Employees' Perception of Usefulness and Ease of Use of SAP Information Systems: An Application of the Technology Acceptance Model (TAM)

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Abstract: This article aims to examine the relationship between perception of ease of use, perception of usefulness and information technology acceptance of SAP application. This study use Davis Technology Acceptance Model (TAM) as a theoretical framework. The method used is descriptive analysis method with a quantitative approach, that is research which describes data collection on the result of the observation that has been done. Data were collected from employees working in the spare part Departments. The findings concluded that the use of SAP Information Systems are determined by employees' perceptions on ease of use and usefulness of the system. This study expands the existing literature by providing additional empirical supports on the use of Technology Acceptance Model within the context of Indonesia. The results offer an insight into the factors contributing to the acceptance of SAP application. This is important to ensure a sustained usage of the system in the organisation. Information systems can help employees work more efficiently and effectively.

1 INTRODUCTION

The internet has become a new communication tool that is used as an exchange of data. The number of global Internet users increased from 23.2% in 2008 to 38.1% in 2013. With a global population of internet users totaling 2.7 billion in 2013. Then in 2014, the number of users increased to 2.9 billion and most recently in 2015, internet users increased to 3 billion. (Obeid & Ahmad, 2016). Information and Communication Technology or ICT is a media that supports data processing, information, storage, transmission, and communication through various types of facilities, especially the internet. The flexible forms of ICT enable technology not only to bring many benefits to businesses and organizations but also become part of the movement of the organization's activities. The willingness of people to use ICT is influenced by social interaction and human factors. The development of ICTs that so fast causes various forms of knowledge and literacy to be obtained by humans without knowing the boundaries of the place (e.g., Home, school, work, and community) (Yu, et al., 2017).

The influence of advances in information technology on education is to open many learning methods, the community is not required to be present in the class. Information technology has made information accessible from anywhere and by / to all groups of people. Education has reached much of the world and ICT has become an integral part of human life. (Wikramanayake, 2004) In addition, the rapid development of technology, especially the use of the internet and computer technology, has brought tremendous changes to the economy, society, and culture. The basic activities used in business have evolved from manual accounting to sophisticated information technology. (Yusliza & T.Ramayah, 2012).

The influence of ICT also spread to various companies in Indonesia, one of which was PT United Tractor. PT United Tractors is a company engaged in the largest distributor of heavy equipment in Indonesia and has thousands of employees spread across the Head Office and branches in all regions of Indonesia. Within the organizational structure of PT United Tractors is the Product Support and Operations Department. Then under this Department, there is the Part Division Unit which has the main activities in the process of selling and buying. To carry out these trading activities, employees are required to use the SAP (System Application Product)

application. To access the SAP system United Tractor employees must have a single identity and password. An information system will run well if it receives acceptance from employees. The author is interested in knowing the perception of employee acceptance of SAP information system applications using the Task Acceptance Model (TAM) model.

2 LITERATURE REVIEW

2.1 Task Acceptance Model (TAM)

In the field of information system studies, there is a need for researchers to know the actual level of use or acceptance of IT systems in an organization. Some methods used to measure acceptance of an information system (Chen, et al., 2017), i.e:

a. Theory of Reasoned Action (TRA) (Kurniawan, et al., 2013) was developed by Icek Ajzen and Martin Fishbein. TRA is a model provide a conceptual framework predict individual performance in behaviour. In the TRA concept mentioned that there were two factors determine the intention to behave, viz individual attitude to behavior (attitude toward behavior) and subjective norms (subjective norms)

b. Unified Theory of Acceptance and Use of Technology (UTAUT) (Hendrawati, 2013), In the UTAUT research model, the intention to behave (behavioral intention) and behavior to use technology (use behavior) is influenced by people's perceptions of performance expectations, business expectations (efficiency expectancy), social influence, and facilitating conditions which are moderated by gender (gender), age (age), experience (voluntary), and voluntariness.

c. Theory of Planned Behavior (TPB), is the development of the Theory of Reasoned Action (TRA). In this TPB a construct of perceived behavioral control was added. This construct explains that an individual has a great possibility to adopt a behavior if the individual has a positive attitude towards the behavior and gets approval from other individuals who are close and related to the behavior and believe that the behavior can be done with (Seni & Ratnadi, 2017)

d. Technology Acceptance Model (TAM) is a model for measuring the acceptance of an information system by a user or users. TAM was developed by Davis (1989) who adapted the Theory of Reasoned Action (TRA) model made by Ajzen.
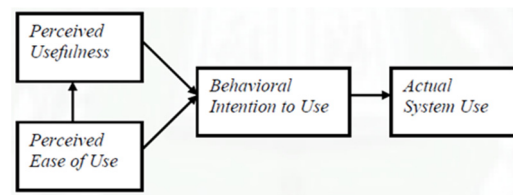

Figure 1: Technology Acceptance Model (Davis et.al 1989)

Based on figure 1 there are four components of TAM, namely: ease to use, perception of usefulness, behavioral intention to use and actual system use and (Pindeh, et al., 2016). In this paper, the author will only focus on the perception of ease to use, usefulness perceptions.

2.2 Perceived Usefulness (PU)

In addition, Perceived of Usefulness (PU) (Misron, et al., 2011) can specifically be defined to what extent an information system can improve individual performance on the job. In general, individuals tend to adapt to new technologies if they find it useful to achieve certain goals and help them to do their jobs better.

2.3 Perceived Ease of Use (PEOU)

Davis (1989) defines PEOU as the extent to which users believe that using the system is free of effort. PEOU, unlike PU, is more related to individual intrinsic motivation. The concept of perceived ease of use shows the level at which someone believes that the use of an information system is easy and does not require the effort of the user to be able to use it. This concept includes the clarity of the purpose of using an information and convenience system for users. In a study related to information systems, the higher of ease to use received by users information system, will increase level of perceived usefulness by the users of system. (Osama Isaac, 2016)

3 METHODOLOGY

The method used in this research is descriptive method of analysis with quantitative approach. Descriptive method of analysis is a method that aims to describe or give an idea of a research object that is examined through samples or data that have been. Descriptive research is research conducted to find out the existence of independent variables, either one or more variables (independent) without making

comparisons or connecting with other variables (Sugiyono, 2009).

To collected data, the author uses a questionnaire with the Likert Scale. Likert scale is used by researchers due to its simplicity in applied in social science. Likert scale has four or more question items combined to form a score/value that represents the nature of the individual, for example knowledge, attitudes, and behavior. (Budiaji, 2013).

This questionnaire adopted from Davis research. Respondent in this research is SAP users in the Division of Spare Part Unit. The answer consists of four choices, namely: Strongly Agree (SS), Agree (S), Disagree (TS), and Strongly Disagree (STS). Scoring for Strongly Agree (SS) answers are given a value of 4, and so on decreases until the Strongly Disagree (STS) answer is given a value of 1.

The data analysis technique used in this research is descriptive statistical analysis with steps which is done as follows:
1. Determine the maximum score (SM), namely: the ideal score achieved in an answer.

$$\sum SM = \text{The highest score of Likert Scale x} \quad (1)$$
$$\text{number of respondents.}$$

Example; total respondents are 10, then multiply by the highest likert scale, obtained 40

2. Determine the total score obtained (SO), namely: The total results of data collection from respondents' choices.
$$\sum SO = \text{choice of likert scale by} \quad (2)$$
$$\text{respondents x number of respondents}$$

Example: total respondents 10, 5 people choose likert scale 3, 5 people choose likert scale 4
$$\sum SO = (3 \times 5) + (4 \times 5)$$
$$= 15 + 20$$
$$= 35$$

3. Determine the competency gap percentages (P) with this formula:
$$P = \frac{\sum SO}{\sum SM} \quad (3)$$

The calculation results are classified into four categories, as follow table:

Table 1: Criteria Level

Interval (%)	Category
>= 81,25 %- 100 %	Strongly Agree
>= 62,50 %- <81,25 %	Agree
>= 43,75 %- <62,50 %	Disagree
>= 25 %- <43,75 %	Strongly Disagree

4 RESULTS AND DISCUSSION

4.1 Respondent

Table 2: Description of Respondents

Variables	N (%)
Age	
20-30 years	24 (88.9)
31-40 years	2 (7.4)
>41 years	1 (3.7)
Sex	
Male	23 (85.2)
Female	4 (14.8)
Education	
High School	1 (3.7)
Associate Degree (D3)	16 (59.3)
Bachelor's degree (S1)	8 (29.6)
Postgraduate (S2)	2 (7.4)
Length of Work	
6–12 months	5 (18.6)
> 12 months	11 (40.7)
< 6 months	11 (40.7)

As shown in Table 2, 88.9% of respondents were in the age range of 20-30 years. Then as many as 7.4% of the respondents were at the age range of 31-40 years and as many as 3.7% aged over 41 years. Then as many twenty three (85.2%) respondents were male and four (14.8%) respondents were female.

For education indicators as many as one (3.7%) respondents had high school (SMA/K) education, sixteen (59.3%) had D3 education, eight (29.6%), had S1 education, and two (11.1%) had S2 education. As shown in table 1, five (18.6%) respondents had been working for 6–12 months, eleven (40.7%) for more than 12 months, and eleven (40.7%) for less than 6 months.

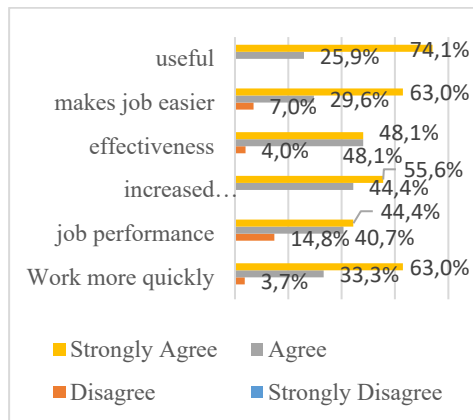## 4.2 Perceived Usefulness of SAP Information Systems

Figure 2: Percentage Perceived of Usefulness

Based on figure 2, it can be seen the distribution of respondents' answers to indicators of perception of usefulness. The majority of respondents chose the answer "strongly agree" with these indicators. But there is one indicator that needs improve: information systems can increase "job performance", score "disagree" of 14.8 percent.

Using data analysis techniques the total score obtained (SO) of 572. While the maximum score (SM) of 648, so the percentage gap score (P) for totally six indicator of 88 percent. With the percentage obtained, indicator perceived "usefulness" categorized "Strongly Agree."

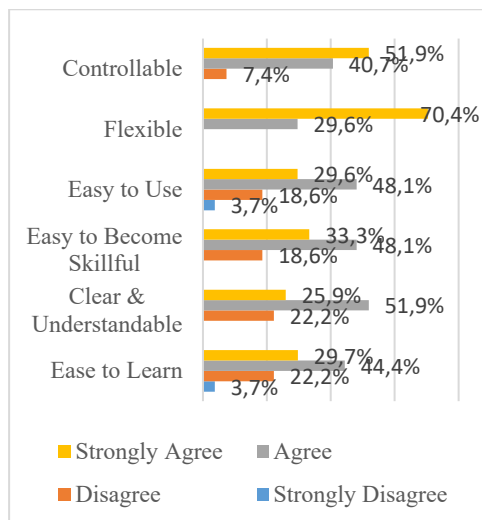## 4.3 Perceived Easy to Use of SAP Information Systems

Figure 3; Percentage Perceived Easy to Use

Based on figure 3, it can be seen the distribution of respondents' answers to indicators of perception of easy of use. The majority of respondents choose the answer "agree" with these indicators. There are 2 indicators that require improve that is "easy to use" and "easy to learn" because there is a "strongly disagree" score of 3.7 percent. Company need to conduct intensive training to the use SAP information system.

Using data analysis techniques the total score obtained (SO) of 522. While the maximum score (SM) of 648, so the percentage gap score (P) for totally six indicator of 81 percent. With the percentage obtained, indicator "easy to use" categorized "Agree".

5 CONCLUSIONS

Based on results the research of Technology Acceptance Model (TAM) with 2 indicators, namely; perceived ease to use and perceived usefulness, majority of the respondents answered between "Agree" to "Strongly Agree".

It can be concluded that the respondent accepts the application of SAP management information systems at United Tractor. This paper is preliminary research, that's descriptive research. This paper needs to proceed to the statistical method (multiple regression), especially the influence of PEOU and PU on acceptance of IT.

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