used not to design a theory, but rather to examine and justify a model. Pramanda (2016) states SEM becomes an analytical technique that is more powerful because it considers the modeling of interactions, nonlinearitas, independent variables are correlated (correlated independent), measurement error, interruption errors correlated (correlated error terms), some independent variable latent (multiple independent latent) in which each measured using many variables manifest, and one or two dependent variables latent also each be measured by several variables manifest. Thus Byrne (2010) according to this definition can be used SEM alternative that is more powerful than using multiple regression analysis, path analysis, factor analysis, time series analysis, and analysis of covariance.

### III. HYPOTHESIS

This research TAM refers to a previous study conducted by Davis (1989), and previous studies analyzing the use of ICT but not using TAM. The hypothesis is measured from the SEM output analysis, hypothesis analyzed in this study is TAM was developed by David (1989), which aims to contribute to the management of the hospital, in order to know the attitude of the medical hospital in using ICT in their work. The hypothesis has been summarized in the table as follows.

Table. 1. Research hypothesis

No.	Hypot hesis	Relationship between variables latent of TAM	Previous research
1	H1	Perception of benefit has a positive relationship with attitude in the use of ICT	Ahlan (2014), Gardner and Amoroso (2004), Pramanda (2016)
2	H2	Perception of ease have a positive relationship	Ahlan (2014),

		with attitudes in the use of ICT	Bob (2010), Iqbaria (1994), Pramanda (2016)
3	H3	Perceived ease has a positive relationship with the perception of the benefit in the use of ICT	Ahlan (2014), Chin and Todd (1995), Pramanda (2016)
4	H4	Attitude has a positive relationship with the actual use of ICT	Ahlan (2014), Nugroho (2012), Notoatmojo (2003), Alexander and Morlock (2000)

#### A. Data analysis techniques and hypothesis testing

Hypothesis testing is done by SEM (Structural Equation Modeling) software LISREL. SEM (Structural Equation Modeling) is a set of statistical techniques that allow testing of a relatively complex set of relationships simultaneously. What is meant by complex models are simultaneous models formed by more than one dependent variable described by one or more independent variables and where a dependent variable at the same time acts as an independent variable for other tiered relationships, such as multiple regression analysis, analysis of factors that still have weaknesses are its limitations in analyzing one relationship at a time (Ferdinand, 2000). The use of SEM in this study is based on the structure of relationships among variables in a complex TAM, so the use of other analytical tools such as regression will complicate the analysis process.

#### B. DATA COLLECTION AND ANALYSIS

Research location in RSUD. M. dr Soewandhi is a Class B State Hospital according to Minister of Health Decree No. RI. 37 / MENKES / SK / V / 2009, having his / her address at Jalan Tambakrejo 45-47 Surabaya post code 60142, Surabaya City, East Java Province. In the advanced research stage is distributing questionnaires to 216 respondents. The respondents are employees or medics who use ICT. The number of questionnaires returned by 135 respondents is that the rate of return the questionnaire distributed reached 62.5%. The entire returned questionnaire is eligible for processing, as there are no defective or incomplete questionnaires. The test results of Kolmogorov-Smirnov normality assumption multivariate multivariate normal distribution of data is if significant value > 0.05.

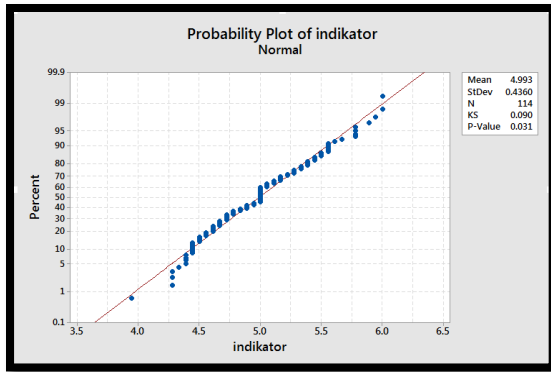


Figure 2. Plot Multivariate normality test

Value KMO and Bartlett's Test for the correlation between the variables desired is  $> 0.05$ , from the above results obtained KMO value of 0,903 1, which means greater than 0.5 so that the manifest declared variables with normal distribution, and to do further testing.

#### IV. MEASUREMENT TESTING TAM

Results expediency perception variables were processed using LISREL output can be seen in Figure 2,3,4,5 below.

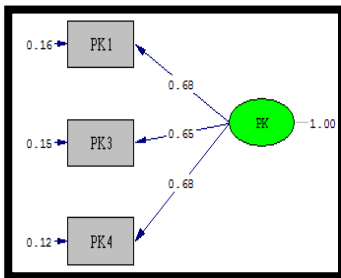


Figure 2. Output PU

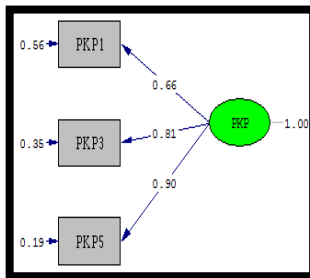


Figure 3. Output PEU

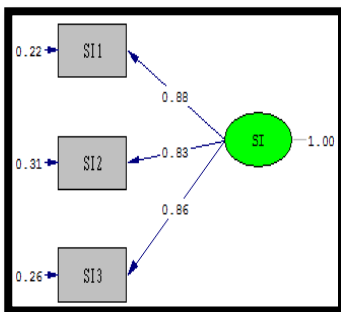


Figure 4. Ouput ATT

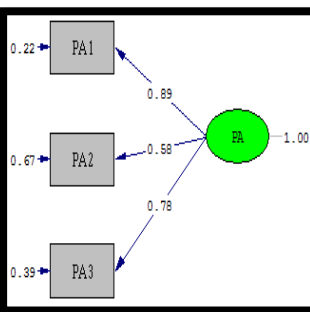


Figure 5. Ouput AU

It can be concluded that the manifest variables are forming on the dimensions of the latent constructs, these variables can be continued for structural equation models.

#### V. DESIGN HYPOTHESIS TESTING

To find out occurs whether or not multicollinearity is no linear relationship between the independent variable on the dependent in the regression model, can be seen in the correlation matrix of independent variables in Appendix 3 shows the correlation between the latent variables that are interconnected so that a model in a state fit or good. Pramanda (2016) observed variable correlation values (good reliability level) is not allowed is  $> 0.09$  and negative. Values observed correlations between variables can be seen in correlations and test statistics.

Assessment is based on a correlation coefficient of great value Standardized Factor Loading (SLF), while the significance testing based on the value of the t-value generated on the trajectory (path) that connects these variables. Model analysis in this study multikolinieritas problem does not occur, the output lisrel Loading Factor Model Structure TAM.

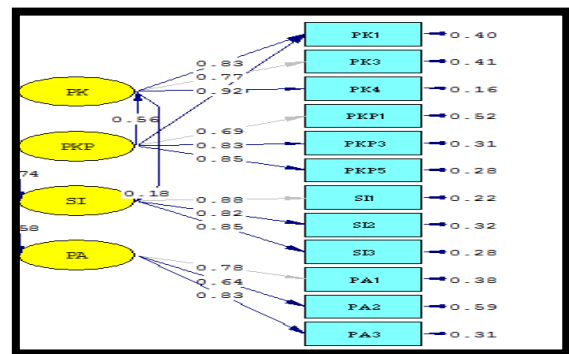


Figure 6. The test results lisrel factor loading TAM

Interpretation of test results TAM loading factor can be seen in the following table.

Table 2 factor loading test results TAM

Hypothesis	Loading factor	Information
H1	0.18	Valid
H2	0.74	Valid
H3	0.56	Valid
H4	0.58	Valid

In Table 2 is known that all the hypothesis is valid or has a good level of reliability, since all hypotheses are not on the loading factor values  $> 0.9$  and all are positive, will result in a test hypothesis t-value can be trusted.

##### A. Goodness of Fit Test TAM Index

Once known keandalah level hypothesis, then testing the structure of this model goodness of fit index, output results of SEM analysis using LISREL have been summarized in Table 3 dan Table 4 below.

Goodness of fit index	Cut off value	Significant	Information
X2-Chi Square	Expected Small	208,4600	Model fit
Significance Probability	$\geq 0.05$	1,0000	Model fit
RMSEA	$\leq 0.08$	0.0058	Model fit
GFI	$\geq 0.90$	0.9300	Model fit
AGFI	$\geq 0.90$	0.9700	Model fit
CMIN / DF	$\leq 2.00$	1.9690	Model fit
TLI	$\geq 0.90$	1,0000	Model fit
CFI	$\geq 0.95$	0.9800	Model fit

From the Table, the model is said to have a good or appropriate.

Table 4. Results of TAM hypothesis

Hypothesis	Statement	Value t-value	Results Hypothesis
H1	Perception of benefit has a relationship with attitude on the use of ICT	1.96	Significant, acceptable
H2	Perception of ease of use has a relationship with attitude on the use of ICT	5.76	Significant, acceptable
H3	The perception of ease of use has a relationship with the perception of expediency on the use of ICT	4.13	Significant, acceptable
H4	Attitude has a relationship with the actual use of ICT	5.50	Significant, acceptable

From the table above Pramanda (2016) which limits the value used to assess received significant is  $\geq 1.96$ . So it can be said that all hypotheses are acceptable.

## V. RESULT OF HYPOTHESES TESTING AND CONCLUSIONS

### A. The relationship of perception of usefulness with attitude on the use of ICT

Based on hypothesis test result (H1) proves that perception of expediency significant effect on attitudes to use of ICT, output value of t-value of 1.96 means that are hypothesis lisrel is unacceptable. These test results support previous research Pramanda (2016) which indicates that the positive attitude of the ICT will affect people in optimizing utilization. Utilization of ICT it is expected that its users are able to carry out its duties and work Chau and Lai (2003).

The medics feel gift benefits of using ICT, which is influenced by job suitability in using of ICT. The benefits of ICTs influence medics to keep using ICTs on their work. The manifestation of influence of using of ICT is among others: assist the work, increase work productivity and can improve the effectiveness of medical work. This means are medics at RSUD. dr. M. Soewandhi felt benefits of ICT and behaved in order to keep using ICTs on his work.

### B. Perception relationship ease of use with attitude on use of ICT

Based on the results of a test of hypothesis (H2) proved that perceived ease significantly influence the attitude of the use of ICT, the t-value of the output value of 5.76 means that the hypothesis lisrel is unacceptable. Ni lai is felt is high enough that means their influence is strong in H2 hypothesis, namely the creation of a permanent attitude of the medical to use ICT depends on the ease presented.

The results support the research conducted Pramanda (2016), Ahlan (2014), Bob (2010), Iqbaria (1994) that if a person feels the technology is easy to use, the user will continue to use these technologies.

The medics at RSUD. dr. M. Soewandhi generally has a higher education level of D3 / Bachelor degree, so they can easily use ICT. The habit of using ICT while studying high is the beginning of easy medical use of ICT. Instruction ICT (windows, instructions, or other features in it) is almost equal to the ICT in general, the difference is only a job requirement at the hospital. It was the suitability of the test SEM manifest variables related to the attitude of the medical as: ICT that is easy to learn, ICT is very clear and understandable. Making the medic more skilled in the completion of their work, the medical skill in using ICT makes it easier for the medical practitioners to complete their tasks such as: input the patient's disease data, input the patient's medicine data, input the doctor's name data to treat the patient and so on. This means that the perception of ease of use of ICTs motivates the attitude of medics to keep using ICT to assist their work in RSUD. dr. M. Soewandhi Surabaya.

### C. Perception relationship of ease of use with perception of expediency on the use of ICT

Based on the results of a test of hypothesis (H3) proved that the perceived ease significantly influence the perception of the benefit of the use of ICT, the t-value of the output value lisrel is 4.13 meaning that the hypothesis can be accepted. The medical

feel that the ease of use of ICT to give effect to the benefits in the completion of work tasks. These test results support ongoing research Pramanda (2016), Ahlan (2014), Chin and Todd (1995). Pramanda (2016) a person feel helpful ICT, then he will feel easy to use with these technologies.

The medics at RSUD. dr. M. Soewandhi feels the ease of using ICTs such as the instructions presented by ICT. The instruction is felt useful in accordance with the field of work. So that the ease of use of ICT is very useful in completing the medical work.

#### *D. The relationship of attitude to use with actual use of ICT*

Based on the results of a test of hypothesis (H4) proved that attitude significantly influence the actual use of ICT, the output value of the t-value of 5.50 means that the hypothesis is acceptable, large enough to measure the value of this hypothesis. This means that the medical sense that actual use is strongly influenced by the attitudes to complete his task. The existence of the relationship between attitude and actual usage shows that up to the moment the medics use ICT is a manifestation of the attitude of receiving ICT. The results support the research Pramanda (2016), Ahlan (2014), Nugroho (2012) and Alexander and Morlock (2000) they declare the existence of an attitude of the use of ICT which is influenced by the ease of the technology, will have a positive impact on the use of ICT that is the real form of a person believing in using ICT as a necessity.

The medics at RSUD. dr. M. Soewandhi Surabaya feel the benefits and convenience of ICT so that they behave to keep using ICT. The attitude of these medics resulted from the frequent use of ICT everyday in his work. This result is obtained from a positive attitude of the medical who believe and believe that ICT is a facility that needs to be used. The medics have imbued their work from the ease of ICT and the benefits of ICT in hospitals. dr. M. Soewandhi Surabaya. The actual use of medics in their work can help complete their work, timeliness in data migration, and information is presented as needed by medical personnel. By this shows that the actual use ICT influenced by the attitude to accept ICT as a tool to help the work of the medical.

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