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A MODIFIED OF TAM AND TTF INTEGRATION TO ANALYZE THE EFFECT OF ERP IMPLEMENTATION ON EMPLOYEE PERFORMANCE

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ABSTRACT

Enterprise Resource Planning (ERP) solutions have been implemented in most companies globally, including in Indonesia, because this system has a significant impact on the efficiency, effectiveness of business processes, and improved employee performance. State-owned enterprises in Indonesia have also implemented ERP to enhance employee performance. This study aims to prove that the ERP system can improve employee performance by identifying and testing the most critical factors that influence ERP implementation on employee performance in state-owned enterprises in the manufacturing sector in Indonesia. This study uses a modified model that integrates the Technology Acceptance Model (TAM) and the Task Technology Fit (TTF) model adapted to ERP implementation problems. The integration of the two models is carried out because the two models cover two different aspects; TAM focuses more on the technology used rather than the technology's ability to support users in carrying out tasks focused on the TTF model. The model was tested using data collected by distributing questionnaires to ERP users in State-Owned Enterprises. Hypotheses were tested and analyzed using the Partial Least Square(PLS) with the help of SmartPLS 3.0 software. This research's contribution is that the integration model can combine the strengths of the TAM and TTF models to see the performance of employees of State-Owned Enterprises in Indonesia. The results showed that 8 (eight) hypotheses were accepted, and 1 (one) hypothesis was rejected. Finally, these findings can help encourage ERP implementation in other companies in the future because the results of implementing ERP are proven to improve employee performance.

Keywords: *Technology Acceptance Model, Task Technology Fit, Implementation, Enterprise Resource Planning,* PLS

1. INTRODUCTION

ERP is an information technology system that is expensive and complex to be implemented in organizations [1]. ERP investment is so costly that it requires a long-term commitment for the organization, implementation time, and continuing afterward. ERP implementation in an organization will add value [2], provide benefits in the form of time efficiency, operational efficiency, increase flexibility, and accessibility [3], [4], [5], and integrate different information systems in the organization [6]. However, if the implemented information technology does not match the company's needs and readiness, this will become a barrier to business. ERP has been implemented in most companies worldwide, but these companies cannot demonstrate the benefits or contributions of ERP systems in real terms. Supposedly, ERP can significantly reduce the time to complete business processes and help organizations share information [7] and offer a better working environment because they are equipped with a more efficient system.

The operational advantages, effectiveness, and operating costs promised in implementing ERP encourage companies or organizations to implement it. Changes that result from the simultaneous application of information technology pose a threat to established business models while also offering opportunities for new and better service offerings. [8].

Technology acceptance research has long been practiced in various fields, such as economics, business, health, and education, which has been reported by multiple synthesis review studies [9], [10], [11]. Several models can be used to answer this problem. In this study, the proposed model is a modified of the Technology Acceptance Model (TAM) combined with the Task Technology Fit (TTF) model.

TAM's integration with TTF by extending TAM to TTF construction provides a better explanation for IT utilization variants than the TAM or TTF models alone. An integrated TAM / TTF model that combines the attribute/behavior model (TAM) with the Fit task technology model [12]. In the integrated model, TTF's development directly affects IT utilization. It indirectly affects IT utilization through the main explanatory variables of TAM, perceived usefulness (PU), and perceived ease of use (PEOU).

The data that has been collected is processed using the smartPLS tool. Partial Least Squares (PLS) is a statistical method based on the Structural Equation Modeling (SEM) variant, which can simultaneously perform measurement model testing and structural model testing [13]. PLS focuses on maximizing the variance of the dependent variable described by the independent variable rather than reproducing the empirical covariance matrix [14]. The measurement model is used to test validity and reliability, while the structural model is used to test casualty (hypothesis testing with a predictive model). PLS is very useful if used to predict a series of dependent variables originating from a diverse set of independent variables. PLS-SEM modeling is widely used in the information systems field and in many other areas where multivariate statistical methods are used. One of the most fundamental problems in PLS-SEM is the estimation of the minimum sample size [15].

A state-Owned Enterprise is a company whose state wholly or partly owns shares or capital. As a form of business entity, its management must be professional and have the main task of efficiently and effectively striving for maximum profit. Good management will make State-Owned Enterprises healthy and provide benefits according to stakeholder expectations and increase state income and advance the economy. To manage state-owned enterprises well in recent years, state-owned enterprises have implemented ERP to improve employee performance to achieve efficiency and effectiveness in the company's business processes.

Assessing ERP adoption to see its effect on employee performance and determinants of satisfaction as a multidimensional field of study is very important for every organizational stakeholder. Successful ERP implementation will increase business efficiency due to business process restructuring [16].

State-owned enterprises in the manufacturing sector in Indonesia are aware of this. They want to know the effect of ERP implementation, whether by expectations, namely improving employee performance or even becoming an obstacle to employee performance. This problem must be researched and verified through this research.

The purpose of this study was to determine the impact of implementing ERP systems on employee performance in the manufacturing sector of State-Owned Enterprises by using the integration of the modified TAM and TTF models from several studies [17], [18], [19]. Data obtained from distributing questionnaires to ERP users in state-owned enterprises in the manufacturing sector in Indonesia. Data processing uses Partial Least Square with smartPLS 3.0 tools to test and analyze hypotheses.

2. LITERATURE REVIEW

2.1. Enterprise Resource Planning

ERP, in general, can be defined as a comprehensive software solution that seeks to integrate a series of business processes and functions within an organization as a whole. ERP is also described as a complex software system that combines business modules such as sales, marketing, manufacturing, human resources, and financial management.

ERP is a company system or corporate resource planning that is large, complex, integrating all business processes and involving all stakeholders or decision-makers. The terms "enterprise systems" and "enterprise resource planning or ERP" have been used interchangeably [6]. Researchers in academia and business practice have identified ERP systems as the most well-known business software products in the last fifteen years [7] [8]. ERP investment is the highest IT expense for a company. An ERP system requires a long-term commitment to an organization that can continue for several years.

ERP is a commercial software package that promises seamless integration of all information flowing across the company, including financial and accounting information, human resource information, supply chain information, and customer information. [11].

ERP that is implemented on the object of research is not only centralized in one location but spread over several areas and is connected to a VPN by exchanging data using XML. The ERP implementation process applied to STATE-OWNED ENTERPRISE for customer service, which is used as research material, is in the

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telecommunications equipment installation services section. The general description of the data communication is as shown in Figure 1:

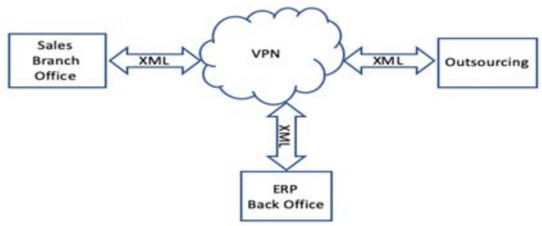

Figure 1. ERP process and Data Communication

Office locations that are not in one area are connected to a VPN and how to exchange data or data communication between nodes using XML via SOAP. The ongoing process is to integrate the sales system as branch sales and outsourcing as the executor of the installation with the ERP at the head office, which acts as the back office. The ongoing process is that the customer visits the sales department to install telecommunication equipment. The subscription request data is sent to the back office to check the installation location. The available schedule is based on each site's daily installation capacity based on the installation provider schedule (outsourcing). After getting the data from the back office, the outsourcing party contacts the customer to do the installation. After the installation is successful, the outsourcing party will update the data sent to the back office. The back office will send information to the customer regarding the order's status and collect the monthly payment.

2.2. Technology Acceptance Model

TAM [20] is the most widely referenced model in information systems research to explain behavioral intentions, influence use, increase understanding, and improve the efficiency and effectiveness of using ERP systems. Use, increase understanding, and improve the efficiency and effectiveness of ERP system use [21].

TAM is more suitable for examining the factors that influence the use of new technology as one of the factors to consider attitudes towards its use. TAM to explain the behavior of information technology use [22], as shown in Figure 2.

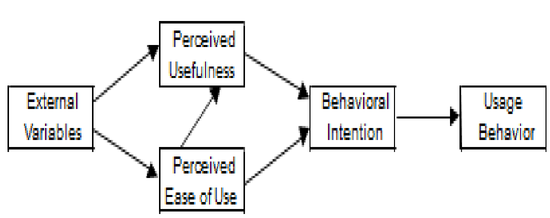

Figure 2. The final version of the Technology Acceptance Model (TAM) [22]

The TAM aims to explain the acceptance of information technology that leads to user behavior across various information technology end-users and user populations. The basic TAM model tests two specific beliefs, namely Perceived Usefulness and Perceived Ease of Use. Perceived usefulness is defined as the subjective likelihood of a potential user that using a particular system, for example, the use of information technology and ERP systems will increase their actions and the extent to which the likely user expects the target system. made easy [20]. Public trust in a system can be influenced by other factors referred to as external variables in TAM. The latest version of the TAM [22], after the main findings of Perceived Usefulness and Perceived Ease of Use, turned out that these variables have a direct influence on Behavioral Intention.

2.3. Task Technology Fit

The model of Task Technology Fit or (TTF) [23] is shown in Figure 3. The TTF model's essence is a formal construct, which is the suitability of technology capabilities with job requirements, namely the ability of information technology to provide support for jobs.

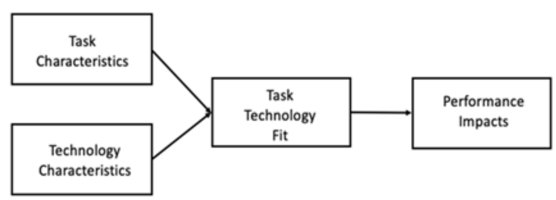

Figure 3. Task Technology Fit Model (TTF)

Task technology fit (TTF) is how technology helps a person in doing his job. The purpose of this opinion, Task technology fit (TTF) as a level or measure of how often technology allows individuals to do their jobs [23].

2.4. TAM and TTF integration

The model used in this study is taken from the model used previously [24], as shown in Figure 4. This model combines two models, namely the TAM and TTF. Combining the two models is because the two models cover two different aspects, namely the decision to use or not to use information technology.

TAM focuses more on the technology used than technology capabilities to support users in

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carrying out tasks that focus on the TTF model. It should be noted that the TTF model used in this study only uses one latent variable contained in the model, namely the latent variable task technology fit. This is because this research model wants to focus on the influence of the latent variable task technology fit on the latent variables contained in the TAM model, in addition to other variables that are antecedents or those predicted by the task technology fit variable [24].

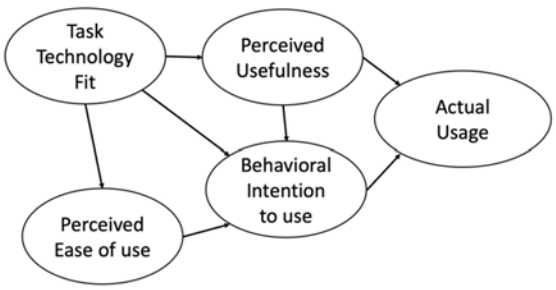

Figure 4. TAM and TTF integration model[24]

The combination model between TAM and TTF is superior to that of the TAM or TTF only. From its ability to explain the variance of actual use, it is only 36% with TAM, with a TTF of only 41% and a combination of both 51% [12]. The definitions used are perceived usefulness, perceived ease of use, and behavioral intention [25], whereas goal fits the task-technology [23].

2.5. Partial Least Square *(PLS)*

Partial Least Square (PLS) as a general method for estimating path models uses latent constructs with several indicators presenting two iterative procedures using least squares estimation methods for single and multi-component models. PLS is used to test weak theories and problems by assuming data distribution normality [26]. 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 used to identify a combination of variable X as an explanatory variable and variable Y as a response [27]. In using the PLS method, there are several steps, namely:

2.5.1. Designing a Structural Model (Inner model)

The inner model (inner relationship, structural model, and substantive theory) describes latent variables based on substantive theory. The structural model was evaluated using the R-square for the dependent construct, the Stone-Geisser Q-square test for the prediction of relevance, and the t-test and significance of the structural path parameter coefficients. Changes in the value of R2 can be used to assess the effect of certain independent latent variables on the latent dependent variable, whether it has a substantive effect [26]. The result of R2 is 0.67; 0.33; and 0.19 indicate that the model is "good", "moderate", and "weak" [28]. The inner model equation is indicated in Equation (1).

$$\eta = \beta\eta + \Gamma\xi + \zeta \qquad \textbf{(1)}$$

Where:

- η = endogenous latent construction matrix
- β = endogenous variable matrix coefficient
- ξ = exogenous latent construction matrix
- Γ = exogenous variable matrix coefficient
- ζ = inner model of the residual matrix

Besides looking at the R-square value, the PLS model is also evaluated by looking at the model's relevance and parameter estimates' predictive Q-square. The Q-square value> 0 indicates that the model has predictive relevance; on the other hand, if the Q-square value ≤ 0 shows the model is less predictive[28]. The Q-square calculation is done with Equation (2).

$$\mathbf{Q^2 = 1 - (1 - \mathit{R}_1^2)(1 - \mathit{R}_2^2)\ \ldots\ \ldots\ (1 - \mathit{R}_p^2)} \qquad \textbf{(2)}$$

Where R12, R22, ..., Rp2 are the R square of endogenous variables. Quantity Q2 has a value with a range of 0 <Q2 <1, where the longer 1 means, the better. The magnitude of Q2 is equivalent to the total coefficient of determination in path analysis.

2.4.2. Designing a Measurement Model (Outer Model)

Testing with PLS begins with testing the measurement model to test the construct validity and instrument reliability. The validity test was conducted to measure the ability of what research instruments should be measured [29]. The construct validity test in PLS was carried out through the convergent validity test, discriminant validity, and extract mean test (AVE). The reliability test is used to measure the consistency of measuring instruments in measuring concepts. It can also be used to measure the surface of respondents in answering the instrument. The instrument is reliable if someone's answer to a statement is consistent or stable over time. The reliability test in PLS can use Composite Reliability and Cronbach's Alpha method [29].

The convergent validity of the measurement model with the reflective indicator

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model was assessed based on the correlation between the item score/component score and the construct score calculated by PLS. The reflective size is high if it correlates more than 0.70 with the construct to be measured. However, for research in the early stages of developing a measurement scale, a loading value of 0.5 to 0.60 is considered sufficient [29].

The discriminant validity of the measurement model with reflective indicators was assessed based on the cross-loading measurement with the construct. The latent construct predicts block size better than other block sizes if the correlation of the construct with item size is more significant than the correlation with other constructs. Equation (3) and (4) for the outer model [26] is:

$$x = \Pi_x \xi + \varepsilon_x \quad (3)$$

$$y = \Pi_x \eta + \varepsilon_y \quad (4)$$

Where:

x and y = manifest variable matrix independent and dependent

ξ and η = latent construct matrix independent and dependent

Π = coefficient matrix (loading matrix)

ε = residual outer model matrix

Another method for assessing discriminant validity is comparing the square root of the average variance extracted (AVE) value of each construct with the correlation between the other constructs in the model. Suppose the AVE root value of each construct is greater than the correlation value between constructs and other constructs in the model. In that case, it is said to have a good discriminant validity value. This measurement can measure the latent variable component score's reliability, and the results are more conservative than the composite reliability measure. It is recommended that the AVE value should be greater than 0.50 [26]. The AVE calculation formula (5) is:

$$AVE = \frac{\Sigma \lambda_i^2}{\Sigma \lambda_i^2 \Sigma_i var(\varepsilon_i)} \quad (5)$$

Where :

λ_I = loading factor

$var(\varepsilon_i) = 1-\lambda_i^2$

Composite reliability measures the real value of a construct's reliability and better estimates internal consistency. Cronbach alpha measures the lower limit of the reliability value of a construct. A rule of thumb for an alpha or composite reliability value should be greater than 0.7, although a value of 0.6 is still acceptable [29]. The formula for calculating the composite reliability [26] is:

2.4.3. Evaluate Goodness of Fit

The evaluation of goodness of fit consists of an Outer Reflective Model, a Formative Outer Model, and a Goodness of Fit inner model.

The research model that uses a Reflective Outer Model is evaluated based on convergent, discriminant validity, composite reliability. The convergent value seen from the loading value, this value is considered sufficient between 0.5 to 0.6 for the number of latent variables between 3 to 7. The discriminant validity value is seen based on the AVE value. The AVE value is> 0.5. the value of composite reliability that is still acceptable is ≥ 0.7.

Meanwhile, the research model that uses a Formative Outer Model is evaluated based on its substantive content, namely by looking at its significance and weight.

The Goodness of Fit Inner Model is measured using Q-square predictive relevance. Interpretation equals total termination coefficient in path analysis (similar to R2 in regression).

3. METHODOLOGY

The research method developed was to identify variables using self-efficacy with personal IT innovation [30]. The user acceptance model was developed and is an extension of the Technology Acceptance Model (TAM) by adding fit and perceived fit variables. Then replace the behavioral intention variable in TAM with the symbolic adoption variable. This model's weakness is that it does not look at the context of individuals and organizations, so to get a better understanding of user acceptance of ERP system implementation, it is necessary to add variables related to individual and organizational contexts [30]. These variables consist of independent, intervening, and dependent variables.

The independent variables used are perceived complexity, perceived suitability, individual interest in using information technology (personal innovativeness of IT), and user confidence in organizational facilities (needs of facilitation and training). It consists of perceived usefulness, ease of use, and symbolic adoption, while the dependent variable is individual performance. The identification of variables can be seen in Figure 5. The relationship between these variables is an intermediate variable (Intervening Variable) that helps explain the independent variable's effect on the dependent variable. The dependent variable is the variable that is affected or which is the result of the independent variable.

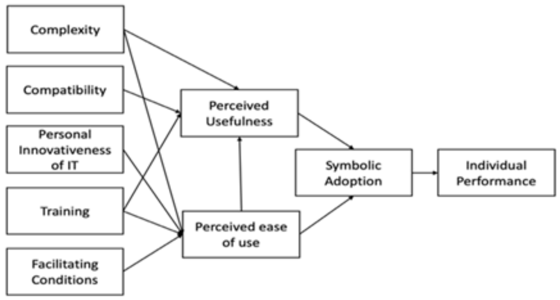

Figure 5. Identification of the TAM variable [31]

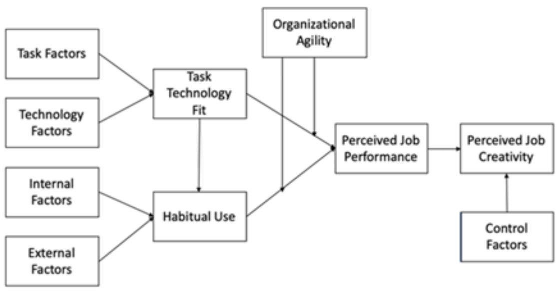

Figure 6. TTF Model

In his research in Figure 6, the Habitual Use variable, which consists of two variables, namely internal and external factors. This addition is based on why someone's desire to use information systems automatically is because of learning. Another reason he put forward was that usage habits were also related to the frequency of use by individuals and a comprehensive information system.

The TAM and TTF models are combined into a new model, which is an integration or combination of the TAM [31] and TTF [32] models, as seen in Figure 7, as follows:

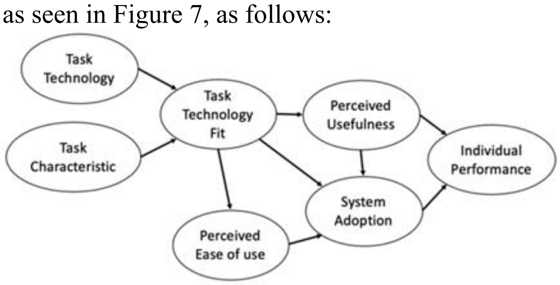

Figure 7. Integration of the modified TTF and TAM

The research model is one of the reasons for conducting research. The model used in this study adopts modifications to previous studies, including eliminating several variables that are incompatible with the research conditions. The difference between earlier studies is for the TTF model. The task technology variable has the System Reliability (TC1), System Accessibility (TC2), System Quality (TC3) indicator. The task characteristic variable has the Task Mobility (TCX1), Task Feedback (TCX2) is put back in this because the task technology and task characteristics in each ERP system implemented in the company can be different. These variables can further influence the perception of the reliability and superiority of the ERP system used. Figure 7. shows the research model that has been modified by the researcher. The codes for this variable are technology characteristics (TCX), task characteristics (TC), task technology fit (TTF), perceived usefulness (PU), perceived ease of use (PEOU), system adoption (SA), and performance indicators/Individual Performance (IP). Table 1 below shows the variable and code is used in this study.

Table 1. variable and code

Variable	Code
technology characteristics	TCX
task characteristics	TC
task technology fit	TTF
perceived usefulness	PU
perceived ease of use	PEOU
system adoption	SA
performance indicators/Individual Performance	IP

The questionnaire is prepared based on the indicators contained in each variable used in the Technology Acceptance Model (TAM) and the Task Technology Fit. Each indicator will represent one to four questions on the questionnaire. All items are measured using a Likert scale from 1 to 5, ranging from 'strongly disagree' with a value of 1 to 'strongly agree,' representing a value of 5. Variable assessed using the Likert scale is coded STS or Strongly Disagree with a value of 1, TS or Disagree with a value of 2, N or Neutral with a value of 3, S or Agree with a value of 4, and SS or Strongly Agree with a value of 5. Respondents in this study were employees of ERP users who worked at state-owned companies in the manufacturing sector that had implemented an ERP system.

Testing the quality of respondent data will be processed using SmartPLS 3.0 and Microsoft Excel. After all the data is processed, it will produce an interpretation of the results, making conclusions and suggestions. Based on the theoretical basis, previous research, and the identification of the variables that have been described, the hypotheses developed in this study are as follows:

H1: Technology characteristics have a positive effect on Task Technology Fit

H2: Task Characteristics has a positive effect on Task Technology Fit

H3: Task Technology Fit has a positive effect on perceived usefulness

H4: Task Technology Fit has a positive effect on perceived ease of use
H5: Task Technology Fit has a positive effect on system adoption
H6: Perceived Usefulness has a positive effect on system adoption
H7: Perceived Usefulness has a positive effect on individual performance
H8: Perceived ease of use has a positive effect on System adoption
H9: System Adoption has a positive effect on individual performance

4. RESULT AND DISCUSSION

4.1. Respondent Demographics

Respondents in this study were employees who worked in state-owned companies in the manufacturing sector. There are 75 employees or respondents who filled out the questionnaire with the characteristics, as shown in Table 2 as follows:

Table 2. Respondents demographics

Item	Demographic	Total	Percentage
Gender	Male	51	68%
	Female	24	32%
Age	21 – 30	52	69,3%
	31 – 40	15	t
	41 – 50	6	8%
	51 - 60	2	2,7%
Education	SMA/SMK	7	9,3%
	D3	3	4%
	Sarjana (S1)	60	80%
	Pascasarjana (S2)	5	6,7%
experience	≤ 10 years	57	76%
	11 – 20 years	13	17,3%
	above 20 years	5	6,7%

4.2. Descriptive Statistical Analysis

Descriptive statistics are statistics that serve to describe or provide an overview of the object under study through samples or population data as they are without analyzing and making general conclusions. The results obtained from data processing can be seen in Table 3 as follows:

Table 3. Descriptive statistical analysis

Indicator	Mean	Std. Deviation	Skewness	Kurtosis
IP1	4.23	0.924	-1.212	1.256
IP2	4.12	0.929	-1.075	0.985
IP3	4.17	0.935	-1.477	2.534
TTF1	4.04	0.824	-0.339	-0.514
TTF2	4.03	0.838	-0.476	-0.451
TTF3	4.12	0.821	-0.829	1.208
TTF4	4.21	0.859	-1.22	1.896
TTF5	4.21	0.859	-1.22	1.896
TCX1	2.63	1.148	0.451	-0.474
TCX2	4.24	0.694	-0.362	-0.869
TCX3	4.12	0.923	-1.075	0.985
TCX4	4.11	0.798	-0.524	-0.347
TCX5	4.09	0.835	-0.46	-0.735
TCX6	3.95	0.937	-0.488	-0.704
TCX7	4.13	0.806	-0.407	-0.919
TC1	3.39	0.943	0.138	-0.393
TC2	3.81	0.865	-1.04	1.848
TC3	3.97	0.838	-0.516	-0.227
PIIT1	3.95	0.868	-0.659	0.599
PIIT2	3.95	1.025	-0.819	0.258
PIIT3	4	0.822	-0.15	-1.135
SA1	4.04	0.877	-0.821	0.814
SA2	4.15	0.833	-0.572	-0.563
SA3	4.13	0.811	-0.407	-0.919
SA4	4.15	0.743	-0.446	-0.431
TR1	3.63	0.983	0.03	-1.06
TR2	4	0.854	-0.401	-0.649
TR3	4.15	0.833	-0.572	-0.563
TR4	3.91	0.947	-0.497	-0.643
TR5	3.88	0.885	-0.602	0.405
PU1	4.12	0.821	-0.829	1.208
PU2	4.15	0.783	-0.44	-0.709
PU3	4.12	0.869	-0.618	-0.503
PU4	4.17	0.812	-0.642	-0.312
PEOU1	3.99	0.908	-0.307	-1.053
PEOU2	4.09	0.903	-0.98	0.956
PEOU3	3.95	0.957	-0.842	0.778

4.2. Reliability Test

Reliability tests carried out in this study are Composite Reliability and Cronbach's Alpha. A valid and reliable construct has a Composite Reliability value above 0.6 and Cronbach's Alpha above 0.7 [31]. The results obtained from data processing can be seen in Table 4 as follows:

Table 4. Composite Reliability and Cronbach's Alpha

Construct	Composite Reliability	Cronbach's Alpha	Result
Perceived Ease of Use	0.89	0.758	Reliable
Perceived Usefulness	0.872	0.712	Reliable

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Construct	Composite Reliability	Cronbach's Alpha	Result
Individual Performance	0.904	0.841	Reliable
System Adoption	0.925	0.892	Reliable
Task Characteristics	0.884	0.825	Reliable
Task Technology Fit	0.903	0.865	Reliable
Technology Characteristic	0.891	0.847	Reliable

The data processing results in table 3 show that all indicators have met the criteria for the minimum value of reliability. So, all indicators are declared reliable.

4.3. Validity test

The validity test is carried out to test the accuracy and accuracy of the measuring instrument. The validity test performed was the Average Variant Extracted (AVE). AVE aims to measure the variance value of each construct. AVE values that are considered valid and reliable are values above 0.5 [26]. The AVE value describes the amount of variance or variety of manifest variables that a latent construct can have. Thus, the greater the variance or variation of the manifest variable that the latent construct can fill, the greater the manifest variable representation of the latent construct.

Table 5. Average Variant Extracted (AVE)

Construct	AVE	Validity
Perceived Ease of Use	0.802	Valid
Perceived Usefulness	0.774	Valid
Individual Performance	0.759	Valid
System Adoption	0.756	Valid
Task Characteristics	0.658	Valid
Task Technology Fit	0.65	Valid
Technology Characteristics	0.622	Valid

The data processing results in table 5 show that all constructs have met the minimum value criteria for reliability and validity.

4.4. Hypothesis / Structural Model Testing

Hypothesis testing is performed for the structural measurement of the model. Researchers used R-Square analysis, path coefficient (β), and t-statistical analysis. The R-Square value is obtained from calculating the PLS algorithm (PLS algorithm), while the path coefficient (β) and t-statistics are generated from the Bootstrap process. The results of the PLS algorithm calculation are as follows:

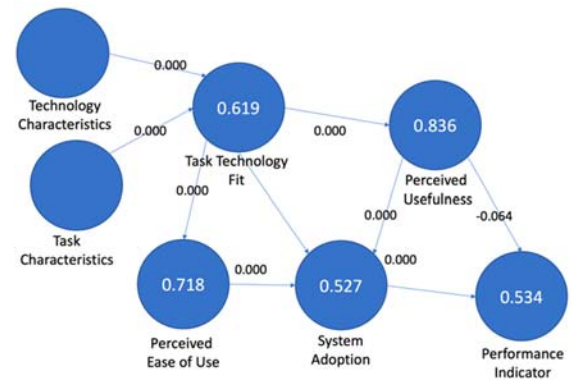

Figure 8. Calculation results of the PLS algorithm

4.5. Coefficient of Determination (R-Square)

R-Square (coefficient of determination) is used to assess how much influence the independent variable has on the dependent variable. An R-Square value above 0.67 indicates that the model is categorized as good [28]. R-squared is the proportion of variance (%) in the dependent variable that can be explained by the independent variable. Therefore, as a practical guide to interpreting the relationship's strength based on its R-squared value (use the absolute value of the R-squared value to make all values positive). If the R-squared value <0.3, is considered a measure of the effect of None or Very weak if the R-squared value (0.3 <r <0.5) is considered a measure of the weak or low impact if the R-value is squared (0.5<r <0.7) is considered a moderate effect size, and if the R-squared value> 0.7 is considered a strong effect size. The results of the R-Square value and effect size in this study can be seen in table 6.

Table 6. Coefficient of Determination

Construct	*R- Square*	Effect Size
Perceived Ease of Use	0.718	strong
Perceived Usefulness	0.836	strong
Individual Performance	0.534	Moderate
System Adoption	0.527	Moderate
Task Technology Fit	0.619	Moderate

The results of data processing in Table 5 show that all constructs have been met.

4.6. Bootstrap

The bootstrap process will produce path coefficient values and t-statistics for hypothesis testing. Bootstrapping was performed using 5000 subsamples with a significance level of 0.1 and a two-tailed test [32]. The bootstrap results can be seen in Figure 9. as follows:

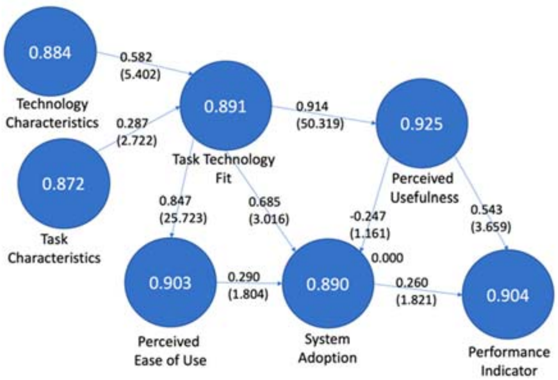

Figure 9. Bootstrapping result

4.7. Hypothesis test

Hypothesis testing is done by looking at the path coefficient (β) as a determinant of the relationship between the two variables. The path coefficient value (β)> 0.1 means that the relationship between the two variables is strong. Conversely, for values below 0.1, the relationship between the two variables is weak or not strong. Bootstrapping was performed with 5000 subsamples and a two-way 10% significance level [12]. The t-table value for a two-tailed 10% significance was 0.166. Hypothesis testing is done by looking at the beta path coefficient. If the Beta Path Coefficient (β)> 0.166, it means that the independent variable has a significant effect on the dependent variable. While the Path Coefficient (β) value, which is below 0.166, means that the independent variable does not affect the dependent variable. From the bootstrap results, it can be seen that the hypothesis testing in Table 7 is as follows:

Table 7. Hypothesis test

Hypo thesis	Construct	*Path Coefficient*	t-stat	result
H1	TCX→TTF	0.582	5.402	Accepted
H2	TC→TTF	0.287	2.772	Accepted
H3	TTF→PU	0.914	50.319	Accepted
H4	TTF→PEOU	0.847	25.723	Accepted
H5	TTF→SA	0.685	3.016	Accepted
H6	PU→SA	-0.247	1.161	Rejected
H7	PU→IP	0.543	3.659	Accepted
H8	PEOU→SA	0.290	1.840	Accepted
H9	SA→IP	0.260	1.821	Accepted

From the hypothesis test results above, for the hypotheses, H1, H2, H3, H4, H5, H7, H8, and H9, the Beta Path Coefficient (β)> 0.166 is obtained, so the hypothesis is accepted. As a comparison, the hypothesis H6 has a Beta Path Coefficient (β) <0.166, so it is rejected. The full explanation is shown below.

H1: Technology characteristics have a positive effect on Task Technology Fit

From the results of the hypothesis test above, for hypothesis 1 (H1), the technological characteristics variable has a positive effect (β = 0.582) on the technology suitability task. Beta value is greater than the t-stat (0.582> 0.166). This result means that the characteristics of technology have a significant positive effect on the suitability of technology tasks. Thus hypothesis 1 (H1) is accepted. ERP systems used primarily for performance, ease of access, and quality are the culprits. They believe ERP systems are beneficial.

H2: Task Characteristics has a positive effect on the Task Technology Fit

From the results of the hypothesis test above, for hypothesis 2 (H2) shows that the Task Characteristics variable has a positive effect (β = 0.287) on task suitability technology. Beta value is greater than t-stat (0.287> 0.166). This result means that the characteristics of the task have a significant positive effect on the suitability of task technology. Thus hypothesis 2 (H2) is accepted. Traditional ERP systems that are only used in the office and done in the office are beneficial and support Task Technology Fit.

H3: Task Technology Fit has a positive effect on perceived usefulness

From the results of hypothesis testing above, for hypothesis 3 (H3) shows that the variable of Task Technology Suitability has a positive effect (β = 0.914) on perceived usefulness, the beta value is greater than the t-stat (0.914> 0.166).). This result means that Task Technology Fit has a significant positive effect on perceived usability. Thus hypothesis 3 (H3) is accepted. The availability of an ERP system that suits your needs can provide benefits and help with work and significantly affect perceived usefulness.

H4: Task Technology Fit has a positive effect on perceived ease of use

The hypothesis test results above, for hypothesis 4 (H4), show that the variable of Task Technology Suitability has a positive effect (β = 0.847) on the perceived ease of use. Beta value is greater than t-stat (0.847> 0.166). This result means that Task Technology Fit has a significant positive effect on perceived ease of use. Thus hypothesis 4 (H4) is accepted. The availability of an ERP system that suits your needs can provide benefits and help with work and significantly affect perceived ease of use.

H5: Task Technology Fit has a positive effect on system adoption

The hypothesis testing results above, for hypothesis 5 (H5), show that the variable of Task Technology Suitability has a positive effect (β = 0.685) on system adoption. The beta value is greater than the t-stat (0.685> 0.166). This result means that Task Technology Fit has a significant positive effect on system adoption. Thus hypothesis 5 (H5) is accepted. The availability of an ERP system that suits your needs can provide benefits and help work and significantly influence system adoption.

H6: Perceived Usefulness has a positive effect on system adoption

The hypothesis H6 is rejected because the beta value is smaller than the t-stat (-0.247 <0.166). Employees felt ERP systems to be more efficient and help complete work more efficiently and quickly. However, some experienced difficulties due to a lack of understanding of the ERP system, so that this significantly affected the system adoption process.

H7: Perceived Usefulness has a positive effect on performance indicators/Individual Performance

The hypothesis testing results above, for hypothesis 7 (H7), show that the perceived usefulness variable has a positive effect (β = 0.543) on system adoption. The beta value is greater than the t-stat (0.543> 0.166). These results may imply that perceived usefulness has a significant positive effect on system adoption. Thus hypothesis 6 (H6) is accepted. ERP systems are felt by employees to be more efficient and can help complete work more easily and quickly, affecting system adoption.

H8: Perceived ease of use has a positive effect on system adoption

The hypothesis test results above, for hypothesis 8 (H8), show that the perceived ease of use variable has a positive effect (β = 0.290) on system adoption. Beta value is greater than t-stat (0.290> 0.166). These results can be interpreted that the perceived ease of use has a significant positive effect on system adoption. Thus hypothesis 8 (H8) is accepted. An ERP system is a complex system, but its implementation is tailored to each employee's job needs. This has led to great enthusiasm and desire to use ERP systems, which significantly affect system adoption.

H9: System adoption has a positive effect on performance indicators/Individual Performance

The hypothesis test results above, for hypothesis 9 (H9), show that the variable system adoption has a positive effect (β = 0.260) on individual performance. The beta value is greater than the t-stat (0.260> 0.166). This result means that Perceived Usefulness has a significant positive effect on Performance Indicators or Individual Performance. Thus hypothesis 9 (H9) is accepted. ERP systems are felt by employees to be more efficient and can help complete work more easily and quickly. With training that suits workers' needs, this system has a significant effect on individual performance indicators.

5. CONCLUSION

The TAM and TTF integration modification is a model that is superior to the TAM or TTF only model. The TAM and TTF integration models to adjust the construct forming variables. Several improvements were made for adjustments in this study, namely behavioral intention to be system adoption and actual use to be a performance indicator on the TAM side. In contrast, on the TTF side, technology characteristics and task characteristics are added, or in other words, returning the TTF model to its basics. The results of these modifications are then applied and tested to see the effect of ERP implementation on employee performance in the STATE-OWNED ENTERPRISE manufacturing sector in Indonesia. Based on the evaluation of the impact of implementing the ERP system on the ERP system's individual performance, it can be concluded that, in general, the ERP system has a positive effect on individual performance. The results of hypothesis testing evidence this; from 9(nine) hypotheses, 8(eight) hypotheses are accepted, and 1(one) hypothesis is rejected. This means that, in general, ERP can affect employee performance at work. Only one hypothesis was rejected, namely Perceived Usefulness or perceived benefits that do not affect system adoption in using ERP. The integration of TAM and TTF in this study still needs to be re-tested with different data with many respondent data and various objects to prove whether the integration offered is appropriate and applied to a specific condition.

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