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The Analysis Sistem Informasi Manajemen Daerah (SIMDA) At Badan Pengelolaan Keuangan Dan Aset Daerah (Bpkad) Kota Semarang Using Technology Acceptance Model (TAM)

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ABSTRACT

The purpose of this study is to analyze the Regional Management Information System (SIMDA) in BPKAD Semarang City, assessed based on the level of ease of use, usability, attitude towards use, and actual usage using TAM (Technology Acceptance Model). Data were obtained through interviews and questionnaires. The population consists of all employees who are active users of SIMDA. The analytical model employed in this study is the Structural Equation Model (SEM), while the software used is SmartPLS 2.0 M3. The results of hypothesis testing and discussions indicate that perceived ease of use has a significant positive influence on perceived usefulness. Perceived usefulness, in turn, has a significant positive influence on attitude towards use. Perceived ease of use also has a significant positive influence on attitude towards use. Finally, attitude towards use has a significant positive influence on actual system usage.

Keywords: perceived ease of use, perceived usefulness, attitude towarc using, actual system usage

1. INTRODUCTION

Information technology acceptance and usage have been a subject of interest for researchers and practitioners for more than a decade. This is because the role of Information Technology (IT) has expanded beyond its traditional function of supporting operations and now plays a central role in shaping business strategies. Successful investments in technology can result in increased productivity, while failed systems can lead to negative outcomes such as financial losses and employee dissatisfaction. Despite significant technological advancements and growing organizational investments in these technologies, businesses continue to struggle with underutilized systems. Since unused systems cannot be effective, regardless of their technical merits, it is crucial to understand how individuals make decisions regarding the adoption of specific Information Systems (IS). The factors that influence this decision are likely to vary based on the system, the individual, and the context.

The need for information systems is not limited to the private sector but also extends to the government sector. The use of information systems, particularly computer-based systems, has become essential for governance and the achievement of targets, including in the field of financial management. Therefore, implementing information systems for management control activities is crucial to ensure that government agencies utilize an effective tool for financial management and provide adequate internal control. The "Sistem Informasi Manajemen Daerah" (Regional Management Information System), developed by the Badan Pengawasan Keuangan dan Pembangunan (BPKP), and commonly known as the SIMDA Application, is one of the information technology products widely adopted by local governments in Indonesia to

streamline public financial management.

Government financial reporting procedures, which were previously perceived as lacking transparency and accountability, have undergone changes. This is due to the fact that the previous Financial Statements did not fully adhere to governmental accounting standards aligned with internationally accepted public sector accounting standards. Qualified financial statements possess certain characteristics. Firstly, they are relevant, meaning that the information contained therein can influence user decisions by assisting them in evaluating past or present events and making future predictions. Additionally, qualified financial statements affirm or rectify previous evaluations in a reliable manner. The information presented in these financial statements is devoid of misleading notions and material errors. It accurately presents all relevant facts and is verified, allowing for comparisons with previous period financial statements or other financial statements from different reporting entities. Furthermore, qualified financial statements are designed to be easily understood by users, expressed in terms and formats that align with their understanding and facilitate the achievement of information objectives.

Sistem Informasi Manajemen Daerah (SIMDA) is a web-based software application system designed to enhance the efficiency and effectiveness of government financial performance. SIMDA was first implemented at "Dinas Pengelolaan Keuangan dan Aset Daerah" (DPKAD) Semarang in June 2013, with the aim of generating regional financial reports starting from 2014. The system has been continuously utilized since then. Prior to the implementation of SIMDA, the Government of Semarang had been using the Sistem Perencanaan Pembangunan Daerah (SIMPERDA). Introducing new applications inevitably impacts users, which can range from acceptance to resistance. One approach for assessing user acceptance of a new system is the Technology Acceptance Model (TAM).

Technology Acceptance Model (TAM) shares similarities with the diffusion of innovations model. It includes two key constructs: perceived usefulness and perceived ease of use. These constructs align with Rogers' perceived relative advantage and perceived complexity (Davis et al., 1989). Both usefulness and ease of use are considered crucial factors in determining the acceptance of information technology (IT) (Davis et al., 1993). The measurement scales for both constructs have shown a high level of test-retest reliability. Based on this foundation, these two constructs were deemed of utmost importance to be investigated in this study.

2. LITERATUR REVIEW

Perceived Ease of Use (PEOU)

Davis (1989) defines perceived ease of use as the extent to which an individual believes that using a specific system would be effortless. This definition aligns with the notion that "ease" refers to the absence of difficulty or significant effort. Therefore, perceptions of ease of use in this context reflect an individual's belief that the information technology system they will be using will not be burdensome or require significant effort during its usage.

Perceived Usefulness (PU)

According to Davis (1989), perceived usefulness is defined as the extent to which an individual believes that using a specific system would improve their job performance. This definition stems from the understanding of the word "useful" as something that can be advantageous or beneficial. Perceptions of usefulness in relation to information technology imply the benefits that individuals expect to gain by using the technology.

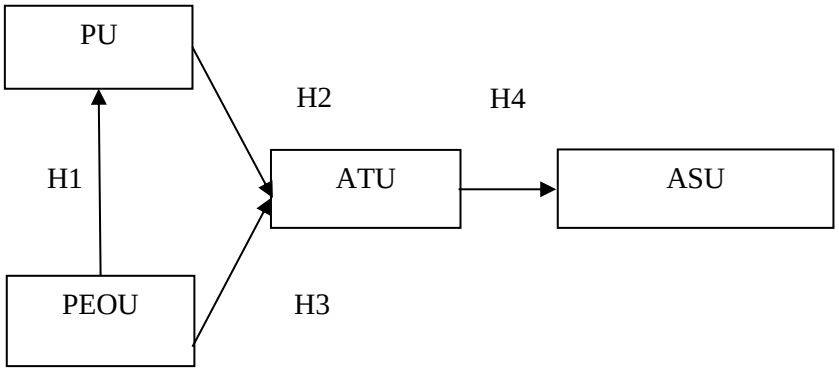
Attitude Toward Using (ATU)

Davis' (1989) Technology Acceptance Model (TAM), attitude toward using is defined as the level of impact experienced by an individual when using a specific system in their work. The perceived usefulness and ease of use of the application system play a significant role in shaping users' attitudes toward accepting or rejecting the application. These attitudes, in turn, influence users' intentions to use the application, ultimately impacting their overall acceptance of the application.

Actual System Usage (ASU)

Davis et al. (1989) defines system usage as a crucial indicator of technology acceptance. In this study, we adapt the constructs of the Technology Acceptance Model (TAM) to assess user acceptance of the SIMDA application in terms of information technology reception.

FRAMEWORK OF RESEARCH



(Source: Davis, et al. 1993)

HYPOTHESIS

H1: Perceived Ease of Use has a positive influence toward Perceived Usefulness
H2: Perceived Usefulness has a positive influence toward Attitude Toward Using
H3: Perceived Ease of Use has a positive influence toward Attitude Toward Using.
H4: Attitude Toward Using has a positive influence toward Actual System Usage

3. RESEARCH METHOD

The population for this research consists of all employees in BPKAD Semarang who operate SIMDA. The users of SIMDA can be categorized into active users and passive users. Active users are individuals who actively process information and operate the system, while passive users are those who only access the information without actively interacting with the system. The sample size for this research consists of 30 respondents who are active users of SIMDA.

The sampling method employed in this research is saturated sampling technique. According to Sugiyono (2012:126), saturated sampling is a technique where the entire population is included as the sample. This approach is often used when the population is relatively small, usually fewer than 30 individuals, or when the research aims to make generalizations with minimal error. Another term for saturated sampling is census, where all members of the population are included in the sample.

Department	Users
Accounting	10
Budget	10
Treasury	10
Total	**30**

(Source: Primary Data BPKAD, 2023)

The data used in this study consist of both primary and secondary data. Primary data is obtained through direct interviews with the subjects of the study and the administration of questionnaires. On the other hand, secondary data is gathered from various sources such as websites, articles, books, papers, and previous research. These secondary sources provide additional information and insights relevant to the study.

METHOD OF DATA ANALYSIS

Structural Equation Modeling (SEM) is the chosen analytical approach for this study. SEM encompasses two main types of models: covariance-based SEM and component-based SEM, commonly known as Partial Least Squares (PLS) (Ghozali, 2008).

LISREL (Linear Structural Relationship) is an SEM program that is highly advanced and capable of

estimating problems that are often challenging for other programs such as AMOS, EQS, and others. Additionally, LISREL is known for providing comprehensive and informative statistical results (Ghazali and Fuad, 2008: 3). Step Analysis with PLS Method:

1. Outer Model

The outer model of the SEM analysis assesses the validity and reliability by examining the relationships between the indicators and other variables. There are three methods to evaluate the measurement model: convergent validity, discriminant validity, and composite reliability.

For the measurement model with reflective indicators, the validity is assessed by examining the correlation between the item score/component score and the construct score calculated by the PLS. Convergent validity is typically confirmed when the standard loading factor value is greater than 0.70. However, during the initial stages of scale development, values between 0.50 and 0.60 can be considered valid enough for further research (Ghozali, 2008). Additionally, the communality value should exceed 0.50, and the Average Variance Extracted (AVE) value should be above 0.50 (Ghozali, 2008).

In the measurement model with reflective indicators, the assessment is based on cross-loading of construct measurements. If the correlation between a construct and an item is higher compared to the correlation with other constructs, it indicates that the latent construct better predicts the size of its respective block.

The composite reliability indicator measures the reliability of a construct block and can be evaluated using two measures: composite reliability and Cronbach's alpha. In the PLS output, a variable is considered to have high reliability if the composite reliability value is above 0.70 and Cronbach's alpha is above 0.60.

2. Inner Model

The inner model, also known as the structural model, is evaluated by examining the R-square values for the endogenous constructs. When using PLS to assess the model, the first step is to look at the R-square values for each latent endogenous variable. The interpretation of R-square in this context is similar to the interpretation of regression. The changes in R-square values can be used to assess the substantive effects of specific exogenous latent variables on the endogenous variables. In other words, the R-square values indicate the proportion of variance in the endogenous variables that can be explained by the exogenous variables. Higher R-square values suggest stronger effects of the exogenous variables on the endogenous variables.

3. Path Diagram Analysis

In this stage, the path diagram of the modeling is created to depict the relationships between the latent endogenous variables and exogenous variables in the structural model. The path diagram visually represents the connections and directionality of these relationships.

Additionally, the measurement model is assessed by connecting the indicators with the corresponding latent variables. This step involves establishing the measurement paths that link the observed indicators to their underlying latent constructs. The path diagram of the measurement model illustrates these connections and helps understand the measurement relationships between the indicators and latent variables.

By combining the path diagrams of the structural model and measurement model, the overall model architecture is established, providing a visual representation of the relationships and connections between the variables in the study.

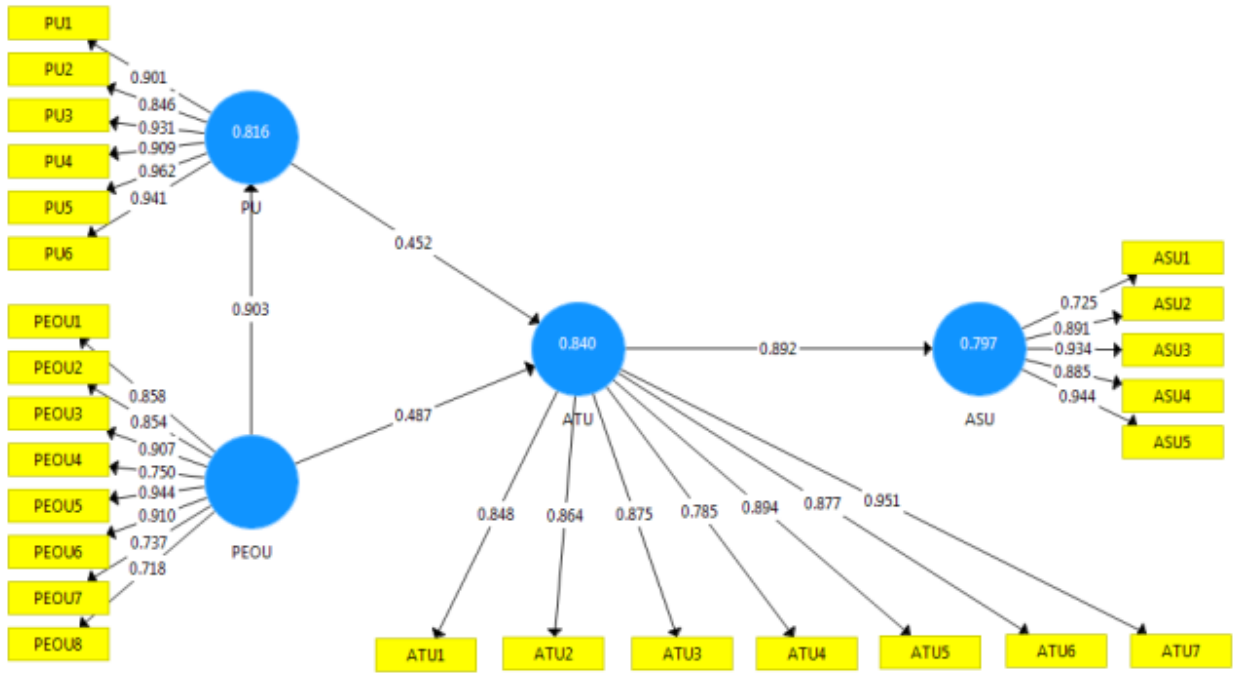
4. Hypothesis Test

The t-statistical test is conducted to examine the significance of the estimated parameters and test the hypothesized relationships between latent variables. The significance of these parameters provides valuable information about the relationships among the variables under investigation.

In this study, the hypothesis testing is designed based on the research objectives. A confidence level of 95% is used, which corresponds to a level of precision or margin of error of $\alpha = 5\% = 0.05$. When testing the hypotheses, the t-value obtained will be compared with the critical t-value from the t-table.

If the calculated t-value is greater than the critical t-value (usually 1.96 for a 95% confidence level), the hypothesis will be accepted. This indicates that there is a statistically significant relationship between the variables being examined.

4. RESULTS AND ANALYSIS



(Source: Primary Data Processed, 2023)

Convergence Validity Test

The results of data processing, as depicted in the figure, indicate that all constructs have passed the convergence validity test. The scores for communality and Average Variance Extracted (AVE) are above 0.50, which indicates satisfactory convergent validity.

Furthermore, the test results demonstrate that the loading factor values for all constructs, namely Perceived Ease of Use, Perceived Usefulness, Attitude Toward Using, and Actual System Usage, are greater than 0.50. This suggests that all indicators are valid and can be utilized in subsequent tests.

These findings provide assurance that the measurement model used in the study is valid and reliable, as all constructs have met the criteria for convergence validity and the loading factor values exceed the recommended threshold.

Discriminant Validity Test

The results of data processing, as depicted in the figure, indicate that the cross-loading or correlations between constructs and variables support the measurement concept of each variable. This is evident from the observation that the factor loading values for each variable are higher compared to the factor loading values for other variables.

Based on this observation, it can be concluded that all latent constructs in the model exhibit better prediction of the indicators within their respective blocks compared to other constructs. This finding further strengthens the validity of the measurement model, suggesting that the latent constructs effectively capture the underlying relationships with their corresponding indicators.

In summary, the results of the data processing support the notion that the measurement model adequately represents the relationships between the latent constructs and their associated variables, as indicated by the higher factor loading values observed in the analysis.

Reliability Test

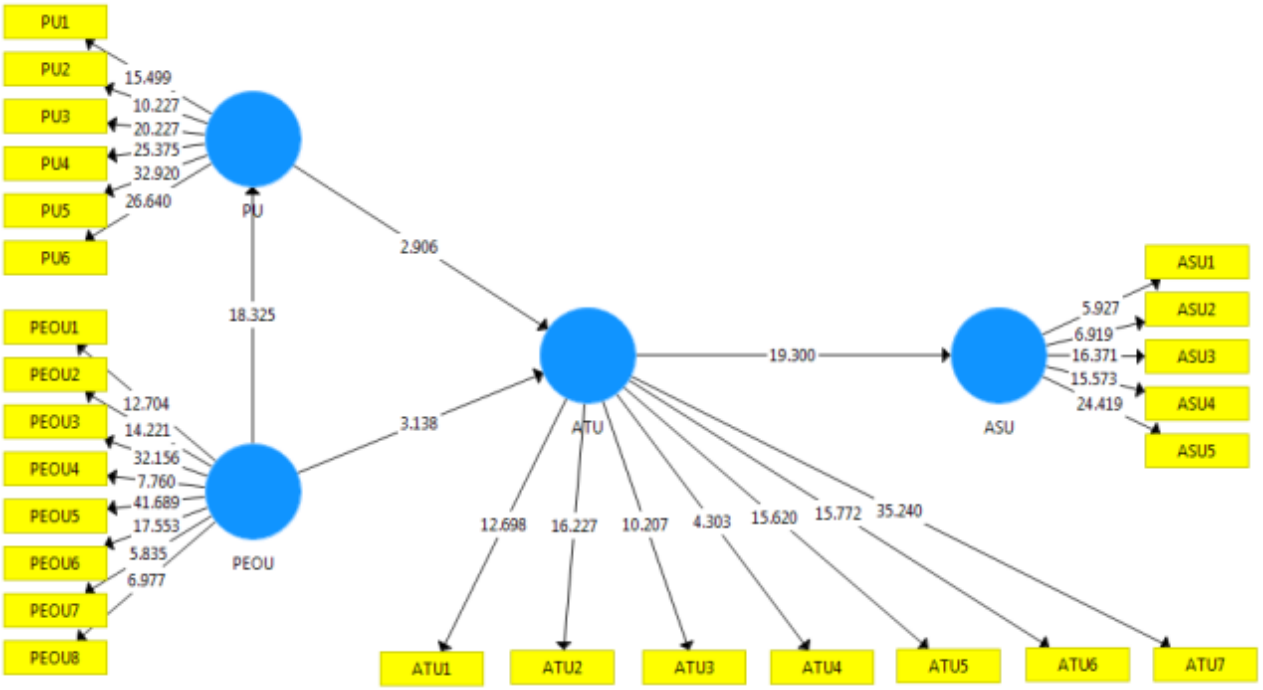
The test results displayed in the figure reveal that the composite reliability values for the variables are as follows: Perceived Ease of Use (0.950), Perceived Usefulness (0.969), Attitude Toward Using (0.957), and Actual System Usage (0.944). These values indicate that all five variables exhibit composite reliability values greater than 0.70, which is considered high.

Similarly, when examining the Cronbach's Alpha values, all variables surpass the threshold of 0.60, further confirming their reliability.

Based on these findings, it can be concluded that all constructs in the study demonstrate high reliability.

The composite reliability and Cronbach's Alpha values provide reassurance that the variables consistently measure the underlying constructs with a high degree of internal consistency.

Inner Model



(Source: Primary Data Processed, 2023)

R-Square Test

Constructs	R Square
Perceived Usefulness	**0,816**
Attitude Toward Using	**0,840**
Actual System Usage	**0,797**

(Source: Primary Data Processed, 2023)

The regression coefficients for all variables in the model demonstrate a positive direction, indicating a positive relationship between the predictor variables and the respective outcome variables.

Referring to table above, the R-square value for the Perceived Usefulness variable is 0.816, suggesting that 81.6% of the variance in Perceived Usefulness can be explained by the Perceived Ease of Use variable. The remaining 18.4% of the variance may be influenced by other variables not included in the research model, such as user characteristics and system characteristics.

Furthermore, the R-square value for the Attitude Toward Using variable is 0.840, indicating that 84% of the variance in Attitude Toward Using can be explained by the Perceived Ease of Use and Perceived Usefulness variables. The remaining 16% of the variance may be influenced by other variables not considered in this study, such as user characteristics and system characteristics.

Similarly, the R-square value for the Actual System Usage variable is 0.797, implying that 79.7% of the variance in Actual System Usage can be explained by the Perceived Ease of Use and Perceived Usefulness variables. The remaining 21.3% of the variance may be influenced by other variables not included in this study, such as user characteristics and system characteristics.

In summary, the results indicate that the Perceived Ease of Use and Perceived Usefulness variables have significant influence on the Perceived Usefulness, Attitude Toward Using, and Actual System Usage variables. However, there are other factors not accounted for in this research model that may contribute to the remaining variance in the outcome variables.

Hypothesis Test

Hypothesis	Original Sample Estimate	T-Table	T-Statistic	Interpretation
PEOU->PU	0,903	1,96	18,325	H1 supported
PU -> ATU	0,452	1,96	2,906	H2 supported
PEOU -> ATU	0,487	1,96	3,138	H3 supported
ATU->ASU	0,892	1,96	19,300	H4 supported

(Source: Primary Data Processed, 2023)

The test results using SmartPLS 2.0 M3 indicate that the coefficient value for the relationship between Perceived Ease of Use and Perceived Usefulness is 0.903, with a corresponding t-value of 18.325. The t-statistic value is greater than the critical value (t-table) at a significance level of 5% (1.96). This suggests that Perceived Ease of Use has a significant positive influence on Perceived Usefulness. **As a result, we fail to reject the null hypothesis (H1) and accept the hypothesis that Perceived Ease of Use positively affects Perceived Usefulness.**

The test results indicate that the relationship between Perceived Usefulness and Attitude Toward Using has a path coefficient value of 0.452, with a corresponding t-value of 2.906. The t-statistic value is greater than the critical value (t-table) at a significance level of 5% (1.96). This suggests that Perceived Usefulness has a significant positive influence on Attitude Toward Using. **Therefore, we fail to reject the null hypothesis (H2) and accept the hypothesis that Perceived Usefulness positively affects Attitude Toward Using.**

Similarly, the relationship between Perceived Ease of Use and Actual System Usage has a path coefficient value of 0.487, with a corresponding t-value of 3.138. The t-statistic value is greater than the critical value (t-table) at a significance level of 5% (1.96). This indicates that Perceived Ease of Use significantly and positively influences Actual System Usage. **Hence, we fail to reject the null hypothesis (H3) and accept the hypothesis that Perceived Ease of Use positively affects Actual System Usage.**

Moreover, the relationship between Attitude Toward Using and Actual System Usage has a coefficient value of 0.892, with a corresponding t-value of 19.300. The t-statistic value is greater than the critical value (t-table) at a significance level of 5% (1.96). This implies that Attitude Toward Using has a significant positive influence on Actual System Usage. **Therefore, we fail to reject the null hypothesis (H4) and accept the hypothesis that Attitude Toward Using positively affects Actual System Usage.**

5. CONCLUSION

Based on the test results and interpretations, it can be concluded that there is a high level of acceptance of the Sistem Informasi Manajemen Daerah (SIMDA) in the Badan Pengelola Keuangan dan Aset Daerah (BPKAD) Kota Semarang. The employees perceive the ease of use of SIMDA, which positively influences their perceived usefulness of the system. This, in turn, influences their attitude toward using the system. Furthermore, the positive attitude toward using the system significantly impacts the actual usage of SIMDA by the employees.

The findings suggest that the employees in BPKAD Semarang recognize the benefits and ease of using SIMDA, which leads to a positive attitude and actual usage of the system. The results support the hypothesis that the perceived ease of use, perceived usefulness, attitude toward using, and actual system usage are positively related in the context of SIMDA implementation.

Overall, these findings highlight the successful implementation and acceptance of SIMDA in BPKAD Semarang, indicating that the system is perceived as useful, easy to use, and positively influences users' attitudes and actual usage

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