

## The Critical Success Factors for the Use of Information Systems and its Impact on the Organizational Performance

<sup>1</sup>Sri Mulyani, <sup>2</sup>Rohail Hassan and <sup>1</sup>Fajar Anugrah

<sup>1</sup>Department of Accounting, Faculty of Economics and Business,  
Universitas Padjadjaran, 40132 Bandung, Jawa Barat, Indonesia

<sup>2</sup>Department of Management and Humanities, Universiti Teknologi Petronas,  
32610 Bandar Seri Iskandar, Perak Darul Ridzuan, Malaysia

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**Abstract:** This study examines that how much the influence of self-efficacy, personal attitude and subjective norms partially to AIS and the influence of AIS affected by self-efficacy, personal attitude and subjective norms to the organization's performance. This study uses descriptive analytic research method and SEM-PLS statistic method. Data is collected from questionnaire distributed and returned from the employees of Accounting Department on Government-Owned Company in Fertilizer Industry as respondent. The results indicate a positive influence of self-efficacy, personal attitude and subjective norms to information system and a positive influence of information system affected by self-efficacy, personal attitude and subjective norms to the organization performance.

**Key words:** Self-efficacy, personal attitude, subjective norms, accounting information system, organization's performance

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### INTRODUCTION

**Background research:** Information system nowadays is something that cannot be separated from business practices. Information system has a role in supporting business through the value chain and the efficiency of business processes (Laudon and Laudon, 2001). The business also supported by the user of information technology who is interacted with the information system through the collection, processing, storing and using of data as well as information. Whitten and Dittman (2001) revealed "Information system is an arrangement of people, data, processes and information technology that interact to collect, process, store and provide as output the information needed to support the organization." According to the definition, it could be known that there are four points which organized in an information system those are people (human resources), data, process and information technology. Sri Mulyani stated that an accounting information systems consist of many components, namely: hardware, brain ware, procedure, database, software, infrastructure of information technology, internal control and security measures and performance of system developer. Those things are interacted to build a synergy related one to each other. The interactions among those arrangements are intended to support the organization. Laudon and

Laudon (2001) stated that the organization could be divided into four basic functions which are sales and marketing, manufacturing and production, finance and accounting and human resources.

In this study, the context of the business' function that supports the organization is limited on the accounting function. According to Joshi argued that first accounting business function then the information system is used. According to Romney and Steinbart, the information system supports the organization by means of improving the quality and reducing the costs of products or services, improving efficiency, sharing knowledge, improving the efficiency and effectiveness of its supply chain, improving the internal control structure and improving decision making. Users of information system consist of the employees of Accounting Department as a party who input the data; accounting manager as user of information system output, finance manager as financial decision maker and external entity as the users of financial reports. Generally, the impact on the organization performance is affected by system use and user satisfaction. It can be said that the impact on the organization performance influenced by information system users and user satisfaction through the information system. The system use is influenced by system quality, information quality and service quality (Petter *et al.*, 2008).

Many studies have researched those connections (DeLone and McLean, 2003), however, it seldom examined the influence of individual aspect and social aspect towards the use of the system whereas the social and the individual aspects are important to be considered (Petter *et al.*, 2012). The social aspects meant by researcher are the subjective norms and individual aspects meant by researcher are self-efficacy and personal attitudes. According to DeLone, there is strong support that self-efficacy and personal attitudes influenced on system use and various supports that subjective norms influenced on system use. This study examined in accordance with suggestions for future research of DeLone that if future research wants to examine the use of information systems, consider social aspects and individual aspects. The use of information system will always involve individual aspects and social aspects due to the involvements of users of information system. In addition to technical aspects such as quality systems, quality of information and quality of service, we must consider the aspects that cannot measured directly and come from users of information systems itself. How the talent of the users, the values of what they believe, how their experience in using an information system, the influence by others in actions committed by users and the user confidence on their ability is a phenomenon that will always be inherent in the use of information systems that is the use of information system.

The level of the use of information system has to understand in the environment either is using software is a mandatory stuff or voluntary stuff. When the use of software is mandatory then someone attitude through the software they used will affect significantly on how they use the software. Either mandatory or not, the confidence of someone towards the ability they have will be inherent on the user's desire to participate in using the software. When the use of software is voluntary, then the influence from environment become the main factor which will affect the use of the software (Bandura, 1977). In Indonesia, fertilizer industry handled by state-owned enterprise which incorporated in the parent company that is PT Pupuk Indonesia (Persero). PT Pupuk Indonesia (Persero) is the largest fertilizer producer in Southeast Asia with total assets in 2013 amounted to Rp. 64.8 trillion and total fertilizer production capacity reached 12.6 million per year. Up to the month of June 2014, one of the subsidiaries of PT Pupuk Indonesia namely PT Pusri managed to export 41,747 tons of urea (industri.bisnis.com, accessed December 15, 2014). In terms of government subsidies on products sold by the state-owned enterprises of Indonesian fertilizer industry, fertilizer industries in Indonesia are arguably great.

**Identification of problems:** Problems that are addressed are does self-efficacy has positive effect on the use of information system? Does personal attitude has positive effect on the use of information system? Do subjective norms have positive effect on the use of information system? Does the use of information system has positive influence on organizational performance? Literature has long recognized the human capital as one of those catalysts for SMEs superior performance as well as national economic growth in large organizations (Okpala and Chidi, 2010), human capital or resource is the greatest asset at the disposal of organizations. Reviews on previous literature show that there are limited numbers of studies that focuses on the link between Human Capital (HC) and Human Resource Management (HRM) practices in the context of SME. Majority of these studies often neglect the role played in accordance to HRM practices in enhancing employees' human capital (Baptista *et al.*, 2014). Therefore, this study is embarked to identify the dimensions of employees HC and to explore the extent to which HRM practices support HC development.

#### **Literature review**

**Self-efficacy:** Self-efficacy is the belief that one can successfully commit the behavior required to produce a result (Bandura, 1977). Expectations toward the self-ability determine whether particular behavior will be implemented, how much effort will be deployed and how long the behavior is done when faced with obstacles and unpleasant experience. Perseverance in activities considered dangerous but actually safe, through experience and mastery will further increase the self-efficacy and reduce self-defensive behavior. Expectations of self-efficacy derived from four main sources of information: performance accomplishment, vicarious experience, verbal persuasion and physiological states. The more the four main sources of information are reliable, the greater the confidence in the ability of self (greater self-efficacy).

**Personal attitude:** According to Miller (2005), attitude is the accumulation of beliefs about certain behaviors measured by the evaluation of these beliefs. Personal attitude refers to the attitude held by individuals. Attitude can also be defined as a psychological tendency to evaluate the entity or behavior (Norton *et al.*, 2005), positive or negative feelings toward a person's behavior in the workplace (Ajzen and Fishbein, 1972), cognitive perspective focuses on the use of the system to add to the performance of the work (Davis, 1986) and the user wishes to use the system (Mathieson, 1991). As observed by Crites *et al.* (1994), evaluative assessment and

responses can be divided into three categories, namely affective, cognitive and behavioral. Since, the attitude used to predict the intentions and behavior, then the researchers did not include behavioral components. Therefore, the attitude consists of two components, namely the attitude of affective and cognitive attitudes. Attitude affective component refers to the emotions and feelings of the interesting target while the cognitive component reflects the beliefs and thoughts of the destination target (Norton *et al.*, 2005). The second component is very important to predict the intentions (French *et al.*, 2005). Theory of reasoned action is a theory revealed that the intention of someone to do something is influenced by the attitude (attitude) and subjective norm (subjective norms) these people feel towards activities that will be undertaken (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980). According to this theory, if someone has a positive attitude towards a behavior and if someone thinks that the person he loved wanted him behave in a certain desire then that person will have a high intention to behave in such and will eventually do so.

**Subjective norms:** According to Taneja, subjective norms is defined as an individual assessment of significant others' expectations in terms of behavior committed by individuals. In the theory of planned behavior, subjective norm is defined as seeing people's influence on someone's social environment on his behavioral intentions; confidence vote, weighted by the importance of one attribute to each of their opinion, would affect a person's behavior intention. Ajzen found that subjective norm is perceived social pressure to engage or not engage in the behavior. Subjective norm is assumed to be determined by the total set of normative beliefs of others' significant expectation. In particular, the strength of each normative belief weighed by the motivation to comply others by significantly and then aggregated.

**Use of accounting information systems:** DeLone McLean's Model of Information System Success (DM Model) is a model that describes the relationship of interdependence and multidimensional factors that influence a successful information system (DeLone and McLean, 1992). DM Model consists of six factors, namely system quality, information quality, use, user satisfaction, individual impact and organizational impact. In the development dimensions of the new DM Model stated by Petter *et al.* (2008) are system quality, information quality, service quality, system use, user satisfaction and net benefits. Romney and Steinbart says that the system is a collection of two or more components are interrelated and

interact to achieve the goal while Wilkinson says that a system of which has the following characteristics: "Have a system's objective", "Have Input, Process and Output", "Environment", "Barrier", "Subsystem", "Network System", "Have Constraint" and "Control".

**Impact on the organizational performance:** The impact on the performance of the organization is the context of net benefits. Mirani and Lederer developed a 33-item instrument for measuring organizational benefits derived from IS projects. Their measurement framework consists of three categories of benefits of the organization: strategic, informational and transactional. Strategic benefits are further subdivided into a competitive advantage, alignment and customer relations. Benefit information including access to information, quality of information and the flexibility of information and finally, transactional benefits that including communication efficiency, the efficiency of system development and business efficiency.

**Framework of the study:** The framework of this study based on the DeLone and McLean's Model of Information Success as shown in Fig. 1.

It can be seen that the use and user satisfaction directly affect net benefits. The above model describes the system use is affected by the system quality, information quality and service quality. Researchers do not put everything into this study in accordance with the arguments that have discussed in introduction and literature part of the study.

**The influence of self-efficacy against the use of information systems:** Based on the extension images of DeLone and McLean's Model of Information Success that systems use can also be affected by the six aspects such as task, user, social, project organizational and technology. However, researchers took two they are user and social. User aspect in this study is called the individual aspect. The reason for researchers took two aspects are to follow up research suggestions by Petter *et al.* (2012) and suggestions by DeLone. Self-efficacy influences the use of information systems in

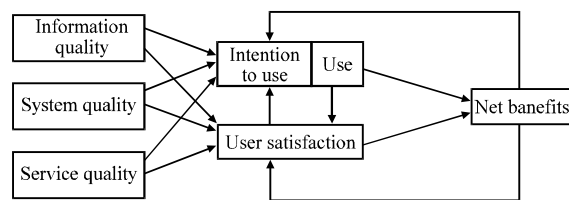


Fig. 1: DeLone and McLean's Model of Information Success (Petter *et al.*, 2008)

environments that are both mandatory and voluntary. Confidence in the ability of a person who has in any case will affect how users treat what he faced.

**The influence of personal attitudes towards the use of information systems:** Personal attitude is something inherent to the human dignity. Since, human are the main actors in the use of information systems. The researchers argued that there is an influence on the attitude towards the use of information systems. On the use of information systems mandatory, attitude towards the system itself will tend to focus on the consequences resulting from lack of use of the information system. On the use of information system is voluntary, then the user attitude towards the use of information systems will focus on love or hate relationship between user experience on information technology that he had used previously with those he used recently.

**The influence of subjective norms towards the use of accounting information systems:** Subjective norms are chosen because it is the only social aspect recommended by DeLone to be further investigated. In the context of the organization, people who influenced toward someone's use of information systems are co-workers and the superiors. However, the motivation of an employee can be based on his responsibilities to the family, to the people he loves and the proof against others as well as a drive to succeed. Therefore, although, the organization of people who affect a person's use of information systems are the ones who are in the organization's environment (co-workers, superiors and subordinates) which will affect a person's use of information systems are the people who underlying his motivation.

**The impact of accounting information systems on the organizational performance:** Petter *et al.* (2008) defines net benefits as the contribution of information systems to individuals, groups organizations, industries and countries. Further research conducted by Petter *et al.* (2012) suggested that the impact on the performance of the organization (organizational impact) represents net benefits more than others. The reason the researchers choose an impact on the performance of the organization and do not choose to impact on the individual and the other is to give appropriate scope to the definition of information systems in this study. The reason the researchers chose system use as variables that affect the organization and do not choose user satisfaction is to give appropriate scope to the definition of information systems in this study. Researchers have said that the computerized information systems people directly interact

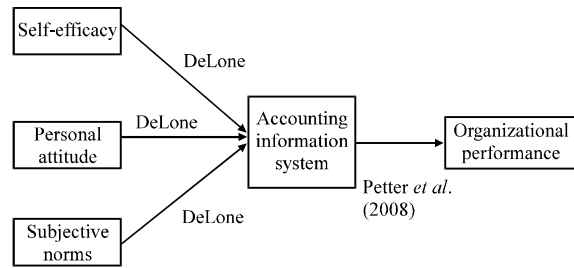


Fig. 2: Theoretical framework

with the software or in other words, there is interaction between people with information technology. Due to the use of software that is intense, then the system use can be said to represent most of the impact on the performance of the organization compared to user satisfaction. Based on the above, the model framework of this study is shown in Fig. 2.

**Research hypothesis:** Research hypothesis are as follows:

- H<sub>1</sub>: self-efficacy has positive effect on the use of information systems
- H<sub>2</sub>: personal attitude has positive effect on the use of information systems
- H<sub>3</sub>: subjective norms have positive effect on the use of information systems
- H<sub>4</sub>: the use of information systems that has influenced by self-efficacy, personal attitude and subjective norms on the performance of the organization has positive effect on the performance of the organization

## MATERIALS AND METHODS

**Research object:** The object of this study is self-efficacy, personal attitude, subjective norms, the use of information systems and the impact on organizational performance. This is in line with the opinion by Bryman and Bell (2003) which defines a variable as an object of research or what is become the center of attention in the research. The method of the research is explanatory survey method, the research done to obtain a description, picture or depicting systematically, factual and accurate of facts information, nature and the relationship between the variables studied (Sekaran, 2003). The reason the researchers choose an explanatory survey research methods because researchers wanted to find answers that is fundamentally about causality by analyzing the factors that caused particular phenomenon occurrence that is the phenomenon related

Table 1: Variable operationalization

Variables	Indicator	Scale	Description
Self-efficacy (Compeau and Higgins, 1995)	Experience Mastery	7-point Likert (ordinal)	Questions 1-10 in the questionnaire
Personal attitude (Ajzen, 2002)	Belief toward an outcome Evaluation of the outcome	7-point Likert (ordinal)	Questions 11-14 on the questionnaire
Subjective norms (Ajzen, 2002)	Beliefs of what others think What experts think Motivation to comply with others	7-point Likert (ordinal)	Questions 15-20 on the questionnaire
Use of accounting information systems (Petter <i>et al.</i> , 2008)	amount of use frequency of use nature of use appropriateness of use extent of use purpose of use	7-point Likert (ordinal)	Question 21-32 on the questionnaire
Impact on organizational performance	Providing benefits: Allows the provision of reports or information faster Allows access to the information Accelerate transaction cycle or shorten the product cycle Increase employee productivity or efficiency of the business	7-point Likert (ordinal)	Questions 33-40 on the questionnaire

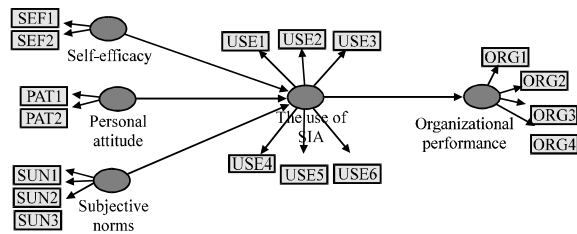


Fig. 3: SEM research

to the problems and practices of information systems at Ongoing the State Owned Fertilizer Industry (Cooper and Schindler, 2013).

**Variables operationalization**

**Data analysis:** Structural Equation Modeling (SEM) is a method of multivariate data analysis of the second generation that is able to test the additive causal models and linear models that have been supported by theories. With SEM, researchers were able to see the relationships that exist between the variables. The fact that the unobserved latent variable and difficult to measure can be used in SEM, the SEM Method is suitable for the analysis of research data. The reason researchers use a method of SEM-PLS is because this method is suitable for testing the theory, requires a small sample, tested the latent variables, there are applications to process data easily and does not require the assumption of normal distribution of data. To strengthen the argument choice of researchers, there were 65 researches in the field of information systems that have been using this

method for the same reason the researchers (Ringle *et al.*, 2012). The models in this study are as follows (Fig. 3 and Table 1).

**RESULTS**

**Research result and descriptive analysis:** Based on research data from 79 respondent questionnaires returned, obtained a descriptive overview of the self-efficacy, personal attitude, subjective norms, the use of information system and the performance of the organization in the form of a frequency table to determine the proportion of respondents in each item statement. Calculation methods for the categorization, variables based on data that have been obtained are arranged into a single table that is categorized and presented using the approach frequency distribution and percentage calculations. To know the tendency of respondents to each variable, use descriptive data analysis that is done by calculating the first score of the test on each variable. The categorization is based on the interval boundaries in the following rules:

- The maximum value = the highest score
- The minimum value = the lowest score
- Interval = (Maximum value-Minimum value)/Number of categories

**Determination for category (range):**

- The minimum value + interval = low category
- The value of low category + interval = medium category
- The value of medium category + interval = high category

Table 2: Variable categorization (research data)

Variables	The number of questions	Score max.	Score min.	N max.	N min.	Interval	Range		
							Low	Medium	High
Self-efficacy	9	7	1	63	9	18	9-27	28-45	46-63
Personal attitude	4	7	1	28	4	8	4-12	13-20	21-28
Subjective norms	6	7	1	42	6	12	6-18	19-30	31-42
The use of IS	8	7	1	56	8	16	8-24	25-40	41-56
Organizational performance	4	7	1	28	4	8	4-12	13-20	21-28

Table 3: Frequency distribution and percentage distribution

Variables	Frequency			Percentage		
	Low	Medium	High	Low	Medium	High
Self efficacy	0	36	43	0	46	54
Personal attitude	0	0	79	0	0	100
Subjective norms	4	57	18	5	72	23
The use of IS	0	38	41	0	48	52
Organizational performance	0	6	73	0	8	92

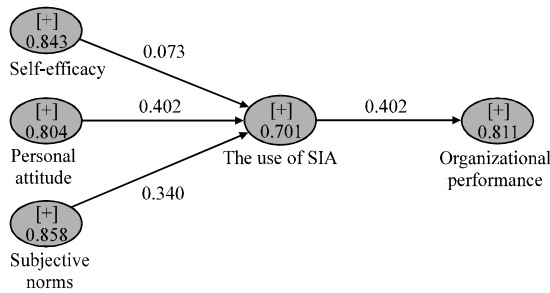


Fig. 4: Calculation results coefficient line (research data)

Based on Table 2 and 3, the majority of respondents have high levels of self-efficacy is high, all respondents have a high personal attitude and the majority of respondents have subjective norms being. Then, the majority of respondents also looked at the use of IS are at a high level and looked at the performance of the organization at a high level.

**Path coefficient analysis:** Path coefficient calculation results can be seen in Fig. 4.

**The influence of self-efficacy towards the use of IS:** The arrow of the variable self-efficacy of the use of IS shows the influence of self-efficacy variable to variable use of IS. The coefficient of the track is 0.073.

Value of 0.073 indicates that the influence of self-efficacy towards of use of IS are not significant. Each increase of 1 unit self-efficacy variables will increase the use of IS variable of 0.073. A positive number indicates that the positive changes in self-efficacy variables will make positive changes are also against the use of IS.

**The influence of personal attitude towards the use of IS:** The arrow of variable personal attitude towards the use of

IS shows the influence of personal variables attitude towards the use of variable IS. The coefficient of the track is 0.402.

Value of 0.402 indicates that the influence of personal attitude towards the use of IS are significant. Each increase of 1 unit variable will raise the personal attitude towards the use of IS of 0.402. A positive number indicates that positive changes in the attitude of personal variables will make positive changes are also against the use of IS.

**The influence of subjective norms toward the use of IS:**

The arrow of the variable subjective norms against the use of SI shows the influence of subjective variables norms against the use of variable SI. The coefficient of the track is 0.340. Value of 0.340 indicates that the influence of subjective norms on the use of IS are significant. Each increase of 1 unit of variable subjective norms will raise organizational performance variables at 0.340. A positive number indicates that positive changes in the variable subjective norms will make positive changes are also against the use of IS.

**The influence of the use of IS that has influenced by self-efficacy, personal attitude and subjective norms on the organizational performance:**

The arrow of variable use of SI on the performance of the organization shows the influence of variable use of SI to variable organizational performance. The coefficient of the track is 0.402.

Value of 0.402 indicates that the effect of the use of IS to organizational performance is significant. Each increase of 1 unit variable IS use would increase organizational performance variables at 0.402. A positive number indicates that positive changes in the variable of use of IS will make positive changes to organizational performance.

**Analysis coefficient of determination:** The coefficient of determination ( $R^2$ ) is the coefficient used to determine the contribution of independent variables to changes in the dependent variable. Figure 5 shows the coefficient of determination remedy SEM Model of research (number in a circle):

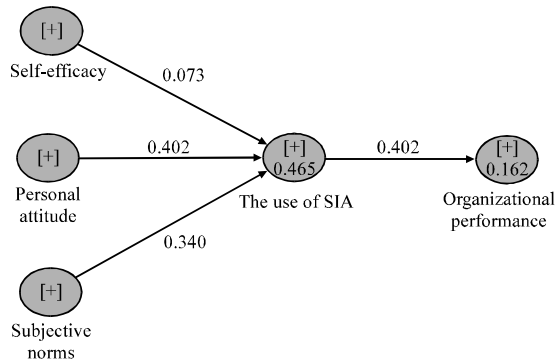


Fig. 5: Value coefficient of determination (research data)

The coefficient of determination 0.465 on the variable use of the IS has the meaning that 46.5% change in the use of IS explained or influenced by variable self-efficacy, personal attitude and subjective norms while the remaining 53.5% is influenced by other variables not examined. The coefficient of determination 0.162 on organizational performance variables means that 16.2% change in organizational performance is explained or influenced by variable use of IS while the remaining 83.8% is influenced by other variables not examined.

## DISCUSSION

The results of hypothesis testing that has been done on an attempt to solve the problem formulated in this research seen from a statistical approach. Therefore, the discussion needs to be done to confirm the hypothesis in the form of descriptive. The discussion in this study refers to the intent and purpose of the study. The intent of this study was to obtain an overview of the effects of self-efficacy, personal attitude and subjective norms on the use of information system and its impact on organizational performance. The purpose of this study was to:

- Test and determine the influence of self-efficacy of the use of information systems
- Test and determine the influence of personal attitude towards the use of information systems
- Examine and determine the influence of subjective norms on the use of information systems
- Examine and determine the influence of the use of information systems on organizational performance

**The influence of self-efficacy toward the use of IS:** Based on the research, self-efficacy provides a positive and significant effect on the use of IS. Each increase of 1 unit

self-efficacy variables will increase the use of IS of variable 0.073. This means that research H<sub>1</sub> can be accepted:

- H<sub>1</sub>: self-efficacy has a positive impact towards the use of information system

H<sub>1</sub> received in accordance with the opinion of DeLone. Self-efficacy along with personal attitude and subjective norms describe the use of IS as much as 46.5%. According to DM IS Success Model of other variables that could explain the use of IS is however not limited to user satisfaction, system quality, service quality and information quality.

### The influence of personal attitude towards the use of IS:

Based on research, personal attitude give a positive and significant impact on the use of SI. Each increase of 1 unit variable will raise the personal attitude variable SI usage of 0.402. That is acceptable H<sub>2</sub> study.

- H<sub>2</sub>: personal attitude has a positive effect towards the use of information system

H<sub>2</sub> received in accordance with the opinion of DeLone. Personal attitude along with self-efficacy and subjective norms describes the use of IS as much as 46.5%. According to DM IS Success Model of other variables that could explain the use of IS is however not limited to user satisfaction, system quality, service quality and information quality.

### The influence of subjective norms toward the use of IS:

Based on research, subjective norms provide a positive and significant effect on the use of IS. Each increase of 1 unit of variable subjective norms will raise organizational performance variables at 0.340. That is acceptable H<sub>3</sub> research.

- H<sub>3</sub>: subjective norms have a positive effect toward the use of information system

H<sub>3</sub> received in accordance with the opinion by DeLone. Personal attitude along with self-efficacy and subjective norms describes the use of IS as much as 46.5%. According to DM IS Success Model of other variables that could explain the use of IS is however not limited to user satisfaction, system quality, service quality and information quality.

**The influence of the use of is that has influenced by self-efficacy, personal attitude and subjective norms on the organizational performance:** Based on research, the

use of SI gives a positive and significant effect on the performance of the organization. Each increase of 1 unit of variable use of SI raise organizational performance variables at 0.402. That is acceptable H<sub>4</sub> research.

- H<sub>4</sub>: the use of information system has a positive effect on the organizational performance

H<sub>4</sub> are accepted in accordance with the opinion by Petter *et al.* (2008). The use of IS explain the performance of the organization as much as 16.2%. According to DM IS Success Model of other variables that may explain the performance of the organization is but not limited to user satisfaction.

### CONCLUSION

Based on the research results it can be concluded that self-efficacy has a positive effect on the use of information systems because the average respondents consider that self-efficacy that they have is already adequately and positively affect to the use of IS. Personal attitude has a positive effect on the use of information systems because the average respondents considered that personal attitude they have is already very adequate and positively affect the use of IS. Subjective norms have positive effect on the use of information systems due to average respondents that subjective norms that they have is already adequately and positively affect to the use of IS. The use of information systems that has been influenced by self-efficacy, personal attitude and subjective norms has positive effect on the performance of the organization due to the positive influence of self-efficacy, personal attitude and subjective norms on the use of information systems give a positive impact also to the effect of the use of IS on the organizational performance.

### SUGGESTIONS

After committing this research, researchers found some limitations that can be considered for further research in order to get better results: this study examines only the influence of social aspects to the use of IS and its impact on the performance of the organization on the grounds of complexity, on the other hand, if it included the technical effect, then it would make of a more comprehensive study. This study is only done on the State-owned Enterprises involved in the fertilizer industry. For further research, there are several suggestions: includes the technical the effect such system quality, information quality and service quality in research. This study is conducted on other state-owned enterprises involved in other industry.

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