
ACCEPTANCE ANALYSIS OF ENTERPRISE RESOURCE PLANNING SYSTEM USING UNIFIED THEORY OF ACCEPTANCE USE OF TECHNOLOGY (CASE STUDY: PT DAYA ANUGRAH MANDIRI AREA WEST JAVA)

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Abstract

This study discusses the analysis of the Odoo ERP acceptance at PT Daya Anugrah Mandiri (PT DAM) using the UTAUT approach model developed by Venkatesh et al in 2003. The purpose of this study was to determine the acceptance of the Odoo ERP system for PT DAM employees and to determine the factors -factors that affect the acceptance of the Odoo ERP system for PT DAM employees. The method used in this research is the Unified Theory of Acceptance Use of Technology (UTAUT). The population in this study were 654 employees of PT DAM in the West Java area from 4 divisions consisting of the Operations Division in the West Java area, After Sales, Operational Support and Finance Accounting. The sampling technique used by the researcher are the Slovin method and descriptive statistical approach. Total respondents obtained as many as 266 of 654 employees. The data processing carried out in this study using AMOS 24. Hypothesis testing in this study was conducted to examine the effect of the usability of the Odoo ERP system service and the ease of use. The results showed that age and experience had a positive and significant effect on most of the causal relationships between the dependent and independent variables and ease of use had a positive and significant effect on the acceptance of the Odoo ERP system

Keywords: Odoo ERP, AMOS 24 , UTAUT , PT DAM, Slovin

Introduction

Implementing ERP systems in Corporate Organizations

Implementing an ERP system in a company organization was certainly complicated and the attention of stakeholders where the decision-making process for implementing ERP takes quite a long time, especially inside developing existing ERP systems and migrating from the existing .

There are many considerations that must be taken into account, including:

- The cost of implementing an ERP system.
- Required Human Resources.
- Risk management perspective are related to the level of success in the process data migration from the previous ERP system.
- The success rate of acceptance from employees as users.

Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT model adopts and developed from a combination of several models acceptance of pre-existing technology, such as: Theory of Reason Action (TRA), Theory of Planned Behavior (TPB), Motivational Model (MM), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), Technology Acceptance Model (TAM), Social Cognitive Theory (SCT) and a combination of TAM and TPB (Michael Sonny, 2016).

UTAUT is a technology acceptance model developed and created by Venkatesh, et al in 2003. Venkatesh, et al found that there are four variables which has a significant effect on the variable behavior intention and use behavior. The variable is performance expectancy, effort expectancy, social influence and facilitating conditions.

There are also four moderators as additional variables such as: gender, age, voluntariness of use, and experience which are positioned as impact moderating variables of the four main variables on behavioral intention and use behavior.

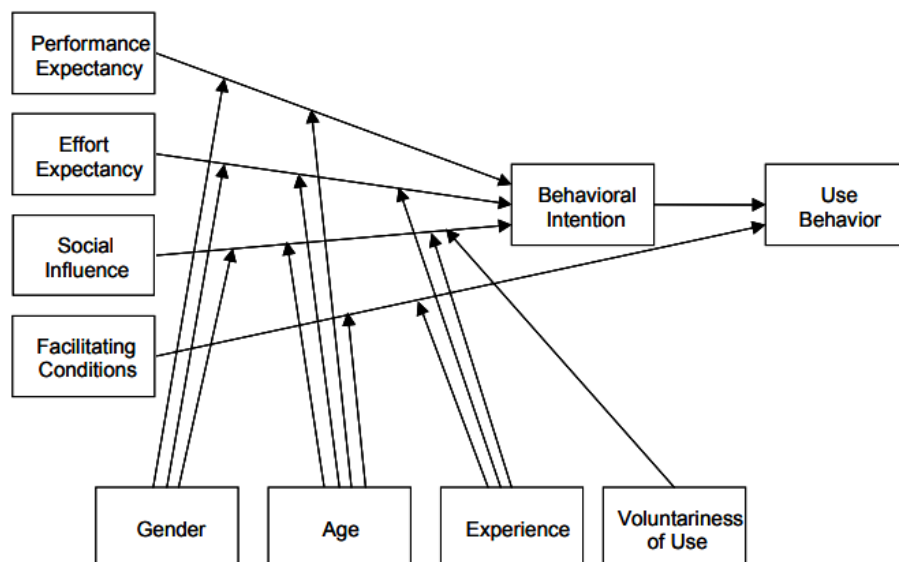


Figure 1. Unified Theory of Acceptance and Usage of Technology (UTAUT)

Structural Equation Modelling

Structural Equation Modeling or SEM is a statistical technique that analyzes pattern of relationship between latent constructs and indicators as well as direct measurement error. SEM makes it possible analysis among several dependent and independent variables directly. SEM is used not for designing a theory, but to examining and justifying a hypothetical model.

The two reasons to use of SEM are:

1. SEM has the ability to estimate the relationship between variables are multiple relationships. This relationship is formed in the structural model
2. SEM has the ability to describe patterns of relationships between constructs latent and manifest variables or indicator variables.

Validity Test

Validity explains that a variable can measure what it should be measured. A variable will have good validity against construct or latent variable if satisfies the standard factor loading requirements (Standardized loading factors) greater or > 0.5 (Siswono dan Parwoto, 2016).

Reliability Test

Reliability is the consistency of a measurement. High reliability shows that the indicators have high consistency in measuring latent construct. In general, the technique for estimating data reliability uses test-retest, alternative forms, split-halves, and using Cronbach's alpha minimum assumptions. But to measure reliability in SEM will used variance extracted measure.

Normality Test

The normality test is a regression model to ensure that the independent variable and the dependent variable are both normally distributed or not. The normality test aims to test whether the data is normally distributed or not normal. If

the results obtained are normally distributed, the statistics used are parametric statistics. If the data obtained is not normally distributed then statistics used is non-parametric statistics.

Based on experience from previous research, if the data the number of which is more than 30 numbers ($n > 30$), then it can be assumed to be distributed normal. However, to provide certainty, it is better to use the normality test because not necessarily data that is more than 30 can be sure to be normally distributed as well conversely, data that is less than 30 is not necessarily normally distributed, for that need a proof.

Goodness of Fit test

There are three basic assumptions that must be able to use the model structural similarities include:

1. Observation of independent data.
2. Respondents were taken randomly (random sampling respondents).
3. Has a linear relationship.

Besides that, SEM is very sensitive to the characteristics of data distribution in particular distributions that violate multivariate normality in the presence of high kurtosis or distribution skewedness in the data. For this reason, before the data is processed, it must be tested first whether or not outlier data and data distribution must be normal in a multivariate manner.

After assumptions SEM is fulfilled. The next step is to see whether there is an offending estimate, namely coefficient estimation in both the structural model and the value measurement model above acceptable limits. If any offending estimate is found, the research must eliminate this first before conducting a feasibility assessment of the model. After no offending estimate is found in the model, the research can followed by an overall model fit assessment with various model fit assessment criteria.

Moderated Regression Analysis (MRA)

The Moderated Regression Analysis (MRA) test is a statistical measurement method which was developed from multiple linear regression tests where in the regression equation contains an element of interaction and there is a multiplication of two or more independent variables (Niswatin Chasanah and Sylva Alif Rusmita, 2019).

The MRA interaction test formula is:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_1X_2$$

The multiplication variable between X_1 and X_2 is a moderating variable that describes the moderating effect of variable X_2 on the relationship X_1 and Y .

Moderating variables that exist in the MRA test can strengthen or weaken the effect of the independent variable on the dependent variable which is also a hypothesis from the MRA test. As for data processing for the MRA test in this study will use the IBM SPSS statistics 25 application to look for value comparisons R Square of the MRA interaction test equation is then supplemented with a Partial t test and Simultaneous F test.

AMOS Software

The SEM process certainly cannot be done manually apart from limitations human capabilities and the complexity of the models and statistical tools used. Science and information technology, especially in the development of software creation, has encouraged the emergence of special software for calculating basic statistical tools from SEM factor analysis and multiple regression analysis. Currently there are many special applications used for SEM model analysis and one of them is AMOS Software. The advantages of AMOS software is user friendly, so that it can be used for beginners in the field of SEM and this research using AMOS version 24 which was released in 2016.

Enterprise Resource Planning (ERP) Odoo

Odoo ERP System is an all-in-one management software that makes it easy operation by its users and has hundreds of business applications integrated in such as Customer Relations Management (CRM), Accounting, Inventory, Marketing, E-Commerce, Project Management, Human Resources, Material Resources Planning, and others. The dashboard menu display and Odoo ERP system procedures at PT Daya Mandiri is:

Login Procedure such as:

- a. Fill in e-mail
- b. Fill Password
- c. CAPTCHA confirmation
- d. Then click Login

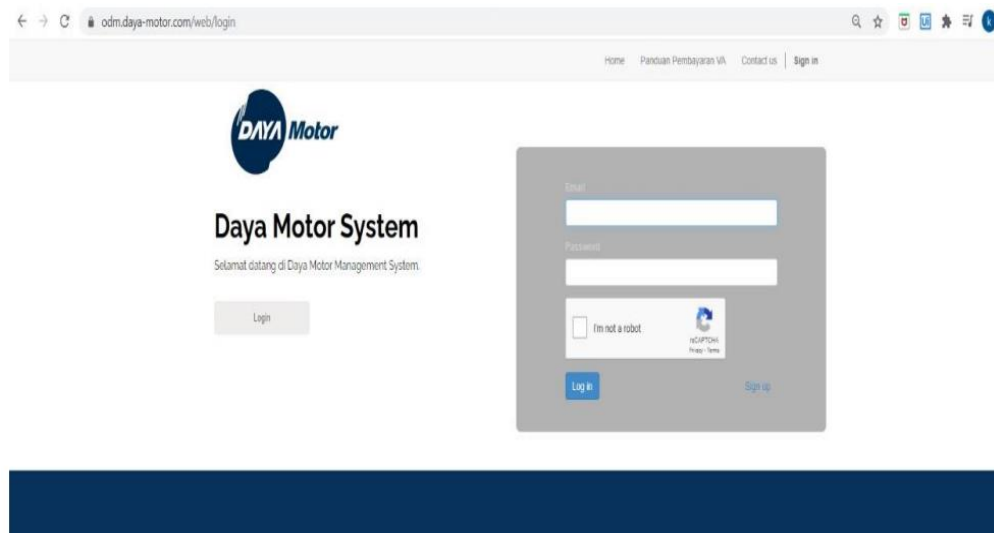


Figure 2. Login Menu



Figure 3. Dashboard Menu

Research Purposes

The purpose of this research is to answer the following:

1. To determine the effect of performance expectancy on behavioral intention on the use of the Odoo ERP system.
2. To determine the effect of effort expectancy on behavioral intention in use of the Odoo ERP system.
3. To determine the effect of social influence on behavioral intention in use of the Odoo ERP system.
4. To determine the effect of facilitating conditions on use behavior in use of the Odoo ERP system.
5. To determine the effect of behavioral intention on use behavior in use of the Odoo ERP system.
6. To determine the effect of age or age factor on the relationship between performance expectancy on behavioral intention in using the ERP system.
7. To determine the effect of the age factor on the relationship between effort expectancy on behavioral intention in using the ERP system.
8. To determine the influence of age or age factors on the relationship between social influences on behavioral intention in the use of the ERP system.
9. To determine the influence of age or age factors on the relationship between facilitating condition of use behavior in the use of the ERP system
10. To determine the influence of experience or experience factors on the relationship between effort expectancy on behavioral intention in using the ERP system.
11. To determine the influence of experience or experience factors on the relationship between social influences on behavioral intention in using the ERP system.
12. To determine the influence of experience or experience factors on the relationship between facilitating conditions on behavioral intention in the use of the ERP system.

The research model adds managerial interventions as a variable affect user acceptance. The reason for adding managerial interventions include:

1. The use of the Odoo-based ERP system at PT DAM is mandatory top-management has a very significant influence on policies that have been decided to adopt ERP systems in order to be running smoothly and ensure ERP is used. ERP system implementation is a process in a mandatory environment where the user required by company management to use ERP in daily activities.
2. Previous research has included managerial interventions as a variable that raises individual acceptance of technology directly or indirectly mediated by attitude (Rika Perdana Sari, 2011)

The model that will be developed in this study also uses symbolic adoption as the dependent variable and attitude toward system use as an additional variable.

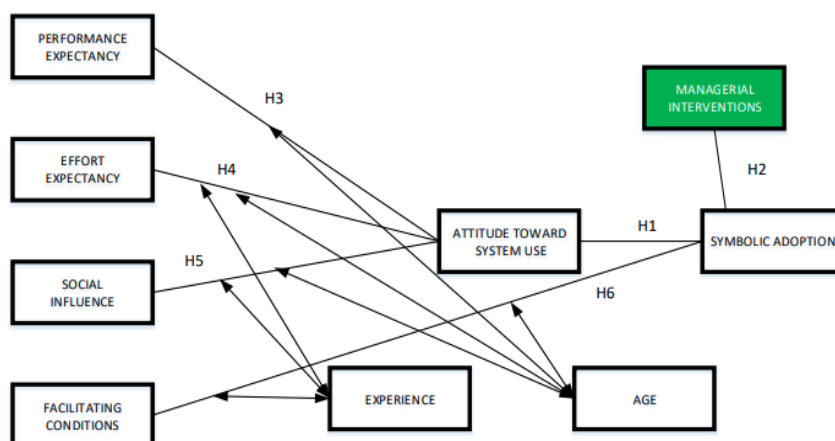


Figure 4. UTAUT Model Development

Method

Sample

Results of observations and data collection of PT DAM employees who quite actively using the ERP system and obtained data and facts that amount of employee population for the West Java region using ERP Odoo is 654 person. Determination of the number of samples based on the population is done by using Slovin formula with a significance or error level of 5% and with a level confidence of 95%. From a total population of 654 people, it is obtained the number of samples is 250 samples.

Results and discussion

The SEM model used in this research are as follows

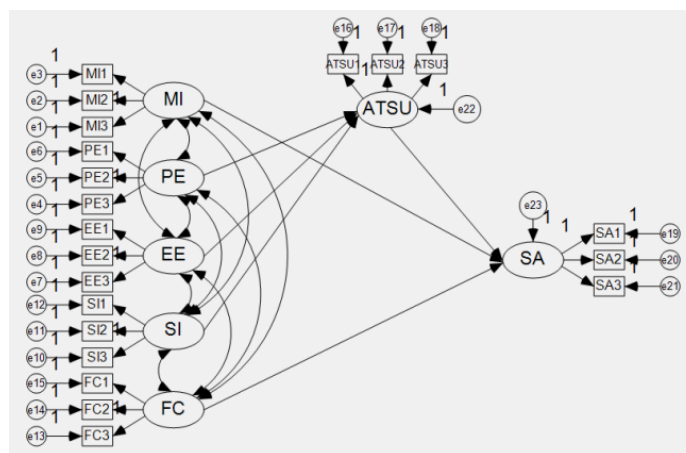


Figure 5. The SEM Model with AMOS

Based on estimation results the AMOS output is obtained as follows:

Variable	min	max	skew	c.r.	kurtosis	c.r.
SA3	1,000	5,000	-,597	-3,978	-,230	-,766
SA2	1,000	5,000	-,542	-3,611	-,148	-,493
SA1	1,000	5,000	-1,152	-7,669	1,125	3,746
ATSU3	1,000	5,000	-1,200	-7,990	1,507	5,019
ATSU2	1,000	5,000	-1,160	-7,723	,912	3,036
ATSU1	1,000	5,000	-1,261	-8,398	1,355	4,510
FC1	1,000	5,000	-,581	-3,868	-,326	-1,086
FC2	1,000	5,000	-,528	-3,516	-,320	-1,067
FC3	1,000	5,000	-,746	-4,968	-,084	-,281
SI1	1,000	5,000	-1,123	-7,477	1,004	3,344
SI2	1,000	5,000	-1,146	-7,631	1,498	4,987
SI3	1,000	5,000	-1,104	-7,351	1,009	3,360
EE1	2,000	5,000	-,394	-2,626	-,392	-1,304
EE2	2,000	5,000	-,568	-3,782	-,080	-,265
EE3	2,000	5,000	-,543	-3,618	-,089	-,298
PE1	1,000	5,000	-1,083	-7,209	1,398	4,654
PE2	2,000	5,000	-,717	-4,777	-,113	-,377
PE3	1,000	5,000	-1,075	-7,155	,785	2,613
MI1	1,000	5,000	-,694	-4,621	-,330	-1,097
MI2	1,000	5,000	-1,208	-8,044	1,270	4,230
MI3	1,000	5,000	-1,263	-8,406	1,371	4,564
Multivariate					154,505	40,538

Figure 6. Multivariate Normality Test

Based on the results of the Test of Multivariate Normality for Continuous Variables above, the overall model does not meet the assumption of normality, where CR Kurtosis is 40.538 greater than 1.96. One way to overcome the existence of non-normal data in a multivariate way using estimation methods that are more robust to data abnormalities, namely by using GLS, ULS or ADF techniques (Ghozali, 2008), where this research will use the GLS method.

Variable Moderating	Variable Independent	Variable Dependent	R Square	Adjusted R Square	t Partial	F Simultaneous	Result
Experience	EE	ATSU	0,510	0,505	0,000	0,000	Strong
	SI	ATSU	0,600	0,596	0,763	0,000	Weak
	FC	SA	0,730	0,727	0,244	0,000	Weak

Figure 7. Experience Moderation Variable

Indikator Fit	Nilai yang Direkomendasikan	Evaluasi Model	Hasil Penelitian	Keterangan
Absolute Fit				
Probabilitas	$P > 0,05$	Tidak Signifikan	0,302	Fit
Normed Chi Square (χ^2/df)	< 2	Over Fitting	1,062	Fit
	$2 < \chi^2/df < 5$	Good Fit		
RMSEA	$< 0,08$	Good Fit	0,015	Fit
GFI	$> 0,90$	Good Fit	0,952	Fit
AGFI	$> 0,90$	Good Fit	0,912	Fit
Comparative Fit				
NFI	0,90	Good Fit	0,972	Fit
Index (TLI)	0,90	Good Fit	0,982	Fit
CFI	0,90	Good Fit	0,989	Fit
Parsimonious Fit				
PNFI	0–1	Lebih Besar Lebih Baik	0,509	Fit
PGFI	0–1	Lebih Besar Lebih Baik	0,515	Fit

Figure 8. Goodness of Fit Research Model Testing

Variable Moderating	Variable Independent	Variable Dependent	R Square	Adjusted R Square	t Partial	F Simultaneous	Result
Age	FC	SA	0,722	0,719	0,055	0,000	weak
	SI	ATSU	0,621	0,617	0,005	0,000	Strong
	EE	ATSU	0,528	0,523	0,000	0,000	Strong
Age	PE	ATSU	0,747	0,744	0,000	0,000	Strong

Figure 9. Age Moderation Variable

Conclusions

Based on the results of Structural Equation Modeling analysis can be drawn conclusion as follow:

- Performance Expectancy (PE) has a significant effect on Attitude Toward System Use (ATSU) which means that using ERP Odoo can increase employee work productivity and make work become more interesting.
- Effort Expectancy (EE) has no significant effect on the Attitude Toward System Use (ATSU).
- Social Influence (SI) has a significant effect on Attitude Toward System Use (ATSU) which means that if the organization supports used of ERP Odoo then using of ERP Odoo by users in work is a good idea.
- Symbolic Adoption (SA) has a significant effect on Attitude Toward System Use (ATSU) which means that when user happy to use ERP Odoo then the users will be more enthusiastic using ERP Odoo.
- Facilitating Condition (FC) has a significant effect on Symbolic Adoption (SA) which means that more high support and knowledge possessed by employees will further support Odoo's ERP development in the future will come.
- Managerial Intervention (MI) has a significant effect on Symbolic Adoption (SA) which means that more high liability given by the company in using ERP Odoo then more high the employee support for company management decisions in the use of ERP Odoo.
- Experience has a significant effect on the causal relationship between Effort Expectancy and Attitude Toward System Use which means that a user who has experienced working long enough will be very easy to learn and using Odoo ERP.
- Age has a significant effect on the causal relationship between Effort Expectancy and Attitude Toward System Use where the age factor will help to understand and makes it easy for a user to learn ERP Odoo and will helping them .
- Age has a significant effect on the causal relationship between Social Influence and Attitude Toward System Use where the age factor will facilitate communication relations with superiors and organizational support in using ERP Odoo for helping users.
- Age has a significant effect on the causal relationship between Expectancy and Performance Attitude Toward System Use where the age factor will help productivity and fluency in working using ERP Odoo and making good work it will be more enjoyable because of the use of ERP Odoo.

Recommendations

From the results of this study several suggestions can be given to company management, including:

1. It is recommended that the Odoo ERP be updated to the latest version to avoid the occurrence of error loading when using Odoo ERP in the work environment.
2. It is recommended that the user's knowledge be further enhanced through training the latest uses and usage modules.
3. It is recommended that support assistance from both superiors and from the IT department continue to be improved in order to increase user confidence to use Odoo ERP application.

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