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ERP System Self Efficacyand ERP System Usage: The Roleof Perceived Usefulnessand Perceived Easeof Use

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ABSTRACT: The purpose of this study is to find out how the implementation of ERP in companies affected by self-efficacy employees, as well as the perceived usefulness and perceived ease of use of ERP system.The data were obtained from 70 questionnaires distributed to employess of ERP system users who work in PT. Pembangunan Perumahan (Persero) Tbk, which is one of the companies of ERP users in Indonesia. Inferential statistical analysis used in Structural Equation Model (SEM) with Partial Least Square (PLS) approach.The result of this study shows that ERP system self-efficacy significantly positive affect on ERP system usage mediated by perceived usefulness and perceived ease of use.This research is useful for companies that use information systems to be able to see how the influence of self-efficacy affect ERP system usage

KEYWORDS: *Self-Efficacy*, ERP *system usage*, *Perceived usefulness*, *Perceived ease of use*

I. INTRODUCTION

Technological developments affect the information systems that occur in all companies in the world. Enterprise Resource Planning (ERP) becomes one of the innovation of information systems. ERP has strategic relevance as it is integrated into business processes or strategies that can directly affect company performance (Sambamurthy et al., 2003 and Swanson 1994). The ERP system has been defined as a comprehensive software solution that integrates and automates many business practices related to the operation or production and distribution aspects of the company (Davenport 1998). ERP is a system used to integrate business processes in manufacturing and production, finance and accounting, sales and marketing, and human resources into a single software system. The results of the information are stored in a comprehensive data warehouse that can be used by different parts of the business (Lauodon et al., 2012).

The importance of this system is explained by O'Brien (2015) that ERP is a cross-functional corporate backbone that integrates and automates many internal processes and information systems in terms of production, logistics, distribution, accounting, finance and human resources functions of the company. A good system should also be supported with good user skills, so, the applied information system can create good data quality ERP systems (Compeau and Higgins, 1995); (Nelson and Cheney, 1987). Many companies are beginning to turn to ERP systems from previous systems, this will certainly force employees to learn and understand about the new system, where individual beliefs and self-confidence about his ability to perform tasks or perform an action necessary to achieve a result very required. Imhof et al. (2007) defines self-efficacy as the judgment of people who are certainly concerned with what can be done, in particular: whatever skills a person possesses, and their competence to define and accomplish actions that are treated to achieve the kind of performance selected.

The ERP system has been defined as a comprehensive software package solution that integrates and automates many business practices related to the operation or production and distribution aspects of a company. Due to the good ERP system then needed a good process of using ERP. ERP System / actual usage is a mirror of user acceptance of technology. Compeau& Higgins (1995) found self-efficacy to play an important role in determining the system / actual usage, either directly or through expected outcomes.

Technology Acceptance Model (TAM) is one of the most commonly used and well-validated models in the literature (IT) (Intellectual Stimulation (IS)) and there is considerable agreement among these researchers is a comprehensive model for exploring Technology Acceptance (Davis et al., 1989). In the concept of TAM describes the user's attitude toward technology acceptance. The actual system / actual usage is related to the user's intent to use it when he / she realizes perceived usefulness and perceived ease of use provided using new technology (Davis et al., 1989). TAM theory states that one's intention to use the system or technology is determined by two factors, perceived usefulness, is the level of individual trust that the use of technology will improve performance and perceived ease of use, is the level of individual trust that the use technology makes it

easier to complete work (Venkatesh and Davis, 2000). With the ease that has been offered on the latest technology, employees are expected to be able to improve performance and use the latest technology well.

Perceived ease of use of a technology is a perception that is defined as a benchmark for someone who believes that computers can be understood and used easily. Sathye (1999) states that perceived ease of use has a positive effect on actual usage. Perceived ease of use by users of information systems positively impacts the users of an ever-increasing information system. Perceived usefulness is a level where an individual believes that using a particular system will help improve performance and performance. Rigopouluos (2007) states that perceived usefulness has a positive effect on actual usage. Benefits that have been given by the company through an information system led to an increase in the use of such information systems.

According to Bandura (1997), self-efficacy is an individual's belief about his or her ability to perform tasks or perform an action necessary to achieve a certain outcome. By having confidence in yourself, the individual can feel the usefulness of the system used (perceived usefulness), in this case the ERP system. Igbaria&livari (1995) found that self-efficacy has an insignificant direct effect on perceived usefulness, although self-efficacy has a strong non-directional effect through perceived ease of use. According to Rose and Fogarty (2006) in a study of 208 respondents found that technology users who have confidence in their ability to use technology will feel that the technology is useful and easy to use. Based on the previous description, this research will discuss about the role of ERP system of self-efficacy, perceived usefulness and perceived ease of use in ERP system usage.

II. LITERATURE REVIEW

This study uses two main streams of literature to build models and hypotheses. The first flow is related to emotions and systems, the second flow is related to the expertise of the system users. We also examined the latest literature on transformational leadership and self-efficacy on the implementation of ERP systems.

2.1 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) is one model that is built to understand and analyze what factors can affect the acceptance of the use of a computer technology (Davis, 1989); (Davis et al., 1989). TAM is adopted from the Theory of Reasoned Action (TRA) model on the basis of the theory of the reasonable action of a person in the form of reaction, and the perception of something data determines the attitude and behavior of that person's data. Such reactions and perceptions of users of Information Technology (IT), can affect a person's attitude related to the acceptance of the information system. One of the factors that influence is the user's perception of the user's ease and the benefits that can be obtained from the IT. This may affect the actions or reactions of IT users as a benchmark of accepted technology acceptance.

Technology Acceptance Model (TAM) shows that there are two specific beliefs, namely perceive ease of use technology and perceive usefulness of technology to determine the intentions of one's behavior in using technology (Venkatesh, 2000). Intention is a predisposition of actual behavior (Ajzen, 2005) influenced by computer self-efficacy (Venkatesh, 2000; Rose and Fogarty, 2006; Park, 2009; Yusof et al., 2009; Abramson, 2015).Computer Self Efficacy by Compeau and Higgins (1995), as a belief or confidence in the capabilities and expertise of a person's computer to perform tasks that use information technology.

Self-efficacy and ERP System Usage

Self-efficacy according to Bandura (1977) is a person's assessment of his ability to organize and decide on the necessary actions with the aim of achieving the desired performance. Individuals with low self-efficacy will undermine motivation through the feeling that they are unable to complete the task, before the task is attempted (Davis, 1989). Imhof et al. (2007) defines self-efficacy as the judgment of people who are certainly concerned with what can be done, in particular: whatever skills a person possesses, and their competence to define and accomplish actions that are treated to achieve the kind of performance selected.

Self-efficacy builds the personal experience of the past from the mastery and deals with measuring one's competence within a given framework, focusing on one's assessment of their ability to perform certain tasks in relation to goals and standards compared to the abilities of others (Meyer, Turner et al .). Bandura (1986) explains that individual self-efficacy is based on experience of success, individual experience, verbal persuasion and individual physiological state. The importance of the ERP system is explained by O'Brien (2015) that ERP is a cross-functional corporate backbone that integrates and automates many internal processes and information systems in terms of production, logistics, distribution, accounting, finance and human resources functions of the company.

III.MODEL AND HYPOTHESIS

The ability of users to assimilate the system is the ability of the user to internalize the new system into the performance of its task. Effective assimilation can lead the user to increase the knowledge of the task through the previous and newly acquired knowledge sitesis (Park et al., 2007). Therefore, we can understand that the effective assimilation of ERP systems can lead ERP users to improve the performance of their tasks. In addition, the capacity of users to implement ERP systems can be defined as the ability of users to use and share ERP knowledge in performing tasks (Grifth et al., 2003).

According to Park et al., (2007), applying is the ability of users in running the information system available. The more capable users in running the existing information system, it will grow the perception will be easier in using existing information systems. Based on the existing description, the hypothesis that is built is:

H1: Assimilating has a significant positive effect on perceived usefulness

H1a: Assimilating has a positive effect on actual usage

H2: Applying positively significant effect on perceived ease of use

H2a: Applying positively influence actual usage

Perceived ease of use according to research (Lee & Wan, 2010) is a perception of user convenience that refers to the cognitive effort necessary to learn and address new technologies. The easier for users of information systems in operationalize the information system, will have an impact on the ability of users in sensing the usefulness of information systems that have been available. Ability in operationalize the information system will foster a strong confidence for users to feel the benefits or usefulness of existing information systems. Based on the description mentioned above, the hypothesis built in the research are:

H3: Perceived ease of use has a significant positive effect on perceived usefulness

According Jogiyanto (2008) suggests, the definition of usability perception as the extent to which individuals believe using a technology will improve job performance. Perceived usefulness is the level of one's belief in the use of a particular subject that can benefit the person using it (David, 1989) and (Adams, Nelson, & Todd, 1992). Users of information systems that are able to feel greater benefits in an information system available, it will have an impact on the intensity of the use of information systems to support existing jobs. Based on the existing description, then the hypothesis built in this research are:

H4: Perceived usefulness has a significant positive effect on ERP system usage

Perceived ease of use is a level of confidence that a computer can be easily understood (David, 1989). According to (Adams, Nelson, & Todd, 1992), the user's intensity and interaction between users with the system can also indicate the user's ease. The ability of users in operationalize the existing information system, it will make it easier for users to more intensively in using the information system to support existing jobs. Based on the existing description, then the hypothesis built in this research are:

H5: Perceived ease of use has a significant positive effect on ERP system usage

The ability of users to assimilate the system will increase the confidence of users to be able to operationalize the information system properly and correctly. The existence of a good confidence in the user due to the ability to assimilate existing information systems, will encourage users to better feel the usefulness of the information system that has been available. The user's self-ability in assimilating an information system will further enhance the user's perception of the ability of existing information systems. The increased capacity in the use of existing information systems will further enhance the ability of users in using the available information systems (Park et al., 2007; Grifth et al., 2003). Based on the existing description, the hypothesis that is built is:

H6: Perceived usefulness mediates the relationship between assimilating and ERP system usage

The ability of users in operationalize the information system available will increase the user's confidence in the ability that is owned. The increase in confidence will support users to feel the benefits of ease in operationalizing the information system. Improved perception of easy information system available for use, it will increasingly increase the intensity of the use of information systems. (Park et al., 2007; Grifth et al., 2003). Based on the existing description, the hypothesis that is built is:

H7: Perceived ease of use mediates the relationship between applying and ERP system usage

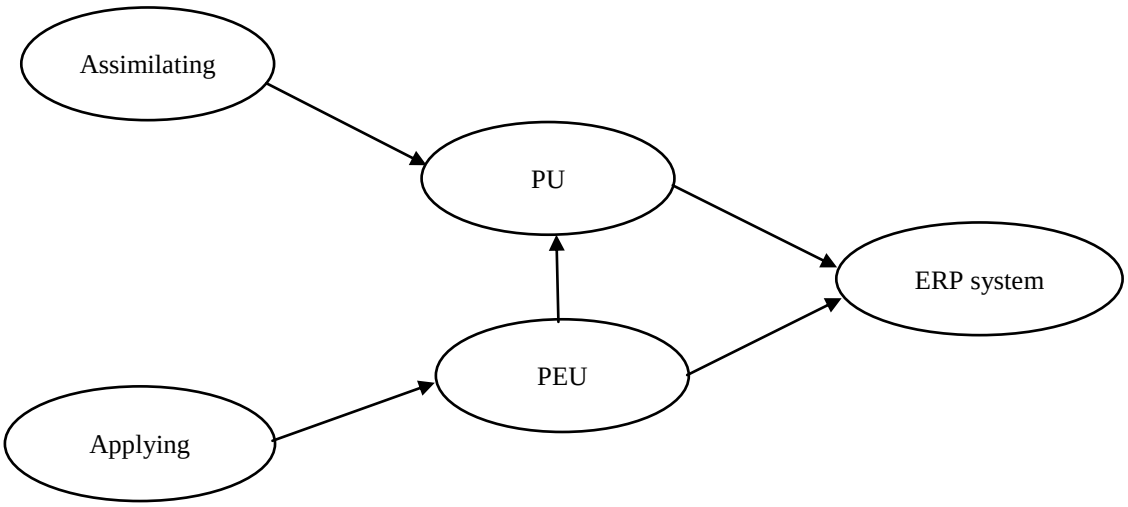

Figure 1
Conceptual Framework

IV. RESEARCH METHODOLOGY

Data from this research were obtained from questionnaires distributed to employees of ERP users who work in PT. Pembangunan Perumahan (Persero) Tbk which is one of the companies of ERP users in Indonesia. A total of 70 responses were obtained for this study. Data analysis method used in this research is descriptive analysis and inferential statistical analysis. Inferential statistical analysis used is Structural Equation Model (SEM) with Partial Least Square (PLS) approach.

Independent variable of this research is self-efficacy. The questionnaire used contains questions to measure the variables in this study. Self-efficacy was measured by a questionnaire developed by Elkhani et al (2013). Instruments require individuals to indicate their agreement or disagreement with 5 questions that reflect the participation and conflict that the respondent may have experienced while using the ERP system. Response options range from (1) strongly disagree to (5) strongly agree.

Mediation variable in this research is perceived usefulness and perceived ease of use as measured by questionnaire. Perceivedd usefulness and perceived ease of use were measured by a questionnaire developed by Elkhani et al, (2013). Through 5 questions where the answer to this question shows agreement and disagreement that reflect the participation and conflict that the respondent may experience during the use of the ERP system. Response options range from (1) strongly disagree to (5) strongly agree.

Dependent variable of this research is ERP system usage. The implementation of the ERP system was measured by a questionnaire developed by Elkhani et al, (2013). Questions in the questionnaire asked individuals to show their agreement or disagreement with 5 questions that reflect the quality of the system information. Response options range from (1) strongly disagree to (5) strongly agree.

V. RESULTS

Profile of respondent

Information about position, duration of work, last education, gender of the respondents are presented in Table 1. Job positions of respondents in the study are not dominated by specific positions. Most of the respondents have quite varied work experiences ranging from a few months to 11 years. In Table I present the demographic characteristics of respondents that show the dominance between male and female respondents. Most respondents have a bachelor's degree.

Table I. Respondec Profile

	N	%
Position		
Staff	42	60
Assistant Manager	3	4
Manager	25	36
Length of work		
<1 thn	2	3
1-5 thn	30	43
5-10 thn	21	30
>10 thn	15	21
Gender		
Male	52	74
Female	18	26
Education		
SMA	8	11
D1/D2/D3	4	6
D4/S1	57	81
S2	1	1
Other	0	0

Based on table I, the most respondent profile for staff position is 60%. The longest working time is 1 to 5 years as much as 43%. The most common sex is males by 74%. And the majority of employee education on D4 / S1 as much as 81%.

Table II shows that all proxies have an outer loading factor value greater than 0.5. It can be concluded that all indicators are eligible to be an indicator that can reflect each of the corresponding variables.

Tabael II also explains the value of the reliability coefficients. Variable reliability testing using composite reliability technique. To see whether or not a reliable measuring instrument is done through the coefficient of reliability with the value of reliability coefficient must be greater than 0.7.

According to the reliability analysis results, items that have a total item correlation value lower than 0.40 should be eliminated. In this study for items from the scale of user expertise that IP2 must be eliminated. The result of composite reliability measurement in this research shows that all variables have composite reliability value greater than 0.70. It can be concluded that all the variables in this study are reliable and reliable for use in further analysis. Measurement of discriminant validity is by comparing the average root value of Average Variance Extracted (AVE) each construct with the correlation between the other constructs in the model. Recommended AVE value must be greater than 0.5. In Table II shows the AVE value of each variable is greater than 0.5, so it can be concluded that the variables used are valid and reliable.

Table II *Outer Loading* dan*Average Variance Extracted*

		Outer Loading	Reliability	AVE	Kesimpulan
ASS1	I can use ERP very well if I have only software manuals for reference	0.738			Significant
ASS2	I can use ERP very well if I can call someone else to solve my problems	0.606			Significant
ASS4	I can use ERP very well providing I have a lot of time	0.783	0.845	0.526	Significant
ASS5	I am qualified enough to perform tasks using ERP	0.830			Significant
ASS6	I have the capability to achieve the task objective by using ERP	0.643			Significant
APP1	I can apply the knowledge derived from ERP to my tasks	0.698			Significant
APP2	I can apply the advanced processes derived from ERP to my tasks	0.697			Significant
APP3	I can share knowledge derived from ERP with others in the same department	0.827	0.877	0.589	Significant
APP4	I can share knowledge derived from ERP across departments	0.830			Significant
APP5	I can share my knowledge with others through the ERP network	0.775			Significant
PU1	Using the system in my job enables me to accomplish task more quickly	0.584			Significant
PU2	Using the ERP improves my performance in my job	0.831			Significant
PU3	Using the ERP in my job increases my productivity	0.758	0.849	0.588	Significant
PU4	Using the ERP enhances my effectiveness in my job	0.864			Significant
PEU1	My interaction with the ERP systems is clear and understandable	0.762			Significant
PEU2	Interacting with the ERP does not require a great deal of mental effort	0.732			Significant
PEU3	I find the ERP to be easy to use	0.683	0.800	0.500	Significant
PEU4	I find the ERP easy to get the result I want	0.644			Significant
AU1	I use the ERP system very intensively (many hours per day, at work)	0.809			Significant
AU2	I use the ERP system very frequently (many times per day, at work)	0.784	0.827	0.614	Significant
AU3	Overall, I use the ERP system a lot	0.758			Significant

Based on Table II, the outer loading value for the largest assimilating variable is ASS5 of 0.830. While for the applying variable the largest outer loading value is APP4 of 0.830. As for the variable perceived usefulness of the largest outer loading value is PU2 of 0.831. For the perceived ease of use variable the largest outer loading value is 0.762. The largest outer loading value for actual usage is AU1 of 0.809.

Hypothesis Testing

The proposed hypothesis will be tested using Structural Equation Model (SEM) model with Partial Least Square (PLS) analysis model. PLS analysis was tested using WarpPLS 5.0 for windows software to examine the effect of emotions moderated by user expertise on the quality of system data.

Table. III
Direct Effect Test Results

Influence between Variables	Path Coefficient	P-Value
ASS → PU	0.509	<0.001
ASS → AU	0.395	<0.001
APP → PEU	0.259	0.011
APP → AU	0.244	0.015
PEU → PU	0.265	0.009
PU → AU	0.434	<0.001
PEU → AU	0.194	0.044

Based on the results in Table III shows that assimilating positively affects perceive usefulness. This is shown from the value of the positive coefficient path (β = 0,51) and p-value <0.001. This suggests that 50.9% of assimilating variance affects perceived usefulness.
This shows H1 accepted.

Based on the results in Table III shows that assimilating has a positive effect on actual usage. This is indicated from the value of positive coefficient path (β = 0.40) and p-value <0.001. This shows that 39.5% variance assimilating effect on actual usage.
This shows H1a accepted.

Based on the results in Table III shows that applying positively affects perceived ease of use. This is shown from the value of positive coefficient path (β = 0.26) and p-value 0.011. This shows that 25.9% variance applying effect on perceived ease of use.
This indicates that H2 is accepted.

Based on the results in Table III shows that applying has a positive effect on actual usage. This is shown from the value of positive coefficient path (β = 0,24) and p-value 0,015. This shows that 24.4% variance applying effect on actual usage.
This indicates that H2a is accepted.

Based on the results in Table III shows that perceived ease of use has a positive effect on perceived usefull. This is shown from the value of positive coefficient path (β = 0,27) and p-value 0,009. This shows that 26.5% variance perceived ease of use affects perceived usefull.
This indicates that H3 is accepted.

Based on the results in Table III shows that perceived usefull has a positive effect on actual usage. This is indicated from the value of positive coefficient path (β = 0.43) and p-value <0.001. This shows that 43.4% variance perceived usefull has an effect on actual usage.
This indicates that H4 is accepted.

Based on the results in Table III shows that perceived ease of use has a positive effect on actual usage. This is indicated from the value of positive coefficient path (β = 0.19) and p-value 0.044. This shows that 19.4% variance perceived ease of use has an effect on actual usage.
This indicates that H5 is accepted.

Based on the results of existing research, then all the influence built in the research system has a positive and significant effect. This is shown from the value of the coefficient path marked positive and p-value <0.05.

Tabel. IV
Indirect Effect Test Result

Influence of Variable Mediation	Path Coefficient	VAF
ASS → PU → AU	0,34026	40,065%
APP → PEU → AU	0,108521	30,784%
PEU → PU → AU	0,272315	58,397%

The mediation variable in this research is partial mediation. Where the influence of perceive usefulness in mediating assimilating and actual usage and perceive ease of use and actual usage, as well as perceive ease of use in mediating applying and actual usage is partial mediation because the VAF values are in the range> 30 - <70.

VI. DISCUSSION AND CONCLUSSION

The results of hypothesis testing 1 & 1a stated that Assimilating has a significant positive effect on perceived usefulness and actual usage. This is because the effective assimilation of ERP systems can lead ERP users to improve the performance of their tasks as well as in the use of the ERP system itself.

The results of hypothesis testing 2 & 2a stated that Applying positively positive influence on perceived ease of use and actual usage. This is because the more capable users in running the existing information system, it will grow the perception will be easier in using existing information systems.

The result of hypothesis testing 3 states that Perceived ease of use has a significant positive effect on perceived usefulness. This is because the easier for users of information systems in operationalize the information system, will provide an impact on the ability of users in sensing the usefulness of information systems that have been available.

The result of hypothesis 4 test shows that Perceived usefulness has a significant positive effect on ERP system usage. This is because users of information systems that are able to feel greater benefits in an information system available, it will have an impact on the intensity of the use of information systems to support existing jobs.

The results of hypothesis testing 5 states that Perceived ease of use has a significant positive effect on ERP system usage. This is because the ability of users in operationalize the existing information system, it will make it easier for users to more intensively in using the information system to support existing jobs.

The result of hypothesis testing 6 states that Perceived usefulness mediates the relationship between assimilating and ERP system usage. This is because the ability of the user to assimilate the system will increase the confidence of the user to be able to operationalize the information system properly and correctly.

The result of hypothesis 7 testing states that Perceived ease of use mediates the relationship between applying and ERP system usage. This is because the ability of users in operationalize the information system available will increase the user's confidence in the ability possessed.

VII. CONCLUSION

In general, this study intends to find out how ERP systems influence self-efficacy mediated by perceived usefulness and perceived ease of use against ERP system usage. This research uses PT. Pembangunan Perumahan (Persero), Tbk as the subject of research because the company is one of the existing companies in Indonesia that use ERP system and with the background of a company that is very mature and stable in implementing information systems in the business process run. The results showed that self-efficacy mediated by perceived usefulness and perceived ease of use had a significant positive effect on ERP system usage. The mediation effect of perceived usefulness and perceived ease of use is partial mediation. Further research is expected to find other effects in the use of ERP system usage.

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